2025年 5月 7日
此文件在_____收到。城市規劃委員會
只會在收到所有必要的資料及文件後才正式確認收到
申請的日期。

This document is received on 2025 -05- 07
The Town Planning Board will formally acknowledge
the date of receipt of the application only upon receipt
of all the required information and documents.

Form No. S16-I
表格第 S16-I 號

APPLICATION FOR PERMISSION UNDER SECTION 16 OF THE TOWN PLANNING ORDINANCE (CAP. 131)

根據《城市規劃條例》(第131章)第16條遞交的許可申請

Applicable to proposals not involving or not only involving:
適用於建議不涉及或不祇涉及:

(i) Construction of "New Territories Exempted House(s)";
興建「新界豁免管制屋宇」;

(ii) Temporary use/development of land and/or building not exceeding 3 years in rural areas or Regulated Areas; and
位於鄉郊地區或受規管地區土地上及/或建築物內進行為期不超過三年的臨時用途/發展;及

(iii) Renewal of permission for temporary use or development in rural areas or Regulated Areas
位於鄉郊地區或受規管地區的臨時用途或發展的許可續期

Applicant who would like to publish the notice of application in local newspapers to meet one of the Town Planning Board's requirements of taking reasonable steps to obtain consent of or give notification to the current land owner, please refer to the following link regarding publishing the notice in the designated newspapers: https://www.tpb.gov.hk/en/plan_application/apply.html

申請人如欲在本地報章刊登申請通知,以採取城市規劃委員會就取得現行土地擁有人的同意或通知現行土地擁有人所指定的其中一項合理步驟,請瀏覽以下網址有關在指定的報章刊登通知:
https://www.tpb.gov.hk/tc/plan_application/apply.html

General Note and Annotation for the Form
填寫表格的一般指引及註解

\# "Current land owner" means any person whose name is registered in the Land Registry as that of an owner of the land to which the application relates, as at 6 weeks before the application is made
「現行土地擁有人」指在提出申請前六星期,其姓名或名稱已在土地註冊處註冊為該申請所關乎的土地的擁有人的人

& Please attach documentary proof 請夾附證明文件

^ Please insert number where appropriate 請在適當地方註明編號

Please fill "NA" for inapplicable item 請在不適用的項目填寫「不適用」

Please use separate sheets if the space provided is insufficient 如所提供的空間不足,請另頁說明

Please insert a「✔」at the appropriate box 請在適當的方格內上加上「✔」號

2500939 2.5.2025 By Hand

For Official Use Only 請勿填寫此欄	Application No. 申請編號	A/TY/150
	Date Received 收到日期	2025 -05- 07

1. The completed form and supporting documents (if any) should be sent to the Secretary, Town Planning Board (the Board), 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong.
申請人須把填妥的申請表格及其他支持申請的文件 (倘有)，送交香港北角渣華道 333 號北角政府合署 15 樓城市規劃委員會(下稱「委員會」)秘書收。

2. Please read the "Guidance Notes" carefully before you fill in this form. The document can be downloaded from the Board's website at http://www.tpb.gov.hk/. It can also be obtained from the Secretariat of the Board at 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong (Tel: 2231 4810 or 2231 4835), and the Planning Enquiry Counters of the Planning Department (Hotline: 2231 5000) (17/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong and 14/F, Sha Tin Government Offices, 1 Sheung Wo Che Road, Sha Tin, New Territories).
請先細閱《申請須知》的資料單張，然後填寫此表格。該份文件可從委員會的網頁下載 (網址：http://www.tpb.gov.hk/)，亦可向委員會秘書處 (香港北角渣華道 333 號北角政府合署 15 樓 – 電話：2231 4810 或 2231 4835)及規劃署的規劃資料查詢處(熱線：2231 5000) (香港北角渣華道 333 號北角政府合署 17 樓及新界沙田上禾輋路 1 號沙田政府合署 14 樓)索取。

3. This form can be downloaded from the Board's website, and obtained from the Secretariat of the Board and the Planning Enquiry Counters of the Planning Department. The form should be typed or completed in block letters. The processing of the application may be refused if the required information or the required copies are incomplete.
此表格可從委員會的網頁下載，亦可向委員會秘書處及規劃署的規劃資料查詢處索取。申請人須以打印方式或以正楷填寫表格。如果申請人所提交的資料或文件副本不齊全，委員會可拒絕處理有關申請。

1. Name of Applicant 申請人姓名/名稱

(☐ Mr. 先生 / ☐ Mrs. 夫人 / ☐ Miss 小姐 / ☐ Ms. 女士 / ☑ Company 公司 / ☐ Organisation 機構)

Supreme Enterprises Limited

2. Name of Authorised Agent (if applicable) 獲授權代理人姓名/名稱（如適用）

(☐ Mr. 先生 / ☐ Mrs. 夫人 / ☐ Miss 小姐 / ☐ Ms. 女士 / ☑ Company 公司 / ☐ Organisation 機構)

R-riches Planning Limited

3. Application Site 申請地點

(a) Full address / location / demarcation district and lot number (if applicable) 詳細地址／地點／丈量約份及地段號碼（如適用）	Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories
(b) Site area and/or gross floor area involved 涉及的地盤面積及／或總樓面面積	☑Site area 地盤面積 4,335 sq.m 平方米 ☑About 約 ☑Gross floor area 總樓面面積 1,463 sq.m 平方米 ☑About 約
(c) Area of Government land included (if any) 所包括的政府土地面積（倘有）	1,057 sq.m 平方米 ☑About 約

(d)	Name and number of the related statutory plan(s) 有關法定圖則的名稱及編號	Approved Tsing Yi OZP No.: S/TY/32
(e)	Land use zone(s) involved 涉及的土地用途地帶	"Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, area shown as 'Road' and area not covered by statutory plan
(f)	Current use(s) 現時用途	Vacant (If there are any Government, institution or community facilities, please illustrate on plan and specify the use and gross floor area) (如有任何政府、機構或社區設施，請在圖則上顯示，並註明用途及總樓面面積)

4. "Current Land Owner" of Application Site 申請地點的「現行土地擁有人」

The applicant 申請人 –

☑ is the sole "current land owner"#& (please proceed to Part 6 and attach documentary proof of ownership).
是唯一的「現行土地擁有人」#& (請繼續填寫第 6 部分，並夾附業權證明文件)。

☐ is one of the "current land owners"#& (please attach documentary proof of ownership).
是其中一名「現行土地擁有人」#& (請夾附業權證明文件)。

☐ is not a "current land owner"#.
並不是「現行土地擁有人」#。

☐ The application site is entirely on Government land (please proceed to Part 6).
申請地點完全位於政府土地上（請繼續填寫第 6 部分）。

5. Statement on Owner's Consent/Notification
就土地擁有人的同意/通知土地擁有人的陳述

(a) According to the record(s) of the Land Registry as at ..... (DD/MM/YYYY), this application involves a total of ..... "current land owner(s)"#.
根據土地註冊處截至 ..... 年 ..... 月 ..... 日的記錄，這宗申請共牽涉 ..... 名「現行土地擁有人」#。

(b) The applicant 申請人 –

☐ has obtained consent(s) of ..... "current land owner(s)"#.
已取得 ..... 名「現行土地擁有人」#的同意。

Details of consent of "current land owner(s)"# obtained 取得「現行土地擁有人」#同意的詳情		
No. of 'Current Land Owner(s)' 「現行土地擁有人」數目	Lot number/address of premises as shown in the record of the Land Registry where consent(s) has/have been obtained 根據土地註冊處記錄已獲得同意的地段號碼／處所地址	Date of consent obtained (DD/MM/YYYY) 取得同意的日期 (日/月/年)

(Please use separate sheets if the space of any box above is insufficient. 如上列任何方格的空間不足，請另頁說明)

☐ has notified ..... "current land owner(s)"#
已通知 ..... 名「現行土地擁有人」#。

Details of the "current land owner(s)" # notified 已獲通知「現行土地擁有人」#的詳細資料		
No. of 'Current Land Owner(s)' 「現行土地擁有人」數目	Lot number/address of premises as shown in the record of the Land Registry where notification(s) has/have been given 根據土地註冊處記錄已發出通知的地段號碼／處所地址	Date of notification given (DD/MM/YYYY) 通知日期(日/月/年)

(Please use separate sheets if the space of any box above is insufficient. 如上列任何方格的空間不足，請另頁說明)

☐ has taken reasonable steps to obtain consent of or give notification to owner(s):
已採取合理步驟以取得土地擁有人的同意或向該人發給通知。詳情如下：

Reasonable Steps to Obtain Consent of Owner(s) 取得土地擁有人的同意所採取的合理步驟

☐ sent request for consent to the "current land owner(s)" on _____ (DD/MM/YYYY)#&
於_____(日/月/年)向每一名「現行土地擁有人」#郵遞要求同意書&

Reasonable Steps to Give Notification to Owner(s) 向土地擁有人發出通知所採取的合理步驟

☐ published notices in local newspapers on _____ (DD/MM/YYYY)&
於_____(日/月/年)在指定報章就申請刊登一次通知&

☐ posted notice in a prominent position on or near application site/premises on _____ (DD/MM/YYYY)&
於_____(日/月/年)在申請地點／申請處所或附近的顯明位置貼出關於該申請的通知&

☐ sent notice to relevant owners' corporation(s)/owners' committee(s)/mutual aid committee(s)/management office(s) or rural committee on _____ (DD/MM/YYYY)&
於_____(日/月/年)把通知寄往相關的業主立案法團/業主委員會/互助委員會或管理處，或有關的鄉事委員會&

Others 其他

☐ others (please specify)
其他（請指明）

_____

_____

_____

_____

Note: May insert more than one「✔」.
Information should be provided on the basis of each and every lot (if applicable) and premises (if any) in respect of the application.
註: 可在多於一個方格內加上「✔」號
申請人須就申請涉及的每一地段（倘適用）及處所（倘有）分別提供資料

6. Type(s) of Application 申請類別

☐ Type (i) 第(i)類 Change of use within existing building or part thereof 更改現有建築物或其部分內的用途

☐ Type (ii) 第(ii)類 Diversion of stream / excavation of land / filling of land / filling of pond as required under Notes of Statutory Plan(s) 根據法定圖則《註釋》內所要求的河道改道／挖土／填土／填塘工程

☐ Type (iii) 第(iii)類 Public utility installation / Utility installation for private project 公用事業設施裝置/私人發展計劃的公用設施裝置

☐ Type (iv) 第(iv)類 Minor relaxation of stated development restriction(s) as provided under Notes of Statutory Plan(s) 略為放寬於法定圖則《註釋》內列明的發展限制

☑ Type (v) 第(v)類 Use / development other than (i) to (iii) above 上述的(i)至(iii)項以外的用途／發展

Note 1: May insert more than one「✓」.
註 1： 可在多於一個方格內加上「✓」號
Note 2: For Development involving columbarium use, please complete the table in the Appendix.
註 2： 如發展涉及靈灰安置所用途，請填妥於附件的表格。

(i) For Type (i) application 供第(i)類申請

(a) Total floor area involved 涉及的總樓面面積	sq.m 平方米		
(b) Proposed use(s)/development 擬議用途/發展	(If there are any Government, institution or community facilities, please illustrate on plan and specify the use and gross floor area) (如有任何政府、機構或社區設施，請在圖則上顯示，並註明用途及總樓面面積)		
(c) Number of storeys involved 涉及層數		Number of units involved 涉及單位數目	
(d) Proposed floor area 擬議樓面面積	Domestic part 住用部分 ..... sq.m 平方米 ☐About 約		
	Non-domestic part 非住用部分..... sq.m 平方米 ☐About 約		
	Total 總計 ..... sq.m 平方米 ☐About 約		

(e) Proposed uses of different floors (if applicable) 不同樓層的擬議用途(如適用) (Please use separate sheets if the space provided is insufficient) (如所提供的空間不足，請另頁說明)	Floor(s) 樓層	Current use(s) 現時用途	Proposed use(s) 擬議用途

(ii) For Type (ii) application 供第(ii)類申請	
(a) Operation involved 涉及工程	☐ Diversion of stream 河道改道 ☐ Filling of pond 填塘 Area of filling 填塘面積 ..... sq.m 平方米 ☐About 約 Depth of filling 填塘深度 ..... m 米 ☐About 約 ☐ Filling of land 填土 Area of filling 填土面積 ..... sq.m 平方米 ☐About 約 Depth of filling 填土厚度 ..... m 米 ☐About 約 ☐ Excavation of land 挖土 Area of excavation 挖土面積 ..... sq.m 平方米 ☐About 約 Depth of excavation 挖土深度 ..... m 米 ☐About 約 (Please indicate on site plan the boundary of concerned land/pond(s), and particulars of stream diversion, the extent of filling of land/pond(s) and/or excavation of land) (請用圖則顯示有關土地／池塘界線，以及河道改道、填塘、填土及／或挖土的細節及/或範圍))
(b) Intended use/development 有意進行的用途／發展	

(iii) For Type (iii) application 供第(iii)類申請	
(a) Nature and scale 性質及規模	☐ Public utility installation 公用事業設施裝置 ☐ Utility installation for private project 私人發展計劃的公用設施裝置 Please specify the type and number of utility to be provided as well as the dimensions of each building/structure, where appropriate 請註明有關裝置的性質及數量，包括每座建築物/構築物(倘有)的長度、高度和闊度

Name/type of installation 裝置名稱／種類	Number of provision 數量	Dimension of each installation /building/structure (m) (LxWxH) 每個裝置／建築物／構築物的尺寸 (米) (長 x 闊 x 高)

(Please illustrate on plan the layout of the installation 請用圖則顯示裝置的布局)

(iv) For Type (iv) application 供第(iv)類申請

(a) Please specify the proposed minor relaxation of stated development restriction(s) and **also fill in the proposed use/development and development particulars in part (v) below** –
請列明擬議略為放寬的發展限制**並填妥於第(v)部分的擬議用途/發展及發展細節** –

☐	Plot ratio restriction 地積比率限制	From 由 ..... to 至 .....
☐	Gross floor area restriction 總樓面面積限制	From 由 .....sq. m 平方米 to 至 .....sq. m 平方米
☐	Site coverage restriction 上蓋面積限制	From 由 .....% to 至 ..... %
☐	Building height restriction 建築物高度限制	From 由 .....m 米 to 至 ..... m 米 From 由 ..... mPD 米 (主水平基準上) to 至 .....mPD 米 (主水平基準上) From 由 ..... storeys 層 to 至 ..... storeys 層
☐	Non-building area restriction 非建築用地限制	From 由 .....m to 至 ..... m
☐	Others (please specify) 其他（請註明）	.....

(v) For Type (v) application 供第(v)類申請

(a) Proposed use(s)/development 擬議用途/發展	Proposed Temporary Concrete Batching Plant for a Period of 5 Years (Please illustrate the details of the proposal on a layout plan 請用平面圖說明建議詳情)

(b) Development Schedule 發展細節表

Proposed gross floor area (GFA) 擬議總樓面面積	1,463 sq.m 平方米	☑About 約
Proposed plot ratio 擬議地積比率	0.45	☑About 約
Proposed site coverage 擬議上蓋面積	23 %	☑About 約
Proposed no. of blocks 擬議座數	N/A	
Proposed no. of storeys of each block 每座建築物的擬議層數	N/A storeys 層 ☐ include 包括 ..... storeys of basements 層地庫 ☐ exclude 不包括 ..... storeys of basements 層地庫	
Proposed building height of each block 每座建築物的擬議高度	..... mPD 米(主水平基準上) not more than 31 m 米	☐About 約 ☐About 約

☐ Domestic part 住用部分

GFA 總樓面面積 ..... sq. m 平方米 ☐About 約

number of Units 單位數目 .....

average unit size 單位平均面積 .....sq. m 平方米 ☐About 約

estimated number of residents 估計住客數目 .....

☑ Non-domestic part 非住用部分 — GFA 總樓面面積

☐ eating place 食肆 ..... sq. m 平方米 ☐About 約

☐ hotel 酒店 ..... sq. m 平方米 ☐About 約
(please specify the number of rooms 請註明房間數目) .....

☐ office 辦公室 ..... sq. m 平方米 ☐About 約

☐ shop and services 商店及服務行業 ..... sq. m 平方米 ☐About 約

☐ Government, institution or community facilities 政府、機構或社區設施
(please specify the use(s) and concerned land area(s)/GFA(s) 請註明用途及有關的地面面積／總樓面面積)
.....
.....
.....

☑ other(s) 其他
(please specify the use(s) and concerned land area(s)/GFA(s) 請註明用途及有關的地面面積／總樓面面積)
Concrete batching plant: 1,463 sq.m (about) with ancillary facilities
.....

☐ Open space 休憩用地 (please specify land area(s) 請註明地面面積)

☐ private open space 私人休憩用地 ..... sq. m 平方米 ☐ Not less than 不少於

☐ public open space 公眾休憩用地 ..... sq. m 平方米 ☐ Not less than 不少於

(c) Use(s) of different floors (if applicable) 各樓層的用途 (如適用)

[Block number] [座數]	[Floor(s)] [層數]	[Proposed use(s)] [擬議用途]
Please refer to the planning statement and plans.		

(d) Proposed use(s) of uncovered area (if any) 露天地方（倘有）的擬議用途

Vehicle parking, waiting and loading spaces and circulation area
.....
.....
.....
.....

7. Anticipated Completion Time of the Development Proposal 擬議發展計劃的預計完成時間

Anticipated completion time (in month and year) of the development proposal (by phase (if any)) (e.g. June 2023)
擬議發展計劃預期完成的年份及月份 (分期 (倘有)) (例：2023 年 6 月)
(Separate anticipated completion times (in month and year) should be provided for the proposed public open space and Government, institution or community facilities (if any))
(申請人須就擬議的公眾休憩用地及政府、機構或社區設施 (倘有) 提供個別擬議完成的年份及月份)

Early 2026

8. Vehicular Access Arrangement of the Development Proposal 擬議發展計劃的行車通道安排

Any vehicular access to the site/subject building? 是否有車路通往地盤／有關建築物？	Yes 是	☑ There is an existing access. (please indicate the street name, where appropriate) 有一條現有車路。(請註明車路名稱(如適用)) Accessible from Tsing Yi North Coastal Road via Tam Kon Shan Road. ☐ There is a proposed access. (please illustrate on plan and specify the width) 有一條擬議車路。（請在圖則顯示，並註明車路的闊度）
	No 否	☐
Any provision of parking space for the proposed use(s)? 是否有為擬議用途提供停車位？	Yes 是	☑ (Please specify type(s) and number(s) and illustrate on plan) 請註明種類及數目並於圖則上顯示) Private Car Parking Spaces 私家車車位: 2 Motorcycle Parking Spaces 電單車車位: 2 Light Goods Vehicle Parking Spaces 輕型貨車泊車位: N/A Medium Goods Vehicle Parking Spaces 中型貨車泊車位: N/A Heavy Goods Vehicle Parking Spaces 重型貨車泊車位: N/A Others (Please Specify) 其他 (請列明):
	No 否	☐
Any provision of loading/unloading space for the proposed use(s)? 是否有為擬議用途提供上落客貨車位？	Yes 是	☑ (Please specify type(s) and number(s) and illustrate on plan) 請註明種類及數目並於圖則上顯示) Taxi Spaces 的士車位: N/A Coach Spaces 旅遊巴車位: N/A Light Goods Vehicle Spaces 輕型貨車車位: N/A Medium Goods Vehicle Spaces 中型貨車車位: N/A Heavy Goods Vehicle Spaces 重型貨車車位: 3 (loading space) Others (Please Specify) 其他 (請列明): HGV Waiting Spaces: 12
	No 否	☐

9. Impacts of Development Proposal 擬議發展計劃的影響

If necessary, please use separate sheets to indicate the proposed measures to minimise possible adverse impacts or give justifications/reasons for not providing such measures.
如需要的話，請另頁註明可盡量減少可能出現不良影響的措施，否則請提供理據/理由。

Does the development proposal involve alteration of existing building? 擬議發展計劃是否包括現有建築物的改動?	Yes 是	☐ Please provide details 請提供詳情 ....
	No 否	☑
Does the development proposal involve the operation on the right? 擬議發展是否涉及右列的工程? (Note: where Type (ii) application is the subject of application, please skip this section. 註：如申請涉及第(ii)類申請，請跳至下一條問題。)	Yes 是	☐ (Please indicate on site plan the boundary of concerned land/pond(s), and particulars of stream diversion, the extent of filling of land/pond(s) and/or excavation of land) (請用地盤平面圖顯示有關土地／池塘界線，以及河道改道、填塘、填土及／或挖土的細節及/或範圍) ☐ Diversion of stream 河道改道 ☐ Filling of pond 填塘 Area of filling 填塘面積 ..... sq.m 平方米 ☐About 約 Depth of filling 填塘深度 ..... m 米 ☐About 約 ☐ Filling of land 填土 Area of filling 填土面積 ..... sq.m 平方米 ☐About 約 Depth of filling 填土厚度 ..... m 米 ☐About 約 ☐ Excavation of land 挖土 Area of excavation 挖土面積..... sq.m 平方米 ☐About 約 Depth of excavation 挖土深度 .....m 米 ☐About 約
	No 否	☑

Would the development proposal cause any adverse impacts? 擬議發展計劃會否造成不良影響？	On environment 對環境	Yes 會 ☐	No 不會 ☑
	On traffic 對交通	Yes 會 ☐	No 不會 ☑
	On water supply 對供水	Yes 會 ☐	No 不會 ☑
	On drainage 對排水	Yes 會 ☐	No 不會 ☑
	On slopes 對斜坡	Yes 會 ☐	No 不會 ☑
	Affected by slopes 受斜坡影響	Yes 會 ☐	No 不會 ☑
	Landscape Impact 構成景觀影響	Yes 會 ☐	No 不會 ☑
	Tree Felling 砍伐樹木	Yes 會 ☐	No 不會 ☑
	Visual Impact 構成視覺影響	Yes 會 ☐	No 不會 ☑
	Others (Please Specify) 其他 (請列明)	Yes 會 ☐	No 不會 ☑
	_____		
	_____		
	Please state measure(s) to minimise the impact(s). For tree felling, please state the number, diameter at breast height and species of the affected trees (if possible) 請註明盡量減少影響的措施。如涉及砍伐樹木，請說明受影響樹木的數目、及胸高度的樹幹直徑及品種(倘可)		

10. Justifications 理由

The applicant is invited to provide justifications in support of the application. Use separate sheets if necessary.
現請申請人提供申請理由及支持其申請的資料。如有需要，請另頁說明。

Please refer to the planning statement.

11. Declaration 聲明

I hereby declare that the particulars given in this application are correct and true to the best of my knowledge and belief.
本人謹此聲明，本人就這宗申請提交的資料，據本人所知及所信，均屬真實無誤。

I hereby grant a permission to the Board to copy all the materials submitted in this application and/or to upload such materials to the Board's website for browsing and downloading by the public free-of-charge at the Board's discretion. 本人現准許委員會酌情將本人就此申請所提交的所有資料複製及/或上載至委員會網站，供公眾免費瀏覽或下載。

Signature 簽署 ..... ☐ Applicant 申請人 / ☑ Authorised Agent 獲授權代理人

Matthew NG — Name in Block Letters 姓名（請以正楷填寫）

Director (Planning and Development) — Position (if applicable) 職位 （如適用）

Professional Qualification(s) 專業資格
☑ Member 會員 / ☐ Fellow of 資深會員
☑ HKIP 香港規劃師學會 / ☐ HKIA 香港建築師學會 /
☐ HKIS 香港測量師學會 / ☐ HKIE 香港工程師學會 /
☐ HKILA 香港園境師學會/ ☐ HKIUD 香港城市設計學會
☑ RPP 註冊專業規劃師(No. 411)
Others 其他 ..... MRTPI, MPIA, MCIP-I, CMILT

on behalf of 代表 R-riches Planning Limited

☑ Company 公司 / ☐ Organisation Name and Chop (if applicable) 機構名稱及蓋章（如適用）

Date 日期 02/05/2025 (DD/MM/YYYY 日/月/年)

Remark 備註

The materials submitted in this application and the Board's decision on the application would be disclosed to the public. Such materials would also be uploaded to the Board's website for browsing and free downloading by the public where the Board considers appropriate.
委員會會向公眾披露申請人所遞交的申請資料和委員會對申請所作的決定。在委員會認為合適的情況下，有關申請資料亦會上載至委員會網頁供公眾免費瀏覽及下載。

Warning 警告

Any person who knowingly or wilfully makes any statement or furnish any information in connection with this application, which is false in any material particular, shall be liable to an offence under the Crimes Ordinance.
任何人在明知或故意的情況下，就這宗申請提出在任何要項上是虛假的陳述或資料，即屬違反《刑事罪行條例》。

Statement on Personal Data 個人資料的聲明

1. The personal data submitted to the Board in this application will be used by the Secretary of the Board and Government departments for the following purposes:
委員會就這宗申請所收到的個人資料會交給委員會秘書及政府部門，以根據《城市規劃條例》及相關的城市規劃委員會規劃指引的規定作以下用途：
   (a) the processing of this application which includes making available the name of the applicant for public inspection when making available this application for public inspection; and
處理這宗申請，包括公布這宗申請供公眾查閱，同時公布申請人的姓名供公眾查閱；以及
   (b) facilitating communication between the applicant and the Secretary of the Board/Government departments.
方便申請人與委員會秘書及政府部門之間進行聯絡。

2. The personal data provided by the applicant in this application may also be disclosed to other persons for the purposes mentioned in paragraph 1 above.
申請人就這宗申請提供的個人資料，或亦會向其他人士披露，以作上述第 1 段提及的用途。

3. An applicant has a right of access and correction with respect to his/her personal data as provided under the Personal Data (Privacy) Ordinance (Cap. 486). Request for personal data access and correction should be addressed to the Secretary of the Board at 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong.
根據《個人資料(私隱)條例》(第 486 章)的規定，申請人有權查閱及更正其個人資料。如欲查閱及更正個人資料，應向委員會秘書提出有關要求，其地址為香港北角渣華道 333 號北角政府合署 15 樓。

For Developments involving Columbarium Use, please also complete the following:
如發展涉及靈灰安置所用途，請另外填妥以下資料:

Ash interment capacity 骨灰安放容量@

Maximum number of sets of ashes that may be interred in the niches
在龕位內最多可安放骨灰的數量 _____

Maximum number of sets of ashes that may be interred other than in niches
在非龕位的範圍內最多可安放骨灰的數量 _____

Total number of niches 龕位總數 _____

Total number of single niches
單人龕位總數 _____

Number of single niches (sold and occupied)
單人龕位數目 (已售並佔用) _____

Number of single niches (sold but unoccupied)
單人龕位數目 (已售但未佔用) _____

Number of single niches (residual for sale)
單人龕位數目 (待售) _____

Total number of double niches
雙人龕位總數 _____

Number of double niches (sold and fully occupied)
雙人龕位數目 (已售並全部佔用) _____

Number of double niches (sold and partially occupied)
雙人龕位數目 (已售並部分佔用) _____

Number of double niches (sold but unoccupied)
雙人龕位數目 (已售但未佔用) _____

Number of double niches (residual for sale)
雙人龕位數目 (待售) _____

Total no. of niches other than single or double niches (please specify type)
除單人及雙人龕位外的其他龕位總數 (請列明類別)

_____

Number. of niches (sold and fully occupied)
龕位數目 (已售並全部佔用) _____

Number of niches (sold and partially occupied)
龕位數目 (已售並部分佔用) _____

Number of niches (sold but unoccupied)
龕位數目 (已售但未佔用) _____

Number of niches (residual for sale)
龕位數目 (待售) _____

Proposed operating hours 擬議營運時間 _____

_____

@ Ash interment capacity in relation to a columbarium means –
就靈灰安置所而言，骨灰安放容量指：
- the maximum number of containers of ashes that may be interred in each niche in the columbarium;
每個龕位內可安放的骨灰容器的最高數目;
- the maximum number of sets of ashes that may be interred other than in niches in any area in the columbarium; and
在該靈灰安置所並非龕位的範圍內，總共最多可安放多少份骨灰；以及
- the total number of sets of ashes that may be interred in the columbarium.
在該骨灰安置所內，總共最多可安放多少份骨灰。

Gist of Application 申請摘要

(Please provide details in both English and Chinese as far as possible. This part will be circulated to relevant consultees, uploaded to the Town Planning Board's Website for browsing and free downloading by the public and available at the Planning Enquiry Counters of the Planning Department for general information.)
(請盡量以英文及中文填寫。此部分將會發送予相關諮詢人士、上載至城市規劃委員會網頁供公眾免費瀏覽及下載及於規劃署規劃資料查詢處供一般參閱。)

Application No. 申請編號	(For Official Use Only) (請勿填寫此欄)
Location/address 位置／地址	Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories
Site area 地盤面積	4,335 sq. m 平方米 ☑ About 約 (includes Government land of 包括政府土地 1,057 sq. m 平方米 ☑ About 約)
Plan 圖則	Approved Tsing Yi OZP No.: S/TY/32
Zoning 地帶	"Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, area shown as 'Road' and area not covered by statutory plan
Applied use/ development 申請用途/發展	Proposed Temporary Concrete Batching Plant for a Period of 5 Years

		sq.m 平方米	Plot Ratio 地積比率
(i) Gross floor area and/or plot ratio 總樓面面積及／或地積比率	Domestic 住用	N/A ☐ About 約 ☐ Not more than 不多於	N/A ☐About 約 ☐Not more than 不多於
	Non-domestic 非住用	1,463 ☑ About 約 ☐ Not more than 不多於	0.45 ☑About 約 ☐Not more than 不多於
(ii) No. of blocks 幢數	Domestic 住用	N/A	
	Non-domestic 非住用	N/A	
	Composite 綜合用途	N/A	

(iii)	Building height/No. of storeys 建築物高度／層數	Domestic 住用	N/A	m 米 ☐ (Not more than 不多於)
			N/A	mPD 米(主水平基準上) ☐ (Not more than 不多於)
			N/A	Storeys(s) 層 ☐ (Not more than 不多於) *(☐Include 包括/☐ Exclude 不包括* ☐ *Carport 停車間* ☐ *Basement 地庫* ☐ *Refuge Floor 防火層* ☐ *Podium 平台)*
		Non-domestic 非住用	31	m 米 ☑ (Not more than 不多於)
			N/A	mPD 米(主水平基準上) ☐ (Not more than 不多於)
			N/A	Storeys(s) 層 ☐ (Not more than 不多於) *(☐Include 包括/☐ Exclude 不包括* ☐ *Carport 停車間* ☐ *Basement 地庫* ☐ *Refuge Floor 防火層* ☐ *Podium 平台)*
		Composite 綜合用途	N/A	m 米 ☐ (Not more than 不多於)
			N/A	mPD 米(主水平基準上) ☐ (Not more than 不多於)
			N/A	Storeys(s) 層 ☐ (Not more than 不多於) *(☐Include 包括/☐ Exclude 不包括* ☐ *Carport 停車間* ☐ *Basement 地庫* ☐ *Refuge Floor 防火層* ☐ *Podium 平台)*
(iv)	Site coverage 上蓋面積		23	% ☑ About 約
(v)	No. of units 單位數目		N/A	
(vi)	Open space 休憩用地	Private 私人	N/A	sq.m 平方米 ☐ Not less than 不少於
		Public 公眾	N/A	sq.m 平方米 ☐ Not less than 不少於

(vii) No. of parking spaces and loading / unloading spaces 停車位及上落客貨車位數目	Total no. of vehicle parking spaces 停車位總數	4
	Private Car Parking Spaces 私家車車位	2
	Motorcycle Parking Spaces 電單車車位	2
	Light Goods Vehicle Parking Spaces 輕型貨車泊車位	N/A
	Medium Goods Vehicle Parking Spaces 中型貨車泊車位	N/A
	Heavy Goods Vehicle Parking Spaces 重型貨車泊車位	N/A
	Others (Please Specify) 其他 (請列明)	
	Total no. of vehicle loading/unloading bays/lay-bys 上落客貨車位／停車處總數	15
	Taxi Spaces 的士車位	N/A
	Coach Spaces 旅遊巴車位	N/A
	Light Goods Vehicle Spaces 輕型貨車車位	N/A
	Medium Goods Vehicle Spaces 中型貨車位	N/A
	Heavy Goods Vehicle Spaces 重型貨車車位	3 (loading space)
	Others (Please Specify) 其他 (請列明)	
	HGV Waiting Spaces	12

Submitted Plans, Drawings and Documents 提交的圖則、繪圖及文件

	Chinese 中文	English 英文
Plans and Drawings 圖則及繪圖		
Master layout plan(s)/Layout plan(s) 總綱發展藍圖／布局設計圖	☐	☑
Block plan(s) 樓宇位置圖	☐	☐
Floor plan(s) 樓宇平面圖	☐	☐
Sectional plan(s) 截視圖	☐	☑
Elevation(s) 立視圖	☐	☑
Photomontage(s) showing the proposed development 顯示擬議發展的合成照片	☐	☐
Master landscape plan(s)/Landscape plan(s) 園境設計總圖／園境設計圖	☐	☐
Others (please specify) 其他（請註明）	☐	☑
Location plan, Plan showing the zoning plan and land status of the application site		
Aerial photo of the application site		
Reports 報告書		
Planning Statement/Justifications 規劃綱領/理據	☐	☑
Environmental assessment (noise, air and/or water pollutions) 環境評估（噪音、空氣及／或水的污染）	☐	☑
Traffic impact assessment (on vehicles) 就車輛的交通影響評估	☐	☑
Traffic impact assessment (on pedestrians) 就行人的交通影響評估	☐	☐
Visual impact assessment 視覺影響評估	☐	☐
Landscape impact assessment 景觀影響評估	☐	☐
Tree Survey 樹木調查	☐	☐
Geotechnical impact assessment 土力影響評估	☐	☐
Drainage impact assessment 排水影響評估	☐	☑
Sewerage impact assessment 排污影響評估	☐	☑
Risk Assessment 風險評估	☐	☐
Others (please specify) 其他（請註明）	☐	☑
Barging operation plan		

Note: May insert more than one「✔」. 註：可在多於一個方格內加上「✔」號

Note: The information in the Gist of Application above is provided by the applicant for easy reference of the general public. Under no circumstances will the Town Planning Board accept any liabilities for the use of the information nor any inaccuracies or discrepancies of the information provided. In case of doubt, reference should always be made to the submission of the applicant.

註： 上述申請摘要的資料是由申請人提供以方便市民大眾參考。對於所載資料在使用上的問題及文義上的歧異，城市規劃委員會概不負責。若有任何疑問，應查閱申請人提交的文件。

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SECTION 16 PLANNING APPLICATION

PROPOSED TEMPORARY CONCRETE BATCHING PLANT FOR A PERIOD OF 5 YEARS IN "OTHER SPECIFIED USES" ANNOTATED "BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES" ZONE, AREA SHOWN AS 'ROAD' AND AREA NOT COVERED BY STATUTORY PLAN

TSING YI TOWN LOTS 14 AND 15 AND ADJOINING GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

PLANNING STATEMENT

Applicant
Supreme Enterprises Limited

Consultancy Team

Planning Consultant:	**R-riches Planning Limited**
Architectural Consultant:	**Civic Consultancy Limited**
Drainage Consultant:	**AXON Engineering and Consulting Limited**
Environmental Consultant:	**AECOM Asia Company Limited**
Marine Traffic Consultant:	**AXON Engineering and Consulting Limited**
Sewerage Consultant:	**AXON Engineering and Consulting Limited**
Traffic Consultant:	**AXON Engineering and Consulting Limited**

R-RICHES PLANNING LIMITED

April 2025
Version 1.0

FILE CONTROL

FILE NAME	:	*TYTL 14, 15 - Planning Statement (20250428) Ver1.0*
FILE LOCATION	:	*\\R-SERVER\Planning\Planning Application\TYTL14, 15 – Concrete Batching Plant in TY\Submission (Apr 25)\Planning Statement*
REVISION NO.	:	*1.0*
APPLICANT	:	*Supreme Enterprises Limited*
TYPE OF APPLICATION	:	*S.16 Planning Application*
PROPOSED USE	:	*Proposed Temporary Concrete Batching Plant for a Period of 5 Years*
SITE LOCATION	:	*Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories*

AMENDMENT RECORD

REVISION NO.	DESCRIPTION	APPROVED BY (Date)	REVIEWED BY (Date)	PREPARED BY (Date)
1.0	Final Report	BT (20250428)	MN (20250428)	CC (20250422)

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EXECUTIVE SUMMARY

- The applicant seeks planning permission from the Town Planning Board (the Board) under Section (S.) 16 of the Town Planning Ordinance (Cap. 131) to use *Tsing Yi Town Lots 14 and 15 and adjoining Government Land (GL) Tam Kon Shan Road, Tsing Yi, New Territories* (the Site) for '**Proposed Temporary Concrete Batching Plant (CBP) for a Period of 5 Years**' (the proposed development).

- The Site partly falls within an area zoned "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" ("OU(BMIU)"), area shown as 'Road' on the Approved Tsing Yi Outline Zoning Plan (OZP) No.: S/TY/32, and partly falls within area not covered by any statutory plan.

- The Site occupies an area of 4,335 m^2 (about), including 1,057 m^2 (about) of GL. A CBP with ancillary supporting facilities (with total gross floor area (GFA) of 1,463 m^2 (about) and building height of not exceeding 31 m) is proposed at the Site. The remaining area is reserved for vehicle parking, waiting and loading spaces and circulation area.

- The Site is accessible from Tsing Yi North Coastal Road via Tam Kon Shan Road. The normal operation hours of the proposed CBP are 07:00 to 21:00 daily.

- Justifications for the proposed development are as follows:
  - *the proposed development meets the increasing demand of local ready-mixed concrete to support the development of various New Development Areas (NDAs);*
  - *the proposed development supports public housing developments and other public/private development and redevelopment projects;*
  - *the Site is highly accessible to various development areas via existing highway network;*
  - *the proposed development advances sustainable development through low-carbon strategies and innovative products;*
  - *the proposed development is not incompatible with surrounding land uses;*
  - *no significant adverse impact is anticipated from the proposed development; and*
  - *the proposed development is only on a temporary basis, approval of the application will not frustrate the long-term planning intention of the "OU(BMIU)" zone.*

- Details of development parameters are as follows:

Site Area	4,335 m^2 (about), including GL of 1,057 m^2 (about)
Covered Area	738 m^2 (about)
Uncovered Area	3,597 m^2 (about)
Plot Ratio (PR)	0.45 (about)
Site Coverage (SC)	23% (about)
Total GFA - *Domestic GFA* - *Non-Domestic GFA*	1,463 m^2 (about) *Not applicable* *1,463 m^2 (about)*
Building Height	Not exceeding 31 m

**Only area of the private lots (i.e. about 3,278 m^2) was adopted for the calculation of PR and SC*

行政摘要（*內文如與英文版本有任何差異，應以英文版本為準*）

- 申請人現根據《城市規劃條例》（第 131 章）第 16 條，向城市規劃委員會提交有關*新界青衣担桿山路青衣市地段第 14 號及第 15 號和毗連政府土地*（申請場地）的規劃申請，於上述地點作「**擬議臨時混凝土配料廠（為期 5 年）**」（擬議發展）。

- 申請地點所在的部分地區在《青衣分區計劃大綱核准圖編號 S/TY/32》上劃為「其他指定用途」註明「船廠及依靠海運之工業用途」地帶及顯示為「道路」，而部分地區則位於該規劃大綱圖涵蓋之範圍以外。

- 申請地盤面積為 4,335 平方米（約），包括 1,057 平方米（約）的政府土地。申請地點將設有混凝土配料廠及其他附屬設施，總樓面面積為 1,463 平方米（約），構築物高度不多於 31 米。申請地點的其餘地方將預留作車輛停泊、等候和上落貨位及流轉空間。

- 申請地點可從青衣北岸公路經担桿山路前往。擬議發展的作業時間為每日上午七時至下午九時。

- 擬議發展的申請理據如下：
  - *擬議發展可提升本地預拌混凝土的供應，以支持各新發展區的發展；*
  - *擬議發展支持公營房屋發展及其他公共／私人發展和重建項目；*
  - *申請場地與各發展區之間可透過快速公路網絡高效連接；*
  - *擬議發展可透過低碳及創新生產模式推進永續發展；*
  - *擬議發展與周邊地方的用途並非不協調；*
  - *擬議發展不會對周邊地區帶來重大負面影響；及*
  - *擬議發展只屬臨時性質，批出規劃許可不會影響「其他指定用途」註明「船廠及依靠海運之工業用途」地帶的長遠規劃意向。*

- 擬議發展的詳情發展參數如下：

申請場地面積：	4,335 平方米（約）， 包括 1,057 平方米（約）的政府土地
上蓋總面積：	738 平方米（約）
露天地方面積：	3,597 平方米（約）
地積比率：	0.45（約）
上蓋覆蓋率：	23%（約）
總樓面面積 *住用總樓面面積：* *非住用總樓面面積：*	1,463 平方米（約） *不適用* *1,463 平方米（約）*
構築物高度：	不多於 31 米

＊ 就地積比率及上蓋覆蓋率而言，有關計算只採納私人地段之土地面積(約 3,278 平方米)

1. INTRODUCTION

Background

1.1 **R-riches Planning Limited** has been commissioned by **Supreme Enterprises Limited** (the applicant) to make submission on their behalf to the Board under S.16 of the Ordinance in respect to *Tsing Yi Town Lots 14 and 15 and adjoining GL, Tam Kon Shan Road, Tsing Yi, New Territories* (**Plans 1** to **3**).

1.2 The applicant would like to use the Site for '**Proposed Temporary Concrete Batching Plant for a Period of 5 Years**'. The Site partly falls within an area zoned "OU(BMIU)" and an area shown as 'Road' on the Approved Tsing Yi OZP No.: S/TY/32, and partly falls outside the OZP planning scheme boundary (**Plan 2**). According to the Notes of the OZP, the applied use is a Column 2 use within the "OU(BMIU)" zone, which requires planning permission from the Board.

1.3 In support of the proposal, a set of indicative development plans and drawings are provided with the planning statement (**Plans 1** to **6**). Assessments and proposals (i.e. Barging Operation Plan, Traffic Impact Assessment (TIA), Environmental Assessment (EA), Drainage Impact Assessment (DIA) and Sewerage Impact Assessment (SIA) reports to mitigate potential adverse impacts are submitted for the consideration of relevant Government Bureaux/Departments and members of the Board (**Plans 1** to **6** and **Appendices I** to **VI**).

2. JUSTIFICATIONS

To meet the increasing demand of local ready-mixed concrete in order to support the development of various NDAs and Government developments

2.1 Ready-mixed concrete has always been one of the most commonly-used raw materials for construction projects in Hong Kong. With the planned development in San Tin Technopole (STT) and the continued developments in the Hung Shui Kiu and Ha Tsuen (HSK/HT) NDA, Kwu Tung North and Fanling North (KTN/FLN) NDA, Yuen Long South Development Area and Tung Chung New Town Extension (TCNTE) (East), it is foreseeable that the amount of construction works and the demand for ready-mixed concrete arising from planned development projects shall remain high. The proposed development is therefore expected to meet the ever-growing demand of local ready-mixed concrete induced by various infrastructural projects and residential developments in Hong Kong.

To support public housing developments and other public/private development/ redevelopment projects

2.2 With reference to the 2024 Policy Address, the supply of developable land from Government-led projects will reach about 3,000 ha in the next decade. The Government affirms that the total public housing supply units in the next 5 years will reach 189,000, which is about 80% more than the start of the current-term Government. Moreover, various public/private redevelopment projects in the urban area are being planned or already under implementation. It is envisaged that the demand for concrete supply will surge in both public and private development sectors. In view of this, the proposed development would play an important role in delivering steady housing supply in Hong Kong.

High accessibility to various development areas

2.3 In order to cope with various development projects across the New Territories, particularly in various NDAs and TCNTE(East), there is a substantive need to identify an appropriate site for setting up a CBP with convenient access to these areas. Having considered a number of factors, including land use compatibility, concrete demand locations, environmental/traffic impacts and accessibility for transportation of raw materials/products, the identified site of the current application is considered suitable to maintain a reliable supply of concrete in support of various development projects.

2.4 The Site is at a strategic location where there are convenient road networks connecting the Lantau Link and Stonecutter Bridge (via Route 8), as well as Ting Kau Bridge and Tai Lam Tunnel (via Route 3), which provides an expressway connection to most part of the territory. Besides, being located on marine frontage, the raw materials for concrete production can be delivered to the Site by sea, which help

reduce the potential burden on road traffic. As such, the proposed development ensures a steady and sustainable concrete supply and reduces cross-region logistics.

To advance sustainable development through low-carbon strategies and innovative products

2.5 A newly-designed and constructed CBP at the Site is capable of implementing low-carbon and innovative products and manufacturing processes. Relevant measures include but not limited to the exploration of the usage of electric mixers and new technologies for dust prevention and sound insulation. These initiatives could enhance the environmental, social and governance (ESG) performance and promote technological development of the construction materials industry.

Approval of the application would not frustrate the long-term planning intention of the "OU(BMIU)" zone

2.6 The Site partly falls within an area zoned "OU(BMIU)" and area shown as 'Road' on the Approved Tsing Yi OZP No.: S/TY/32, and the applied use is a Column 2 use within the "OU(BMIU)" zone. Hence, the proposed development is generally in line with the planning intention of the "OU(BMIU)" zone. The approval of the current application on a temporary basis of 5 years would not frustrate the long-term planning intention of the "OU(BMIU)" zone and would better utilise deserted land.

2.7 Several planning applications (Nos. A/TY/62, 91, 108 & 130) for the same applied use within the same "OU(BMIU)" zone have previously been approved by the Metro Planning Committee (MPC)/the Board on review. Hence, the approval of the current application would not set an undesirable precedent for the "OU(BMIU)" zone.

Enhance marine safety on the mooring and delivery of raw materials arrangement

2.8 The Site was the subject of a pervious S.16 planning application (No. A/TY/134) for the same applied use for a temporary basis of 5 years submitted by the same applicant. However, the application was rejected by the Metro Planning Committee and the Board on 16/3/2018 and 26/10/2018 respectively mainly on the ground that the applicant failed to demonstrate that the barging operation by using slipway for the proposed concrete batching plant will not have adverse impact on marine safety and the shipyards nearby.

2.9 Comparison table showing the development details of the previous application and the current application are shown at **Table 1** below and **Appendix I**:

Table 1 – Development parameters of the previous and current applications

Development Parameters	Previous Application No. A/TY/134	Current Application
Site Area	4,266 m^2 (about), Incl. 988 m^2 of GL (about)	4,335 m^2 (about), Incl. 1,057 m^2 of GL (about)
Covered Area	780 m^2 (about)	738 m^2 (about)
Plot Ratio	0.24 (about)	0.45 (about)*
Site Coverage	18.3% (about)	23% (about)*
Gross Floor Area - ***Domestic*** - ***Non-Domestic***	1,026 m^2 (about) *N/A* *1,026 m^2 (about)*	1,463 m^2 (about) *N/A* *1,463 m^2 (about)*
Building Height	25 m	Not exceeding 31 m
Mooring Arrangement	Using the existing slipway to pull the barge onto the cradle	Mooring and anchoring

**Only area of the private lots (i.e. about 3,278 m^2) was adopted for the calculation of PR and SC*

2.10 When comparing with the previous S.16 planning application (No. A/TY/134), the current application involves of similar site area and covered area, while the GFA and building height are slightly increased to meet the operational need and enhance the overall efficiency of the proposed development.

2.11 Since the Site has direct marine frontage, raw materials for concrete production will be delivered by marine traffic. The current application will adopt a dual approach for unloading of raw materials, i.e. mooring ropes plus anchoring to ensure vessel for delivering raw materials would remain stable and correctly align during the unloading of cement and aggregate operations. This arrangement provides lateral and longitudinal balance, minimizing the barge's movement due to tidal currents or wave action. The mooring ropes ensure a firm connection to the shore infrastructure, while the anchors contribute additional stability, keeping the barge properly aligned for efficient cement pumping operations. The technical details and 3D diagrams illustrating the mooring and unloading of aggregate and cement arrangement are provided at the Barging Operation Plan (**Appendix II**).

2.12 Therefore, the delivery of raw materials arrangement proposed under the current application has overcome the marine safety concern of the previous application and that has proven to be safe, feasible, and practicable. This ensures that the proposed development will not have adverse impact on nearby shipyards and marine traffic.

Furthermore, the CBP operators are dedicated to maintaining the highest safety standards, treating safety and health as essential components of their operations, and minimising potential hazards to the greatest extent possible.

Not incompatible with surrounding land uses

2.13 The Site situates in a relatively remote area, which is far away from residential developments and other sensitive uses. The surrounding area of the Site is considered to be predominately industrial-oriented, with a wide range of industrial activities including boatyards, ship-repairing yards, recycling centre, workshops, metalware shops, CBPs, cement silos, cement plants, material storage, berthing of industrial barges etc. The proposed development is considered not incompatible with surrounding land uses.

No adverse impacts to the surrounding area

2.14 The Site is located at the Tsing Yi North Coast, which is away from sensitive receivers. Geographically, the vegetated slope to the south of the Site and Tsing Yi Northeast Park to the east of the Site well-serve as buffers to ease off any potential environmental impacts and disturbances to the nearest residential areas i.e. Cheung Wang Estate and Cheung On Estate, which are both about 450 m from the Site.

2.15 No adverse environmental impacts will be anticipated. Technical assessments on environmental, traffic, marine, infrastructural and site drainage/sewerage impacts have been conducted by the applicant to ascertain the technical feasibility of the proposed development. Upon obtaining the planning permission from the Board, the applicant will make effort in complying with approval conditions in relation to various aspects as required by relevant Government departments, so as to minimise any potential adverse impacts that would have arisen from the proposed development.

3. SITE CONTEXT

Site Location

3.1 The Site abuts Tam Kon Shan Road. It is approximately 1.7 km west of Tsing Yi MTR Station; approximately 24 km south of San Tin Technopole; approximately 26 km southwest of HSK/HT NDA; approximately 32 km south of KTN/ FLN NDA; and approximately 21 km east of TCNTE(East).

Accessibility

3.2 The Site is accessible from Tsing Yi North Coastal Road via Tam Kon Shan Road (**Plan 1**).

Existing Site Condition

3.3 The Site is currently fenced, partly vacant and occupied by vacant structures. There is a pre-existing jetty to support the operation of the Site (**Plans 1**, **3** and **4**).

Surrounding Area

3.4 The Site is predominantly for industrial use and is mainly surrounded by some industrial-related activities, boatyards, metalware shops, cement silos and CBPs (**Plans 1**, **3** and **4**).

3.5 To its immediate north is the sea frontage of Rambler Channel.

3.6 To its east and west along Tam Kon Shan Road are mainly boatyards. To its further east are public vehicle parks, a recycling centre and Tsing Yi Northeast Park.

3.7 To the western end of Tam Kon Shan Road is the site of an approved proposed temporary CBP (Nos. A/TY/108 and 130). To its further west is an existing cement loading and storage area and 2 CBPs within the "OU(Cement Plant)" zone.

3.8 To the south across Tam Kon Shan Road is currently occupied by a temporary vehicle park and the site of an approved application for Portable Emission Measurement System Laboratory (No. A/TY/125).

3.9 The nearest residential development i.e. Cheung On Estate (about 450 m to the east of the Site) is separated from the Site by Tsing Yi Northeast Park.

4. PLANNING CONTEXT

Zoning of the Site

4.1 The Site partly falls within an area zoned "OU(BMIU)" (51%; about 2,213 m^2) and an area shown as 'Road' (1%; about 29 m^2) on the Approved Tsing Yi OZP No.: S/TY/32, and partly falls outside the OZP planning scheme boundary (48%; about 2,093 m^2) (**Plan 2**). According to the Notes of the OZP, the applied use is a Column 2 use within the "OU(BMIU)" zone, which requires planning permission from the Board.

Planning Intention

4.2 The planning intention of the "OU(BMIU)" zone is *intended for boatyard and marine-oriented industrial uses.*

Previous Applications

4.3 The Site was subject of 2 previous applications for '*CBP*' use (Nos. A/TY/127 and 134) in 2015 and 2018 respectively. Both applications were rejected by the MPC/the Board on review on traffic management and marine safety grounds.

4.4 In support of the current application, the applicant has provided relevant impact assessments to prove the feasibility of the proposed CBP (**Appendices III** to **VII**).

Similar Applications

4.5 There are 4 similar applications (Nos. A/TY/62, 91, 108 & 130) for the same applied use within the same "OU(BMIU)" zone, which were approved by MPC/the Board on review between 2001 and 2016 each on a temporary basis for a period of 5 years.

Land Status of the Site

4.6 The applicant is the current land owner of the private lots portion of the Site. The Site consists of 2 private lots with private land area of 3,278 m^2 (about) of New Grant Lot i.e. Tsing Yi Town Lots 14 and 15. Apart from the above private lots, the Site also consists of 1,057 m^2 of GL (**Plan 3**). The ownership details are shown at **Table 2** below:

Table 2 – Land Ownership of the Private Lots of the Site

Private Lots Nos.		**Ownership**
1	Tsing Yi Town Lot 14	Supreme Enterprises Limited (the applicant)
2	Tsing Yi Town Lot 15	

4.7 A portion of the GL of the Site (about 988 m^2) has been let under Short Term Tenancy

(STT) No. 538 K&T for open storage use since 1983. The applicant will apply to the Lands Department (LandsD) for a temporary waiver in respect of Tsing Yi Town Lots 14 and 15, and a modification of STT No. 538 K&T with the addition of vehicular access via the GL as a non-exclusive right of way to the tenancy area. No structure is proposed for domestic use.

5. DEVELOPMENT PROPOSAL

Development Details

5.1 The Site consists of an area of 4,335 m^2 (about), including GL of 1,057 m^2 (about). Details of development parameters are shown at **Table 3** below.

Table 3 - Development Parameters

Site Area	4,335 m^2 (about), including GL of 1,057 m^2 (about)
Covered Area	738 m^2 (about)
Uncovered Area	3,597 m^2 (about)
Plot Ratio (PR)	0.45 (about)
Site Coverage (SC)	23% (about)
Total GFA - *Domestic GFA* - *Non-Domestic GFA*	1,463 m^2 (about) *Not applicable* *1,463 m^2 (about)*
Building Height	Not exceeding 31 m

Operation Mode

5.2 The proposed CBP consists of 3 production lines, each with a design production capacity of about 100 m^3/hr. The operation hours of the proposed development are from 07:00 to 21:00 daily, including public holiday. The maximum design concrete production is approximately 4,200 m^3 per day. The proposed CBP comprises aggregate storage and cementitious materials soils with total capacity of 5,200 tonnes (about) and other ancillary supporting facilities with total GFA of 1,463 m^2 (about), and a maximum building height of not exceeding 31 m (about) (**Plans 5** and **6**). The operation details of the proposed development are shown at **Appendix I** and **Table 4** below:

Table 4 – Operation Details of the Proposed Development

Operation Parameters	Details
Hourly Processing Capacity	300 m^3/hour
Total Aggregate Storage Capacity	3,000 tonnes
Total Cementitious Materials Silos Capacity	2,200 tonnes
Operation Period	14 hours, 07:00 to 21:00

5.3 Given there is direct marine frontage at the Site, raw materials for concrete production will be delivered by marine traffic, whilst concrete products will be delivered by heavy goods vehicle (HGV). The details of the unloading of raw materials activities are

illustrated at the Barging Operation Plan (**Appendix II**).

5.4 It is estimated that the Site would accommodate about 15 on-site staff. The main source of visitors will be drivers who deliver concrete products from the Site. Outside visitor is not anticipated.

No Adverse Traffic Impact

5.5 The Site is accessible from Tsing Yi North Coastal Road via Tam Kon Shan Road (**Plan 1**). A 7.3 m-wide (about) ingress/egress is proposed at the southern part of the Site. A total of 19 parking, waiting and loading spaces will be provided (**Plan 5**). Details of the provision are shown at **Table 5** below:

Table 5 - Provision of Parking, Waiting and Loading Spaces

Type of Parking Spaces	**No. of Space**
Parking Spaces for Private Cars - *2.5 m (W) x 5 m (L)*	2
Parking Spaces for Motorcycles - *1 m (W) x 2.4 m (L)*	2
Type of Waiting Spaces	
Waiting Spaces for HGVs - *11 m (W) x 3.5 m (L)*	12
Type of Loading Spaces	
Loading Spaces for HGVs - *11 m (W) x 3.5 m (L)*	3

5.6 A TIA has been conducted to assess the potential traffic impacts induced by the proposed CBP on nearby road networks during construction and operational stages (**Appendix III**). The assessment result has indicated that all key junctions and road links perform satisfactorily during peak hours in the assessment year of 2029. The TIA has concluded that no adverse traffic impact arising from the proposed CBP is anticipated.

No Adverse Marine Safety Impact

5.7 Raw materials for concrete production will be delivered to the Site from the marine frontage to the north of the Site via self-propelled barges from Mainland China. It is expected that there would be a maximum of 3 round trips per day, including 1 for cement delivery and 2 for aggregates delivery. Maintenance dredging would be carried out to restore adequate water depth at the barging point.

5.8 The Barging Operation Plan has concluded that the marine logistics operations for the proposed CBP are designed to ensure safe and efficient functionality (**Appendix II**). The BOP has incorporated robust marine traffic arrangements, impact assessments,

and implementation of mitigation measures. The survey data has also indicated that the induced marine traffic impact is negligible. Provided that the proposed measures outlined in the BOP be implemented effectively, any marine risk poses by the operation of the proposed CBP can be mitigated to an acceptable level. As such, no adverse marine safety impact from the proposed CBP is envisaged.

No Adverse Environmental Impact

5.9 An EA covering assessments on air quality, noise, water quality, waste management and land contamination has been conducted to assess the potential environmental impacts induced by the proposed CBP during construction and operational stages (**Appendix IV**). With the proper implementation of mitigation and control measures, the assessment result has indicated that no adverse environmental impact from the proposed CBP is anticipated.

No Adverse Drainage Impact

5.10 A DIA report has been conducted to review the drainage arrangements for the proposed concrete batching plant (**Appendix V**). The potential increase in surface runoff generated by the proposed concrete batching plant is estimated to be minimal. A series of perimeter surface drains with catchpits are proposed to collect the cumulative runoff, which will finally connect to the proposed discharge point at Government stormwater manhole No. SWD4023664 to the south of the Site via a stormwater drainage pipe. The results of the DIA report have concluded that no adverse drainage impact is envisaged.

No Adverse Sewerage Impact

5.11 A SIA report has been conducted to review the sewerage arrangements for the proposed CBP (**Appendix VI**). The capacity of the sewerage system has been evaluated while the sewage from the Site would be discharged to the Government foul water manholes Nos. FMH4052191 and FMH4019395 to the south of the Site via the proposed underground drainpipes. The results of the SIA report have concluded that no adverse sewerage impact will be incurred by the proposed CBP.

Fire Safety Aspect

5.12 Upon obtaining relevant planning permission from the Board, the applicant will submit a fire service installations (FSI) proposal for the consideration of the Director of Fire Services to enhance fire safety of the Site.

5.13 Upon receiving the temporary waiver from LandsD as mentioned in Section 4.7 above and relevant approval from the Building Authority, the applicant will implement the accepted FSI proposal at the Site.

6. CONCLUSION

6.1 The current application serves to seek planning permission to operate a CBP in Tam Kon Shan Road, Tsing Yi on a temporary basis for a period of 5 years. The proposed development meets the increasing demand for ready-mixed concrete and supports public/private development and redevelopment projects in the territory. The Site is also easily accessible to various development areas where the reliable supply of concrete can be guaranteed and cross-district traffic for concrete delivery can be reduced. Having considered a number of factors, including land use compatibility, concrete demand locations, marine safety, environmental and traffic impacts and accessibility for transportation of raw materials and concrete products, the Site is considered suitable for the proposed development. The special nature of the application in support of the development in Hong Kong should be considered on its individual merit.

6.2 Being mostly located within an area zoned "OU(BMIU) on the OZP, the proposed development is generally in line with the planning intention of the "OU(BMIU) zone, which is intended primarily for boatyard and marine-oriented industrial uses. Hence, approval of the application on a temporary basis would not frustrate the long-term planning intention of the "OU(BMIU)" zone.

6.3 Moreover, similar approvals for the same applied use have been approved by the MPC/the Board on review within the same "OU(BMIU)" zone on the OZP. Approval of the current application would not set an undesirable precedent within the "OU(BMIU)" zone. Comparing the current application to the previously rejected S.16 planning application (No. A/TY/134), the overall operation and the unloading of raw materials arrangement by marine traffic have overcome the marine safety concern of the previous application, demonstrating that it is safe, feasible, and feasible.

6.4 The proposed development is situated in an area predominated by industrial-related activities, boatyards, ship repairing yards, metalware shops and CBPs, and is closely connected to various development areas via nearby road networks. The proposed development is considered not incompatible with the surrounding areas. Furthermore, the proposed development will not create significant nuisance to the surrounding areas. Technical assessments have been conducted and the results have demonstrated that adverse marine safety, traffic, environmental, drainage and sewerage impacts arising from the proposed development are not anticipated.

6.5 In view of the above, the Board is hereby respectfully recommended to approve the subject application for '**Proposed Temporary Concrete Batching Plant for a Period of 5 Years**'.

R-riches Planning Limited
April 2025

APPENDICES

Appendix I	Table Comparing the Current Application and the Previous Application
Appendix II	Barging Operation Plan
Appendix III	Traffic Impact Assessment
Appendix IV	Environmental Assessment
Appendix V	Drainage Impact Assessment
Appendix VI	Sewerage Impact Assessment

Appendix I

Table Comparing the Current Application and the Previous Application

Appendix I – Comparison table showing the changes between the current application and the previously reject S.16 planning application No. A/TY/134

Development Details	Previous Application No. A/TY/134 - Rejected (a)	Current Application (b)	Difference (b)-(a)	
Development Parameters				
Site Area	4,266 m^2 (about), including 988 m^2 of GL (about)	4,335 m^2 (about), including 1,057 m^2 of GL (about)	*+69 m^2*	*+2% (about)*
Covered Area	780 m^2 (about)	738 m^2 (about)	*-42 m^2*	*+5% (about)*
Uncovered Area	3,486 m^2 (about)	3,597 m^2 (about)	*+106 m^2*	*+3% (about)*
Plot Ratio	0.24 (about)	0.45 (about)*	*+0.19*	*+79% (about)*
Site Coverage	18.3% (about)	23% (about)*	*+4.7%*	*+26% (about)*
Gross Floor Area - ***Domestic*** - ***Non-Domestic***	1,026 m^2 (about) *not applicable* *1,026 m^2 (about)*	1,463 m^2 (about) *not applicable* *1,463 m^2 (about)*	*+437 m^2* *not applicable* *+437 m^2*	*+43% (about)* *not applicable* *+43% (about)*
Building Height	25 m	Not exceeding 31 m	*+6m*	*+24% (about)*
Operation Details				
Operation Hours	Monday to Saturdays from 07:00 to 18:00	07:00 to 21:00 daily, including public holiday	*+3 hour, including Sunday and public holiday*	
Daily Concrete Production	700 m^3	4,200 m^3 (300 m^3/hour)	*+3,500* m^3	
Delivery by Barge - Aggregate - Cement / PFA	 1 trip/day 1 trip/4 day	 2 trip/day 1 trip/day	 *+1 trip/day* *+3 trip/4 day*	
Mooring Arrangement	Using the existing slipway to pull the barge onto the cradle	Mooring and anchoring	-	
Parking and Loading Provisions				
No. of Private Car Parking Space	2	2	-	
No. of Motorcycle Parking Space	-	2	+2 space	
No. of Waiting Space	12 (Concrete Truck)	12 (Heavy Goods Vehicle)	-	
No. of Loading Space	3 (Concrete Truck)	3 (Heavy Goods Vehicle)	-	

**Only area of the private lots (i.e. about 3,278 m^2) was adopted for the calculation of PR and SC*

Appendix II

Barging Operation Plan

Barging Operation Plan for S16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi

BARGING OPERATION PLAN

Reference: 31048-R02-02e
Date: April 2025

AXON
CONSULTANCY

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1 Introduction

1.1 Background

The Applicant seeks approval under Section 16 of the Town Planning Ordinance (Cap. 131) to establish a Temporary Concrete Batching Plant (CBP) for a period of 5 years at Tsing Yi Town Lot Nos. 14 and 15 and adjoining Government Land (GL) along Tam Kon Shan Road, Tsing Yi, New Territories (the Site). The application site occupied an area of 4,335 m. sq, including 1,057 m. sq (about) of G.L., and partially falls within an area zoned “Other Specified Uses” annotated “Boatyard and Marine-oriented Industrial Uses” (“OU(BMIU)”) under the Approved Tsing Yi Outline Zoning Plan (OZP) No. S/TY/32 and partly outside the OZP boundary.

The CBP aims to address the increasing demand for ready-mixed concrete driven by infrastructure projects and residential developments in Hong Kong, particularly in the New Development Areas (NDAs) of the Northern Metropolis. The Site’s strategic location near established industrial activities and marine facilities ensures compatibility with surrounding land uses and supports the sustainable development of the construction industry.

AXON Consultancy Limited has been commissioned to prepare a Barging Operation Plan (BOP) to support the Section 16 application by ensuring safe, efficient, and environmentally compliant marine logistics for the proposed development.

1.2 Scope of Work

This Barging Operation Plan (BOP) outlines the operational framework for the proposed CBP, focusing on marine logistics and ensuring compliance with environmental, safety, and operational standards. Key components include:

- Marine Logistics Assessment: Evaluation of marine traffic patterns, metocean conditions, and potential impacts.
- Operational Planning: Development of frameworks for safe and efficient barge delivery, mooring, and unloading operations.
- Risk Mitigation Measures: Identification of risks and proposal of mitigation strategies to comply with safety and environmental standards.

- Emergency and Contingency Planning: Establishment of protocols for adverse weather conditions and emergency scenarios.

1.3 Objective

The primary objectives of this study are:

- To ensure the safe and efficient handling of CBP unloading and marine delivery operations while minimizing disruption to adjacent marine traffic and activities.
- To identify and address potential marine operational risks through comprehensive mitigation strategies.
- To demonstrate the Applicant's commitment to safety, environmental compliance, and responsible management of marine operations, ensuring the highest standards of operation.

2 Project Overview

2.1 Site Location and Characteristics

The proposed Temporary Concrete Batching Plant (CBP) is strategically located at Tsing Yi Town Lot (TYTL) Nos. 14 and 15, together with an adjoining parcel of Government Land held under Short Term Tenancy (STT), situated along Tam Kon Shan Road in the New Territories. The site occupies an area of approximately 4,335 square metres and benefits from direct marine frontage, offering a practical setting for barge-based material delivery and handling.

The red dotted line shown in the figure represents the boundary of the land currently leased by the applicant. To facilitate safe barge approach, berthing, and unloading of aggregates and cement, a proposed marine operation area has been identified in the waters beyond the land lot. This area is outlined in blue dotted line in Figure 2.1 and reflects the required space to accommodate the Pelican Aggregate Barge and the Cement Barge during routine delivery and unloading.

As land matters fall under the purview of the Development Bureau and the Lands Department (LandsD), the applicant is coordinating with its appointed lands consultant to review and follow up on any administrative arrangements necessary to support the proposed marine activity area. Ongoing engagement with relevant authorities will ensure alignment with lease conditions and prevailing statutory requirements.

Figure 2.1 illustrates the site location, the extent of the existing lease area (covering TYTL No. 14, TYTL No. 15, and the STT area), as well as the proposed marine operation zone, which is defined within the polygon bounded by Points A, B, C, and D, as listed in **Table 2.1.**

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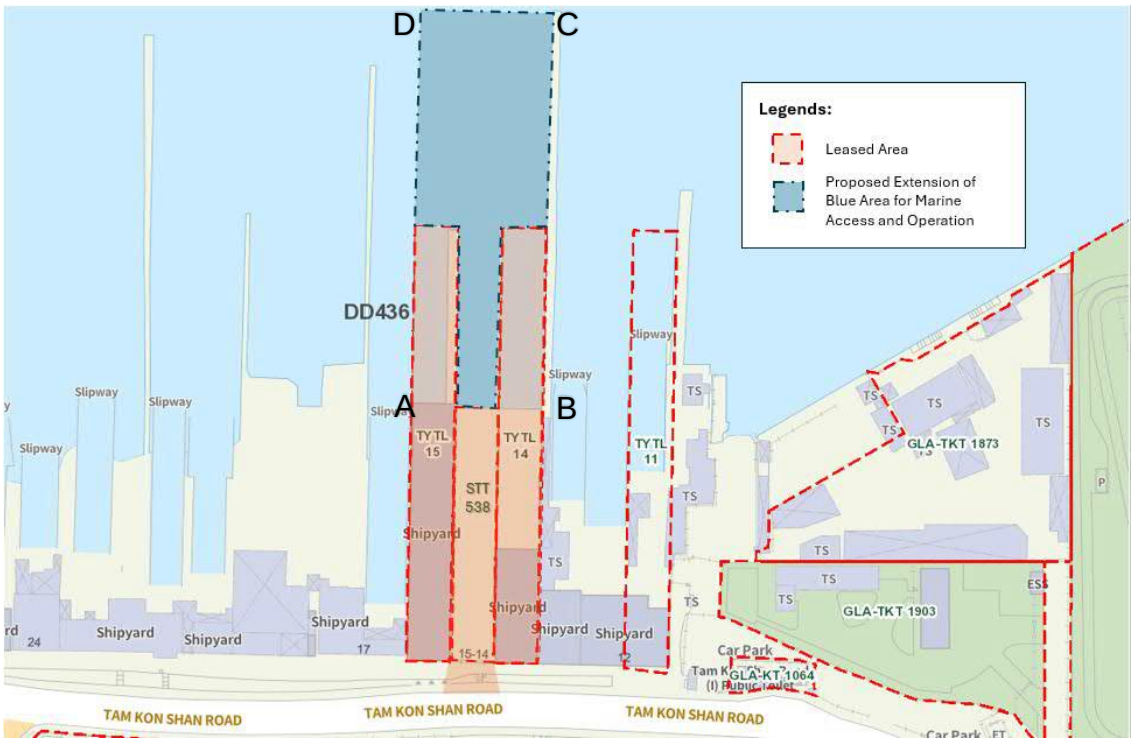
Table 2.1 Operation Area

Point No.	Latitude	Longitude
A	22º 21.7077’	114º 5.7155’
B	22º 21.7069’	114º 5.7371’
C	22º 21.7604’	114º 5.7387’
D	22º 21.7619’	114º 5.7163’

Figure 2.1 Site Location and Proposed Operational Boundary



2.2 Description of the Proposed CBP

The proposed CBP will operate for five years, offering a sustainable and efficient solution to meet the demand for concrete in Hong Kong’s ongoing infrastructure development.

The construction phase of the proposed concrete batching plant is projected to require approximately 9 to 12 months. During this period, no marine deliveries of construction materials are anticipated.

Full-scale operations are scheduled to commence by Q1 2026, following the completion of construction and the necessary regulatory approvals.

The CBP will have three batching lines, each with a capacity of 100 m^3 per hour, allowing for a maximum daily output of 3,800 m^3 of concrete under normal operating conditions. The normal operating hours will be from 07:00 to 21:00.

Minimal night-time operations may be undertaken between 21:00 and 07:00, particularly for public interest or to accommodate specific project needs. During night operations, batching capacity will be limited to 100 m^3 per hour, ensuring reduced activity levels to minimize potential disruptions

The concrete batching process at the CBP will consist of the following stages:

- **Delivery of Raw Materials**: Aggregates and cement will be transported to the site using self-propelled barges, which are readily available in the market and suitable for the project's operational needs. Limited quantities of raw materials may also be delivered to the site by trucks.
- **Conveyance to the Plant:** Raw materials will be efficiently transferred from barges to the batching plant using pipelines or conveyor systems.
- **Weighing and Mixing**: The materials will undergo precise weighing and controlled mixing to produce high-quality concrete in compliance with industry standards.
- **Distribution:** Batched concrete will be loaded onto mixer trucks for delivery to construction sites.

The site's strategic location ensures direct marine accessibility, enabling delivery operations while reducing cross-district road traffic and its associated environmental impacts.

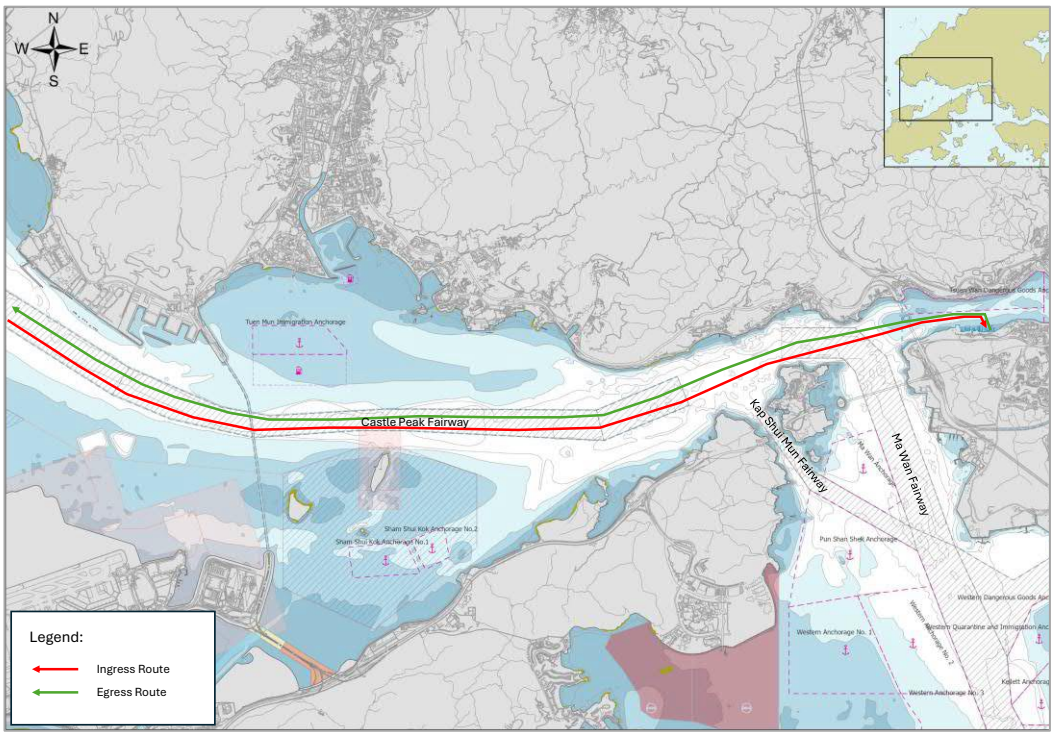
3 Delivery and Routing

3.1 Barge Delivery Route

The raw materials required for concrete batching, including aggregates and cement, will be transported using self-propelled rivertrade vessels. These vessels will follow established marine routes within Hong Kong waters to ensure safe and efficient transit.

The delivery routes, utilizing Castle Peak Fairway and Ma Wan Fairway, have been carefully selected to comply with Hong Kong maritime safety regulations and minimize navigational risks. The proposed delivery routes are illustrated in Figure 3.1.

Figure 3.1 Proposed Delivery Routes



3.2 General Navigational Guideline

The route planning for the proposed barge operations adheres to the International Regulations for Preventing Collisions at Sea (COLREGs) and Hong Kong Marine Department regulations.

Key guidelines include:

- Navigating along the starboard side of the fairway to maintain orderly traffic flow.
- Following COLREGs for overtaking, including appropriate signaling and maintaining safe distances.
- Making fairway crossings at right angles to minimize disruption and collision risk.
- Prohibiting anchoring and fishing within designated fairway limits to avoid navigational hazards.
- Prioritizing larger vessels, with smaller vessels required to avoid impeding their passage.

3.3 Delivery Frequency

A maximum of 3 round-trip barge movements per day will be scheduled at North Tsing Yi to deliver both aggregates and cement via self-propelled barges from the mainland. This includes three inbound trips (*one for cement and two for aggregates using the Pelican Aggregate Barge*) and three corresponding outbound trips. The delivery frequency has been carefully planned to optimize operational efficiency while minimizing potential impacts. Adjustments to the schedule may be made as needed to accommodate project demands, weather conditions, or other operational factors, ensuring flexibility and consistency in the delivery process.

3.4 Deployed Vessels and Unloading Process

The delivery operations will utilize two existing self-propelled barges designed to meet project demands and adhere to environmental and safety standards. Their key specifications and unloading processes are summarized in Table 3.1.

Table 3.1 Typical Specification of Deployed Vessels

Vessel Type	Length Overall (LOA)	Beam	Draft (Fully Loaded)	Capacity per Trip	Special Features
Pelican Aggregate Barge	50 m	15.2 m	3.4 m	1,500 tonnes	Self-propelled
Cement Barge	52 m	10.5 m	2.4 m	800 tonnes	Self-propelled

Pelican Aggregate Barge: Featuring a 1500-ton class stone aggregate belt self-discharging design, this vessel utilizes a built-in conveyor system to transfer aggregates directly to the batching plant's hopper on the quay. Its fully enclosed structure minimizes dust emissions and ensures environmental compliance. Operating at an unloading rate of 400 tons per hour, the vessel can fully unload in just 4 hours. Additionally, the vessel measures 50 meters in length and 15.2 meters in width, has a full-load draft of 3.4 meters, and is equipped with a 22-meter-long belt, ensuring efficient and precise aggregate handling.

Cement Barge: Featuring a self-discharging pumping system with portable pipelines to transfer cement directly to the batching plant silos, this controlled system effectively prevents spillage while ensuring efficient operations. With an unloading rate of 200 tons per hour, the entire load is discharged in just 4 hours. The 800-ton cement ship measures 52 meters in length, 10.5 meters in width, and has a full-load draft of 2.4 meters.

3.5 Delivery of Product

The proposed concrete batching plant is designed to produce high-quality ready-mix concrete that is delivered exclusively by concrete mixing trucks. In this system, once the concrete is batched at the plant, it is loaded into mixer trucks and transported via the road network directly to the construction sites.

This truck-based delivery system eliminates the need for any marine or barge delivery, streamlining logistics and reducing potential risks associated with marine transport. The approach also offers greater scheduling flexibility and ensures that the concrete maintains its integrity from the batching plant to its final placement.

4 Dredging Requirements

4.1 Existing Situation

At the application site, sedimentation has reduced the nearshore water depth at the barging point to below the level required for safe batching operations. To remedy this, maintenance dredging is necessary to remove the accumulated sediment and restore adequate water depth for vessel navigation.

4.2 Water Depth Requirement

According to the Table 3.1, to cater for the maximum draft of the pelican barge with a draft of 3.4m, a typical safe navigation requirement is to have an under-keel clearance of at least 10% of the draft. In this case, 10% of 3.4 m is approximately 0.34 m, so the minimum water depth required would be about 3.4 m + 0.34 m, roughly 3.74 m.

However, in practice, to accommodate tidal variations and provide a safety margin, a water depth of around 3.8 m (at Chart Datum) is generally maintained for operations involving a Pelican Aggregate Barge. This ensures that even under varying conditions, there is adequate clearance for safe navigation.

4.3 Extent of Dredging

The targeted dredging area is shown in Figure A1. Preliminary estimates suggest that approximately 3,000 – 5,000 square meters of the seabed would need to be dredged, subject to further detailed analysis.

Under the EIAO, a project qualifies as a designated project requiring a full Environmental Impact Assessment if the dredging volume exceeds 500,000 m^3. In this case, the proposed maintenance dredging operation involves less than 5,000 m^3, which is significantly below the threshold and thus considered insignificant. Consequently, it does not trigger the designated project requirements under the EIAO, although all other regulatory and administrative procedures must still be followed to ensure safe navigation and proper environmental management.

4.4 Dredging Administration

All administrative works related to the dredging operation will be carried out in strict compliance with the Project Administration Handbook for Civil Engineering Works, 2024 Edition. This means that every aspect, from the initial justification for dredging, sediment sampling and testing, through to the permit application and disposal procedures, will adhere to the detailed guidelines and requirements stipulated in Chapter 4 of the handbook. This ensures that all regulatory, environmental, and technical criteria are met during the dredging process.

For instance, the handbook outlines the proper procedures for submitting a Sediment Sampling and Testing Plan, preparing a Preliminary Sediment Quality Report (PSQR), and obtaining the necessary dumping permits under the Foreshore and Seabed (Reclamation) Ordinance. By following these established procedures, the project will maintain full accountability and control over the dredged materials, ensuring both safety and environmental compliance throughout the dredging and disposal phases.

Director of Environmental Protection (DEP) may waive the sediment sampling and testing requirements in specific circumstances to expedite critical dredging operations. This waiver applies in cases of emergency dredging when immediate action is needed to avert safety risks or environmental hazards, and for small-scale maintenance dredging projects involving volumes of less than 5,000 m^3 in situ. In such cases, the project proponent must submit any previously obtained data or historical information regarding the sediment quality in the vicinity, allowing DEP to assess the situation and determine the most appropriate handling arrangements without necessitating a full sampling and testing program.

4.5 Conclusion

The client will proceed with a maintenance dredge to restore the necessary water depth for safe navigation. The client is committed to following the administrative procedures outlined in the Project Administration Handbook for Civil Engineering Works, 2024 Edition, including the proper application for a dredging permit and compliance with all regulatory requirements for sediment disposal.

5 Mooring Stability

5.1 Introduction

Mooring stability is critical for both the Pelican Aggregate Barge and the Cement Barge to ensure safe and efficient delivery operations.

For the aggregate barge, stable mooring guarantees that the vessel remains securely in position during loading and unloading, preventing spillage and collisions while accommodating tidal fluctuations and currents.

Similarly, the cement barge requires a stable mooring arrangement to maintain precise alignment with the discharge point, thereby avoiding disruptions during cement transfer and ensuring that operations proceed without unintended material loss.

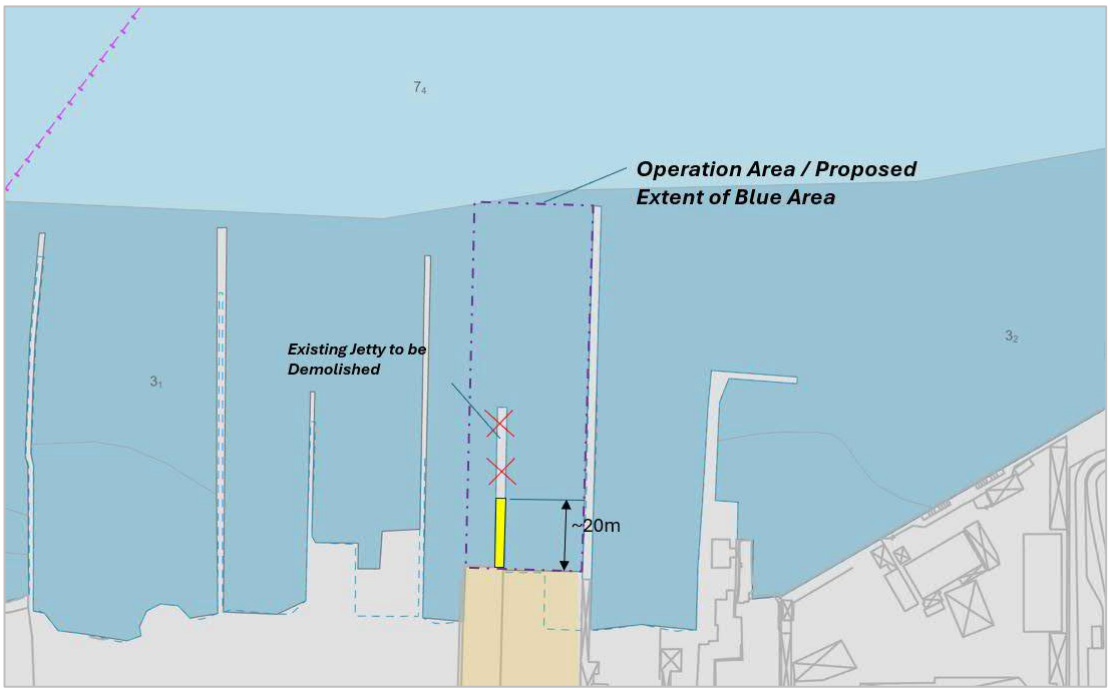
In both cases, effective mooring stability not only supports operational safety and efficiency but also minimizes environmental risks and interference with adjacent marine traffic.

5.2 Safety and Stability Improvement

The safety platform is part of the overall improvement measures (Figure 5.1). With this approach, and in combination with the planned dredging operations, vessels will be able to approach closer to the quay.

This proximity allows for a better arrangement of the new fenders, bollards, and anchoring systems, thereby enhancing the mooring facilities and ensuring increased stability for both the Pelican Aggregate Barge and the Cement Barge during loading and unloading operations.

Figure 5.1 Proposed Improvement of Safety Platform

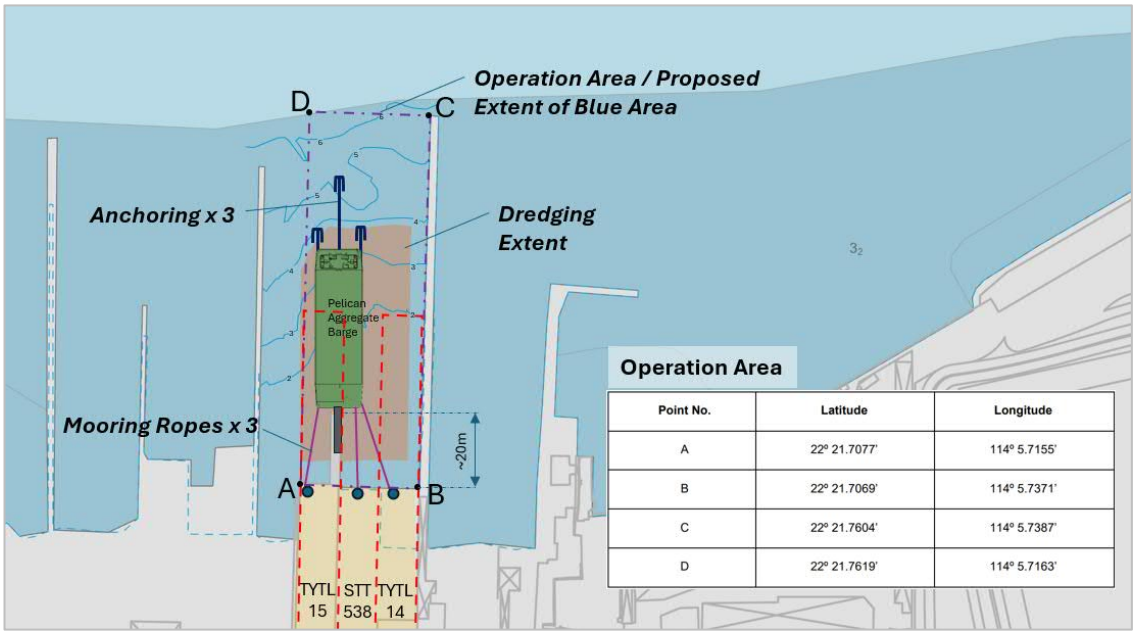


5.3 Mooring Arrangements

Pelican Aggregate Barge

As shown in Figure 5.2, the Pelican Aggregate Barge will positioned approximately 20 meters off the quay, secured by an anchor and two mooring ropes at the bow and three anchor lines at stern. This dual approach, mooring ropes plus anchoring, ensures the vessel remains stable and correctly aligned during aggregate loading and unloading. The anchors provide lateral and longitudinal restraint against tidal currents, while the mooring ropes maintain a firm connection to the quay. Combined, these measures minimize vessel movement and protect both the barge and the safety platform infrastructure throughout operations.

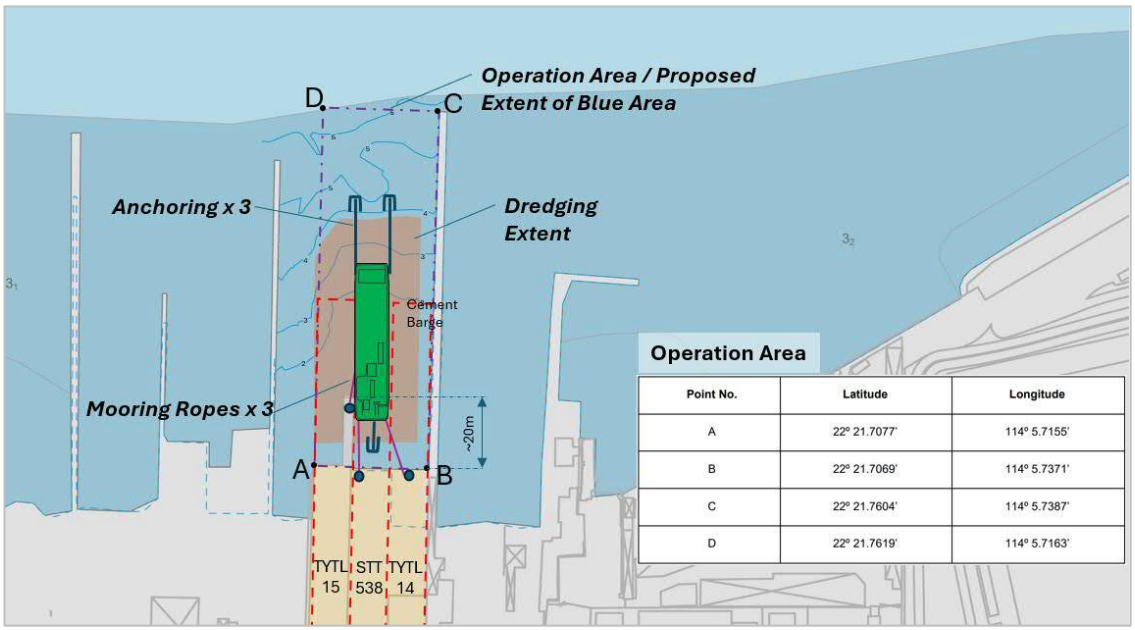
Figure 5.2 Mooring Arrangement of Pelican Aggregate Barge



Cement Barge

As shown in Figure 5.3, the Cement Barge will be stationed approximately 15 meters from the quay, with at least 5 meters of the safety platform stabilizing its starboard side. It is secured by three mooring ropes attached to both the safety platform and the quay, plus a single bow anchor and two stern anchors. This arrangement provides lateral and longitudinal balance, minimizing the barge's movement due to tidal currents or wave action. The mooring ropes ensure a firm connection to the shore infrastructure, while the forward and stern anchors contribute additional stability, keeping the barge properly aligned for efficient cement pumping operations.

Figure 5.3 Mooring Arrangement of Cement Barge

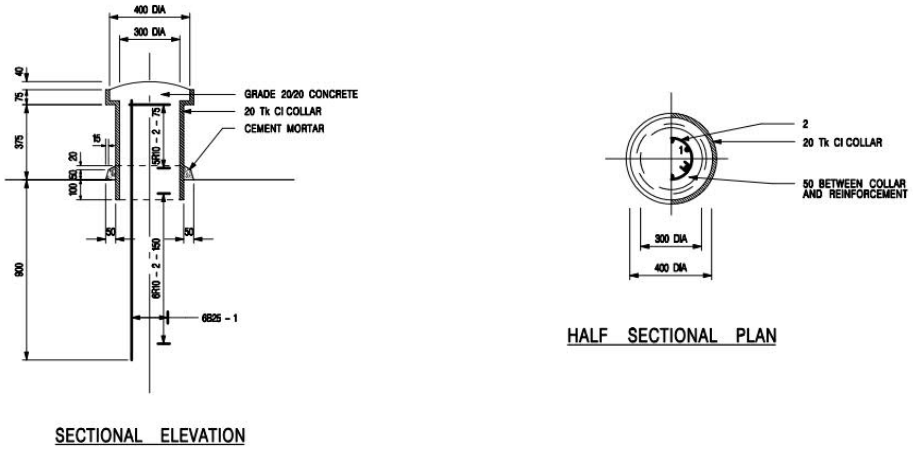


5.4 Mooring Facilities

New fenders and mooring bollards (*typical design as shown in* Figure 5.4) will be installed on the quay and safety platform to provide robust mooring facilities. These installations are essential for securing both the Pelican Aggregate Barge and the Cement Barge during loading and unloading operations, ensuring that the vessels remain stable and correctly aligned.

By enhancing the mooring infrastructure, the risk of vessel movement due to tidal fluctuations or currents is significantly reduced, thereby protecting both the marine equipment and the quay/safety platform structures while facilitating safe and efficient marine operations.

Figure 5.4 Typical Arrangements of Mooring Bollard



Source: CEDD Standard Drawing No. C3015B

5.5 Anchoring

In addition to installing new fenders and bollards on the quay and safety platform to secure the vessels, anchoring will also be employed as an extra measure to enhance stability. This anchoring system will work in tandem with the improved mooring infrastructure to firmly secure both the Pelican Aggregate Barge and the Cement Barge during loading and unloading operations.

By providing additional resistance against tidal fluctuations and adverse weather conditions, anchoring helps to prevent unwanted vessel movement, ensuring safe alignment and reducing the risk of operational hazards such as spillage or collision.

5.6 Conclusion

In conclusion, the enhanced mooring system, comprising new fenders, bollards, anchoring, and updated rope arrangements, combined with maintenance dredging, offers significant benefits. The maintenance dredging will restore adequate water depth, allowing vessels to approach the quay more closely and securely. This proximity facilitates improved mooring arrangements that stabilize both the Pelican Aggregate Barge and the Cement Barge, ensuring precise alignment and safe loading/unloading operations. Together, these measures not only boost operational efficiency and safety but also help to protect both the vessels and the surrounding infrastructure from the effects of tidal currents and environmental disturbances.

6 Unloading

6.1 General

The unloading operations at the site are designed to support the temporary concrete batching plant's efficient and safe delivery of materials. The Pelican Aggregate Barge and the Cement Barge unload aggregate and cement respectively via specialized transfer mechanisms at the safety platform. This process is optimized to ensure rapid material transfer, maintain environmental compliance, and minimize disruption to surrounding marine traffic, thereby supporting seamless construction operations.

6.2 Pelican Aggregate Barge Unloading

The Pelican Aggregate Barge is equipped with a built-in conveyor belt system that transfers aggregates directly from the barge to the safety platform and onward to the batching plant, ensuring a continuous and controlled material flow.

The enclosed design of the hopper and conveyor system provides environmental containment during the unloading process. This setup minimizes the release of dust and prevents debris or runoff from entering the surrounding waters. The enclosure also serves to reduce noise and vibration levels, supporting compliance with environmental standards and minimizing disruption to the nearby community and marine users.

The typical arrangement of aggregate unloading operations, including anchoring positions and equipment layout, is shown in **Figure 6.2.**

6.3 Cement Barge Unloading

On the other hand, the Cement Barge employs a self-discharging pumping system with pipelines that extend to the batching plant silos, allowing for smooth and precise cement delivery.

The cement barge employs a hot plug system to connect its self-discharging pumping system to the receiving pump line of the concrete batching plant. This hot plug mechanism facilitates a rapid, secure, and leak-free connection, allowing for continuous cement flow with minimal downtime.

Designed to handle high pressures and the corrosive nature of cement slurry, the hot plug ensures that the connection is both durable and reliable, reducing the risk of spillage and environmental contamination. By streamlining the transfer process, it enhances operational efficiency and maintains safety standards during cement delivery.

The concrete batching plant is equipped with an advanced suction system that enables cement to be pumped directly from the cement barge into the plant without needing to activate the vessel's onboard pump. This design not only streamlines the cement transfer process by using a dedicated suction line at the plant but also significantly improves air quality. By avoiding the operation of the vessel pump, which typically generates exhaust emissions and noise, the system reduces airborne pollutants and minimizes environmental disruption, thereby contributing to a cleaner and safer working environment.

The proposed mooring and cement transfer setup is illustrated in **Figure 6.3**

Figure 6.1 Illustration of Aggregate Unloading from Pelican Barge

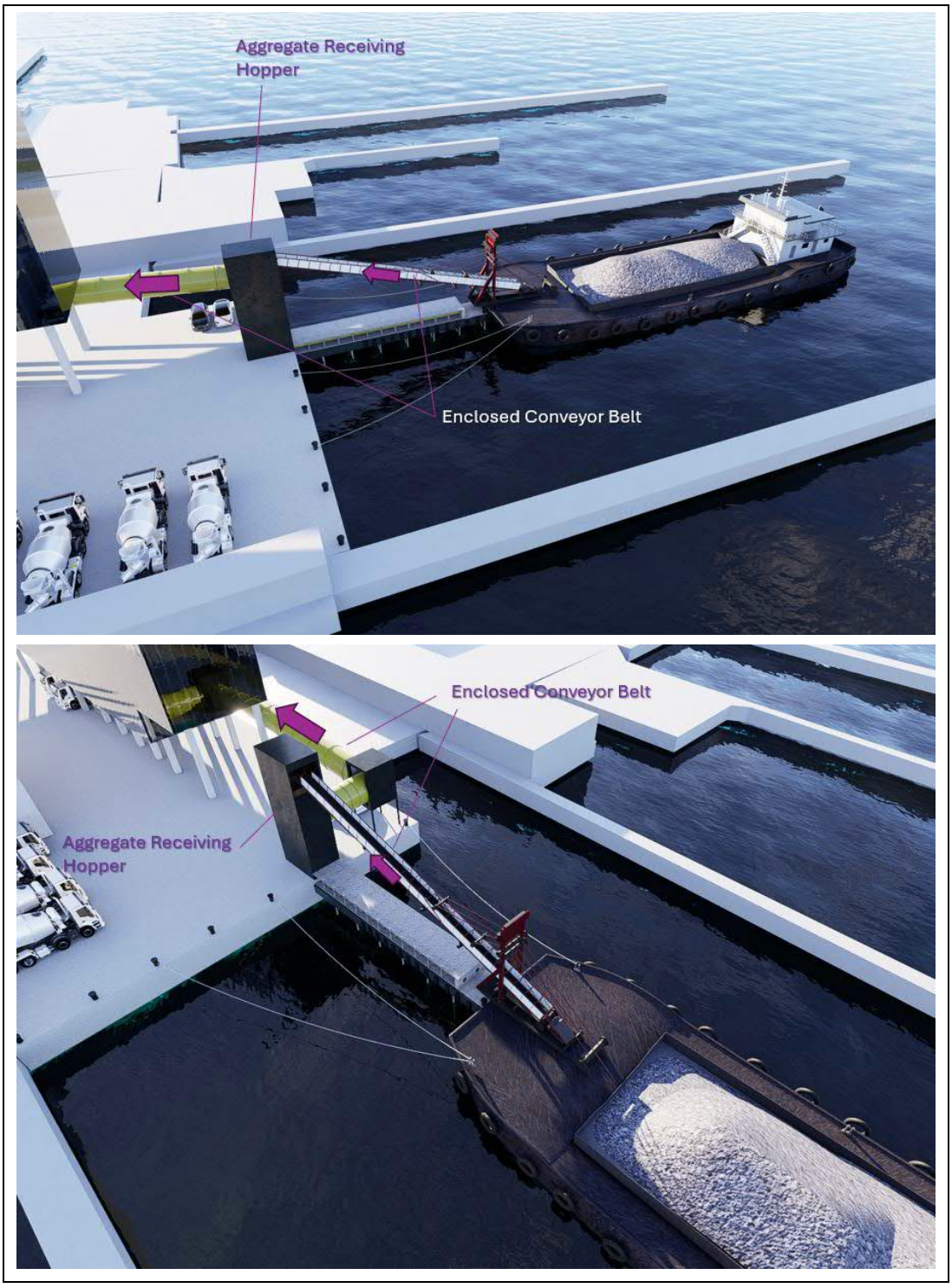
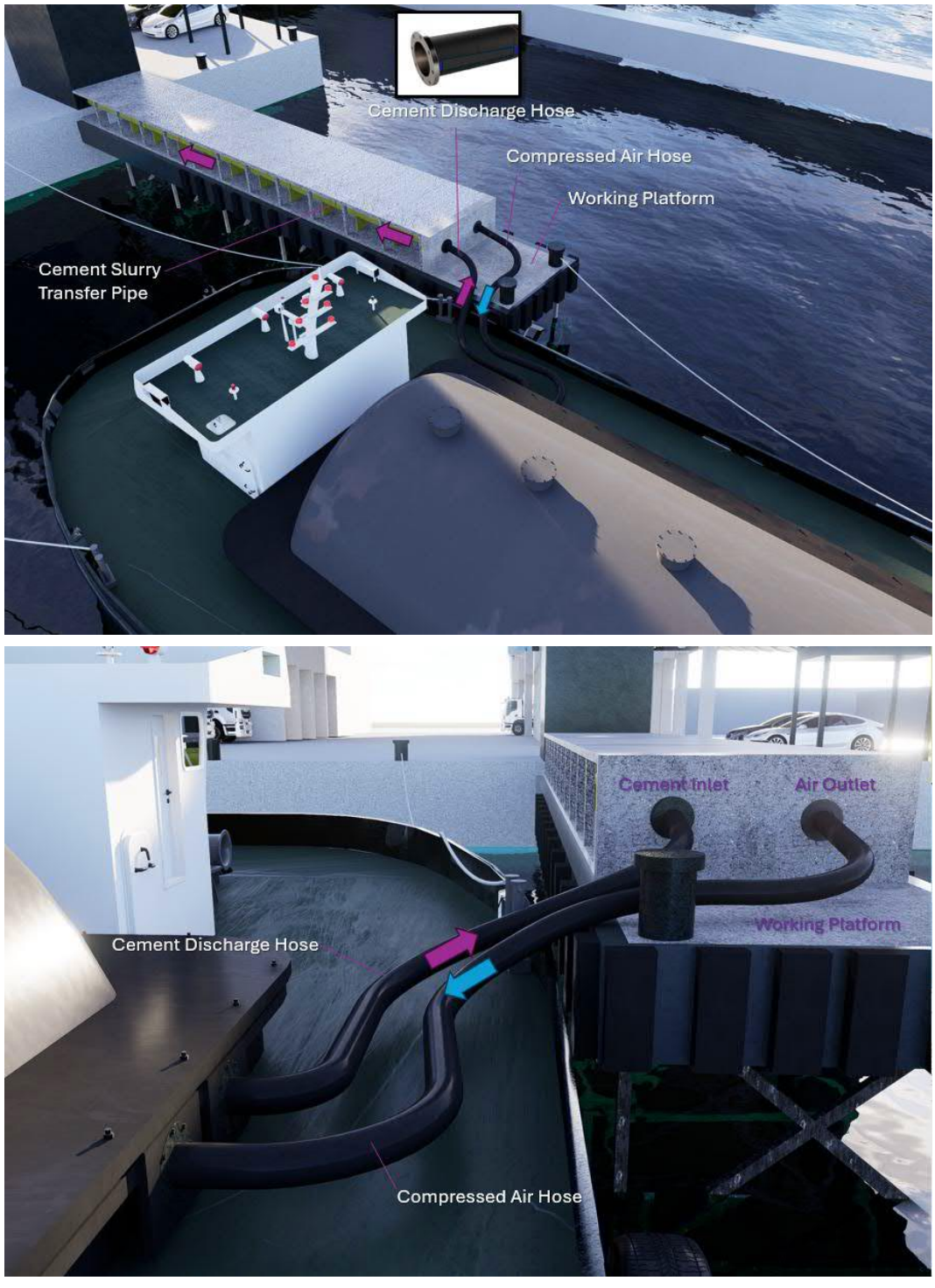


Figure 6.2 Illustration of Cement Unloading Using Pump System



6.4 Approach and Departure

The barges, being self-propelled, autonomously navigate to their designated positions without requiring tug assistance, which ensures precise alignment and efficient manoeuvrability. The approach and departure routes have been carefully planned, illustrated in Figure 6.3 and Figure 6.4, to facilitate safe navigation.

Figure 6.3 Example of Arrival and Departure Path of Pelican Aggregate Barge

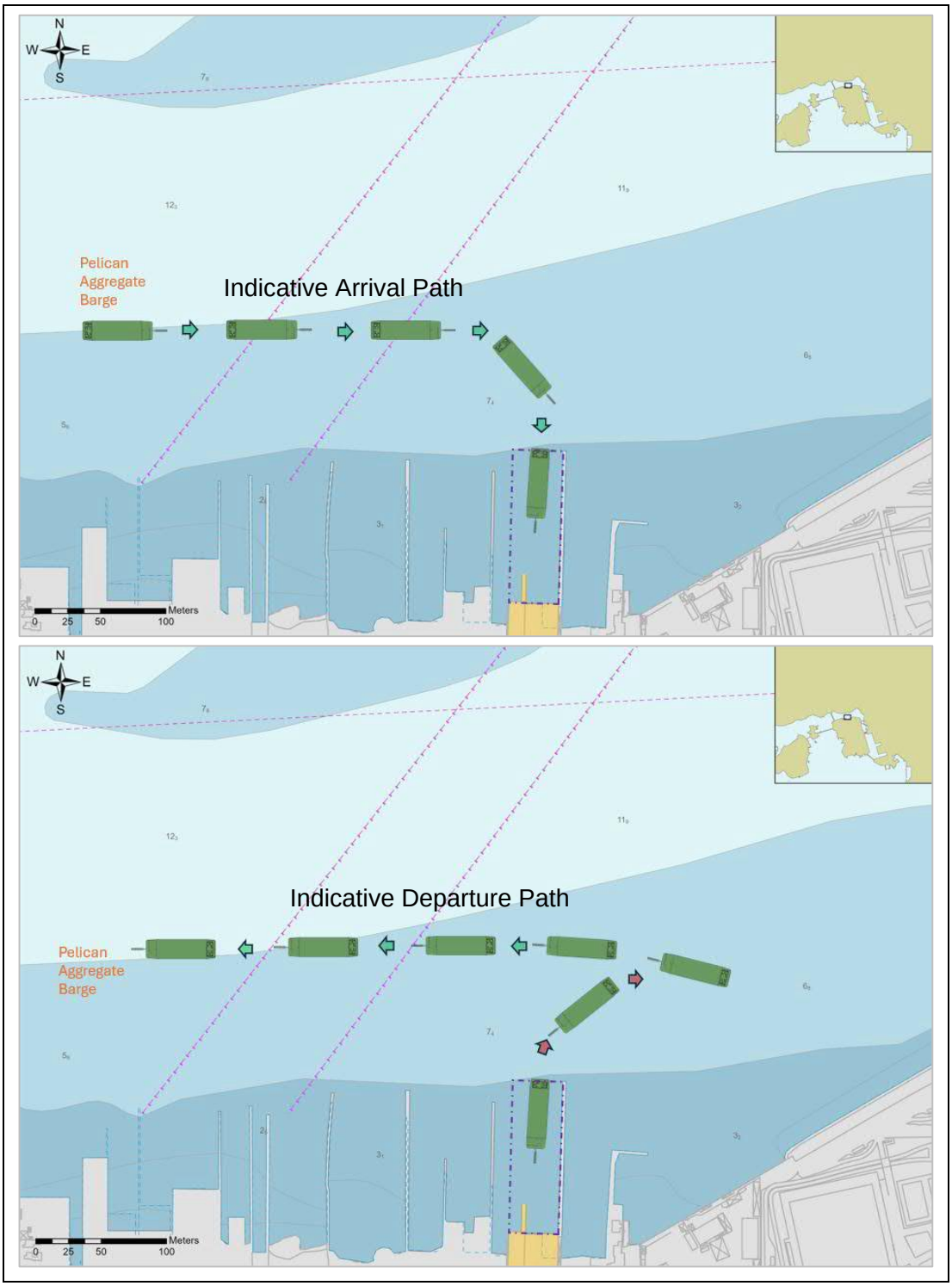
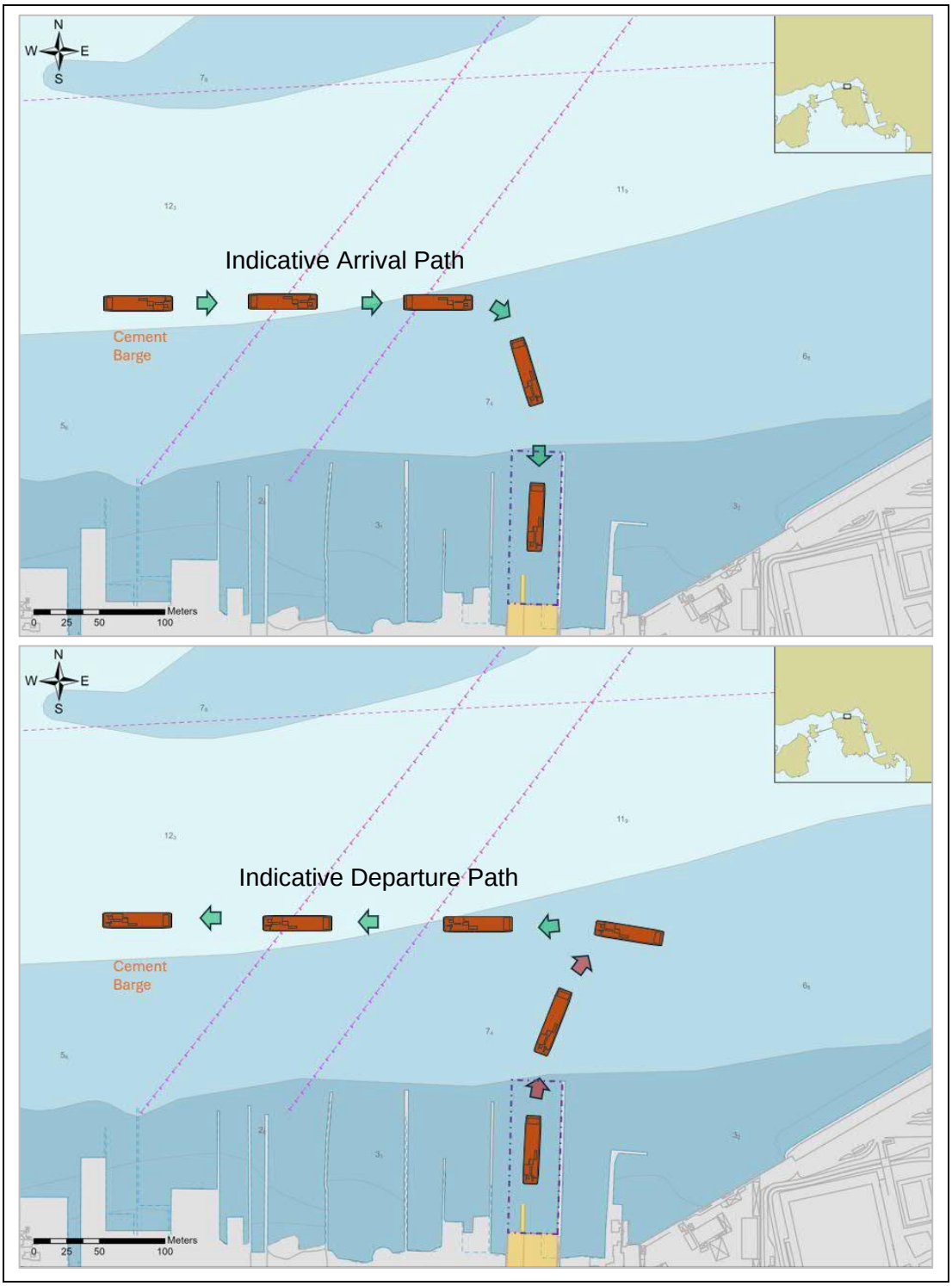


Figure 6.4 Example of Arrival and Departure Path of Cement Barge



7 Marine Logistic Assessment

This section evaluates the feasibility and potential impacts of the proposed barging operations at the Cement Barging Plant (CBP). The assessment encompasses existing marine facilities, metocean conditions, and marine traffic patterns to ensure the operations are conducted safely and efficiently while minimizing any potential impacts on the surrounding marine environment.

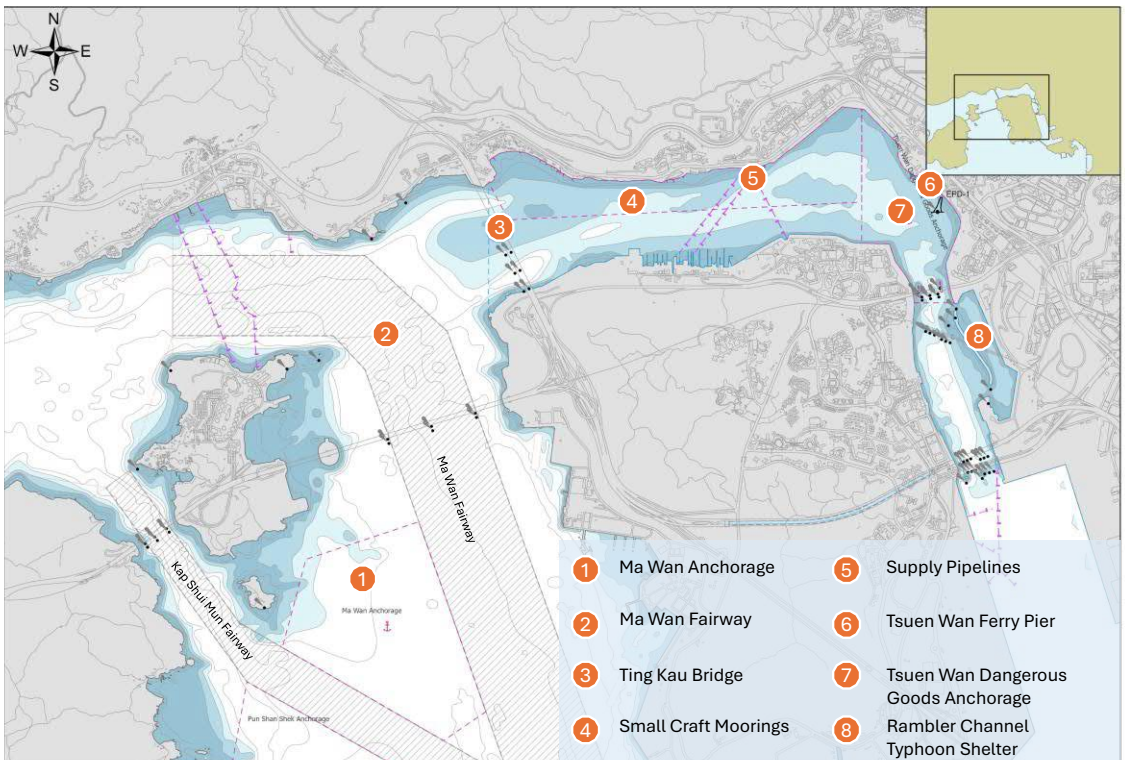
7.1 The Existing Marine Facilities

The vicinity of the project site features key marine facilities that influence navigational activities in the area. These facilities, as shown in Figure 7.1, include:

- **Ma Wan Anchorage:** The Ma Wan Anchorage is a designated area in the waters surrounding Ma Wan Island, primarily used for the safe mooring of vessels. This anchorage is part of the broader marine traffic management system in Hong Kong, which includes various fairways and traffic separation schemes designed to enhance navigational safety in busy maritime areas.
- **Man Wan Fairway:** The Ma Wan Fairway is a crucial maritime route that facilitates navigation between various channels in Hong Kong's busy waters. It connects to several other channels, including the Kap Shui Mun Channel and Tsing Yi Channel.
- **Ting Kau Bridge**: This bridge spans from the northwest of Tsing Yi Island to Tuen Mun Road. It has an air draft restriction of 53 meters above sea level, which must be considered for vessel navigation. feet in length, and a 100-meter-long repair berth for alongside repair services.
- **Small Craft Moorings**: Located north of Tsing Yi Island, these moorings consist of pairs of bow and stern buoys within the waterspace. Mooring requires a request to the Marine Department, and dues are applied.
- **Supply Pipeline**: Three submarine water supply pipelines are identified north and east of the proposed sites.
- **Tsuen Wan Ferry Pier**: Situated south of Tsuen Wan, adjacent to the MTR Tsuen Wan West Station, it provides ferry services connecting to Park Island Ferry Pier at Ma Wan.

- **Tsuen Wan Dangerous Goods Anchorage:** Located northeast of Tsing Yi Island, this anchorage has depths around 10 to 10.4 meters, with a shoal patch at the southeast corner. It primarily serves to provide adequate waterspace for mooring dangerous goods vessels.
- **Rambler Channel Typhoon Shelter**: Located near Kwai Chung in Rambler Channel, it provides 14 hectares of sheltered waterspace for vessels up to 50 meters in length.

Figure 7.1 Existing Marine Facilities near the Application Area



The Site is well-positioned within an area predominantly utilized for industrial purposes, including barge operations, shipyards, and cement storage, ensuring compatibility with existing marine activities.

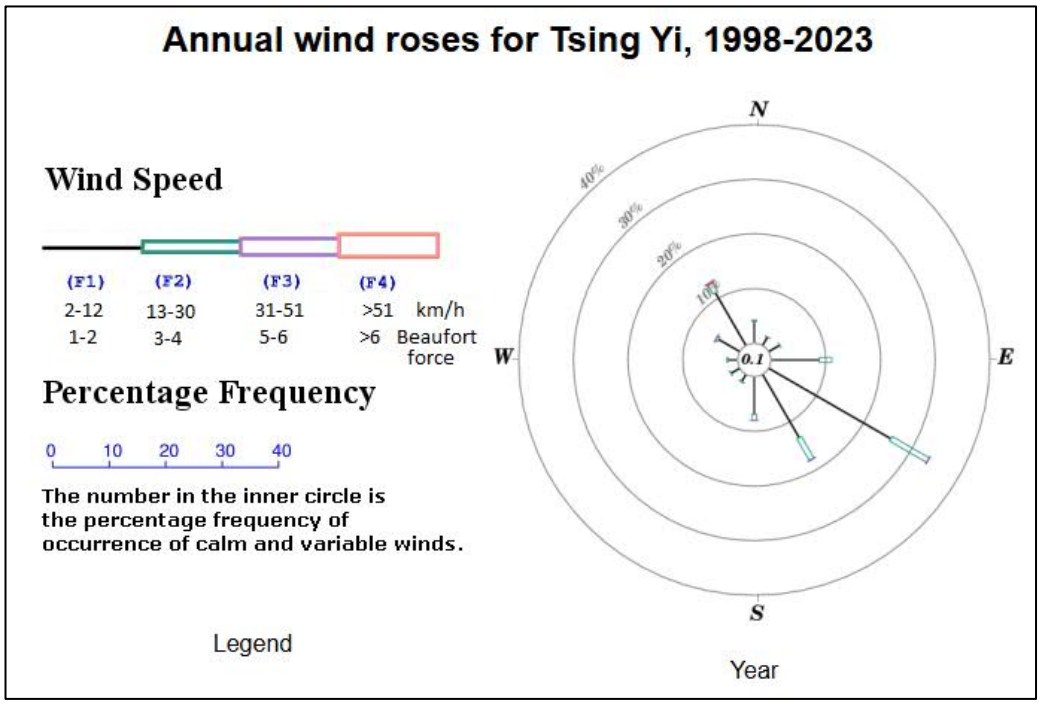
7.2 Metocean Environment

The metocean environment has been analysed to evaluate conditions that could affect marine operations, including wind, tidal levels, and currents.

Wind Environment

The wind environment at the study site was analyzed using historical wind data (1998–2023) from the Tsing Yi wind station, located at Shell Oil Depot on western Tsing Yi. The prevailing winds predominantly originate from the southeast, with typical wind speeds in the range of Beaufort Scale 1–4 (up to 16 knots) as illustrated in Figure 7.2.

Figure 7.2 Annual Wind Rose for Tsing Yi, 1998-2023



Source: Hong Kong Observatory

Due to the site's sheltered position north of Tsing Yi, wind effects are expected to be lighter, reducing potential operational disruptions. However, operations remain subject to temporary constraints under Typhoon Signals.

Tidal Levels

Tides in Hong Kong are mixed and mainly semi-diurnal. On most of the days in a month, there are two high tides and two low tides. Large tidal range occurs twice a month during spring tides when the moon is new or full. On days around neap tides when the moon is in its first or last quarter, however, tidal ranges become small and sometimes only one high and one low tide are observed. In general, the two high tides which occur each day are unequal in height with the higher high tide occurring mostly overnight in winter and during the day in summer.

Tidal data at Ma Wan has been chosen to demonstrate the typical tidal patterns, as they are the closest tidal stations to the Study Area. Tidal details are shown in Table 7.1.

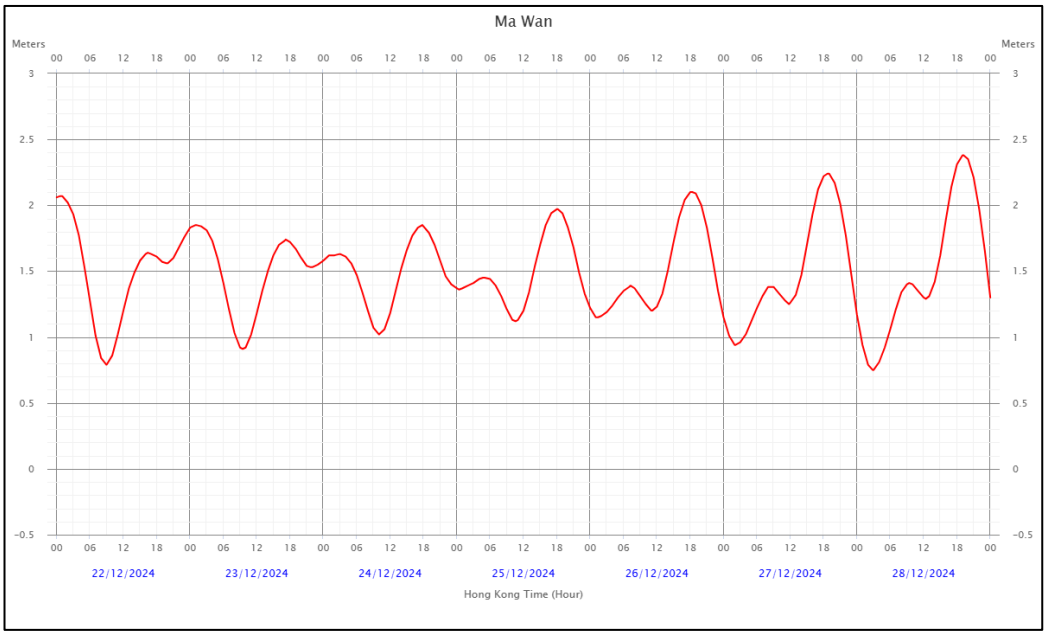
Table 7.1 Tidal Levels at Ma Wan

Location	Level (m) above Chart Datum		
	Mean Sea Level (mCD)	Mean Higher High Water Level (mCD)	Mean Lower Low Water Level (mCD)
Ma Wan	1.48	2.24	0.67

Source: Hydrographic Office Charts for Local Vessels 2018

For the berthing of barges, the actual tidal levels would significantly affect the water depth. In the light of this, the predicted tides for Ma Wan provided by the Hong Kong Observatory are used. A sample of the predicted tides is shown in Figure 7.3

Figure 7.3 Sample of Predicted Tides for Ma Wan



Source: Hong Kong Observatory

The Site's water depth of at least 5 meters (Chart Datum) is sufficient to support the draft requirements of the proposed delivery barges, maintaining safe under-keel clearance during standard tidal conditions.

Current

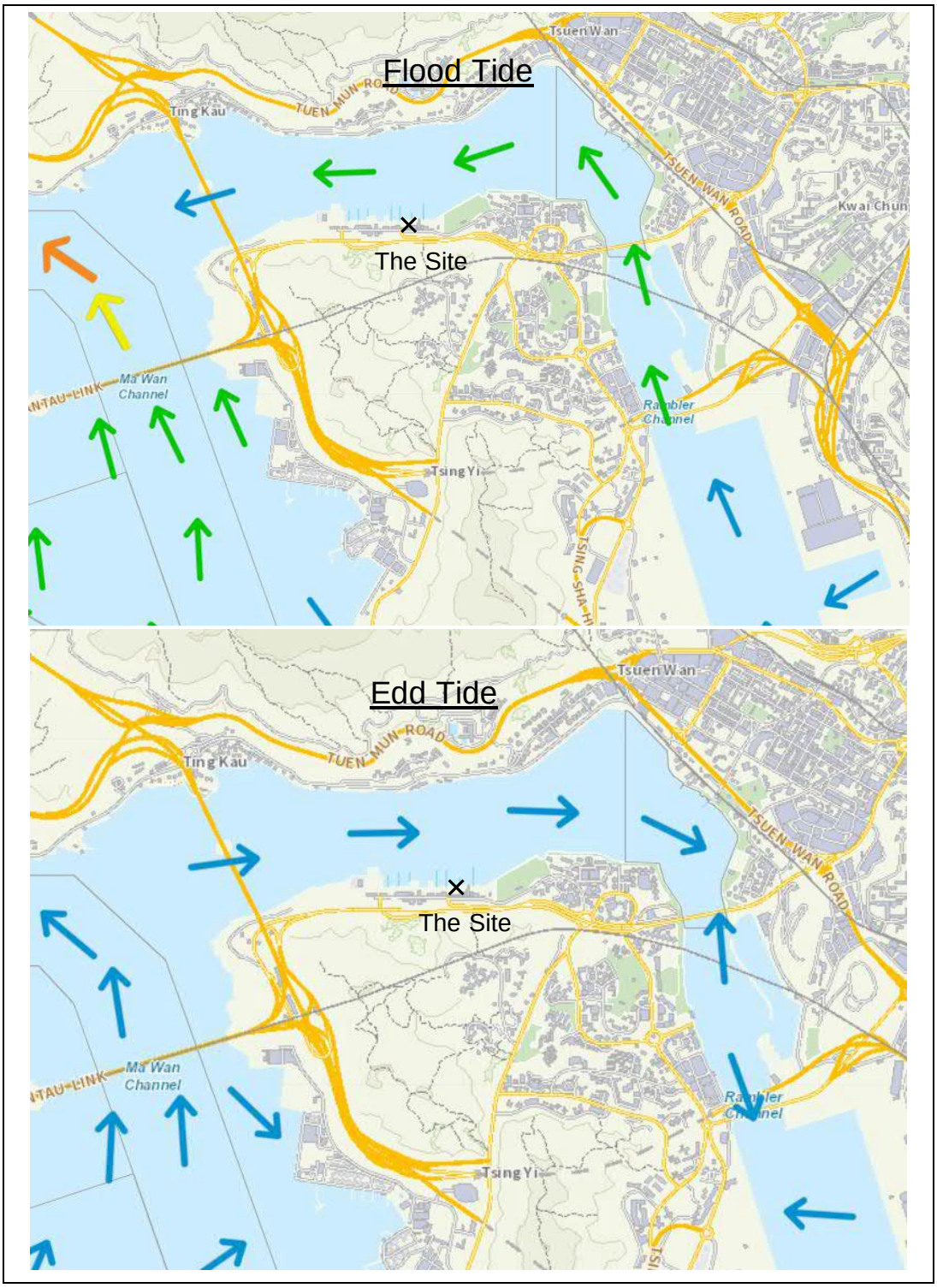
The currents along the project site have been thoroughly analysed using one year of comprehensive data (January 1, 2024, to December 31, 2024) from the Hong Kong Tidal Stream Prediction system (Hong Kong Hydrographic Office). This reliable dataset provides valuable insights into the typical tidal patterns at the site.

The tidal currents at the project site have been analysed using one year of comprehensive data (January 1, 2024, to December 31, 2024) from the Hong Kong Tidal Stream Prediction system (Hong Kong Hydrographic Office). This dataset provides reliable insights into the tidal patterns and flow characteristics in the region.

As illustrated in Figure 7.4, the analysed data point is located in the main tidal stream, where flood tides flow toward the west and ebb tides flow toward the east. Over the one-year period, the tidal current speed in this main stream averaged 0.45 knots, with a maximum recorded speed of 1.68 knots. While these values reflect relatively calm tidal conditions in the main stream, the project site, marked with an "X" on the map, is situated in a sheltered area away from the direct influence of stronger currents.

This sheltered position provides natural protection and calm conditions conducive to barge operations.

Figure 7.4 Illustration of Edd Tide and Flood Tide

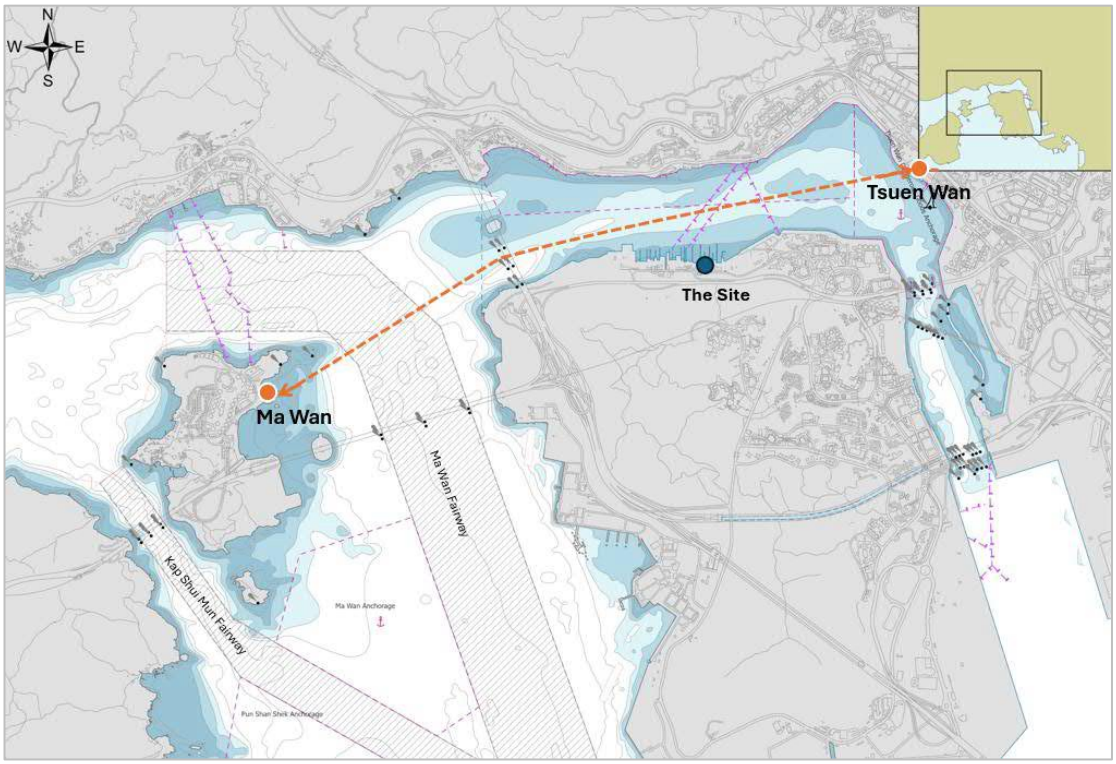


7.3 Local Marine Traffic Environment

Park Island Ferry Services

The ferry services between Ma Wan and Tsuen Wan are operated by Park Island Transport Company Limited. These services serve as transport connection for passengers traveling between the two locations. The ferry route is illustrated in Figure 7.5, showing the indicative vessel movement directions. Operating daily with a total of six trips, the service provides consistent accessibility for residents and visitors.

Figure 7.5 Traffic Gate and Vessels Movement Direction



The service schedule for the ferry operations is detailed in Table 7.2, summarizing the daily departure times.

Table 7.2 Ferry Services Schedule

Route	Scheduled Departure Times (Daily Mon-Sun)
From Ma Wan	10:15, 13:15, 16:15
From Tsuen Wan Pier	10:35, 13:35, 16:35

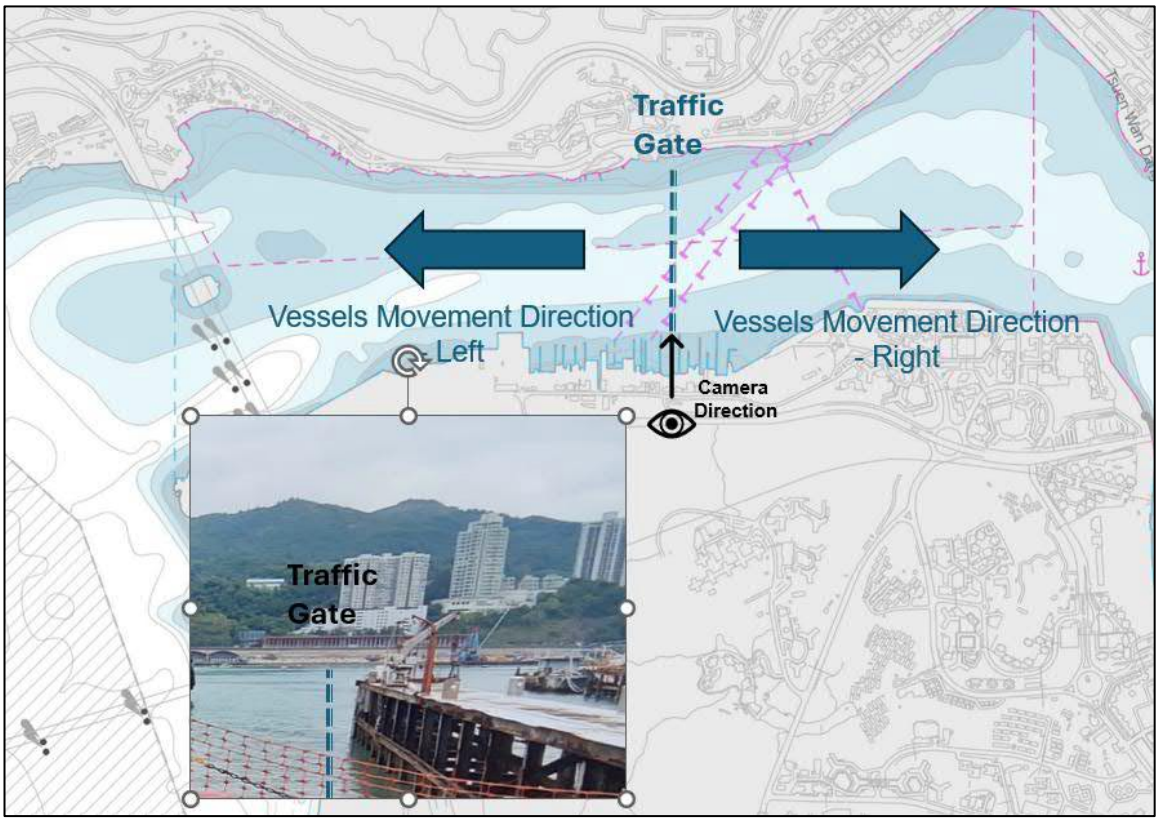
7.4 Daylight Visual Survey Study Methodology

To collect the latest marine traffic pattern in the area, a daylight visual survey was carried out for 30 consecutive calendar days (from November 2024 to December 2024) during daylight hours (0700-1900). Vessel counting was carried out on 12 selected days within the period.

The study area was defined by one imaginary line (Traffic Gates) as shown in Figure 7.5**.** All vessels passing through the traffic gates would be recorded by a video camera set up at the Site.

The cameras recorded the types, the numbers and the movements of the vessels transiting within the study area 24-hour daily. The data were collected to analyse the vessels activities and assess the traffic impact generated by the CBP.

Figure 7.6 Traffic Gate and Vessels Movement Direction



Vessel Type in Survey

The data collection for this study will be based on the classification of vessels to analyse marine traffic within the study area. The vessel types are classified as follows:

- OG-C (Ocean Going - Cargo): Large cargo vessels, including container ships, bulk carriers, and tankers, designed for international trade. These vessels typically exceed 100 meters in length.
- RT (River Trade): Medium-sized vessels, such as container ships, bulk carriers, and tankers, operating in regional and coastal waters. These vessels, with a length overall of 20 to 100 meters.
- T&T (Tug & Tow): Tugboats engaged in towing operations, often paired with barges. The combined length of the tug and tow ranges between 110 and 140 meters, primarily used for cargo transport and ship maneuvering.
- OG-P (Ocean Going - Passenger): Passenger vessels, including cruise ships and large ferries, operating on international routes.
- FF (Fast Ferry/High-Speed Craft): High-speed ferries operating at speeds of at least 20 knots, commonly used for passenger transportation between Hong Kong and neighboring regions.
- LF (Local Ferry): Domestic ferries providing short-distance passenger transport within Hong Kong waters. These vessels typically have a length of up to 22 meters.
- FL (Fast Launch): Small, fast-response government-operated vessels such as patrol boats, fire service speedboats, and pilot boats. These craft, up to 14 meters in length, are used for emergency response and navigation assistance.
- TB (Tugboat): Independent tugboats that assist larger vessels with berthing, docking, and maneuvering in confined waters such as ports and harbors.
- DG (Local Dangerous Goods): Vessels specifically designed to transport hazardous materials, including chemicals and fuel, within local waters. These vessels adhere to strict safety regulations.
- PV (Pleasure Vessel): Recreational vessels, such as yachts, cruisers, and sampans. This category may also include smaller fishing boats used for leisure activities.
- UC (Unclassified): Vessels not fitting into any specific category due to unique designs or operational roles. These may include research vessels or specialized service craft.

Average Daily Pattern of Traffic Gate

Data collected from 7:00 to 19:00 during 12 selected days reveals that an average of 226 vessels was observed daily, as shown in Table 7.3**.** The analysis indicates that the dominant vessel types within the study area are pleasure vessels and tugboats, followed by dangerous goods vessels and river trade vessels.

Given the prominence of these vessel types, it is essential for crews operating in the vicinity of the CBP (Concrete Batching Plant) to exercise caution. Awareness of the traffic patterns can help minimize encounter risks and maintain operational safety.

As part of the planned CBP operations, the barge delivery schedule includes six barge movements per day: one inbound and one outbound trip for cement, and two inbound and two outbound trips for aggregates via the Pelican Aggregate Barge

When compared to the existing daily marine traffic of 226 vessels, the additional barge movements represent a minor increase.

Table 7.3 Hourly Average Vessel Movement

Hourly Average Vessel Movement for Selected 12 Days Both Directions (Westbound and Eastbound)														
Hour			All	Cargo			Passenger				Others			
				OG-C	RT	T&T	OG-P	FF	LF	FL	TB	DG	PV	UC
7:00	-	8:00	24.9		0.4	0.5		3.6	2.3	11.5	2.1	2.1	2.5	
8:00	-	9:00	22.8		0.9	0.7		2.1	1.7	9.7	0.8	1.8	5.3	
9:00	-	10:00	14.2		1.4	0.3		0.3	1.0	3.5		2.3	5.5	
10:00	-	11:00	18.8		1.4	0.3		2.0		3.5	0.6	2.3	8.7	
11:00	-	12:00	16.9		1.8	0.8				3.7	1.6	3.2	5.9	
12:00	-	13:00	20.9		2.4	0.5				3.2	1.2	3.9	9.3	0.5
13:00	-	14:00	17.7		3.5	0.3		2.0		2.3	0.5	2.8	6.1	0.2
14:00	-	15:00	12.7		1.9	0.4				3.7		1.0	5.6	0.1
15:00	-	16:00	15.1		1.1	0.1				3.8	0.9	1.3	8.0	
16:00	-	17:00	17.3		0.8	0.2		2.0		3.0	0.8	1.3	9.3	
17:00	-	18:00	21.5		0.7	0.2		1.9		6.8	1.3	1.1	9.6	
18:00	-	19:00	23.1		0.7			2.4		13.0	0.6	0.6	5.8	
Total			226		17	4		16	5	68	10	23	81	1

7.5 Minimal Potential Impacts

The marine logistics assessment confirms that the proposed CBP operations will have a minimal impact on the existing marine environment. The additional barge operations, limited to 3 round-trips per day (one inbound and one outbound for cement, and two inbound and two outbound for aggregates via the Pelican Aggregate Barge), represent less than 2% of the typical daily vessel movements in the nearby waterway, constituting a negligible increase in traffic. The site's strategic location, with direct access to established fairways and existing mooring facilities, ensures that delivery operations will not disrupt primary navigational routes or interfere with nearby industrial activities.

Metocean conditions at the Site, including moderate tidal currents (average speed of 0.45 knots) and sufficient water depth (minimum of 5 meters Chart Datum), provide a stable and predictable environment for barge operations. These factors significantly reduce risks associated with manoeuvring and mooring. Additionally, the sheltered location along the northern coast of Tsing Yi minimizes the influence of strong winds, ensuring safe and reliable operations even during peak tidal movements.

8 Implementation and Mitigation Measures

This chapter outlines the comprehensive organizational structure, communication protocols, operational requirements, safety practices, and emergency response measures that govern the operations of the Cement Barging Plant (CBP). These measures aim to ensure safe, efficient, and environmentally compliant operations while mitigating risks associated with marine logistics and plant activities.

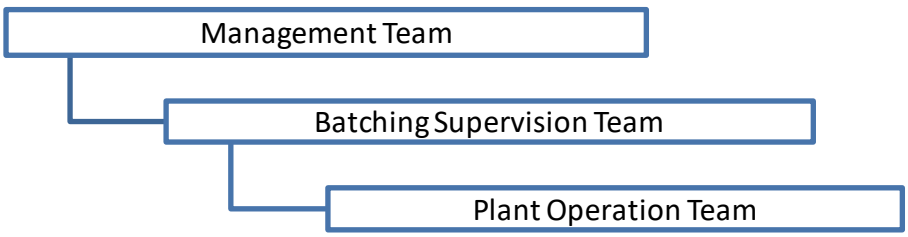
8.1 Organization

The CBP has established a well-trained and experienced team responsible for overseeing daily operations. The team ensures tasks are implemented as planned, takes immediate corrective actions when necessary, and maintains high safety standards.

Organization Chart

The CBP management team is organized to ensure that all precautionary and mitigation measures are effectively implemented. The organizational structure is shown in Figure 8.1 Organization Chart.

Figure 8.1 Organization Chart



Roles and Responsibility

- **Management Team:** Oversees overall CBP operations, coordinates deliveries with suppliers, and ensures compliance with regulations and operational protocols.
- **Batching Supervision Team:** Serves as the primary contact for vessel crews, monitors weather conditions, arranges berthing schedules, and manages unloading operations.

- **Plant Operations Team:** Executes instructions from the Batching Supervisor, liaises with vessel crews, maintains unloading facilities, and ensures smooth and safe unloading operations

8.2 Communications

Effective communication protocols are critical for safe and efficient CBP operations, ensuring seamless coordination among internal teams, vessel crews, and external stakeholders.

Table 8.1 Communications System in CBP

System	Function and Notes
Walkie-talkies	For internal communication among site staff
Mobile Phones	To facilitate contact with key personnel, including supervision and operations teams.
Email	To arrange deliveries, record notifications, and manage operational documentation.
VHF Radio	For direct communication between CBP operators and vessel crews.

Internal Communication

A structured pre-notification system ensures only one barge operates at the designated area at any given time:

- **72 Hours Pre-Notification**: The Batching Team sends delivery requests to the Management Team for coordination with suppliers.
- **12 Hours Prior Notification**: Vessel crews inform the Batching Supervisor of arrival details and seek approval.
- **Operational Updates**: The Batching Supervisor communicates arrangements to the Operations Team for preparation.

External Communication

- **Adjacent Users:** CBP coordinates with neighboring facilities to avoid scheduling conflicts and ensure only one vessel operates at the site simultaneously.

- **Marine Department (Vessel Traffic Service):** Vessel crews report transit information to the Vessel Traffic Service (VTS) using designated VHF channels during their approach and departure.

8.3 Implementation Requirement

Vessel Requirements

All vessels deployed for CBP operations must comply with the Merchant Shipping (Local Vessels) Ordinance (Cap. 548) and meet the following standards:

- Be maintained in a seaworthy condition and equipped with operational propulsion and mooring systems.
- Employ competent, qualified crews.
- Be equipped with Automatic Identification Systems (AIS) and multi-channel VHF radios.

Terminal Requirements

The terminal must maintain all equipment in accordance with Hong Kong regulations and operate it using qualified personnel. Regular certifications and maintenance checks are required to ensure compliance and operational safety.

Safety Equipment

Each vessel shall be equipped with the safety devices which include but not limit to the follows:

- **Personal Protective Equipment (PPE):** Gloves, masks, non-slip shoes, eye/ear protection.
- **First Aid Kits:** Up to required standards and readily accessible.
- **Firefighting Equipment**: Portable fire extinguishers and related equipment.
- **Lifesaving Appliance**s: Life jackets, lifebuoys, and emergency lights.
- **Safety Notice Boards**: Displaying key safety information.

8.4 Safety & Mitigation Measures

Operational Safety Objective

The operator of the proposed CBP is committed carrying out the marine delivery works in a manner that causes minimum harm to our employees and other marine users. This will be achieved through the establishment of clear objectives and the implementation of an effective safety management system which include:

- Prevent accidents and comply with relevant legislation.
- Maintain the highest safety standards and provide ongoing employee training.
- Conduct regular audits of the safety management system.

Training

The adequate safety training for levels of personnel including the skippers, marine crew onboard and crew on CBP, and the profession training for the utilisation of marine plants or system, shall be provided regularly to ensure their understanding and compliance of marine safety issues.

- **Induction Training**: The Plant Supervisor shall provide the site-specific induction training course to the employees including the CBP background, health & safety policy, employees' duties, Hong Kong government legislation &regulations, permit to work, foreseeable hazards, emergency preparedness, personal protective equipment, case studies, etc. The Plant Supervisor shall provide refresher training courses to its employees in every six months.
- **Skipper Training**: Before CBP implementation, the vessel crew from the supplier shall carry out the trial-run training to ensure the marine traffic and relevant safety issues are compiled by all the skippers, which shall be recorded as the housekeeping rules for monitoring and review. The skippers shall be well trained by traveling via the designated routes.

Weather Monitoring

To enhance navigation safety, real-time metocean (tidal, sea level) data and weather forecast from the Hong Kong Observatory and the Marine Department will regularly be reviewed.

The predictions will provide detailed and up-to-date Hong Kong and Guangdong weather forecast for the waters, which provides a sound basis for day-to-day planning and operations. The forecasts include the information of:

- Wave conditions and General weather outlook
- Rainfall
- Significant swell heights
- Wind conditions
- Gust and average speeds
- Wave conditions
- Miscellaneous data on relative humidity, and sea temperature

8.5 Adverse Weather Arrangement

The special arrangement shall be well prepared and implemented in response to typhoon or adverse weather occurrence accordingly, ensuring the safe CBP operation and the vessel and its crew can be evacuated in a safe and efficient manner.

Roles and Responsibilities under Adverse Weather

Batching Supervision Team:

- Closely monitor the weather forecast of Hong Kong and Guangdong;
- Announce the response plan accordingly;
- Monitor the response actions in CBP and ensure the safety of both personnel, equipment and facilities.

Plant Operation Team:

- Post tropical cyclone warning status for information;
- Liaise with Vessel Operation Team of Supplier to prepare specific tropical cyclone response plan and implement accordingly;
- Examine and secure the facilities on site;
- Ensure staff who works outdoor put on PPEs.

Vessel Operation Team of Supplier:

- Liaise with Plant Operation Team;
- Implement the specific tropical cyclone response plan;
- Ensure staff who works outdoor put on PPEs.

- Moor vessels at safe locations.

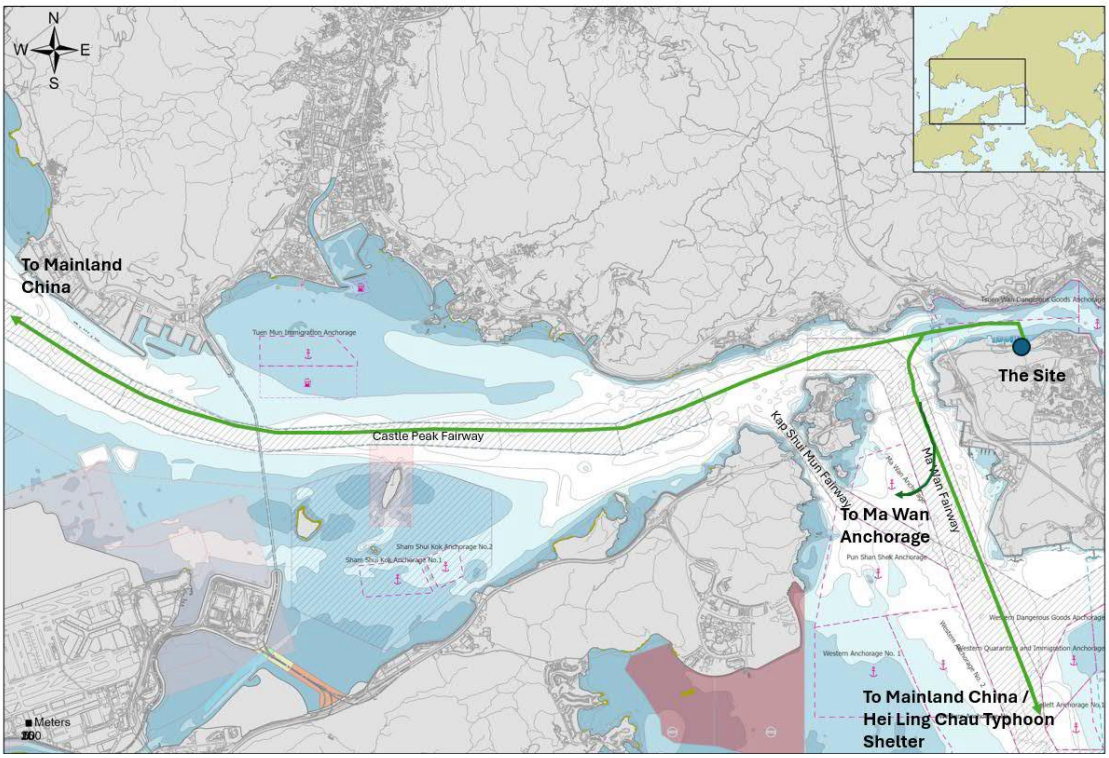
Adverse Weather Procedures

The aggregate delivery to CBP shall only be allowed when weather and sea state will not adversely affect the safe transit and will not create the risk of spillage or loss of materials from the vessels during voyage. The following procedures have been regulated for the CBP barge operation in response to adverse weather conditions:

Typhoon:

- **When Tropical Cyclone Signal No. 1 (TS1)** is Hoisted: The operations will be maintained, but the further typhoon development will be closely monitored by Plant Operators. The Batching Supervisor shall decide whether the material delivery would be arranged based on the weather information from HKO and Guangdong weather forecast.
- **When Tropical Cyclone Signal No. 3 (TS3)** or above is Hoisted: All agents, suppliers, and vessel crews will be notified immediately. Aggregate deliveries will be suspended, and on-site batching may only proceed under favorable weather conditions (e.g., no rainfall, strong winds, or adverse sea conditions) in strict compliance with the BOP protocols, including real-time weather monitoring and readiness to halt operations if conditions deteriorate. Vessels will evacuate work areas to seek safe shelter in Mainland, following Marine Department recommendations for river trade vessels. If Typhoon Signal No. 8 is forecasted and evacuation to Mainland is not possible, vessels will proceed to Hei Ling Chau Typhoon Shelter or alternative anchorages such as Ma Wan Anchorage. A standby tugboat will be deployed, if required, to accelerate the evacuation of barges and ensure the safety of operations.
- **Before TS 3** is issued, if in the case of the delivery barge is approaching HK during adverse weather condition, the vessel shall steer back to Mainland China and not stay in HK water.
- **When TS 3** is lowered and the weather condition is improved, the Plant Operators will consider whether to resume the operation based on the remaining time after TS3 lowering, the time taken to operation resume, etc.
- The applicant shall ensure that all delivery vessels strictly follow the adverse weather procedures set out in this plan. Any unauthorized anchoring or failure to evacuate will be considered non-compliant.
- The evacuation route for typhoon or contingency is depicted in Figure 8.2.

Figure 8.2 Evacuation Routes for Typhoon or Contingency



Rainstorm:

- When a red rainstorm signal is issued, the loading & unloading activities shall be ceased, the crew members should attend bilges and the on-site facilities will be examined and secured properly.
- When a black rainstorm signal is issued, the outdoor activities would be suspended and all crew member shall stay indoor in a safe place.

Low Visibility:

- All operations must cease when visibility is less than 1.5 nautical miles. The Marine Department's Vessel Traffic Centre (VTC) will broadcast visibility reports on VHF channels 12, 14, and 67 when visibility drops below 2 nautical miles. Operators must monitor these channels continuously.
- Barging operators must strictly comply with the "International Regulations for Preventing Collisions at Sea, 1972" (COLREGs), with emphasis on:
    - Rule 5: Maintain a proper lookout.

- Rule 6: Navigate at a safe speed.
- Rule 7: Assess the risk of collision.
- Rule 8: Take timely actions to avoid collisions.
- Rule 19: Use AIS, sound signals, and extreme caution in restricted visibility.

- Operators must reduce speed, maintain clear communication using AIS and sound signals, and coordinate with nearby vessels.
- In the event of an accident, this should be reported immediately to the Vessel Traffic Centre, either on V.H.F. (channel 12, 14 or 67) or by telephone (no. 2233 7801 or 2233 7302).

8.6 Emergency Responses

Once the emergency occurs, the person-in-charge onboard shall contact the Plant Operators. The responsible person shall report the occurrence forthwith to Fire Service Department (FSD) or MD orally about the accident time/position.

The emergency response shall be in accordance with the requirements of Merchant Shipping (Local Vessels) Ordinance Cap 548. The responses for key emergency scenarios are introduced as follows:

Fire on CBP

- Any staff member will activate the warning alarm and report to FSD immediately;
- All persons to evacuate the plant and building and assemble on at the emergency assembly area;
- Notify the fire warden if people are missing at a possible location;
- Report any anomalies to the fire warden and they will arrange search;
- On advice of fire warden, tenants and general public should then return to building or leave premises;
- Assist in securing the site and determine extent of damage, prepare the relevant clean-up plan and strategy to make good afterwards.

Collision

If collision occurs, Coxswain should:

- Cut engine power and inform all crew members on board;

- Inform Operations about vessel's position and time of accident and keep proper log of major events;
- Inform the crew members and keep them calm;
- Send crew member to inspect for damages and check for any oil leakage;
- Check for any injuries onboard and perform first-aid treatment as appropriate;
- If slightly taking on water occurs, send crew members to clear water by using emergency water pump;
- If more than one cabins taking on water and risk of sinking occurs, abandon ship signal has to be sent out by blowing 7 short follow 1 long blast on the whistle. Instruct crew members to prepare all LSA on board, and assist the personnel to put on life jackets for leaving the ship;
- Attract vessels in the vicinity for emergency assistance by blowing 3 short 3 long and follow by 3 short blasts on the whistle and hoist international distress signal;
- If there is no immediate danger of own vessel, assist the other vessel and record the information including vessel name, coxswain name, damage & condition of vessel;
- When abandon ship signals have been sent out, all crew members have to follow the emergency procedure.

Fire onboard

If fire occurs, Coxswain should:

- Stop the barge at a safe place or away from other vessels if circumstance permits;
- Activate fire alarm and instruct crew members to fire fight;
- Inform Operations and Marine Department for assistance;
- Stop engine, cut off power, shut fire damper, start fire pump & fire extinguishers and use all appropriate means on board to fight fire;
- Broadcast to keep the crew calm and if threatened, relocate to a safe area;
- When serious fire occurs, inform the crew to put on life jackets and stand-by for further instruction to leave ship;
- When fire is out of control, abandon ship action has to be taken. Instruct crew members to prepare all LSA on board, and put on life jackets for leaving the ship;
- When crew members have received abandon ship signal, cease fire fighting and immediately report to assigned stations to prepare for abandon ship.

Grounding

If grounding occurs, Coxswain should:

- Stop engine and inform all crew members on board;
- Inform Operations about vessel's position and time of accident and keep proper log of major events;
- Inform the crew and keep them calm;
- Send crew member to inspect damage and check for any oil leakage;
- Take sounding around and check status of seabed;
- Check any injury on board and perform first-aid treatment as appropriate;
- If slightly taking on water is found, prevent further leakage and use water pump as appropriate;
- Prevent the barge from drifting to shore;
- If taking on water is causing the barge to one side, abandon ship action should be taken. Instruct crew members to prepare and put on the LSA /life jackets for leaving the ship;
- Attract vessels in the vicinity for assistance by blowing 3 short and follow by 1 long blast on the whistle and hoist 'V" flag;
- Attract vessels in the vicinity for emergency assistance by blowing 3 short 3 long and follow by 3 short blasts on the whistle and hoist international distress signal;
- Aground signal: Day — by hoisting 3 black balls or shapes vertically on the main mast together with the anchor black ball; Night — by hoisting 2 red lights in a vertical line on the main mast together with the anchor light;
- Take precaution of tidal change;
- When abandon ship signals have been sent out, all crew members have to follow the emergency procedure and report to their assigned boat stations.

Man Overboard

If man overboard occurs, Coxswain should:

- Stop both main engines; blow 3 long blasts on the whistle to indicate man overboard;
- Deploy lifebuoy with buoy light to indicate the overboard position, and the crew member shall keep pointing at the location;
- Operate engines and turn towards the person overboard;

- Proceed back to the position with caution and give a lee side to the person overboard. Keep the person overboard well clear from the propeller;
- Keep clear of surrounding traffic, and take precaution to pick up the person overboard;
- Report to the Plant Operation Team of CBP and Marine Department.

Oil Leakage

If oil leakage occurs, Coxswain should:

- Cease filing, take precaution to avoid oil split overboard;
- Arrange crew members for assistance;
- Empty tank by transferring fuel to other oil tanks;
- If oil split overboard, inform the Plant Operation Team of CBP and Marine Department.

Engine Malfunction

If engine malfunction occurs, Coxswain should:

- Slow down or stop engine;
- Clear of traffic or prevent from obstructing fairway;
- Hoist up engine trouble signal;
- Drop anchor as appropriate;
- Inform Plant Operation Team and Marine Department;
- Check with Engineer whether the engine can be repaired by crewmember and time required;
- Inform the crew and keep them calm;
- If the engine cannot be repaired by crewmembers on board, inform the Plant Operation Team to arrange towage as soon as possible.

8.7 Conclusion

The implementation and mitigation measures outlined in this chapter demonstrate a comprehensive approach to ensuring the safe, efficient, and environmentally responsible operation of the Temporary Concrete Batching Plant. By establishing clear roles and responsibilities, robust communication protocols, and stringent operational and safety standards, the proposed operations mitigate risks to marine traffic, personnel, and the environment. Proactive weather monitoring, detailed emergency response plans, and adherence to international and local regulations further ensure operational resilience under normal and adverse conditions..

9 Summary and Conclusion

9.1 Introduction

The applicant proposes to develop a Temporary Concrete Batching Plant (CBP) at the approved Tsing Yi Outline Zoning Plan No. S/TY/32 for a duration of five years. To support the application, AXON Consultancy Limited has prepared this Barging Operation Plan (BOP), which outlines the marine logistics arrangements, evaluates potential traffic impacts, and proposes mitigation measures to ensure the proposed CBP operates in a safe, efficient, and environmentally sustainable manner.

9.2 Summary

The marine logistics operations for the proposed Concrete Batching Plant (CBP) are designed to ensure safe and efficient functionality. Aggregates and cement will be delivered via self-propelled barges from the mainland, with a maximum of 3 round trips per day— three inbound trips (one for cement delivery and two for aggregates via the Pelican Aggregate Barge) and three corresponding outbound trips.

Maintenance dredging is required to restore adequate water depth at the barging point, where sedimentation has reduced the nearshore depth below safe levels for batching operations; an estimated 4,000 m² of dredging is needed— a minor volume compared to larger project thresholds.

Mooring stability is enhanced through the installation of new fenders, bollards, and a robust anchoring system, which secure both the Pelican Aggregate Barge and the Cement Barge, ensuring precise vessel alignment and safe operations despite tidal fluctuations and currents.

Unloading operations are efficiently executed at the safety platform, with the aggregate barge using an integrated conveyor system to transfer material directly to the batching plant, and the cement barge employing a self-discharging pumping system, complemented by the plant's advanced suction technology, to deliver cement while improving air quality by reducing exhaust emissions. Marine Traffic Review

A review of nearby marine facilities and the Metocean environment affecting CBP operations concluded that potential impacts are minimal. The site benefits from moderate tidal currents averaging 0.45 knots and a minimum water depth of 5 meters (Chart Datum), providing a stable and predictable environment for barge operations. Additionally, the sheltered location along the northern coast of Tsing Yi reduces the impact of strong winds, ensuring safe and reliable operations even during peak tidal conditions.

A daylight visual survey conducted in November–December 2024 (07:00–19:00) collected detailed data on vessel traffic in the area. Over 12 selected survey days, an average of 226 vessel movements were recorded daily, with the most common vessel types being pleasure vessels and tugboats, followed by dangerous goods vessels and river trade vessels. The planned barge operations, limited to six trips per day, account for less than 2% of the typical daily vessel movements, representing a negligible increase in marine traffic.

A comprehensive set of risk control measures has been established in this BOP, ensuring full compliance with safety and operational requirements. Clear roles and responsibilities have been assigned, and communication protocols have been implemented to ensure efficient internal operations and minimize conflicts with adjacent users or stakeholders.

Implementation requirements for vessel deployment, terminal infrastructure, safety equipment, and weather monitoring have been clearly defined to guide precautionary actions. Special arrangements for adverse weather conditions, including typhoons, rainstorms, and low visibility, have been prepared to ensure operational continuity and safety. Emergency response protocols for various scenarios have also been established, providing clear guidance for all responsible personnel.

The CBP operators are committed to maintaining the highest safety standards, treating safety and health as integral aspects of their performance, and mitigating potential hazards to the minimum feasible level.

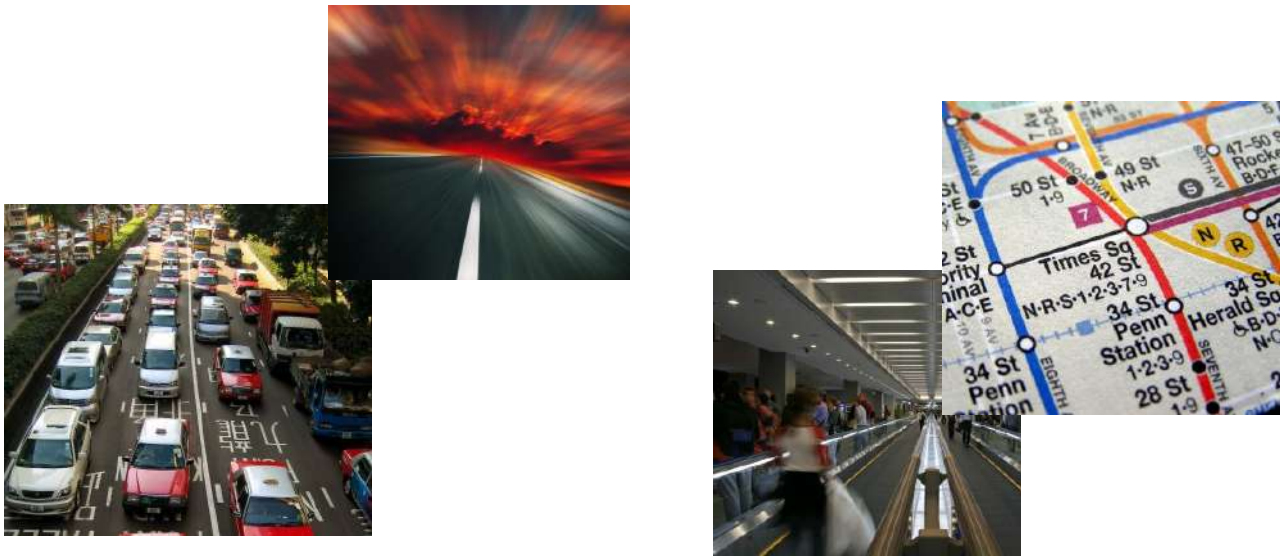
9.3 Conclusion

The proposed CBP, supported by this barging operation plan, incorporates robust marine traffic arrangements, impact assessments, and implementation of mitigation measures. Although vessel movements associated with the CBP will interact with existing traffic conditions in the vicinity, survey data indicates that the induced marine traffic impact is negligible. Furthermore, any marine risks posed by these operations can be mitigated to an acceptable level, provided the proposed measures outlined in this BOP are implemented effectively.

Appendix III

Traffic Impact Assessment

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories



TRAFFIC IMPACT ASSESSMENT REPORT

Reference: 31048-R01-04
Date: April 2025

AXON
CONSULTANCY

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1 Introduction

1.1 Background

The Applicant intends to seek Town Planning Board ("TPB") approval for a Proposed Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lots (TYTL) 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi (hereafter "the proposed development").

In the Approved Tsing Yi Outline Zoning Plan No. S/TY/32 (referred to as the "OZP"), the Application Site is zoned as "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses". According to the Schedule of Uses outlined in the OZP, the intended use of a Concrete Batching Plant falls under Column 2 uses. Consequently, obtaining planning permission from TPB is necessary for the proposed temporary concrete batching plant under Section 16 of the Town Planning Ordinance.

AXON Engineering & Consulting Limited was commissioned to carry out a Traffic Impact Assessment (TIA) report in support of the Section 16 planning application to facilitate the proposal for the proposed development.

1.2 Objectives

The objectives of the traffic impact study are as follows:

- to estimate the potential traffic generation/attraction due to the proposed development; and
- to assess the future traffic situation in the surrounding network; and
- to appraise the potential traffic impacts of the development; and
- to evaluate the internal transport facilities of the development; and
- to consider road improvement proposals, if required.

1.3 Structure of Report

Chapter 1 – Introduction, which covers the study's background, objectives, and report structure.

After this introductory chapter, there are the following chapters:

Chapter 2 – The Proposed Development, which describes the site location and development schedules;

Chapter 3 – Existing Traffic Situation, which presents the existing local road network within the vicinity of the proposed development, the details of the traffic count survey and the traffic assessment of the existing traffic conditions;

Chapter 4 – Future Traffic Situation, which presents the design year future traffic flows under reference and design scenarios based on the assumed annual growth rate considered the planned adjacent developments;

Chapter 5 – Transport Provisions, which presents the traffic arrangements and provisions of internal transport facilities for the proposed development;

Chapter 6 – Traffic Management Plan, which outlines procedures for coordinating truck movements via GPS tracking and walkie-talkie communication to prevent congestion;

Chapter 7 – Contingency Plan, which Specifies measures to manage silo malfunctions by rerouting excess trucks to a temporary waiting area;

Chapter 8 – Non-Conformance, Incident Investigation and Auditing Mechanism, which describes processes for managing deviations, investigating incidents, and conducting audits for continuous improvement; and

Chapter 9 – Summary and Conclusion, which summarizes the key findings and conclusions regarding traffic impacts and management measures.

2 The Proposed Development

2.1 The Application Site

The Application Site has an approximate area of 4,266 m^2 and is bounded by TYTL 14, TYTL 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi. It is bordered by Tam Kon Shan Road on the south. The site is situated to the west of Green Kwai Tsing and Tsing Yi Northeast Park. The site location is shown in **Figure 2.1**.

2.2 The Proposed Development

The proposed development involves constructing a Temporary Concrete Batching Plant for a period of five years. The site's strategic location along the coast enables the marine transportation of concrete ingredients, significantly reducing the potential traffic impact on the surrounding road network. Furthermore, the daily operations of the concrete batching plant requires certain raw materials, which will be transported overland to the proposed development for concrete manufacturing. Specifically, these materials include admixtures and pulverised fuel ashes. The delivery trucks carrying these raw materials will be scheduled to arrive at the plant during designated time intervals, particularly during off-peak hours, in order to mitigate any adverse traffic effects on the adjacent road networks.

The operational parameters and activities for the development are summarized in **Table 2.1** below:

Table 2.1 Development Operation Parameter and Activities

Design Parameter	Quantity of Proposed Development Parameter
Lot No.	TYTL 14, TYTL 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi
Application Area	About 4,335 m^2
Gross Floor Area	About 1,419.2 m^2
Zoning	"Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses"
Completion Year	2026
Activities	**Delivery Mode**
Ingredient Delivery	Barge + Truck
Final Product Delivery	Truck

3 Existing Traffic Situation

3.1 Existing Road Network

The major road networks in the vicinity of the Application Site are listed as follows:

Tsing Yi North Coastal Road, is a dual-two carriageway oriented in the east-west direction. This road connects Tsing Ma Control Area and Tsing Tsuen Road as a primary linkage, providing a major passageway for the commute of the motorists between Lantau Island, New Territories Northwest and Kowloon.

Tam Kon Shan Road, is a single-two carriageway oriented in an east-west direction. This road facilitates connections to the Tsing Yi North Coastal Road at both its termini and its midpoint. Additionally, Tam Kon Shan Road links to other local roads in Tsing Yi via the Tam Kon Shan Interchange.

3.2 Vehicular Ingress/Egress Arrangement

The proposed development benefits from well-established vehicular ingress and egress routes:

Ingress Route

Motorists traveling from New Territories, Kowloon, or Hong Kong Island primarily use the Tsing Yi North Coastal Road to access the site. The designated route includes a ramp to Tam Kon Shan Road, leading to the final approach via Tam Kon Shan Road.

Motorists traveling from Lantau Island typically utilize the Tsing Yi North Coastal Road to reach the site. The prescribed route involves making an u-turn at the Tam Kon Shan Interchange, followed by a ramp that connects to Tam Kon Shan Road, ultimately leading to the final approach via Tam Kon Shan Road.

Egress Route

Vehicles leaving the site follow the reverse route via Tam Kon Shan Road, merging onto the Tsing Yi North Coastal Road through the designated ramp, and then proceeding to their respective destinations in the New Territories, Kowloon, or Hong Kong Island.

Vehicles departing from the site utilize the reverse route along Tam Kon Shan Road, merging onto the Tsing Yi North Coastal Road via the designated ramp. They then execute a U-turn at the Tam Kon Shan Interchange before continuing to their respective destinations in the Lantau Island.

The detailed ingress/egress arrangement is illustrated in **Figure 3.1**.

3.3 Traffic Count Surveys

To appraise the existing traffic conditions, classified turning movement count surveys have been carried out at the key junctions of the surrounding road network, as shown in **Figure 3.2**, on a normal school day in October 2024 from 08:00 to 19:00.

The traffic counts were recorded in a 15-minute interval, and to be converted into passenger car unit (pcu) values. The highest consecutive 15-minute hourly traffic volume was adopted as the peak hour traffic flow.

The morning, noon and evening peak hours of the road network on school days have been identified as 08:15 to 09:15, 12:15 to 13:15 and 17:30 to 18:30 respectively. The observed traffic flows of the key junctions are presented in **Figure 3.3**.

3.4 Existing Junction Assessment

Junction capacity assessment

Junction capacity assessments have been conducted at major junctions along the vehicular ingress/egress route, following the guidelines set out in the Transport Planning and Design Manual ("TPDM") Volumes 2. The results of these assessments are summarized in **Table 3.1**, while the detailed junction calculation sheets can be found in **Appendix A**.

The performance of a priority junction or roundabout is indicated by its Design Flow / Capacity Ratio ("DFC"). A DFC value of 0.85 or below is considered within an acceptable level without causing undue delay to motorists passing through the concerned junctions.

Table 3.1 Existing Junction Performance

Jun No.	Junction Location	Type / Capacity Index *	AM Peak	Noon Peak	PM Peak
Jn A	Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	Roundabout/ DFC	0.24	0.23	0.12
Jn B	Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	Priority/ DFC	0.35	0.34	0.22
Jn C	Tam Kon Shan Interchange	Roundabout/ DFC	0.64	0.66	0.70

*Notes: * DFC - Design Flow / Capacity Ratio*

As depicted in **Table 3.1**, all key junctions currently operate below their maximum capacities during the identified peak.

Link capacity assessment

Link Capacity Assessments are carried out at the key road links in accordance with Transport Planning and Design Manual ("TPDM") Volume 2. The results of the link capacity assessment are summarised in **Table 3.2.**

The performance of a link of carriageway is indicated by its Peak Hourly Flows/Design Flow Ratio (P/Df). A P/Df value of 0.85 or below is considered within an acceptable level without causing undue delay to motorists passing through the concerned link section.

Table 3.2 Existing Link Performance

Link No.	Section of Carriageway	Design Flow (pcus/hr)	Observed Scenario Peak Hourly Flows			Peak Hourly Flows/ Design Flow Ratio (P/Df)		
			AM Peak	Noon Peak	PM Peak	AM Peak	Noon Peak	PM Peak
L1	Tam Kon Shan Road eastbound (btwn. Jn A and Jn B)	810 (a)	325	303	178	0.40	0.37	0.22
L2	Tam Kon Shan Road westbound (btwn. Jn A and Jn B)	810 (a)	120	95	36	0.15	0.12	0.04
L3	Tsing Yi North Coastal Road Slip Road southbound	1,720 (b)	250	242	160	0.15	0.14	0.09
L4	Tsing Yi North Coastal Road Slip Road northbound	1,720 (b)	260	256	136	0.15	0.15	0.08
L5	Tsing Yi North Coastal Road Flyover eastbound	2,520 (c)	398	590	686	0.16	0.23	0.27
L6	Tsing Yi North Coastal Road Flyover westbound	2,520 (c)	701	603	658	0.28	0.24	0.26

Notes: (a) The design flow of Tam Kon Shan Road = 400 veh/hour/direction (capacity for local road) x 0.9 reduction factor of heavy vehicle x 2.25 pcu factor = 810 pcus/hour.
(b) The design flow of Tam Kon Shan Road = 850 veh/hour/direction (capacity for 2 lane district distributor) x 0.9 reduction factor of heavy vehicle x 2.25 pcu factor = 1,720 pcus/hour.
(c) The Design Flow of Tam Kon Shan Road = 2,000 veh/hour/direction (capacity for 4 lane district distributor) x 0.9 reduction factor of heavy vehicle x 1.4 pcu factor = 2,520 pcus/hour.

As depicted in **Table 3.2**, all key links currently operate below their maximum capacities during the identified peak.

3.5 Public Transport

As depicted in **Figure 3.4**, there are no public transport service stops within the desirable walking distance of 400 meters from the proposed development. However, GMB Route 88A provides service along Tam Kon Shan Road for the proposed development from 06:30 to 09:00 in morning period on normal week days.

4 Future Traffic Situation

4.1 Design Year Road Network

The design year will be determined as either three years following the completion year of 2026 or five years after the application year of 2024, depending on which period is longer. Both calculations yield a design year of 2029. Therefore, the year 2029 has been chosen as the design year for this study.

For the Design Year 2029, the Growth Factor Method is employed to forecast traffic. This method utilizes the historical data from Annual Traffic Census Data (ATC) and demographic trends from the "2021 – based Territorial Population and Employment Data Matrix" ("TPEDM") to predict future traffic volumes. The higher growth factor from these sources is chosen for a conservative traffic estimate.

A review of upcoming road and junction improvement projects reveals few expected changes to the current road network. The current and expected road network developments reinforce the suitability of using the Growth Factor Method. This approach effectively leverages existing traffic trends to project future traffic patterns, ensuring a robust and realistic forecast for the Design Year 2029.

4.2 Development Traffic Generation

The peak hour traffic trip generation and attraction are estimated based on the design production capacity of the proposed concrete batching plant and the information provided by the Applicant. There are typically 1 to 2 trucks daily for the delivery of pulverised fuel ash (PFA) and admixture. However, as these deliveries occur outside of peak hours, they are not included in the peak hour trip generation flows. The development trips are detailed in **Table 4.1**.

Table 4.1 Development Traffic Generation

Use	Generation			Attraction		
	AM Peak	Noon Peak	PM Peak	AM Peak	Noon Peak	PM Peak
Private Car Trips (pcus/ hour) [(a)]	2	2	2	2	2	2
Concrete Mixer Truck Trips (pcus/ hour) [(b)]	121	121	121	121	121	121
Total(pcus/ hour)	123	123	123	123	123	123

(a) Information provided by the Applicant.

(b) The no. of concrete mixer truck generated/attracted by plant = design production capacity / capacity of a concrete mixer truck x 2.8 pcu factor = (300 m^3 per hour / 7m^3) x 2.8 pcu = 121 pcus per hour.

As shown in **Table 4.1**, the proposed development would generate 123 pcus and attract 123 pcus in all AM, Noon and PM peak hours. The development traffic has been distributed and assigned to the existing road network.

4.3 Regional Traffic Growth

To estimate traffic flows for the design year 2029, it is proposed to adjust the existing traffic flows to reflect anticipated natural traffic growth.

Annual Traffic Census (ATC)

Reference has been made to the 2018 to 2023 Annual Traffic Census Reports, published by the Transport Department. The traffic data recorded at counting stations adjacent to the Application Site are shown in **Table 4.2**.

Table 4.2 Annual Traffic Census Data

No.	Link	From	To	Road Type*	2018	2019	2020	2021	2022	2023	Growth Rate p.a.
6108	Tsing Yi N Coastal Rd	Tam Kon Shan INT W End	Slip Rds to & from Tam Kon Shan Rd	PD	23,440	22,720	19,410	18,860	21,030	22,970	-0.40%
6221	Tsing Yi N Coastal Rd FO	Tsing Tsuen Rd	Tam Kon Shan INT W End	DD	14,400	14,270	14,330	13,750	13,480	14,820	+0.58%
Total					37,840	36,990	33,740	32,610	34,510	37,790	**-0.03%**

*Note: * PD= Primary Distributor & DD = district Distributor*

Table 4.2 presents traffic flow data spanning six years. The data indicates variable annual growth rates across different road links, with one link experiencing a decline and another link showing an increase in traffic volume. When considering all the links collectively, the compounded annual growth rate averages out to a decrease of **-0.03%**.

Projected Population Data

According to the report "2021 – based Territorial Population and Employment Data Matrix" ("TPEDM") published by the Planning Department, the population and employment growth data from year 2021 to 2031 in Kwai Tsing Planning Data District are presented in **Table 4.3**.

Table 4.3 2021-Based TPEDM Data

Planning Data District	Population		Employment		Population & Employment		Avg. Annual Growth
	2021	2031	2021	2031	2021	2031	
Kwai Tsing	495,800	483,050	226,350	227,800	722,150	710,850	**-0.16%**

The data indicate the growth in population and employment in Kwai Tsing District at an annual rate of **-0.16%** from 2021 to 2031.

Since the growth rates derived from both historical traffic data and future planning data are less than +1.00%, an annual growth rate of **+1.00%** has been adopted for conservative forecasting purposes. This growth factor will be applied to the traffic flows observed in 2024.

4.4 Major Planned/ Committed Developments

The forecast includes major planning applications or committed developments near the site, detailed in **Table 4.4** while the traffic generations/attractions of the those planned developments are depicted in **Table 4.5**.

Table 4.4 Major Planning Applications/ Committed Developments

Location	Type of Development	Development Parameters	Completion Year/ *Operation Year*	*Remarks (Source of Information)*
Public Housing Development at Ching Hong Road North	Residential Development	Phase 1: about 860 units Phase 2: about 510 units Phase 3: about 1680 units Phase 4: about 770 units	Phase 1: 2024 Phase 2: 2024 Phase 3: 2029 Phase 4: 2031	Ching Hong Road North, Tsing Yi Planning Brief and Kwai Tsing District Council District Facilities and Works Committee Paper No. 7/D/2024
	Retail	About 2,000m^2 GFA	2024-2029	
	Social Welfare Facility	About 3,765m^2 NOFA & 74m^2 IFA	2024-2029	
	Kindergarten	10 classrooms	2024-2029	
	Clinics and Polyclinics	About 3,100m^2 GFA	2029	
Public Housing Development at Tsing Yi Road West	Residential Development	About 3,400 units	2034-2035	

Location	Type of Development	Development Parameters	Completion Year/ *Operation Year*	*Remarks (Source of Information)*
To rezone the application site from "Industrial", "Other Specified Uses" annotated " Recreation and Tourism Related Uses" and "Green Belt" to "Residential (Group A)6", "Residential (Group A)7" and area shown as 'Road'; and to incorporate an area currently not covered by the approved Tsing Yi Outline Zoning Plan No. S/TY/32 (the OZP) into the OZP and rezone it to "Residential (Group A)6" and "Other Specified Uses" annotated "Marina Club" at Tsing Yi Town Lot 80 and 108 RP and adjoining Government land, Tsing Yi	Private Residential Development	Phase 1: About 5,048 units Phase 2: About 5,323 units	Phase 1: 2028 Phase 2: 2036	Planning Application No. Y/TY/2
	Public Residential Development	Phase 2 About 4,704 units		
	Retail/Commercial development	23,332m^2 GFA	On or before 2036	
	Kindergarten	About 3,570m^2 GFA		
Renewal of Planning Approval for Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lot 108 RP (Part)	Temporary Concrete Batching Plant	About 2,415.58m^2 GFA	*Under Operation (2020-2025)*	Planning Application No. A/TY/143
Renewal of Planning Approval for Temporary Asphalt Plant for a Period of 5 Years at Tsing Yi Town Lot 108 RP (Part)	Temporary Asphalt Plant	About 894.36m^2 GFA	*Under Operation (2020-2025)*	Planning Application No. A/TY/144
Renewal of Planning Approval for Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lot 98, Tsing Tim Street, Tsing Yi, New Territories	Temporary Concrete Batching Plant	About 980m^2 GFA	*Under Operation (2021-2026)*	Planning Application No. A/TY/145
Renewal of Planning Approval for Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lot No. 108 RP (Part), Sai Tso Wan Road, Tsing Yi	Temporary Concrete Batching Plant	About 2,691.36m^2 GFA	*Under Operation (2024-2029)*	Planning Application No. A/TY/147
Renewal of Planning Approval for Temporary Asphalt Plant for a Period of 5 Years at Tsing Yi Town Lot No. 108 RP (Part), Sai Tso Wan Road, Tsing Yi	Temporary Asphalt Plant	About 2,716.7m^2 GFA	*Under Operation (2024-2029)*	Planning Application No. A/TY/148
Renewal of Planning Approval for Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lot No. 108 RP (Part), Sai Tso Wan Road, Tsing Yi	Temporary Concrete Batching Plant	About 1,817m^2 GFA	*Under Operation (2024-2029)*	Planning Application No. A/TY/149
Tsing Yi - Lantau Link	Infrastructure	Road & bridge	2033	LC Paper No. PWSC(2022-23)38

Table 4.5 Traffic Generation/Attraction of Major Planning Applications/ Committed Developments

Location	Type of Development	Traffic Generation (pcus/ hour)		Traffic Attraction (pcus/ hour)	
		AM	PM	AM	PM
Public Housing Development at Ching Hong Road North	Residential Development[(b1)]	166	91	125	115
	Retail[(b2)]	5	7	5	8
	Social Welfare Facility Kindergarten[(b3)]	30	30	30	30
	Clinics and Polyclinics[(b4)]	23	17	23	17
Public Housing Development at Tsing Yi Road West	Residential Development[(c1)]	147	81	111	103
To rezone the application site from “Industrial”, “Other Specified Uses” annotated “ Recreation and Tourism Related Uses" and "Green Belt" to "Residential (Group A)6”, “Residential (Group A)7” and area shown as ‘Road’; and to incorporate an area currently not covered by the approved Tsing Yi Outline Zoning Plan No. S/TY/32 (the OZP) into the OZP and rezone it to “Residential (Group A)6” and “Other Specified Uses” annotated “Marina Club” at Tsing Yi Town Lot 80 and 108 RP and adjoining Government land, Tsing Yi [(d)]	Private Residential Development (Phase 1)	363	145	215	187
	Private Residential Development (Phase 2)	382	152	226	197
	Public Residential Development	203	408	594	526
	Retail/Commercial development	53	73	56	83
	Kindergarten	54	42	54	42
Renewal of Planning Approval for Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lot 108 RP (Part) [(e)]	Temporary Concrete Batching Plant	56	53	68	67
Renewal of Planning Approval for Temporary Asphalt Plant for a Period of 5 Years at Tsing Yi Town Lot 108 RP (Part) [(f)]	Temporary Asphalt Plant	25	33	29	23
Renewal of Planning Approval for Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lot 98, Tsing Tim Street, Tsing Yi, New Territories [(g)]	Temporary Concrete Batching Plant	38	38	38	38
Proposed Temporary Logistic Centre for a Period of 6 Years at Tsing Yi Town Lot 102 (Part), 98 Tam Kon Shan Road, Tsing Yi New Territories [(h)]	Temporary Logistic Centre	11	13	16	11
Renewal of Planning Approval for Temporary Asphalt Plant for a Period of 5 Years at Tsing Yi Town Lot No. 108 RP (Part), Sai Tso Wan Road, Tsing Yi [(j)]	Temporary Asphalt Plant	45	45	45	45
Renewal of Planning Approval for Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lot No. 108 RP (Part), Sai Tso Wan Road, Tsing Yi [(k)]	Temporary Concrete Batching Plant	51	51	51	51
Tsing Yi - Lantau Link [(l)]	Infrastructure	15	15	15	15

Notes: (b_1) The traffic generation/attraction is anticipated by the trip rates (mean limit) for subsidised housing public rental of average flat size 40m^2 listed in Table 1 of Annex C in T.P.D.M. Vol.1.
(b_2) The traffic generation/attraction is anticipated by the trip rates (mean limit) for retail land use listed in Table 2 of Annex C in T.P.D.M. Vol.1.
(b_3) The traffic generation/attraction of social welfare facilities and kindergartens is made refence to the approved Traffic Impact Assessment for Proposed Public Housing Development Sites 1 & 2 in Sheung Shui Areas 4 and 30.

(b_4) The traffic generation/attraction is anticipated by the trip rates for General Out-patient Clinic listed in the approved Traffic Impact Assessment Report for Proposed Tai Wai Government Complex Co-located with Public Housing Development at Tsuen Nam Road, Tai Wai.
(c_1) The traffic generation/attraction is anticipated by the trip rates (mean limit) for subsidised housing public rental of average flat size 40m^2 listed in Table 1 of Annex C in T.P.D.M. Vol.1.
(d) The generation/attraction is referred to the Traffic Impact Assessment of Planning Application No. Y/TY/2.
(e) The traffic generation/attraction is referred to the Traffic Impact Assessment of Approved Planning Application No. A/TY/143.
(f) The traffic generation /attraction is referred to the Traffic Impact Assessment of Approved Planning Application No. A/TY/144.
(g) The traffic generation /attraction is referred to the Traffic Impact Assessment of Approved Planning Application No. A/TY/145.
(h) The traffic generation /attraction is referred to the Traffic Impact Assessment of Approved Planning Application No. A/TY/146.
(j) The traffic generation /attraction is referred to the Traffic Impact Assessment of Approved Planning Application No. A/TY/148.
(k) The traffic generation /attraction is referred to the Traffic Impact Assessment of Approved Planning Application No. A/TY/149.
(l) An assumption of constriction generation/attraction rate (1 construction vehicle per 10 minutes with 2.5 pcu factor for each construction vehicle)

4.5 Reference and Design Flows

The growth factor will be applied to the traffic flows of 2024 Observed Peak Hours, to estimate the 2029 Reference Flows and 2029 Design Flows. The reference and design flows for year 2029 are calculated from the following formulae:

2029 Reference Flows	=	2024 Observed Flows x $(1+1.00\%)^5$ + Planned/ Committed Development Traffic
2029 Design Flows	=	2029 Reference Flows + Proposed Development Traffic

Figure 4.1 shows the 2029 Reference Peak Hours Flows in the. By adding the development traffic, **Figure 4.2** shows the 2029 Design Peak Hours Traffic.

4.6 Future Assessment

Junction capacity assessment

Junction capacity assessments were carried out for the major junctions in the local road network for both the Reference and Design scenarios. The results are summarised and presented in **Table 4.6** with detailed calculation sheets attached in **Appendix A**.

Table 4.6 Future Junction Performance

Jun No.	Junction Location	Type / Capacity Index *	Reference Scenario			Design Scenario		
			AM Peak	Noon Peak	PM Peak	AM Peak	Noon Peak	PM Peak
Jn A	Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	Roundabout/ DFC	0.26	0.25	0.13	0.38	0.37	0.24
Jn B	Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	Priority/ DFC	0.39	0.38	0.25	0.41	0.40	0.26
Jn C	Tam Kon Shan Interchange	Roundabout/ DFC	0.74	0.75	0.78	0.74	0.76	0.78

*Notes: * DFC - Design Flow / Capacity Ratio*

As shown in **Table 4.6**, the capacities of all key junctions are expected to perform satisfactorily during peak periods in both Reference and Design Scenarios.

Link capacity assessment

Link capacity assessments were carried out for the major road link in the local road network for both the Reference and Design scenarios. The results are summarised and presented in **Table 4.7** and **Table 4.8** respectively.

Table 4.7 Future Link Performance (Reference Scenario)

Link No.	Section of Carriageway	Design Flow (pcus/hr)	Reference Scenario Peak Hourly Flow			Peak Hourly Flows/ Design Flow Ratio (P/Df)		
			AM Peak	Noon Peak	PM Peak	AM Peak	Noon Peak	PM Peak
L1	Tam Kon Shan Road eastbound	810 [(a)]	354	332	201	0.44	0.41	0.25
L2	Tam Kon Shan Road westbound	810 [(a)]	127	100	38	0.16	0.12	0.05
L3	Tsing Yi North Coastal Road Slip Road southbound	1,720 [(b)]	275	268	182	0.16	0.16	0.11
L4	Tsing Yi North Coastal Road Slip Road northbound	1,720 [(b)]	290	283	154	0.17	0.16	0.09
L5	Tsing Yi North Coastal Road Flyover eastbound	2,520 [(c)]	427	628	727	0.17	0.25	0.29
L6	Tsing Yi North Coastal Road Flyover westbound	2,520 [(c)]	750	644	700	0.30	0.26	0.28

Notes: (a) The design flow of Tam Kon Shan Road = 400 veh/hour/direction (capacity for local road) x 0.9 reduction factor of heavy vehicle x 2.25 pcu factor = 810 pcus/hour.
(b) The design flow of Tam Kon Shan Road = 850 veh/hour/direction (capacity for 2 lane district distributor) x 0.9 reduction factor of heavy vehicle x 2.25 pcu factor = 1,720 pcus/hour.
(c) The Design Flow of Tam Kon Shan Road = 2,000 veh/hour/direction (capacity for 4 lane district distributor) x 0.9 reduction factor of heavy vehicle x 1.4 pcu factor = 2,520 pcus/hour.

Table 4.8 Future Link Performance (Design Scenario)

Link No.	Section of Carriageway	Design Flow (pcus/hr)	Reference Scenario Peak Hourly Flow			Peak Hourly Flows/ Design Flow Ratio (P/Df)		
			AM Peak	Noon Peak	PM Peak	AM Peak	Noon Peak	PM Peak
L1	Tam Kon Shan Road eastbound (btwn. Jn A and Jn B)	810 (a)	477	455	324	0.59	0.56	0.40
L2	Tam Kon Shan Road westbound (btwn. Jn A and Jn B)	810 (a)	127	100	38	0.16	0.12	0.05
L3	Tsing Yi North Coastal Road Slip Road southbound	1,720 (b)	398	391	305	0.23	0.23	0.18
L4	Tsing Yi North Coastal Road Slip Road northbound	1,720 (b)	413	406	277	0.24	0.24	0.16
L5	Tsing Yi North Coastal Road Flyover westbound	2,520 (c)	550	739	850	0.22	0.29	0.34
L6	Tsing Yi North Coastal Road Flyover westbound	2,520 (c)	873	755	823	0.35	0.30	0.33

Notes: (a) The design flow of Tam Kon Shan Road = 400 veh/hour/direction (capacity for local road) x 0.9 reduction factor of heavy vehicle x 2.25 pcu factor = 810 pcus/hour.
(b) The design flow of Tam Kon Shan Road = 850 veh/hour/direction (capacity for 2 lane district distributor) x 0.9 reduction factor of heavy vehicle x 2.25 pcu factor = 1,720 pcus/hour.
(c) The Design Flow of Tam Kon Shan Road = 2,000 veh/hour/direction (capacity for 4 lane distributor) x 0.9 reduction factor of heavy vehicle x 1.4 pcu factor = 2,520 pcus/hour.

As depicted in **Table 4.7** and **Table 4.8**, the capacities of all key links are expected to perform satisfactorily during peak periods in both Reference and Design Scenarios.

5 Transport Provision

5.1 Vehicular Access Arrangement

The proposed approximately 7.3m wide vehicular access will be located at Tam Kon Shan Road, as depicted in **Figure 5.1**. A pair of “No Left Turn” traffic sign will be erected at the access to guide concrete truck drivers to follow the egress route depicted in **Figure 3.1**.

5.2 Internal Transport Provisions

Under the Hong Kong Planning Standards and Guidelines (HKPSG), there are no specific standards for car parking and loading/unloading provisions for concrete batching plants. Therefore, the internal transport facilities have been carefully designed based on the operational requirements of the proposed development to ensure seamless and efficient site operations.

The internal transport provisions include designated parking spaces, loading/unloading bays, and waiting spaces, which serve the following critical purposes:

- Facilitating efficient vehicle manoeuvring within the site,
- Preventing congestion and queuing on public roads, and
- Ensuring vehicles are parked and unloaded in an organized manner.

The proposed internal transport provision is summarized in **Table 5.1**.

Table 5.1 Internal Transport Provisions

Type	Dimension	Proposed Provision
Private Car Parking Space	2.5m (W) x 5.0m (L) x 2.4m (H)	2*
Motorcycle Parking Space	1.0m (W) x 2.4m (L) x 2.4m (H)	2
Heavy Goods Vehicle Loading/Unloading Bay	3.5m (W) x 11.0m (L) x 4.7m (H)	3
Heavy Goods Vehicle Waiting Space	3.5m (W) x 11.0m (L) x 4.7m (H)	12

Note: The number of private car parking spaces is projected in accordance with the closest category, "Industrial Use," as outlined in HKPSG CH8. Referring to the Gross Floor Area (GFA) of 1,419.2m^2 mentioned in table 2.1 and the guidelines of HKPSG, it is determined that the number of private car parking should be established at a rate of one parking space for every 1,000 to 1,200 m² of GFA, necessitating the provision of two parking spaces.

The design includes 12 dedicated waiting spaces for heavy goods vehicles (HGVs), such as concrete mixer trucks, ensuring that vehicles can park within the site while awaiting their turn for loading or unloading operations. This provision is critical in maintaining traffic flow along the surrounding public roads, as it eliminates the risk of vehicles queuing or waiting on Tam Kon Shan Road or other access routes.

In addition, the internal layout has been optimized to accommodate the simultaneous presence of multiple vehicles, including those arriving, waiting, loading/unloading, and departing. This ensures that:

- Vehicles can manoeuvre efficiently without delays or bottlenecks.
- By confining all vehicle activities within the site, the design minimizes the likelihood of adverse impacts on public roads, including congestion or safety hazards.

A comprehensive queuing analysis has been conducted to evaluate the loading/unloading bays' functionality. The results, presented in **Appendix B**, confirm that the probability of queuing on public roads is negligible **(less than 0.003%)**. It indicates a **confidence level exceeding 99.9%** that there will be no traffic queuing on public roads. Consequently, the proposed internal transport provisions are deemed adequate for the proposed development.

Furthermore, a swept path analysis has been performed to ensure that there is sufficient space for vehicles entering and leaving the application site. The typical manoeuvrability of vehicles is shown in **Figures SP-01 to SP-06 (Appendix C)**.

6 Traffic Management Plan

6.1 Introduction

The Traffic Management Plan is designed to establish a coordinated framework that ensures safe, efficient, and orderly movement of vehicles, pedestrians, and equipment associated with the operation of the concrete batching plant. Its primary purpose is to minimize potential conflicts and disruptions by outlining clear procedures for vehicle ingress and egress, scheduling deliveries during off-peak hours, and implementing effective signage and control measures. This plan also assigns roles and responsibilities to staff and contractors, incorporates regular monitoring and auditing mechanisms, and ensures compliance with relevant local traffic and safety regulations, ultimately safeguarding both site operations and the surrounding community.

6.2 Operation Procedure

This procedure provides a structured framework for managing concrete truck operations within the batching plant, ensuring both efficiency and safety. The aim is to minimize congestion and potential hazards while maintaining consistent communication between drivers and site management. By following this procedure, all stakeholders can be assured that each truck operation is executed methodically and in compliance with the established traffic management and safety protocols. The procedure is listed below:

Arrival

Upon arrival at the plant, a concrete truck follows a designated access route and enters the site through a controlled entry point.

Assign to Waiting Space

Once on site, the truck is directed—via radio communication with plant management with assistance of the site manager—to a dedicated waiting space where it parks until its scheduled turn for loading.

Waiting

During this period, the driver maintains communication with the control centre to confirm the upcoming operation. When ready, the truck leaves the waiting area and proceeds to the loading zone adjacent to the silo.

Loading

Here, the truck aligns at the loading bay where concrete is dispensed from the silo into its mixer under controlled conditions, ensuring the proper flow and mix consistency.

Slump Test

Immediately following the loading, the truck is guided to a slump test station where a sample of the freshly loaded concrete is taken to assess its workability and quality.

Cleaning

Once the slump test confirms that the concrete meets the required specifications, the truck moves on to a designated cleaning area where any residual concrete is removed from the mixer.

Leaving

Finally, after these steps are completed, the truck exits the site via a predetermined egress route, ensuring the overall traffic flow remains smooth and safe.

6.3 Realtime Positioning

To ensure a smooth and efficient operation that prevents site overcrowding, continuous communication with truck drivers is maintained throughout their journey.

From the moment a truck departs for the site, its real-time location is monitored via GPS, and drivers are contacted via walkie talkie at key stages of their route. Initially, drivers receive instructions regarding the designated route and estimated arrival times.

As the truck proceeds, plant management uses the GPS data to proactively issue updates or adjustments, such as advising the driver to maintain a steady pace, slow down, or hold at a predetermined waiting area even before the truck is close to the site.

This ongoing dialogue allows management to coordinate arrivals, prevent congestion, and ensure that each truck proceeds to the loading zone at an optimal time.

Once the truck is near the loading area, further instructions guide the driver through the remaining steps—from entering the loading bay to completing the slump test and cleaning operations—until the truck finally exits the site.

This comprehensive, continuous communication strategy ensures that drivers are informed and responsive at all critical stages of the operation, thereby maintaining orderly flow and enhancing safety.

6.4 Small Fleet Size

At any given time, the concrete truck fleet operating at the plant is maintained at fewer than 20 vehicles. In conjunction with this modest fleet size, the facility is designed with 15 dedicated waiting spaces and loading bays. This configuration provides ample capacity, ensuring that trucks can be processed efficiently without forming queues.

Continuous GPS monitoring and proactive communication via walkie talkies enable the control centre to coordinate truck movements precisely, so that each truck is directed into an available space well in advance.

As a result, the likelihood of trucks queuing is nearly eliminated, supporting smooth, uninterrupted operations at the batching plant.

6.5 Junction Restriction Measures

To mitigate potential traffic impacts and ensure the safe and efficient movement of vehicles in Tsing Yi Town, specific access restrictions have been implemented for concrete mixer trucks associated with the proposed development. These measures are designed not only to reduce congestion during peak hours but also to enforce strict adherence to designated ingress/egress routes, as illustrated in **Figure 3.1**. In addition, certain junctions in Tsing Yi have been permanently restricted for concrete mixer truck passage, as detailed in **Table 6.1 and Figure 6.1**, with exceptions granted only under contingency or other circumstances evaluated by the Government Departments.

Enforcement measures have been integrated into the Traffic Management Plan, utilizing advanced GPS tracking to continuously monitor truck movements in real time. Further details on these enforcement protocols—including violation detection, automatic alerts, and the imposition of fines and penalty clauses—will be elaborated in **Chapter 8**.

Table 6.1 Restriction at Tsing Yi Junctions

Junction No.	Junction	AM Peak Period & PM Peak Period Restriction (07:30 – 09:30 & 16:30 – 18:30)	Full Time Restriction
C	Tam Kong Shan Interchange	X	
D	Tsing Yi Road West / Ching Hong Road Junction		X
E	Tsing Yi Interchange		X

Junction No.	Junction	AM Peak Period & PM Peak Period Restriction (07:30 – 09:30 & 16:30 – 18:30)	Full Time Restriction
F	Tsing Yi Road / Tsing Yi Hong Wan Road/ Tsing Sha Highway Roundabout		X
G	Tsing Yi Heung Sze Wui Road/ Fung Shue Wo Road / Tsing King Road Roundabout		X
H	Cheung Wan Street/ Tsing Yi Heung Sze Wui Road Junction		X

6.6 Conclusion

In summary, the integrated system of continuous GPS monitoring and proactive communication ensures that the operations remain smooth and efficient. With a fleet size of fewer than 20 trucks and 15 dedicated waiting spaces and loading bays, there is ample capacity to prevent any queuing, resulting in a well-coordinated, congestion-free process at the batching plant.

7 Contingency Plan for Silo Malfunction

7.1 Introduction

This contingency plan is designed to minimize disruption and ensure safety by diverting only the excessive trucks to the temporary waiting area, thereby maintaining a controlled and efficient flow of operations during a silo malfunction.

7.2 Trigger and Activation

If one or more of the three silo legs malfunction—disrupting the normal loading process and leading to an accumulation of concrete trucks—the control center will immediately activate the contingency plan. Monitoring systems will detect the malfunction, prompting plant management to notify maintenance personnel and relevant stakeholders via walkie talkie.

7.3 Temporary Reassignment of Excessive Trucks

In response to the malfunction, the control center will assess the current truck flow. Rather than redirecting every truck, only the excessive trucks—those arriving beyond the available capacity of the main loading area—will be directed to the temporary waiting area at the loading/unloading zone on Sai Tso Wan Road (Marshaling area of another Golik's concrete batching plant in Hongkong United Dockyard site). This approach ensures that trucks already in process or within the capacity limits continue operating normally, while only the surplus vehicles are diverted to prevent congestion.

7.4 Safety and Traffic Management Measures

Traffic Rerouting: On-site personnel will supply truck drivers with a detailed map to guide any excess vehicles safely to the temporary holding area, ensuring a smooth transition without affecting the main area's operations.

Continuous Monitoring: The control center will use real-time GPS tracking to monitor truck positions, ensuring that the temporary waiting area remains within its capacity limits and that no safety hazards develop from idling vehicles.

Communication Protocol: Drivers of the excessive trucks will receive timely updates via walkie talkie, informing them about the expected waiting times and subsequent instructions for re-entry into the main loading area once normal operations resume.

7.5 Maintenance and Repair Response

Immediate Inspection: Maintenance teams will promptly assess the malfunctioning silo legs to determine the extent of the issue.

Prioritization of Repairs: Urgent repairs will be initiated, with interim measures—such as manual or alternative loading processes—being considered if feasible.

Risk Assessment: A detailed risk assessment will be conducted to ensure that temporary operations in the waiting area do not introduce additional hazards.

7.6 Evaluation of Consequences and Mitigation Measures

Operational Delays: The primary impact is a reduction in concrete output, potentially delaying production and delivery schedules.

- *Mitigation:* The temporary waiting area is used to control truck flow, and proactive communication with clients will outline revised timelines.

Safety Risks: Accumulation of excessive trucks may increase the risk of collisions or on-site congestion.

- *Mitigation:* Strict traffic control measures, clear signage, and additional safety personnel in the temporary waiting area will help mitigate these risks.

Driver Inconvenience: Extended waiting periods for the excessive trucks might lead to driver fatigue and operational inefficiencies.

- *Mitigation:* Consistent communication will manage driver expectations, and periodic updates regarding repair progress will reduce uncertainty.

7.7 Recovery and Resumption of Normal Operations

After repairs restore the silo legs to full functionality, the maintenance team will verify that the system is stable. The control center will then gradually redirect the excessive trucks from the temporary waiting area back to the main loading area, carefully monitoring truck flow to avoid further congestion. A post-incident review will follow to refine the contingency procedures and address any shortcomings.

8 Chapter 8 – Non-Conformance, Incident Investigation and Auditing Mechanism

8.1 Introduction

This chapter outlines the procedures for managing non-conformance, investigating incidents, and auditing operations to ensure continuous compliance with the Traffic Management and Contingency Plans. By establishing a clear framework for monitoring deviations, analyzing incidents, and implementing corrective actions, the plant can maintain high standards of safety and operational efficiency.

8.2 Non-Conformance Management

Any deviation from established procedures – including lapses in communication, failure to adhere to scheduled truck movements, or unauthorized transit through restricted junctions, or issues in redirecting excessive trucks to the temporary holding area – will be treated as a non-conformance. When a non-conformance is identified, it must be immediately documented using a standardized report form. The report will detail the nature of the deviation, the time and location of occurrence, and any potential safety or operational impacts. The control center will review these reports and assign corrective actions, ensuring that any recurring issues are addressed through updates to procedures or additional training for on-site personnel.

Enforcement Measures: In addition to corrective actions, specific enforcement measures will be applied to any significant non-conformance or traffic violation to strengthen compliance and deter future violations. These measures include:

- **Fines for Non-Compliance:** Individuals who violate the Traffic Management Plan's restrictions (for example, by taking unauthorized routes or operating during prohibited hours) will be subject to monetary fines. The fines will be commensurate with the severity of the offense and are intended to immediately penalize non-compliance.
- **Penalty Clauses in Contracts:** Contractual agreements with drivers and transport contractors will incorporate penalty clauses triggered by repeated or serious violations. If an individual or entity is found in violation of the traffic restrictions, this record will be considered during contract renewal. Consequences can range from financial penalties at the time of renewal to suspension or non-renewal of contracts for persistent offenders.

All enforcement actions are documented alongside the non-conformance reports. This dual approach of corrective action and penalty ensures a strong deterrent effect against violating the proposed traffic restrictions. Compliance with the Traffic Management Plan will be closely monitored in real time (using GPS tracking data and communication logs), so that any breach can be swiftly identified. Upon detecting a violation, the control center or designated safety officer will promptly enforce the appropriate measure, issuing the fine or initiating contract penalty procedures, and record the outcome. This clear enforcement mechanism leaves no ambiguity about the consequences of non-compliance and encourages all personnel and contractors to adhere strictly to the traffic rules in place.

8.3 Incident Investigation

In the event of an incident, such as a near-miss, collision, or any safety-related event, the investigation process will be initiated without delay. The investigation procedure includes:

- **Immediate Response:** Secure the area and provide assistance, if necessary, while ensuring that all safety measures are in place to prevent further incidents.
- **Data Collection:** Gather information via GPS tracking records, walkie talkie communication logs, on-site surveillance (if available), and witness statements from drivers and personnel.
- **Root Cause Analysis:** Utilize structured methodologies (e.g., the “5 Whys” or fishbone diagrams) to determine underlying causes, whether they are process-related, human error, or equipment malfunction.
- **Corrective Action Implementation:** Develop and execute a plan to address the identified issues. The corrective action plan is then reviewed for effectiveness during subsequent operations.
- **Reporting:** Document the investigation findings and share lessons learned with all stakeholders to enhance future safety and operational performance. If the investigation reveals that a violation of traffic restrictions or other non-compliance contributed to the incident, the report will also note any enforcement actions (such as fines or contract penalties) imposed on the responsible parties. This ensures that incidents caused by non-compliance are met with appropriate disciplinary measures in addition to corrective steps.

8.4 Auditing Mechanism

To ensure ongoing compliance and continuous improvement, regular audits of the traffic management system and contingency measures will be conducted. These audits include:

- **Scheduled Audits:** Periodic reviews (monthly or quarterly) performed by a designated safety officer to verify adherence to procedures, check the condition of monitoring equipment (GPS, communication systems), and review non-conformance and incident reports.
- **Random Inspections:** Unannounced spot-checks during operations to ensure that procedures are being followed in real time.
- **Audit Reporting:** Each audit will generate a report summarizing observations, identifying areas of concern, and recommending improvements. The findings will be discussed in regular safety meetings, and corrective measures will be tracked until resolved.
- **Feedback Loop:** Audit outcomes, incident investigations, and non-conformance reports will be integrated into the training and operational review processes to promote a culture of continuous improvement and accountability.
- **Enforcement Review:** As part of each audit, records of traffic violations and the corresponding enforcement measures (fines issued or contract penalties applied) will be examined. The audit will verify that these measures are being applied consistently and fairly. It will also assess their effectiveness in deterring non-compliance, with auditors recommending any adjustments to the enforcement approach if current measures are found lacking.

Through this auditing mechanism, not only is procedural compliance checked, but the efficacy of the enforcement program itself is regularly evaluated. This ensures that the monitoring and penalty system remains robust and credible over time.

8.5 Conclusion

By implementing this comprehensive Non-Conformance, Incident Investigation, and Auditing Mechanism, the plant ensures that any deviations or safety incidents are promptly addressed, corrected, and learned from, while future violations are actively discouraged. The inclusion of fines for non-compliance and penalty clauses in contracts provides tangible consequences for breaking traffic rules, creating a strong deterrent effect across all levels of operation. Overall, this mechanism supports the overall objective of maintaining a safe, efficient, and compliant operational environment, thereby reinforcing the reliability of both the Traffic Management Plan and the Contingency Plan.

9 Summary and Conclusions

9.1 Summary

The Applicant intends to seek Town Planning Board ("TPB") approval for a Proposed Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lots (TYTL) 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi (hereafter "the proposed development").

In the Approved Tsing Yi Outline Zoning Plan No. S/TY/32 (referred to as the "OZP"), the Applicant Site is zoned as "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses". According to the Schedule of Uses outlined in the OZP, the intended use of a Concrete Batching Plant fall under Column 2 uses. Consequently, obtaining planning permission from TPB is necessary for the proposed temporary concrete batching plant under Section 16 of the Town Planning Ordinance.

To appraise the existing traffic conditions, classified turning movement count surveys have been carried out at the key junctions of the surrounding road network on a normal school day in October 2024 from 08:00 to 19:00. The morning, noon and evening peak hours of the road network on weekday have been identified as 08:15 to 09:15, 12:15 to 13:15 and 17:30 to 18:30 respectively.

Year 2029 is used as the design year of the traffic impact assessment. After the comparison between the historical data and the future planning data, for conservative purposes, an annual growth rate of +1.00% is adopted. This growth factor has been applied to the observed traffic flows in 2024 to determine the 2029 anticipated traffic flows.

The capacities of all the key junctions are expected to be performing satisfactorily during the peak periods for both the Reference and Design Scenarios.

A comprehensive analysis of the loading and unloading bays demonstrated that the proposed facilities are sufficient to accommodate site operations without creating external traffic impacts. The probability of vehicles queuing on public roads was calculated to be negligible (<0.003%).

A swept path analysis has been performed to ensure that there is sufficient manoeuvring space for vehicles entering and leaving the application site.

The Traffic Management Plan ensures smooth, safe vehicle movement at the batching plant using continuous GPS tracking and proactive walkie talkie communication. With a fleet of fewer than 20 trucks and 15 dedicated waiting/loading spaces, only excess trucks are diverted to a temporary holding area, preventing congestion and maintaining efficient operations.

The contingency plan provides clear procedures during silo malfunctions by rerouting trucks beyond the main loading area's capacity to a designated holding area at Sai Tso Wan Road. Immediate notifications established safety protocols, and ongoing driver communication further enhance resilience, ensuring safe, uninterrupted operations during unexpected disruptions and reliability.

A comprehensive framework for managing non-conformances, investigating incidents, and auditing operations has been established. Deviations are documented and resolved via data collection and root cause analysis. Scheduled and random audits ensure continuous improvement. Enforcement measures, including fines and contract penalties, deter violations and ensure strict adherence to traffic restrictions.

9.2 Conclusions

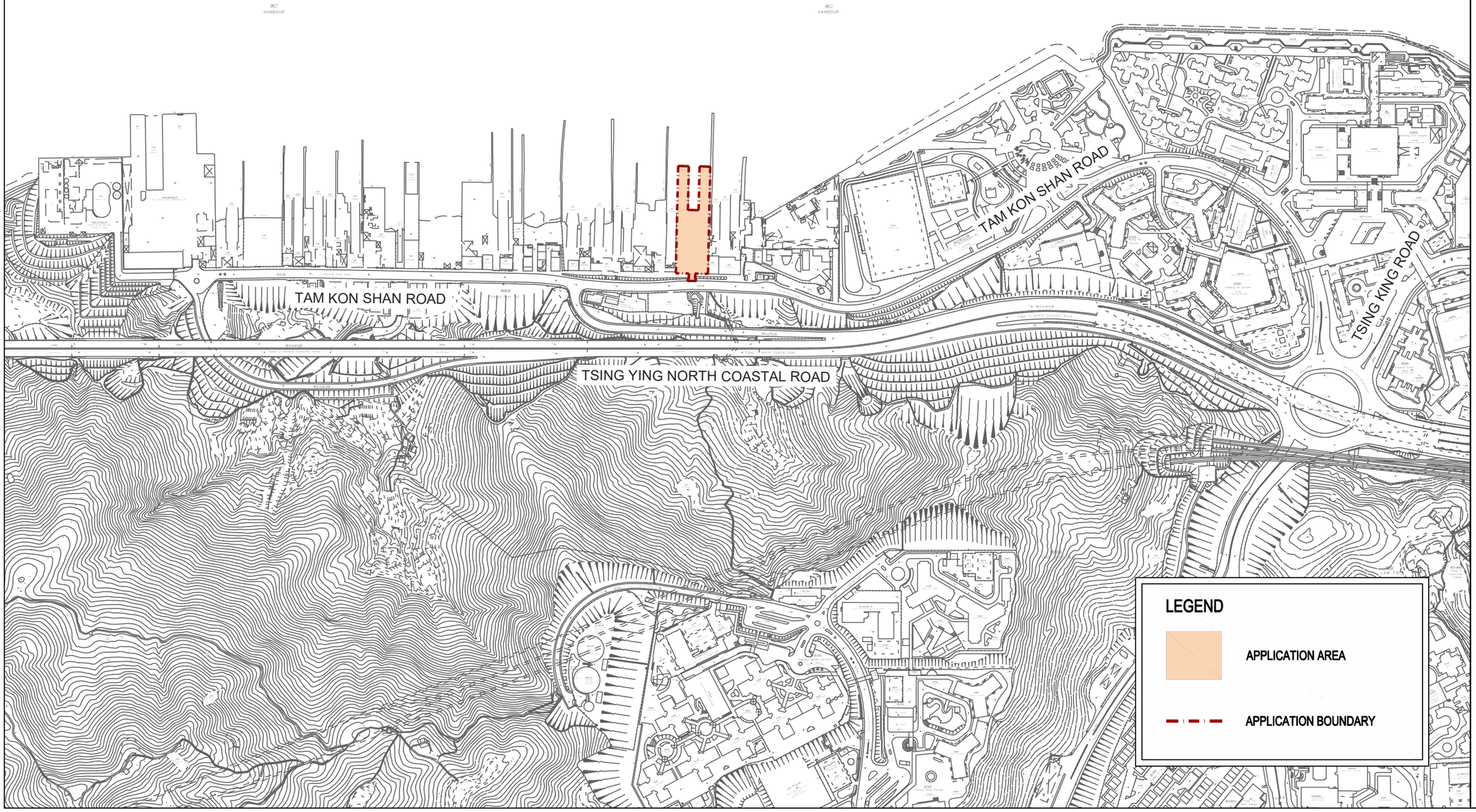
The findings of the traffic impact assessment confirm that the road network in the vicinity of the proposed development has sufficient capacity to accommodate the additional traffic generated, ensuring smooth traffic flow and no adverse impacts. The proposed development is therefore acceptable from a traffic perspective, with its design incorporating adequate measures to support efficient site operations while minimizing impacts on the surrounding road network.

Figures

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SITE LOCATION

FIGURE 2.1



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Date : FEB 2025

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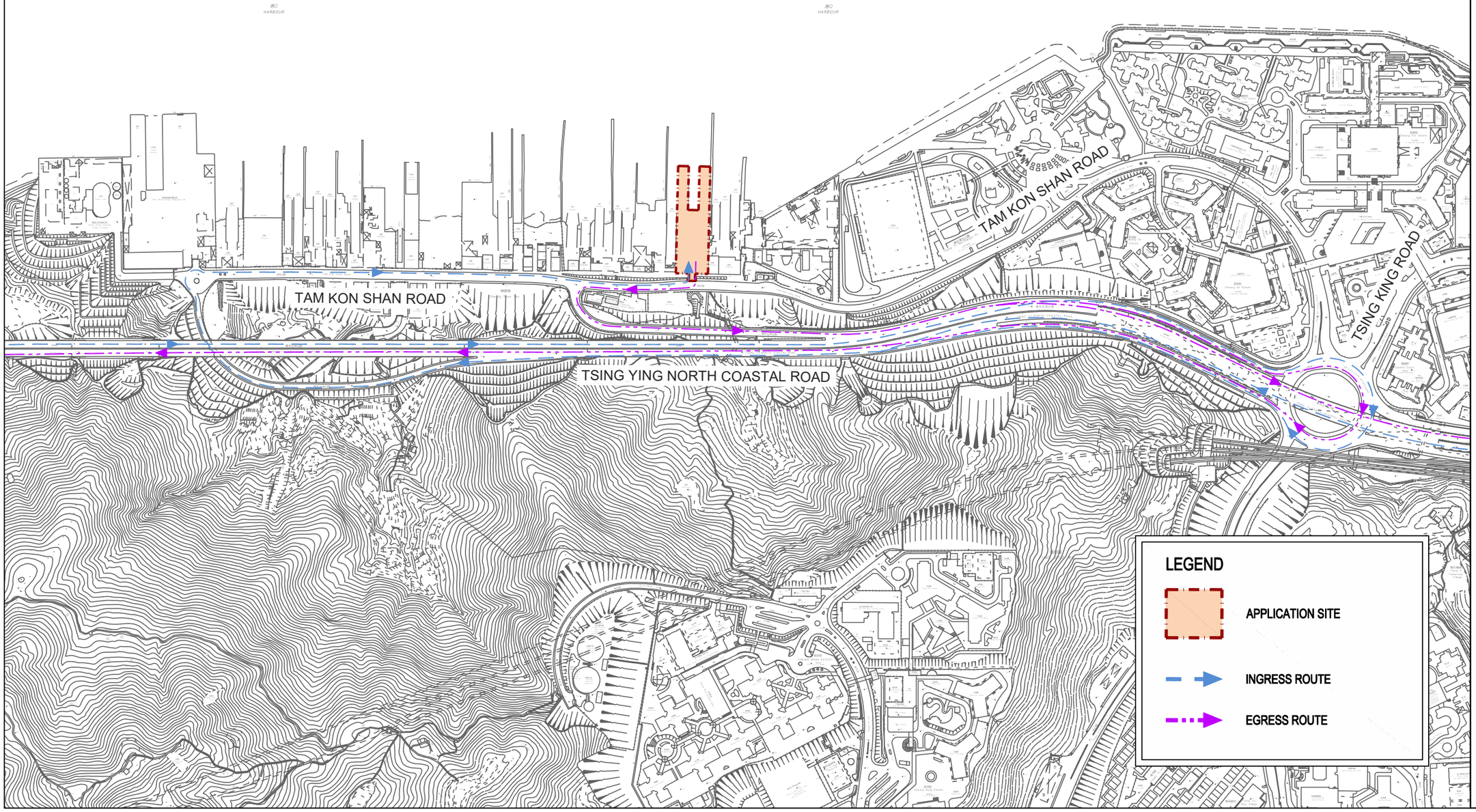
C:\USERS\USER\DESKTOP\31048\DATA\DRAWING\FIGURE-2.1.DWG

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

VEHICULAR INGRESS AND EGRESS ROUTE

FIGURE 3.1



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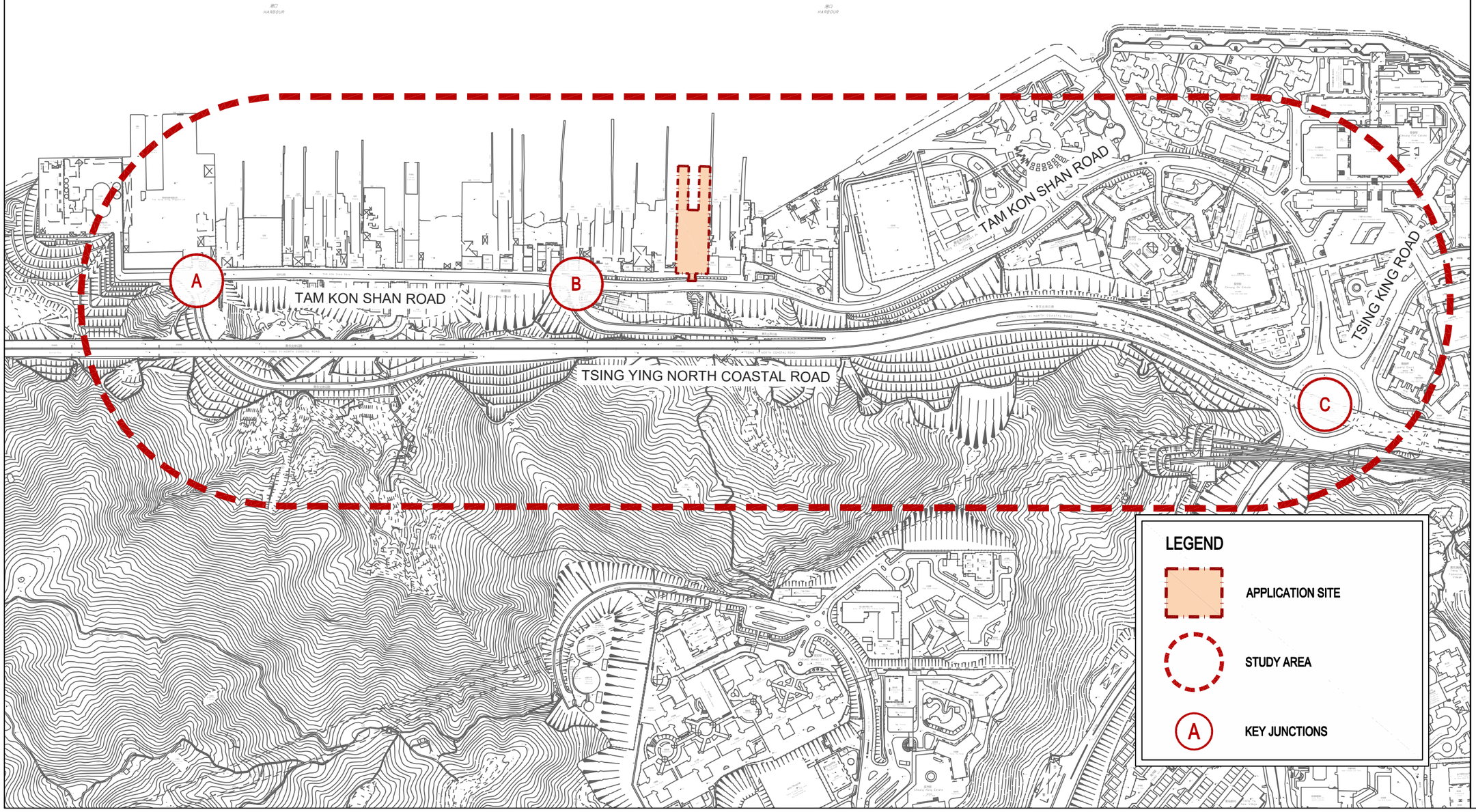
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

KEY JUNCTIONS

FIGURE 3.2



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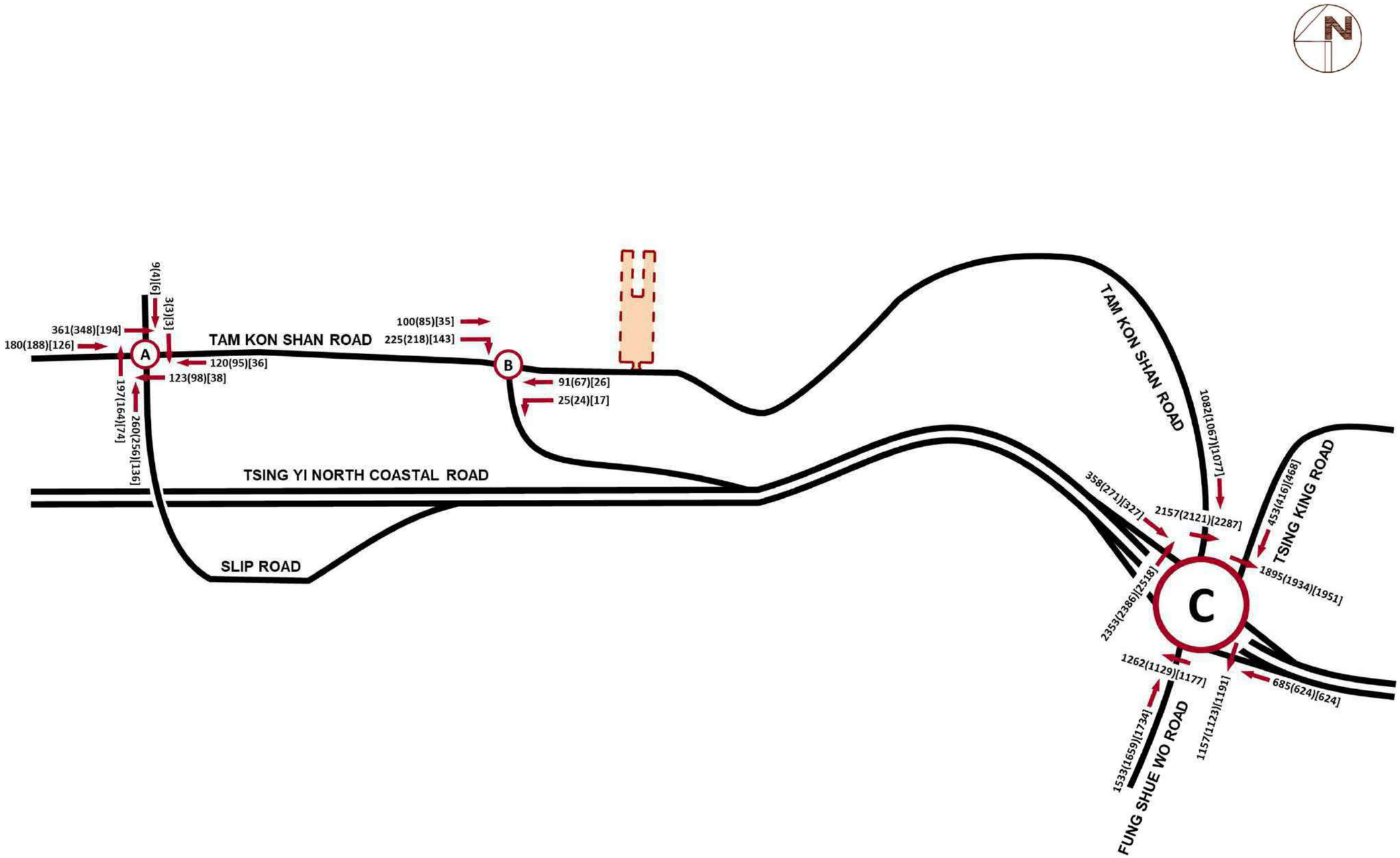
C:\USERS\USER\DESKTOP\31048\DATA\DRAWING\FIGURE-3.2.DWG



LEGEND

	APPLICATION SITE
100(100)[100]	PEAK HOURLY TRAFFIC FLOW AM(NOON)[PM]

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

YEAR 2024 OBSERVED TRAFFIC FLOW

FIGURE 3.3

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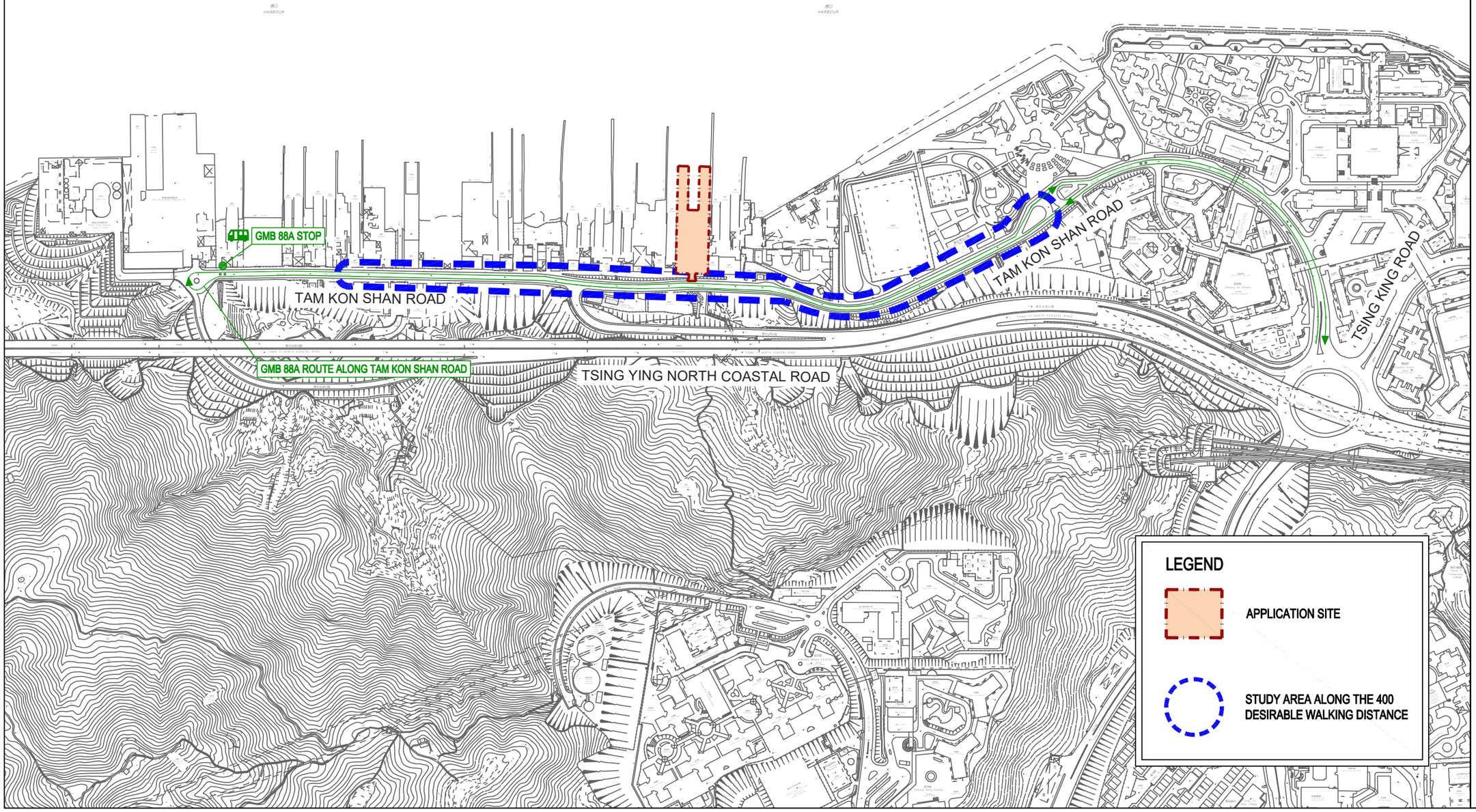
C:\USERS\USER\DESKTOP\31048\DATA\DRAWING\FIGURE 3.3.DWG

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

PUBLIC TRANSPORT SERVICES

FIGURE 3.4



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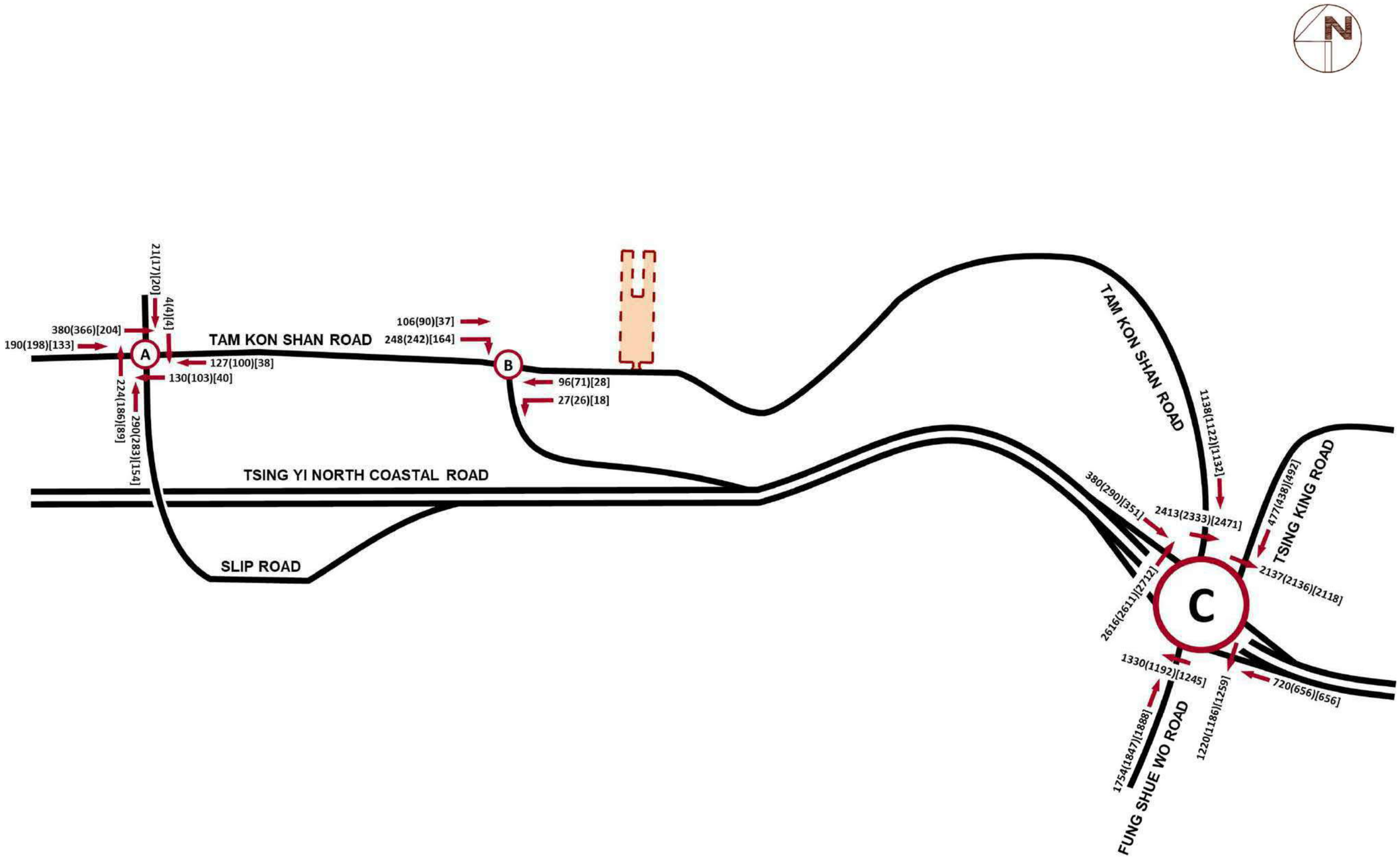

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

YEAR 2029 REFERENCE TRAFFIC FLOW

FIGURE 4.1

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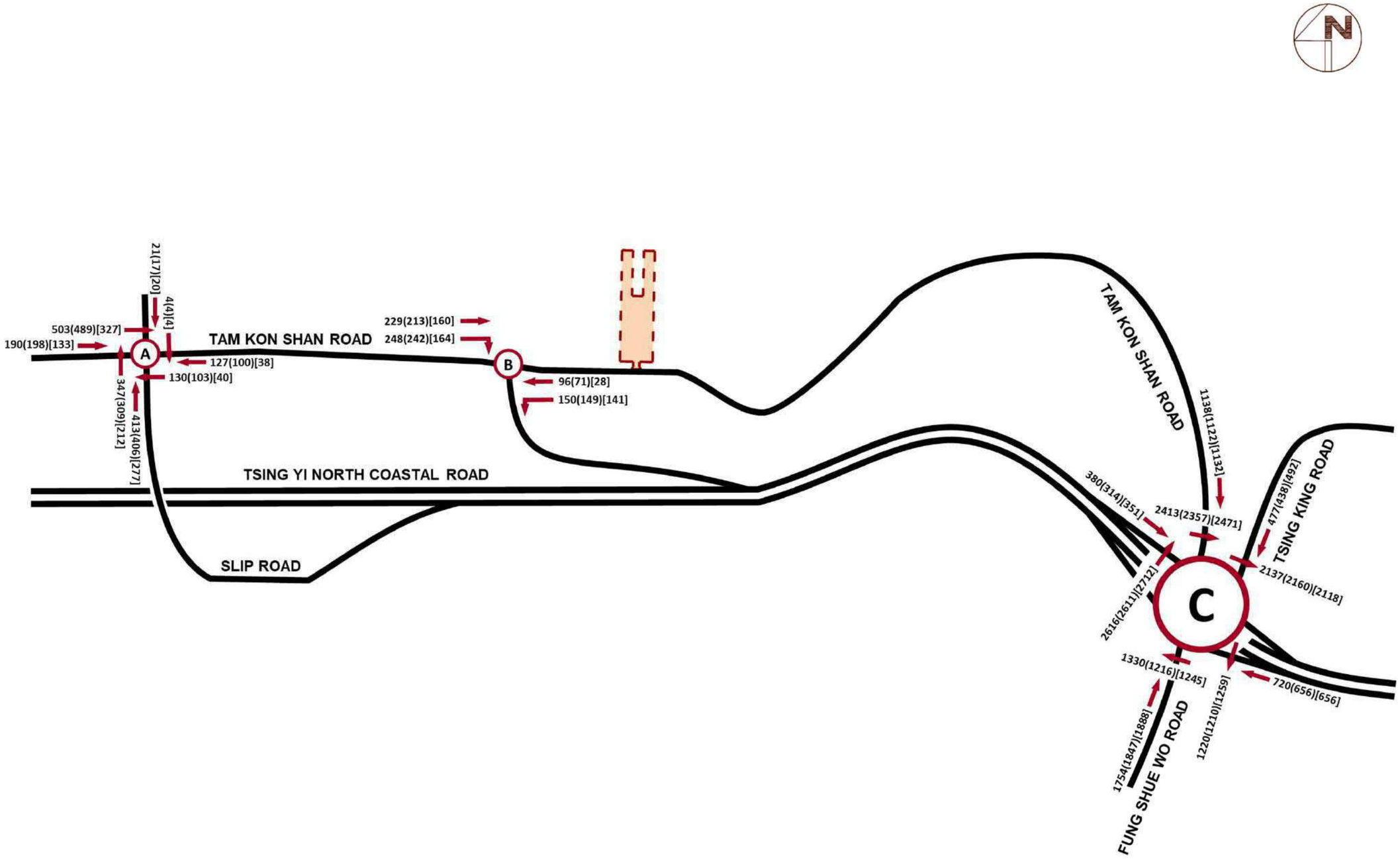
C:\USERS\USER\DESKTOP\31048\DATA\DRAWING\FIGURE 3.1.DWG



LEGEND

APPLICATION SITE

100(100)[100] PEAK HOURLY TRAFFIC FLOW AM(NOON)[PM]

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

YEAR 2029 DESIGN TRAFFIC FLOW

FIGURE 4.2

Scale : N.T.S

Date : FEB 2025

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C:\USERS\USER\DESKTOP\9104\DATA\DRAWING\FIGURE 3.3.DWG

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

VEHICULAR ACCESS POINT

FIGURE 5.1

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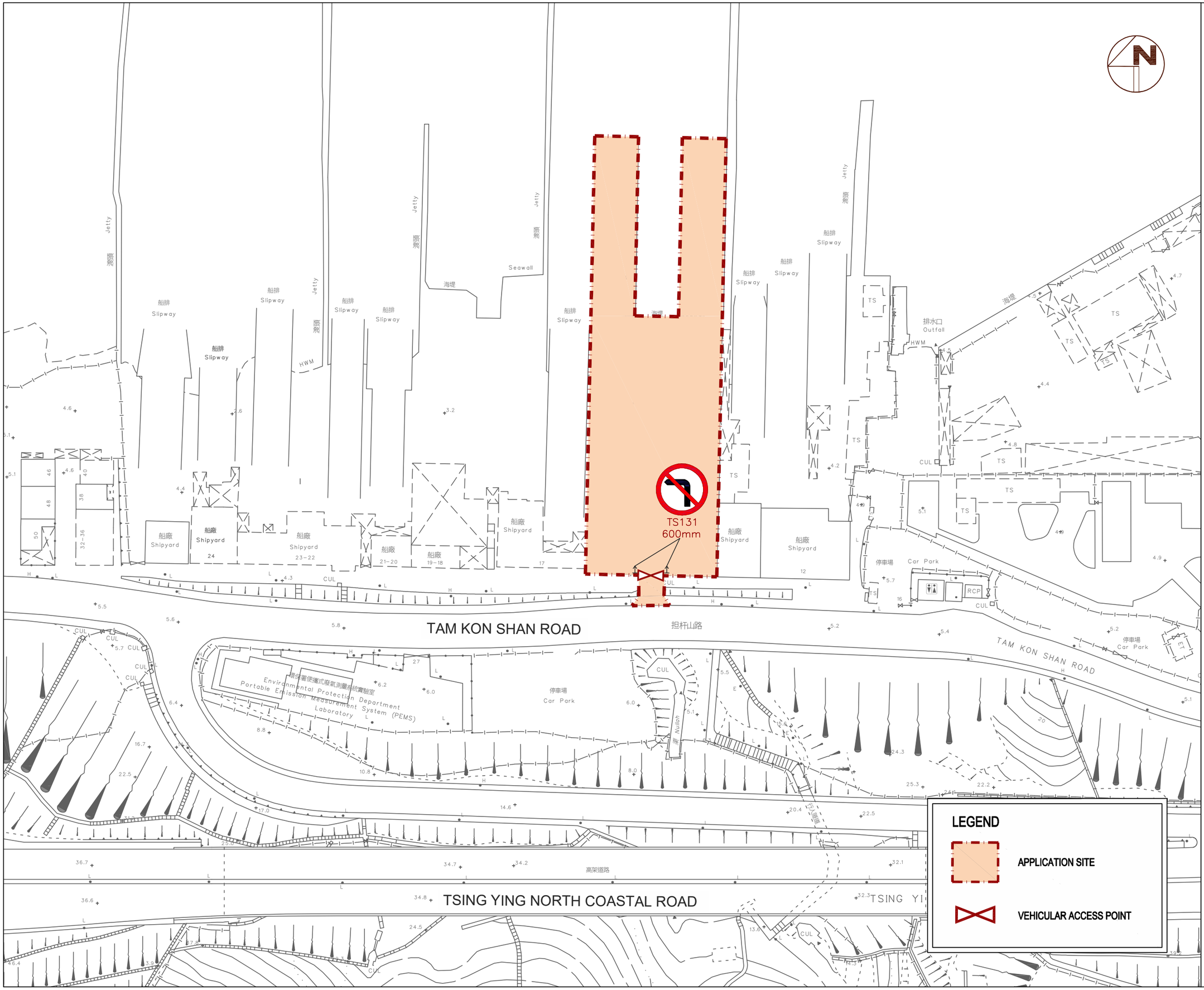
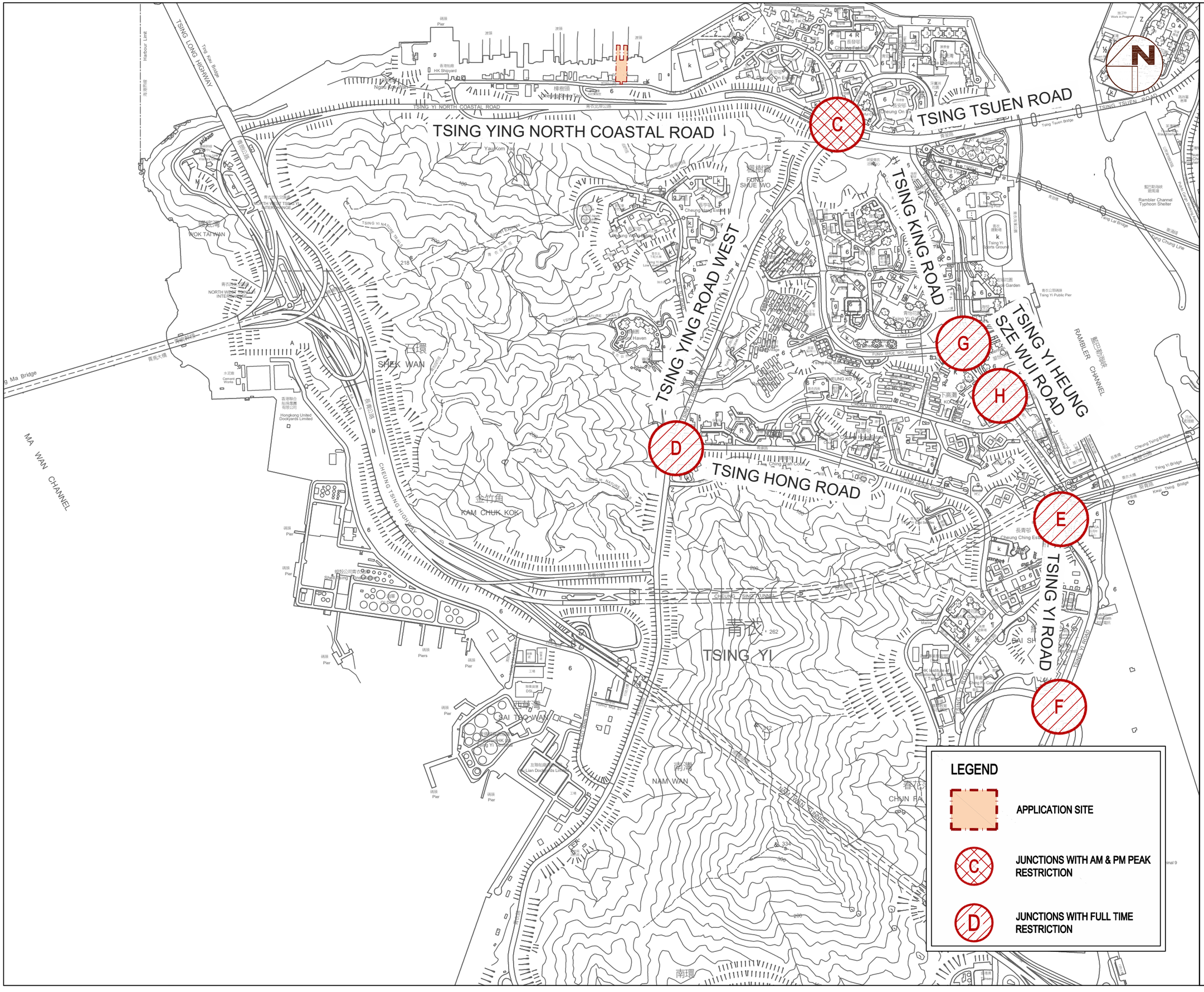
C:\USERS\USER\DESKTOP\31048\DATA\DRAWING\FIGURE-5.1.DWG





Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

ACCESS RESTRICTIONS AT TSING YI JUNCTIONS

FIGURE 6.1

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Date : MAR 2025

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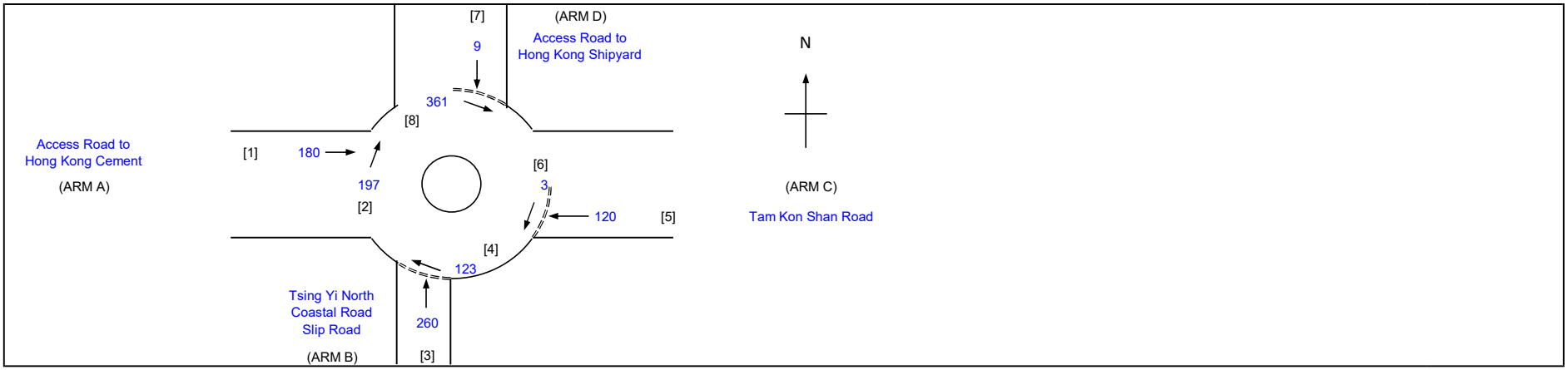
Appendix A

Junction Analysis

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnA - Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	2024 Observed Traffic Flow - AM Peak		Reviewed By:	AW	7/2/2025

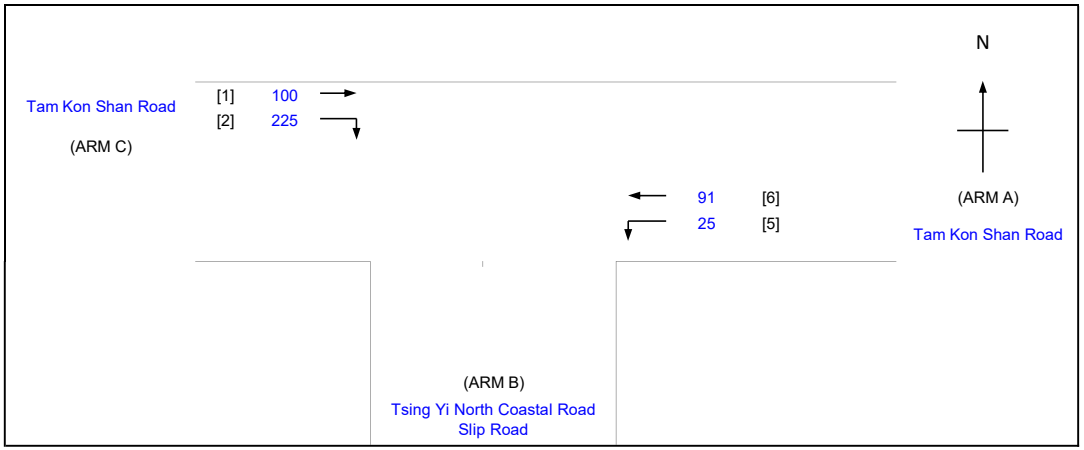


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**
V	=	Approach half width (m)		4.1	3.7	4.1	4.2
E	=	Entry width (m)		5.3	4.0	7.3	6.3
L	=	Effective length of flare (m)		6.0	1.0	6.0	2.0
R	=	Entry radius (m)		9.0	26.0	9.0	7.0
D	=	Inscribed circle diameter (m)		28.0	28.0	28.0	28.0
A	=	Entry angle (degree)		46.0	33.0	34.0	38.0
Q	=	Entry flow (pcu/h)		180	260	120	9
Qc	=	Circulating flow across entry (pcu/h)		197	123	3	361
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L		0.32	0.48	0.85	1.68
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		0.88	1.00	0.93	0.88
X2	=	V + ((E-V)/(1+2S))		4.83	3.85	5.28	4.68
M	=	EXP((D-60)/10)		0.04	0.04	0.04	0.04
F	=	303*X2		1464	1167	1601	1419
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td(1+0.2*X2)		0.61	0.55	0.64	0.60
Qe	=	K(F-Fc*Qc)		1189	1101	1481	1059
DFC	=	Design flow/Capacity = Q/Qe		0.15	0.24	0.08	0.01

TOTAL FLOW = 1253 (pcu/hr)

CRITICAL DFC = 0.24

AXON CONSULTANCY LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnB - Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	2024 Observed Traffic Flow - AM Peak		Reviewed By:	AW	7/2/2025



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.0	(metres)
W cr	=	0	(metres)
q a-b	=	25	(pcu/hr)
q a-c	=	91	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.3	(metres)
Vr c-b	=	30.0	(metres)
q c-a	=	100	(pcu/hr)
q c-b	=	225	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0.0	(metres)
W b-c	=	0.0	(metres)
Vl b-a	=	0.0	(metres)
Vr b-a	=	0.0	(metres)
Vr b-c	=	0.0	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533
E	=	0.586
F	=	0.889
Y	=	0.759

THE CAPACITY OF MOVEMENT :

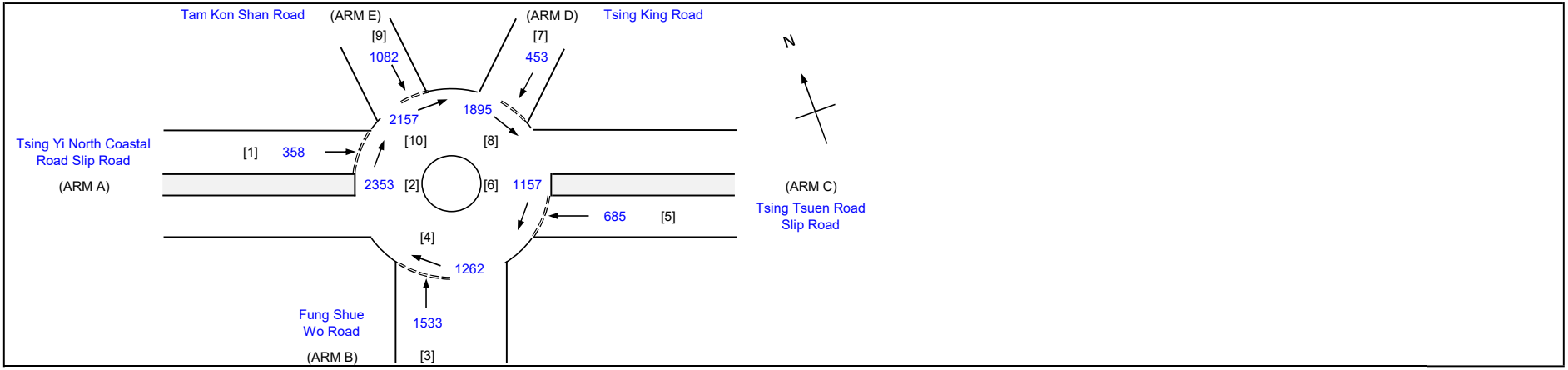
Q b-a	=	263	(pcu/hr)
Q b-c	=	420	(pcu/hr)
Q c-b	=	634	(pcu/hr)
TOTAL FLOW	=	441	(pcu/hr)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0000
DFC c-b	=	0.3549

CRITICAL DFC = 0.35

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnC - Tam Kon Shan Interchange	2024 Observed Traffic Flow - AM Peak		Reviewed By:	AW	7/2/2025

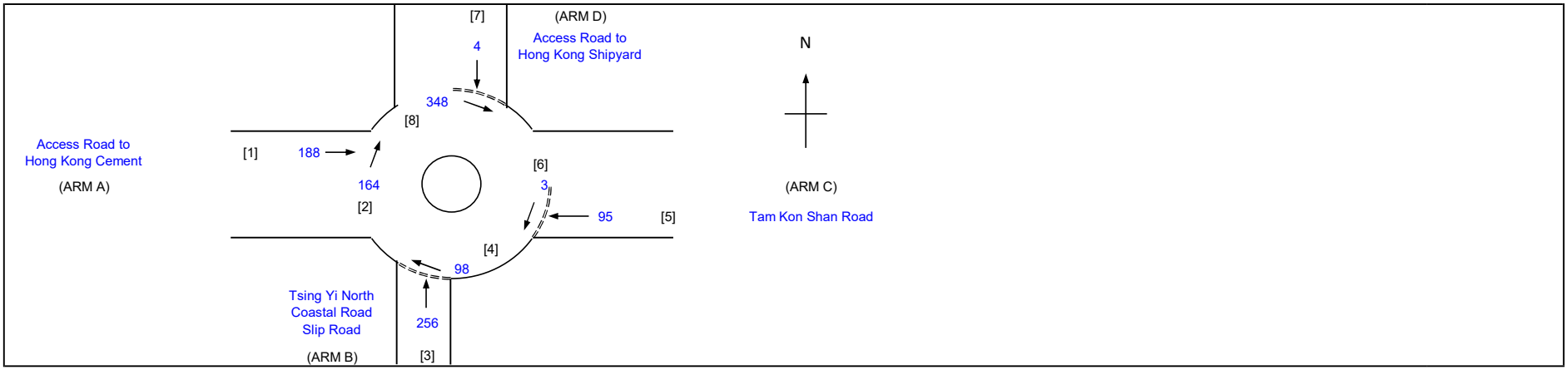


GEOMETRIC DETAILS:			ARM	A	B	C	D	E
V	=	Approach half width (m)		6.0	7.7	6.8	3.8	5.6
E	=	Entry width (m)		8.3	14.0	8.4	7.6	14.2
L	=	Effective length of flare (m)		13.7	15.9	1.0	18.8	40.9
R	=	Entry radius (m)		40.0	40.0	45.0	39.0	34.0
D	=	Inscribed circle diameter (m)		100.0	100.0	100.0	100.0	100.0
A	=	Entry angle (degree)		27.0	29.0	10.0	35.0	45.0
Q	=	Entry flow (pcu/h)		358	1533	685	453	1082
Qc	=	Circulating flow across entry (pcu/h)		2353	1262	1157	1895	2157
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L		0.27	0.63	2.56	0.32	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		1.03	1.03	1.10	1.01	0.97
X2	=	V + ((E-V)/(1+2S))		7.50	10.48	7.06	6.11	10.74
M	=	EXP((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X2		2271	3175	2140	1851	3254
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td(1+0.2*X2)		0.53	0.66	0.51	0.47	0.67
Qe	=	K(F-Fc*Qc)		1061	2413	1698	965	1758
DFC	=	Design flow/Capacity = Q/Qe		0.34	0.64	0.40	0.47	0.62

TOTAL FLOW = 12935 (pcu/hr)

CRITICAL DFC = 0.64

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnA - Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	2024 Observed Traffic Flow - Noon Peak		Reviewed By:	AW	7/2/2025

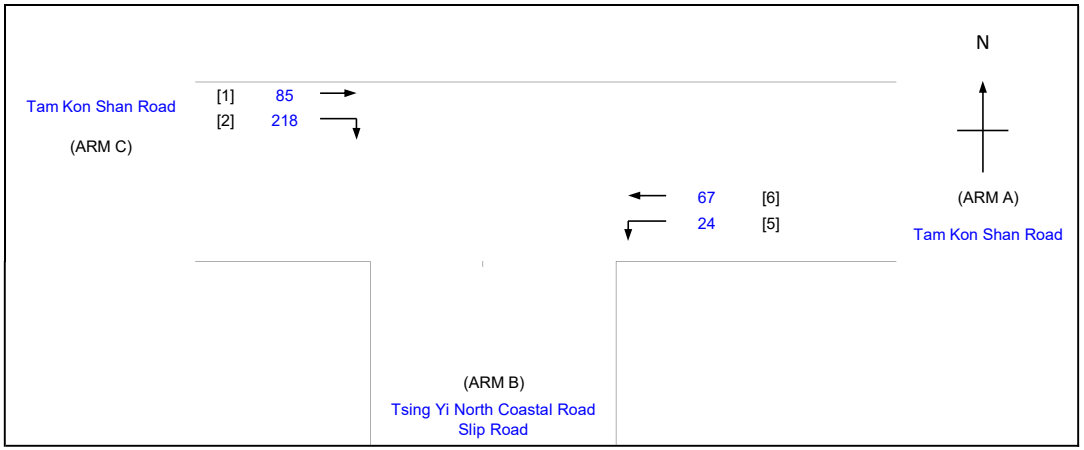


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**
V	=	Approach half width (m)		4.1	3.7	4.1	4.2
E	=	Entry width (m)		5.3	4.0	7.3	6.3
L	=	Effective length of flare (m)		6.0	1.0	6.0	2.0
R	=	Entry radius (m)		9.0	26.0	9.0	7.0
D	=	Inscribed circle diameter (m)		28.0	28.0	28.0	28.0
A	=	Entry angle (degree)		46.0	33.0	34.0	38.0
Q	=	Entry flow (pcu/h)		188	256	95	4
Qc	=	Circulating flow across entry (pcu/h)		164	98	3	348
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L		0.32	0.48	0.85	1.68
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		0.88	1.00	0.93	0.88
X2	=	V + ((E-V)/(1+2S))		4.83	3.85	5.28	4.68
M	=	EXP((D-60)/10)		0.04	0.04	0.04	0.04
F	=	303*X2		1464	1167	1601	1419
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td(1+0.2*X2)		0.61	0.55	0.64	0.60
Qe	=	K(F-Fc*Qc)		1207	1115	1481	1066
DFC	=	Design flow/Capacity = Q/Qe		0.16	0.23	0.06	0.00

TOTAL FLOW = 1156 (pcu/hr)

CRITICAL DFC = 0.23

AXON CONSULTANCY LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnB - Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	2024 Observed Traffic Flow - Noon Peak		Reviewed By:	AW	7/2/2025



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.0	(metres)
W cr	=	0	(metres)
q a-b	=	24	(pcu/hr)
q a-c	=	67	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.3	(metres)
Vr c-b	=	30.0	(metres)
q c-a	=	85	(pcu/hr)
q c-b	=	218	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0.0	(metres)
W b-c	=	0.0	(metres)
Vl b-a	=	0.0	(metres)
Vr b-a	=	0.0	(metres)
Vr b-c	=	0.0	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533
E	=	0.586
F	=	0.889
Y	=	0.759

THE CAPACITY OF MOVEMENT :

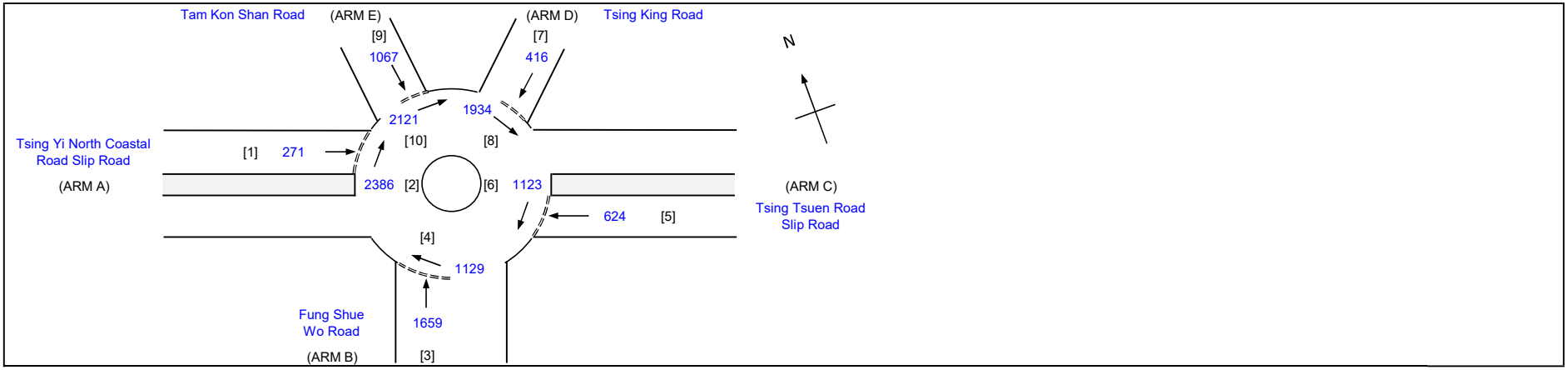
Q b-a	=	269	(pcu/hr)
Q b-c	=	424	(pcu/hr)
Q c-b	=	640	(pcu/hr)
TOTAL FLOW	=	394	(pcu/hr)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0000
DFC c-b	=	0.3406

CRITICAL DFC = 0.34

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnC - Tam Kon Shan Interchange	2024 Observed Traffic Flow - Noon Peak		Reviewed By:	AW	7/2/2025

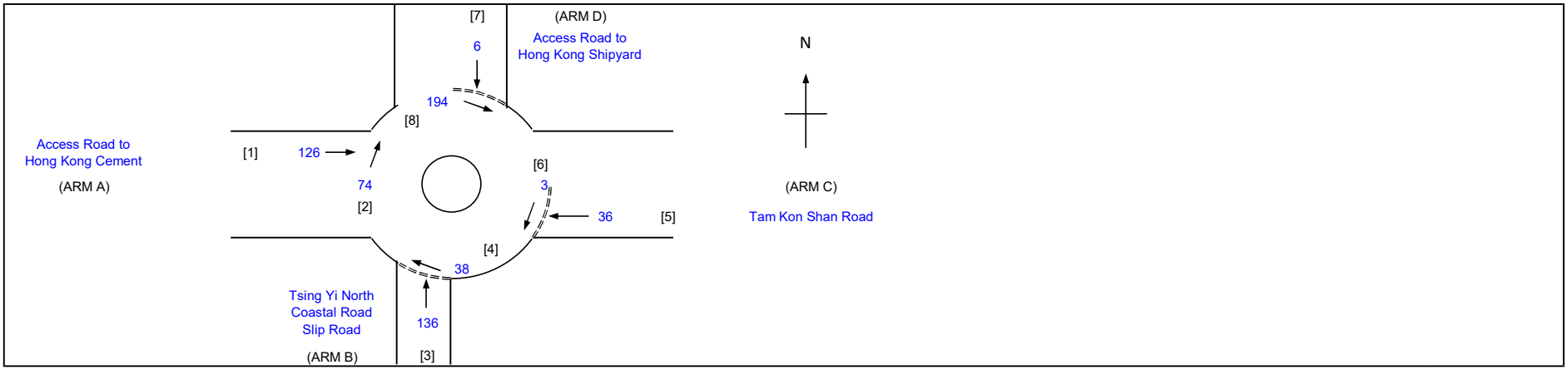


GEOMETRIC DETAILS:			ARM	A	B	C	D	E
V	=	Approach half width (m)		6.0	7.7	6.8	3.8	5.6
E	=	Entry width (m)		8.3	14.0	8.4	7.6	14.2
L	=	Effective length of flare (m)		13.7	15.9	1.0	18.8	40.9
R	=	Entry radius (m)		40.0	40.0	45.0	39.0	34.0
D	=	Inscribed circle diameter (m)		100.0	100.0	100.0	100.0	100.0
A	=	Entry angle (degree)		27.0	29.0	10.0	35.0	45.0
Q	=	Entry flow (pcu/h)		271	1659	624	416	1067
Qc	=	Circulating flow across entry (pcu/h)		2386	1129	1123	1934	2121
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L		0.27	0.63	2.56	0.32	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		1.03	1.03	1.10	1.01	0.97
X2	=	V + ((E-V)/(1+2S))		7.50	10.48	7.06	6.11	10.74
M	=	EXP((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X2		2271	3175	2140	1851	3254
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td(1+0.2*X2)		0.53	0.66	0.51	0.47	0.67
Qe	=	K(F-Fc*Qc)		1043	2502	1717	946	1781
DFC	=	Design flow/Capacity = Q/Qe		0.26	0.66	0.36	0.44	0.60

TOTAL FLOW = 12730 (pcu/hr)

CRITICAL DFC = 0.66

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnA - Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	2024 Observed Traffic Flow - PM Peak		Reviewed By:	AW	7/2/2025

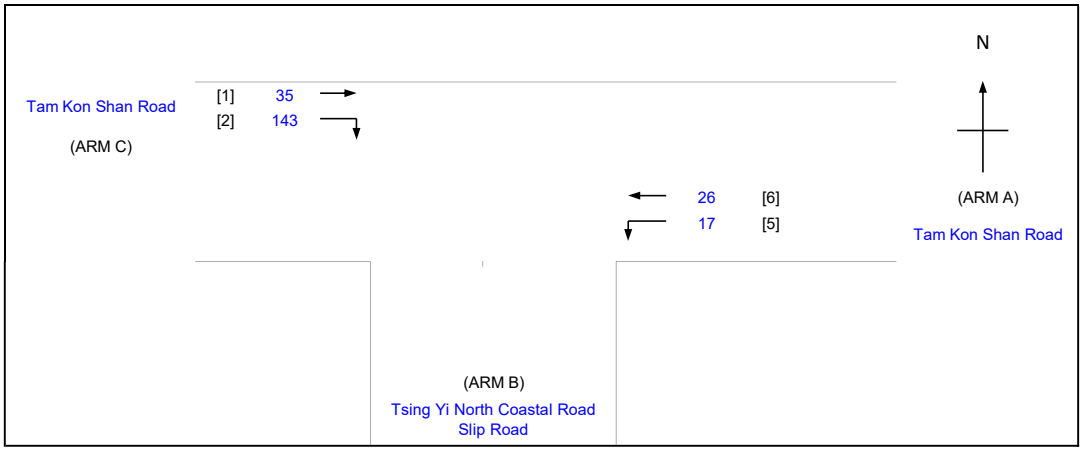


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**
V	=	Approach half width (m)		4.1	3.7	4.1	4.2
E	=	Entry width (m)		5.3	4.0	7.3	6.3
L	=	Effective length of flare (m)		6.0	1.0	6.0	2.0
R	=	Entry radius (m)		9.0	26.0	9.0	7.0
D	=	Inscribed circle diameter (m)		28.0	28.0	28.0	28.0
A	=	Entry angle (degree)		46.0	33.0	34.0	38.0
Q	=	Entry flow (pcu/h)		126	136	36	6
Qc	=	Circulating flow across entry (pcu/h)		74	38	3	194
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L		0.32	0.48	0.85	1.68
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		0.88	1.00	0.93	0.88
X2	=	V + ((E-V)/(1+2S))		4.83	3.85	5.28	4.68
M	=	EXP((D-60)/10)		0.04	0.04	0.04	0.04
F	=	303*X2		1464	1167	1601	1419
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td(1+0.2*X2)		0.61	0.55	0.64	0.60
Qe	=	K(F-Fc*Qc)		1255	1148	1481	1147
DFC	=	Design flow/Capacity = Q/Qe		0.10	0.12	0.02	0.01

TOTAL FLOW = 613 (pcu/hr)

CRITICAL DFC = 0.12

AXON CONSULTANCY LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnB - Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	2024 Observed Traffic Flow - PM Peak		Reviewed By:	AW	7/2/2025



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.0	(metres)
W cr	=	0	(metres)
q a-b	=	17	(pcu/hr)
q a-c	=	26	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.3	(metres)
Vr c-b	=	30.0	(metres)
q c-a	=	35	(pcu/hr)
q c-b	=	143	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0.0	(metres)
W b-c	=	0.0	(metres)
Vl b-a	=	0.0	(metres)
Vr b-a	=	0.0	(metres)
Vr b-c	=	0.0	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533
E	=	0.586
F	=	0.889
Y	=	0.759

THE CAPACITY OF MOVEMENT :

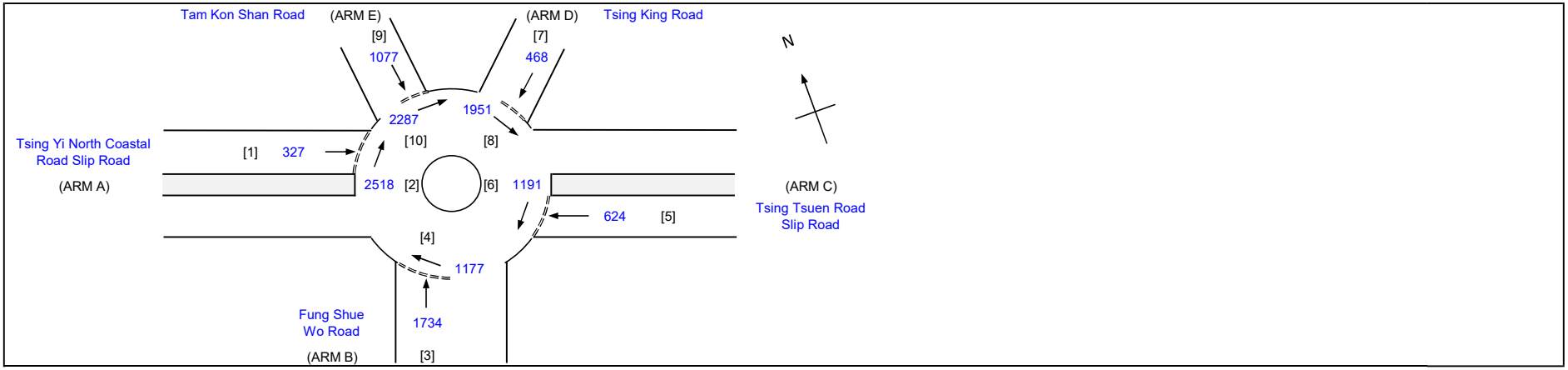
Q b-a	=	296	(pcu/hr)
Q b-c	=	431	(pcu/hr)
Q c-b	=	652	(pcu/hr)
TOTAL FLOW	=	221	(pcu/hr)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0000
DFC c-b	=	0.2193

CRITICAL DFC = 0.22

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnC - Tam Kon Shan Interchange	2024 Observed Traffic Flow - PM Peak		Reviewed By:	AW	7/2/2025

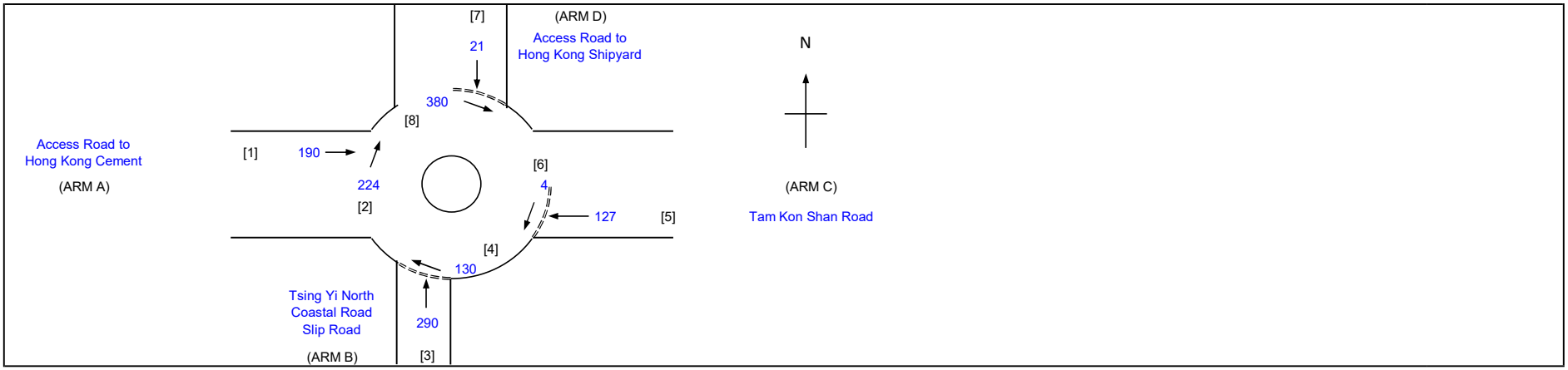


GEOMETRIC DETAILS:			ARM	A	B	C	D	E
V	=	Approach half width (m)		6.0	7.7	6.8	3.8	5.6
E	=	Entry width (m)		8.3	14.0	8.4	7.6	14.2
L	=	Effective length of flare (m)		13.7	15.9	1.0	18.8	40.9
R	=	Entry radius (m)		40.0	40.0	45.0	39.0	34.0
D	=	Inscribed circle diameter (m)		100.0	100.0	100.0	100.0	100.0
A	=	Entry angle (degree)		27.0	29.0	10.0	35.0	45.0
Q	=	Entry flow (pcu/h)		327	1734	624	468	1077
Qc	=	Circulating flow across entry (pcu/h)		2518	1177	1191	1951	2287
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L		0.27	0.63	2.56	0.32	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		1.03	1.03	1.10	1.01	0.97
X2	=	V + ((E-V)/(1+2S))		7.50	10.48	7.06	6.11	10.74
M	=	EXP((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X2		2271	3175	2140	1851	3254
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td(1+0.2*X2)		0.53	0.66	0.51	0.47	0.67
Qe	=	K(F-Fc*Qc)		971	2470	1679	938	1674
DFC	=	Design flow/Capacity = Q/Qe		0.34	0.70	0.37	0.50	0.64

TOTAL FLOW = 13354 (pcu/hr)

CRITICAL DFC = 0.70

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnA - Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	2029 Reference Traffic Flow - AM Peak		Reviewed By:	AW	7/2/2025

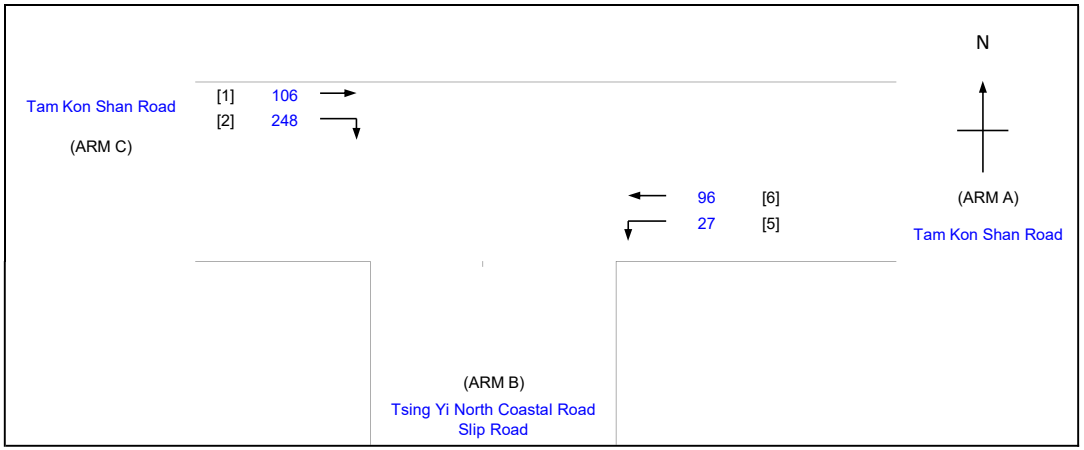


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**
V	=	Approach half width (m)		4.1	3.7	4.1	4.2
E	=	Entry width (m)		5.3	4.0	7.3	6.3
L	=	Effective length of flare (m)		6.0	1.0	6.0	2.0
R	=	Entry radius (m)		9.0	26.0	9.0	7.0
D	=	Inscribed circle diameter (m)		28.0	28.0	28.0	28.0
A	=	Entry angle (degree)		46.0	33.0	34.0	38.0
Q	=	Entry flow (pcu/h)		190	290	127	21
Qc	=	Circulating flow across entry (pcu/h)		224	130	4	380
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L		0.32	0.48	0.85	1.68
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		0.88	1.00	0.93	0.88
X2	=	V + ((E-V)/(1+2S))		4.83	3.85	5.28	4.68
M	=	EXP((D-60)/10)		0.04	0.04	0.04	0.04
F	=	303*X2		1464	1167	1601	1419
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td(1+0.2*X2)		0.61	0.55	0.64	0.60
Qe	=	K(F-Fc*Qc)		1174	1097	1480	1049
DFC	=	Design flow/Capacity = Q/Qe		0.16	0.26	0.09	0.02

TOTAL FLOW = 1366 (pcu/hr)

CRITICAL DFC = 0.26

AXON CONSULTANCY LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnB - Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	2029 Reference Traffic Flow - AM Peak		Reviewed By:	AW	7/2/2025



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.0	(metres)
W cr	=	0	(metres)
q a-b	=	27	(pcu/hr)
q a-c	=	96	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.3	(metres)
Vr c-b	=	30.0	(metres)
q c-a	=	106	(pcu/hr)
q c-b	=	248	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0.0	(metres)
W b-c	=	0.0	(metres)
Vl b-a	=	0.0	(metres)
Vr b-a	=	0.0	(metres)
Vr b-c	=	0.0	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533
E	=	0.586
F	=	0.889
Y	=	0.759

THE CAPACITY OF MOVEMENT :

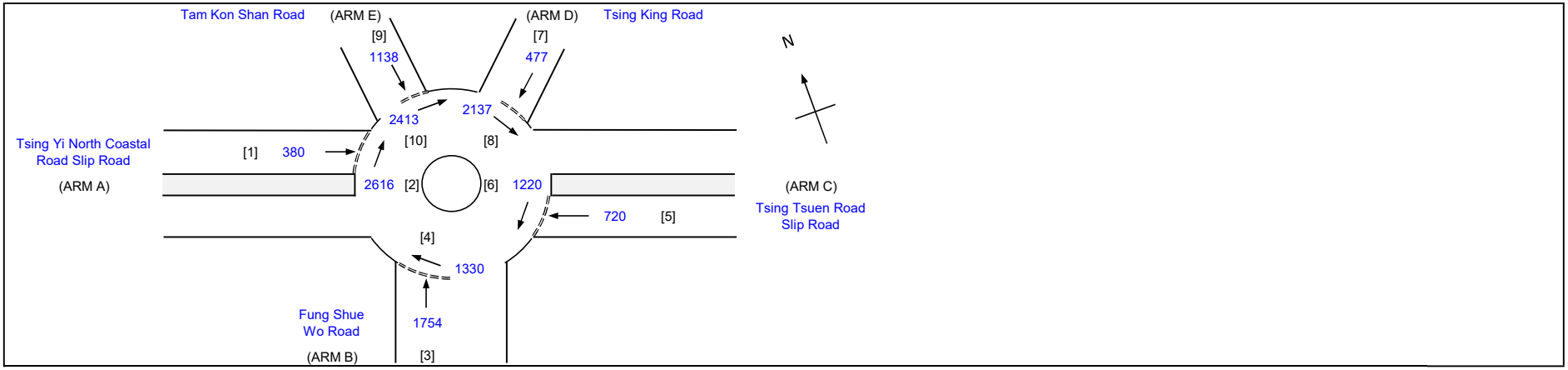
Q b-a	=	257	(pcu/hr)
Q b-c	=	419	(pcu/hr)
Q c-b	=	632	(pcu/hr)
TOTAL FLOW	=	477	(pcu/hr)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0000
DFC c-b	=	0.3924

CRITICAL DFC = 0.39

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnC - Tam Kon Shan Interchange	2029 Reference Traffic Flow - AM Peak		Reviewed By:	AW	7/2/2025

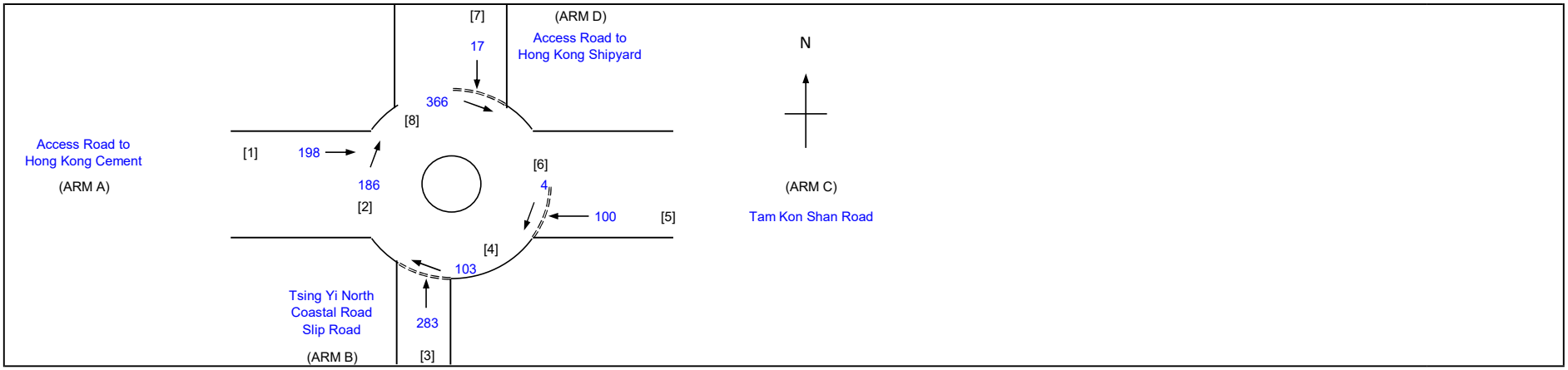


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**	**E**
V	=	Approach half width (m)		6.0	7.7	6.8	3.8	5.6
E	=	Entry width (m)		8.3	14.0	8.4	7.6	14.2
L	=	Effective length of flare (m)		13.7	15.9	1.0	18.8	40.9
R	=	Entry radius (m)		40.0	40.0	45.0	39.0	34.0
D	=	Inscribed circle diameter (m)		100.0	100.0	100.0	100.0	100.0
A	=	Entry angle (degree)		27.0	29.0	10.0	35.0	45.0
Q	=	Entry flow (pcu/h)		380	1754	720	477	1138
Qc	=	Circulating flow across entry (pcu/h)		2616	1330	1220	2137	2413
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L		0.27	0.63	2.56	0.32	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		1.03	1.03	1.10	1.01	0.97
X2	=	V + ((E-V)/(1+2S))		7.50	10.48	7.06	6.11	10.74
M	=	EXP((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X2		2271	3175	2140	1851	3254
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td(1+0.2*X2)		0.53	0.66	0.51	0.47	0.67
Qe	=	K(1.11F-1.4Fc*Qc)		917	2367	1662	850	1592
DFC	=	Design flow/Capacity = Q/Qe		0.41	0.74	0.43	0.56	0.71

TOTAL FLOW = 14185 (pcu/hr)

CRITICAL DFC = 0.74

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnA - Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	2029 Reference Traffic Flow - Noon Peak		Reviewed By:	AW	7/2/2025

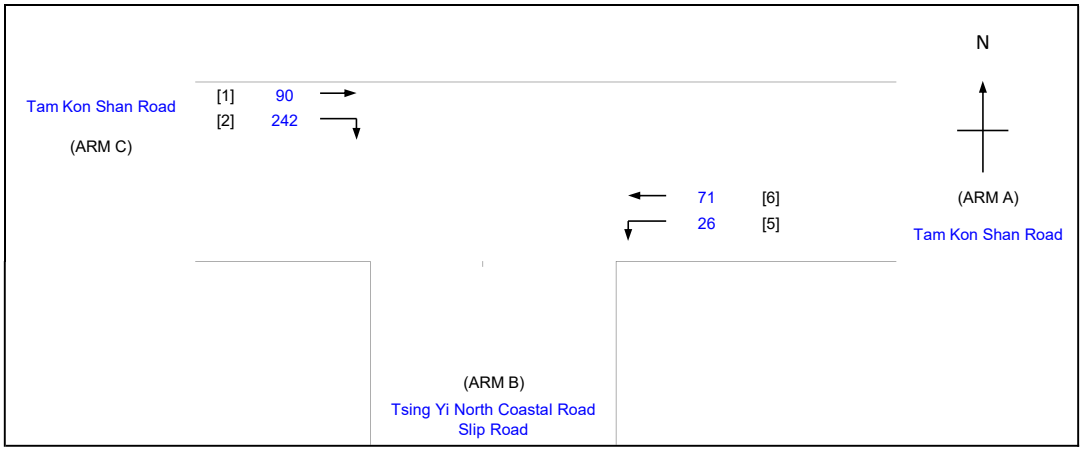


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**
V	=	Approach half width (m)		4.1	3.7	4.1	4.2
E	=	Entry width (m)		5.3	4.0	7.3	6.3
L	=	Effective length of flare (m)		6.0	1.0	6.0	2.0
R	=	Entry radius (m)		9.0	26.0	9.0	7.0
D	=	Inscribed circle diameter (m)		28.0	28.0	28.0	28.0
A	=	Entry angle (degree)		46.0	33.0	34.0	38.0
Q	=	Entry flow (pcu/h)		198	283	100	17
Qc	=	Circulating flow across entry (pcu/h)		186	103	4	366
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L		0.32	0.48	0.85	1.68
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		0.88	1.00	0.93	0.88
X2	=	V + ((E-V)/(1+2S))		4.83	3.85	5.28	4.68
M	=	EXP((D-60)/10)		0.04	0.04	0.04	0.04
F	=	303*X2		1464	1167	1601	1419
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td(1+0.2*X2)		0.61	0.55	0.64	0.60
Qe	=	K(F-Fc*Qc)		1195	1112	1480	1056
DFC	=	Design flow/Capacity = Q/Qe		0.17	0.25	0.07	0.02

TOTAL FLOW = 1257 (pcu/hr)

CRITICAL DFC = 0.25

AXON CONSULTANCY LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnB - Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	2029 Reference Traffic Flow - Noon Peak		Reviewed By:	AW	7/2/2025



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.0	(metres)
W cr	=	0	(metres)
q a-b	=	26	(pcu/hr)
q a-c	=	71	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.3	(metres)
Vr c-b	=	30.0	(metres)
q c-a	=	90	(pcu/hr)
q c-b	=	242	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0.0	(metres)
W b-c	=	0.0	(metres)
Vl b-a	=	0.0	(metres)
Vr b-a	=	0.0	(metres)
Vr b-c	=	0.0	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533
E	=	0.586
F	=	0.889
Y	=	0.759

THE CAPACITY OF MOVEMENT :

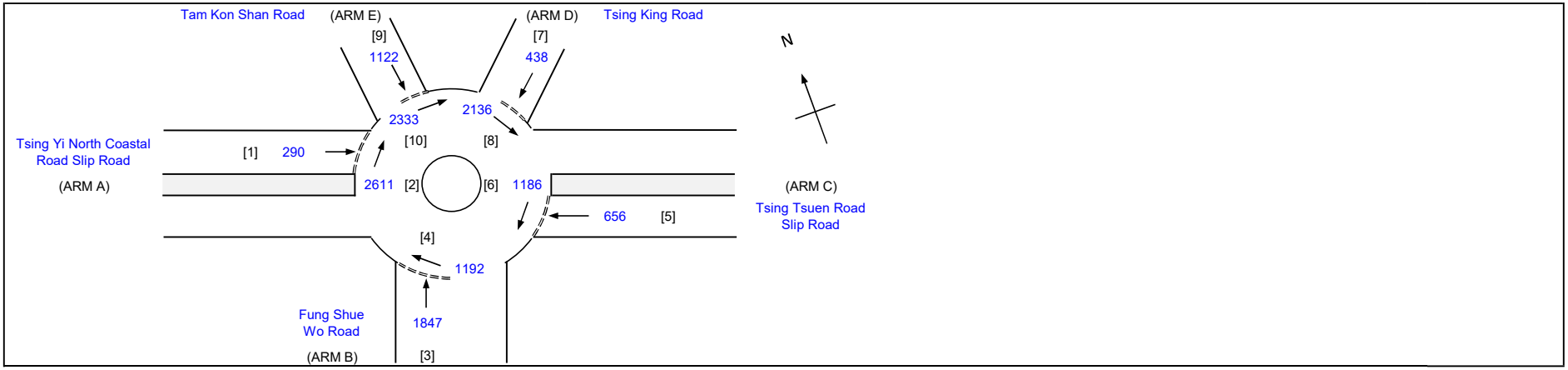
Q b-a	=	263	(pcu/hr)
Q b-c	=	423	(pcu/hr)
Q c-b	=	638	(pcu/hr)
TOTAL FLOW	=	429	(pcu/hr)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0000
DFC c-b	=	0.3793

CRITICAL DFC = 0.38

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnC - Tam Kon Shan Interchange	2029 Reference Traffic Flow - Noon Peak		Reviewed By:	AW	7/2/2025

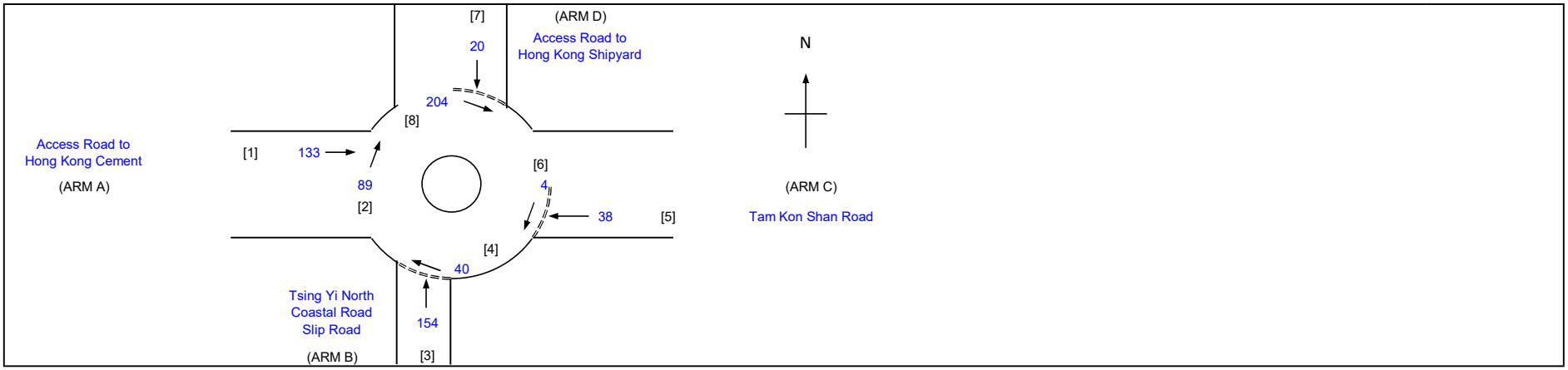


GEOMETRIC DETAILS:			ARM	A	B	C	D	E
V	=	Approach half width (m)		6.0	7.7	6.8	3.8	5.6
E	=	Entry width (m)		8.3	14.0	8.4	7.6	14.2
L	=	Effective length of flare (m)		13.7	15.9	1.0	18.8	40.9
R	=	Entry radius (m)		40.0	40.0	45.0	39.0	34.0
D	=	Inscribed circle diameter (m)		100.0	100.0	100.0	100.0	100.0
A	=	Entry angle (degree)		27.0	29.0	10.0	35.0	45.0
Q	=	Entry flow (pcu/h)		290	1847	656	438	1122
Qc	=	Circulating flow across entry (pcu/h)		2611	1192	1186	2136	2333
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L		0.27	0.63	2.56	0.32	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		1.03	1.03	1.10	1.01	0.97
X2	=	V + ((E-V)/(1+2S))		7.50	10.48	7.06	6.11	10.74
M	=	EXP((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X2		2271	3175	2140	1851	3254
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td(1+0.2*X2)		0.53	0.66	0.51	0.47	0.67
Qe	=	K(F-Fc*Qc)		920	2460	1681	851	1644
DFC	=	Design flow/Capacity = Q/Qe		0.32	0.75	0.39	0.51	0.68

TOTAL FLOW = 13811 (pcu/hr)

CRITICAL DFC = 0.75

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnA - Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	2029 Reference Traffic Flow - PM Peak		Reviewed By:	AW	7/2/2025

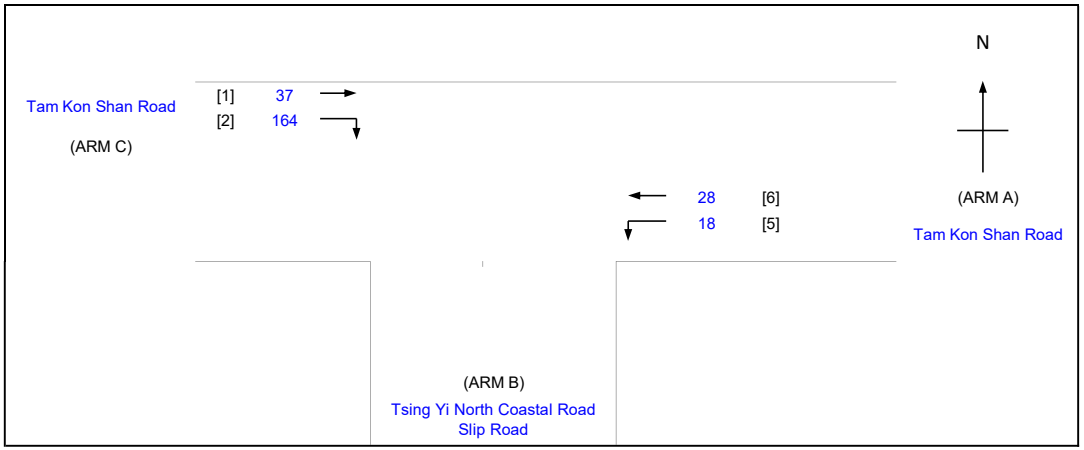


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**
V	=	Approach half width (m)		4.1	3.7	4.1	4.2
E	=	Entry width (m)		5.3	4.0	7.3	6.3
L	=	Effective length of flare (m)		6.0	1.0	6.0	2.0
R	=	Entry radius (m)		9.0	26.0	9.0	7.0
D	=	Inscribed circle diameter (m)		28.0	28.0	28.0	28.0
A	=	Entry angle (degree)		46.0	33.0	34.0	38.0
Q	=	Entry flow (pcu/h)		133	154	38	20
Qc	=	Circulating flow across entry (pcu/h)		89	40	4	204
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L		0.32	0.48	0.85	1.68
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		0.88	1.00	0.93	0.88
X2	=	V + ((E-V)/(1+2S))		4.83	3.85	5.28	4.68
M	=	EXP((D-60)/10)		0.04	0.04	0.04	0.04
F	=	303*X2		1464	1167	1601	1419
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td(1+0.2*X2)		0.61	0.55	0.64	0.60
Qe	=	K(F-Fc*Qc)		1247	1146	1480	1142
DFC	=	Design flow/Capacity = Q/Qe		0.11	0.13	0.03	0.02

TOTAL FLOW = **682** (pcu/hr)

CRITICAL DFC = **0.13**

AXON CONSULTANCY LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnB - Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	2029 Reference Traffic Flow - PM Peak		Reviewed By:	AW	7/2/2025



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.0	(metres)
W cr	=	0	(metres)
q a-b	=	18	(pcu/hr)
q a-c	=	28	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.3	(metres)
Vr c-b	=	30.0	(metres)
q c-a	=	37	(pcu/hr)
q c-b	=	164	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0.0	(metres)
W b-c	=	0.0	(metres)
Vl b-a	=	0.0	(metres)
Vr b-a	=	0.0	(metres)
Vr b-c	=	0.0	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533
E	=	0.586
F	=	0.889
Y	=	0.759

THE CAPACITY OF MOVEMENT :

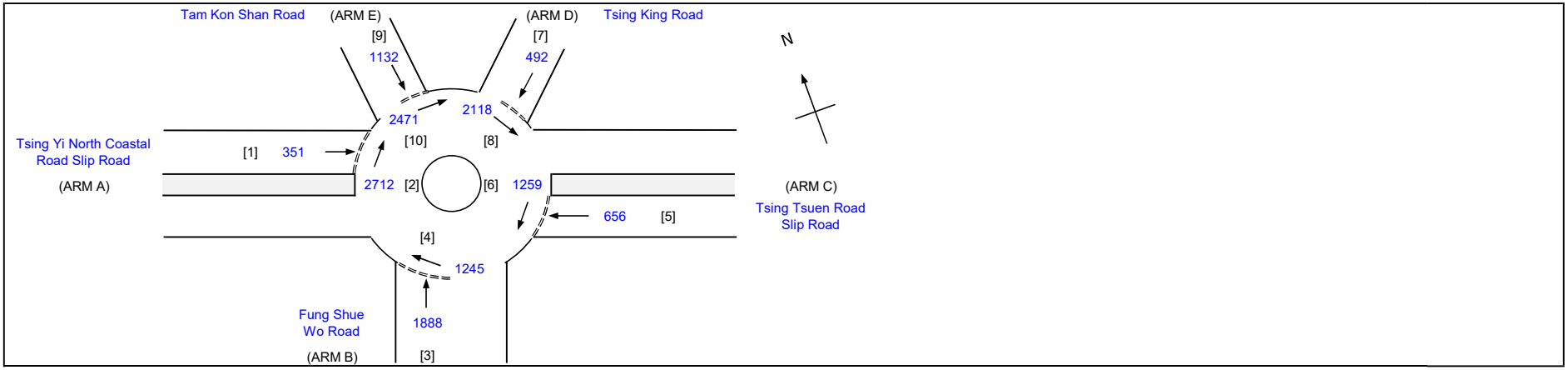
Q b-a	=	291	(pcu/hr)
Q b-c	=	431	(pcu/hr)
Q c-b	=	651	(pcu/hr)
TOTAL FLOW	=	247	(pcu/hr)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0000
DFC c-b	=	0.2519

CRITICAL DFC = 0.25

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	7/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	7/2/2025
JnC - Tam Kon Shan Interchange	2029 Reference Traffic Flow - PM Peak		Reviewed By:	AW	7/2/2025

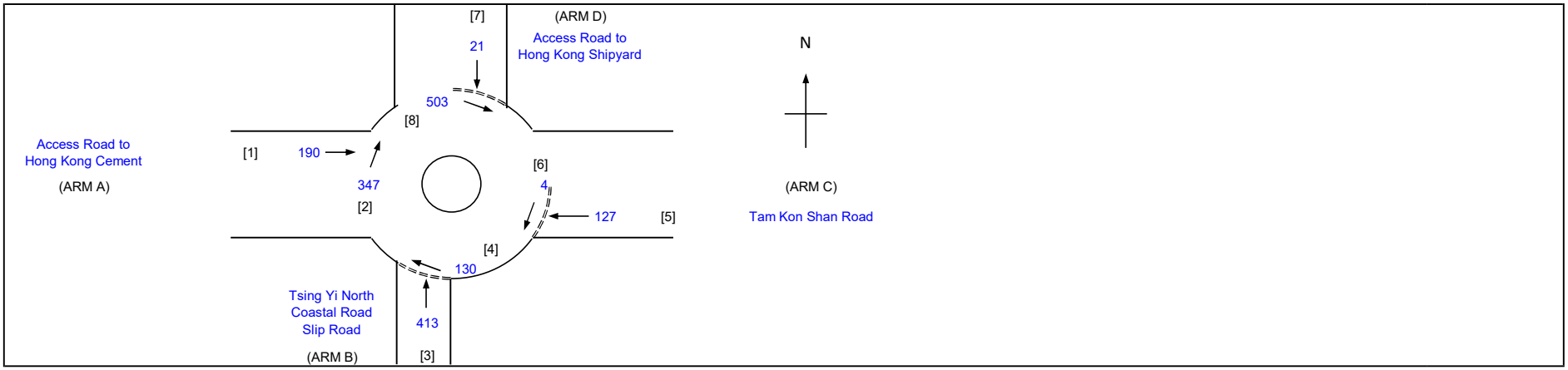


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**	**E**
V	=	Approach half width (m)		6.0	7.7	6.8	3.8	5.6
E	=	Entry width (m)		8.3	14.0	8.4	7.6	14.2
L	=	Effective length of flare (m)		13.7	15.9	1.0	18.8	40.9
R	=	Entry radius (m)		40.0	40.0	45.0	39.0	34.0
D	=	Inscribed circle diameter (m)		100.0	100.0	100.0	100.0	100.0
A	=	Entry angle (degree)		27.0	29.0	10.0	35.0	45.0
Q	=	Entry flow (pcu/h)		351	1888	656	492	1132
Qc	=	Circulating flow across entry (pcu/h)		2712	1245	1259	2118	2471
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L		0.27	0.63	2.56	0.32	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		1.03	1.03	1.10	1.01	0.97
X2	=	V + ((E-V)/(1+2S))		7.50	10.48	7.06	6.11	10.74
M	=	EXP((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X2		2271	3175	2140	1851	3254
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td(1+0.2*X2)		0.53	0.66	0.51	0.47	0.67
Qe	=	K(F-Fc*Qc)		864	2424	1641	859	1555
DFC	=	Design flow/Capacity = Q/Qe		0.41	0.78	0.40	0.57	0.73

TOTAL FLOW = 14324 (pcu/hr)

CRITICAL DFC = 0.78

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	27/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	27/2/2025
JnA - Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	2029 Design Traffic Flow - AM Peak		Reviewed By:	AW	27/2/2025

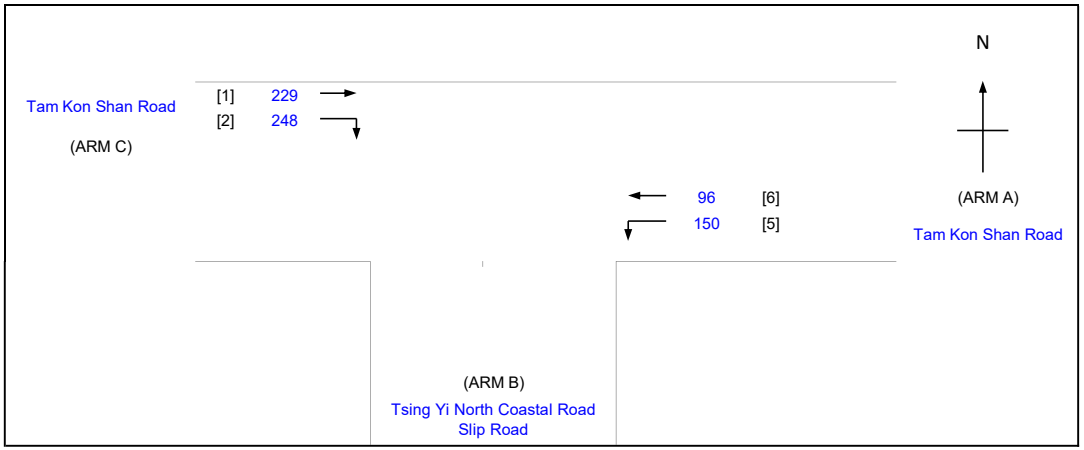


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**
V	=	Approach half width (m)		4.1	3.7	4.1	4.2
E	=	Entry width (m)		5.3	4.0	7.3	6.3
L	=	Effective length of flare (m)		6.0	1.0	6.0	2.0
R	=	Entry radius (m)		9.0	26.0	9.0	7.0
D	=	Inscribed circle diameter (m)		28.0	28.0	28.0	28.0
A	=	Entry angle (degree)		46.0	33.0	34.0	38.0
Q	=	Entry flow (pcu/h)		190	413	127	21
Qc	=	Circulating flow across entry (pcu/h)		347	130	4	503
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L		0.32	0.48	0.85	1.68
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		0.88	1.00	0.93	0.88
X2	=	V + ((E-V)/(1+2S))		4.83	3.85	5.28	4.68
M	=	EXP((D-60)/10)		0.04	0.04	0.04	0.04
F	=	303*X2		1464	1167	1601	1419
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td(1+0.2*X2)		0.61	0.55	0.64	0.60
Qe	=	K(F-Fc*Qc)		1108	1097	1480	983
DFC	=	Design flow/Capacity = Q/Qe		0.17	0.38	0.09	0.02

TOTAL FLOW = 1735 (pcu/hr)

CRITICAL DFC = 0.38

AXON CONSULTANCY LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	27/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	27/2/2025
JnB - Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	2029 Design Traffic Flow - AM Peak		Reviewed By:	AW	27/2/2025



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.0	(metres)
W cr	=	0	(metres)
q a-b	=	150	(pcu/hr)
q a-c	=	96	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.3	(metres)
Vr c-b	=	30.0	(metres)
q c-a	=	229	(pcu/hr)
q c-b	=	248	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0.0	(metres)
W b-c	=	0.0	(metres)
Vl b-a	=	0.0	(metres)
Vr b-a	=	0.0	(metres)
Vr b-c	=	0.0	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533
E	=	0.586
F	=	0.889
Y	=	0.759

THE CAPACITY OF MOVEMENT :

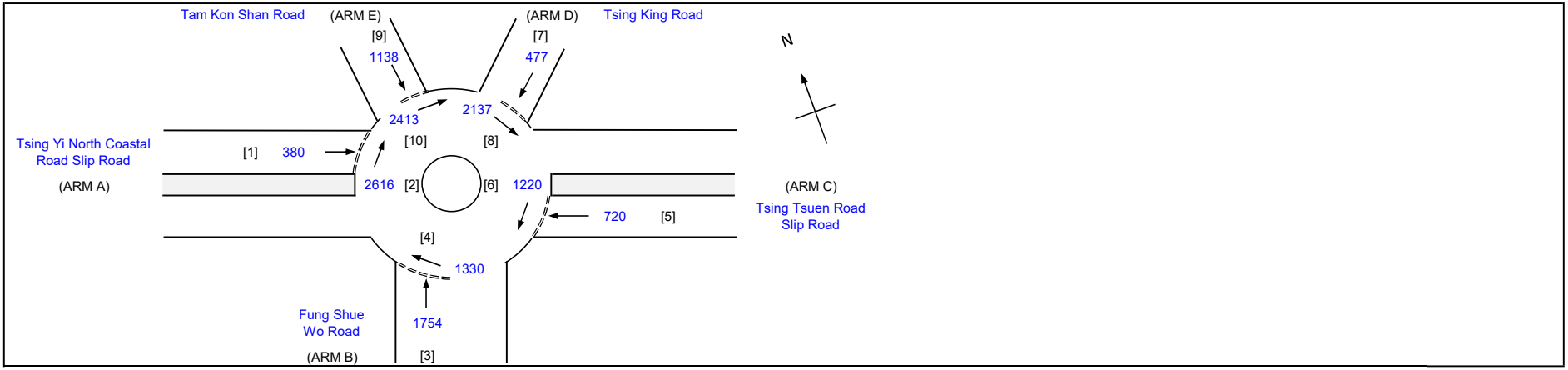
Q b-a	=	238	(pcu/hr)
Q b-c	=	411	(pcu/hr)
Q c-b	=	602	(pcu/hr)
TOTAL FLOW	=	723	(pcu/hr)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0000
DFC c-b	=	0.4120

CRITICAL DFC = 0.41

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	27/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	27/2/2025
JnC - Tam Kon Shan Interchange	2029 Design Traffic Flow - AM Peak		Reviewed By:	AW	27/2/2025

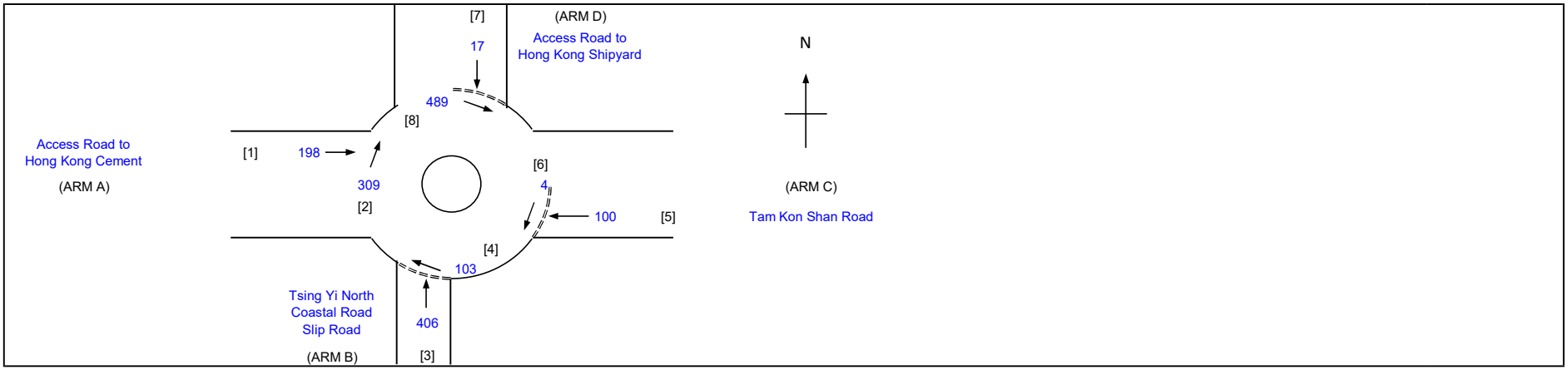


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**	**E**
V	=	Approach half width (m)		6.0	7.7	6.8	3.8	5.6
E	=	Entry width (m)		8.3	14.0	8.4	7.6	14.2
L	=	Effective length of flare (m)		13.7	15.9	1.0	18.8	40.9
R	=	Entry radius (m)		40.0	40.0	45.0	39.0	34.0
D	=	Inscribed circle diameter (m)		100.0	100.0	100.0	100.0	100.0
A	=	Entry angle (degree)		27.0	29.0	10.0	35.0	45.0
Q	=	Entry flow (pcu/h)		380	1754	720	477	1138
Qc	=	Circulating flow across entry (pcu/h)		2616	1330	1220	2137	2413
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L		0.27	0.63	2.56	0.32	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		1.03	1.03	1.10	1.01	0.97
X2	=	V + ((E-V)/(1+2S))		7.50	10.48	7.06	6.11	10.74
M	=	EXP((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X2		2271	3175	2140	1851	3254
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td(1+0.2*X2)		0.53	0.66	0.51	0.47	0.67
Qe	=	K(F-Fc*Qc)		917	2367	1662	850	1592
DFC	=	Design flow/Capacity = Q/Qe		0.41	0.74	0.43	0.56	0.71

TOTAL FLOW = 14185 (pcu/hr)

CRITICAL DFC = 0.74

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	27/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	27/2/2025
JnA - Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	2029 Design Traffic Flow - Noon Peak		Reviewed By:	AW	27/2/2025

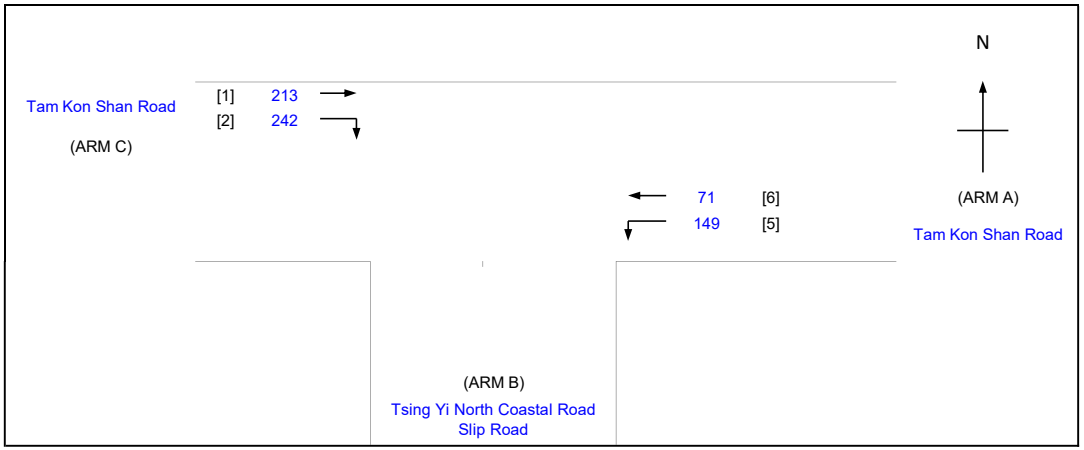


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**
V	=	Approach half width (m)		4.1	3.7	4.1	4.2
E	=	Entry width (m)		5.3	4.0	7.3	6.3
L	=	Effective length of flare (m)		6.0	1.0	6.0	2.0
R	=	Entry radius (m)		9.0	26.0	9.0	7.0
D	=	Inscribed circle diameter (m)		28.0	28.0	28.0	28.0
A	=	Entry angle (degree)		46.0	33.0	34.0	38.0
Q	=	Entry flow (pcu/h)		198	406	100	17
Qc	=	Circulating flow across entry (pcu/h)		309	103	4	489
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L		0.32	0.48	0.85	1.68
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		0.88	1.00	0.93	0.88
X2	=	V + ((E-V)/(1+2S))		4.83	3.85	5.28	4.68
M	=	EXP((D-60)/10)		0.04	0.04	0.04	0.04
F	=	303*X2		1464	1167	1601	1419
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td(1+0.2*X2)		0.61	0.55	0.64	0.60
Qe	=	K(F-Fc*Qc)		1128	1112	1480	991
DFC	=	Design flow/Capacity = Q/Qe		0.18	0.37	0.07	0.02

TOTAL FLOW = 1626 (pcu/hr)

CRITICAL DFC = 0.37

AXON CONSULTANCY LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	27/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	27/2/2025
JnB - Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	2029 Design Traffic Flow - Noon Peak		Reviewed By:	AW	27/2/2025



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.0	(metres)
W cr	=	0	(metres)
q a-b	=	149	(pcu/hr)
q a-c	=	71	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.3	(metres)
Vr c-b	=	30.0	(metres)
q c-a	=	213	(pcu/hr)
q c-b	=	242	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0.0	(metres)
W b-c	=	0.0	(metres)
Vl b-a	=	0.0	(metres)
Vr b-a	=	0.0	(metres)
Vr b-c	=	0.0	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533
E	=	0.586
F	=	0.889
Y	=	0.759

THE CAPACITY OF MOVEMENT :

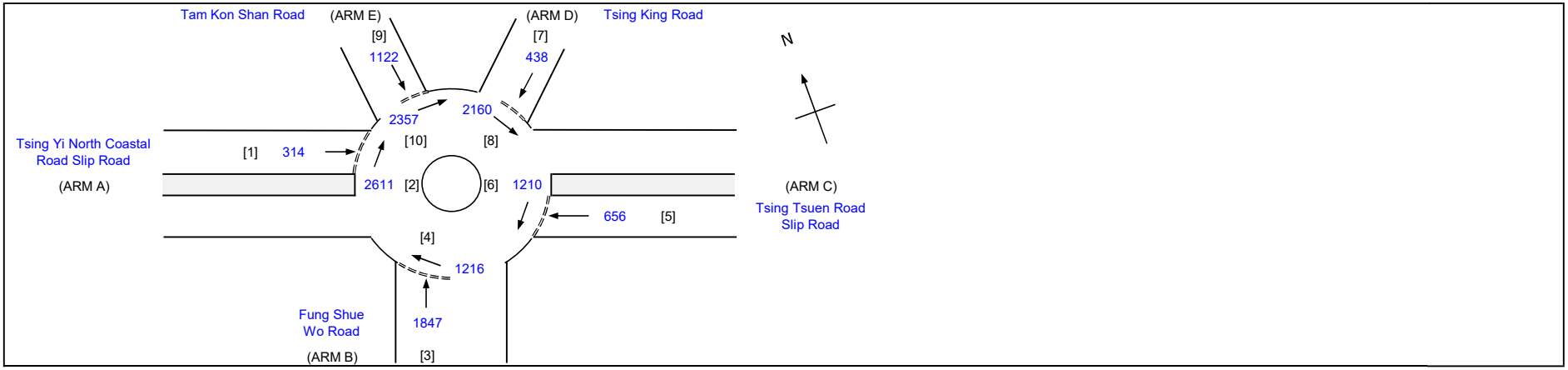
Q b-a	=	245	(pcu/hr)
Q b-c	=	416	(pcu/hr)
Q c-b	=	608	(pcu/hr)
TOTAL FLOW	=	675	(pcu/hr)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0000
DFC c-b	=	0.3980

CRITICAL DFC = 0.40

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	27/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	27/2/2025
JnC - Tam Kon Shan Interchange	2029 Design Traffic Flow - Noon Peak		Reviewed By:	AW	27/2/2025

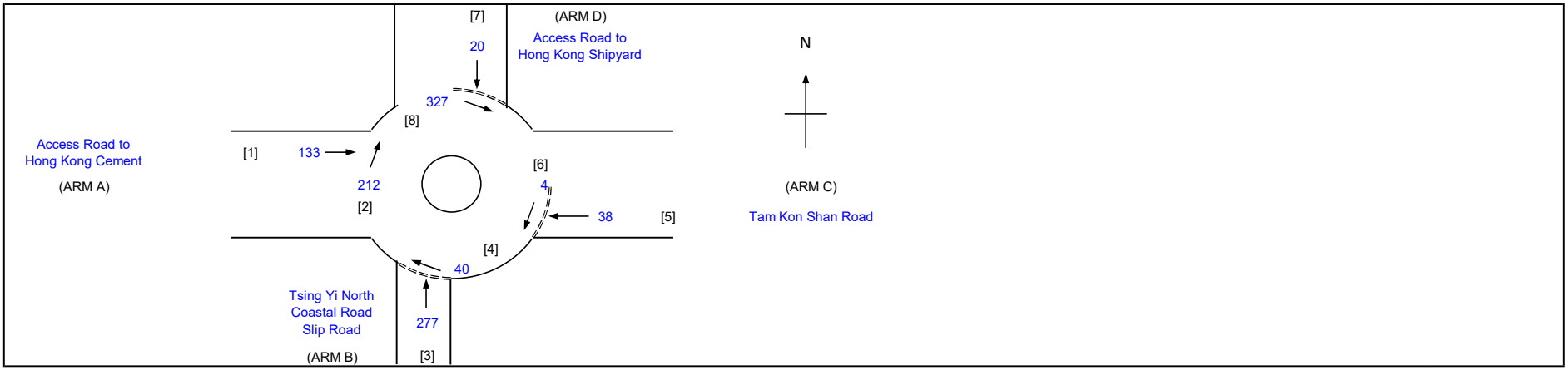


GEOMETRIC DETAILS:			ARM	A	B	C	D	E
V	=	Approach half width (m)		6.0	7.7	6.8	3.8	5.6
E	=	Entry width (m)		8.3	14.0	8.4	7.6	14.2
L	=	Effective length of flare (m)		13.7	15.9	1.0	18.8	40.9
R	=	Entry radius (m)		40.0	40.0	45.0	39.0	34.0
D	=	Inscribed circle diameter (m)		100.0	100.0	100.0	100.0	100.0
A	=	Entry angle (degree)		27.0	29.0	10.0	35.0	45.0
Q	=	Entry flow (pcu/h)		314	1847	656	438	1122
Qc	=	Circulating flow across entry (pcu/h)		2611	1216	1210	2160	2357
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L		0.27	0.63	2.56	0.32	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		1.03	1.03	1.10	1.01	0.97
X2	=	V + ((E-V)/(1+2S))		7.50	10.48	7.06	6.11	10.74
M	=	EXP((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X2		2271	3175	2140	1851	3254
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td(1+0.2*X2)		0.53	0.66	0.51	0.47	0.67
Qe	=	K(F-Fc*Qc)		920	2444	1668	839	1629
DFC	=	Design flow/Capacity = Q/Qe		0.34	0.76	0.39	0.52	0.69

TOTAL FLOW = 13931 (pcu/hr)

CRITICAL DFC = 0.76

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	27/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	27/2/2025
JnA - Tam Kon Shan Road / Tsing Yi North Coastal Road Slip Road (West)	2029 Design Traffic Flow - PM Peak		Reviewed By:	AW	27/2/2025

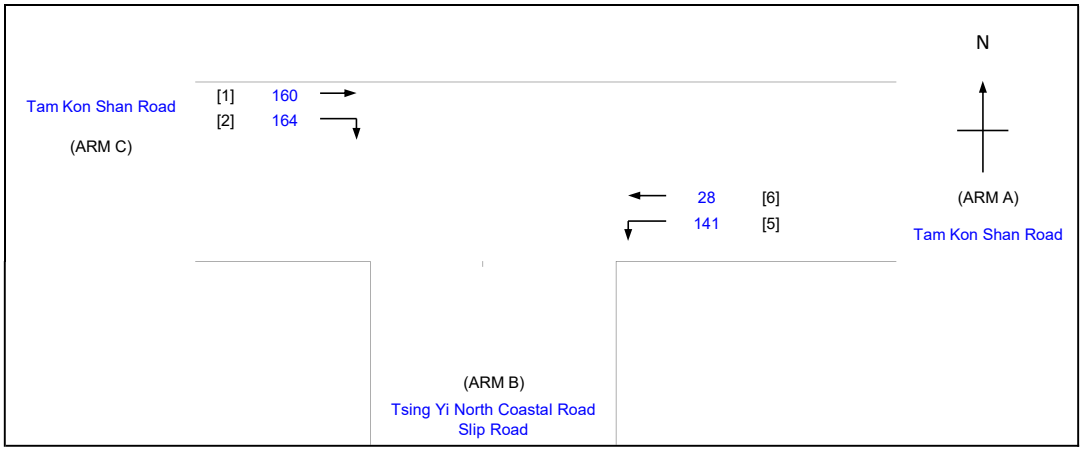


GEOMETRIC DETAILS:			**ARM**	**A**	**B**	**C**	**D**
V	=	Approach half width (m)		4.1	3.7	4.1	4.2
E	=	Entry width (m)		5.3	4.0	7.3	6.3
L	=	Effective length of flare (m)		6.0	1.0	6.0	2.0
R	=	Entry radius (m)		9.0	26.0	9.0	7.0
D	=	Inscribed circle diameter (m)		28.0	28.0	28.0	28.0
A	=	Entry angle (degree)		46.0	33.0	34.0	38.0
Q	=	Entry flow (pcu/h)		133	277	38	20
Qc	=	Circulating flow across entry (pcu/h)		212	40	4	327
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L		0.32	0.48	0.85	1.68
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		0.88	1.00	0.93	0.88
X2	=	V + ((E-V)/(1+2S))		4.83	3.85	5.28	4.68
M	=	EXP((D-60)/10)		0.04	0.04	0.04	0.04
F	=	303*X2		1464	1167	1601	1419
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td(1+0.2*X2)		0.61	0.55	0.64	0.60
Qe	=	K(F-Fc*Qc)		1181	1146	1480	1077
DFC	=	Design flow/Capacity = Q/Qe		0.11	0.24	0.03	0.02

TOTAL FLOW = 1051 (pcu/hr)

CRITICAL DFC = 0.24

AXON CONSULTANCY LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	27/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	27/2/2025
JnB - Tam Kon Shan Road/ Tsing Yi North Coastal Road Slip Road (East)	2029 Design Traffic Flow - PM Peak		Reviewed By:	AW	27/2/2025



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.0	(metres)
W cr	=	0	(metres)
q a-b	=	141	(pcu/hr)
q a-c	=	28	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.3	(metres)
Vr c-b	=	30.0	(metres)
q c-a	=	160	(pcu/hr)
q c-b	=	164	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0.0	(metres)
W b-c	=	0.0	(metres)
Vl b-a	=	0.0	(metres)
Vr b-a	=	0.0	(metres)
Vr b-c	=	0.0	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533
E	=	0.586
F	=	0.889
Y	=	0.759

THE CAPACITY OF MOVEMENT :

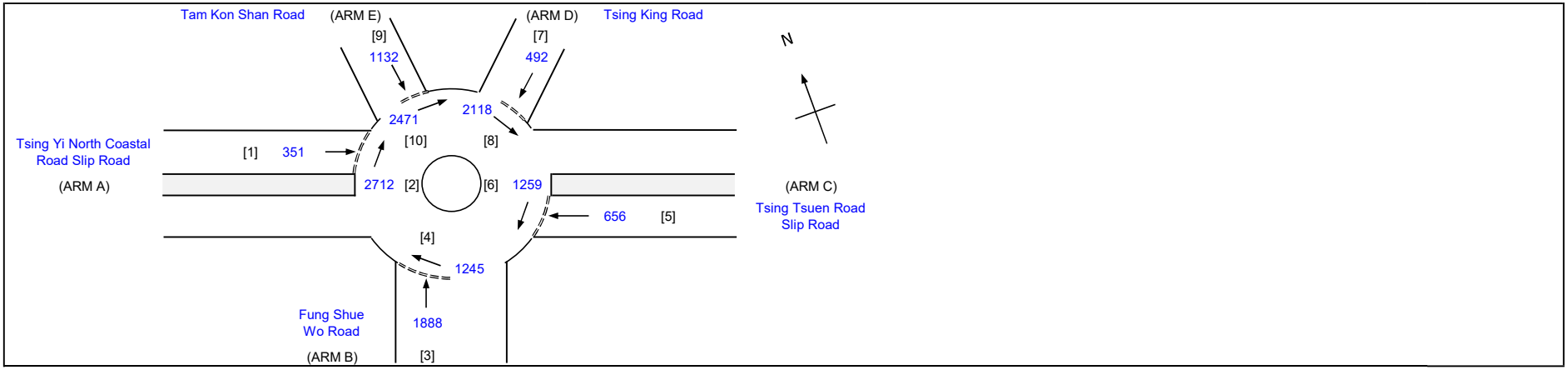
Q b-a	=	273	(pcu/hr)
Q b-c	=	423	(pcu/hr)
Q c-b	=	621	(pcu/hr)
TOTAL FLOW	=	493	(pcu/hr)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0000
DFC c-b	=	0.2641

CRITICAL DFC = 0.26

AXON CONSULTANCY LIMITED	ROUNDABOUT JUNCTION ANALYSIS			INITIALS	DATE
Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated		Project No.: 31048	Prepared By:	JK	27/2/2025
Boatyard and Marine-oriented Industrial Uses Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories			Checked By:	SY	27/2/2025
JnC - Tam Kon Shan Interchange	2029 Design Traffic Flow - PM Peak		Reviewed By:	AW	27/2/2025



GEOMETRIC DETAILS:			ARM	A	B	C	D	E
V	=	Approach half width (m)		6.0	7.7	6.8	3.8	5.6
E	=	Entry width (m)		8.3	14.0	8.4	7.6	14.2
L	=	Effective length of flare (m)		13.7	15.9	1.0	18.8	40.9
R	=	Entry radius (m)		40.0	40.0	45.0	39.0	34.0
D	=	Inscribed circle diameter (m)		100.0	100.0	100.0	100.0	100.0
A	=	Entry angle (degree)		27.0	29.0	10.0	35.0	45.0
Q	=	Entry flow (pcu/h)		351	1888	656	492	1132
Qc	=	Circulating flow across entry (pcu/h)		2712	1245	1259	2118	2471
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L		0.27	0.63	2.56	0.32	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)		1.03	1.03	1.10	1.01	0.97
X2	=	V + ((E-V)/(1+2S))		7.50	10.48	7.06	6.11	10.74
M	=	EXP((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X2		2271	3175	2140	1851	3254
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td(1+0.2*X2)		0.53	0.66	0.51	0.47	0.67
Qe	=	K(F-Fc*Qc)		864	2424	1641	859	1555
DFC	=	Design flow/Capacity = Q/Qe		0.41	0.78	0.40	0.57	0.73

TOTAL FLOW = 14324 (pcu/hr)

CRITICAL DFC = 0.78

Appendix B

Loading/unloading Bay Analysis

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LOADING/UNLOADING BAY ASSESSMENT (3 BAYS & 12 WAITING SPACES)

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

Arrival Rate Estimate

Max. Trip Attraction Rate	=	**43**	veh/hr
Peak 15 Minutes Arrival Rate	=	10.75	veh/15mins
Peak Arrival Rate (A)	=	0.72	veh/min
Total Concrete Loading Time (say)	=	**360**	s
Average Servicing Rate (S)	=	60s / 360 x 3	veh/min
	=	0.50	veh/min

The probability that there are n units in the concrete loading system

P(n) = p^n x P(0) = p^n x (1-p)

$$P(n) = \frac{1}{\sum_{n=0}^{N-1}(\frac{p^n}{n!}) + \frac{p^N}{N!(1-\frac{p}{N})}} \quad \text{for } n = 0$$

$$P(n) = \frac{p^n}{n!}P(0) \qquad \text{for } 0 < n \leq N$$

$$P(n) = \frac{p^n}{N^{n-N}N!}P(0) \qquad \text{for } n > N$$

where n = number of units in the system

p = A/S = 1.43333

P(n) = probability of the system being at state n

Probability of an idle bay

P(0) = 1 / [(1 + p + p^2 / 2) + p^3 / (6 - 2p)]

= 1 / [(1 + 1.43333 + 1.43333^2 /2) + 1.43333^3 / (6 - 2 x 1.43333)]

= 22.725%

Probability of 1 bay is in use

P(1) = 1.43333^1 (0.22725) / 1! = 32.573%

Probability of 2 bays are in use

P(2) = 1.43333^2 (0.22725) / 2! = 23.344%

Probability of 3 bays are in use

P(3) = 1.43333^3 (0.22725) / 3! = 11.153%

Probability of 3 bays are in use and 1 waiting space are occupied

P(4) = 1.43333^4 (0.22725) / 3! (3^1) = 5.329%

Probability of 3 bays are in use and 2 waiting spaces are occupied

P(5) = 1.43333^5 (0.22725) / 3! (3^2) = 2.546%

Probability of 3 bays are in use and 3 waiting spaces are occupied

P(6) = 1.43333^6 (0.22725) / 3! (3^3) = 1.216%

Probability of 3 bays are in use and 4 waiting spaces are occupied

P(7) = 1.43333^7 (0.22725) / 3! (3^4) = 0.581%

Probability of 3 bays are in use and 5 waiting spaces are occupied

P(8) = 1.43333^8 (0.22725) / 3! (3^5) = 0.278%

Probability of 3 bays are in use and 6 waiting spaces are occupied

P(9) = 1.43333^9 (0.22725) / 3! (3^6) = 0.133%

Probability of 3 bays are in use and 7 waiting spaces are occupied

P(10) = 1.43333^{10} (0.22725) / 3! (3^7) = 0.063%

Probability of 3 bays are in use and 8 waiting spaces are occupied

P(11) = 1.43333^{11} (0.22725) / 3! (3^8) = 0.030%

Probability of 3 bays are in use and 9 waiting spaces are occupied

P(12) = 1.43333^{12} (0.22725) / 3! (3^9) = 0.014%

Probability of 3 bays are in use and 10 waiting spaces are occupied

P(13) = 1.43333^{13} (0.22725) / 3! (3^{10}) = 0.007%

Probability of 3 bays are in use and 11 waiting spaces are occupied

P(14) = 1.43333^{14} (0.22725) / 3! (3^{11}) = 0.003%

Probability of 3 bays are in use and 12 waiting spaces are occupied

P(15) = 1.43333^{15} (0.22725) / 3! (3^{12}) = 0.002%

Probability of 15 or less trucks in the system

= P(0) + P(1) + P(2) + P(3) + P(4) + P(5) + P(6) + P(7) + P(8) + P(9) + P(10) + P(11) + P(12) + P(13) + P(14) + P(15)

= 0.22725 + 0.32573 + 0.23344 + 0.11153 + 0.05329 + 0.02546 + 0.01216 + 0.00581 + 0.00278 + 0.00133 + 0.00063 + 0.0003 + 0.00014 + 0.00007 + 0.00003 + 0.00002

= 99.997%

Probability of more than 15 trucks in the system

= 1 - 0.99997

= 0.00003

The chances that traffic will queue up is less than **0.003%**

Appendix C

Swept Path Analysis

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SWEPT PATH ANALYSIS OF 12m FIRE ENGINE

FIGURE SP-01

Scale : 1:300 (A3)

Date : FEB 2025

Rev. : A

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Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SWEPT PATH ANALYSIS OF 5m PRIVATE CAR

FIGURE SP-02

Scale : 1:300 (A3)

Date : FEB 2025

Rev. : A

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Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SWEPT PATH ANALYSIS OF 9.88m CONCRETE MIXER TRUCK
FIGURE SP-03

Scale : 1:300 (A3)

Date : FEB 2025

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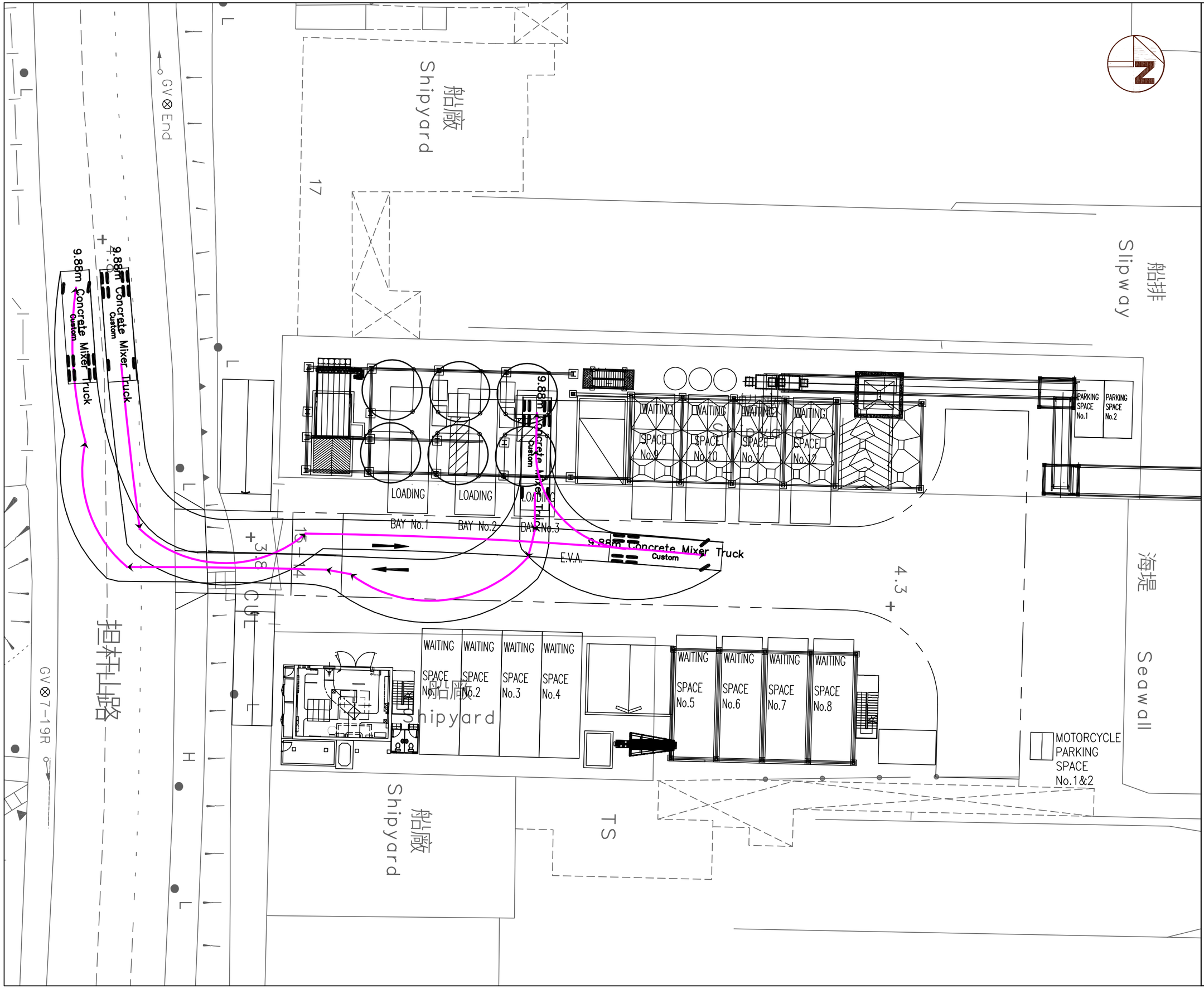

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SWEPT PATH ANALYSIS OF 9.88m CONCRETE MIXER TRUCK
FIGURE SP-04

Scale : 1:300 (A3)

Date : FEB 2025

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Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SWEPT PATH ANALYSIS OF 9.88m CONCRETE MIXER TRUCK
FIGURE SP-05

Scale : 1:300 (A3)

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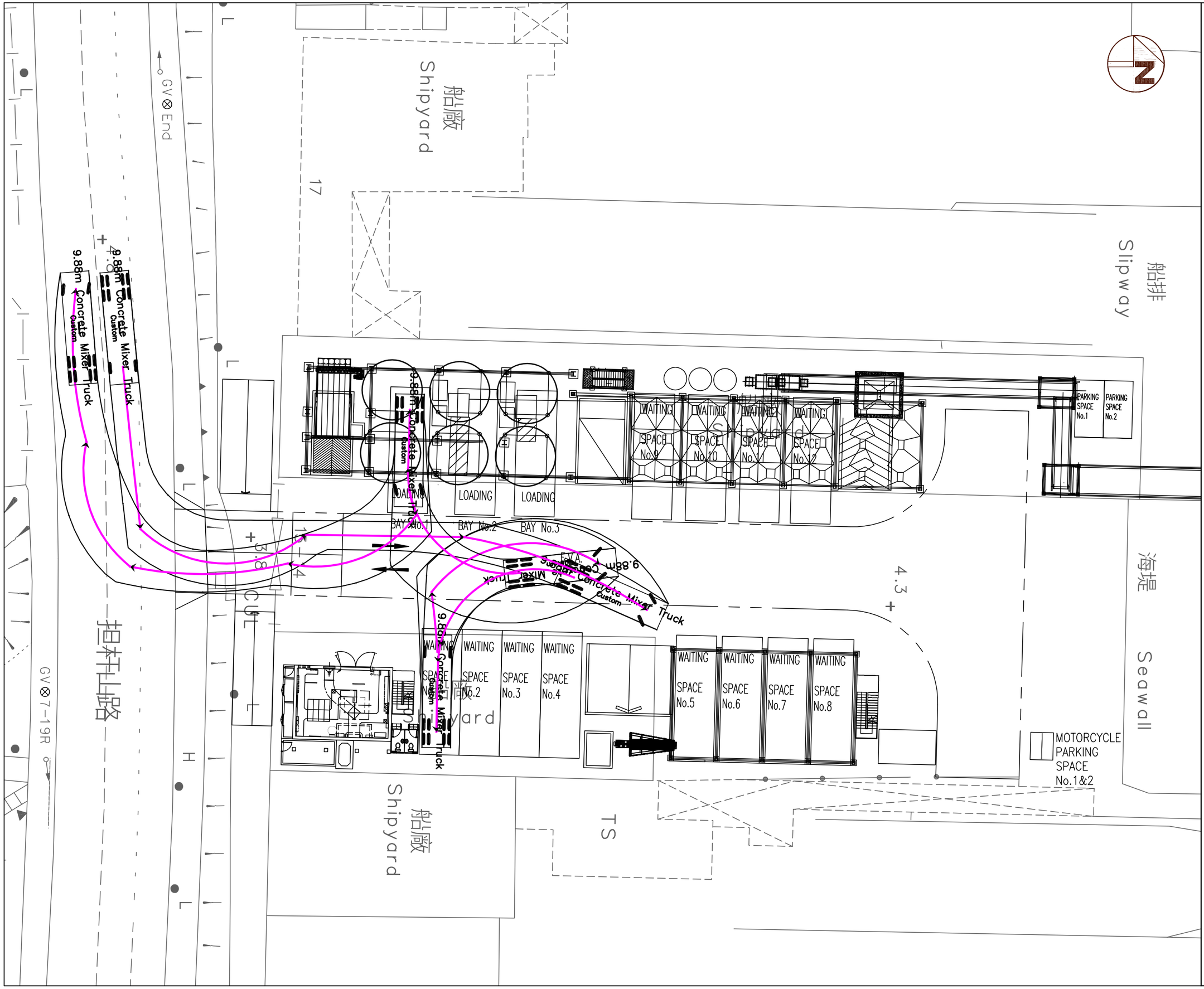

Traffic Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SWEPT PATH ANALYSIS OF 9.88m CONCRETE MIXER TRUCK
FIGURE SP-06

Scale : 1:300 (A3)

Date : FEB 2025

Rev. : A

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Appendix IV

Environmental Assessment

Planning Applications for a Concrete Batching Plant at Tsing Yi Town Lot Nos. 14&15

Environmental Assessment Report

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1 INTRODUCTION

1.1 Background

1.1.1 The Applicant would like to seek permission from the Town Planning Board (the Board) to operate a temporary concrete batching plant (CBP) for a period of 5 years at Tsing Yi Town Lot Nos. 14&15 and adjoining Government Land (GL), Tam Kon Shan Road, Tsing Yi, New Territories (the Site). The total site area is approximately 4,335 sq. meters, including approximately 1,057 sq. meters of GL. A CBP with ancillary supporting facilities (with total gross floor area (GFA) of about 1419.2 sq. meters and building height of not exceeding 31 meters) is proposed at the Site. The Site is accessible from Tsing Yi North Coastal Road via Tam Kon Shan Road.

1.1.2 AECOM has been commissioned to provide an Environmental Assessment (EA) to supplement the abovementioned planning application. This EA presents a study of the potential environmental impacts, including air quality, noise, water quality, land contamination and waste management, in order to confirm the environmental suitability of the Proposed Plant at the Site.

1.2 Existing Land Use

1.2.1 The Site partly falls within an area zoned “Other Specified Uses” annotated “Boatyard and Marine-oriented Industrial Uses” (“OU(BMIU)”) and area shown as “Road” on the Approved Tsing Yi Outline Zoning Plan (OZP) No.: S/TY/32, and partly falls outside the OZP planning scheme boundary. A planning permission for a temporary concrete batching plant is required from the Board for the use of CBP is a Column 2 use within the OU(BMIU) zone. The Site is located on Tam Kon Shan Road on Tsing Yi Island. Surrounding developments comprise industrial buildings and dockyards. The location of the Site is illustrated in **Figure 1.1**.

1.3 Potential Environmental Issues

1.3.1 The Site is currently fenced, partially vacant and occupied by vacant structure. Pre-existing jetty is available to support the operation of the CBP. Environmental impacts during construction and operation are of concern.

1.3.2 Concrete batching process is a dusty operation which poses potential dust nuisance to the nearby sensitive receivers. The Proposed Plant has been classified as specified process (SP) under the Air Pollution Control Ordinance (APCO) and is required to operate under a valid SP License. The dust impact due to the operation of the Proposed Plant will be evaluated to ensure the compliance with Air Quality Objectives (AQOs).

1.3.3 The existing major noise sources in the vicinity of the study area are traffic noise from Tam Kon Shan Road and Tsing Yi North Coastal Road, and fixed plant noise / industrial noise from the dockyard. In view of the existing environmental condition, cumulative fixed plant noise impact from nearby existing industrial buildings and the Proposed Plant would be expected. However, no noise sensitive receiver has been identified within 300m from the Subject Site. The noise impact is to be addressed qualitatively.

1.3.4 Other environmental issues including water quality, waste management and land contamination are considered minor. Their corresponding impacts are to be evaluated qualitatively.

1.3.5 In this EA, five key environmental issues associated with the operation of the Proposed Plant are identified and addressed in the following sections:

Section 3: Air Quality

Section 4: Noise

Section 5: Water Quality

Section 6: Waste Management

Section 7: Land Contamination

Section 8: Conclusion

2 DESCRIPTION OF PROPOSED CONCRETE BATCHING PLANT

2.1 Configurations of the Proposed Plant

2.1.1 The proposed CBP comprises silo and compartment with total capacity of approximately 2,200 tonnes for storage of cementitious materials for concrete production, which is classified as Specified Process (SP) in accordance with the Air Pollution Control (Specified Processes) Regulations. The design layout of the plant is shown in **Appendix 2.1**.

2.1.2 The CBP is planned to consist of 3 production line, with a total hourly processing capacity of 300m^3/hr. The production of concrete requires raw material including aggregates (mixed with sand), cementitious materials (cement, Pulverized Fuel Ash (PFA), Ground Granulated Blast-Furnace Slag (GGBS), Condensed Silica Fume (CSF)), admixtures and water. The concrete batching process mainly involves handling of raw material from delivery to storage, then respective weigh hoppers, concrete batch mixers and finally loading of mixed concrete onto concrete mixer trucks for delivery.

2.1.3 The CBP will be equipped with aggregate overhead bins with total capacity of 3000 tonnes, 6 sets of 350-tonne cementitious materials silos, 2 set of 50-tonne CSF silo, 3 wet concrete mixers, 2 aggregate receiving hoppers (one for barge and one for truck in case of emergency), 18 weigh hoppers (6 weigh hoppers for each mixer, including 1 for aggregate, 3 for cementitious materials, 1 for water/ice and 1 for admixture, in total 3 mixer), water tanks and admixture tanks. Aggregate and cement will be delivered to the plant by barge. The aggregate and cementitious materials within the plant will be transferred via enclosed conveyors and sealed pipeline respectively. The operation details of the proposed CBP are summarized in **Table 2.1**.

2.1.4 The operation details of the proposed CBP is summarized in **Table 2.1**. The normal operation period will be 07:00 to 21:00.

Table 2.1 Operation Details of Proposed CBP

Operation Parameter	Details
Hourly Processing Capacity	300 m^3/hr
Total Aggregate Storage Capacity	3000 Tonnes
Total Cementitious Materials Silos Capacity	2200 Tonnes
Mode of Operation	Batch
Proposed Plant Operation Period	14 hours between 07:00 to 21:00
Total No. of potential emission points related to the CBP operation	19

2.2 The Schematic Flow of Operation Process

2.2.1 The schematic flow diagram showing various components of the Proposed Plant is presented in **Appendix 2.2**.

Aggregate Handling

2.2.2 Aggregates will be delivered to the plant by barge. The compartments of the aggregate barge will be covered during transportation and unloading process to avoid any dust emission. During the unloading of aggregates, the compartment will remain covered as far as safety issue is concerned. Water spraying by sprinklers will be provided at the barge during the unloading process to keep the aggregate adequately wetted. When the unloading is complete, the empty barge will leave the barging location with the top cover remaining closed. Should the barge be required to park at the barging location overnight (between 21:00 to 07:00 next day), the stockpile on barge will be fully covered by top cover to prevent any dust pickup by gust.

2.2.3 The aggregates will be unloaded to the aggregate receiving hopper on the jetty (EP01) and then transferred via enclosed conveyors to overhead bins for concrete production. The aggregate receiving hopper will be covered in 3-side cladded and roof and installed with water

sprinkler to reduce dust emission during material unloading. The enclosed conveyors will be arranged such that there is minimal gap at the transfer points between conveyors so as to minimize free fall as far as practicable. Also, all transfer points along the conveyor pathway will be housed inside either fully cladded conveyor transfer tower or fully cladded structure housing the aggregate overhead bins. All transfer of aggregates will therefore be conducted in enclosed condition. No exhaust is required and no dust emission is anticipated.

2.2.4 The aggregates in overhead bins will be transferred to the respective aggregate weigh hopper through guiding chute with flexible seal. Aggregates will be weighed and then discharged through guiding chutes to the concrete mixer under a fully enclosed environment, i.e. the aggregate weigh hoppers will be covered on 4 sides such that the aggregate transfer process is fully enclosed. No exhaust is required and no dust emission is anticipated. The guiding chutes will be arranged such that there will be minimal gap to the mixer so as to minimize free fall as far as practicable.

2.2.5 Another ground aggregate receiving hopper (EP02) will receive aggregates delivered by aggregate tipper truck on haul road (EP17), which will be backup use in case of emergency.

Cementitious Materials Handling

2.2.6 Cement will be delivered by barge while cementitious materials such as PFA, GGBS and silica fume will be delivered by tanker trucks (around 7 trucks a day). The materials will be pumped to the overhead silos or the ground storage silos via pneumatically sealed cement pipes. The transfer process will thus be carried out in totally enclosed condition.

2.2.7 Each of the cementitious silo will be installed with a dust collector (EP09 – EP16). Before connecting the pumping pipe, the dust collector on the silo will be switched on and remain switched on during the whole transfer process. The cementitious materials will then be pumped to the silo via fully enclosed piping. All silos will be equipped with a pressure relief valve. The seating of the valve will be checked and valve will be reseated if necessary before each delivery of cementitious materials. Audible high level alarms will be installed in all silos to warn and prevent overfilling. The high level alarms will be interlocked with filling pipelines and the material filling line will be closed in time to prevent any overfilling, but in any case within 1 minute or less after the high level alarm has been triggered.

2.2.8 Cementitious materials from the silos will be transferred to respective weigh hoppers by a screw conveyor which will be pneumatically sealed such that fugitive dust emission will not be anticipated. All weigh hoppers will be housed inside the fully enclosed mixer tower and treated collectively by dust collector. The dust collectors will prevent escape of fugitive dust due to the transfer process to the atmosphere. The weighed cementitious materials in the respective weigh hoppers will then be discharged to the concrete mixer by gravity through pneumatically sealed piping.

Water, ice and Admixtures Handling

2.2.9 Water and ice will be weighed in the ice/water hopper and then added to the concrete mixer, while admixtures will be weighed by another weigh hopper. Water and admixtures will be transferred by pneumatically sealed pipe.

Concrete Mixing

2.2.10 The concrete mixers will be located in the mixing tower. The aggregates, cementitious materials, water and admixtures will be mixed in one of the concrete mixers (3 mixers in total) in a fully wetted and enclosed condition.

2.2.11 Each of the wet mixers will be installed with a dust collector (EP03 – EP05) with fabric filtering system. The dust collector of the mixer will be switched on prior to the transfer of any material to the mixer and will stay switched on whenever there is material inside it. Dust-laden air from the concrete mixer will be filtered through bag filters of dust collector, which will prevent escape of fugitive dust due to the material transfer and the wet mixing process.

2.2.12 The mixed and fully wetted concrete will be discharged into a concrete mixer truck directly by gravity via wet concrete guiding chute. No dust emission will be anticipated. Furthermore, the concrete unloading area will be enclosed on 2 sides with the roof by cladded structure.

Transportation of Raw Material and Product Concrete

2.2.13 All the haul roads within the Site (EP18 & EP19) will be paved and provided with water spraying by sprinklers in 1-hour intervals to maintain a wet surface. The speed limit for all the vehicles travelling in the abovementioned CBP area and on haul roads is 8 km/hr.

2.2.14 Water for ground washing will be collected by surface channel, where the water will be pumped to wastewater tanks for reuse in truck washing or recycled for concrete production.

2.2.15 The concrete mixer truck will go to the slump stand quality check point, where the quality inspection will take place. All vehicles leaving the CBP will be cleaned to wash off any dust/mud deposited on the wheels and vehicle body such that leaving no dust to the public road.

2.2.16 Concrete waste will be collected by the concrete reclaimer, where the cement slurry water will be separated from the aggregates. The separated aggregates will be wet in nature, i.e. no dust emission is expected.

2.2.17 The cement slurry water will pass through the filter press, where cement particles will be captured. The clear water will be recycled for concrete production. The solid waste (sludge cake collected by the filter press and aggregates collected by the concrete reclaimer) will be disposed of by waste disposal trucks

3 AIR QUALITY

3.1 Introduction

3.1.1 In this section, the potential air quality impact due to the construction and operation of the Proposed Plant is assessed quantitatively and evaluated against the Air Quality Objectives. The air quality within 500m away from the Subject Site boundary are discussed and sensitive receivers in this area are identified.

3.1.2 Air quality impact assessment is conducted based on the latest design of the Proposed Plant with the aid of an air quality dispersion model and a regional air quality model. The predicted cumulative air quality impacts are concluded at the identified sensitive receivers and in a spatial manner with the aid of contour plots at different altitude. Appropriate mitigation measures are proposed to minimize the potential air quality impact on the ambient air.

3.2 Environmental Legislation and Guidelines

Air Quality Objectives

3.2.1 The Air Pollution Control Ordinance (APCO) provides the statutory authority for controlling air pollutants from a variety of sources. In APCO, the Air Quality Objectives (AQOs) are stipulated as the air quality that should be achieved and maintained under the maximum allowable concentration for typical pollutants. Respirable Suspended Particulates (RSP) and Fine Suspended Particulates (FSP) are the dominant pollutants for concrete batching plant. Furthermore, AQOs have been reviewed and revised criteria has been enforced on 11 April 2025. The latest AQOs of relevant air pollutants are listed in below **Table 3.1**.

Table 3.1 Hong Kong Air Quality Objective Relevant to the Assessment

Pollutant	Time Average	Concentration Limit (µg/m^3) under current AQO [(1)(2)]
RSP [(4)]	24-hour	75 (9) [(3)]
	Annual	30
FSP [(5)]	24-hour	37.5 (18) [(3)]
	Annual	15
NO_2	1-hour	200 (18) [(3)]
	24-hour	120 (9) [(3)]
	Annual	40
SO_2	10-min	500 (3) [(3)]
	24-hour	40 (3) [(3)]

Note:
(1) All measurements of the concentration of gaseous air pollutants, i.e., sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide, are to be adjusted to a reference temperature of 293 K and a reference pressure of 101.325 kPa.
(2) The annual average concentration is calculated as the arithmetic mean.
(3) The number in the bracket represents the number of exceedances allowed per year.
(4) Suspended particulates in air with a nominal aerodynamic diameter of 10 µm or smaller.
(5) Fine suspended particulates in air with a nominal aerodynamic diameter of 2.5 µm or smaller.

3.2.2 "A Guidance Note on the Technical, Management and Monitoring Requirements for Specified Process – Cement Works (Concrete Batching Plant) BPM 3/2 (16)" (BPM) by EPD requires that the particulates emission concentration limit of 10 mg/m^3 (expressed at reference condition, 0°C, 101.325 kPa) should be satisfied by 1 January 2018.

3.3 Description of the Environment

Background Air Quality

3.3.1 The modelling approach involves the use of an integrated modelling system called Pollutant in the Atmosphere and their Transport in Hong Kong (PATHv3.0) which is developed and maintained by EPD to provide background pollutant concentration in assessing the total impact in the study area (*Guidelines on Assessing the 'TOTAL' Air Quality Impacts*). The dataset of Year 2028 in PATHv3.0 is selected for the assessment while Year 2028 has the highest vehicular emission in the study area as discussed in **Section 3.5.11**. The background concentrations of RSP and FSP in the study area are extracted from PATHv3.0 and presented in **Table 3.2**.

Table 3.2 Background Air Quality Extracted from PATH (Yr 2028)

Pollutant	Averaging Time	AQO	Data Summary	PATH v3.0 Grid in Year 2028			
				32,38	32,37	33,38	33,37
RSP	24-hour	75 (9)	10th	53.88	56.08	54.82	56.48
			Exceedance	0	0	0	0
	Annual	30	-	20.32	20.84	20.86	20.82
FSP	24-hour	37.5 (18)	19th	30.32	32.52	31.89	32.04
			Exceedance	0	0	0	0
	Annual	15	-	12.68	13.11	13.18	13.12
NO_2	1-hour	200 (18)	19th	94.35	94.56	98.64	97.17
			Exceedance	0	0	0	0
	Daily	120 (9)	10th	42.3	40.32	41.09	43.23
			Exceedance	0	0	0	0
	Annual	40	-	23.85	23.85	24.4	25.02
SO_2	10-minute	500 (3)	4th	23.58	28.5	22.89	22.5
			Exceedance	0	0	0	0
	24-hour	50 (3)	4th	7.29	7.39	7.28	7.26
			Exceedance	0	0	0	0

Air Sensitive Receivers

3.3.2 The CBP locates in the vicinity of Tam Kon Road at Tsing Yi Island. A site survey has been conducted on 12 December 2024 to identify the representative air sensitive receivers (ASRs) which are likely to be affected most by the operation of the CBP for assessment within 500m study area of the Subject Site (the study boundary) with reference to the Outline Zoning Plans (OZPs), OZP Plan No. S/TY/32 – Tsing Yi. While there are schools and residential buildings located in the southern part of the study boundary, they are located uphill and are shielded from the Project Site by the hills with no direct line of sight with the Project, and hence no direct impact is expected. Thus, ASRs in the southern part of the study boundary are not included in the assessment. The details of the identified ASRs are summarized in below **Table 3.3** and their locations in the study boundary are shown in **Figure 3.1**.

Table 3.3 Representative Air Sensitive Receivers

ASR	Coordinates		Description	Land Use	Horizontal Distance from the Project (m)	Assessment Height Above Ground (mAG)
	X	Y				
A01	827535.0	824705.4	DB Maintenance Centre	Shipyard	325	1.5, 5, 10
A02	827685.7	824668.4	Cheun Kee Seafood Restaurant	Eating Place	175	1.5, 5, 10, 15
A03	827844.6	824667.7	Wing Cheong Shipyard	Shipyard	15	1.5, 5, 10, 15

ASR	Coordinates		Description	Land Use	Horizontal Distance from the Project (m)	Assessment Height Above Ground (mAG)
	X	Y				
A04	827816.5	824667.6	Kwong Tat Loong Shipyard (Brothers) Limited	Shipyard	45	1.5, 5, 10, 15
A05	827920.5	824664.4	Leung Wan Kee Shipyard Limited	Shipyard	25	1.5, 5, 10, 15
A06	828018.6	824669.4	Green@Kwai Tsing	G/IC	120	1.5, 5
A07	828179.5	824706.5	Tsing Yi Northeast Park Office	Recreational	280	1.5, 5, 10, 15
A08	828289.1	824690.7	Queen's College Old Boys' Association S econdary School	Educational	390	1.5, 5, 10, 15, 20, 30
A09	828358.2	824749.3	Cheung On Estate Block 1 On Hoi House	Residential	460	1.5, 5, 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110
A14	827791.2	824635.1	Environmental Protection Department Portable Emission Measurement System (PEMS) Laboratory	G/IC	75	1.5, 5

3.3.3 The assessment heights of the representative ASRs range from 1.5 meters above ground to up to its maximum physical heights, e.g. up to 15mAG at A02 and 110 mAG at A09.

3.4 Identification of Environmental Impact

Construction Phase

3.4.1 The development would mainly involve demolition of structures and the erection of equipment for the concrete batching plant. The erection of equipment for the three ancillary plants would involve minor construction activities such as minor excavation for foundation works and plant fabrication works. Potential construction dust would arise from these construction activities. Most of material to be handled would be the demolished debris which is around 1,100 tonnes. Spoil from the foundation works would be around 100 tonnes. The number of construction trucks or mechanical equipment is not known at this stage and they are subject to the future contractor. Nevertheless, dust mitigation measures stipulated in Air Pollution Control (Construction Dust) Regulation are proven effective measures in construction work sites and will be implemented to minimize the potential dust impact. Therefore, the potential construction dust impact is assessed qualitatively.

3.4.2 On-site use of diesel-powered engines is also the potential source for air pollutants, such as NO_2, SO_2, CO and smoke. The emissions from the NRMM are regulated under the *Air Pollution Control (Non-Road Mobile Machinery) (Emission) Regulation*. Fuel with sulphur content not exceeding 0.001% by weight will be used to minimise SO_2 emission in accordance with the *Air Pollution Control (Fuel Restriction) (Amendment) Regulation 2024*. In addition, the use of NRMMs with exempted label under the *Air Pollution Control (NRMM) Regulation* will be avoided as far as practicable. The equipment would also be properly maintained to minimise any emissions. Furthermore, the use of NRMMs is to be explored. On-site power supply will be provided and the use of diesel generators and machinery will be avoided during the construction stage, as far as practicable. In view of the minor impact by NRMMs, particulates from construction activities would be the major air pollutant during construction phase.

Odour from Dredging

3.4.3 Dredging would be required in the seafront fronting the proposed site to provide sufficient depth of water for vessels. The dredging scale proposed under the Project is small. The total volume of dredged sediments generated from the dredging operation would be approximately 4,000 m^3 and the dredging work would be conducted by one dredger (of about 8 m^3 capacity) at

a dredging rate of no more than 500 m^3 per day. The dredged material would be well covered on-site with tarpaulin and would be removed off-site as soon as possible within 24 hours. In view of the transient nature of the dredging work and small dredging scale, odour nuisance would not be expected during dredging and transportation of the dredged sediment with the adoption of the good site practice as mentioned in **Section** Error! Reference source not found..

Operation Phase

3.4.4 The Proposed Plant uses electricity as the power supply for its operation, thus no gaseous pollutants by fuel combustion is anticipated. Based on the design and operation of the Proposed Plant, the activities considered as major potential dust emission sources are identified as follows in accordance with the specification given in *Compilation of Air Pollutant Emission Factors (AP-42), 5th Edition* issued by U.S. Environmental Protection Agency.

(a) Aggregate handling at the seafront and inside the CBP;
(b) Loading of raw material to the storage silos;
(c) Loading of raw material to weigh hoppers;
(d) Loading of weighed raw material to mixers; and
(e) Vehicle movements on paved haul roads.

3.4.5 Best Practicable Means of air quality control measures suggested in BPM will be implemented in the design of the Proposed Plant and equipment. According to the characteristics of the emission points, different control measures to minimize air pollution will be adopted. Dust collectors, enclosures and water sprayers will be adopted to control the likely particulate emission due to the transport and handling of aggregates and cementitious materials.

3.4.6 Description of the emission points and the corresponding control measures are tabulated in **Table 3.4**.

Table 3.4 Dust Emission Points Due to Operation of CBP and Corresponding Control Measures

Emission Point Description	Control Measures
Delivery of aggregate by barge	• The compartments of the aggregate barge will be covered during transportation and unloading process to avoid any dust emission. • During the unloading of aggregates, the compartment will remain covered as far as safety issue is concerned. • Water spraying by sprinklers will be provided at the barge during the unloading process to keep the aggregate adequately wetted. • Stockpile on barge will be fully covered by top cover when parking at the barging location overnight.
Unloading of aggregates from barge to aggregate receiving hopper (EP01) and transfer of aggregate from aggregate barge receiving hopper to aggregate overhead bin	• The aggregate receiving hoppers will be covered in 3-side cladded and roof. • Water spraying by sprinkler will be provided inside the enclosure during unloading process such that dust will be suppressed and the aggregate is maintained adequately wetted. • The aggregates will be unloaded to the aggregate receiving hoppers and then transferred via enclosed conveyors to overhead bins for production. • The enclosed conveyors will be arranged such that there is minimal gap at the transfer points between conveyors so as to minimize free fall as far as practicable. • All transfer points along the conveyor pathway will be housed inside either fully cladded conveyor transfer tower or fully cladded structure housing the

Emission Point Description	Control Measures
	aggregate overhead bins. All transfer of aggregates will therefore be conducted in enclosed condition. No exhaust is required and no dust emission is anticipated.
Transfer of aggregate from aggregate overhead bin to aggregate weigh hoppers	• The aggregates in overhead bins will be transferred to the respective aggregate weigh hopper through guiding chute with flexible seal. • Aggregates will be weighed and then discharged through guiding chutes to the concrete mixer under a fully enclosed environment, i.e. the aggregate weigh hoppers will be covered on 4 sides such that the aggregate transfer process is fully enclosed. No exhaust is required and no dust emission is anticipated. • The guiding chutes will be arranged such that there is minimal gap to the mixer so as to minimize free fall as far as practicable.
Transfer of cementitious materials from cementitious materials tankers to silos (EP09-EP16)	• Cement will be delivered by barge while cementitious materials will be delivered to the plant by tanker trucks. • The materials will be pumped to the overhead silos or the ground storage silos via pneumatically sealed cement pipes. The transfer process will thus be carried out in totally enclosed condition. • Each cementitious material silo will be fitted with a dust collector incorporating a fabric filtering system. • Before connecting the pumping pipe at the cementitious materials tanker, the dust collector on the silo will be switched on and remain switched on during the whole transfer process. • The cementitious materials will be pumped to the silo via fully enclosed piping. All silos will be equipped with a pressure relief valve and the valve will be checked and reseated if necessary before each delivery of cementitious materials. • Audible high level alarms will be installed in all silos to warn and prevent overfilling. The high level alarms will be interlocked with filling pipelines and the material filling line will be closed in time to prevent any overfilling, but in case within 1 minute or less after the high level alarm has been triggered. • Dust-laden air in the silos will be filtered by fabric bags and vented through the dust collectors. The dust collectors can maintain a dust emission rate of less than 10 milligrams per cubic meter of air.
Weighing and batching of cementitious materials (EP06-EP08)	• Cementitious materials will be transferred from the silos to weigh hoppers by screw conveyor which is pneumatically sealed such that fugitive dust emission is not anticipated. • All weigh hoppers will be housed inside the fully enclosed mixer tower and treated collectively by dust collectors (EP06-EP08) with capability of treating ultra-fine particle. The dust collectors will prevent escape of fugitive dust due to the transfer process to the atmosphere.

Emission Point Description	Control Measures
	• The weighed cementitious materials will be discharged to concrete mixers through pneumatically sealed piping.
Mixing of raw material in the concrete mixer (EP03-EP05)	• The aggregate, cementitious materials, water and admixture will be mixed in one of the concrete mixers (3 mixers in total) under fully wetted and enclosed conditions. • Each of the wet mixer will be installed with a dust collector with fabric filtering system. The dust collector of the mixers will be switched on prior to the transfer of any material to the mixer and will stay switched on whenever there is material inside them. • Dust-laden air from the concrete mixer will be filtered through bag filters of dust collector, which prevents escape of fugitive dust due to the material transfer and the wet mixing process. The dust collector can maintain a dust emission rate of less than 10 milligrams per cubic meter of air.
Discharge of concrete to concrete mixer trucks	• The mixed and fully wetted concrete will be discharged into the concrete mixer truck directly by gravity. No dust emission is anticipated. • The concrete unloading area will be enclosed on 2 sides and roof by cladded structure.
Vehicle movement on paved haul road (EP18-EP19)	• All the haul roads within the Site will be paved and provided with water spraying by sprinkler in 1-hour intervals to maintain a wet surface. • Speed limit for all trucks travelling in the Site will be set as 8km/hr. • Vehicle movement will mainly involve concrete mixer trucks. Cement tanker for PFA/GGBS/Silica Fume is expected to be less than a truck per hour. • All vehicles leaving the CBP will be cleaned by vehicle washing facility to wash off any dust/mud deposited on the wheels and vehicle body such that leaving no dust to the public road.

Other Emission Sources

3.4.7 Vehicular emission from open road is also a significant contributor to ambient particulates concentration. Major road infrastructures namely Cheung Tsing Highway, Lantau Link and North West Tsing Yi Interchange are within the 500m study area of the Site. There is no PTIs/bus terminus, nor any bus depots within 500 m from the project site boundary. Coach parking is identified at Tsing Yi Northeast Park Car Park and HGV on-street parking site (for 8PM to 7AM) is identified outside Tsing Yi Northeast Park Car Park. Regarding roads inside the proposed CBP, there is no parking assumed in the operation design. Concrete trucks are to undergo several procedures at the Project Site, e.g. drum cleaning, loading of concrete product, quality check, and truck washing before leaving the site. Cement / cementitious material tankers are to unload the raw material to silos with on-board pump. Both kinds of trucks require the power supply to perform these operations, i.e. engine stop is not anticipated. The air quality impact due to these open-road emission is considered in the cumulative air quality assessment, as well as the local roads connecting to the Site.

3.4.8 The proposed uses of the CBP would induce marine traffic during operation. Marine emission is expected and would pose potential air quality impact on the existing and proposed ASRs. Apart from the induced marine traffic, there are also existing marine routes within the 500m study boundary of the Project, namely the route between Park Island Pier and Tsuen Wan Ferry Pier. All these existing marine traffic also contributes to cumulative air quality impact. The marine traffic inputs are provided by Marine Consultants and the marine emissions have been considered in the quantitative assessment.

Odour from Maintenance Dredging

3.4.9 Maintenance dredging would be carried out to maintain sufficient water depth for vessels once every year subject to the depth of sediment accumulated affecting operation of the vessels. The volume of sediment to be dredged during maintenance dredging would be less than 500m^3. The volume of sediment would require one grab dredger only and the dredging period would be completed in a few days. In view of the limited dredging volume and short duration, odour impact from the maintenance dredging is considered negligible with the adoption of the good site practice as mentioned in **Section** Error! Reference source not found..

3.5 Assessment Methodology

Emission Inventory of Project

3.5.1 Dust generating activities and corresponding air quality control measures are identified in **Table 3.4**. Emission rates by source are estimated in accordance with the USEPA *Compilation of Air Pollution Emission Factors (AP-42), 5th Edition* and summarized in **Table 3.5**. Detailed calculations of emission rates are presented in **Appendix 3.2**. The spatial distribution of effective dust emission sources is illustrated in the appendix as well. The diurnal profile of each emission source is also presented in **Appendix 3.2**.

Table 3.5 Emission Rates for the CBP

Emission Source	RSP Emission Rate	FSP Emission Rate	Remarks
Unloading of aggregates to Aggregate Receiving Hopper (EP01)	6.437×10^{-4} g/s	1.508×10^{-4} g/s	• Max. aggregate handling capacity: 610 Mg/hr • 65% and 40% of dust suppression by water sprays for particle size of 2.5 - 6μm and 0 - 2.5μm respectively • Reference to Table B.2.3, Appendix B.2, USEPA AP-42
Exhaust from Dust Collector for Mixers (EP03 – EP05)	1.523×10^{-3} g/s	6.924×10^{-4} g/s	• Max. emission concentration from exhaust = 2.29 mg/m^3 • Exhaust rate of Dust Collector: 7864 m^3/hr
Exhaust from Dust Collector for Weigh Hopper (EP06 – EP08)	2.564×10^{-3} g/s	7.541×10^{-4} g/s	• Max. emission concentration from exhaust = 3.08mg/m^3 • Exhaust rate of Dust Collector: 6000 m^3/hr

Emission Source	RSP Emission Rate	FSP Emission Rate	Remarks
Exhaust from Dust Collector for Cement Silo (350T) (EP09, EP11, EP13)	6.120×10^{-3} g/s	2.782×10^{-3} g/s	• Max. emission concentration from exhaust = 5.79mg/m^3 • Exhaust rate of Dust Collector: 11196 m^3/hr
Exhaust from Dust Collector for PFA Silo (350T) (EP12)	1.163×10^{-2} g/s	5.286×10^{-3} g/s	• Max. emission concentration from exhaust = 7.01mg/m^3 • Exhaust rate of Dust Collector: 11196 m^3/hr
Exhaust from Dust Collector for GBBS Silo (350T) (EP10, EP14)	1.163×10^{-2} g/s	5.286×10^{-3} g/s	• Max. emission concentration from exhaust = 7.01mg/m^3 • Exhaust rate of Dust Collector: 11196 m^3/hr
Exhaust from Dust Collector for Silica Fume Silo (50T) (EP15 – EP16)	5.815×10^{-3} g/s	2.643×10^{-3} g/s	• Max. emission concentration from exhaust = 3.51mg/m^3 • Exhaust rate of Dust Collector: 11196 m^3/hr
Paved haul roads inside project site and access to CBP (EP18 – EP19)	5.283×10^{-5} g/s·m at maximum, subject to number and average weight of vehicles travelling per hour	1.278×10^{-5} g/s·m at maximum, subject to number and average weight of vehicles travelling per hour	• 91.7% of dust suppression by watering every hour (calculated from *Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), as detailed in Appendix 3.2*).

Note:
(1) EP18 – EP19 is denoted as HR01 – HR03 in the model.
(2) Max. aggregate handling capacity, exhaust rate of dust collector, and max. emission concentration from exhaust are provided by design engineer.

Diurnal Profile

3.5.2 In this assessment, a diurnal profile is derived based on expected on-site raw material delivery and concrete production schedule to consider the diurnal variations in the emission rates in the Project. The diurnal profile of each emission source is presented in **Appendix 3.2**.

3.5.3 As there will only one barging point in the design, the delivery of aggregates and cement will not overlap. Aggregates will be delivered by barge and unloaded into the ground aggregate receiving hopper (EP01), which is assumed to be 100% active during 07:00 – 11:00 and 15:00 – 19:00. Cement will be delivered by barge and pumped to the cement silos (EP09, EP11 and EP13), which are expected to be 100% active during 11:00 – 15:00.

3.5.4 Other cement supplement materials will be delivered by tankers during 07:00 – 19:00. In every hour, it is expected that only one tanker truck will deliver either PFA or GGBS and complete unloading into their respective silos in one hour. Hence, dust collectors on PFA Silo (EP12) and GGBS Silos (EP10 and EP14) are assumed to be active 100% at alternate hours during 07:00–19:00. Furthermore, it is expected that there will only be one delivery of silica fume by tanker

truck every day, which will take one hour for unloading. To account for different possible scenarios, where the silica fume tanker truck arrives with either PFA/GGBS tanker in either morning or evening, 100% activity for dust collector on silica fume silo (EP15 and EP16) is assumed for 07:00 – 09:00 and 17:00 – 19:00.

3.5.5 For concrete production, concrete production rate of 100% is assumed during 07:00 – 19:00. The profile is adopted for the emissions associated with the concrete production, i.e. the dust collectors on mixers (EP03 – EP05), the dust collectors on weigh hoppers (EP06 – EP08) and the haul roads used for transporting the concretes (HR01 – HR03).

Vehicular Emission from Open Roads

3.5.6 EMFAC-HK v4.3 was adopted to estimate the vehicular emission factors in NO_X, RSP and FSP in various travelling speeds and ambient conditions with reference to WRF meteorological data extracted from PATHv3.0. For short-term cumulative impacts, an approach of using daily profile of lowest temperature and relative humidity data in each hour for each month was adopted. For long-term cumulative impacts, an approach of using daily profile of averaged temperature and relative humidity data in each hour for each month was adopted.

3.5.7 The traffic data for each road in 500m study area comprises 24-hour traffic flow with vehicle percentage, travelling speed in 18 vehicle classes. Roads located in the southern part of the study boundary are located uphill and are shielded from the Project Site by the hills with no direct line of sight with the Project, and hence no direct impact by these roads is expected. Thus, these roads are not included in the vehicular emissions calculations. The agreement on the adopted traffic data have been sought from Transport Department (TD). With reference to the traffic data, hourly emission factor of each open road is determined by summation of emission by each vehicle class which is product of traffic flow and emission factor at specific speed and ambient condition. The hourly emissions factors of RSP and FSP are further divided by the hourly flow to obtain a composite emission rate in g/s-m^2, ready for input to the dispersion model. The Smart Air Modelling Platform (SAMP v2.1) with ZEV scenario is used for the calculation of composite vehicular emission factor and emission rates. The detailed calculation of vehicular emission source was presented in **Appendix 3.4**.

3.5.8 Start emission refers to the air pollutants generated due to the ignition of the vehicle engines which is released at vehicle tailpipes. Start emission generally occurs on the local road where there is potential trip, while no start emission along district distributor or expressway is anticipated. For the assessment purpose, broad-brush approach is adopted, which assumes start emission at all local roads irrelevant to the actual location of engine start. Start emission is not assumed on district distributor and primary distributor. Also, all vehicle classes were assumed to have potential trip on local road, including minibus and franchised bus which usually starts its engine at its termini throughout its service route. Most of the HGVs along the local roads in the assessment area are the working vehicles travelling to/from the Project, which includes concrete mixer trucks and cement tankers. These working vehicles are not supposed to park along these roads, i.e. no engine start is expected, except on haul roads inside the proposed CBP (HR1-3). As discussed in **Section 3.4.6**, there is no PTIs/bus terminus, nor any bus depots within 500 m from the project site boundary. Coach parking is identified at Tsing Yi Northeast Park Car Park and HGV on-street parking site (for 8PM to 7AM) is identified outside Tsing Yi Northeast Park Car Park.

3.5.9 Owing to the infrequent access to Tsing Yi Northeast Park Car Park, start emission of associated coaches are considered under Road 9, 10 and 11 by broad-brush approach. Vehicle classes that can park inside Tsing Yi Northeast Park Car Park (including PC, TAXI, LGV3, LGV4, LGV6, PLB, PV4, PV5, NFB6, NFB7, NFB8 and MC) were assumed to have potential start on Road 9,10 and 11. Frequency of start emission of a vehicle type on a road is estimated by its forecasted VKT, Trips/VKT ratio extracted from EMFAC-HK v4.3 and minor-road-to-all-road ratio (3.62%) extracted from 2023 Annual Traffic Census published by the Transport Department. SAMP v2.1 has accounted for the start emission when calculating the composite vehicular emission factor. The open road sources considered with start emission are illustrated in **Appendix 3.4**.

3.5.10 The HGV on-street parking site (for 8PM to 7AM) outside Tsing Yi Northeast Park Car Park is assessed with precise approach. Data for the HGV on-street parking site was estimated by traffic forecast or by design. As the allowed hours for the on-street parking site for the HGVs is 8PM to 7AM, assuming all parked HGVs are leaving at 7AM, the soak time is assumed to be duration of parking (i.e. 8PM to 7AM of the following day). Number of HGVs parked overnight is estimated from the length of the parking site (i.e. 10 HGVs)**.** The start emissions calculation was conducted according to the "Technical Note on the Calculation of Start Emissions in Air Quality Impact Assessment". Start emission factors of vehicle types at various soak times are extracted from EMFAC-HK v4.3. Start emission factors of concerned vehicles at various soak times were extracted from EMFAC-HK v4.3. An approach of using the lowest temperature and relative humidity data in the year among all PATH grids covering the assessment area (i.e. 11ºC and 16%) was adopted. The detailed calculation of start emission is also presented in **Appendix 3.6.**

Determination of Assessment Year for Vehicular Emission

3.5.11 The operation of the Project is proposed to commission in 2026 and last for 5 years. The vehicular emission burden in Year 2026, 2028 and 2030 are thus assessed. Year 2028 is selected as assessment year because vehicular emission burden is the highest in Year 2028, as shown in **Table 3.6**. The traffic forecasts have been submitted to Transport Department (TD) for endorsement. The traffic data including 24-hr traffic flow with vehicle percentage, trips, daily vehicle-kilometer-travelled (VKT), speed fraction in 18 types of vehicle for the assessment year are presented in **Appendix 3.4**. Vehicular emission rate is calculated with zero emission vehicle scenario from SAMPv2.1. The detailed calculation of vehicular emission source is presented in **Appendix 3.4.**

Table 3.6 Vehicular Emission Burden in the Study Area

Year	Vehicular Emission Burden (tonne per year)	
	RSP	FSP
2026	0.2513	0.2310
2027	0.3008	0.2766
2028	**0.3012**	**0.2769**
2029	0.2637	0.2425
2030	0.2190	0.2014

Remark:
Bolded figure denotes the highest value among modelled years.

Marine Emission

3.5.12 The operation of the Project would induce marine traffic. Marine emission is expected and would pose potential air quality impact on the proposed ASRs. Apart from the induced marine traffic, there is also existing marine traffic and a scheduled ferry route within the 500m study boundary of the Project, namely the scheduled route between Park Island Pier and Tsuen Wan Ferry Pier. All these existing marine traffic also contributes to cumulative air quality impact. Major air pollutants associated with marine emissions include NO_X, SO_2 and particulates. Given that the project would induce only 3 vessels trips a day in the daily operation, the associated NO_X and SO_2 emissions are expected to be minimum. Therefore, only particulates emission by vessels is considered in the cumulative dust impact.

3.5.13 The existing marine traffic was assessed with visual survey and the future marine traffic was projected with growth factors by Marine Consultant. The agreement on the adopted marine traffic data have been sought from Marine Department (MD). The marine traffic data of Year 2026, 2028 and 2030 are presented in **Appendix 3.5**. Given that the marine traffic within the study boundary attains the highest in Year 2030, the marine traffic data of Year 2030 is adopted for the assessment.

3.5.14 With reference to the Study on Marine Vessels Emission Inventory (MVEIS) by HKUST, the marine emission is estimated in activity-based approach. The emission factors were derived

in units of works (gram per kilowatt-hour), dependent on fractional load of the equipment during different vessel activity modes. The calculation can be summarized as below:

Emission = P x FL x T x EF

where *P* is the installed power of equipment;
FL is fractional load of equipment in a specific mode;
T is operation time-in-mode; and
EF is fractional load emission factor of equipment.

3.5.15 Typical power equipment installed on marine vessels are Main Engine (ME) for propulsion, Auxiliary Engine (AE) for electricity and Auxiliary Boiler (AB) for fuel pre-heating and pumping. Subject to the vessel types, different combinations of engines are equipped on a vessel. For example, all 3 kinds of engines are equipped on fully cellular container vessel, no ME for barge, and no AB for pleasure vessel.

3.5.16 The vessel types identified by the Marine Consultant are matched with equivalent vessel types considered in MVEIS. Typical engine power rating, engine type, fuel type of each vessel type are adopted from MVEIS. Moreover, when there are multiple sub-groups for the same vessel type in MVEIS, typically the one with the largest gross registered tonnage (GRT), deadweight tonnage (DWT) or passenger carrying capacity (PAX) is adopted as a conservative approach. The detailed assumptions are presented in **Appendix 3.5**. The vessel types considered in the assessment include:

- Fully Cellular Container Vessel (category RTV)
- Dry Bulk Carrier (category RTV)
- Semi-container Vessel (category RTV)
- Fast Launch (category FL)
- Tug (category TT)
- Local Ferry (category LF)
- Pleasure Vessel (category SC)
- Tug Boat (category SC)

3.5.17 Typical engine load factor by vessel type and by operation mode refers to MVEIS. Engine load factor of marine source was then determined according to its vessel type and its operation mode, which is defined according to the vessel speed with reference to MVEIS and shown in **Table 3.7**.

Table 3.7 Operation Mode of Marine Vessels

Operation Mode	Vessel Speed
Cruise / Fairway Cruise	Over 12 knots
Slow Cruise	8 to 12 knots
Maneuvering	1 to below 8 knots
Hotelling	Below 1 knot

3.5.18 The time-in-mode is estimated by the distance and vessel speed travelled in the corresponding mode.

3.5.19 Emission factors of RSP and FSP by vessel type and by operation mode refers to MVEIS and IMO Fourth Greenhouse Gas Study 2020. According to the *Air Pollution Control (Marine Light Diesel) Regulation*, the sulphur content of locally supplied marine light diesel is capped at 0.05%, so fuel with sulphur content of 0.05% is assumed to be used by local vessels such as Small Crafts (SCs), Tug Boats (TTs), Fast Launch (FLs) and Local Ferries (LFs). On the other hand, *Air Pollution Control (Fuel for Vessels) Regulation* stipulates the use of fuel with sulphur content of 0.5% for all vessels within Hong Kong waters. As such, fuel with sulphur content of 0.5% is assumed to be used by River Trade Vessels (RTV) and Ocean-going Vessels (OGVs) for modelling purpose as a conservative approach. Together with the parameters discussed above, emission of a marine source is estimated with the equation discussed above.

3.5.20 The stack parameters exit temperature and release height are determined by desktop review and site surveys whenever possible, and the other stack parameters (exit velocity and stack diameter) refer to previous studies concerning nearby waters such as the approved EIA Report of Lei Yue Mun Waterfront Enhancement Project (AEIAR-219/2018) and Route 11 (Section between Yuen Long and North Lantau) (AEIAR-255/2023). The emission inventory is summarized in **Appendix 3.5**.

Dispersion Modelling and Modelling Approach for the Proposed Plant

3.5.21 According to *Guidelines on Assessing the 'TOTAL' Air Quality Impacts* by EPD, an integrated modelling system PATHv3.0 which is developed and maintained by EPD will be applied to provide background pollutant concentrations in assessing the total impact in the study area. In addition, Weather Research and Forecast (WRF) meteorological data should be adopted for modelling.

3.5.22 American Meteorological Society (AMS) and U.S. Environmental Protection Agency (EPA) Regulatory Model (AERMOD), the HKEPD approved air dispersion model, has been employed to predict the air quality impacts at the representative ASRs due to the Project. Daily and annual averages of RSP and FSP concentrations are predicted at each identified ASRs at various assessment height, ranging from 1.5 metres to 110 metres above ground.

3.5.23 Hourly meteorological conditions including wind data, temperature, relative humidity, pressure, cloud cover and mixing height of Year 2019 are extracted from the WRF meteorological data adopted in the PATHv3.0 system. The dataset by WRF should be intact and consistent among parameters. In order to avoid any missing hours misidentified by AERMOD and its associated components, the WRF met data is handled manually to set wind direction between 0° – 0.1° to be 360°. The height of the input data is assumed to be 9 metres above ground for the first layer of the WRF data as input.

3.5.24 The wind speed and mixing heights in the WRF data will be further adjusted before meteorological pre-processing by AERMET. The minimum wind speed is capped at 0.5 metre per second. The mixing height is capped between 119 metres and 2009 metres according to the observation in Year 2019 by HKO. After pre-processed by AERMET, the mixing height is verified once again and adjusted to the capped range if necessary.

3.5.25 Surface characteristic parameters such as albedo, Bowen ratio and surface roughness are required in the AERMET. The parameters are determined according to land use classified for the surrounding and the latest AERMOD Implementation Guide. The details of estimation is presented in **Appendix 3.3**. Elevated terrain in AERMOD is adopted for this assessment.

3.5.26 Further, dry deposition is applied in the model run. Particle size distribution is assigned for particles with aerodynamic diameters smaller than 10 μm to each type of source in the AERMOD in order to account for the particle deposition. The sources are divided into three types, (i) general concrete batching processes (further classified into 3 different processes as described in **Table 3.8**), (ii) aggregate handling and storage piles, and (iii) fugitive emission from paved roads. The particle size distributions for each type of source are summarized in **Table 3.8 – Table 3.10**.

Table 3.8 Particle Size Distribution of General Concrete Batching Process [(d) (e)]

Process	RSP to TSP Ratio [(a)]	FSP to RSP Ratio [(b)]
Cement unloading to elevated storage silo (Controlled)	34%	45%
Cement supplement unloading to elevated storage silo (Controlled)	53%	45%
Weigh Hopper Loading (Uncontrolled)	50%	29%
Mixer loading (central mix) (Controlled)	30%	45%

Average Particle Diameter (μm)	Normalized Fraction for RSP (b)(c)
0.5	12%
1.5	21%
2.25	12%
2.75	5%
3.5	11%
4.5	8%
5.5	6%
8	26%

Note:
(a) Derived from Table 11.12-1 Emission Factors for Concrete Batching, Chapter 11.12 Concrete Batching, AP-42, USEPA (Version 01/12)
(b) Derived from Category 3 "Mechanically Generated Aggregate, Unprocessed Ores", Page B.2-13, Appendix B.2 Generalized Particle Size Distributions, AP-42, USEPA (Version 1/95)
(c) Control efficiency of fabric filter on different size of particle refers to Table B.2-3 Typical Collection Efficiencies of Various Particulate Control Device, Appendix B.2 Generalized Particle Size Distributions, AP-42, USEPA (Version 1/95)
(d) The cumulative percentage of all particle sizes maintains 100% in air dispersion model by applying percentage in 6 decimal places.
(e) Details of derivation of the figures are shown in Appendix 3.2

Table 3.9 Particle Size Distribution of Aggregate Handling and Storage Piles

Average Particle Diameter (μm)	Aerodynamic Particle Size Multiplier (k)(a)	Normalized Fraction(b)
1.25	0.053	15%
3.75	0.2	42%
7.5	0.35	43%

Note:
(a) Reference from Aerodynamic Particle Size Multiplier (k) For Equation 1 Table, Section 13.2.4.3 , AP-42 Fifth Version, USEPA
(b) Derived from dividing the respective aerodynamic particle size multiplier by that of RSP (i.e. 0.35)

Table 3.10 Particle Size Distribution of Fugitive Emission from Paved Roads

Average Particle Diameter (μm)	Particle Size Multiplier (g/VKT)(a)	Normalized Fraction(b)
1.25	0.15	24%
6.25	0.62	76%

Note:
(a) Reference from Table 13.2.1-1, Section 13.2.1.3 , AP-42 Fifth Version, USEPA
(b) Derived from dividing the respective particle size multiplier by that of RSP (i.e. 0.62)

Dispersion Modelling and Modelling Approach for Open Road

3.5.27 According to *Technical Note for Modelling Vehicular Emission Using AERMOD* by EPD, AERMOD is also used to assess the vehicular emission from open road.

3.5.28 The mixing zone of a road source needs to be defined in the AERMOD. The top of plume is defined as 1.7 times of the average height of vehicle fleet on the road. The average height of vehicle fleet is determined for each road and is weighted by the total daily traffic flow of each vehicle class. The suggested average vehicle height of each vehicle class refers to the same technical note.

Dispersion Modelling and Modelling Approach for Marine Emission

3.5.29 AERMOD was applied to assess the marine emission in the nearby waters. Marine emission is line source in nature because of the mobile vessels along the route. However, the emission also resembles point source for its high exhaust temperature, exhaust velocity and higher release height. In consideration of these similarities, the marine emission along a route was modelled by numerous of point sources along the route with an interval of 50m and its emission strength is equally allocated to these point sources.

3.5.30 High speed vessels, fishing vessels, pleasure vessels, government vessels (mostly patrol boats) and others (mostly tugboats) generally equip with horizontal stack based on site surveys. These vessels are therefore modelled as point source with horizontal release in AERMOD.

Cumulative Impact of Criteria Air Pollutants

3.5.31 Cumulative AQO pollutant concentration at ASR was derived by the sum of contributions by various sources, and background contribution from PATHv3.0 on hour-by-hour basis. Averaging results, namely 10-min, hourly, daily, and annual, were derived from the cumulative hour-by-hour results in accordance with *Title 40, Code of Federal Regulations, US Environmental Protection Agency (USEPA 40 CFR) Part 51 "Revision to the Guideline on Air Quality Models, January 2017*". For annual average, the sum of all valid hourly concentrations was divided by the number of valid hours during the year. For daily average, cumulative results at each ASR amongst 365 days were ranked by highest concentration and compared with the maximum allowable concentration to determine the number of exceedance throughout a year. The air quality impact on ASRs was then evaluated by number of exceedance per annum against the criteria of EIAO-TM and AQOs.

3.5.32 Ozone Limiting Method (OLM) has been adopted for the conversion of short-term NO_X to NO_2 based on the ozone background concentration from PATHv3.0. Regarding vehicular emission, NO_2 and NO were predicted separately in AERMOD. Following the principle of OLM, the total predicted vehicular NO_2 is estimated as below:

$$[NO_2]_{vehicular} = [NO_2]_{predicted} + MIN \{[NO]_{predicted}, \text{ or } (46/48) \times [O_3]_{PATH}\}$$

where

$[NO_2]_{vehicular}$	is the total predicted vehicular NO_2 concentration
$[NO_2]_{predicted}$	is the predicted NO_2 concentration
$[NO]_{predicted}$	is the predicted NO concentration
MIN	means the minimum of the two values within the bracket
$[O_3]_{PATH}$	is the representative O_3 PATH concentration (from other contributions)
(46/48)	is the molecular weight of NO_2 divided by the molecular weight of O_3

3.5.33 With reference to the *Guidance on Choice of Models and Model Parameters*, Jenkin method was adopted for the conversion of cumulative annual average NO_X to NO_2 by using the empirical relationship in observed annual mean of NO_X and NO_2 concentrations. The empirical relationship is derived from the annual mean observed data by relevant EPD's air quality monitoring stations (AQMS) including Tsuen Wan (the closest station), Tap Mun (background station with no vehicular emission), and Mong Kok roadside station (station dominated by vehicular emission). The resulting curve is adopted for the cumulative annual average NO_x to NO_2 conversion. Detailed derivation of NO_X-to-NO_2 conversion equation using Jenkin method is presented in **Appendix 3.7**.

3.5.34 According to "*Guidelines on the Estimation of 10-min average SO_2 Concentration for Air Quality Assessment in Hong Kong*", SO_2 concentration in 10-min average due to the stack emissions was estimated by applying stability-dependent multiplicative factor to 1-hour average model prediction by AERMOD.

3.6 Prediction and Evaluation of Impact

Cumulative Air Quality Impact

3.6.1 The 10th highest cumulative daily averages of RSP and 19th highest cumulative daily averages of FSP concentrations, as well their cumulative annual averages, at each representative ASR are presented in **Table 3.11** – **Table 3.14**, while the 10-min and daily averages of SO_2 concentrations, and hourly, daily and annual averages NO_2 concentrations at each representative ASR are presented in **Table 3.11** – **Table 3.14.** The prediction shows that the concentrations of the pollutant of concern would comply with the relevant AQOs at each representative ASR.

3.6.2 According to the predictions at discrete receptors in **Table 3.11** – **Table 3.14**, the worst predicted levels of cumulative daily RSP impact appear at 1.5m and 10m above ground, while

those of cumulative annual RSP impact appear at 1.5m and 5m above ground for all representative ASRs. The worst predicted levels of cumulative daily FSP impact appear at 1.5m and 5m above ground, while those of cumulative annual FSP impact occur at 1.5m above ground. Contour plots of cumulative daily average of RSP concentrations at 1.5m and 10m above ground, and cumulative annual average of RSP concentrations at 1.5m and 5m above ground, cumulative daily average of FSP concentrations at 1.5m and 5m above ground and cumulative annual average of FSP concentrations at 1.5m above ground are presented in **Figure 3.2** – **Figure 3.8** respectively.

3.6.3 According to the predictions at discrete receptors in **Table 3.11** – **Table 3.14**, the worst predicted levels of cumulative 10-min and daily averages of SO_2 impact and those of cumulative hourly, daily and annual averages of NO_2 impact appear at 1.5m above ground for all representative ASRs. Contour plots of cumulative 10-min and daily averages of SO_2 concentrations, and cumulative hourly, daily and annual averages of NO_2 concentrations at 1.5m above ground are presented in **Figure 3.9** – **Figure 3.13** respectively.

3.6.4 Exceedance in annual RSP and FSP was generally predicted within the Subject Site and adjacent dockyard areas where slipways and temporary structures are located. It is confirmed that no air sensitive uses are located within the exceedance area.

3.6.5 In short, the predictions at discrete locations and spatial predictions within the study area showed that no adverse air quality impact on the nearby ASRs would be anticipated during the operation of the Proposed Plant.

Table 3.11 Predicted 10th Highest Cumulative Daily Average RSP Concentration (µg/m³) at ASRs

ASR	10th Highest Cumulative Daily Average RSP Concentration (µg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	54.5490	54.5819	54.5946	-	-	-	-	-	-	-	-	-	-	-
A02	55.5601	55.5208	55.3657	55.3131	-	-	-	-	-	-	-	-	-	-
A03	61.1909	60.3145	59.0518	56.0725	-	-	-	-	-	-	-	-	-	-
A04	59.2764	58.7013	57.6933	56.1574	-	-	-	-	-	-	-	-	-	-
A05	56.3075	54.7879	54.5742	54.4064	-	-	-	-	-	-	-	-	-	-
A06	54.1648	54.1550	-	-	-	-	-	-	-	-	-	-	-	-
A07	54.0592	54.0525	54.0383	54.0241	-	-	-	-	-	-	-	-	-	-
A08	55.0123	55.0103	55.0046	54.9902	54.9577	54.8797	-	-	-	-	-	-	-	-
A09	54.9052	54.8969	54.8881	54.8833	54.8785	54.8611	54.8418	54.8328	54.8298	54.8284	54.8276	54.8272	54.8269	54.8266
A14	57.6460	57.3549	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.12 Predicted Cumulative Annual Average RSP Concentration (µg/m³) at ASRs

ASR	Cumulative Annual Average RSP Concentration (µg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	20.7714	20.7766	20.7525	-	-	-	-	-	-	-	-	-	-	-
A02	21.4855	21.3910	21.1526	21.0027	-	-	-	-	-	-	-	-	-	-
A03	24.4673	23.6590	22.7156	21.6569	-	-	-	-	-	-	-	-	-	-
A04	23.2229	22.7792	22.0433	21.3433	-	-	-	-	-	-	-	-	-	-
A05	21.3887	21.1840	20.9227	20.7450	-	-	-	-	-	-	-	-	-	-
A06	20.7047	20.6859	-	-	-	-	-	-	-	-	-	-	-	-
A07	20.5092	20.5048	20.4900	20.4748	-	-	-	-	-	-	-	-	-	-
A08	21.0449	21.0438	21.0394	21.0258	20.9919	20.9308	-	-	-	-	-	-	-	-
A09	20.9523	20.9465	20.9407	20.9360	20.9292	20.9113	20.8969	20.8878	20.8826	20.8797	20.8778	20.8765	20.8754	20.8745
A14	21.8435	21.5989	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.13 Predicted 19th Highest Cumulative Daily Average FSP Concentration (µg/m³) at ASRs

ASR	19th Highest Cumulative Daily Average FSP Concentration (µg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	30.6510	30.6684	30.6583	-	-	-	-	-	-	-	-	-	-	-
A02	31.1604	31.0957	30.9003	30.7962	-	-	-	-	-	-	-	-	-	-
A03	31.9782	32.1121	31.8882	31.3619	-	-	-	-	-	-	-	-	-	-
A04	31.7592	31.7034	31.4776	30.9838	-	-	-	-	-	-	-	-	-	-
A05	30.9636	30.8680	30.7536	30.6810	-	-	-	-	-	-	-	-	-	-
A06	30.5057	30.4973	-	-	-	-	-	-	-	-	-	-	-	-
A07	30.4253	30.4222	30.4136	30.4067	-	-	-	-	-	-	-	-	-	-
A08	31.9815	31.9817	31.9802	31.9726	31.9499	31.9193	-	-	-	-	-	-	-	-
A09	31.9244	31.9202	31.9168	31.9153	31.9141	31.9071	31.9008	31.8978	31.8962	31.8949	31.8940	31.8932	31.8926	31.8922
A14	31.1380	30.9880	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.14 Predicted Cumulative Annual Average FSP Concentration (µg/m³) at ASRs

ASR	Cumulative Annual Average FSP Concentration (µg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	12.9213	12.9201	12.9017	-	-	-	-	-	-	-	-	-	-	-
A02	13.3245	13.2403	13.0653	12.9979	-	-	-	-	-	-	-	-	-	-
A03	14.0159	13.9611	13.9213	13.4219	-	-	-	-	-	-	-	-	-	-
A04	13.7301	13.6500	13.4546	13.1760	-	-	-	-	-	-	-	-	-	-
A05	13.1351	13.0713	12.9884	12.9227	-	-	-	-	-	-	-	-	-	-
A06	12.8964	12.8890	-	-	-	-	-	-	-	-	-	-	-	-
A07	12.8155	12.8128	12.8019	12.7917	-	-	-	-	-	-	-	-	-	-
A08	13.3247	13.3246	13.3221	13.3118	13.2829	13.2307	-	-	-	-	-	-	-	-
A09	13.2459	13.2412	13.2366	13.2334	13.2285	13.2149	13.2041	13.1973	13.1934	13.1912	13.1899	13.1890	13.1883	13.1878
A14	13.3599	13.2706	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.15 Predicted 4th Highest Cumulative 10-Min Average SO_2 Concentration (μg/m³) at ASRs

ASR	4th Highest Cumulative 10-Min Average SO2 Concentration (μg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	23.7310	23.7227	23.7142	-	-	-	-	-	-	-	-	-	-	-
A02	23.7398	23.7334	23.7293	23.7287	-	-	-	-	-	-	-	-	-	-
A03	23.6967	23.7009	23.7186	23.7470	-	-	-	-	-	-	-	-	-	-
A04	23.7048	23.7094	23.7255	23.7500	-	-	-	-	-	-	-	-	-	-
A05	23.6945	23.6986	23.7150	23.7399	-	-	-	-	-	-	-	-	-	-
A06	23.7140	23.7108	-	-	-	-	-	-	-	-	-	-	-	-
A07	23.8171	23.8063	23.7979	23.7943	-	-	-	-	-	-	-	-	-	-
A08	22.9459	22.9452	22.9441	22.9432	22.9422	22.9404	-	-	-	-	-	-	-	-
A09	22.9448	22.9440	22.9429	22.9419	22.9410	22.9392	22.9374	22.9358	22.9342	22.9326	22.9311	22.9296	22.9282	22.9269
A14	23.7189	23.7171	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.16 Predicted 4th Highest Cumulative Daily Average SO^2 Concentration (μg/m³) at ASRs

ASR	4th Highest Cumulative Daily Average SO2 Concentration (μg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	7.3292	7.3284	7.3278	-	-	-	-	-	-	-	-	-	-	-
A02	7.3258	7.3252	7.3250	7.3252	-	-	-	-	-	-	-	-	-	-
A03	7.3267	7.3268	7.3276	7.3291	-	-	-	-	-	-	-	-	-	-
A04	7.3263	7.3263	7.3270	7.3281	-	-	-	-	-	-	-	-	-	-
A05	7.3255	7.3255	7.3262	7.3274	-	-	-	-	-	-	-	-	-	-
A06	7.3210	7.3204	-	-	-	-	-	-	-	-	-	-	-	-
A07	7.3125	7.3118	7.3110	7.3105	-	-	-	-	-	-	-	-	-	-
A08	7.2982	7.2979	7.2976	7.2973	7.2970	7.2966	-	-	-	-	-	-	-	-
A09	7.2976	7.2973	7.2969	7.2966	7.2963	7.2958	7.2954	7.2951	7.2948	7.2946	7.2943	7.2940	7.2937	7.2933
A14	7.3221	7.3217	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.17 Predicted 19th Highest Cumulative Hourly Average NO_2 Concentration (μg/m³) at ASRs

ASR	19th Highest Cumulative Hourly Average NO2 Concentration (μg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	12.9213	12.9201	12.9017	-	-	-	-	-	-	-	-	-	-	-
A02	13.3245	13.2403	13.0653	12.9979	-	-	-	-	-	-	-	-	-	-
A03	14.0159	13.9611	13.9213	13.4219	-	-	-	-	-	-	-	-	-	-
A04	13.7301	13.6500	13.4546	13.1760	-	-	-	-	-	-	-	-	-	-
A05	13.1351	13.0713	12.9884	12.9227	-	-	-	-	-	-	-	-	-	-
A06	12.8964	12.8890	-	-	-	-	-	-	-	-	-	-	-	-
A07	12.8155	12.8128	12.8019	12.7917	-	-	-	-	-	-	-	-	-	-
A08	13.3247	13.3246	13.3221	13.3118	13.2829	13.2307	-	-	-	-	-	-	-	-
A09	13.2459	13.2412	13.2366	13.2334	13.2285	13.2149	13.2041	13.1973	13.1934	13.1912	13.1899	13.1890	13.1883	13.1878
A14	13.3599	13.2706	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.18 Predicted 10th Highest Cumulative Daily Average NO_2 Concentration (μg/m³) at ASRs

ASR	10th Highest Cumulative Daily Average NO2 Concentration (μg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	73.843	73.754	73.128	-	-	-	-	-	-	-	-	-	-	-
A02	81.899	79.687	74.305	73.041	-	-	-	-	-	-	-	-	-	-
A03	77.758	77.420	75.314	73.921	-	-	-	-	-	-	-	-	-	-
A04	77.561	77.122	75.085	73.786	-	-	-	-	-	-	-	-	-	-
A05	78.462	77.389	75.350	74.162	-	-	-	-	-	-	-	-	-	-
A06	75.155	75.135	-	-	-	-	-	-	-	-	-	-	-	-
A07	74.755	74.694	74.266	73.779	-	-	-	-	-	-	-	-	-	-
A08	56.628	56.617	56.269	56.367	56.403	56.219	-	-	-	-	-	-	-	-
A09	56.273	56.234	56.078	55.844	55.971	56.049	55.979	56.034	55.845	55.589	55.678	55.730	55.762	55.827
A14	77.564	76.975	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.19 Predicted Cumulative Annual Average NO_2 Concentration (μg/m³) at ASRs

ASR	Cumulative Annual Average NO2 Concentration (μg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	100.651	100.505	100.209	-	-	-	-	-	-	-	-	-	-	-
A02	111.168	107.508	101.758	100.707	-	-	-	-	-	-	-	-	-	-
A03	137.312	125.537	107.980	100.003	-	-	-	-	-	-	-	-	-	-
A04	115.340	110.646	104.092	100.483	-	-	-	-	-	-	-	-	-	-
A05	117.837	110.953	101.861	98.703	-	-	-	-	-	-	-	-	-	-
A06	101.784	101.531	-	-	-	-	-	-	-	-	-	-	-	-
A07	100.507	100.142	98.690	98.086	-	-	-	-	-	-	-	-	-	-
A08	105.431	104.649	103.976	103.644	101.804	99.373	-	-	-	-	-	-	-	-
A09	102.134	101.504	101.244	99.527	99.099	98.740	98.728	98.642	98.642	98.642	98.642	98.642	98.642	98.642
A14	113.072	110.042	-	-	-	-	-	-	-	-	-	-	-	-

3.7 Mitigation Measures

Plant Operation

3.7.1 It should be noted that the mitigation measures applied in the calculations are based on the proposed configuration of the Project. Details of mitigation measures that will be implemented in the plant have been presented in **Table 3.4**.

3.7.2 Despite the air control technologies and control measures proposed, good operation and maintenance practices is vital in achieving the goals of air pollution control measures and ensuring the environmental performance of the Plant. Standard operation and maintenance procedures will be set up and followed by all the operation staff to keep all the air pollution control equipment in good operating condition. Adequate training will be given to the personnel for inspection and maintenance of all the air pollution control equipment.

3.7.3 The plant operator shall maintain high standard of housekeeping to prevent emission of fugitive dust. Loading, unloading, handling and storage of raw materials, products, wastes or by-products should be carried out in an acceptable manner so as to minimize dust emission impact on the surrounding environment.

3.7.4 All sprinkler system used for dust suppression shall be maintained in good condition during operation. The flow rate and operating pressure of the spraying liquid/solution shall be sufficient to suppress dust emission from the corresponding sources. The sprinkler system shall be able to cover the areas of emission points concerned.

3.7.5 Air pollution control equipment, including fabric filters with 99.9% dust removal efficiency, silo overfilling alarms and filling link interlock shall be maintained in good operation condition and put into use whenever the relevant plant served by the air control equipment is in operation.

3.7.6 In order to guarantee the control efficiency of the dust collectors implemented, the performance of dust collectors will be monitored by fitting a pressure gauge to indicate the adequate pressure drop across the filter throughout the operation.

3.7.7 The emission rate or concentrations at all identified emission sources shall also be monitored upon commissioning and during the operation of the Project. The sampling methods for the emission sources and the monitoring programme shall be agreed with the EPD prior to the operation of the proposed CBP.

3.7.8 The dust extraction and collection system shall be routinely inspected at least once per month. This system shall be maintained in good condition during production. Collected dust will be returned to process stream or disposed of without generating any fugitive dust.

3.7.9 The maintenance, repair, or general cleaning of the plant facilities and vehicle within the site boundary shall be carried out in such a manner that the air emission is minimized.

3.7.10 The plant operator shall take all practical measures to minimize air emissions which may be caused by handling the muddy waste generated from the plant operation. No accumulation and dumping of such waste are allowed in open area.

3.7.11 Malfunction or breakdown of equipment leading to abnormal emission shall be dealt with promptly. In any case, the abnormal emission due to equipment failure shall be stopped as soon as possible. Sufficient numbers of spare parts for air pollution control equipment shall be kept in stock to allow rapid repair of the equipment. Each fabric filter shall be inspected at least once per month.

3.7.12 Should any office or control room of the Project be located within any predicted exceedance zones discussed above, it is recommended that centralized air conditioning and air filtering system with recommended dust removal efficiency of at least 90% shall be installed to minimize the air quality impacts and achieve AQO compliance at these uses in the plant.

3.7.13 Together with proper operation and maintenance practices discussed above, the proposed measures should ensure that there will be no adverse air quality impacts on any nearby ASRs, as predicted by the air quality impact assessment. As a Specified Process defined under the APCO, a licence from EPD will be applied where the detailed design of plant and air quality control proposals will be formulated to ensure full compliance with relevant requirements under the APCO during operation.

Odour from Sediments from Dredging and Maintenance Dredging

3.7.14 Potential odour impact arising from the dredging activities during both construction and operation phase are not anticipated. Nevertheless, the following precautionary measures are proposed to minimize the potential impacts:

- Loading of the dredged sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.
- Any dredged sediment should be stored in enclosed tanks or properly covered as far as practicable to minimise its exposed area during its temporary storage and should be placed as far away from the identified ASRs as practically possible.
- Dredging rate should be controlled carefully.
- The dredged sediment is suggested to be delivered off-site for disposal every day as possible to avoid the dredged sediment for storage at the barge overnight.
- Dredged sediment placed on marine vessel for disposal should also be properly covered during transportation.
- The dredging activities are conducted during non-summer season.

With the implementation of these measures, the potential odour nuisance could be minimized and adverse odour impact at nearby ASRs is not expected.

4 NOISE

4.1 Introduction

4.1.1 The construction and operation of the concrete batching plant may induce potential noise impacts to surrounding noise sensitive receivers. Representative Noise Sensitive Receivers (NSRs) in the vicinity of the study area are identified. The potential noise impacts on these NSRs arising from the Proposed Plant are assessed and appropriate mitigation measures are proposed to alleviate the potential noise impacts where necessary.

4.2 Description of Environment

4.2.1 The Subject Site is located at Tsing Yi Town Lot Nos. 14& 15 at Tam Kon Shan Road in the northern Tsing Yi . It is located on marine frontage in the north and surrounded by areas of dockyards and marine-oriented industries in the east and west. Green@Kwai Tsing, site office and Tsing Yi Northeast Park are in the further east. Tam Kon Shan Road and Tsing Yi North Coastal Road is in the south of the Subject Site. The existing noise climate of the study area is dominated by the fixed plant noise from the existing dockyards and road traffic noise from the highways and local roads in the vicinity.

Noise Sensitive Receivers

4.2.2 In accordance with Annex 13 of the EIAO-TM, all domestic premises, including temporary housing accommodation, educational institution, hospital, medical clinic, home for the aged, convalescent homes, places of public worship, libraries, courts of law, performing arts centres, auditoria, amphitheatres and hostels shall be considered to be as NSRs. Representative NSRs are to be identified within the study boundary, which is 300 m from the Site.

4.2.3 Referring to the Tsing Yi Outline Zoning Plan No. S/TY/32, the land uses within 300m of the subject site are “Other Specified Uses” annotated “Boatyard and Marine-oriented Industrial Uses” (“OU(BMIU)”) and green belts, and there are no residential uses or educational institutes. After carrying out detailed desktop review and site survey, no noise sensitive receiver (NSR) is identified within the 300m of the subject site. The nearest NSR identified is The Met. Azure, which is located approximately 350m from the proposed CBP on top of the hill.

4.3 Environmental Legislation and Guidelines

Construction Noise

4.3.1 The Noise Control Ordinance (NCO) provides the statutory framework for noise control of construction work other than percussive piling, using Powered Mechanical Equipment (PME) between the hours of 1900 and 0700 hours or at any time on a general holiday (i.e. restricted hours). Noise control on construction activities taking place at other times is subject to the Noise assessment criteria for Daytime Construction Activities as stated in Professional Persons Environmental Consultative Committee (ProPECC) Practice Notes PN2/93 Noise from Construction Activities - Non-statutory. The noise assessment criteria are 75 dB(A) for domestic dwelling, 70 dB(A) for schools during normal teaching period and 65 dB(A) for schools during examination period.

Operation Fixed Plant Noise

4.3.2 Industrial fixed plant noise impacts were assessed in accordance with the criteria and methodology given in the Technical Memoranda made under the NCO, and Hong Kong Planning Standard and Guidelines (HKPSG).

4.3.3 The HKPSG states that all fixed noise sources should be so located and designed that when assessed in accordance with the Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM), the level

of the intruding noise at the facade of the nearest sensitive use should be at least 5 dB(A) below the appropriate ANL shown in Table 2 of the IND-TM or, in the case of the background being 5 dB(A) lower than the ANL, the predicted noise level should not exceed the background.

4.3.4 Determination of the ANL depends on the area sensitivity rating (ASR), which is based on the characterization of the area within which they are located such as rural, village, low-density residential, or urban. Within these areas, the presence of "influencing factors" (such as the presence of industrial activities or major roads) can further affect the ASR and therefore the acceptable noise level. The ASR is determined from **Table 4.1** below.

Table 4.1 Area Sensitivity Ratings (ASRs)

Type of Area Containing NSR	Degree to which NSR is affected by IF		
	Not Affected	Indirectly Affected	Directly Affected
Rural Area	A	B	B
Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
Urban Area	B	C	C
Area other than those above	B	B	C

4.3.5 The ANLs for all ASRs are provided in **Table 4.2**.

Table 4.2 Acceptable Noise Levels for Fixed Noise Sources

Time Period	Acceptable Noise Level, dB(A)		
	ASR A	ASR B	ASR C
Daytime and Evening (0700 to 2300 hours)	60	65	70
Night (2300 to 0700 hours)	50	55	60

4.3.6 The surrounding area of the Project site is of industrial uses, which is not rural area, low density residential area, nor urban area. Therefore, the type of use of the area is considered as “area other than those above”. The area is directly affected by influencing factors, such as nearby industries and traffic noise from local roads and highways. With reference to **Table 4.1** above, ASR of “C” has been assumed for the NSR in the vicinity of the proposed Project site.

4.3.7 In any event, the ASR assumed in this report is for indicative assessment only. It should be noted that the fixed noise sources are controlled under Section 13 of the NCO. At the time of investigation, the Noise Control Authority shall determine noise impact from concerned fixed noise sources on the basis of prevailing legislation and practices being in force and taking account of contemporary conditions/situations of adjoining land uses. Nothing in this report shall bind the Noise Control Authority in the context of law enforcement against all the fixed noise sources being assessed.

4.3.8 The HKPSG recommends that the level of the intruding noise at the façade of the nearest sensitive use should be at least 5 dB(A) below the appropriate ANL or, in the case of background noise being 5 dB(A) lower than the ANL, the predicted noise level arising from the operation of the Proposed Plant at the façade of the nearest sensitive use should not exceed the background noise level.

4.4 Identification and Evaluation of Impact

Construction Phase

4.4.1 During the construction phase, the use of PME for the construction works of the proposed development would likely be the source of noise impact and would have the potential noise impact on the NSR located in the vicinity of the Subject Site.

4.4.2 In view of the nature of the development, the major construction activities would include minor excavation for foundation works and plant fabrication works. Potential noise impacts generated from the use of PME such as excavators, generators, air compressors, cranes, lorries, and pneumatic breakers for these construction activities would be expected.

4.4.3 In order to alleviate the potential construction noise impacts on the nearby NSRs, the following mitigation measures are suggested:

- Scheduling of work to avoid simultaneous operation of noisy equipment and erecting, as early as possible, any new structures which will have the effect of screening noise sources
- Noisy equipment should be located as far as possible from the NSR
- Implementation of good site practices to limit noise emissions at source
- Use of quieter PME
- Use of quieter alternative construction method
- Use of noise barriers/enclosure

4.4.4 With the implementation of the noise mitigation measures, it is anticipated that there would be no unacceptable construction noise impacts.

Operation Phase

4.4.5 In general, the CBP will operate from 07:00 to 21:00. The production rate and number of on-site vehicles are listed in **Table 4.3**.

Table 4.3 Production Rate and Number of On-site Vehicles during Normal Day

Activities / On-site Vehicles	07:00 – 21:00
Concrete Production Rate	100%
Concrete mixer truck per hour	43
PFA/GGBS/Silica Fume tanker per hour	2
Aggregates tipper truck per hour	0

4.4.6 However, no NSR has been identified within the study area and the nearest NSR, The Met, Azure, is 350m away on top of the hill. Given that sufficient separation distance from the NSR, more than 300m, the operational noise impact would become negligible. No adverse noise impact would be expected due to the operation of the propose CBP.

4.4.7 No further mitigation measures would therefore be required for the Proposed Plant.

5 WATER QUALITY

5.1 Introduction

5.1.1 The potential water quality impacts associated with the construction and operation of the proposed concrete batching plant are assessed in this section. Where necessary, mitigation measures are proposed to ensure that all residual impacts are in compliance with the relevant environmental legislation, standards and guidelines.

5.2 Environmental Legislation and Guidelines

5.2.1 The Water Pollution Control Ordinance (Cap.358) provides the major statutory framework for the protection and control of water quality in Hong Kong. According to the Ordinance and its subsidiary legislation, Hong Kong waters are divided into ten Water Control Zones (WCZ). Corresponding statements of Water Quality Objectives (WQO) are stipulated for different water regimes (marine waters, inland waters, bathing beaches subzones, secondary contact recreation subzones and fish culture subzones) in the WCZ based on their beneficial uses. The proposed concrete batching plant site is located within the Western Buffer Water Control Zone.

Technical Memorandum

5.2.2 Besides setting the WQOs, the WPCO controls effluent discharging into the WCZs through a licensing system. A Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters was issued under the WPCO which gives guidance on the permissible effluent discharges based on the type of receiving waters (foul sewers, storm water drains, inland and coastal waters). The limits control the physical, chemical and microbial quality of effluents. The discharge standard will vary with the use of downstream water. Any new effluent discharge would be required to comply with the terms and conditions of a discharge licence, issued by EPD, under the WPCO.

Practice Notes

5.2.3 A Practice Note (PN) for Professional Persons was issued by the EPD to provide environmental guidelines for handling and disposal of construction site discharges. The PN 2/24 “Construction Site Drainage” provides good practice guidelines for dealing with various types of discharge from a construction site. Practices outlined in the PN should be followed as far as possible during construction to minimize the water quality impact due to construction site drainage.

5.3 Identification and Evaluation of Impact

Construction Phase

Dredging Works

5.3.1 The recent sounding survey showed that sedimentation has reduced the nearshore water depth at the barging point to below the level required for safe barging operations. To restore the nearshore water depth, a dredging works during construction is thus proposed to remove the accumulated sediment at the nearshore of the Site and restore adequate water depth for safe vessel navigation. The proposed dredging works is required to be carried out once during the construction phase of the Project. The extent of the dredging is illustrated in **Figure 6.1.** Approximately 4,000 m^3 of dredged sediment is involved based on the preliminary design and subject to further detailed analysis and the dredging is estimated to last 10 days based on the preliminary design. The dredging would cause potential water quality impacts on the water column.

5.3.2 Mitigation measures including deployment of silt curtain will be implemented during the dredging works. A silt curtain deployment plan should be submitted to EPD prior to the commencement of the dredging works, under which detailed silt curtain arrangement should be

proposed. The dredging works should be carried out in dry season to further minimize the potential water quality impact. With reference to *Recommended Pollution Control Clauses for Construction Contracts* (RPCC), all equipment shall be designed and maintained to minimize the risk of silt and other contaminants being released into the water column or deposited in locations other than designated location. All vessels shall be monitored to ensure that no dumping outside the approved location nor loss of material during transportation takes place. Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water, and vessels shall not be filled to a level which will cause overflowing of material or polluted water during loading or transportation. With the implementation of these measures, no adverse water quality impact due to the dredging is anticipated.

Land-based Works

5.3.3 Based on the engineering design, land-based works would be involved during the construction. Potential sources of water quality impact associated with the construction phase of the proposed concrete batching plant have been identified and include:

- excavation and foundation works;
- construction site runoff and drainage;
- general construction activities; and
- sewage effluent produced by on-site workforce.

Construction Site Runoff and Drainage

5.3.4 Runoff from the construction works areas during earthworks may contain increased loads of suspended solids and contaminants. Potential sources of pollution from site drainage include:

- runoff and erosion from exposed soil surfaces, earth working areas and stockpiles;
- bentonite slurries from foundation works.
- wash water from dust suppression sprays; and
- fuel and lubricants from maintenance of construction vehicles and mechanical equipment.

5.3.5 Mitigation measures should be implemented to control construction site runoff and drainage from the works areas, and to prevent runoff and drainage water with high levels of suspended solids from entering the nearby waters or local storm water drainage system. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. With the implementation of adequate construction site drainage and provision of sediment removal facilities, it is anticipated that unacceptable water quality impacts would not arise.

General Construction Activities

5.3.6 On-site construction activities may cause water pollution from the following:

- uncontrolled discharge of debris and rubbish such as packaging, construction materials and refuse; and
- spillage of liquids stored on-site, such as oil, diesel and solvents etc., are likely to result in water quality impacts if they enter the nearby waters or local storm water drainage system.

5.3.7 Good construction and site management practices should be observed to ensure that litter, fuels and solvents do not enter the nearby watercourses or storm water drains.

Sewage Effluents

5.3.8 Domestic sewage would be generated from the workforce during the construction phase. However, this temporary sewage can be adequately treated by interim sewage treatment facilities, such as portable chemical toilets, which can be installed within the construction site. It is unlikely that sewage generated from the site would have a significant water quality impact,

provided that sewage is not discharged directly to the nearby waters or drainage channels, and chemical toilets are used and properly maintained.

5.3.9 Given the nature of the proposed development, the duration of the construction activities will be relatively short and only minimal excavation is required for foundation works. With the above recommended mitigation measures, it is anticipated the water quality impact will be insignificant during the construction phase.

5.3.10 However, no water sensitive receiver has been identified within 500m from the project site. No adverse water quality impact would be expected due to the construction of the Project. No further mitigation measures would therefore be required.

Operation Phase

5.3.11 During operation phase, the main sources of wastewater would be mixer truck cleaning activities, the wheel washing facility, general site cleaning, water spraying for dust suppression and lorries cleaning before exiting the plant. On-site wastewater recycling system will be provided to collect wastewater for recycling and reuse. 3 recycle water tanks with total capacity of 55,000L will be provided for storage of recycled wastewater from the on-site wastewater recycling system to minimize any potential discharge of wastewater. All transfer of aggregates will be conducted in enclosed condition and no potential water quality impact is expected during unloading of aggregates.

5.3.12 The plant has been designed to contain all production wastewater as well as surface runoff within the plant. Surface channel will be laid within the plant to collect any production wastewater and runoff. The ground will also be formed with gradient such that all surface runoff flows toward the middle of the Site and collected by the surface channel. The site arrangement and layout of surface channels are presented in **Appendix 5.1**. With the implementation of such site arrangement, no water will be discharged from the plant.

5.3.13 Wastewater generated from mixer truck cleaning activities will be collected at container and passed through the reclaimer to separate aggregates and slurry, after which the slurry water will be directed into the wastewater tanks. The slurry water will then pass through a filter press to capture cement particle. The clear water will be collected in the clear water tank where the water will be pumped to the water tank for recycling. The reclaimed water will be reuse for site cleaning, truck washing and/or concrete production. Details of the wastewater treatment is presented in **Appendix. 5.2**.

Stormwater Runoff

5.3.14 Surface runoff from the Site will be retained within the site and collected via the surface channels for recycling as discussed in **Section 5.3.12** and no water will be discharged from the plant. No adverse drainage impact to the existing drainage system would be expected.

Sewage Effluents by Work Force

5.3.15 Domestic sewage will be expected from the workforce during the operation phase. Around 15 staffs will be required for the routine operation of the Proposed Plant. The sewage generated is expected to be small in quantity. Purposedly-built toilets will be provided on-site. With the connection to public sewerage, the domestic sewage will be collected and discharged via the public sewerage network.

5.3.16 However, no water sensitive receiver has been identified within 500m from the project site and the closest WSR is illustrated in **Figure 5.1**.No adverse water quality impact would be expected due to the operation of the Project. No further mitigation measures would therefore be required. A Sewage Impact Assessment (SIA) will be carried out and submitted to the satisfaction of SIG.

Maintenance Dredging

5.3.17 Maintenance dredging would be required during operation subject to the siltation rate. Should a maintenance dredging be required, it is expected to be carried out in two days. And the sediment volume to be removed under each maintenance dredging event is expected to be less than 500 m^3 in total. Deployment of silt curtain and relevant mitigation measures will be deployed during the maintenance dredging as mentioned in **Section 5.3.2.** No adverse water quality impact due to the maintenance dredging is anticipated.

6 WASTE MANAGEMENT

6.1 Introduction

6.1.1 This section includes the discussion of the following issues in relation to waste management:

- identifies the type of wastes that would be generated during construction and operation of the proposed concrete batching plant;
- assesses the potential environmental impacts that are associated with the handling and disposal of these wastes; and
- mitigation measures and good site practice, including waste handling, storage and disposal, were recommended with reference to the applicable legislation and guidelines.

6.2 Environmental Legislation and Guidelines

6.2.1 The criteria and guidelines for assessing waste management implications are set out in Annex 7 and Annex 15 of the EIAO-TM, respectively.

6.2.2 The following legislation relates to the handling, treatment and disposal of wastes in the Hong Kong SAR and has been used in assessing potential environmental impacts:

- Waste Disposal Ordinance (Cap. 354)
- Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C)
- Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)
- Land (Miscellaneous Provisions) Ordinance (Cap. 28)
- Public Health and Municipal Services Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation
- Dumping at Sea Ordinance (Cap. 466)

Waste Management

6.2.3 The Waste Disposal Ordinance (WDO) prohibits the unauthorised disposal of wastes. Construction waste is defined as any substance, matter or thing that is generated from construction work and abandoned, whether or not it has been processed or stockpiled before being abandoned, but does not include any sludge, screenings or matter removed in or generated from any desludging, desilting or dredging works. Under the WDO, wastes can be disposed of only at designated waste disposal facilities.

6.2.4 Under the WDO, the Chemical Waste (General) Regulation provides regulations for chemical waste control, and administers the possession, storage, collection, transport and disposal of chemical wastes. The Environmental Protection Department (EPD) has also issued guideline documents, the “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes”, “A Guide to the Chemical Waste Control Scheme”, and “A Guide to the Registration of Chemical Waste Producers”, which detail how the Contractor should comply with the regulations on chemical wastes.

6.2.5 The Public Cleansing and Prevention of Nuisances Regulation provides control on illegal tipping of wastes on unauthorised (unlicensed) sites.

Construction and Demolition (C&D) Material

6.2.6 The current policy related to the disposal of C&D material is documented in the Works Branch Technical Circular No. 2/93, ‘Public Dumps’. Construction and demolition materials that are wholly inert, namely public fill, should not be disposed of to landfill, but taken to public filling areas, which usually form part of reclamation schemes. The Land (Miscellaneous Provisions) Ordinance requires that dumping licences be obtained by individuals or companies who deliver public fill to public filling areas. The Civil Engineering & Development Department (CEDD) issues the licences under delegated powers from the Director of Lands.

6.2.7 Under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation, enacted in January 2006, construction waste delivered to a landfill for disposal must not contain more than 50% by weight of inert material. Construction waste delivered to a sorting facility for disposal must contain more than 50% by weight of inert material, and construction waste delivered to a public fill reception facility for disposal must consist entirely of inert material.

6.2.8 Measures have been introduced under Practice Note for Authorized Persons and Registered Structural Engineers No. 243 (PNAP ADV-19) on Construction and Demolition Waste, to enhance the management of construction and demolition material, and to minimize its generation at source. A Waste Management Plan (WMP) shall be prepared by the contractor and agreed by the engineer. The WMP may cover the types of waste and their estimated quantities, measures for reducing waste generation, on-site material reuse, quantities of waste requiring off-site disposal, disposal outlet, monitoring and auditing programme, implementation of the trip-ticket system, etc.

Chemical Waste

6.2.9 Under the Waste Disposal (Chemical Waste) (General) Regulation, all producers of chemical waste must register with EPD and treat their wastes, either utilising on-site plant licensed by EPD, or arranging for a licensed collector to transport the wastes to a licensed facility. The regulation also prescribes the storage facilities to be provided on site, including labelling and warning signs, and requires the preparation of written procedures and training to deal with emergencies such as spillages, leakages or accidents arising from the storage of chemical wastes.

Dredged Sediment

6.2.10 The Dumping at Sea Ordinance (DASO) came into operation in April 1995 and empowers the Director of Environmental Protection (DEP) to control the disposal and incineration of substances and particles at sea for the protection of the marine environment. Under the Ordinance, a dumping permit from the DEP is required for the disposal of regulated substances within and outside the waters of Hong Kong. The permit contains terms and conditions which include the following specifications, but not limited to:

- Type and quantity of substances permitted to be dumped;
- Location of the disposal grounds;
- Requirement of equipment for monitoring the disposal operations; and
- Environmental monitoring requirements.

6.2.11 Marine disposal of any dredged/excavated sediment is subject to control under DASO. Dredged/excavated sediment destined for marine disposal is classified based on its contaminant levels with reference to the Administrative Guidance – Management Framework for Disposal of Dredged/Excavated Sediment. The Administrative Guidance stipulated a set of sediment quality criteria or Chemical Exceedance Levels (CEL) for contaminants including metals, metalloid and organic pollutants.

6.2.12 The Administrative Guidance - Management Framework for Disposal of Dredged/Excavated Sediment sets out the procedure for seeking approval to and the management framework for marine disposal of dredged/excavated sediment. It outlines the requirements to be followed in assessing and classifying the sediment and explains the marine disposal arrangement for the classified material. The sediment quality criteria for the classification of sediment were referred as the Lower Chemical Exceedance Level (LCEL) and Upper Chemical Exceedance Level (UCEL). The LCEL and UCEL are presented in Appendix A of the Administrative Guidance. Subject to the results of the chemical screening, biological screening may be required to determine the disposal requirement of the sediment. There are three types of disposal options for dredged / excavated sediments stipulated in the Administrative Guidance as listed below.

- Type 1 – Open Sea Disposal;
- Type 2 – Confined Marine Disposal; and
- Type 3 – Special Treatment/Disposal.

6.3 Prediction and Evaluation of Impacts

Construction Phase

6.3.1 Based on the engineering design, only land-based works would be involved during the construction, i.e. no marine work is expected. The construction activities to be carried out for the Proposed Plant would generate a variety of wastes that can be divided into distinct categories based on their composition and ultimate method of disposal. The identified waste types include:

- construction and demolition (C&D) materials from the excavation and construction works;
- general refuse from the workforce;
- chemical waste from any maintenance of construction plant and equipment; and
- dredged sediment from maintenance dredging.

Construction and Demolition (C&D) Materials

6.3.2 C&D materials contain a mixture of inert and non-inert materials. The inert portion, such as soil, rock, concrete, brick and asphalt etc., is known as "public fill" and the non-inert portion, including metal, timber, paper, glass and general garbage is known as "C&D waste". C&D materials comprise unwanted materials generated during construction, including rejected structures and materials, materials which have been over-ordered and materials which have been used and discarded. Examples of C&D materials may include:

- wood from formwork and falsework (non-inert portion);
- material and equipment wrapping (non-inert portion);
- unusable/surplus concrete/grouting mixes (inert portion); and
- damaged/ surplus construction materials (inert portion such as bricks).

6.3.3 For the whole civil construction period, approximate 1,250 tonnes of C&D material will be generated, where there are around 950 tonnes from the demolition of existing buildings and around 300 tonnes from construction works. Demolished debris would comprise inert materials including reinforced concrete waste (700t), soil and gravel (100t), and other miscellaneous inert material (60t, e.g. glass, tiles), and non-inert materials including waste steel (60t) and timber (30t). Excavated soil (around 300t) from foundation works is expected to be the major inert C&D materials during construction. The Contractor is responsible for transfer of C&D materials to public fill reception facilities or landfills, depending on the type of material and the percentage of inert material. The public fill inert portion should be reused on site or disposed delivered to public fill reception facilities for beneficial uses. The non-inert portion of the C&D materials should be reused or recycled, and disposal of at designated landfills as the last resort. Waste steel in the C&D material will be delivered to recycler to minimize disposal quantity to landfill, among which around 20 tonnes of steel can be recycled.

6.3.4 C&D materials should be sorted on-site and be separated as public fill (inert portion) and C&D waste (non-inert portion). Due to the inert nature of most of the C&D materials generated, disposal would be unlikely to raise environmental concerns. The quantity of non-inert C&D materials is considered to be small and is not envisaged to have any adverse impact on the capacity of landfills.

Chemical Wastes

6.3.5 The Waste Disposal (Chemical Waste) (General) Regulation defines chemical waste as any substance being scrap material or unwanted substances specified in its Schedule 1 and provides a complete list of such substances. However, substances likely to be generated by construction activities would mainly arise from the maintenance of equipment. These may include, but not be limited to, the following:

- scrap batteries or spent acid/alkali;
- used engine oils, hydraulic fluids and waste fuel;
- spent mineral oils/cleaning fluids from mechanical machinery; and

- spent solvents/solutions, some of which may be halogenated, from equipment cleaning activities.

6.3.6 The amount of chemical waste generated from the construction activities depends on the Contractor's on-site maintenance requirements and the amount of plant utilised. However, it is anticipated that the quantity of chemical waste would be minimal, e.g. a few hundred litres, due to the short-term construction of the Proposed Plant.

6.3.7 To mitigate any potential chemical waste impact to the environment, chemical wastes should be handled according to the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*. Spent chemicals should be collected by a licensed collector for disposal at the CWTC or other licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.

6.3.8 Provided that the handling, storage and disposal of chemical wastes are in accordance with these requirements, adverse environmental impacts would be negligible.

General Refuse

6.3.9 Throughout construction, the workforce would generate general refuse comprising food scraps, waste paper, empty containers, etc. Release of general refuse into the roadside gully/surface channel should not be permitted as introduction of these wastes is likely to have detrimental effects on water quality in the area. Rapid and effective collection of site wastes would be required to prevent waste materials being blown around by wind, flushed or leached into the aquatic environment, and odour nuisance. The work sites may also attract pests and vermin if the waste storage area is not well maintained and cleaned regularly. Disposal of refuse at sites other than approved waste transfer or disposal facilities can also result in similar impacts.

6.3.10 General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D materials. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. Assuming a generation rate of 0.65 kg per worker per day and around 30 workers deployed for the construction works, approximately 20 kg of general refuse will be generated by the workforce per day, i.e. approximately 4,800 kg of total amount of general refuse in 12-month construction period. The collected general refuse will be recycled at recycling facilities and/or disposed of at designated landfill such as NENT or WENT.

6.3.11 With the implementation of the recommended waste management practices at the site, adverse environmental impacts arising from the storage, handling and transportation of refuse would not be expected.

Dredged Sediment

6.3.12 Maintenance dredging is required to remove the accumulated sediment at the nearshore of the Site in order to restore adequate water depth for safe vessel navigation. The proposed dredging works is required to be carried out once during the construction phase of the Project. The proposed dredging area is shown in **Figure 6.1**. Based on preliminary estimation and subject to further detailed analysis, the estimated volume of dredged sediment arising from the proposed maintenance dredging operation is expected to be approximately 4,000 m^3.

6.3.13 EPD conducts routine monitoring of the bottom sediment quality at 60 stations across the territory of Hong Kong waters. Among these 60 stations, the monitoring station Rambler Channel (VS10) is the closest to the Site. Location of VS10 is shown in **Figure 6.2**.

6.3.14 The sediment quality data at VS10 from 2019 to 2023, as extracted from the latest available EPD's Annual Marine Water Quality Report in 2023, is summarised in **Table 6.1**. As shown in **Table 6.1**, nickel, arsenic and all organic-polyaromatic hydrocarbons (PAHs) were below the LCEL in accordance with the Administrative Guidance. For cadmium, chromium, mercury, lead and total polychlorinated biphenyls (PCBs), the highest levels measured were equal to or above

the corresponding LCEL but below the UCEL. For copper, both the arithmetic mean value and highest level measured had exceeded the UCEL. For silver and zinc, the arithmetic mean value had exceeded the corresponding LCEL but below the UCEL and the highest levels measured were above the corresponding UCEL.

Table 6.1 Summary of Sediment Quality Data at EPD Monitoring Station VS10 (Year 2019 to 2023)[1]

Contaminants	Lower Chemical Exceedance Level (LCEL)	Upper Chemical Exceedance Level (UCEL)	Arithmetic Mean Concentration (Data in Brackets Indicate Ranges)
Metals (mg/kg dry wt.)			
Cadmium (Cd)	0.8	4	0.4 (0.2 – 0.8)
Chromium (Cr)	80	160	67 (28 - 120)
Copper (Cu)	65	110	**140** (48 - **250**)
Mercury (Hg)	0.3	1	0.22 (0.10 - 0.37)
Nickel (Ni)	40	40	29 (13 - 37)
Lead (Pb)	75	110	56 (37 - 79)
Silver (Ag)	1	2	1.6 (0.5 – **3.2**)
Zinc (Zn)	200	270	220 (99 - **330**)
Metalloid (mg/kg dry wt.)			
Arsenic (As)	20	42	11.6 (6.8 - 16.0)
Organic-PAHs (µg/kg dry wt.)			
Low Molecular Weight PAHs[2]	550	3160	120 (90 - 200)
High Molecular Weight PAHs[3]	1700	9600	370 (120 - 910)
Organic-non-PAHs (µg/kg dry wt.)			
Total PCBs[4]	23	180	20 (18 - 33)
Organometallics (µg TBT/L in interstitial water)			
Tributyltin	0.15	0.15	N/A[5]

Notes:
(1) Data extracted from EPD's Marine Water Quality in Hong Kong in 2023.
(2) Low molecular weight polyaromatic hydrocarbons (PAHs) include 6 congeners of molecular weight below 200, namely: Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene and Phenanthrene.
(3) High molecular weight polyaromatic hydrocarbons (PAHs) include 10 congeners of molecular weight above 200, namely: Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene and Indeno(1,2,3-cd)pyrene.
(4) Total PCBs results are derived from the summation of 18 congeners. If the concentration of a congener is below report limit (RL), the result will be taken as 0.5xRL in the calculation.
(5) Sediment data is not available.

6.3.15 As the Site is flat and ready for construction of the Proposed Plant, only minimum backfilling works would be required under the Project and thus the reuse of dredged sediment on site as backfilling materials is unlikely. In view of the above, the dredged sediment would be disposed of at the designated marine disposal areas according to the Administrative Guidance. The disposal options for the dredged sediment should follow the procedures in the Administrative Guidance. Subject to agreement with Marine Fill Committee (MFC) of CEDD, the marine disposal sites for Type 1 – Open Sea Disposal are typically South Cheung Chau and East of Ninepin. For Type 2 – Confined Marine Disposal, the marine disposal sites are typically East Sha Chau. For Type 3 – Special Treatment/Disposal, the project proponent should identify and agree with DEP the most appropriate treatment and/or disposal arrangement. Seabed dredging should be minimised and the dredged marine sediment should be disposed of in a manner which minimizes the loss of pollutants into solution or by re-suspension. Mitigation measures will also be proposed in order to alleviate the adverse environmental impacts, including potential odour / dust emissions and water quality impacts, brought by dredged marine sediment. Given the recommended mitigation measures are implemented, adverse environmental impacts arising from dredged marine sediment will be minimal.

Operation Phase

6.3.16 The major portion of solid waste arising from the Proposed Plant will be waste concrete, slurry, chemical wastes for maintenance of on-site plants and general refuse from site workers.

6.3.17 Waste concrete and slurry from washing will be diverted to the reclaimer to separate aggregates and slurry, after which the slurry will be directed into the wastewater tanks and the aggregate will be reused for production. The slurry water will then pass through a filter press to capture cement particle. The clear water will be collected in the clear water tank where the water will be pumped to the water tank for recycling. The solid waste including dried sludge cake collected by filter press and waste concrete / aggregates unfit for recycling will be disposed of at designated landfill such as NENT or WENT by waste disposal trucks. Estimated quantities for the solid waste is about 20 tonnes per day.

6.3.18 The Proposed Plant will be registered as a chemical waste producer prior to commencement of operation if chemical waste is expected to be generated. Estimated quantities for chemical waste is expected to be 1L per day. A licensed chemical waste collector will be engaged for proper disposal of the chemical waste at the CWTC or other licensed facility. Records of “Trip Ticket” will be maintained in the site office.

6.3.19 General refuse should be collected by on-site enclosed rubbish bins and collected by the waste collector on a daily basis or every two days, in order to minimize odour, pest and litter impact. Based on a generation rate of 1.02 kg[1] per worker per day and around 15 workers deployed at the plant, approximately 15.3 kg of general refuse will be generated daily during the operational phase. The general refuse collected by reputable waste collector will be recycled at recycling facilities and/or disposed of at designated landfill such as NENT or WENT.

6.3.20 Provided that the environmental control measures are properly implemented, no adverse environmental impact would be anticipated with respect to solid waste management. Formwork should avoid using standard wooden panels, instead alternative materials with high potential for reuse should be considered, such as steel formwork or plastic facing.

[1] Per capita generation rate of waste = Per capita disposal rate / (1 - recovery rate). With reference to the Monitoring of Solid Waste in Hong Kong 2023, the per capita disposal rate and recovery rate of commercial and industrial (C&I) waste in 2023 is 0.55 kg/person/day and 46% respectively.

6.4 Mitigation Measures

Construction Phase

Construction and Demolition Materials

6.4.1 Careful design and planning together with good site management help reducing over-ordering and generation of C&D material such as concrete, mortar and cement grouts.

6.4.2 The inert C&D materials with suitable characteristics / size should be reused on-site as far as practicable. When disposing C&D material at public filling reception facility for beneficial reuse, the material should only consist of soil, rock, concrete, brick, cement plaster / mortar, inert building debris, aggregates and asphalt. The material should be free from household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the Filling Supervisor. Prior to disposal of non-inert C&D materials, such as wood, steel, and other metals should be separated for reuse and/or recycling where practicable so as to minimize the quantity of waste to be disposed of at landfill.

6.4.3 Suitable areas should be setup within the site for sorting and providing temporary stockpiling of C&D materials. The following measures should be undertaken to abate the potential environmental impacts or nuisance:

- Surface of stockpiled soil should be regularly wetted with water especially during dry season;
- Disturbance of stockpiled should be minimized;
- Stockpiled soil should be properly covered with tarpaulin especially during predicted heavy storms; and
- Stockpiled areas should be enclosed where space is available.

6.4.4 A trip-ticket system should be implemented to monitor the delivery of C&D materials to the designated public fill reception facility and landfill, and to avoid any fly-tipping. A recording system should be set up to keep track of the amount of waste generated, recycled and disposed, including the disposal sites. Warning signs should be put up to remind the designated disposal sites. CCTV should also be installed at the vehicular entrance and exit of the site to monitor handling of C&D materials disposal. To prohibit illegal dumping and landfilling of C&D materials, the dump trucks engaged on site should be equipped with GPS or equivalent automatic system for real time tracking and monitoring of their travel routings, parking locations and disposal activities. The dump trucks employed should be covered or with the use of enclosed containers to minimize windblown litter and dust during waste transportation.

Chemical Waste

6.4.5 For those processes which generated chemical waste, it may be possible to find alternative to eliminate the use of chemicals, to reduce the quantities generated or to select a chemical type with less impact on environmental, health and safety as far as possible.

6.4.6 Should any chemical waste be produced at the construction site, the Contractor will be required to register with the EPD as chemical waste producer and to follow the guidelines stated in the *Code of Practice on the Packaging, Labelling and Storage of Chemicals Wastes*. Chemical waste should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical waste (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while chemical waste that cannot be recycled should be disposed of at either the CWTC, or another licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.

General Refuse

6.4.7 General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D materials on a daily basis to minimize odour, pest

and litter impacts. The collected general refuse would be disposed of at designated landill. Clearly labelled recycling bins should be provided on site in order to encourage segregation and recycling of aluminium and plastic wastes, and wastepaper in order to reduce general refuse production.

6.4.8 The contractor should carry out an education programme for workers in avoiding, reducing, reusing and recycling of material generation. Posters and leaflets advising on the usre of the bins should also be provided onsite as reminders. The recycle waste materials should then be collected by reliable waste recycling agents on a daily basis.

Dredged Sediment

6.4.9 The sediment should be dredged, handled, transported and disposed of in a manner that would minimise adverse environmental impacts.

6.4.10 For off-site disposal, the basic requirements and procedures specified under the Administrative Guidance shall be followed. Marine Fill Committee (MFC) of CEDD is managing the disposal facilities in Hong Kong for the dredged / excavated sediment, while EPD is the authority of issuing marine dumping permit under DASO.

6.4.11 For the purpose of site allocation and application of marine dumping permit, Sediment Sampling and Testing Plan (SSTP) shall be submitted to EPD for agreement under DASO. Site investigation works, based on the SSTP, shall be carried out in order to confirm the disposal arrangements of the dredged sediment. A Sediment Quality Report (SQR), reporting the chemical and biological screening results and the estimated quantities of sediment under different disposal options, shall then be submitted to EPD for agreement under DASO. The dredged sediments would be disposed of according to its determined disposal options and the Administrative Guidance. Previously obtained data or known history of the sediment in the vicinity should be submitted to DEP for consideration of the most appropriate arrangements for handling these materials.

6.4.12 To ensure disposal space is allocated for the Project, the project proponent should be responsible for obtaining agreement from MFC on the allocation of the disposal site. The contractor(s), on the other hand, should be responsible for the application of the marine dumping permit under DASO from EPD for the sediment disposal.

6.4.13 In order to minimise the potential odour / dust emissions during dredging and transportation of the sediment, the sediments shall be wetted during dredging / material handling and shall be properly covered when placed on trucks or barges. Loading of the dredged sediments to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.

6.4.14 If applicable, the barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP.

Operation Phase

Solid Waste from Concrete Production

6.4.15 Waste concrete /aggregates will be reclaimed by reclaimer for recycling in production as detailed in **Section 6.3.17**. The solid waste including dried sludge cake collected by filter press and waste concrete / aggregates unfit for recycling will be disposed of at designated landfill by waste disposal trucks. The dump trucks employed should be covered or with the use of enclosed containers to minimize windblown litter and dust during waste transportation. A trip-ticket system should also be implemented to monitor the delivery of C&D materials to the designated landfill and to avoid any fly-tipping.

Chemical Waste

6.4.16 For those processes which generated chemical waste, it may be possible to find alternative to eliminate the use of chemicals, to reduce the quantities generated or to select a chemical type with less impact on environmental, health and safety as far as possible.

6.4.17 Should any chemical waste be produced at the construction site, the Contractor will be required to register with the EPD as chemical waste producer and to follow the guidelines stated in the *Code of Practice on the Packaging, Labelling and Storage of Chemicals Wastes*. Chemical waste should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical waste (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while chemical waste that cannot be recycled should be disposed of at either the CWTC, or another licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.

General Refuse

6.4.18 General refuse should be stored in enclosed bins or compaction units. A reputable waste collector should be employed by the contractor to remove general refuse from the site on a daily basis to minimize odour, pest and litter impacts. The collected general refuse would be disposed of at designated landill. Clearly labelled recycling bins should be provided on site in order to encourage segregation and recycling of aluminium and plastic wastes, and wastepaper in order to reduce general refuse production.

6.4.19 The contractor should carry out an education programme for workers in avoiding, reducing, reusing and recycling of material generation. Posters and leaflets advising on the usre of the bins should also be provided onsite as reminders. The recycle waste materials should then be collected by reliable waste recycling agents on a daily basis.

7 LAND CONTAMINATION

7.1 Introduction

7.1.1 This section presents the assessment of potential land contamination implication associated with the proposed development under the Project.

7.2 Environmental Standards and Guidelines

7.2.1 The relevant environmental guidelines and standards for the assessment of land contamination impacts include the following:

- Guidance Note for Contaminated Land Assessment and Remediation (Guidance Note) (EPD, April 2023)

  The Guidance Note sets out the requirements for proper assessment and management of potentially contaminated sites such as oil installations (e.g. oil depots, petrol filling stations), gas works, power plants, shipyards/boatyards, chemical manufacturing/processing plants, steel mills/metal workshops, car repairing/dismantling workshops and scrap yards. In addition, this Guidance Note provides guidelines on how site assessments should be conducted and analysed and suggests practical remedial measures that can be adopted for the remediation of contaminated sites.

- Practice Guide for Investigation and Remediation of Contaminated Land (Practice Guide) (EPD, April 2023)

  This guide outlines typical investigation methods and remediation strategies for the range of potential contaminants typically encountered in Hong Kong.

- Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management (Guidance Manual) (EPD, April 2023)

  The Guidance Manual introduces the risk-based approach in land contamination assessment and present instructions for comparison of soil and groundwater data to the Risk-Based Remediation Goals (RBRGs) for 54 chemicals of concern (COCs) commonly found in Hong Kong. The RBRGs were derived to suit Hong Kong conditions by following the international practice of adopting a risk-based methodology for contaminated land assessment and remediation and were designed to protect the health of people who could potentially be exposed to land impacted by chemicals under four broad post restoration land use categories. The RBRGs also serve as the remediation targets if remediation is necessary.

7.3 Assessment Methodology

7.3.1 A site appraisal was conducted to identify any current / historical potentially contaminating land uses within the Site. The site appraisal, including site walkover and desktop review, was carried out with reference to the Guidance Note, Guidance Manual and Practice Guide.

7.3.2 The site walkover was conducted within the Site to identify any existing contaminative land uses and contamination sources (or 'hotspots'). For the desktop review, the following information was reviewed:

- Available records of dangerous goods, chemical wastes, chemical spillage/leakage and fire incidents from Environmental Protection Department (EPD) and Fire Services Department (FSD);
- Bonding Engineering & Construction Co. Ltd, *Ground Investigation Report for Proposed Concrete Batching Plant in Lot 14 & 15 Tam Kon Shan Road, Tsing Yi,* June 2014;
- Hong Kong Geological Survey Map (Series HGM20) – Sheet No. 6 (1:20,000); and
- Selected aerial photographs and topographic maps held by the Lands Department.

7.3.3 If potentially contaminated land use(s) were identified within the Site, the potential land contamination impacts to the Project would be evaluated and the appropriate mitigation measures would be recommended.

7.4 Description of Environment

7.4.1 The Site is located at Tsing Yi Town Lot Nos. 14 & 15 and adjoining Government Land, Tam Kon Shan Road, Tsing Yi. The total site area is approximately 4,335 m^2. The Site is bounded by the sea to the north, Tam Kon Shan Road to the south, dockyards and industrial uses at the east and west. The site location plan is shown in **Figure 1.1**.

7.5 Identification of Potential Land Contamination Impact

Review of Historical Land Use

7.5.1 A review of the aerial photographs covering the Site has been undertaken. The aim of this review is to evaluate potential land contamination associated with historical land uses at the Site. A summary of the historical land uses is presented in **Table 7.1** and reviewed aerial photographs are shown in **Appendix 7.1**.

Table 7.1 Summary of Historical Land Uses

Year (Photo Reference No.)	Drawing No. in Appendix 7.1	Site Description
1963 (#1963-6348)	AP1	The Site was occupied by open water.
1973 (#04179)	AP2	The eastern and western portions of the Site were reclaimed. No other significant land uses changes were observed.
1983 (#47316)	AP3	The Site was further reclaimed and a shipyard, open storage and slipway were observed. No other significant land uses changes were observed.
1993 (#A36015)	AP4	A jetty was observed in the northwest of the Site. No other significant land uses changes were observed.
2003 (#CW53780)	AP5	The shipyard was abandoned. No other significant land uses changes were observed.
2013 (#CS45547)	AP6	The western portion of the Site was converted into private parking area. No other significant land uses changes were observed.
2023 (#E193635C)	AP7	The open storage was cleared and slipway was demolished. No other significant land uses changes were observed.

Source: *Survey and Mapping Office, Lands Department*

7.5.2 Based on the review of aerial photographs, the Site had been used as a shipyard, open storage, car parking, jetty and slipway. Shipyard and open storage are considered as a potentially contaminating land uses which may have potential land contamination implications to the Project.

Site Walkover

7.5.3 Site walkover was conducted on 12 December 2024 to investigate any land contamination issues associated with the current land uses and activities within the Site that may have potential land contamination implications to the Project. Questionnaire was conducted within available site representatives and the site walkover checklist is attached in **Appendix 7.2**. Findings of the site walkover, including the photographic records and site layout plan, are shown in **Figure 7.1**.

7.5.4 The Site is currently comprised of two buildings (the western building (approximately 939 m^2) and the eastern building (approximately 414 m^2)), an open area in the eastern portion (approximately 515 m^2), an access road in the central portion (approximately 985 m^2), a jetty in the northwest and the sea in the northeastern and northwestern portions of the Site.

7.5.5 Based on the site walkover, except for the northeastern and northwestern portions of the Site which are covered by the sea, the Site is generally concrete paved and largely vacant with private parking areas observed in the western building and the open area in the eastern portion of the Site. As reported by the site staff, the Site is an abandoned shipyard with ship building, repair and maintenance activities previously carried out in the western building and ship parts manufacturing previously carried out in the eastern building, while the central portion of the Site had been used as an access road. Ship repair and maintenance activities were also reportedly carried out in a small portion of the open area adjacent to the north of the eastern building (approximately 91 m^2). The shipyard was reportedly in operation between 1976 and 1994 and has been used as a private parking site since 2013.

7.5.6 Based on the site walkover and as reported by the site staff, there is a disused dangerous goods (DG) store located in the western building previously used for the storage of oxy-acetylene cylinders, and has been used as a storeroom for the storage of office / household appliances and equipment since operation of the shipyard was ceased (refer to Photo 0322 in **Figure 7.1**). As the disused DG store was used for the storage of gas only, potential land contamination issue associated with the disused DG store is not anticipated.

7.5.7 In addition, small quantities of chemicals including engine oil, hydraulic oil, turpentine and paint were observed within the eastern building and outside the disused DG store / storeroom of the Site above a covered box / wooden plank on concrete paved floor or directly on the concrete paved floor (refer to Photos 8518 and 8534 in **Figure 7.1**). According to the site staff, these chemicals are temporarily stored on-site and are used off-site only. No chemical spillage, oil stains or stressed vegetation were observed in the vicinity of the chemical storage areas. Given the chemicals stored were temporary and are reportedly used off-site only, and that no signs of land contamination were observed in the vicinity of the chemical storage areas, potential land contamination issue associated with the chemical storages is not anticipated.

7.5.8 Based on the above, no current potentially contaminating land uses / activities were identified at the Site.

Acquisition of Information from Government Departments

7.5.9 The Environmental Protection Department (EPD) and Fire Services Department (FSD) have been contacted for (i) records on any release of chemicals and chemical waste, (ii) records of dangerous goods (DG), (iii) records of Chemical Waste Producer(s) (CWP(s)) and (iv) records of reported fire incidents within the Site. EPD and FSD's replies on the request have been received and attached in **Appendix 7.3**. The Information is summarised below.

Environmental Protection Department

7.5.10 Based on the reply given by EPD on 20 December 2024, there were no chemical spillage / leakage records within the Site. Further to EPD's reply, a review of the available CWP records at EPD Southorn Office was undertaken on 7 January 2025. According to the records reviewed, there is 1 valid CWP record identified within the Site. The details of the CWP record are summarised in **Table 7.2** below. Location of the CWP is shown in **Figure 7.1**.

Table 7.2 Summary of Chemical Waste Producer within the Site

CWP ID	Status	Company Name	Address	Business Nature
1	Valid	Supercraft (HK) Ltd	T.Y.T.L. 14 & 15, Tsing Yi, N.T.	Boat building and repairing

7.5.11 The CWP record is likely to be associated with the operation of the former shipyard. There could be potential land contamination issues associated with former boat building and repairing activities carried out at the Site.

Fire Services Department

7.5.12 Based on the reply given by FSD on 16 January 2025, there were no records of DG license, fire incident or incident of spillage / leakage of DG found within the Site.

Site Geology

7.5.13 According to the 1:20,000 Geological Map Sheet 6 (Yuen Long), the Site is underlain by Fill. According to the available ground investigation (GI) records, the Site is located on reclaimed ground having a stratum of Fill with thickness of about 1.50m to 6.50m. Underlying the Fill is a relatively thin layer of Marine Deposit with thickness of about 3.00m to 4.50m and/or Alluvium with thickness of about 0.45m to 3.50m. Completely to highly decomposed Granodiorite ranged from 2.06m to 7.50m thickness was encountered beneath the Alluvium. The bedrock encountered was moderately to slightly decomposed Granodiorite, with reduced levels ranged from -1.65 mPD to -11.42 mPD.

7.5.14 Referring to the available groundwater monitoring records, shallow groundwater table was identified, which is generally from 1.8m to 2.5m below ground level.

Summary of Site Appraisal

7.5.15 Based on the site appraisal, the Site was formerly used as a shipyard (from 1976 to 1994) and open storage (from 1983 to 2023). The possible contaminating activities may include storage, handling and use of fuels and solvents (e.g. for thinning paints, cleaning and degreasing metal parts of equipment) for ship building, repair and maintenance activities, transfer and disposal of scrap metal, metal shaving dust and paint chips during manufacturing of ship parts. Locations of the concerned areas are shown in **Figure 7.2**. Details of the site appraisal are summarised in **Table 7.3**. Intrusive site investigation (SI) works is recommended to confirm any land contamination in the Site.

Future Land Use

7.5.16 Land contamination assessment on the potentially contaminated sites would need to be evaluated against the RBRGs and if there were presence of non-aqueous phase liquid (NAPL), soil saturation (C_{sat}) / solubility limits, as stipulated in Table 2.1 and Table 2.2 of the Guidance Manual.

7.5.17 The RBRGs were developed based on a risk assessment approach to suit the local environmental conditions and community needs in Hong Kong. Decisions on contaminated soil and groundwater remediation are based on the nature and extent of the potential risks that are posed to human receptors as a result of exposure to chemicals in the soil and/or groundwater. RBRGs were developed for four different land use scenarios as below reflecting the typical physical settings in Hong Kong under which people could be exposed to contaminated soil and groundwater:

- Urban Residential
- Rural Residential

- Industrial
- Public Park

7.5.18 As the future land use of the Site would be a concrete batching plant, the RBRGs for Industrial land use scenario are considered appropriate for the assessment. The proposed RBRGs land use scenario recommended for the Site is summarised in **Table 7.3**. Relevant RBRG levels, C_{sat} and solubility limits are shown in **Appendix 7.4**.

Table 7.3 Summary of Site Appraisal

Location (Affected Land Lot No.)[1]	Current Land Use	Site Observation / Current Potentially Contaminating Activities / Information from EPD and FSD	Past Potentially Contaminating Land Uses / Activities	Approx. Site Area (m^2)	Potential COCs[2]	Future Land Uses	RBRGs Land Use Scenario
The Site (TYTL Nos. 14 & 15 and STT538)	Private parking site	The Site is comprised of two buildings (the western building and the eastern building), an open area in the eastern portion, an access road in the central portion, a jetty in the northwest and the sea in the northeastern and northwestern portions of the Site. The Site is generally concrete paved and largely vacant with private parking areas in the western building and the open area in the eastern portion of the Site. There is a disused DG store located in the western building previously used for the storage of oxy-acetylene cylinders and has been used as a storeroom for the storage of office / household appliances and equipment since operation of the shipyard was ceased. In addition, small quantities of chemicals including engine oil, hydraulic oil, turpentine and paint were observed within the eastern building and outside the disused DG store / storeroom of the Site above a covered box / wooden plank on concrete paved floor or directly on the concrete paved floor. According to the site staff, these chemicals are stored on-site temporarily and are used off-site only. No chemical spillage, oil stains or stressed vegetation were observed in the vicinity of the chemical storage areas. Given the disused DG store was used for the storage of gas only, the chemicals observed were stored temporarily and are reportedly used off-site only, and that no signs of land contamination were observed in the vicinity of the chemical storage areas, potential	Shipyard (from year 1976 to year 1994) and open storage (from year 1983 to year 2023). The possible contaminating activities may include storage, handling and use of fuels and solvents (e.g. for thinning paints, cleaning and degreasing metal parts of equipment) for ship building, repair and maintenance activities, transfer and disposal of scrap metal, metal shaving dust and paint chips during manufacturing of ship parts.	4,335 m^2 Western Building: 939 m^2 Eastern Building: 414 m^2 Former Maintenance Area: 91 m^2 Former Open Storage: 985 m^2	• Metals (Full List) • Free cyanide • VOCs (Full List) • SVOCs (Full List) • PCRs • TBTO • Dioxins • Furans	Concrete batching plant	Industrial

Location (Affected Land Lot No.)[1]	Current Land Use	Site Observation / Current Potentially Contaminating Activities / Information from EPD and FSD	Past Potentially Contaminating Land Uses / Activities	Approx. Site Area (m^2)	Potential COCs[2]	Future Land Uses	RBRGs Land Use Scenario
		land contamination issue associated with the chemical storages is not anticipated. Based on the above, no current potentially contaminating land uses / activities were identified at the Site. Based on information from the EPD and FSD, there were no records of chemical spillage / DG / fire incident for the Site. However, there is 1 valid registered CWP associated with boat building and repairing at the Site.					

Note:
1. Refer to **Figure 7.1** for the site location.
2. The potential chemicals of concern (COCs) were determined based on findings of the site appraisal and the Practice Guide and took into account current and historical land uses.
   - Full list refers to the parameters as shown in Table 2.1 – Risk-Based Remediation Goals (RBRGs) for Soil & Soil Saturation Limit and Table 2.2 – RBRGs for Groundwater and Solubility Limit under Metals, Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs) and Petroleum Carbon Ranges (PCRs) in the Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management.
   - TBTO: Tributyltin oxide

7.6 Prediction and Evaluation of Potential Land Contamination Impact

7.6.1 Based on findings of the site appraisal, the Site was formerly used as a shipyard and open storage which may have potential land contamination implications to the Project.

7.6.2 As observed during the site walkover and according to information provided by the site staff, only limited and small-scale ship building, repair and maintenance activities were previously carried out at the eastern and western portions of the Site (total area of approximately 1,444 m^2) and the Site was concrete paved. The former open storage in the central portion of the Site was also of small-scale (approximately 985 m^2) and was concrete paved. In addition, based on information from the site staff, EPD and FSD, there were no records of chemical spillage / fire incident at the Site. Extensive contamination due to the operation of the former shipyard and open storage is not envisaged.

7.6.3 Land contamination assessment including intrusive site investigation (SI) works and, if required, remediation works are recommended to be carried out at a later stage of the Project prior to commencement of construction works and should follow EPD's Guidance Manual, Guidance Note and Practice Guide. Any soil/groundwater contamination would be identified and properly treated prior to the commencement of construction works under the Project. The potential Chemicals of Concern (COCs) may include metals, volatile organic chemicals (VOCs), semi-volatile organic chemicals (SVOCs), petroleum carbon ranges (PCRs), free cyanide, tributyltin oxide (TBTO), dioxins and furans and there are commercially available technologies that could tackle these COCs.

7.6.4 Given the above, land contamination impacts are considered not insurmountable to the Project if the recommended further works as outlined in **Section 7.7** were followed and contaminated soil and groundwater (if any) were properly treated using appropriate remediation methods and according to EPD's agreed Remediation Action Plan (RAP).

7.7 Recommended Further Works

7.7.1 A detailed land contamination assessment, including site appraisal (desktop review and site walkover) and SI works, shall be carried out in next stage of the Project prior to commencement of construction works to confirm the presence of land contamination within the Site. The detailed land contamination assessment will be carried out according to EPD's Guidance Manual, Guidance Note and Practice Guide.

7.7.2 In order to determine the extent and nature of any potentially contaminated areas, a Contamination Assessment Plan (CAP), detailing findings of the site appraisal and requirements for SI works would need to be submitted to EPD for endorsement. The SI works would need to be carried out according to the endorsed CAP. Following to the completion of the SI works, a Contamination Assessment Report (CAR) would be submitted to EPD for approval to document the findings of the SI works and the estimated extent of any contamination. If soil or groundwater contamination were identified, a Remediation Action Plan (RAP), discussing the appropriate remedial methods for the identified soil / groundwater contamination, would also be submitted to EPD for approval.

7.7.3 Remediation works (if necessary) would need be carried out according to the approved RAP. Upon completion of remediation work, a Remediation Report (RR) should be prepared and submitted to EPD to demonstrate that the decontamination work is adequate and is carried out in accordance with the approved CAR and RAP. No construction works, other than decontamination work, should be carried out before the approval of RR by EPD.

8 CONCLUSION

8.1 General

8.1.1 In order to confirm the acceptability of the Subject Site in respect of environmental aspects, an Environmental Assessment was carried out to examine the impacts associated with the proposed development during construction and operation phases. Potential environmental impacts including air quality, noise, water quality, waste management and land contamination issues associated with construction and operation of the proposed concrete batching plant have been assessed. It is concluded that no adverse environmental impacts on the Subject Site would be anticipated. The key findings of this assessment are summarized in the following sections.

8.2 Air Quality

8.2.1 Minor construction air quality impact would be arisen from the construction activities during the erection of the proposed plant. With the implementation of adequate air quality control measures, no adverse construction air quality impact shall be anticipated.

8.2.2 The design of the Plant and its operation plan has incorporated air pollution control technologies and control measures to abate the air quality impact generated by the production of wet concrete. Together with proper operation and maintenance practices, the air quality impact due to the operation of the Proposed Plant shall be at acceptable level and has been confirmed by the model predictions. Cumulative air quality impact arising from the Proposed Plant, and vehicular emission and marine emission within 500m assessment area have been evaluated. The prediction results indicated that the cumulative NO_2, SO_2, RSP and FSP concentrations at all existing ASRs would comply with AQOs. No adverse air quality impact due to the Proposed Plant would be anticipated.

8.3 Noise

8.3.1 With the implementation of adequate construction noise mitigation measures, it is anticipated that there would be no unacceptable noise impact on nearby NSR during the construction phase.

8.3.2 There is no existing and planned sensitive use in the vicinity. No adverse impact would therefore be anticipated. No further mitigation measure is required.

8.4 Water Quality

8.4.1 Provided that proper site management practices are followed to prevent construction site runoff and drainage water with high SS from entering nearby nullah and downstream sensitive receivers during construction phase, no adverse water quality impact is anticipated.

8.4.2 No adverse water quality impact would be expected as no wastewater will be discharged from the plant during operation. All production wastewater will be recycled. Domestic sewage from workforce will be collected and discharged via the public sewerage network.

8.5 Waste Management

8.5.1 Provided that the identified waste arisings of the construction works are handled, transported and disposed of using approved methods and that the recommended good site practices are adhered to, adverse environmental impacts are not anticipated.

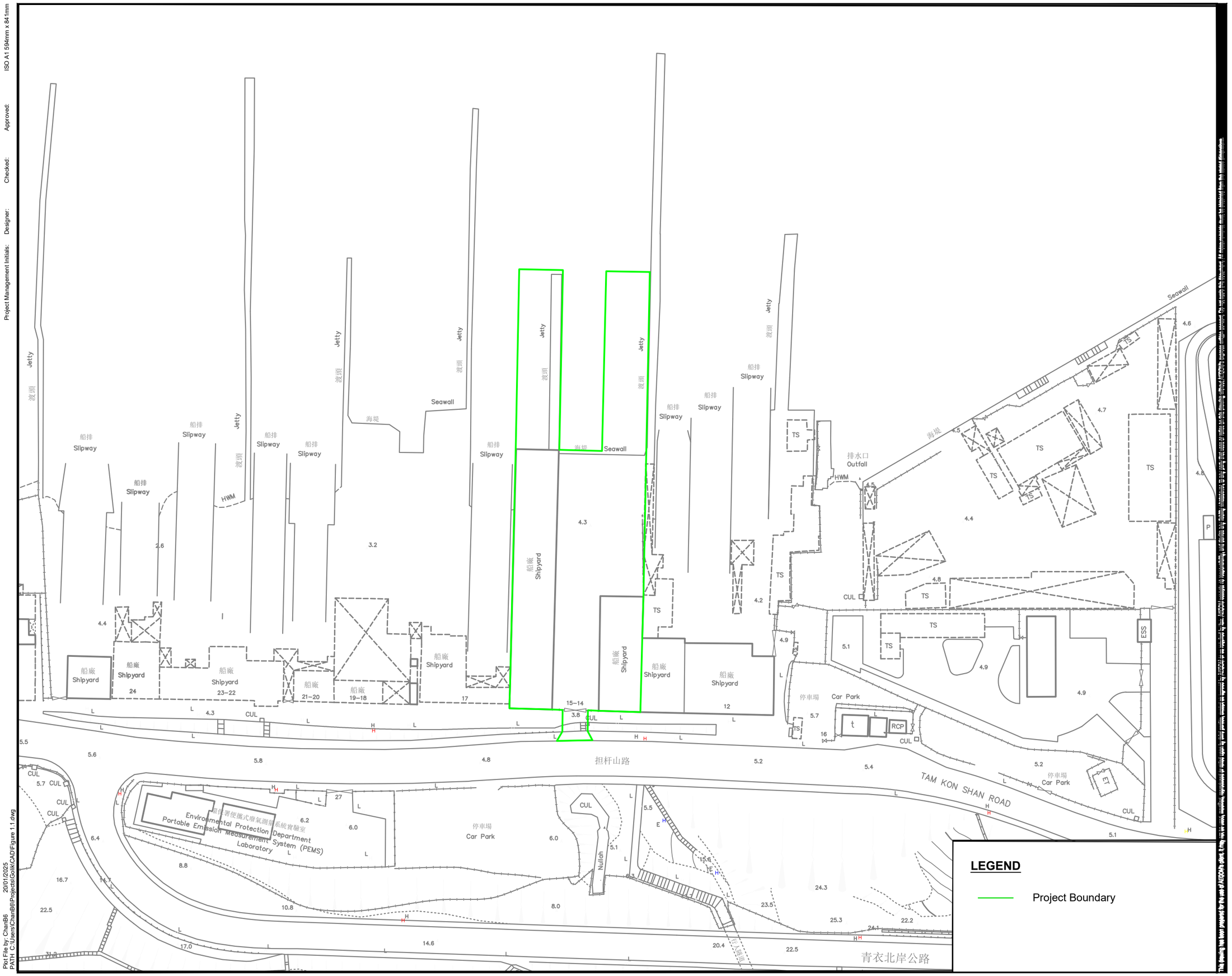
8.5.2 Provided that the environmental control measures are properly implemented, no adverse environmental impact would be anticipated with respect to solid waste management.

8.6 Land Contamination

8.6.1 Based on findings of the site appraisal, the Site was formerly used as a shipyard and open storage which may have potential land contamination implications to the Project. Further works including site appraisal, submission of CAP, intrusive SI works and, if required, remediation works were recommended to be carried out at next stage of the Project prior to commencement of the construction works and would need to follow EPD's Guidance Manual, Guidance Note and Practice Guide. With the implementation of the recommended further works for the Project, any soil/groundwater contamination would be identified and properly treated prior to the construction works. No insurmountable land contamination impacts to the Project are therefore anticipated.

FIGURES

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



LEGEND

Project Boundary

AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

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DIMENSION UNIT

KEY PLAN

PROJECT NO. 60739290

CONTRACT NO. N/A

SHEET TITLE

Location Plan

SHEET NUMBER

60739290/EA/FIGURE 1.1

Plot File by: ChanB6 20/01/2025
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ISO A1 594mm x 841mm

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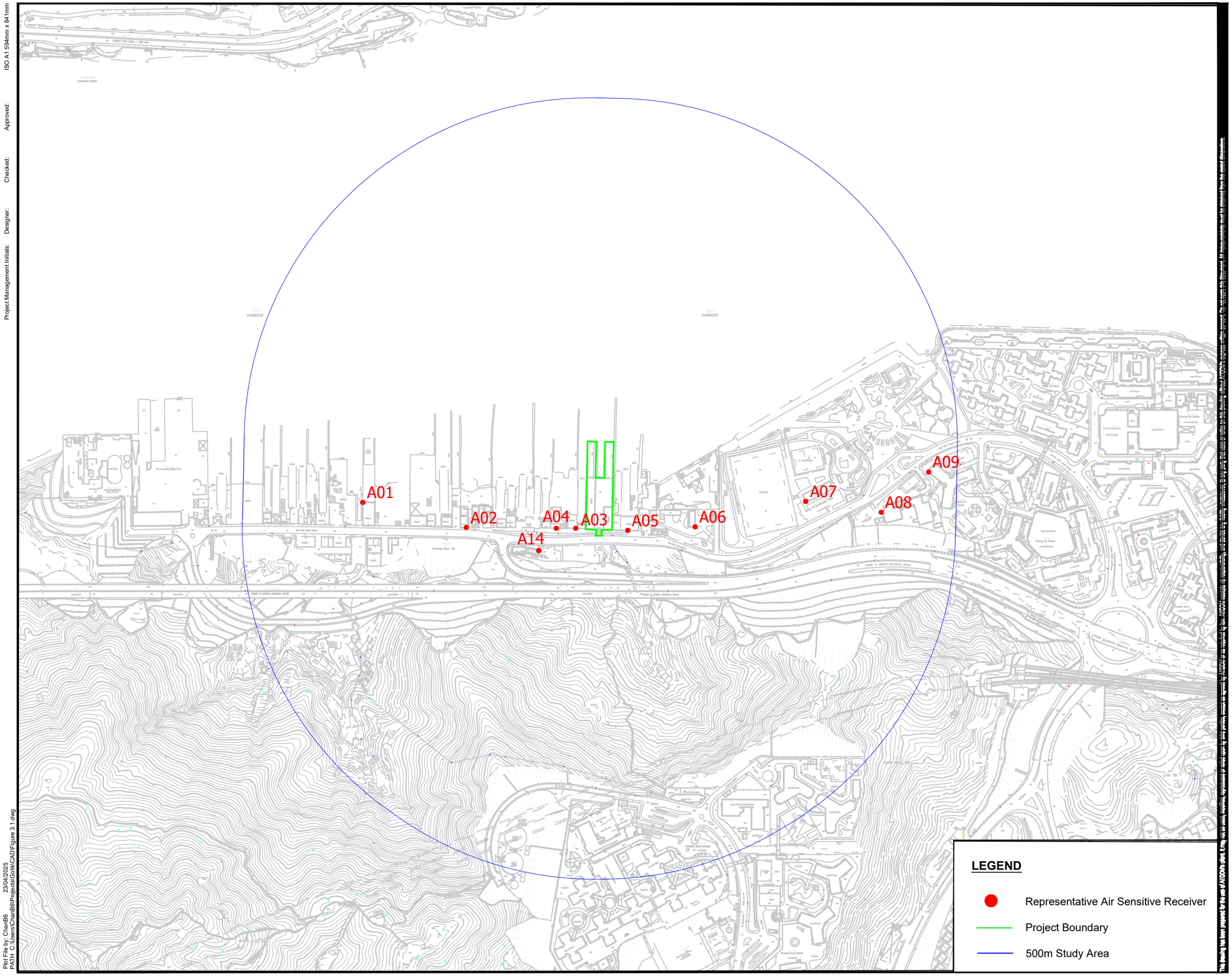

LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

Plot File by: ChanB6
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.1.dwg
23/04/2025

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A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

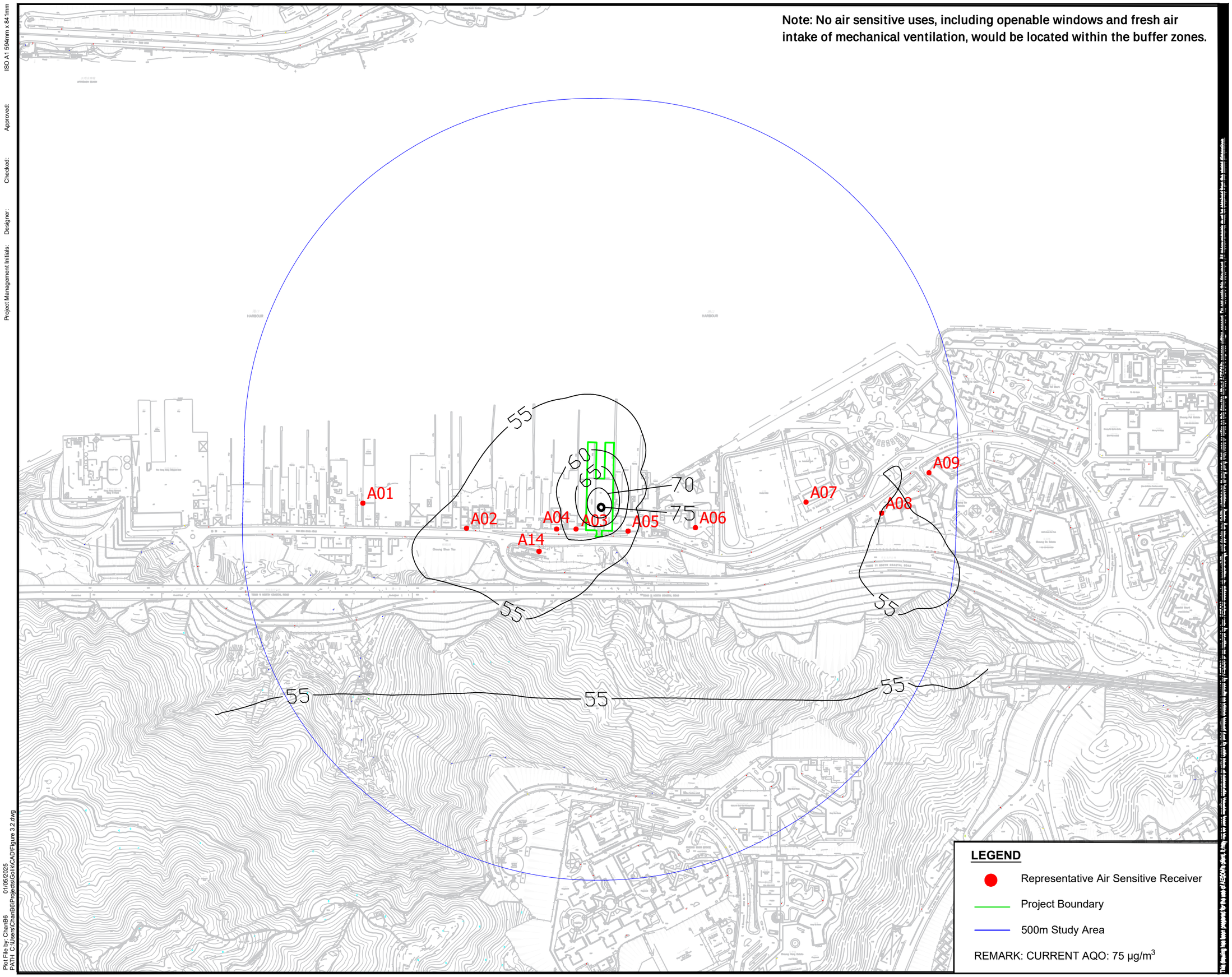
SHEET TITLE

Location of Representative Air Sensitive Receivers

SHEET NUMBER

60739290/EA/FIGURE 3.1

Note: No air sensitive uses, including openable windows and fresh air intake of mechanical ventilation, would be located within the buffer zones.



LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 75 μg/m^3

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KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

10th Highest Cumulative Daily RSP Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.2

ISO A1 594mm x 841mm
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ISO A1 594mm x 841mm

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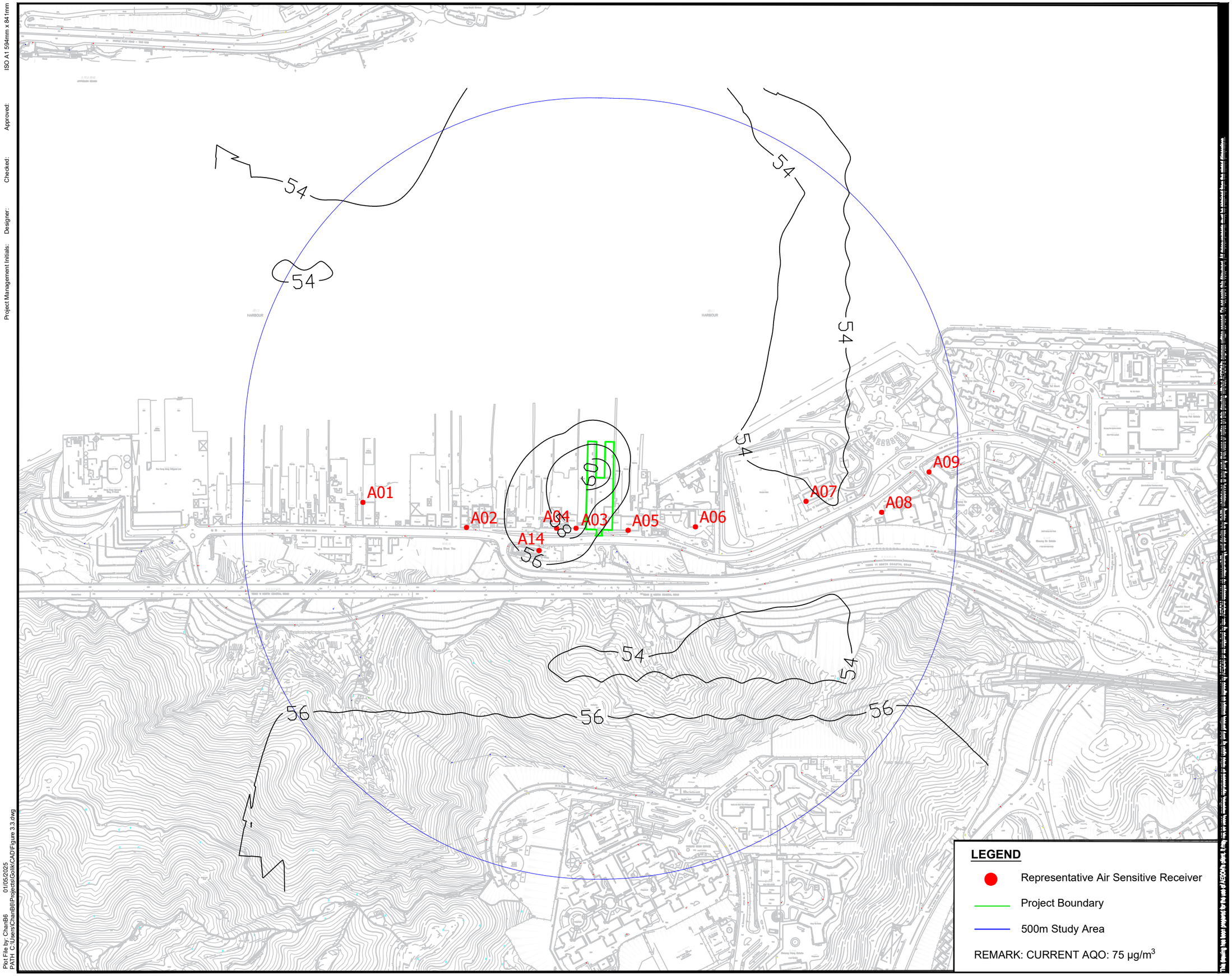

LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 75 μg/m^3

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PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.3.dwg

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KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

10th Highest Cumulative Daily RSP Concentration (μg/m3) at 10m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.3

ISO A1 594mm x 841mm

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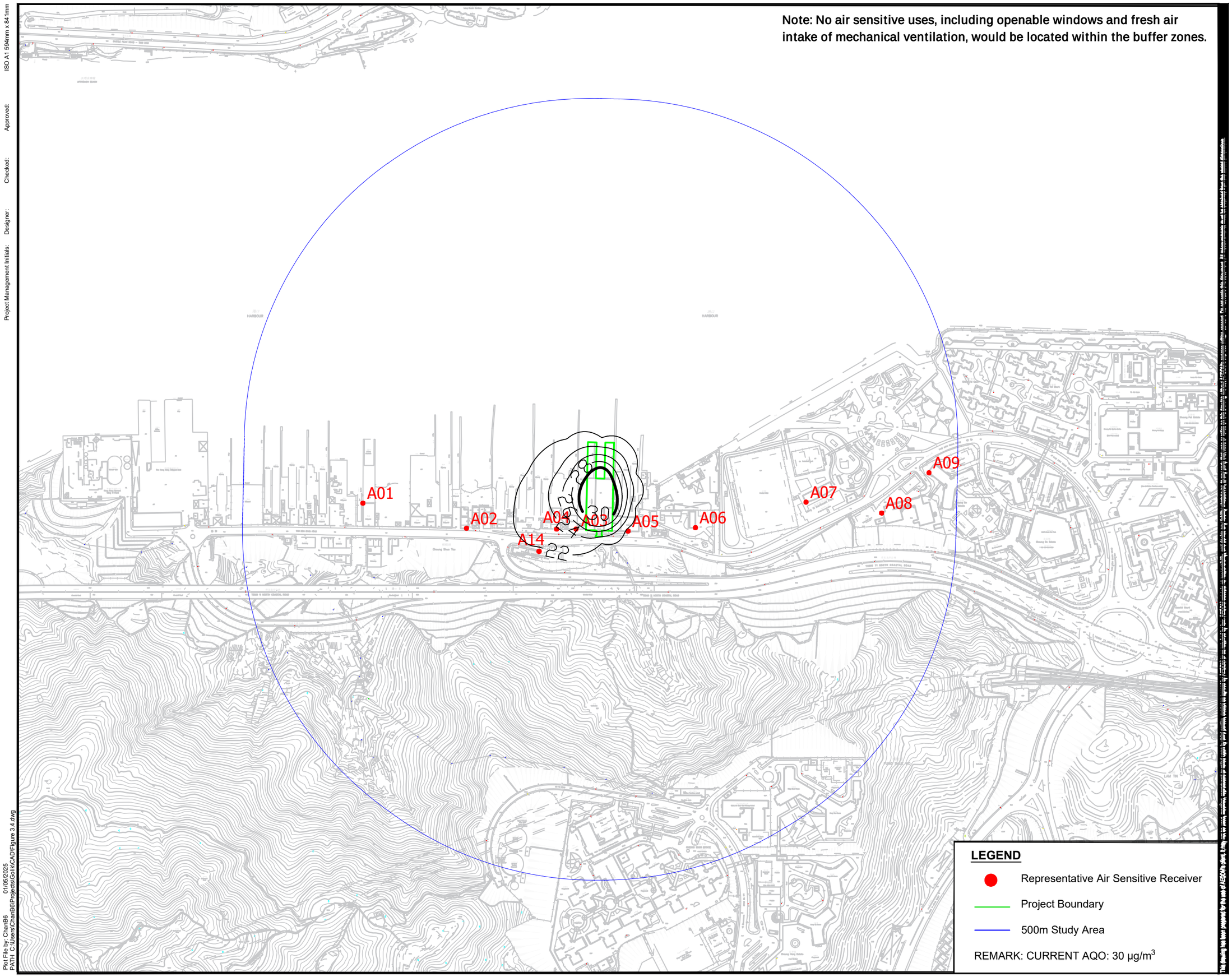
Project Management Initials:

Note: No air sensitive uses, including openable windows and fresh air intake of mechanical ventilation, would be located within the buffer zones.



LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 30 μg/m^3

Plot File by: ChanB6 01/05/2025
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.4.dwg

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KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

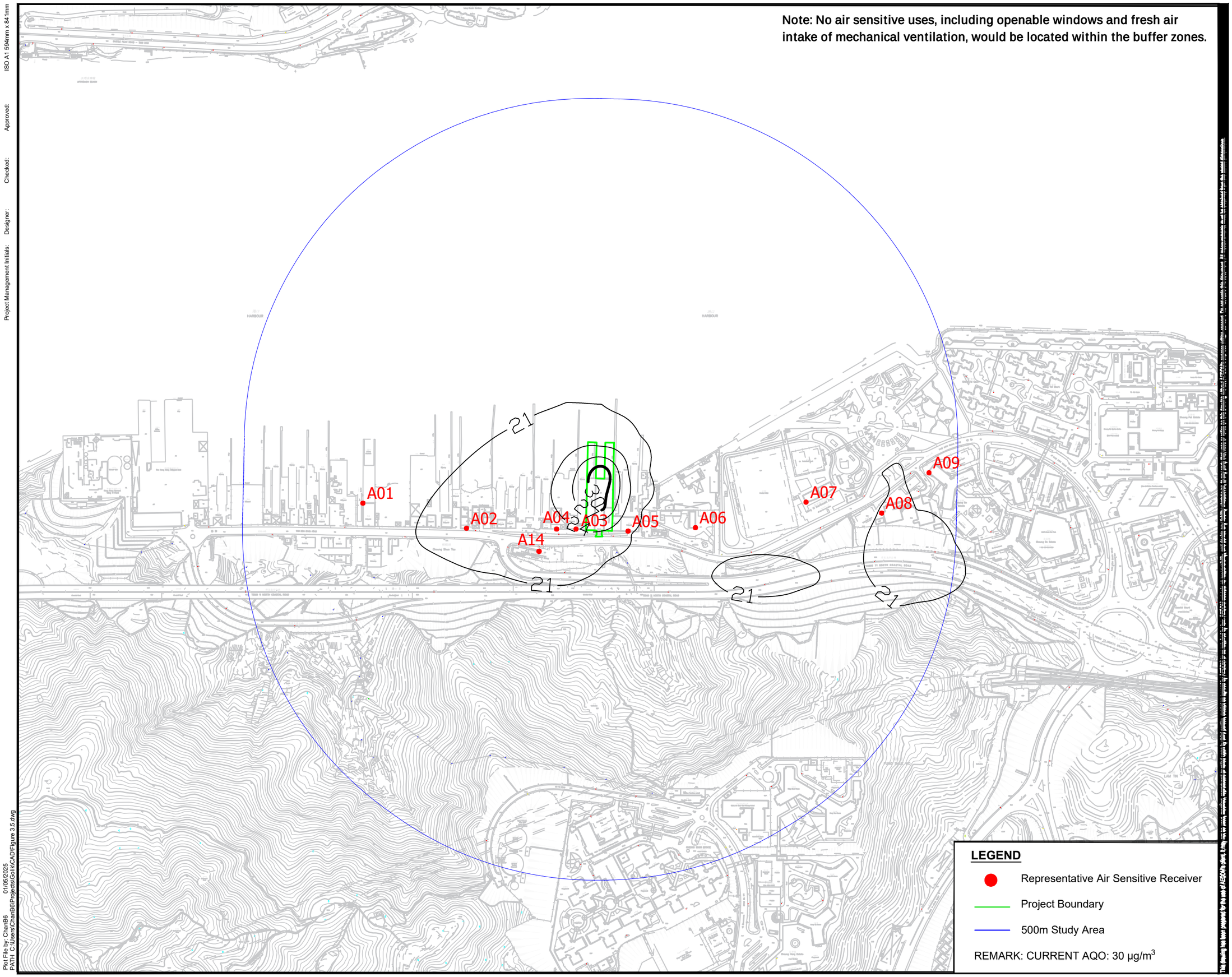
SHEET TITLE

Cumulative Annual RSP Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.4

Note: No air sensitive uses, including openable windows and fresh air intake of mechanical ventilation, would be located within the buffer zones.



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Project Management Initials:

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PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

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SCALE **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. **CONTRACT NO.**

60739290 N/A

SHEET TITLE

Cumulative Annual RSP Concentration (μg/m3) at 5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.5

ISO A1 594mm x 841mm

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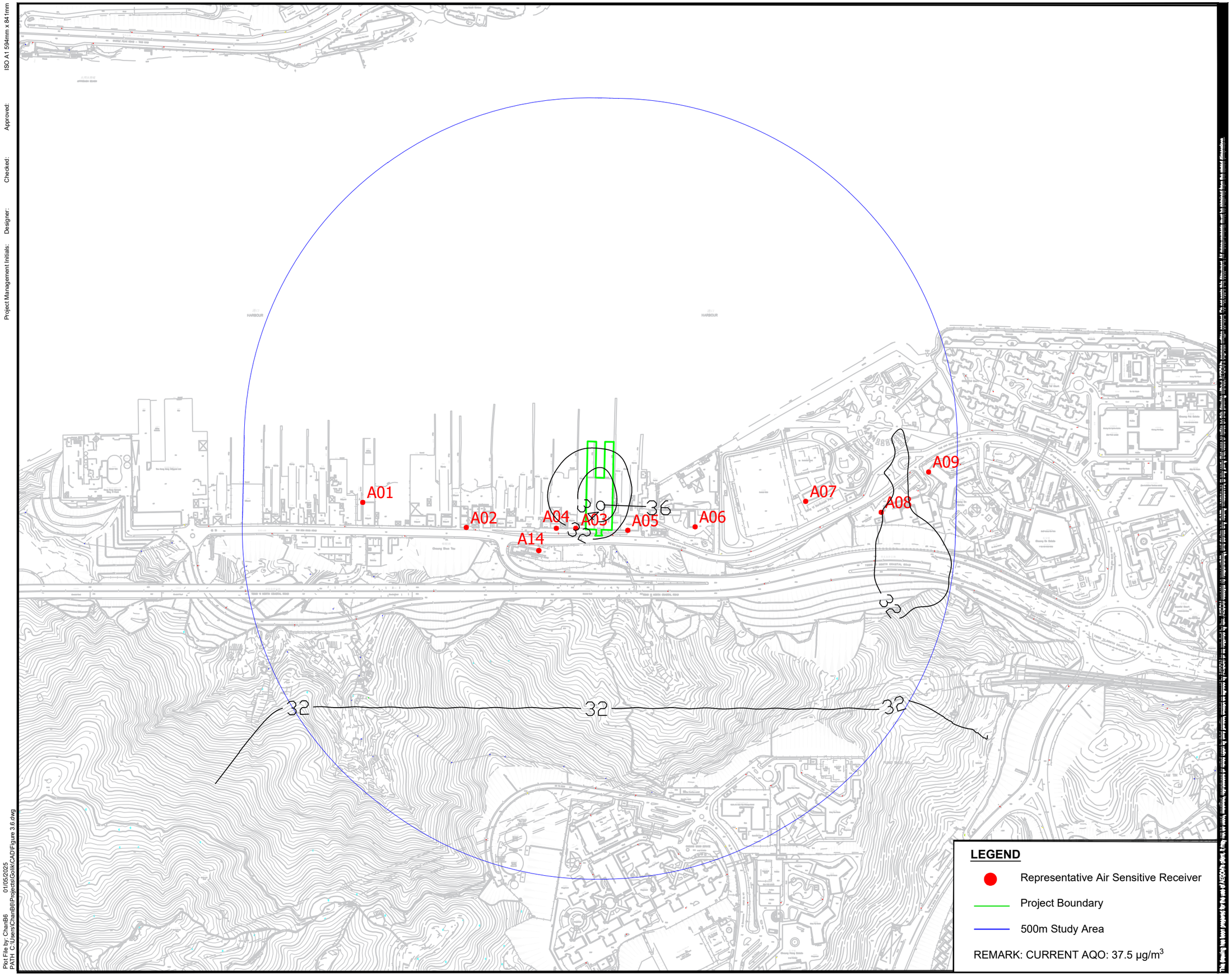
Designer:

Project Management Initials:



LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 37.5 μg/m^3

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SCALE / **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

19th Highest Cumulative Daily FSP Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.6

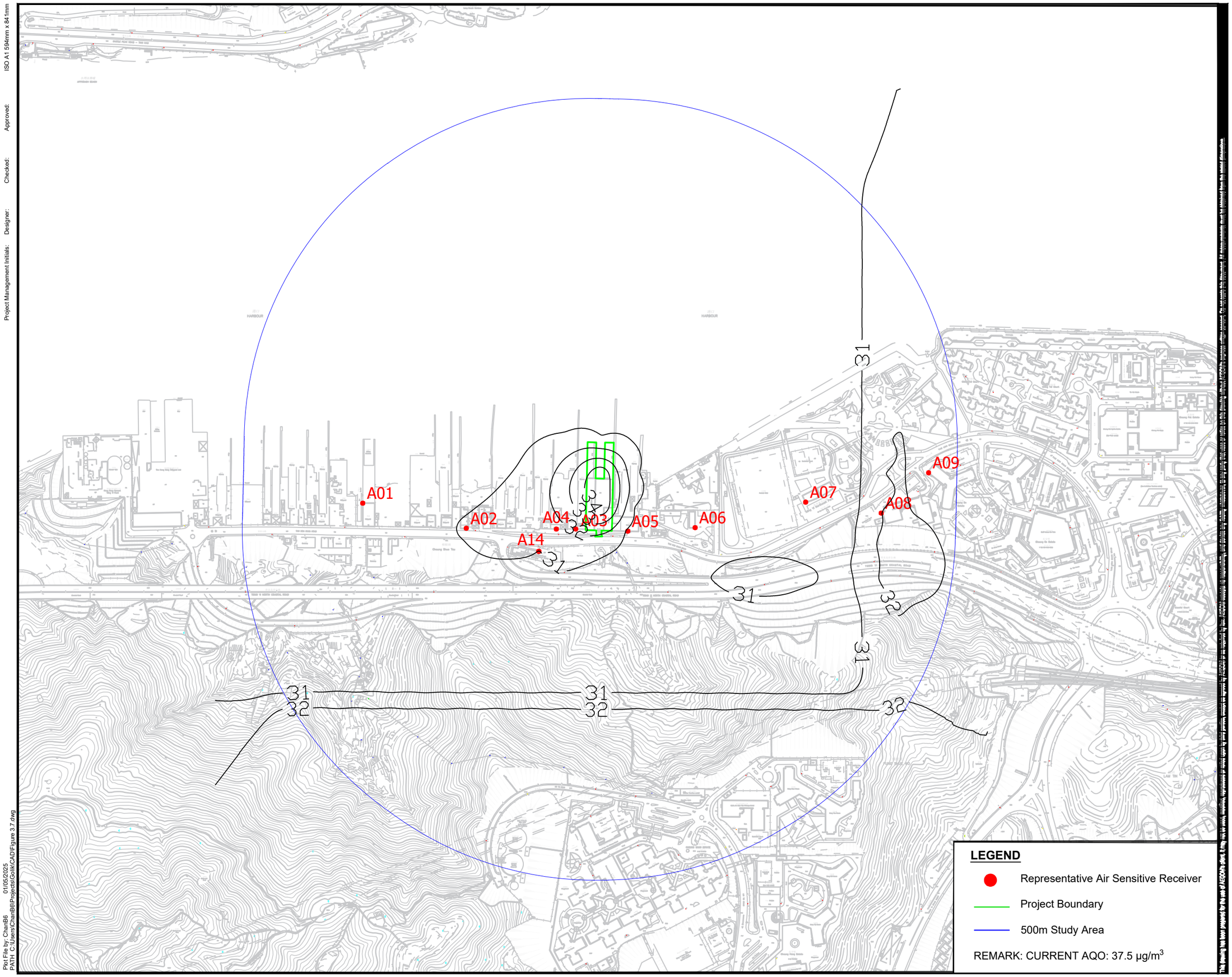
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

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STATUS

SCALE | **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. | **CONTRACT NO.**

60739290 | N/A

SHEET TITLE

19th Highest Cumulative Daily FSP Concentration (µg/m3) at 5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.7

Plot File by: ChanB6 01/05/2025
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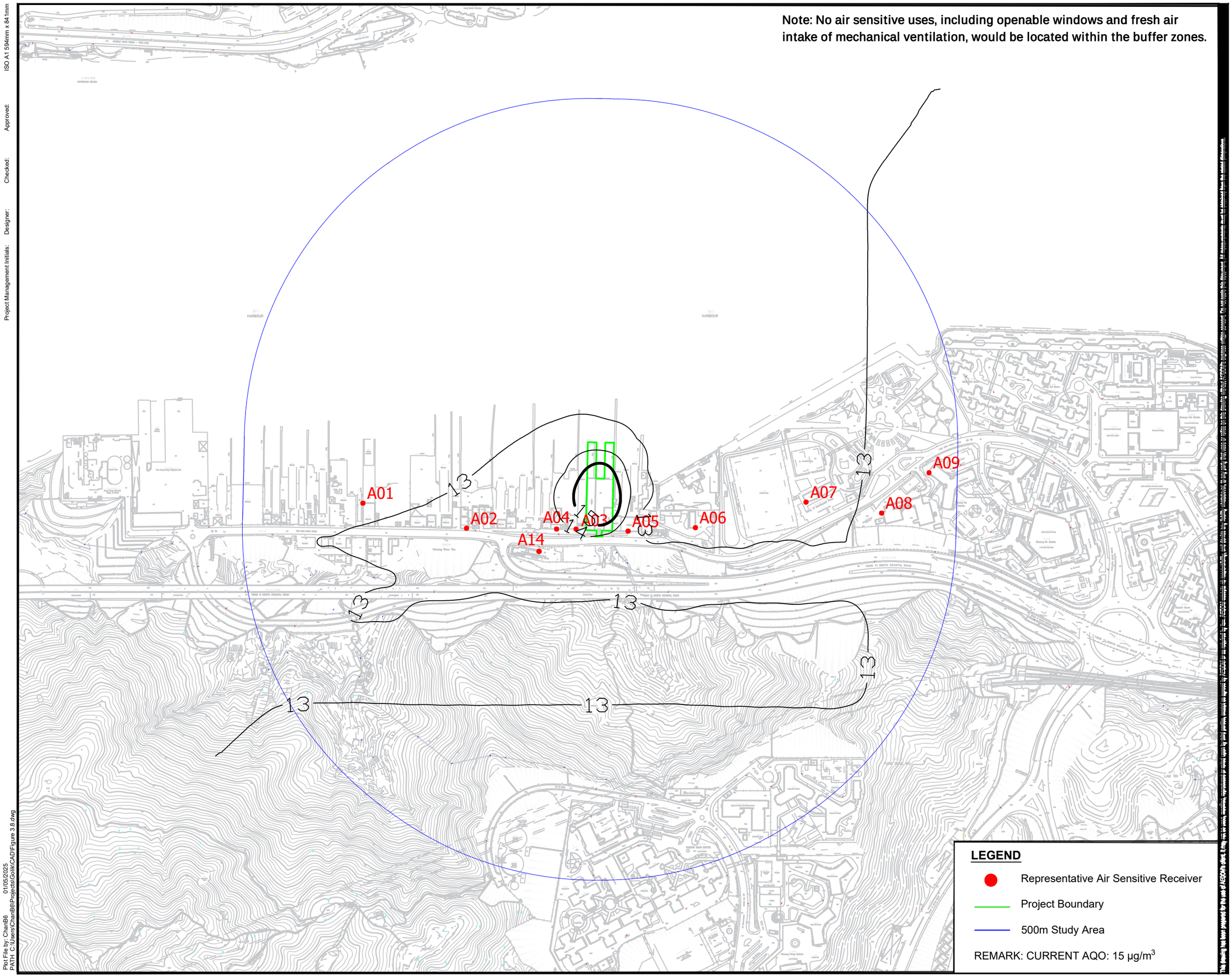
Note: No air sensitive uses, including openable windows and fresh air intake of mechanical ventilation, would be located within the buffer zones.



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Designer:

Project Management Initials:

Plot File by: ChanB6 01/05/2025
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.8.dwg

AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE

A3 1 : 5000

DIMENSION UNIT

KEY PLAN

PROJECT NO.

60739290

CONTRACT NO.

N/A

SHEET TITLE

Cumulative Annual FSP Concentration (µg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.8

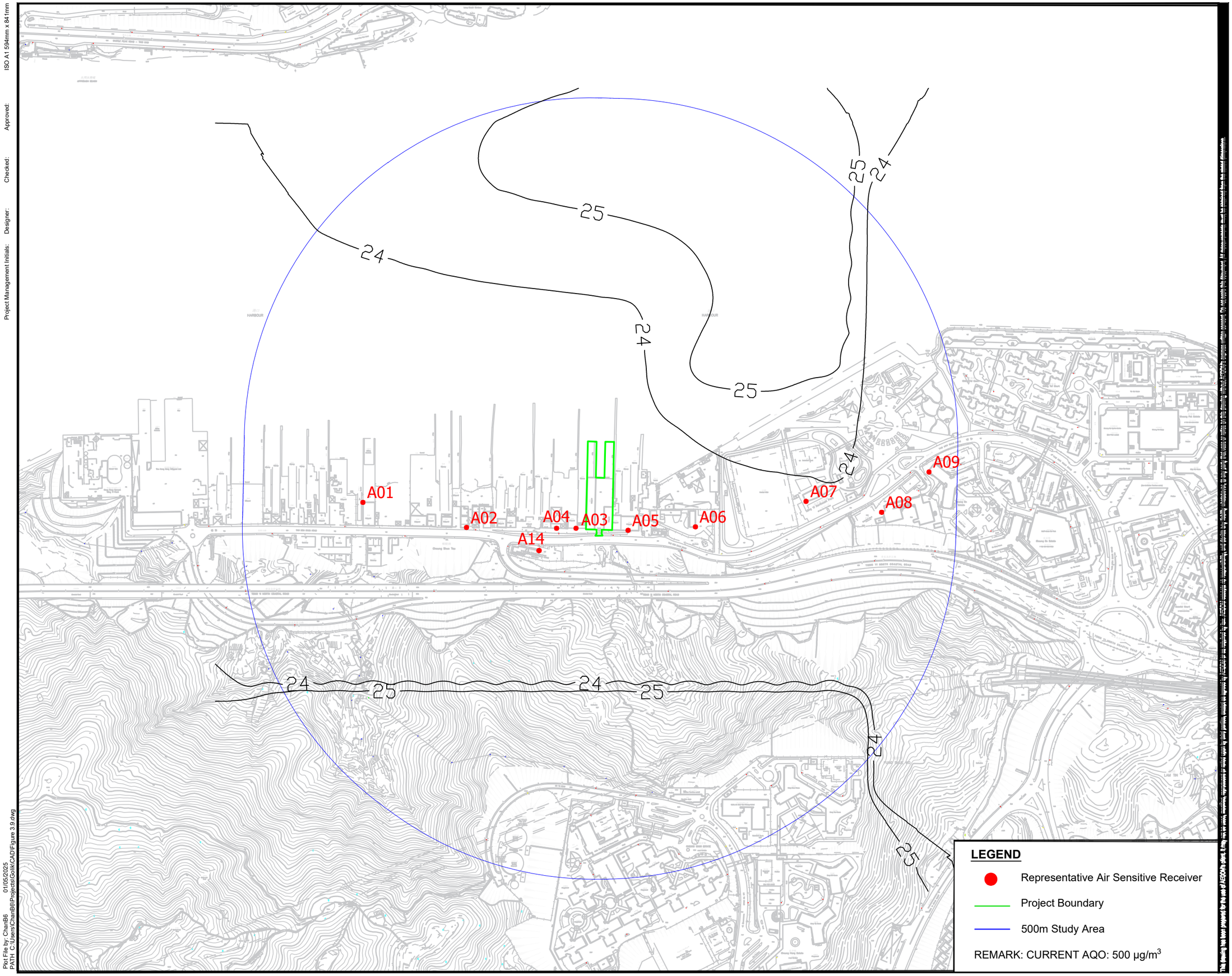
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: ChanB6 01/05/2025
PATH: C:\Users\ChanB6\Projects\Gollk\CAD\Figure 3.9.dwg

AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE / **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

4th Highest Cumulative 10-Min SO2 Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.9

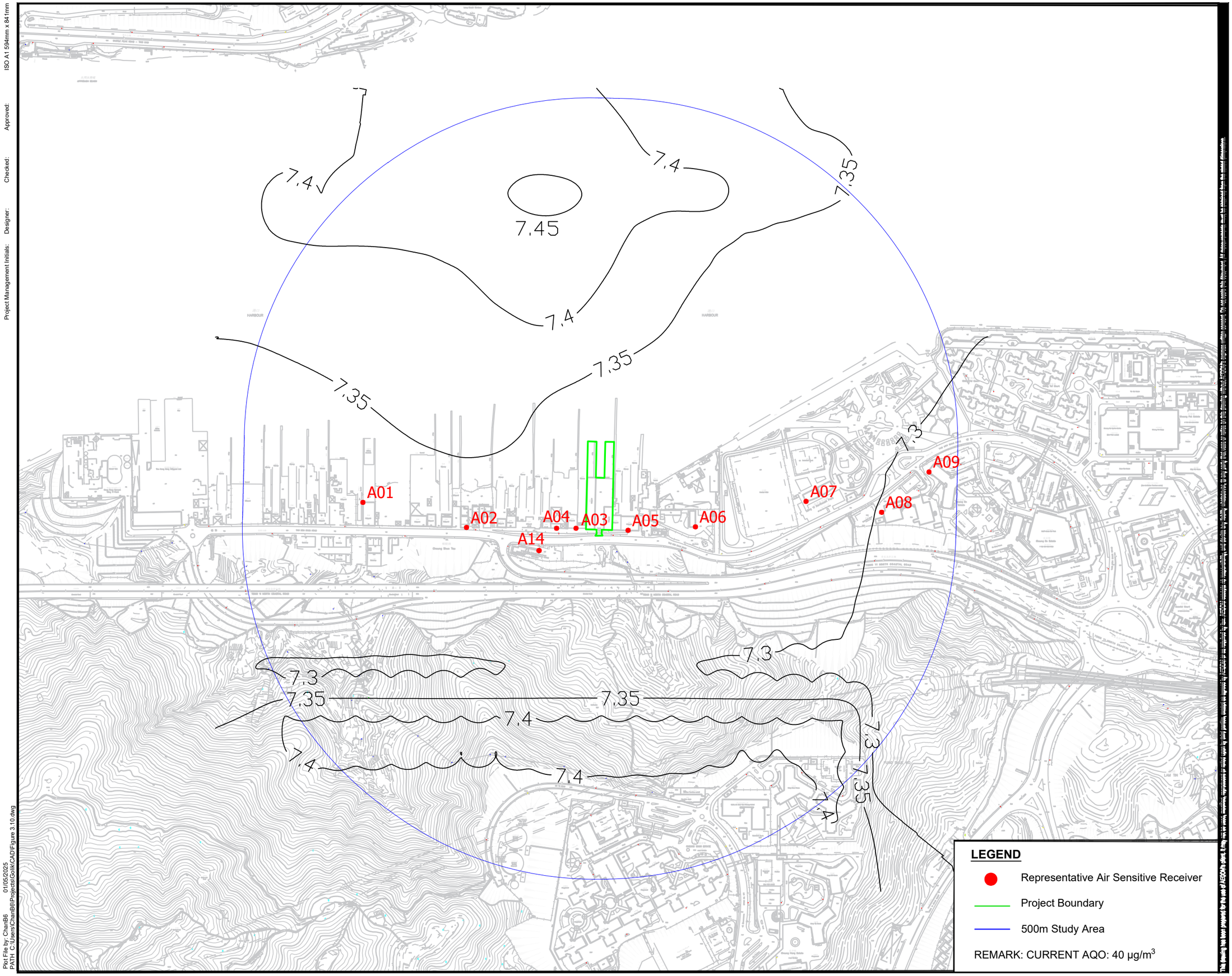
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE

DIMENSION UNIT

A3 1 : 5000

KEY PLAN

PROJECT NO.

CONTRACT NO.

60739290 N/A

SHEET TITLE

4th Highest Cumulative Daily SO2 Concentration (µg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.10

Plot File by: ChanB6 01/05/2025
PATH C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.10.dwg

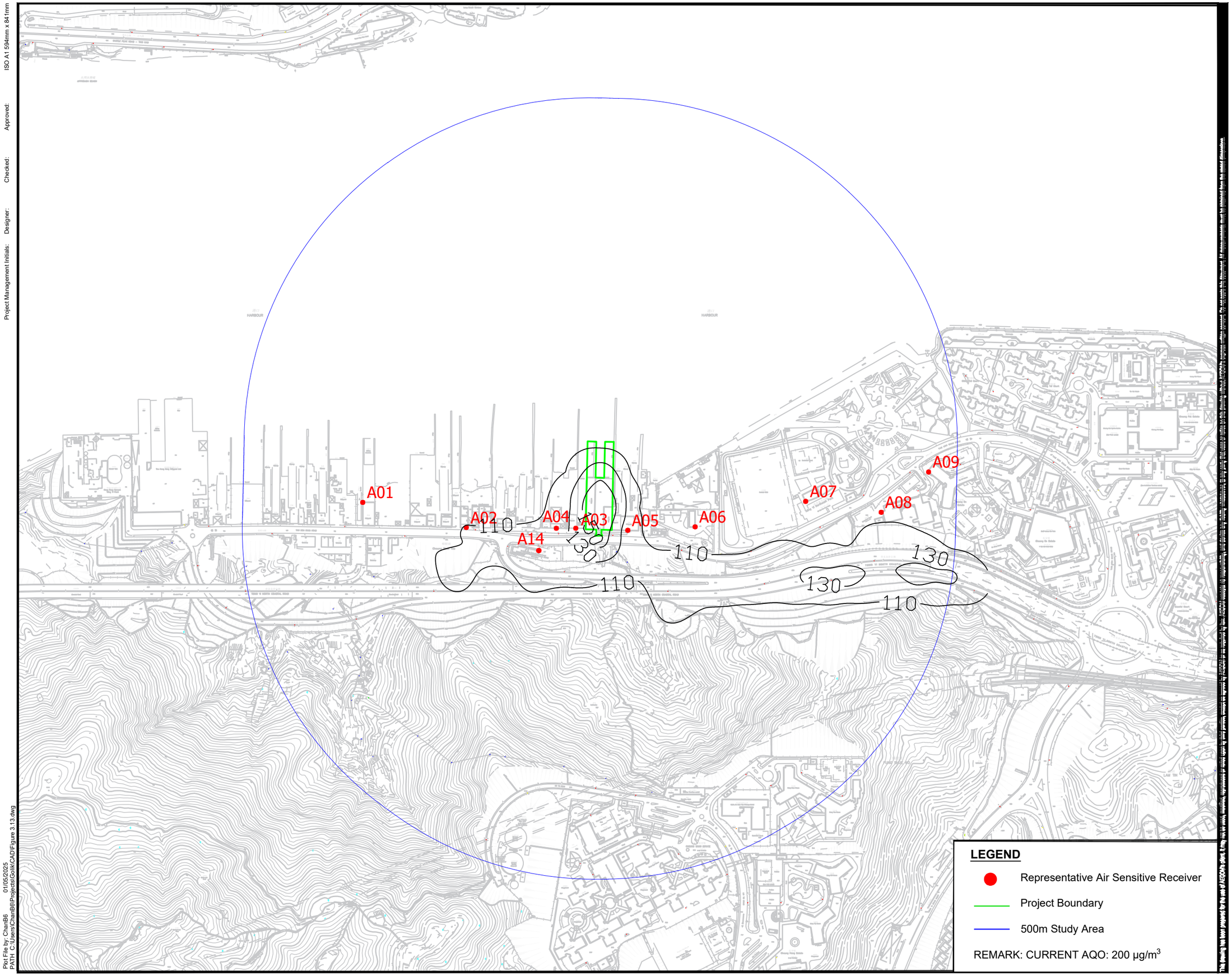
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 200 μg/m^3

Plot File by: ChanB6 01/05/2025
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.13.dwg

AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

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www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE / **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

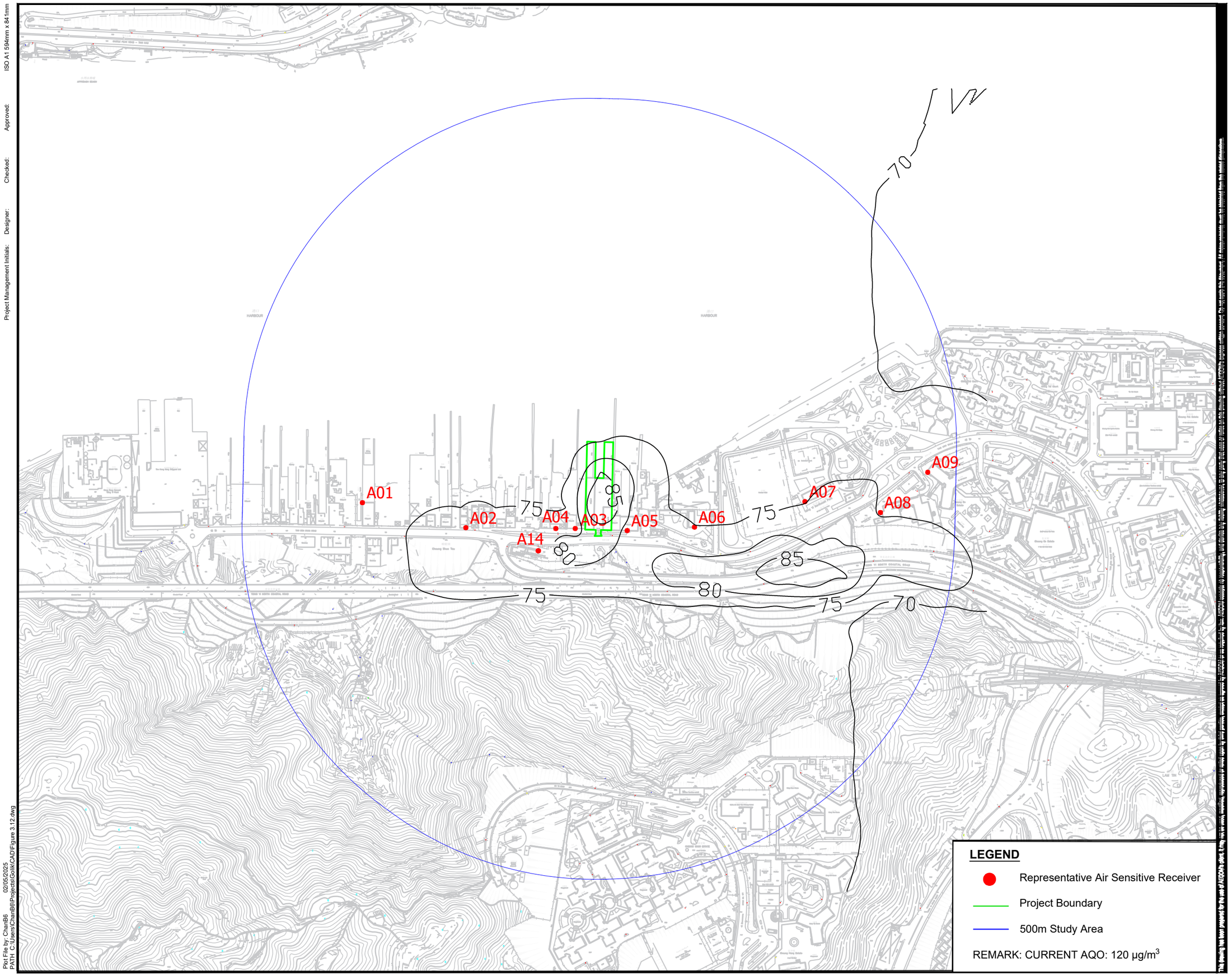
19th Highest Cumulative Hourly NO2 Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.11

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:



AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

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ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE — **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. — **CONTRACT NO.**

60739290 — N/A

SHEET TITLE

10th Highest Cumulative Daily NO2 Concentration (µg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.12

Plot File by: ChanB6
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.12.dwg
02/05/2025

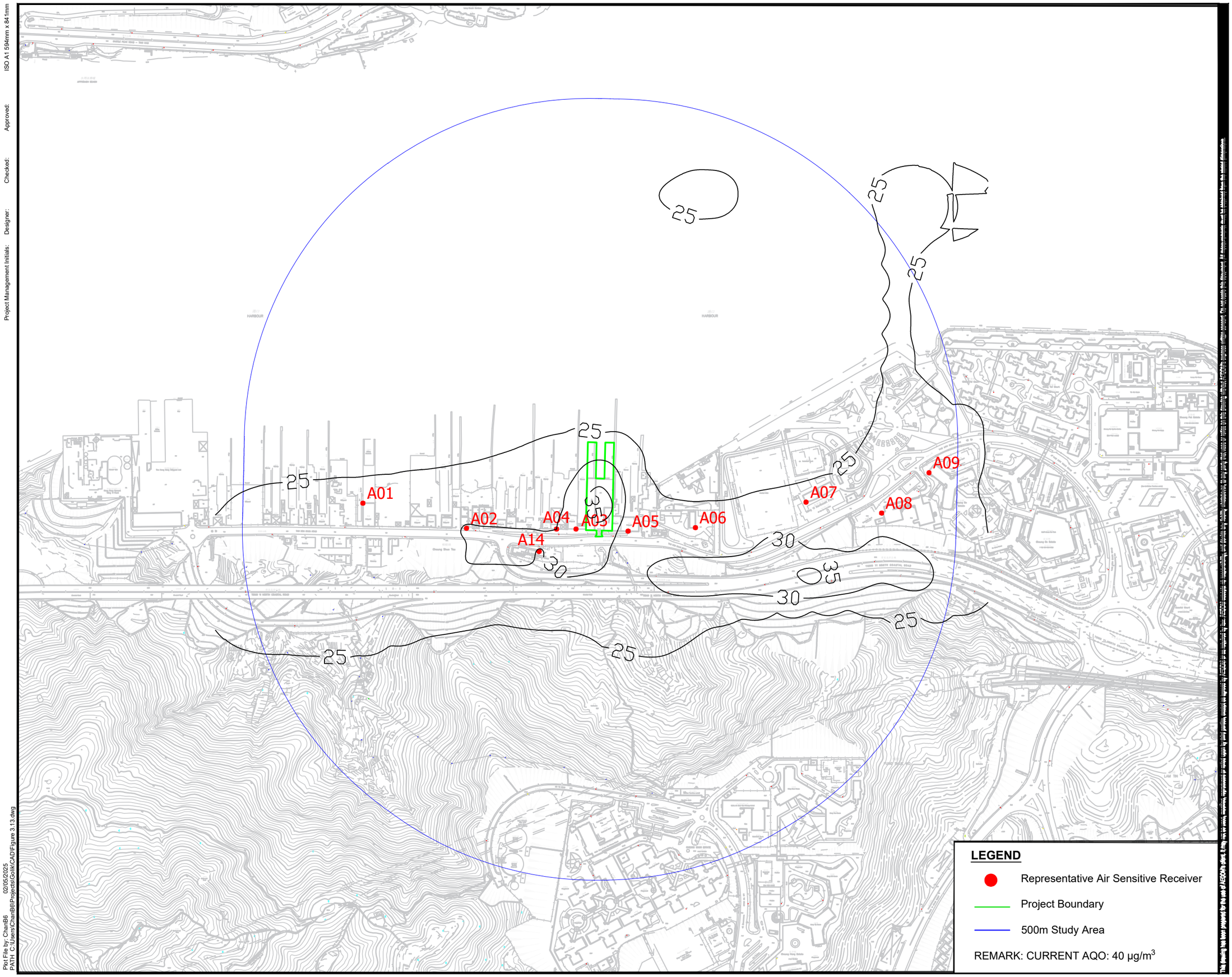
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 40 μg/m^3

Plot File by: ChanB6
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.13.dwg
02/05/2025

AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

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www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE / **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

Cumulative Annual NO2 Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.13

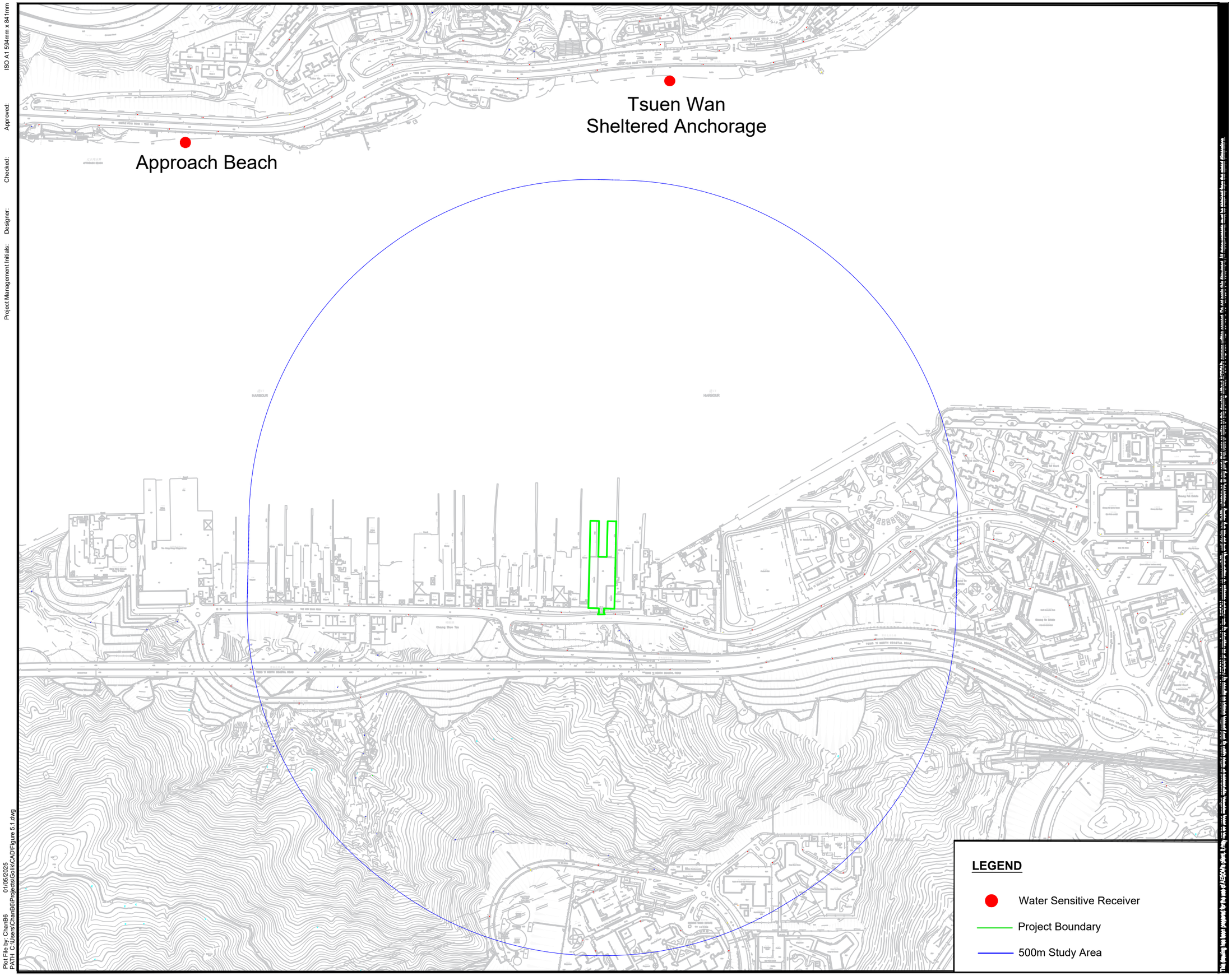
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: ChanB6 01/05/2025
PATH C:\Users\ChanB6\Projects\Golik\CAD\Figure 5.1.dwg

AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

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www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. **CONTRACT NO.**

60739290 N/A

SHEET TITLE

Location of Water Sensitive Receivers

SHEET NUMBER

60739290/EA/FIGURE 5.1

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

827800 E

827900 E

828000 E

824800 N

824700 N

824600 N

LEGEND:

SITE BOUNDARY

MAINTENANCE DREDGING EXTENT

N

Jetty 渡頭

Slipway 船排

Seawall 海堤

HWM

Outfall 排水口

TS

Shipyard 船廠

Car Park 停車場

CUL

RCP

ESS

TAM KON SHAN ROAD 担杆山路

TSING YI NORTH COASTAL ROAD 青衣北岸公路

Environmental Protection Department Portable Emission Measurement System Laboratory 環保署便攜式廢氣測量系統實驗室

Nullah 明渠

V:\BAK\US95-BAK\CSWP\plotdrv\Create Plt file\new\CSWP-75(color).pltPlot File by: haiquan.zhaoPATH P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_711.dgn3/7/2025

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AECOM

PROJECT 項目

PLANNING APPLICATION OF A CONCRETE BATCHING PLANT AT TSING YI TOWN LOT NOS. 14 & 15

CLIENT 業主

CONSULTANT 土木顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS 分判工程顧問公司

ISSUE/REVISION 修訂

I/R 修訂	DATE 日期	DESCRIPTION 修訂摘要	CHK. 核核

STATUS 階段

SCALE 比例 — A3 1 : 1000

DIMENSION UNIT 尺寸單位 — METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 — 60739290

AGREEMENT NO. 協議編號

SHEET TITLE 圖紙名稱

MAINTENANCE DREDGING EXTENT

SHEET NUMBER 圖紙編號

60739290/EA/FIGURE 6.1

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

$DATE$

$PLTDRVL$
Plot File by: $USER$
PATH: $FILE$

825500 N

828000 E

828500 E

829000 E

825000 N

824500 N

LEGEND:

SITE BOUNDARY

MAINTENANCE DREDGING EXTENT

VS10

EPD'S SEDIMENT MONITORING STATION

N

VS10

HARBOUR

RAMBLER CHANNEL

TSING YI NORTH COASTAL ROAD

TSING TSUEN ROAD

LAM TIN

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AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
土木顧問公司

AECOM Asia Company Ltd.
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SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS
階段

SCALE 比例
A3 1 : 5000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

AGREEMENT NO. 協議編號

SHEET TITLE
圖紙名稱
LOCATION OF EPD'S SEDIMENT MONITORING STATION VS10

SHEET NUMBER
圖紙編號
60739290/EA/FIGURE 6.2

PHOTO 8489: PRIVATE PARKING AREA
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8482: JETTY
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8485: ACCESS ROAD
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 0322: DISUSED DANGEROUS GOODS STORE / STOREROOM
(DATE TAKEN: 12 DECEMBER 2024)

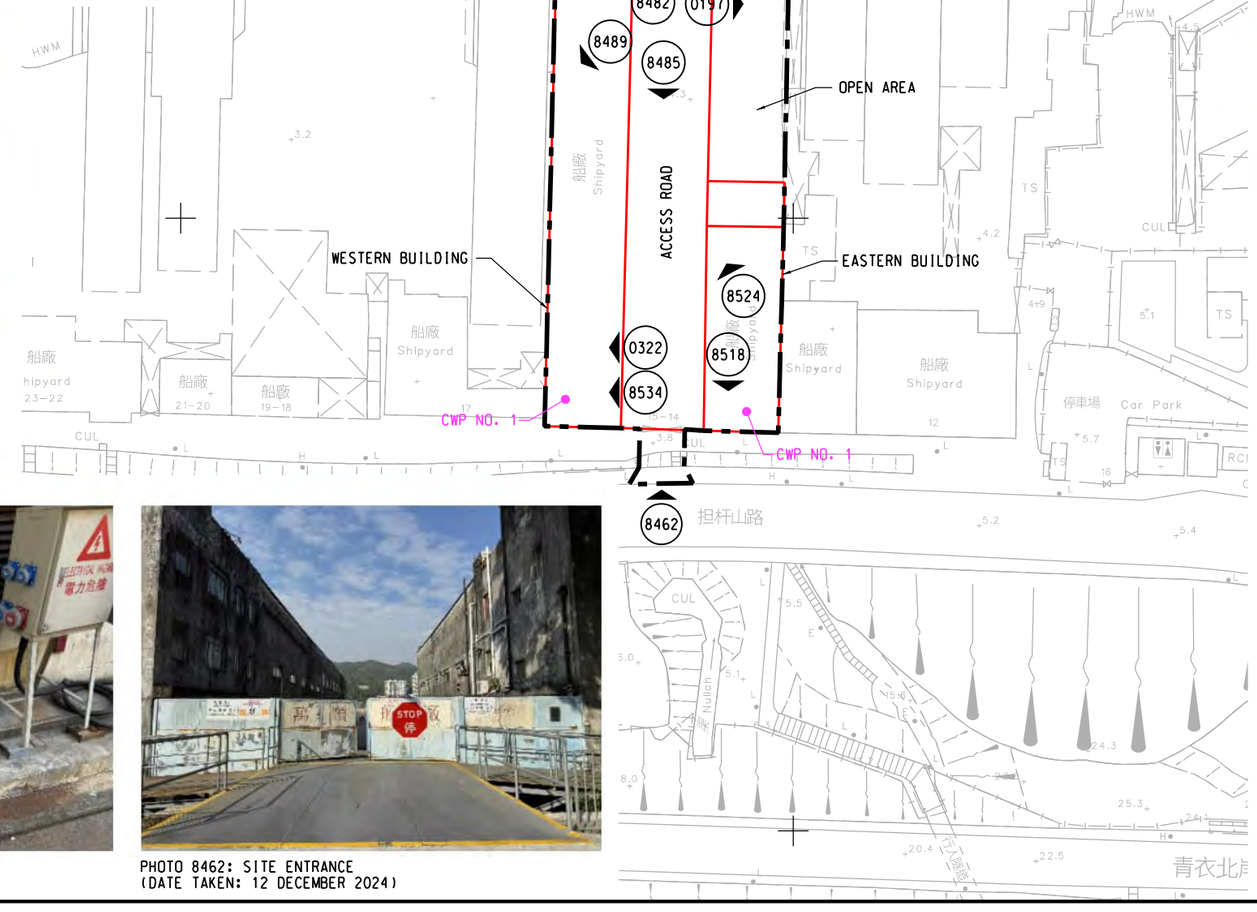

PHOTO 0197: PRIVATE PARKING AREA
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8524: VACANT AREA
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8534: CHEMICAL STORAGE AREA
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8462: SITE ENTRANCE
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8518: CHEMICAL STORAGE AREA
(DATE TAKEN: 12 DECEMBER 2024)

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

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PATH P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_701.dgn
19/9/2025

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AECOM

PROJECT
項目

PLANNING APPLICATION OF A CONCRETE BATCHING PLANT AT TSING YI TOWN LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 事項摘要	CHK. 核核

STATUS
階段

SCALE 比例: A3 1 : 1000
DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60739290
CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

PHOTOGRAPHIC RECORDS OF SITE WALKOVER

SHEET NUMBER
圖紙編號

60739290/EA/FIGURE 7.1

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

SITE BOUNDARY

CONCERNED AREA

N

824800 N

824700 N

824600 N

827800 E

827900 E

828000 E

FORMER OPEN STORAGE

FORMER MAINTENANCE AREA

EASTERN BUILDING

WESTERN BUILDING

TAM KON SHAN ROAD

TSING YI NORTH COASTAL ROAD

Jetty 渡頭

Slipway 船排

Seawall 海堤

Shipyard 船廠

Car Park 停車場

Outfall 排水口

HWM

TS

CUL

RCP

ESS

ET

Environmental Protection Department Portable Emission Measurement System (PEMS) Laboratory 環保署便攜式廢氣測量系統實驗室

V:\BAK\US95-BAK\CSWP\plotdrv\Create Pit file\new\CSWP-75(color).pltPlot File by: haiquan.zhaoPATH: P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_702.dgn19/9/2025

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AECOM

PROJECT 項目

PLANNING APPLICATION OF A CONCRETE BATCHING PLANT AT TSING YI TOWN LOT NOS. 14 & 15

CLIENT 業主

CONSULTANT 土木顧問公司

AECOM Asia Company Ltd.
www.aecom.com

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ISSUE/REVISION 修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS 階段

SCALE 比例
A3 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號
60739290

CONTRACT NO. 合約編號

SHEET TITLE 圖紙名稱
LOCATIONS OF CONCERNED AREAS

SHEET NUMBER 圖紙編號
60739290/EA/FIGURE 7.2

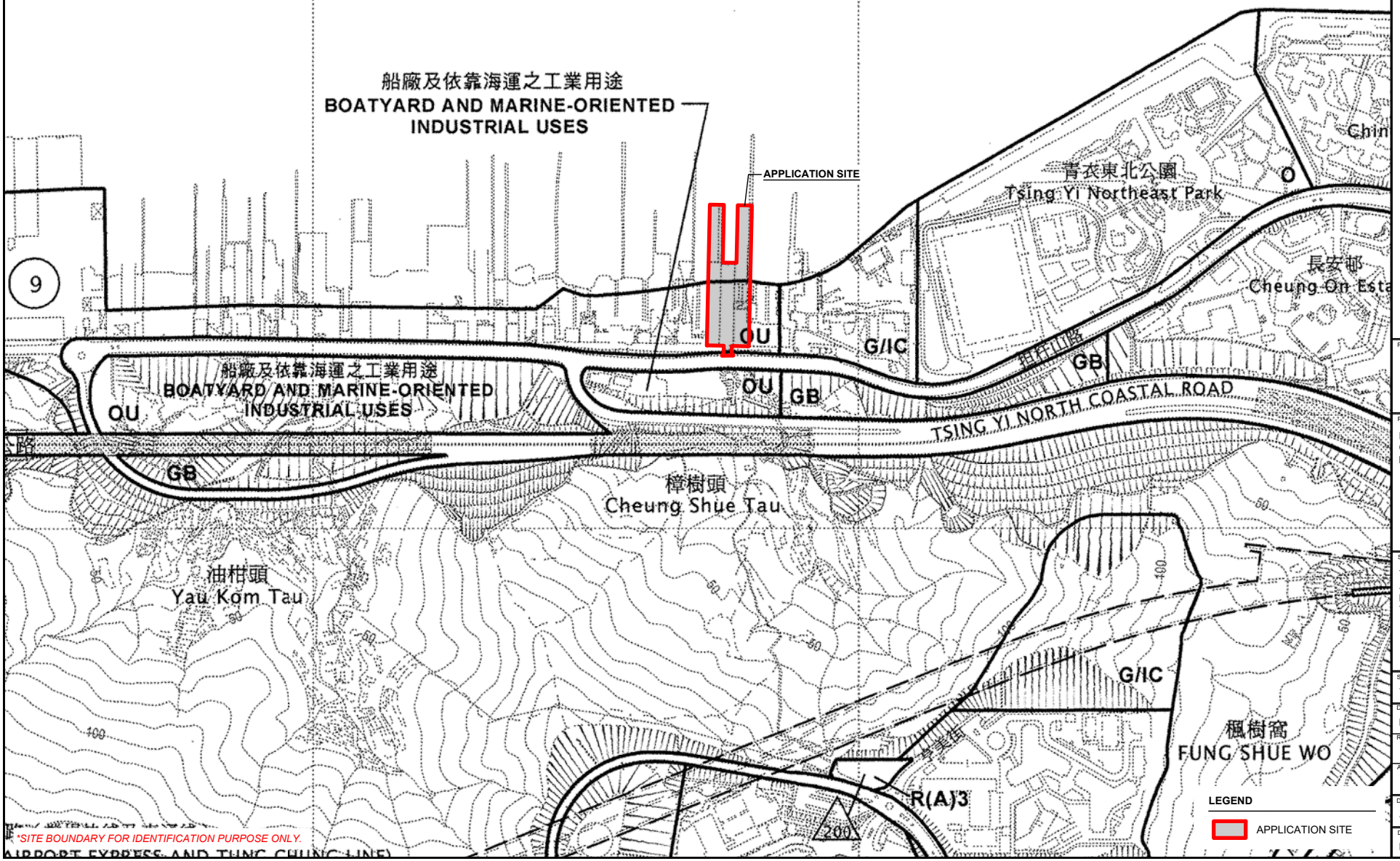
APPENDIX 2.1

Plant Layout

ZONING OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m² (ABOUT)
OUTLINE ZONING PLAN	: APPROVED TSING YI OZP
PLAN NO.	: S/TY/32
ZONING OF THE SITE	: "OTHER SPECIFIED USES" ANNOTATED "BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES" : 2,213 m² (ABOUT)
	AND AREA SHOWN AS 'ROAD' : 29 m² (ABOUT)

ONLY PORTION OF THE SITE (ABOUT 2,242 m², 52%) FALL WITHIN THE ABOVE OZP COVERAGE, WHILE THE REMAINING AREA (ABOUT 2,093 m², 48%) FALLS OUTSIDE OZP PLANNING SCHEME BOUNDARY.



NORTH
W E
S

LEGEND

APPLICATION SITE

PLANNING CONSULTANT

R-Riches Property Consultants Ltd.

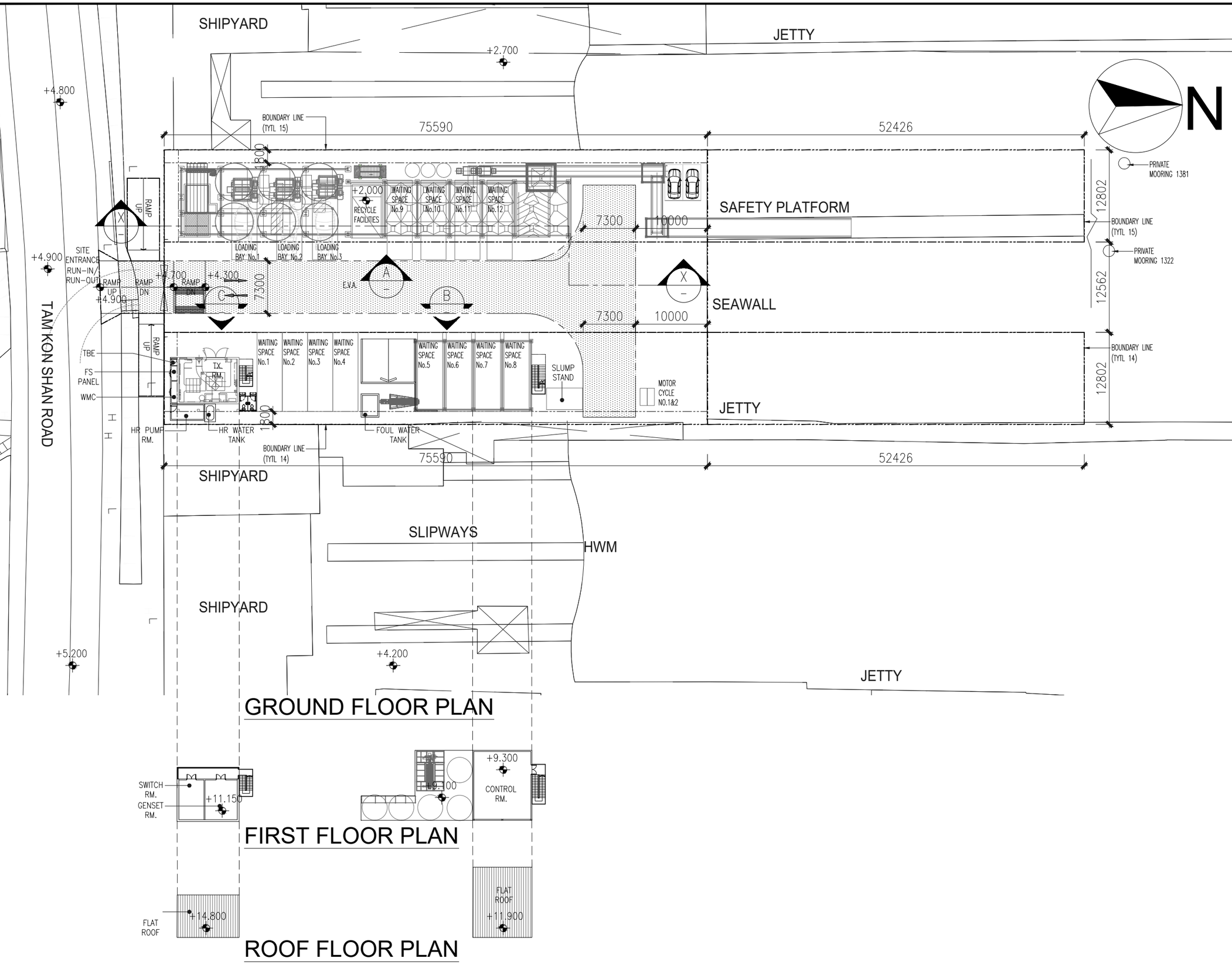
PROJECT

PROPOSED TEMPORARY CONCRETE BATCHING PLANT FOR A PERIOD OF 5 YEARS

SITE LOCATION

TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE	1 : 5000 @ A4
DRAWN BY	MN
DATE	19.11.2024
REVISED BY	
DATE	
APPROVED BY	
DATE	
DWG. TITLE	ZONING PLAN
DWG NO.	PLAN 2
VER.	1.2



REV.	DESCRIPTION	DATE	CHK.
–	–	SEP 2024	CP

CLIENT

CONSULTANT

IVIC 思滙顧問有限公司 CONSULTANCY LIMITED
Workshop 3, 2/F Shun Fat Industrial Building, No.17 Wang Hoi Road, Kowloon Bay, Kowloon
TEL: +852 2540 0686 FAX: +852 2547 6579

SIGNATURE FOR SUBMISSION / CONSTRUCTION

DESIGNED:	CP
DRAWN :	–
CHECKED :	CP
APPROVED :	–

PROJECT :

PROPOSED TEMPORARY CONCRETE BATCHING PLANT AT TSING YI TOWN LOTS 14 AND 15 AND ADJOINING GOVERNMENT LAND

DRAWING TITLE :

G/F LAYOUT PLAN
(OPTION 1)

JOB NUMBER :	SHEET NUMBER :
–	

SCALE: 1:500

DRAWING No. :	REV.
SK-01	–

INFORMATION CLASSIFICATION: PROPRIETARY

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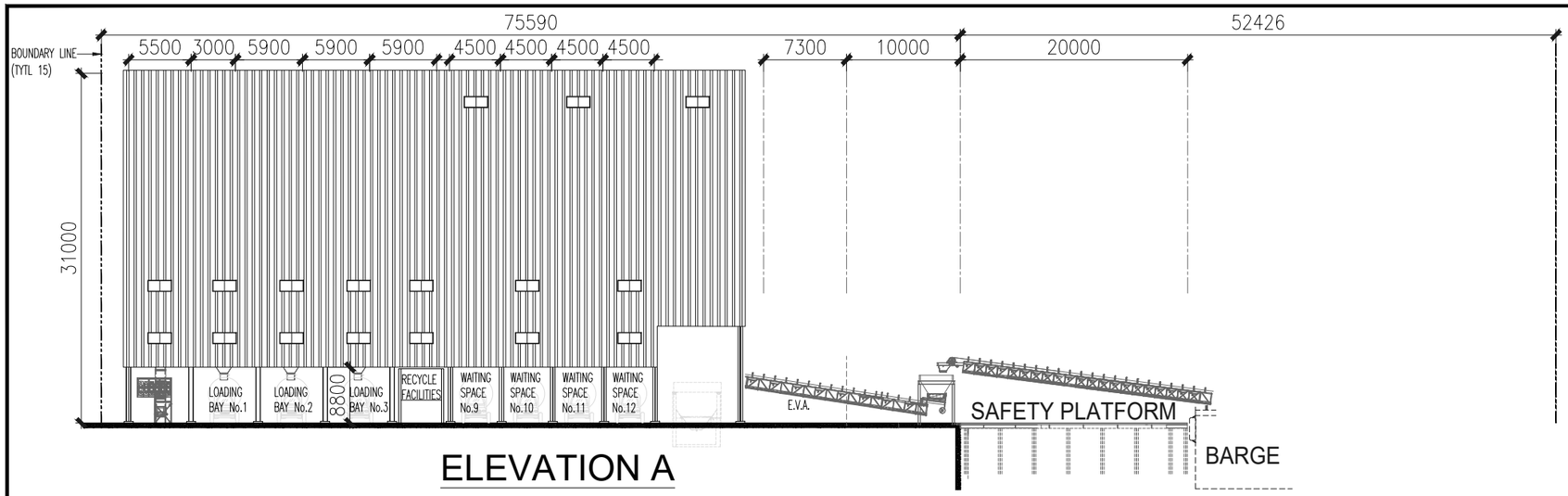
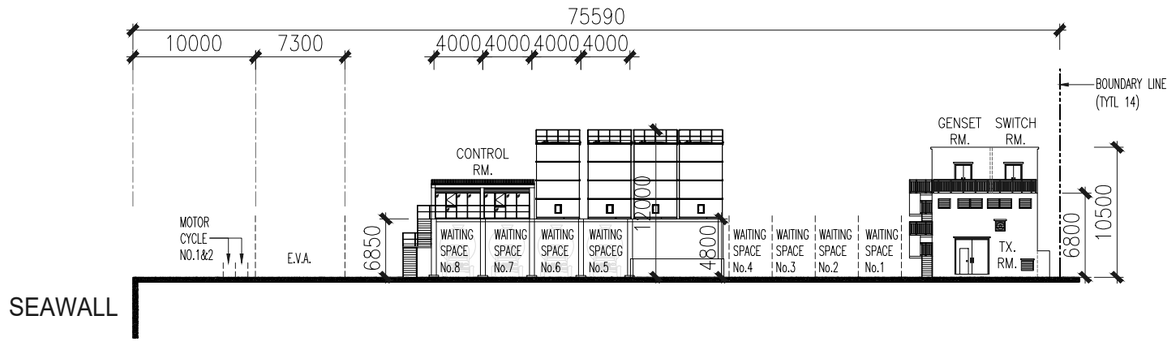


ELEVATION A



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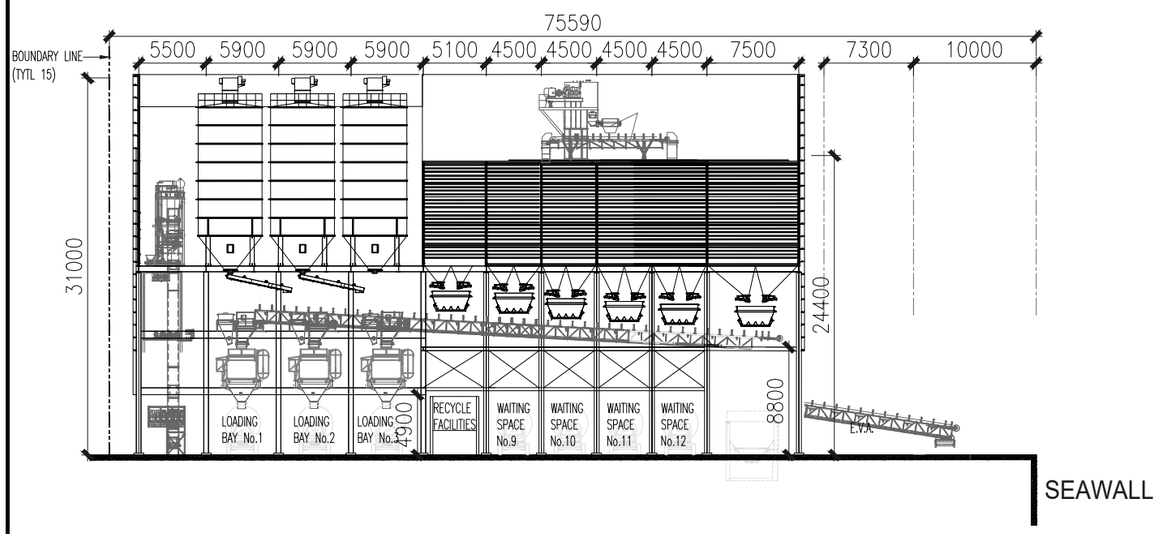
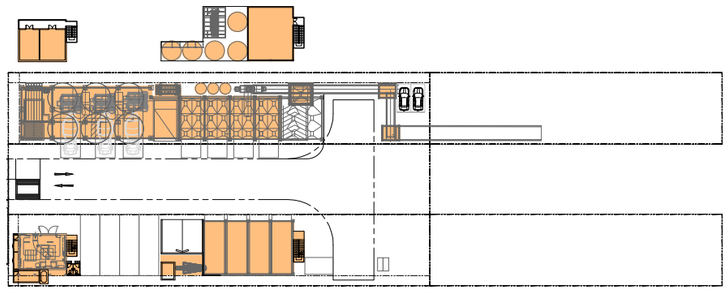
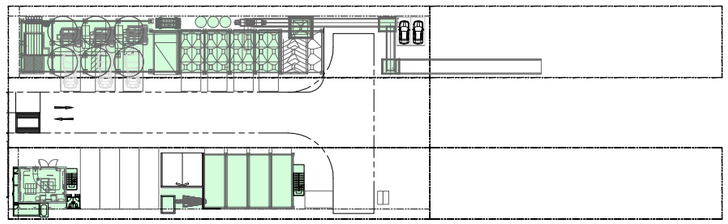


SECTION X-X



G.F.A. CALCULATION

1	GRD FL.	=	93 SQ.M.
2	GRD FL.	=	195 SQ.M.
3	GRD FL.	=	17 SQ.M.
4	GRD FL. x2	=	17 SQ.M.
5	1ST FL.	=	51 SQ.M.
6	1ST FL.	=	80 SQ.M.
7	GRD FL.	=	408 SQ.M.
8	1ST FL. x5	=	48 SQ.M.
9	GRD FL. x3	=	9 SQ.M.
10	1ST FL.	=	408 SQ.M.
11	MEZZ. FL.	=	137 SQ.M.
	TOTAL	=	1463 SQ.M.



SITE COVERAGE CALCULATION

1		=	93 SQ.M.
2		=	194 SQ.M.
3		=	17 SQ.M.
4	x2	=	17 SQ.M.
5		=	408 SQ.M.
6	x3	=	9 SQ.M.
	TOTAL	=	738 SQ.M.

REV.	DESCRIPTION	DATE	CHK.
–	–	SEP 2024	CP

CLIENT

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IMC CONSULTANCY LIMITED
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No.17 Wang Hoi Road, Kowloon Bay, Kowloon
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SIGNATURE FOR SUBMISSION / CONSTRUCTION

DESIGNED:	CP
DRAWN :	–
CHECKED :	CP
APPROVED :	–

PROJECT :

PROPOSED TEMPORARY CONCRETE BATCHING PLANT AT TSING YI TOWN LOTS 14 AND 15 AND ADJOINING GOVERNMENT LAND

DRAWING TITLE :

ELEVATION A,B , SECTION X–X & CALCULATIONS
(OPTION 1)

JOB NUMBER :	SHEET NUMBER :
–	

SCALE: 1:500

DRAWING No. :	REV.
SK–02	–

INFORMATION CLASSIFICATION: PROPRIETARY

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APPENDIX 2.2

Schematic Process Flow Diagram

LEGEND:

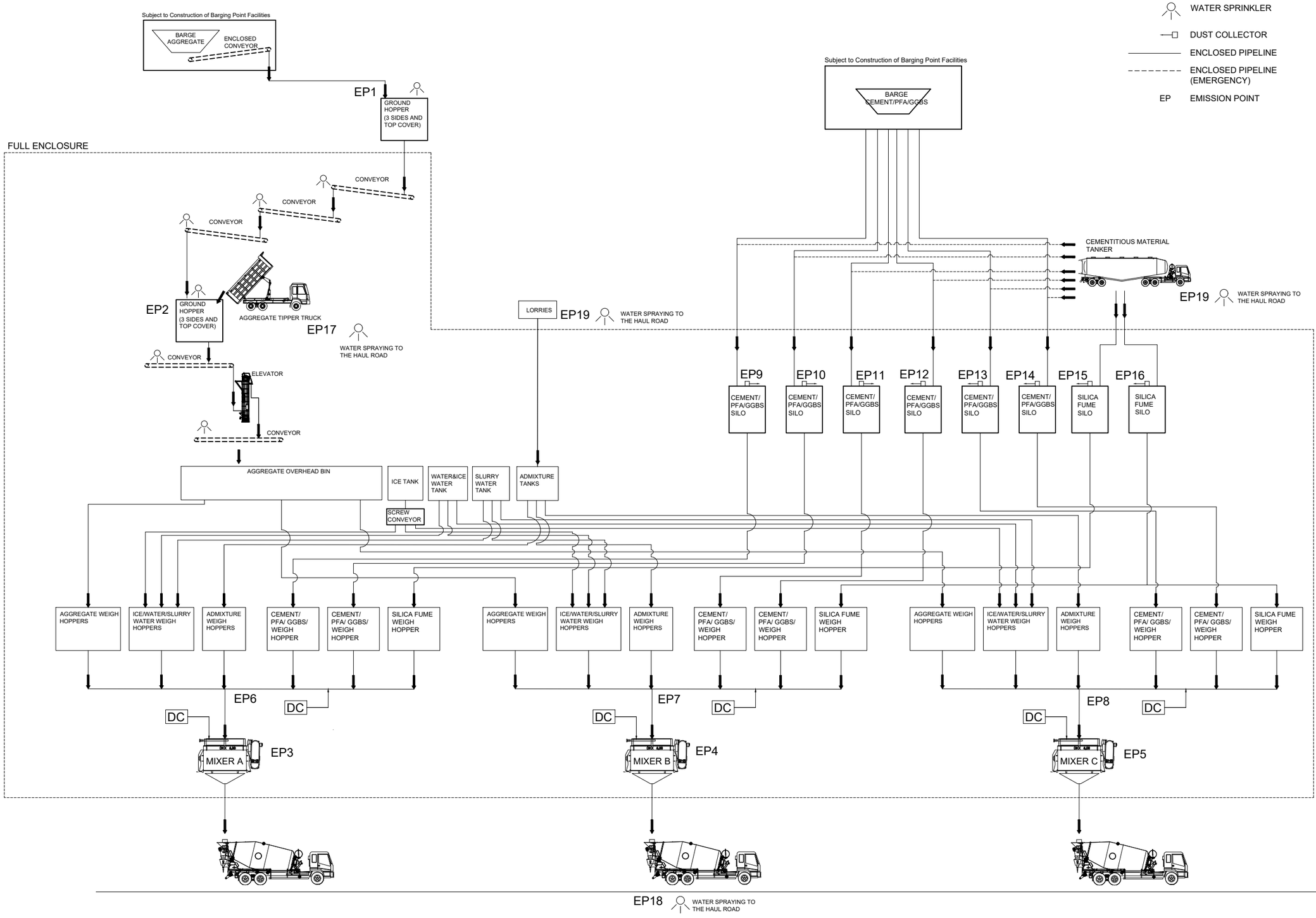
WATER SPRINKLER

DUST COLLECTOR

ENCLOSED PIPELINE

ENCLOSED PIPELINE (EMERGENCY)

EP EMISSION POINT



工程编号:

合同编号:

圳通

圳通(香港）钢结构设备有限公
ZhenTong(HONGKONG)Steel structure Equipment Co.LTD

深圳市圳通钢结构设备有限公司
ZhenTong Steelstructure Equipment Co.LTD In ShenZhen

典型平面：
key plan

设计变更说明：
Revision

A 版

备注说明：
Remark

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建设单位：
Client

建设地点：
Site
青衣

工程名称	3*HZS300混凝土生产线		
审定		核对	
审核		设计	
设计负责		绘图	
设计阶段		版本	
名称	Schemathic diagram		
比例	日期	图号	
1:1	2025-03-19		

APPENDIX 3.1

Technical Details of Control Measures

Appendix 3.1 Technical Details of Control Measures

Estimation of Emission Concentrations at Emission Points

Emission Point	Material	Container	Dust Collector	Dust Collector Exhaust Flow Rate, V (m^3/hr)^	Max Hourly Loading Capacity, M (Mg/hr)^	TSP Emission Factor, E (kg/Mg)*	Dust Removal Efficiency, Ef (%)^	Emission Rate, Q (g/hr)	Emission Concentration, c (mg/m^3)#
EP3	Mixed	Mixer	Fabric Filter	7864	63.0	0.286	99.9	18.02	2.29
EP4	Mixed	Mixer	Fabric Filter	7864	63.0	0.286	99.9	18.02	2.29
EP5	Mixed	Mixer	Fabric Filter	7864	63.0	0.286	99.9	18.02	2.29
EP6	Aggregates	Weigh Hopper	Fabric Filter	6000	170	0.0026	99.9	0.44	3.08
	Cement				35.0	0.286		10.01	
	PFA				12.0	0.286		3.43	
	GGBS				15.0	0.286		4.29	
	Silica fume				1.0	0.286		0.29	
EP7	Aggregates	Weigh Hopper	Fabric Filter	6000	170	0.0026	99.9	0.44	3.08
	Cement				35.0	0.286		10.01	
	PFA				12.0	0.286		3.43	
	GGBS				15.0	0.286		4.29	
	Silica fume				1.0	0.286		0.29	
EP8	Aggregates	Weigh Hopper	Fabric Filter	6000	170	0.0026	99.9	0.44	3.08
	Cement				35.0	0.286		10.01	
	PFA				12.0	0.286		3.43	
	GGBS				15.0	0.286		4.29	
	Silica fume				1.0	0.286		0.29	
EP9	Cement	Silo	Fabric Filter	11196	180.0	0.36	99.9	64.80	5.79
EP10	GGBS	Silo	Fabric Filter	11196	50.0	1.57	99.9	78.50	7.01
EP11	Cement	Silo	Fabric Filter	11196	180.0	0.36	99.9	64.80	5.79
EP12	PFA	Silo	Fabric Filter	11196	50.0	1.57	99.9	78.50	7.01
EP13	Cement	Silo	Fabric Filter	11196	180.0	0.36	99.9	64.80	5.79
EP14	GGBS	Silo	Fabric Filter	11196	50.0	1.57	99.9	78.50	7.01
EP15	Silica fume	Silo	Fabric Filter	11196	25.0	1.57	99.9	39.25	3.51
EP16	Silica fume	Silo	Fabric Filter	11196	25.0	1.57	99.9	39.25	3.51

* - TSP emission rates by various material handling are referenced to Table 11.12-1, Section 11.12-4, AP-42, USEPA, 6/06 edition.
# - Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
^ - From Engineer

APPENDIX 3.2

Calculation of Dust Emission Rates

Appendix 3.2 Calculations of Emission Rates

Estimation of RSP and FSP Emission Rates

Location	Source	Emission Rates	Mitigated Emission Rates	Parameters		*Remarks*
Proposed CBP	**Unloading of aggregates to Aggregate Receiving Hopper**	Spoil handling - Unloading of Aggregates		Emission Factor (kg/Mg) = k*(0.0016)*(U/2.2)^1.3/(M/2)^1.4		from USEPA AP-42 Section 13.2.4, 11/06 ed.
at TYTL14&15	Source ID: EP01	($g/m^2/s$)		TSP Particle size multiplier, k	0.74	from USEPA AP-42 Section 13.2.4, 11/06 ed.
				RSP Particle size multiplier, k	0.35	from USEPA AP-42 Section 13.2.4, 11/06 ed.
	Working Hours: 0700 - 2100			FSP Particle size multiplier, k	0.053	from USEPA AP-42 Section 13.2.4, 11/06 ed.
				Moisture content, M (%)	3.00	provided by design engineer
		RSP	**6.4371E-04**	Average wind speed, U (m/s)	2.01	*from WRF data of PATHv3.0 Grid (32,28)*
				Loading rate of materials (Mg/hr)	610	From Engineer
		FSP	**1.5079E-04**	Area of the storage (m^2)	8.64	From Engineer
				Dust Suppression Efficiency for PM (6 - 10μm)	90	for dust suppression by water sprays
				Dust Suppression Efficiency for PM (2.5 - 6μm)	65	from Table B.2.3, Appendix B.2, USEPA AP-42
				Dust Suppression Efficiency for PM (0 - 2.5μm)	40	
				% of dust suppression from 3-side cladded and roof	70	3.3.6, Technical Background Document on Control of Fugitive Dust at Cement Manufacturing Facilities, USEPA, 1998
				RSP emission factor, E (kg/Mg)	2.82E-04	by formula above
				FSP emission factor, E (kg/Mg)	4.27E-05	by formula above
				Mitigated PM(2.5 - 10μm) emission factor (kg/Mg)	2.51E-05	=(RSP emission factor-FSP emission factor)*(1- Dust Suppression efficiency for PM (2.5-6μm)/100)*(1-% of dust suppression from 3-side cladded and roof/100)
				Mitigated PM(2.5) emission factor (kg/Mg)	7.69E-06	=FSP emission factor*(1- Dust Suppression efficiency for PM (0-2.5μm)/100)*(1-% of dust suppression from 3-side cladded and roof/100)
				Mitigated PM(2.5 - 10μm) emission rate (g/s)	4.26E-03	
				Mitigated PM(2.5) emission rate (g/s)	1.30E-03	
	Dust Collector on Mixer	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	2.29	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	7864	From Engineer
	Source ID: EP03 -EP05					
	Working Hours: 0700 - 2100					
		RSP	**1.5233E-03**	Ratio RSP to TSP (Controlled)	0.30	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**6.9239E-04**	Ratio FSP to RSP (Controlled)	0.45	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2
	Dust Collector on Weigh Hopper	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	3.08	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	6000	From Engineer
	Source ID: EP06 - EP08					
	Working Hours: 0700 - 2100					
		RSP	**2.5639E-03**	Ratio RSP to TSP (Uncontrolled)	0.50	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**7.5408E-04**	Ratio FSP to RSP (Uncontrolled)	0.29	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2
	Dust Collector on Cement Silo	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	5.79	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	11196	From Engineer
	Source ID: EP09, EP11, EP13					
	Working Hours: 0700 - 2100					
		RSP	**6.1200E-03**	Ratio RSP to TSP (Controlled)	0.34	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**2.7818E-03**	Ratio FSP to RSP (Controlled)	0.45	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2
	Dust Collector on PFA Silo	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	7.01	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	11196	From Engineer
	Source ID: EP12					
	Working Hours: 0700 - 2100					
		RSP	**1.1630E-02**	Ratio RSP to TSP (Controlled)	0.53	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**5.2862E-03**	Ratio FSP to RSP (Controlled)	0.45	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2
	Dust Collector on GGBS Silo	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	7.01	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	11196	From Engineer
	Source ID: EP10, EP14					
	Working Hours: 0700 - 2100					
		RSP	**1.1630E-02**	Ratio RSP to TSP (Controlled)	0.53	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**5.2862E-03**	Ratio FSP to RSP (Controlled)	0.45	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2
	Dust Collector on Silica Fume Silo	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	3.51	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	11196	From Engineer
	Source ID: EP15, EP16					
	Working Hours: 0700 - 2100					
		RSP	**5.8148E-03**	Ratio RSP to TSP (Controlled)	0.53	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**2.6431E-03**	Ratio FSP to RSP (Controlled)	0.45	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2

Appendix 3.2 Calculations of Emission Rates

Estimation of RSP and FSP Emission Rates

Location	Source	Emission Rates	Mitigated Emission Rates	Parameters		Remarks
Proposed CBP at TYTL14&15	Paved Haul Road inside the Plant (laden & unladen cementitious materials tankers & mixer trucks) Source ID: HR01 Working Hours: 0700 - 2100	Paved Haul Road inside CBP ($g/s \cdot m^2$)		Emission factor (g/VKT)	$E = k\,(sL)^{0.91} \times (W)^{1.02}$	AP-42, Section 13.2.1, 1/11 ed.
				Particle Size Multiplier for RSP, k	0.62	*from Section 13.2.1, USEPA AP-42*
				Particle Size Multiplier for FSP, k	0.15	*from Section 13.2.1, USEPA AP-42*
				Road surface silt loading, sL (g/m^2)	12	*AP-42 Table 13.2.1-3, 1/11 ed.*
				Road Width (m)	7.3	From Engineer
				% of dust suppression = 100 - (0.8*p*d*t)/i	91.7	Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), detailed calculations on 'Calculation of Dust Suppression Efficiency from Watering' on Appendix 3.2
				Number of vehicle per hour	90	From Engineer, number of laden & unladen cementitious materials tankers & mixer trucks per hour
				Average weight of the vehicles (US ton)	29.2	From Engineer, total weight of laden & unladen cementitious materials tankers & mixer trucks divided by above number of vehicles per hour
		RSP	**5.2830E-05**			
				E for RSP (g/vehicle-meter-travelled)	0.186	
		FSP	**1.2781E-05**	E for FSP (g/vehicle-meter-travelled)	0.045	
	Paved Haul Road inside the Plant (laden cementitious materials tankers & unladen mixer trucks) Source ID: HR02 Working Hours: 0700 - 2100	Paved Haul Road inside CBP ($g/s \cdot m^2$)		Emission factor (g/VKT)	$E = k\,(sL)^{0.91} \times (W)^{1.02}$	AP-42, Section 13.2.1, 1/11 ed.
				Particle Size Multiplier for RSP, k	0.62	*from Section 13.2.1, USEPA AP-42*
				Particle Size Multiplier for FSP, k	0.15	*from Section 13.2.1, USEPA AP-42*
				Road surface silt loading, sL (g/m^2)	12	*AP-42 Table 13.2.1-3, 1/11 ed.*
				Road Width (m)	3.65	From Engineer
				% of dust suppression = 100 - (0.8*p*d*t)/i	91.7	Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), detailed calculations on 'Calculation of Dust Suppression Efficiency from Watering' on Appendix 3.2
				Number of vehicle per hour	45	From Engineer, laden cementitious materials tankers & unladen mixer trucks per hour
				Average weight of the vehicles (US ton)	17.7	From Engineer, total weight of laden cementitious materials tankers & unladen mixer trucks divided by above number of vehicles per hour
		RSP	**3.1711E-05**			
				E for RSP (g/vehicle-meter-travelled)	0.112	
		FSP	**7.6720E-06**	E for FSP (g/vehicle-meter-travelled)	0.027	
	Paved Haul Road inside the Plant (unladen cementitious materials tankers & laden mixer trucks) Source ID: HR03 Working Hours: 0700 - 2100	Paved Haul Road inside CBP ($g/s \cdot m^2$)		Emission factor (g/VKT)	$E = k\,(sL)^{0.91} \times (W)^{1.02}$	AP-42, Section 13.2.1, 1/11 ed.
				Particle Size Multiplier for RSP, k	0.62	*from Section 13.2.1, USEPA AP-42*
				Particle Size Multiplier for FSP, k	0.15	*from Section 13.2.1, USEPA AP-42*
				Road surface silt loading, sL (g/m^2)	12	*AP-42 Table 13.2.1-3, 1/11 ed.*
				Road Width (m)	3.65	From Engineer
				% of dust suppression = 100 - (0.8*p*d*t)/i	91.7	Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), detailed calculations on 'Calculation of Dust Suppression Efficiency from Watering' on Appendix 3.2
				Number of vehicle per hour	45	From Engineer, number of unladen cementitious materials tankers & laden mixer trucks per hour
				Average weight of the vehicles (US ton)	40.7	From Engineer, total weight of unladen cementitious materials tankers & laden mixer trucks divided by above number of vehicles per hour
		RSP	**7.4120E-05**			
				E for RSP (g/vehicle-meter-travelled)	0.261	
		FSP	**1.7932E-05**	E for FSP (g/vehicle-meter-travelled)	0.063	

Remarks

- The number of trips and the average weight of vehicles are estimated from the activities of all concerned vehicles travelled on the road.

Type of Vehicles	No. of Trips per Hour	Full load Weight (US ton)	Unladen Weight (US ton)
Mixer Truck	43	41.9	16.5
Cementitious materials (PFA/GGBS/Silica Fume) Truck	2	43.0	15.4

Appendix 3.2 Calculations of Emission Rates

Calculation of Dust Suppression Efficiency from Watering

Dust suppression efficiency is assumed to be 91.7%.
Assumptions are stated as below. With reference to the Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), dust suppression efficiency can be estimated by:

$$C = 100 - \frac{0.8 \cdot p \cdot d \cdot t}{i}$$

where
C = average control effiency, in percent
p = potential average hourly daytime evaporation rate, in mm/hr
d = average hourly daytime traffic rate, in vehicles per hour
i = application intensity, in L/m^2
t = time between applications, in hour

The following assumptions are made for assessment purpose:

Assumption 1
Potential average hourly daytime evaporation rate p can be estimated by 0.0049 * e, where e is the mean annual average evaporation rate (inches).
From past measurement data in Hong Kong's Observatory, evaporation recorded at King's Park between 1992 - 2020 is 1204.1 mm[1]. Therefore p = 0.0049 * (1204.1 mm) = 0.0049 * (47.40551 inches) = 0.2323.

Assumption 2
For HR01, estimate average hourly daytime traffic rate in vehicles per hour = 90[2] (d=90)
For HR02-HR03, estimate average hourly daytime traffic rate in vehicles per hour = 45[2] (d=45)

Assumption 3
For HR01, assume watering application intensity as 2.02 L/m^2 [2] (i=2.02)
For HR02-HR03, assume watering application intensity as 1.01 L/m^2 [2] (i=1.01)

Assumption 4
Assume watering frequency as once every hour. [2] (t=1)

With the above assumptions, dust suppression efficiency is calculated as below:
For HR01: C = 100 - 0.8*0.2323*90*1/2.02 = **91.7%**
For HR02-HR03: C = 100 - 0.8*0.2323*45*1/1.01 = **91.7%**

Notes:
[1] The evaporation recorded at King's Park between 1992 - 2020 is taken from https://www.hko.gov.hk/en/cis/normal/1991_2020/normals.htm
[2] Provided by the Engineer

Appendix 3.2 Calculations of Emission Rates

Dust Emission Source Listing in AERMOD

Sources from the proposed Concrete Batching Plant at TYTL14&15

											RSP Emission Rate*		FSP Emission Rate*		
Source ID	Type	X1	Y1	Base Elevation (mPD)	Height (mAG) ^	Exit Temp. (K)	Exit velocity (m/s) ^	Stack Diameter (m) ^	Szinit (m)	Working Hours	Working hours	Non-working hours	Working hours	Non-working hours	Remarks
EP01	Areapoly	827870.97	824758.12	4.20	6.30	-	-	-	0.93023	0700 - 2100	6.4371E-04	0.00E+00	1.5079E-04	0.00E+00	[1]
EP03	Point	827864.30	824675.10	4.20	8.80	0.00	15.60	0.42	-	0700 - 2100	1.5233E-03	0.00E+00	6.9239E-04	0.00E+00	-
EP04	Point	827864.40	824681.80	4.20	8.80	0.00	15.60	0.42	-	0700 - 2100	1.5233E-03	0.00E+00	6.9239E-04	0.00E+00	-
EP05	Point	827864.70	824688.30	4.20	8.80	0.00	15.60	0.42	-	0700 - 2100	1.5233E-03	0.00E+00	6.9239E-04	0.00E+00	-
EP06	Point	827863.90	824675.00	4.20	8.80	0.00	11.90	0.42	-	0700 - 2100	2.5639E-03	0.00E+00	7.5408E-04	0.00E+00	-
EP07	Point	827864.20	824681.80	4.20	8.80	0.00	11.90	0.42	-	0700 - 2100	2.5639E-03	0.00E+00	7.5408E-04	0.00E+00	-
EP08	Point	827864.40	824688.40	4.20	8.80	0.00	11.90	0.42	-	0700 - 2100	2.5639E-03	0.00E+00	7.5408E-04	0.00E+00	-
EP09	Point	827863.20	824688.50	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	6.1200E-03	0.00E+00	2.7818E-03	0.00E+00	-
EP10	Point	827866.60	824688.40	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	1.1630E-02	0.00E+00	5.2862E-03	0.00E+00	-
EP11	Point	827862.60	824681.70	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	6.1200E-03	0.00E+00	2.7818E-03	0.00E+00	-
EP12	Point	827866.50	824681.50	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	1.1630E-02	0.00E+00	5.2862E-03	0.00E+00	-
EP13	Point	827862.40	824674.80	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	6.1200E-03	0.00E+00	2.7818E-03	0.00E+00	-
EP14	Point	827866.30	824674.80	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	1.1630E-02	0.00E+00	5.2862E-03	0.00E+00	-
EP15	Point	827864.60	824685.30	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	5.8148E-03	0.00E+00	2.6431E-03	0.00E+00	-
EP16	Point	827864.40	824678.40	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	5.8148E-03	0.00E+00	2.6431E-03	0.00E+00	-
HR01	Areapoly	827867.50	824740.50	4.20	3.3065	-	-	-	3.07581	0700 - 2100	5.2830E-05	0.00E+00	1.2781E-05	0.00E+00	[2]
HR02	Areapoly	827880.20	824733.10	4.20	3.3065	-	-	-	3.07581	0700 - 2100	3.1711E-05	0.00E+00	7.6720E-06	0.00E+00	[2]
HR03	Areapoly	827879.00	824680.10	4.20	3.3065	-	-	-	3.07581	0700 - 2100	7.4120E-05	0.00E+00	1.7932E-05	0.00E+00	[2]

Remarks:

Emission rate for Area source (g/m^2/s) = Emission rate (g/s) / Area

* - Emission rate of point source is in gram per second (g/s) while the one of area source is in gram per square meter per second (g/m^2/s).

^ - From Engineer

[1] release height of EP01= (drop height + height of hopper)/2; initial vertical dimension of EP01 = (drop height -height of hopper)/2.15

[2] release height of HR01-HR03 = weighted average vehicle height *1.7 /2; initial vertical dimention of HR01-HR03 = weighted avergae vehicle height *1.7/2.15

Vertices of Area Sources

Source ID	X1	Y1	X2	Y2	X3	Y3	X4	Y4
EP01	827870.97	824758.12	827871.02	824761.35	827873.70	824761.32	827873.71	824758.12
HR01	827867.50	824740.50	827898.90	824739.60	827898.70	824732.30	827867.30	824733.10
HR02	827880.20	824733.10	827878.90	824675.90	827875.30	824676.00	827876.50	824733.20
HR03	827879.00	824680.10	827880.20	824733.10	827883.90	824733.00	827882.60	824680.00

Appendix 3.2 Calculations of Emission Rates

Dust Emission Source Listing in AERMOD

Hourly Profile for EP01, unloading of aggregate from aggregate barge

Hour	EP01
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	1.0000
Hour 9	1.0000
Hour 10	1.0000
Hour 11	1.0000
Hour 12	0.0000
Hour 13	0.0000
Hour 14	0.0000
Hour 15	0.0000
Hour 16	1.0000
Hour 17	1.0000
Hour 18	1.0000
Hour 19	1.0000
Hour 20	0.0000
Hour 21	0.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Hourly Profile for EP03-EP05, DC on Mixer

Hour	EP03-EP05
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	1.0000
Hour 9	1.0000
Hour 10	1.0000
Hour 11	1.0000
Hour 12	1.0000
Hour 13	1.0000
Hour 14	1.0000
Hour 15	1.0000
Hour 16	1.0000
Hour 17	1.0000
Hour 18	1.0000
Hour 19	1.0000
Hour 20	1.0000
Hour 21	1.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Hourly Profile for EP06-EP08, DC on Weigh Hopper

Hour	EP06-EP08
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	1.0000
Hour 9	1.0000
Hour 10	1.0000
Hour 11	1.0000
Hour 12	1.0000
Hour 13	1.0000
Hour 14	1.0000
Hour 15	1.0000
Hour 16	1.0000
Hour 17	1.0000
Hour 18	1.0000
Hour 19	1.0000
Hour 20	1.0000
Hour 21	1.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Hourly Profile for EP09, EP11&EP13 , DC on Cement Silo

Hour	EP09, EP11&EP13
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	0.0000
Hour 9	0.0000
Hour 10	0.0000
Hour 11	0.0000
Hour 12	1.0000
Hour 13	1.0000
Hour 14	1.0000
Hour 15	1.0000
Hour 16	0.0000
Hour 17	0.0000
Hour 18	0.0000
Hour 19	0.0000
Hour 20	0.0000
Hour 21	0.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Hourly Profile for EP12, DC on PFA Silo

Hour	EP12
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	1.0000
Hour 9	0.0000
Hour 10	1.0000
Hour 11	0.0000
Hour 12	1.0000
Hour 13	0.0000
Hour 14	1.0000
Hour 15	0.0000
Hour 16	1.0000
Hour 17	0.0000
Hour 18	1.0000
Hour 19	0.0000
Hour 20	0.0000
Hour 21	0.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Hourly Profile for EP10 &EP14 , DC on GGBS Silo

Hour	EP10	EP14
Hour 1	0.0000	0.0000
Hour 2	0.0000	0.0000
Hour 3	0.0000	0.0000
Hour 4	0.0000	0.0000
Hour 5	0.0000	0.0000
Hour 6	0.0000	0.0000
Hour 7	0.0000	0.0000
Hour 8	0.0000	0.0000
Hour 9	1.0000	1.0000
Hour 10	0.0000	0.0000
Hour 11	1.0000	1.0000
Hour 12	0.0000	0.0000
Hour 13	1.0000	1.0000
Hour 14	0.0000	0.0000
Hour 15	1.0000	1.0000
Hour 16	0.0000	0.0000
Hour 17	1.0000	1.0000
Hour 18	0.0000	0.0000
Hour 19	1.0000	1.0000
Hour 20	0.0000	0.0000
Hour 21	0.0000	0.0000
Hour 22	0.0000	0.0000
Hour 23	0.0000	0.0000
Hour 24	0.0000	0.0000

Hourly Profile for EP15-EP16 , DC on Silica Fume Silo

Hour	EP15	EP16
Hour 1	0.0000	0.0000
Hour 2	0.0000	0.0000
Hour 3	0.0000	0.0000
Hour 4	0.0000	0.0000
Hour 5	0.0000	0.0000
Hour 6	0.0000	0.0000
Hour 7	0.0000	0.0000
Hour 8	1.0000	1.0000
Hour 9	1.0000	1.0000
Hour 10	0.0000	0.0000
Hour 11	0.0000	0.0000
Hour 12	0.0000	0.0000
Hour 13	0.0000	0.0000
Hour 14	0.0000	0.0000
Hour 15	0.0000	0.0000
Hour 16	0.0000	0.0000
Hour 17	0.0000	0.0000
Hour 18	1.0000	1.0000
Hour 19	1.0000	1.0000
Hour 20	0.0000	0.0000
Hour 21	0.0000	0.0000
Hour 22	0.0000	0.0000
Hour 23	0.0000	0.0000
Hour 24	0.0000	0.0000

Hourly Profile for HR01-HR03 , Paved Haul Road

Hour	HR01-HR03
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	1.0000
Hour 9	1.0000
Hour 10	1.0000
Hour 11	1.0000
Hour 12	1.0000
Hour 13	1.0000
Hour 14	1.0000
Hour 15	1.0000
Hour 16	1.0000
Hour 17	1.0000
Hour 18	1.0000
Hour 19	1.0000
Hour 20	1.0000
Hour 21	1.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Appendix 3.2 Calculations of Emission Rates

Particle Size Distribution of Process

RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)

Source	Uncontrolled Emission Factor (kg/Mg)		Controlled Emission Factor (kg/Mg)		Uncontrolled RSP-to-TSP Ratio	Controlled RSP-to-TSP Ratio
	TSP	RSP	TSP	RSP		
Cement unloading to elevated storage silo (pneumatic)	0.36	0.24	0.00050	0.00017	0.6667	**0.3400**
Cement supplement unloading to elevated storage silo (pneumatic)	1.57	0.65	0.0045	0.0024	0.4140	**0.5333**
Weigh hopper loading (Aggregate and Sand)	0.0026	0.0013	-	-	**0.5000**	-
Mixer loading (central mix)	0.286	0.078	0.0092	0.0028	0.2727	**0.3043**

Remark:

(a) Reference from Table 11.12-1 Emission Factors for Concrete Batching, Chapter 11.12 Concrete Batching, AP-42, USEPA (Version 01/12)

Particle Size Distribution of General Concrete Batching Process (Controlled by Fabric Filter)

Perentage of Particle Size Range

Particale Size Range [a]	Average Partical Size [a]	% before Removal [a]	Removal Efficiency % [b]	% after Removal	Normalised Fraction [c]	Normalised Fraction for PM10 [c, d]
≤ 1.0	0.50	4	99.0%	0.04	7%	12%
1.0 - 2.0	1.50	7	99.0%	0.07	12%	21%
2.0 - 2.5	2.25	4	99.0%	0.04	7%	12%
2.5 - 3.0	2.75	3	99.5%	0.015	3%	5%
3.0 - 4.0	3.50	7	99.5%	0.035	6%	11%
4.0 - 5.0	4.50	5	99.5%	0.025	4%	8%
5.0 - 6.0	5.50	4	99.5%	0.02	3%	6%
6.0 - 10	8.00	17	99.5%	0.085	15%	26%
10 - 30	20.00	49	99.5%	0.245	43%	-

Remark:

(a) Derived from Table B.2.2 "Description of Particle Size Categories" for Category 3 “Mechanically Generated Aggregate, Unprocessed Ores”, Page B.2-13 of Appendix B.2 Generalized Particle Size Distributions, AP-42, USEPA (Version 1/95) (see below)

(b) Control efficiency of fabric filter on different size of particle refers to Table B.2-3 Typical Collection Efficiencies of Various Particulate Control Device, Appendix B.2 Generalized Particle Size Distributions, AP-42, USEPA (Version 1/95) (see below)

(c) Normalised Fraction = % after normal of each particale size range / sum of % after removal of all particle size ranges

(d) Sum of normalizsed fraction maintains 100% in air dispersion model by applying percentage in 6 decimal places.

Cumulative Percentage of Particle Size

Particale Size [a]	Cumulative ratio before Removal [a]	Cumulative % after Removal [b]
≤ 1.0	4.000%	7%
≤ 2.0	11.000%	19%
≤ 2.5	15.000%	26%
≤ 3.0	18.000%	29%
≤ 4.0	25.000%	35%
≤ 5.0	30.000%	39%
≤ 6.0	34.000%	43%
≤ 10	51.000%	57%
≤ 30	100.000%	100%

Remarks

(a) Reference from Table B.2.2 "Description of Particle Size Categories" for Category 3 “Mechanically Generated Aggregate, Unprocessed Ores”, Page B.2-13 of Appendix B.2 Generalized Particle Size Distributions, AP-42, USEPA (Version 1/95) (see below)

(b) Deducted from Normalised Fraction of Table "Percentage of Particle Size Range"

FSP-to-RSP and FSP-to-TSP Ratios

FSP-to-RSP ratio (Uncontrolled)	**0.294**
FSP-to-RSP ratio (Controlled)	**0.455**
FSP-to-TSP ratio (Uncontrolled)	**0.150**

Remarks

(a) Deducted from Table "Cumulative Percentage of Particle Size Range"

Appendix 3.2 Calculations of Emission Rates

Particle Size Distribution of Process

Dust collector on Cement Silo / Cement Supplement Silo		for TSP	for RSP	for FSP
Particale Size Range	**Average Partical Size**	**Percentage**	**Percentage**	**Percentage**
≤ 1.0	0.50	N/A	12%	27%
1.0 - 2.0	1.50	N/A	21%	47%
2.0 - 2.5	2.25	N/A	12%	27%
2.5 - 3.0	2.75	N/A	5%	-
3.0 - 4.0	3.50	N/A	11%	-
4.0 - 5.0	4.50	N/A	8%	-
5.0 - 6.0	5.50	N/A	6%	-
6.0 - 10	8.00	N/A	26%	-
10.0 - 30.0	20.00	N/A	-	-

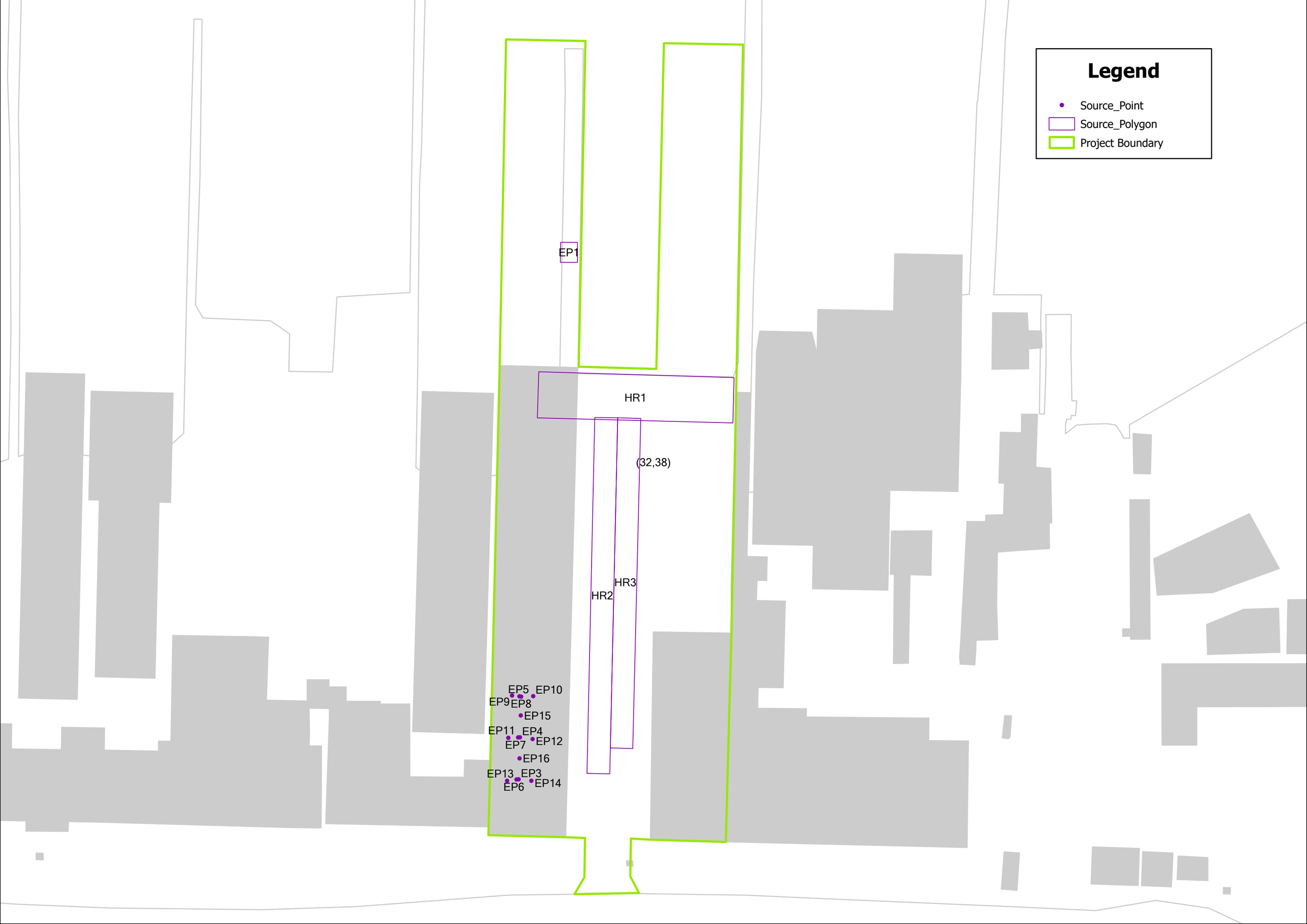
Remark:

(a) Size distribution for RSP refers to Normalised Fraction for PM10 of Table "Particle Size Distribution of General Concrete Batching Process (Controlled by Fabric Filter)"

Dust collector on Mixer & Weigh Hoppers		for TSP	for RSP	for FSP
Particale Size Range	**Average Partical Size**	**Percentage**	**Percentage**	**Percentage**
≤ 1.0	0.50	N/A	12%	27%
1.0 - 2.0	1.50	N/A	21%	47%
2.0 - 2.5	2.25	N/A	12%	27%
2.5 - 3.0	2.75	N/A	5%	-
3.0 - 4.0	3.50	N/A	11%	-
4.0 - 5.0	4.50	N/A	8%	-
5.0 - 6.0	5.50	N/A	6%	-
6.0 - 10	8.00	N/A	26%	-
10.0 - 30.0	20.00	N/A	-	-

Remark:

(a) Size distribution for RSP refers to Normalised Fraction for PM10 of Table "Particle Size Distribution of General Concrete Batching Process (Controlled by Fabric Filter)"


Legend
Source_Point
Source_Polygon
Project Boundary
EP1
HR1
(32,38)
HR3
HR2
EP5
EP10
EP9
EP8
EP15
EP11
EP4
EP7
EP12
EP16
EP13
EP3
EP6
EP14

Appendix 3.3 Determination of Surface Characteristics Parameters

Summary of Default Albedo, Bowen Ratio and Surface Roughness from AERMET

Code	Color Sampl	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Rat
1		Private Residential	1	0.18	1.5
2		Public Residential	1	0.18	1.5
3		Rural Settlement	0.375	0.165	0.9
11		Commercial/Business and Office	1	0.18	1.5
21		Industrial Land	0.7	0.18	1.5
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5
23		Warehouse and Open Storage	0.7	0.18	1.5
31		Government, Institutional and Community Facilities	0.7	0.18	1.5
32		Open Space and Recreation	0.04	0.15	1
41		Roads and Transport Facilities	0.7	0.18	1.5
42		Railways	0.7	0.18	1.5
43		Airport	0.07	0.18	1.5
44		Port Facilities	0.7	0.18	1.5
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5
52		Utilities	0.7	0.18	1.5
53		Vacant Land/Construction in Progress	0.2	0.18	1
54		Others	0.2	0.18	1
61		Agricultural Land	0.1575	0.18	0.55
62		Fish Ponds/Gei Wais	0.001	0.1	0.1
71		Woodland	1.05	0.1625	0.75
72		Shrubland	0.3	0.18	1.25
73		Grassland	0.065	0.185	0.8
74		Mangrove/Swamp	0.065	0.14	0.225
81		Badland	0.15	0.1625	0.75
83		Rocky Shore	0.05	0.2	4.75
91		Reservoirs	0.001	0.1	0.1
92		Streams and Nullahs	0.001	0.1	0.1
99		SZ Residential *	1	0.18	1.5
0		Open Sea *	0.001	0.1	0.1

* Non-PlanD Land Utilization categories

Remarks

1. Surface roughness length is based on an inverse-distance weighted geometric mean for an upwind distance of 1km relative to the concerned site.
2. Reference to AERMOD Implementation Guide, the determination of the Bowen ratio should be based on a simple unweighted geometric mean (i.e., no direction or distance dependency) for a representative domain, with a default domain defined by a 10km by 10km region centered on the measurement site.
3. Reference to AERMOD Implementation Guide, the determination of the albedo should be based on a simple unweighted arithmetic mean (i.e., no direction or distance dependency) for the same representative domain as defined for Bowen ratio, with a default domain defined by a 10km by 10km region centered on the measurement site.

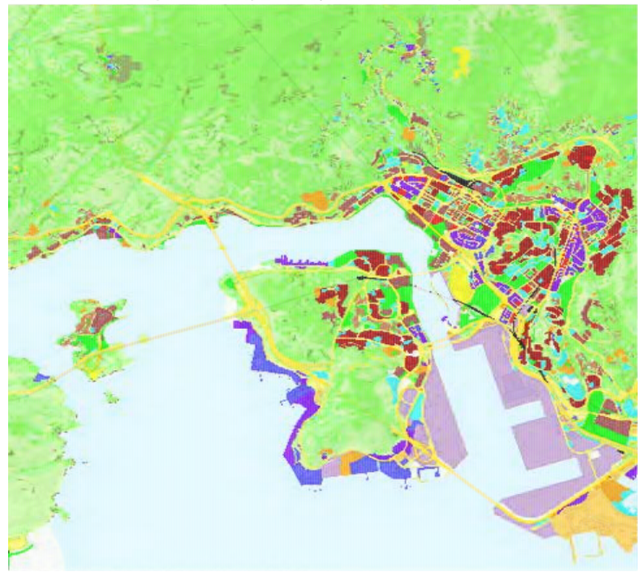
Appendix 3.3 Determination of Surface Characteristics Parameters

(32,37)

Code	Co	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Perce	b^n/Sn
1		Private Residential	1	0.18	1.5	17371	1.74%	0.00312678	1.007068197
2		Public Residential	1	0.18	1.5	21894	2.19%	0.00394092	1.008916773
3		Rural Settlement	0.375	0.165	0.9	8690	0.87%	0.00143385	0.999084836
11		Commercial/Business and Office	1	0.18	1.5	2742	0.27%	0.00049356	1.001112404
21		Industrial Land	0.7	0.18	1.5	13066	1.31%	0.00235188	1.005311865
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5	0	0.00%	0	1
23		Warehouse and Open Storage	0.7	0.18	1.5	9463	0.95%	0.00170334	1.003844287
31		Government, Institutional and Community Facilities	0.7	0.18	1.5	15402	1.54%	0.00277236	1.006264514
32		Open Space and Recreation	0.04	0.15	1	21159	2.12%	0.00317385	1
41		Roads and Transport Facilities	0.7	0.18	1.5	56257	5.63%	0.01012626	1.023072394
42		Railways	0.7	0.18	1.5	1626	0.16%	0.00029268	1.000659504
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	36793	3.68%	0.00662274	1.015030111
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5	3432	0.34%	0.00061776	1.001392525
52		Utilities	0.7	0.18	1.5	9042	0.90%	0.00162756	1.003672944
53		Vacant Land/Construction in Progress	0.2	0.18	1	9715	0.97%	0.0017487	1
54		Others	0.2	0.18	1	9843	0.98%	0.00177174	1
61		Agricultural Land	0.1575	0.18	0.55	13144	1.31%	0.00236592	0.992172824
62		Fish Ponds/Gei Wais	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	266092	26.61%	0.04323995	0.926306692
72		Shrubland	0.3	0.18	1.25	75431	7.54%	0.01357758	1.016974396
73		Grassland	0.065	0.185	0.8	83212	8.32%	0.01539422	0.981603106
74		Mangrove/Swamp	0.065	0.14	0.225	18	0.00%	0.00000252	0.999973151
81		Badland	0.15	0.1625	0.75	0	0.00%	0	1
83		Rocky Shore	0.05	0.2	4.75	326	0.03%	0.0000652	1.000508084
91		Reservoirs	0.001	0.1	0.1	76	0.01%	0.0000076	0.999825019
92		Streams and Nullahs	0.001	0.1	0.1	1796	0.18%	0.0001796	0.995873096
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	323410	32.34%	0.032341	0.474886693
				0.148978	**0.467802**	1000000			

* Non-PlanD Land Utilization categories

Center: X=827855, Y=824285, Z=97.0; Met Year=2019;



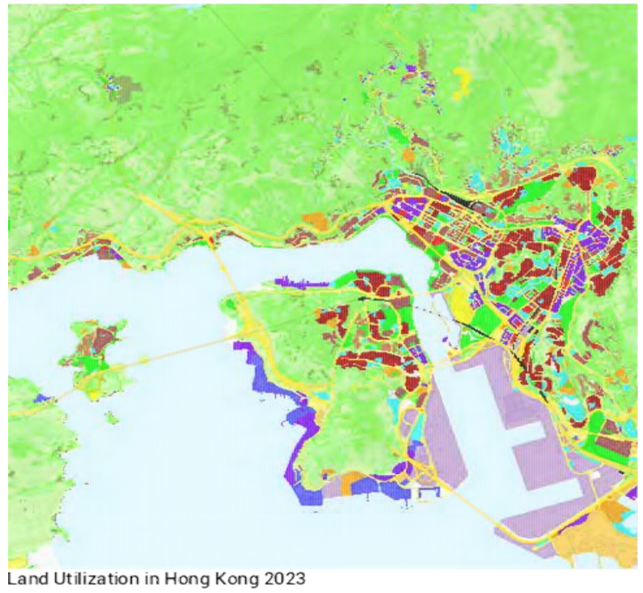
Land Utilization in Hong Kong 2023

(32,38)

Code	Co	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Perce	b^n/Sn
1		Private Residential	1	0.18	1.5	17371	1.74%	0.00312678	1.007068197
2		Public Residential	1	0.18	1.5	21894	2.19%	0.00394092	1.008916773
3		Rural Settlement	0.375	0.165	0.9	8691	0.87%	0.001434015	0.999084731
11		Commercial/Business and Office	1	0.18	1.5	2742	0.27%	0.00049356	1.001112404
21		Industrial Land	0.7	0.18	1.5	13046	1.30%	0.00234828	1.005303713
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5	0	0.00%	0	1
23		Warehouse and Open Storage	0.7	0.18	1.5	9461	0.95%	0.00170298	1.003843473
31		Government, Institutional and Community Facilities	0.7	0.18	1.5	15526	1.55%	0.00279468	1.006315108
32		Open Space and Recreation	0.04	0.15	1	21008	2.10%	0.0031512	1
41		Roads and Transport Facilities	0.7	0.18	1.5	56271	5.63%	0.01012878	1.023078201
42		Railways	0.7	0.18	1.5	1618	0.16%	0.00029124	1.000656258
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	36793	3.68%	0.00662274	1.015030111
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5	3436	0.34%	0.00061848	1.001394149
52		Utilities	0.7	0.18	1.5	9110	0.91%	0.0016398	1.003700618
53		Vacant Land/Construction in Progress	0.2	0.18	1	6612	0.66%	0.00119016	1
54		Others	0.2	0.18	1	9529	0.95%	0.00171522	1
61		Agricultural Land	0.1575	0.18	0.55	13211	1.32%	0.00237798	0.992133083
62		Fish Ponds/Gei Wais	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	291139	29.11%	0.047310088	0.919656111
72		Shrubland	0.3	0.18	1.25	82562	8.26%	0.01486116	1.018593932
73		Grassland	0.065	0.185	0.8	89093	8.91%	0.016482205	0.980315786
74		Mangrove/Swamp	0.065	0.14	0.225	21	0.00%	0.00000294	0.999968676
81		Badland	0.15	0.1625	0.75	7	0.00%	1.1375E-06	0.999997986
83		Rocky Shore	0.05	0.2	4.75	326	0.03%	0.0000652	1.000508084
91		Reservoirs	0.001	0.1	0.1	437	0.04%	0.0000437	0.998994276
92		Streams and Nullahs	0.001	0.1	0.1	1913	0.19%	0.0001913	0.995604842
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	288183	28.82%	0.0288183	0.515011587
				0.151353	**0.503285**	1000000			

* Non-PlanD Land Utilization categories

Center: X=827845, Y=824675, Z=6.0; Met Year=2019;



Land Utilization in Hong Kong 2023

Appendix 3.3 Determination of Surface Characteristics Parameters

(33,37)

Code	Co	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Perce	b^n/Sn
1		Private Residential	1	0.18	1.5	17500	1.75%	0.00315	1.007120873
2		Public Residential	1	0.18	1.5	22351	2.24%	0.00402318	1.00910374
3		Rural Settlement	0.375	0.165	0.9	8634	0.86%	0.00142461	0.999090731
11		Commercial/Business and Office	1	0.18	1.5	3142	0.31%	0.00056556	1.001274783
21		Industrial Land	0.7	0.18	1.5	13757	1.38%	0.00247626	1.005593569
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5	0	0.00%	0	1
23		Warehouse and Open Storage	0.7	0.18	1.5	9464	0.95%	0.00170352	1.003844694
31		Government, Institutional and Community Facilities	0.7	0.18	1.5	16541	1.65%	0.00297738	1.006729339
32		Open Space and Recreation	0.04	0.15	1	21126	2.11%	0.0031689	1
41		Roads and Transport Facilities	0.7	0.18	1.5	58158	5.82%	0.01046844	1.023861271
42		Railways	0.7	0.18	1.5	1618	0.16%	0.00029124	1.000656258
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	36793	3.68%	0.00662274	1.015030111
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5	3727	0.37%	0.00067086	1.001512311
52		Utilities	0.7	0.18	1.5	9578	0.96%	0.00172404	1.003891096
53		Vacant Land/Construction in Progress	0.2	0.18	1	7528	0.75%	0.00135504	1
54		Others	0.2	0.18	1	11054	1.11%	0.00198972	1
61		Agricultural Land	0.1575	0.18	0.55	12660	1.27%	0.0022788	0.992459953
62		Fish Ponds/Gei Wais	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	273385	27.34%	0.044425063	0.924365278
72		Shrubland	0.3	0.18	1.25	73814	7.38%	0.01328652	1.016607515
73		Grassland	0.065	0.185	0.8	76616	7.66%	0.01417396	0.983048947
74		Mangrove/Swamp	0.065	0.14	0.225	17	0.00%	0.00000238	0.999974642
81		Badland	0.15	0.1625	0.75	0	0.00%	0	1
83		Rocky Shore	0.05	0.2	4.75	326	0.03%	0.0000652	1.000508084
91		Reservoirs	0.001	0.1	0.1	4736	0.47%	0.0004736	0.989154201
92		Streams and Nullahs	0.001	0.1	0.1	1829	0.18%	0.0001829	0.995797427
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	315646	31.56%	0.0315646	0.483452711
				0.149065	**0.471855**	1000000			

* Non-PlanD Land Utilization categories

Center: X=828315, Y=824355, Z=74.0; Met Year=2019;

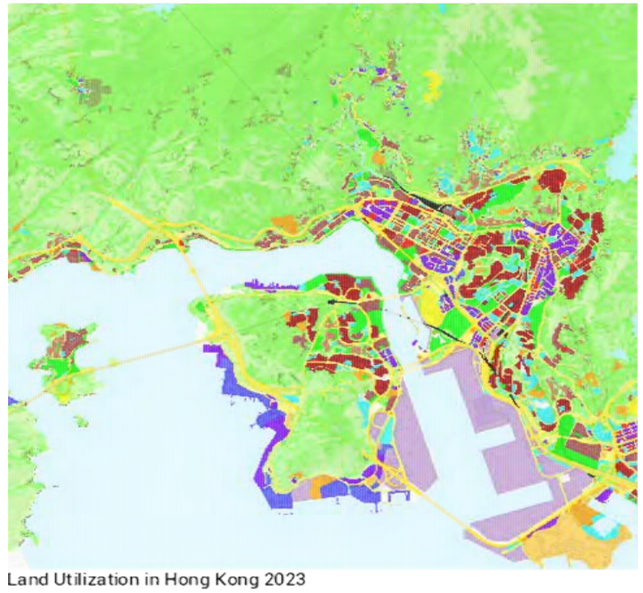
Land Utilization in Hong Kong 2023

(33,38)

Code	Co	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Perce	b^n/Sn
1		Private Residential	1	0.18	1.5	17517	1.75%	0.00315306	1.007127815
2		Public Residential	1	0.18	1.5	22363	2.24%	0.00402534	1.00910865
3		Rural Settlement	0.375	0.165	0.9	8634	0.86%	0.00142461	0.999090731
11		Commercial/Business and Office	1	0.18	1.5	3146	0.31%	0.00056628	1.001276407
21		Industrial Land	0.7	0.18	1.5	13780	1.38%	0.0024804	1.005602947
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5	0	0.00%	0	1
23		Warehouse and Open Storage	0.7	0.18	1.5	9457	0.95%	0.00170226	1.003841845
31		Government, Institutional and Community Facilities	0.7	0.18	1.5	16806	1.68%	0.00302508	1.006837516
32		Open Space and Recreation	0.04	0.15	1	21202	2.12%	0.0031803	1
41		Roads and Transport Facilities	0.7	0.18	1.5	58314	5.83%	0.01049652	1.023926035
42		Railways	0.7	0.18	1.5	1618	0.16%	0.00029124	1.000656258
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	36793	3.68%	0.00662274	1.015030111
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5	3763	0.38%	0.00067734	1.00152693
52		Utilities	0.7	0.18	1.5	9643	0.96%	0.00173574	1.003917554
53		Vacant Land/Construction in Progress	0.2	0.18	1	6014	0.60%	0.00108252	1
54		Others	0.2	0.18	1	10659	1.07%	0.00191862	1
61		Agricultural Land	0.1575	0.18	0.55	12696	1.27%	0.00228528	0.992438594
62		Fish Ponds/Gei Wais	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	297218	29.72%	0.048297925	0.918049204
72		Shrubland	0.3	0.18	1.25	80994	8.10%	0.01457892	1.018237599
73		Grassland	0.065	0.185	0.8	81178	8.12%	0.01501793	0.982048731
74		Mangrove/Swamp	0.065	0.14	0.225	20	0.00%	0.0000028	0.999970167
81		Badland	0.15	0.1625	0.75	6	0.00%	0.000000975	0.999998274
83		Rocky Shore	0.05	0.2	4.75	326	0.03%	0.0000652	1.000508084
91		Reservoirs	0.001	0.1	0.1	5460	0.55%	0.000546	0.987506584
92		Streams and Nullahs	0.001	0.1	0.1	1929	0.19%	0.0001929	0.995568163
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	280464	28.05%	0.0280464	0.524247056
				0.151416	**0.507611**	1000000			

* Non-PlanD Land Utilization categories

Center: X=828325, Y=824725, Z=12.0; Met Year=2019;



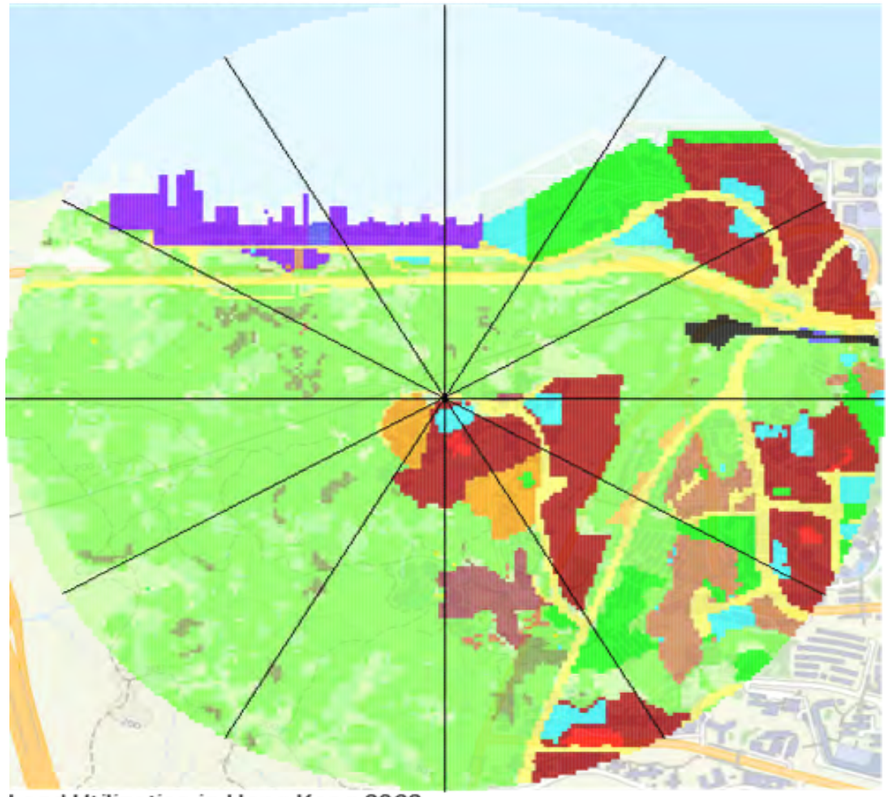
Land Utilization in Hong Kong 2023

Appendix 3.3 Determination of Surface Characteristics Parameters

(32,37)

Angle	Group	Inverse-dis	Roughness
0	0 - 30	5.176453	**0.025219**
30	30 - 60	5.317689	**0.262597**
60	60 - 90	5.176453	**0.632319**
90	90 - 120	5.176453	**0.627891**
120	120 - 150	5.317689	**0.514347**
150	150 - 180	5.176453	**0.725347**
180	180 - 210	5.176453	**0.706511**
210	210 - 240	5.317689	**0.565012**
240	240 - 270	5.176453	**0.670072**
270	270 - 300	5.176453	**0.493658**
300	300 - 330	5.317689	**0.095948**
330	330 - 360	5.176453	**0.020651**

Center: X=827975, Y=824255, Z=88.0; Met Year=2019;

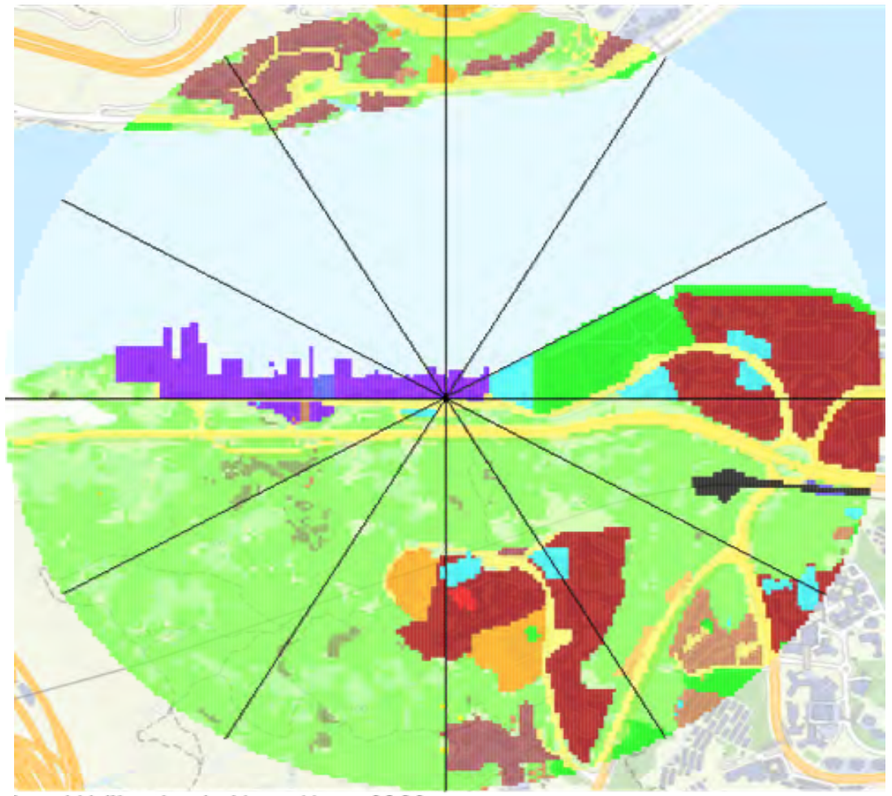


Land Utilization in Hong Kong 2023

(32,38)

Angle	Group	Inverse-dis	Roughness
0	0 - 30	5.176453	**0.004488**
30	30 - 60	5.317689	**0.001898**
60	60 - 90	5.176453	**0.133193**
90	90 - 120	5.176453	**0.569626**
120	120 - 150	5.317689	**0.667292**
150	150 - 180	5.176453	**0.758715**
180	180 - 210	5.176453	**0.699645**
210	210 - 240	5.317689	**0.655760**
240	240 - 270	5.176453	**0.492275**
270	270 - 300	5.176453	**0.017662**
300	300 - 330	5.317689	**0.002955**
330	330 - 360	5.176453	**0.007630**

Center: X=827845, Y=824675, Z=6.0; Met Year=2019;



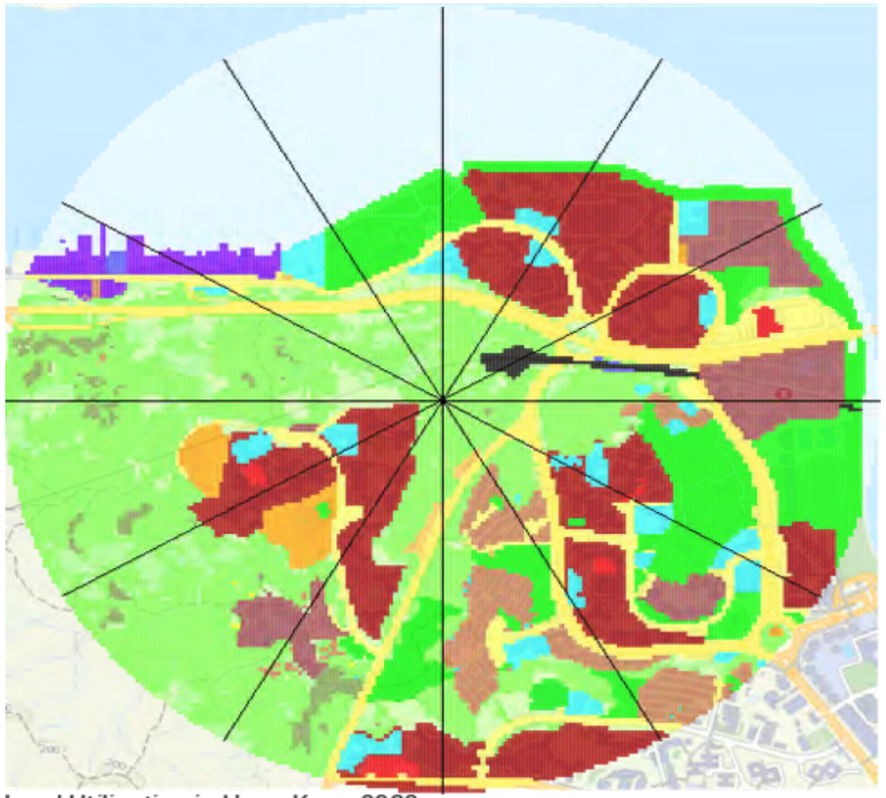
Land Utilization in Hong Kong 2023

Appendix 3.3 Determination of Surface Characteristics Parameters

(33,37)

Angle	Group	Inverse-dis	Roughness
0	0 - 30	5.176453	**0.058366**
30	30 - 60	5.317689	**0.214727**
60	60 - 90	5.176453	**0.482948**
90	90 - 120	5.176453	**0.303801**
120	120 - 150	5.317689	**0.561829**
150	150 - 180	5.176453	**0.461248**
180	180 - 210	5.176453	**0.605824**
210	210 - 240	5.317689	**0.849340**
240	240 - 270	5.176453	**0.705220**
270	270 - 300	5.176453	**0.463543**
300	300 - 330	5.317689	**0.037960**
330	330 - 360	5.176453	**0.019115**

Center: X=828315, Y=824355, Z=74.0; Met Year=2019;

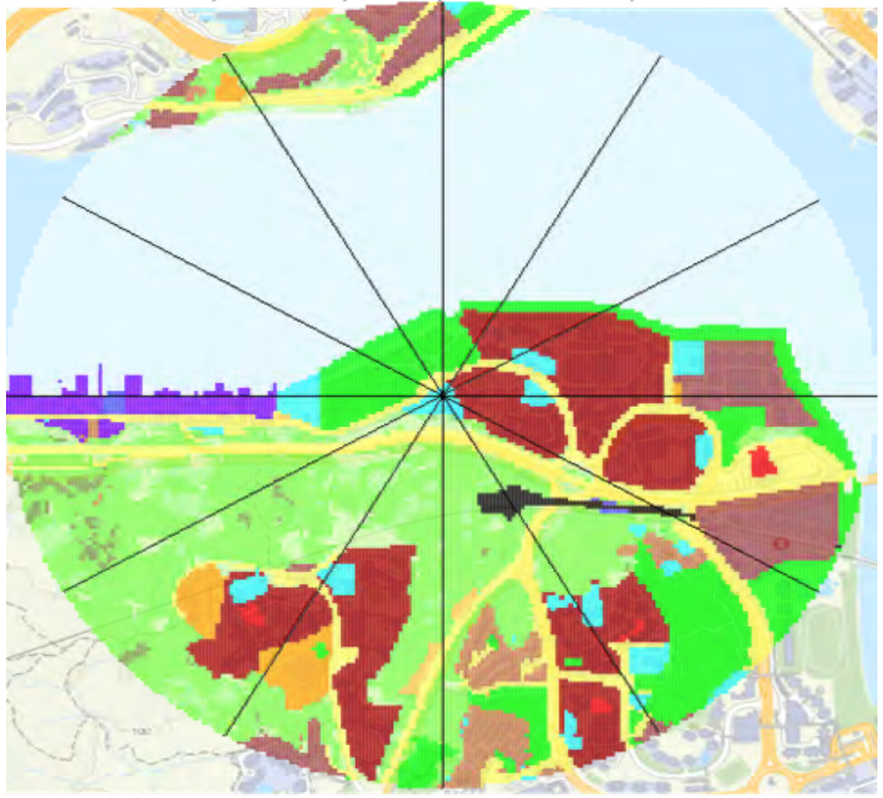


Land Utilization in Hong Kong 2023

(33,38)

Angle	Group	Inverse-dis	Roughness
0	0 - 30	5.176453	**0.003844**
30	30 - 60	5.317689	**0.009490**
60	60 - 90	5.176453	**0.076453**
90	90 - 120	5.176453	**0.548859**
120	120 - 150	5.317689	**0.411079**
150	150 - 180	5.176453	**0.609194**
180	180 - 210	5.176453	**0.641075**
210	210 - 240	5.317689	**0.585318**
240	240 - 270	5.176453	**0.423521**
270	270 - 300	5.176453	**0.004154**
300	300 - 330	5.317689	**0.003984**
330	330 - 360	5.176453	**0.010395**

Center: X=828325, Y=824725, Z=12.0; Met Year=2019;



Land Utilization in Hong Kong 2023

APPENDIX 3.4

Calculation of Vehicular Emissions

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2028)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 1	1	-	70	68.66815	N	0000-0100	179	25.70%	16.76%	5.59%	8.38%	4.47%	2.23%	10.06%	0.00%	0.00%	0.00%	0.56%	3.91%	2.23%	0.00%	4.47%	2.23%	13.41%	0.00%	100%
Road 1	1	-	70	69.18899	N	0100-0200	109	43.12%	11.01%	4.59%	6.42%	3.67%	1.83%	6.42%	0.00%	0.00%	0.00%	0.00%	2.75%	1.83%	0.00%	3.67%	2.75%	11.93%	0.00%	100%
Road 1	1	-	70	69.42708	N	0200-0300	77	32.47%	27.27%	2.60%	2.60%	1.30%	2.60%	9.09%	0.00%	0.00%	0.00%	0.00%	2.60%	1.30%	0.00%	3.90%	3.90%	10.39%	0.00%	100%
Road 1	1	-	70	69.59077	N	0300-0400	55	49.09%	20.00%	1.82%	1.82%	1.82%	1.82%	3.64%	0.00%	0.00%	0.00%	0.00%	3.64%	1.82%	0.00%	3.64%	1.82%	9.09%	0.00%	100%
Road 1	1	-	70	69.36012	N	0400-0500	86	40.70%	16.28%	3.49%	4.65%	3.49%	2.33%	8.14%	0.00%	0.00%	0.00%	1.16%	3.49%	2.33%	0.00%	3.49%	1.16%	9.30%	0.00%	100%
Road 1	1	-	70	68.60119	N	0500-0600	188	46.28%	19.68%	1.60%	2.66%	2.13%	2.13%	8.51%	0.00%	0.00%	0.00%	0.53%	3.19%	1.60%	0.00%	3.19%	2.13%	6.38%	0.00%	100%
Road 1	1	-	70	67.49256	N	0600-0700	337	37.98%	13.06%	3.26%	4.75%	3.26%	2.97%	9.79%	0.00%	0.30%	0.59%	0.59%	4.75%	2.67%	0.00%	2.97%	4.45%	8.31%	0.30%	100%
Road 1	1	-	70	65.81845	N	0700-0800	562	37.19%	17.44%	3.91%	5.69%	3.91%	2.14%	6.58%	0.00%	0.00%	0.00%	0.53%	3.38%	2.31%	0.00%	1.96%	5.87%	8.90%	0.18%	100%
Road 1	1	-	70	64.56349	N	0800-0900	694	41.21%	13.40%	4.32%	6.34%	4.18%	2.16%	7.35%	0.00%	0.14%	0.29%	0.58%	3.46%	2.16%	0.00%	2.02%	2.02%	10.23%	0.14%	100%
Road 1	1	-	70	64.16667	N	0900-1000	714	33.19%	11.62%	7.98%	11.34%	7.14%	2.66%	8.68%	0.00%	0.14%	0.14%	0.28%	2.24%	1.26%	0.00%	2.66%	1.54%	8.96%	0.14%	100%
Road 1	1	-	70	64.54365	N	1000-1100	695	30.22%	10.65%	6.47%	9.06%	5.76%	3.88%	13.81%	0.00%	0.43%	0.58%	0.29%	2.01%	1.15%	0.00%	2.30%	2.30%	10.94%	0.14%	100%
Road 1	1	-	70	64.96032	N	1100-1200	674	30.12%	14.69%	6.53%	9.05%	5.79%	3.26%	11.28%	0.00%	0.30%	0.30%	0.30%	1.63%	0.89%	0.00%	3.12%	2.23%	10.53%	0.00%	100%
Road 1	1	-	70	65.0372	N	1200-1300	667	32.53%	12.44%	5.70%	8.10%	5.25%	3.15%	10.79%	0.00%	0.15%	0.30%	0.30%	2.10%	1.20%	0.00%	3.15%	2.55%	12.14%	0.15%	100%
Road 1	1	-	70	64.26587	N	1300-1400	709	29.20%	13.82%	6.49%	9.31%	5.92%	3.67%	13.12%	0.00%	0.28%	0.42%	0.28%	1.55%	0.99%	0.00%	2.68%	1.13%	11.14%	0.00%	100%
Road 1	1	-	70	63.0754	N	1400-1500	769	34.07%	13.52%	5.59%	7.80%	4.94%	3.12%	11.83%	0.00%	0.52%	0.65%	0.39%	2.60%	1.69%	0.00%	2.47%	1.17%	9.49%	0.13%	100%
Road 1	1	-	70	64.12698	N	1500-1600	716	25.42%	13.41%	7.40%	10.61%	6.56%	3.21%	11.59%	0.00%	0.56%	0.84%	0.42%	2.65%	1.54%	0.00%	2.51%	2.51%	10.61%	0.14%	100%
Road 1	1	-	70	63.35317	N	1600-1700	755	29.27%	17.35%	5.96%	8.21%	5.17%	3.18%	11.39%	0.00%	0.40%	0.66%	0.40%	2.78%	1.59%	0.00%	2.65%	0.40%	10.46%	0.13%	100%
Road 1	1	-	70	63.29365	N	1700-1800	758	41.03%	15.57%	3.96%	5.80%	3.43%	1.98%	6.99%	0.00%	0.26%	0.26%	0.53%	3.43%	2.11%	0.00%	2.51%	3.30%	8.71%	0.13%	100%
Road 1	1	-	70	62.97619	N	1800-1900	774	38.63%	21.45%	3.36%	4.65%	2.84%	1.55%	5.94%	0.00%	0.13%	0.13%	0.52%	3.23%	1.94%	0.00%	2.84%	4.78%	7.88%	0.13%	100%
Road 1	1	-	70	65.5878	N	1900-2000	593	34.40%	21.59%	3.20%	4.72%	3.04%	2.70%	9.95%	0.00%	0.00%	0.17%	0.51%	3.04%	1.69%	0.00%	2.87%	2.53%	9.44%	0.17%	100%
Road 1	1	-	70	66.25744	N	2000-2100	503	39.96%	20.48%	3.18%	4.57%	2.98%	2.39%	9.15%	0.00%	0.00%	0.00%	0.40%	2.19%	1.39%	0.00%	2.78%	0.99%	9.54%	0.00%	100%
Road 1	1	-	70	66.58482	N	2100-2200	459	39.00%	21.13%	2.18%	3.27%	1.96%	2.83%	11.11%	0.00%	0.00%	0.00%	0.44%	2.40%	1.53%	0.00%	3.27%	1.53%	9.37%	0.00%	100%
Road 1	1	-	70	66.76339	N	2200-2300	435	37.24%	22.99%	2.76%	4.14%	2.30%	2.53%	9.66%	0.00%	0.23%	0.46%	0.46%	2.76%	1.61%	0.00%	3.22%	0.92%	8.74%	0.00%	100%
Road 1	1	-	70	67.09821	N	2300-0000	390	35.64%	26.67%	4.10%	5.64%	3.59%	1.54%	6.41%	0.00%	0.00%	0.00%	0.51%	2.82%	1.79%	0.00%	2.82%	1.03%	7.44%	0.00%	100%
Road 2	2	-	50	40.66667	N	0000-0100	52	30.77%	11.54%	5.77%	7.69%	5.77%	5.77%	7.69%	0.00%	0.00%	0.00%	0.00%	9.62%	3.85%	0.00%	1.92%	1.92%	7.69%	0.00%	100%
Road 2	2	-	50	42.16667	N	0100-0200	34	47.06%	8.82%	2.94%	5.88%	2.94%	2.94%	5.88%	0.00%	0.00%	0.00%	0.00%	5.88%	2.94%	0.00%	2.94%	2.94%	8.82%	0.00%	100%
Road 2	2	-	50	43.08333	N	0200-0300	23	34.78%	17.39%	4.35%	4.35%	0.00%	4.35%	8.70%	0.00%	0.00%	0.00%	0.00%	4.35%	0.00%	0.00%	4.35%	4.35%	13.04%	0.00%	100%
Road 2	2	-	50	45	N	0300-0400	15	60.00%	13.33%	0.00%	0.00%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	13.33%	0.00%	100%
Road 2	2	-	50	42.75	N	0400-0500	27	40.74%	11.11%	3.70%	3.70%	3.70%	3.70%	7.41%	0.00%	0.00%	0.00%	0.00%	7.41%	3.70%	0.00%	3.70%	0.00%	11.11%	0.00%	100%
Road 2	2	-	50	40.25	N	0500-0600	57	50.88%	14.04%	1.75%	3.51%	1.75%	3.51%	5.26%	0.00%	0.00%	0.00%	0.00%	7.02%	1.75%	0.00%	1.75%	1.75%	7.02%	0.00%	100%
Road 2	2	-	50	38.53333	N	0600-0700	104	41.35%	8.65%	2.88%	4.81%	2.88%	5.77%	6.73%	0.00%	0.00%	0.96%	0.00%	10.58%	3.85%	0.00%	1.92%	3.85%	5.77%	0.00%	100%
Road 2	2	-	50	36.66667	N	0700-0800	160	43.13%	13.13%	3.13%	5.63%	3.75%	3.75%	5.00%	0.00%	0.00%	0.00%	0.00%	8.75%	3.13%	0.00%	1.25%	5.63%	3.75%	0.00%	100%
Road 2	2	-	50	31.86667	N	0800-0900	304	44.41%	9.21%	2.96%	7.24%	4.61%	4.61%	5.59%	0.00%	0.00%	0.99%	0.00%	7.24%	3.62%	0.00%	1.32%	5.26%	2.96%	0.00%	100%
Road 2	2	-	50	33.6	N	0900-1000	252	33.73%	9.13%	5.56%	13.10%	7.14%	6.75%	7.94%	0.00%	0.00%	0.00%	0.00%	5.95%	1.59%	0.00%	1.19%	1.19%	6.75%	0.00%	100%
Road 2	2	-	50	35.76667	N	1000-1100	187	27.81%	10.16%	5.88%	10.70%	8.56%	10.16%	9.63%	0.00%	0.00%	0.00%	0.00%	4.81%	2.67%	0.00%	1.60%	0.53%	7.49%	0.00%	100%
Road 2	2	-	50	35.9	N	1100-1200	183	21.31%	7.65%	3.83%	12.02%	10.93%	12.57%	15.30%	0.00%	0.00%	0.00%	0.00%	4.92%	0.55%	0.00%	2.19%	1.09%	7.65%	0.00%	100%
Road 2	2	-	50	35.66667	N	1200-1300	190	27.37%	12.63%	4.21%	12.11%	8.95%	6.32%	9.47%	0.00%	0.00%	0.53%	0.00%	5.26%	1.58%	0.00%	1.58%	2.11%	7.89%	0.00%	100%
Road 2	2	-	50	34.56667	N	1300-1400	223	31.39%	10.31%	3.59%	7.62%	8.07%	11.21%	10.31%	0.45%	0.00%	0.45%	0.00%	3.59%	1.35%	0.00%	1.35%	1.79%	8.52%	0.00%	100%
Road 2	2	-	50	36.5	N	1400-1500	165	34.55%	8.48%	4.24%	10.91%	7.27%	7.88%	7.88%	0.00%	0.00%	0.61%	0.00%	4.85%	1.82%	0.00%	1.82%	1.82%	7.88%	0.00%	100%
Road 2	2	-	50	35.9	N	1500-1600	183	31.15%	8.20%	5.46%	5.46%	7.10%	9.29%	10.38%	0.00%	0.00%	1.09%	0.55%	8.74%	3.83%	0.00%	1.64%	0.55%	6.56%	0.00%	100%
Road 2	2	-	50	34.63333	N	1600-1700	221	33.48%	10.41%	3.62%	12.67%	3.62%	6.33%	8.14%	0.45%	0.00%	0.90%	0.90%	8.14%	4.07%	0.00%	0.90%	0.90%	5.43%	0.00%	100%
Road 2	2	-	50	34.6	N	1700-1800	222	50.00%	7.66%	6.31%	4.50%	4.50%	7.21%	7.66%	0.45%	0.00%	0.00%	0.00%	5.41%	1.80%	0.00%	0.90%	1.80%	1.80%	0.00%	100%
Road 2	2	-	50	33.66667	N	1800-1900	250	41.60%	14.40%	4.00%	4.80%	4.00%	4.00%	9.60%	0.00%	0.00%	0.00%	0.80%	5.60%	4.40%	0.00%	1.20%	1.20%	4.40%	0.00%	100%
Road 2	2	-	50	36.36667	N	1900-2000	169	47.34%	15.98%	3.55%	3.55%	0.59%	1.78%	9.47%	0.59%	0.00%	0.00%	0.00%	8.88%	2.96%	0.00%	1.78%	0.59%	2.96%	0.00%	100%
Road 2	2	-	50	37.1	N	2000-2100	147	46.94%	16.33%	4.76%	1.36%	4.08%	2.72%	4.76%	0.00%	0.00%	0.00%	0.00%	8.16%	0.68%	0.00%	2.04%	2.72%	5.44%	0.00%	100%
Road 2	2	-	50	36.9	N	2100-2200	153	51.63%	18.95%	2.61%	1.96%	0.65%	3.92%	3.27%	0.00%	0.00%	0.00%	0.00%	5.88%	0.65%	0.00%	1.96%	3.92%	4.58%	0.00%	100%
Road 2	2	-	50	37.83333	N	2200-2300	125	43.20%	16.80%	2.40%	4.00%	2.40%	5.60%	7.20%	0.00%	0.00%	0.80%	0.00%	7.20%	2.40%	0.00%	1.60%	0.80%	5.60%	0.00%	100%
Road 2	2	-	50	38.3	N	2300-0000	111	41.44%	19.82%	3.60%	5.41%	3.60%	3.60%	5.41%	0.00%	0.00%	0.00%	0.00%	7.21%	2.70%	0.00%	1.80%	0.90%	4.50%	0.00%	100%
Road 3	3	-	70	68.28869	N	0000-0100	230	26.52%	15.65%	6.09%	8.26%	4.78%	3.04%	9.57%	0.00%	0.00%	0.00%	0.43%	5.22%	2.61%	0.00%	3.91%	2.17%	11.74%	0.00%	100%
Road 3	3	-	70	68.94345	N	0100-0200	142	43.66%	11.27%	4.23%	6.34%	3.52%	2.11%	6.34%	0.00%	0.00%	0.00%	0.00%	3.52%	2.11%	0.00%	3.52%	2.82%	10.56%	0.00%	100%
Road 3	3	-	70	69.26339	N	0200-0300	99	33.33%	25.25%	3.03%	3.03%	1.01%	3.03%	9.09%	0.00%	0.00%	0.00%	0.00%	3.03%	1.01%	0.00%	4.04%	4.04%	10.10%	0.00%	100%
Road 3	3	-	70	69.47917	N	0300-0400	70	51.43%	20.00%	1.43%	1.43%	1.43%	2.86%	2.86%	0.00%	0.00%	0.00%	0.00%	4.29%	1.43%	0.00%	2.86%	1.43%	8.57%	0.00%	100%
Road 3	3	-	70	69.15923	N	0400-0500	113	41.59%	15.04%	3.54%	4.42%	3.54%	2.65%	7.96%	0.00%	0.00%	0.00%	0.88%	4.42%	2.65%	0.00%	3.54%	0.88%	8.85%	0.00%	100%
Road 3	3	-	70	68.16964	N	0500-0600	246	47.56%	18.70%	1.63%	2.85%	2.03%	2.44%	7.72%	0.00%	0.00%	0.00%	0.41%	4.07%	1.63%	0.00%	2.85%	2.03%	6.10%	0.00%	100%
Road 3	3	-	70	66.69643	N	0600-0700	444	38.51%	11.94%	3.38%	4.73%	3.15%	3.83%	9.23%	0.00%	0.23%	0.68%	0.45%	6.08%	3.15%	0.00%	2.70%	4.28%	7.43%	0.23%	100%
Road 3	3	-	70	63.90873	N	0700-0800	727	38.24%	16.37%	3.71%	5.78%	3.85%	2.61%	6.33%	0.14%	0.00%	0.00%	0.41%	4.40%	2.61%	0.00%	1.93%	5.91%	7.57%	0.14%	100%
Road 3	3	-	70	58.55159	N	0800-0900	997	42.23%	12.14%	4.01%	6.52%	4.31%	3.01%	6.72%	0.00%	0.10%	0.50%	0.40%	4.61%	2.61%	0.00%	1.81%	2.91%	8.02%	0.10%	100%
Road 3	3	-	70	59.18651	N	0900-1000	965	33.47%	10.98%	7.36%	11.81%	7.05%	3.63%	8.50%	0.00%	0.10%	0.10%	0.21%	3.11%	1.45%	0.00%	2.28%	1.55%	8.29%	0.10%	100%
Road 3	3	-	70	60.89286	N	1000-1100	879	29.81%	10.58%	6.37%	9.44%	6.37%	5.23%	12.86%	0.00%	0.34%	0.46%	0.23%	2.62%	1.59%	0.00%	2.16%	1.93%	9.90%	0.11%	100%
Road 3	3	-	70	61.38889	N	1100-1200	854	28.22%	13.11%	5.97%	9.72%	6.91%	5.27%	12.18%	0.00%	0.23%	0.23%	0.23%	2.46%	0.82%	0.00%	2.93%	1.99%	9.72%	0.00%	100%
Road 3	3	-	70	61.38889	N	1200-1300	854	31.50%	12.53%	5.50%	9.02%	6.09%	3.86%	10.42%	0.00%	0.12%	0.35%	0.23%	2.81%	1.29%	0.00%	2.81%	2.46%	10.89%	0.12%	100%
Road 3	3	-	70	59.94048	N	1300-1400	927	29.88%	13.05%	5.83%	8.85%	6.36%	5.50%	12.41%	0.11%	0.22%	0.43%	0.22%	2.16%	1.08%	0.00%	2.37%	1.29%	10.25%	0.00%	100%
Road 3	3	-	70	59.80159	N	1400-1500	934	34.15%	12.63%	5.35%	8.35%	5.46%	3.96%	11.24%	0.00%	0.43%	0.64%	0.32%	3.00%	1.82%	0.00%	2.36%	1.28%	8.89%	0.11%	100%
Road 3	3	-	70	60.5754	N	1500-1600	895	26.70%	12.29%	7.04%	9.61%	6.70%	4.36%	11.40%	0.00%	0.45%	0.89%	0.45%	3.80%	2.12%	0.00%	2.35%	2.12%	9.61%	0.11%	100%
Road 3	3	-	70	58.96825	N	1600-1700	976	30.12%	15.78%	5.43%	9.22%	4.92%	3.89%	10.66%	0.10%	0.31%	0.72%	0.51%	4.00%	2.25%	0.00%	2.25%	0.51%	9.22%	0.10%	100%
Road 3	3	-	70	58.90873	N	1700-1800	979	43.11%	13.69%	4.49%	5.52%	3.68%	3.06%	7.15%	0.10%	0.20%	0.20%	0.41%	3.98%	2.04%	0.00%	2.15%	2.96%	7.15%	0.10%	100%
Road 3	3	-	70	57.95635	N	1800-1900	1027	39.24%	19.77%	3.51%	4.77%	3.12%	2.24%	6.82%	0.00%	0.10%	0.10%	0.58%	3.80%	2.53%	0.00%	2.43%	3.99%	6.91%	0.10%	100%
Road 3	3	-	70	63.25397	N	1900-2000	760	37.37%	20.39%	3.29%	4.47%	2.50%	2.50%	9.87%	0.13%	0.00%	0.13%	0.39%	4.21%	2.11%	0.00%	2.63%	2.11%	7.76%	0.13%	100%
Road 3	3	-	70	65.17113	N	2000-2100	649	41.45%	19.57%	3.54%	3.85%	3.24%	2.62%	8.17%	0.00%	0.00%	0.00%	0.31%	3.70%	1.23%	0.00%	2.62%	1.39%	8.32%	0.00%	100%
Road 3	3	-	70	65.42411	N	2100-2200	615	41.95%	20.49%	2.44%	2.93%	1.63%	3.25%	9.11%	0.00%	0.00%	0.00%	0.33%	3.41%	1.30%	0.00%	2.93%	2.28%	7.97%	0.00%	100%
Road 3	3	-	70	65.81101	N	2200-2300	563	38.37%	21.49%	2.84%	4.09%	2.49%	3.37%	9.06%	0.00%	0.18%	0.53%	0.36%	3.91%	1.78%	0.00%	2.84%	0.89%	7.82%	0.00%	100%
Road 3	3	-	70	66.26488	N	2300-0000	502	36.85%	25.10%	3.98%	5.58%	3.59%	1.99%	6.18%	0.00%	0.00%	0.00%	0.40%	3.98%	1.99%	0.00%	2.79%	1.00%	6.57%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2028)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 4	4	-	50	42.08333	N	0000-0100	35	5.71%	2.86%	2.86%	2.86%	2.86%	2.86%	25.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	54.29%	0.00%	100%
Road 4	4	-	50	45	N	0100-0200	20	10.00%	0.00%	0.00%	5.00%	0.00%	5.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	60.00%	0.00%	100%
Road 4	4	-	50	45	N	0200-0300	13	7.69%	0.00%	0.00%	0.00%	0.00%	7.69%	30.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	53.85%	0.00%	100%
Road 4	4	-	50	45	N	0300-0400	7	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	71.43%	0.00%	100%
Road 4	4	-	50	45	N	0400-0500	14	14.29%	0.00%	0.00%	0.00%	0.00%	7.14%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	100%
Road 4	4	-	50	45	N	0500-0600	24	16.67%	4.17%	0.00%	0.00%	4.17%	8.33%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	0.00%	100%
Road 4	4	-	50	40.58333	N	0600-0700	53	11.32%	1.89%	1.89%	1.89%	5.66%	7.55%	33.96%	0.00%	0.00%	0.00%	0.00%	0.00%	1.89%	0.00%	0.00%	1.89%	32.08%	0.00%	100%
Road 4	4	-	50	38.93333	N	0700-0800	92	10.87%	2.17%	2.17%	4.35%	4.35%	5.43%	22.83%	1.09%	0.00%	0.00%	0.00%	0.00%	3.26%	0.00%	0.00%	2.17%	41.30%	0.00%	100%
Road 4	4	-	50	36.83333	N	0800-0900	155	14.84%	1.94%	2.58%	3.87%	3.23%	3.87%	29.68%	0.00%	0.00%	0.00%	0.00%	0.00%	1.94%	0.00%	0.00%	0.65%	37.42%	0.00%	100%
Road 4	4	-	50	37.06667	N	0900-1000	148	12.84%	2.03%	2.70%	4.73%	4.73%	8.11%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.03%	37.84%	0.00%	100%
Road 4	4	-	50	37.2	N	1000-1100	144	4.17%	0.69%	2.78%	6.94%	5.56%	8.33%	34.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.69%	36.81%	0.00%	100%
Road 4	4	-	50	36.83333	N	1100-1200	155	12.26%	1.29%	3.23%	4.52%	3.87%	7.74%	40.65%	0.00%	0.00%	0.00%	0.00%	0.65%	0.00%	0.00%	0.00%	0.00%	25.81%	0.00%	100%
Road 4	4	-	50	37.06667	N	1200-1300	148	8.11%	0.68%	2.70%	6.08%	4.05%	4.73%	29.73%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.35%	42.57%	0.00%	100%
Road 4	4	-	50	37	N	1300-1400	150	6.67%	0.67%	4.00%	5.33%	4.67%	7.33%	32.67%	0.67%	0.00%	0.00%	0.00%	0.00%	0.67%	0.00%	0.00%	0.00%	37.33%	0.00%	100%
Road 4	4	-	50	37.33333	N	1400-1500	140	10.71%	2.86%	2.14%	6.43%	4.29%	4.29%	33.57%	0.00%	0.00%	0.00%	0.00%	0.00%	1.43%	0.00%	0.00%	1.43%	32.86%	0.00%	100%
Road 4	4	-	50	37.83333	N	1500-1600	125	3.20%	1.60%	1.60%	5.60%	6.40%	6.40%	34.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.80%	0.00%	100%
Road 4	4	-	50	37.86667	N	1600-1700	124	6.45%	0.00%	4.84%	6.45%	5.65%	6.45%	29.84%	0.81%	0.00%	0.00%	0.00%	0.00%	0.81%	0.00%	0.00%	0.00%	38.71%	0.00%	100%
Road 4	4	-	50	37.76667	N	1700-1800	127	8.66%	0.00%	5.51%	5.51%	3.94%	5.51%	28.35%	0.79%	0.00%	0.00%	0.00%	0.00%	0.79%	0.00%	0.00%	1.57%	39.37%	0.00%	100%
Road 4	4	-	50	38.46667	N	1800-1900	106	7.55%	0.94%	1.89%	0.94%	2.83%	3.77%	34.91%	0.00%	0.00%	0.00%	0.00%	0.00%	1.89%	0.00%	0.00%	0.00%	45.28%	0.00%	100%
Road 4	4	-	50	39.53333	N	1900-2000	74	6.76%	2.70%	2.70%	4.05%	5.41%	1.35%	36.49%	0.00%	0.00%	0.00%	0.00%	0.00%	1.35%	0.00%	0.00%	0.00%	39.19%	0.00%	100%
Road 4	4	-	50	45	N	2000-2100	49	10.20%	4.08%	0.00%	2.04%	2.04%	6.12%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.08%	57.14%	0.00%	100%
Road 4	4	-	50	45	N	2100-2200	37	16.22%	8.11%	0.00%	10.81%	2.70%	5.41%	10.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	45.95%	0.00%	100%
Road 4	4	-	50	39.9	N	2200-2300	63	11.11%	3.17%	1.59%	3.17%	1.59%	6.35%	34.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	38.10%	0.00%	100%
Road 4	4	-	50	40.91667	N	2300-0000	49	12.24%	4.08%	2.04%	4.08%	2.04%	4.08%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	42.86%	0.00%	100%
Road 5	5	-	70	68.56399	N	0000-0100	193	30.57%	18.13%	6.22%	9.33%	5.18%	3.11%	6.22%	0.00%	0.00%	0.00%	0.52%	6.22%	3.11%	0.00%	4.66%	2.59%	4.15%	0.00%	100%
Road 5	5	-	70	69.09226	N	0100-0200	122	49.18%	13.11%	4.92%	6.56%	4.10%	1.64%	4.10%	0.00%	0.00%	0.00%	0.00%	4.10%	2.46%	0.00%	4.10%	3.28%	2.46%	0.00%	100%
Road 5	5	-	70	69.36012	N	0200-0300	86	37.21%	29.07%	3.49%	3.49%	1.16%	2.33%	5.81%	0.00%	0.00%	0.00%	0.00%	3.49%	1.16%	0.00%	4.65%	4.65%	3.49%	0.00%	100%
Road 5	5	-	70	69.53125	N	0300-0400	63	55.56%	22.22%	1.59%	1.59%	1.59%	3.17%	1.59%	0.00%	0.00%	0.00%	0.00%	4.76%	1.59%	0.00%	3.17%	1.59%	1.59%	0.00%	100%
Road 5	5	-	70	69.26339	N	0400-0500	99	45.45%	17.17%	4.04%	5.05%	4.04%	2.02%	5.05%	0.00%	0.00%	0.00%	1.01%	5.05%	3.03%	0.00%	4.04%	1.01%	3.03%	0.00%	100%
Road 5	5	-	70	68.3631	N	0500-0600	220	50.91%	20.45%	1.82%	3.18%	1.82%	1.82%	4.55%	0.00%	0.00%	0.00%	0.45%	4.55%	1.82%	0.00%	3.18%	2.27%	3.18%	0.00%	100%
Road 5	5	-	70	67.1131	N	0600-0700	388	42.27%	13.40%	3.61%	5.15%	2.84%	3.09%	5.93%	0.00%	0.26%	0.77%	0.52%	6.96%	3.09%	0.00%	3.09%	4.64%	4.12%	0.26%	100%
Road 5	5	-	70	65.29018	N	0700-0800	633	42.18%	18.48%	3.95%	5.85%	3.79%	2.21%	3.95%	0.00%	0.00%	0.00%	0.47%	5.06%	2.53%	0.00%	2.21%	6.48%	2.69%	0.16%	100%
Road 5	5	-	70	61.60714	N	0800-0900	843	47.33%	14.00%	4.15%	7.00%	4.39%	2.85%	2.61%	0.00%	0.12%	0.59%	0.47%	5.46%	2.73%	0.00%	2.14%	3.32%	2.73%	0.12%	100%
Road 5	5	-	70	62.14286	N	0900-1000	816	37.25%	12.62%	8.21%	13.11%	7.48%	2.82%	5.51%	0.00%	0.12%	0.12%	0.25%	3.68%	1.72%	0.00%	2.70%	1.35%	2.94%	0.12%	100%
Road 5	5	-	70	63.76984	N	1000-1100	734	34.88%	12.53%	7.08%	9.95%	6.54%	4.50%	8.72%	0.00%	0.41%	0.54%	0.27%	3.13%	1.91%	0.00%	2.59%	2.18%	4.63%	0.14%	100%
Road 5	5	-	70	64.46429	N	1100-1200	699	31.90%	15.74%	6.58%	10.87%	7.58%	4.58%	5.87%	0.00%	0.29%	0.29%	0.29%	2.86%	1.00%	0.00%	3.58%	2.43%	6.15%	0.00%	100%
Road 5	5	-	70	64.30556	N	1200-1300	707	36.35%	14.99%	6.08%	9.62%	6.51%	3.68%	6.51%	0.00%	0.14%	0.42%	0.28%	3.39%	1.56%	0.00%	3.39%	2.69%	4.24%	0.14%	100%
Road 5	5	-	70	62.91667	N	1300-1400	777	34.23%	15.44%	6.18%	9.52%	6.69%	5.15%	8.62%	0.00%	0.26%	0.51%	0.26%	2.57%	1.16%	0.00%	2.83%	1.54%	5.02%	0.00%	100%
Road 5	5	-	70	62.57937	N	1400-1500	794	38.41%	14.23%	5.92%	8.69%	5.67%	3.90%	7.30%	0.00%	0.50%	0.76%	0.38%	3.53%	1.89%	0.00%	2.77%	1.26%	4.66%	0.13%	100%
Road 5	5	-	70	63.05556	N	1500-1600	770	30.52%	14.03%	7.92%	10.26%	6.75%	4.03%	7.66%	0.00%	0.52%	1.04%	0.52%	4.42%	2.47%	0.00%	2.73%	2.47%	4.55%	0.13%	100%
Road 5	5	-	70	61.40873	N	1600-1700	853	33.53%	18.05%	5.51%	9.61%	4.81%	3.52%	7.85%	0.00%	0.35%	0.82%	0.59%	4.57%	2.46%	0.00%	2.58%	0.59%	5.04%	0.12%	100%
Road 5	5	-	70	61.44841	N	1700-1800	851	48.30%	15.75%	4.23%	5.52%	3.64%	2.70%	3.88%	0.00%	0.24%	0.24%	0.47%	4.58%	2.23%	0.00%	2.47%	3.17%	2.47%	0.12%	100%
Road 5	5	-	70	60.09921	N	1800-1900	919	42.87%	21.98%	3.70%	5.22%	3.16%	2.07%	3.48%	0.00%	0.11%	0.11%	0.65%	4.24%	2.61%	0.00%	2.72%	4.46%	2.50%	0.11%	100%
Road 5	5	-	70	64.72222	N	1900-2000	686	40.67%	22.30%	3.35%	4.52%	2.19%	2.62%	7.00%	0.15%	0.00%	0.15%	0.44%	4.52%	2.33%	0.00%	2.92%	2.33%	4.37%	0.15%	100%
Road 5	5	-	70	65.53571	N	2000-2100	600	44.00%	20.83%	3.83%	4.00%	3.33%	2.33%	7.67%	0.00%	0.00%	0.00%	0.33%	4.00%	1.33%	0.00%	2.83%	1.17%	4.33%	0.00%	100%
Road 5	5	-	70	65.6994	N	2100-2200	578	43.60%	21.28%	2.60%	2.42%	1.56%	3.11%	9.00%	0.00%	0.00%	0.00%	0.35%	3.63%	1.38%	0.00%	3.11%	2.42%	5.54%	0.00%	100%
Road 5	5	-	70	66.2872	N	2200-2300	499	41.88%	23.85%	3.01%	4.21%	2.40%	3.01%	5.81%	0.00%	0.20%	0.60%	0.40%	4.41%	2.00%	0.00%	3.21%	1.00%	4.01%	0.00%	100%
Road 5	5	-	70	66.62946	N	2300-0000	453	39.51%	27.37%	4.19%	5.74%	3.75%	1.77%	3.97%	0.00%	0.00%	0.00%	0.44%	4.42%	2.21%	0.00%	3.09%	1.10%	2.43%	0.00%	100%
Road 6	6	-	70	68.88393	N	0000-0100	150	44.67%	26.00%	3.33%	4.00%	2.00%	2.00%	2.67%	0.00%	0.00%	0.00%	0.67%	4.00%	2.00%	0.00%	4.00%	2.00%	2.67%	0.00%	100%
Road 6	6	-	70	69.15179	N	0100-0200	114	38.60%	20.18%	7.02%	6.14%	3.51%	4.39%	4.39%	0.00%	0.00%	0.00%	0.00%	3.51%	0.88%	0.00%	3.51%	2.63%	5.26%	0.00%	100%
Road 6	6	-	70	69.4122	N	0200-0300	79	41.77%	22.78%	6.33%	5.06%	3.80%	2.53%	2.53%	0.00%	0.00%	0.00%	0.00%	5.06%	1.27%	0.00%	3.80%	1.27%	3.80%	0.00%	100%
Road 6	6	-	70	69.53869	N	0300-0400	62	35.48%	19.35%	9.68%	9.68%	4.84%	3.23%	3.23%	0.00%	0.00%	0.00%	0.00%	3.23%	1.61%	0.00%	4.84%	1.61%	3.23%	0.00%	100%
Road 6	6	-	70	69.33036	N	0400-0500	90	37.78%	20.00%	5.56%	6.67%	3.33%	3.33%	4.44%	0.00%	0.00%	1.11%	0.00%	4.44%	1.11%	0.00%	4.44%	3.33%	4.44%	0.00%	100%
Road 6	6	-	70	68.79464	N	0500-0600	162	37.65%	24.07%	5.56%	6.17%	3.09%	3.09%	3.70%	0.00%	0.00%	0.00%	0.62%	3.70%	1.85%	0.00%	3.70%	3.09%	3.70%	0.00%	100%
Road 6	6	-	70	67.84226	N	0600-0700	290	32.41%	26.55%	6.21%	6.55%	3.79%	3.45%	3.79%	0.00%	0.00%	0.00%	0.34%	3.79%	2.07%	0.00%	4.83%	2.76%	3.45%	0.00%	100%
Road 6	6	-	70	66.5625	N	0700-0800	462	37.45%	24.46%	5.84%	6.06%	3.68%	2.60%	2.60%	0.00%	0.22%	0.22%	0.43%	4.98%	2.16%	0.00%	3.46%	3.46%	2.38%	0.00%	100%
Road 6	6	-	70	65.0744	N	0800-0900	662	42.15%	27.95%	5.29%	3.78%	1.21%	2.27%	0.30%	0.00%	0.15%	0.60%	0.45%	5.89%	3.63%	0.00%	3.17%	2.42%	0.60%	0.15%	100%
Road 6	6	-	70	65.29018	N	0900-1000	633	41.23%	26.07%	5.53%	6.32%	3.16%	4.11%	2.69%	0.00%	0.00%	0.32%	0.00%	3.48%	1.11%	0.00%	2.84%	1.58%	1.58%	0.00%	100%
Road 6	6	-	70	66.01935	N	1000-1100	535	34.95%	23.55%	6.73%	5.61%	5.42%	4.30%	4.11%	0.00%	0.19%	0.19%	0.37%	3.55%	1.68%	0.00%	3.36%	0.56%	5.42%	0.00%	100%
Road 6	6	-	70	66.04167	N	1100-1200	532	29.14%	18.42%	8.65%	10.34%	7.14%	6.39%	7.14%	0.00%	0.19%	0.38%	0.19%	2.26%	1.13%	0.00%	3.01%	0.94%	4.70%	0.00%	100%
Road 6	6	-	70	66.10863	N	1200-1300	523	37.86%	13.58%	8.22%	9.18%	6.88%	5.35%	3.44%	0.00%	0.19%	0.19%	0.19%	4.02%	1.72%	0.00%	3.06%	0.96%	5.16%	0.00%	100%
Road 6	6	-	70	66.12351	N	1300-1400	521	28.21%	17.08%	8.45%	8.64%	5.76%	4.61%	6.72%	0.19%	0.38%	0.58%	0.58%	5.57%	2.69%	0.00%	3.26%	0.96%	6.14%	0.19%	100%
Road 6	6	-	70	65.72917	N	1400-1500	574	30.14%	17.60%	8.01%	8.54%	5.40%	4.88%	6.27%	0.17%	0.52%	0.87%	0.70%	5.75%	3.14%	0.00%	3.14%	1.22%	3.48%	0.17%	100%
Road 6	6	-	70	65.81845	N	1500-1600	562	35.77%	17.26%	6.23%	8.19%	4.45%	3.91%	4.63%	0.18%	0.00%	0.36%	0.36%	5.34%	2.49%	0.00%	3.02%	2.85%	4.80%	0.18%	100%
Road 6	6	-	70	65.71429	N	1600-1700	576	35.59%	14.41%	7.64%	8.85%	4.69%	4.34%	4.34%	0.00%	0.35%	0.69%	0.52%	5.56%	2.60%	0.00%	2.60%	2.60%	5.03%	0.17%	100%
Road 6	6	-	70	65.46131	N	1700-1800	610	47.05%	15.90%	5.08%	7.05%	2.46%	3.11%	2.62%	0.00%	0.16%	0.33%	0.49%	5.25%	2.46%	0.00%	2.30%	2.79%	2.79%	0.16%	100%
Road 6	6	-	70	64.6627	N	1800-1900	689	48.91%	16.26%	4.50%	3.05%	1.89%	1.89%	3.19%	0.00%	0.29%	0.44%	0.44%	6.24%	2.47%	0.00%	2.76%	4.79%	2.76%	0.15%	100%
Road 6	6	-	70	66.10119	N	1900-2000	524	39.50%	20.04%	4.20%	3.44%	2.10%	3.44%	4.01%	0.00%	0.38%	0.38%	0.57%	6.30%	2.10%	0.00%	3.44%	5.73%	4.20%	0.19%	100%
Road 6	6	-	70	66.88988	N	2000-2100	418	46.41%	22.01%	3.59%	3.35%	1.44%	1.91%	4.07%	0.00%	0.00%	0.00%	0.48%	5.74%	1.91%	0.00%	3.83%	3.35%	1.91%	0.00%	100%
Road 6	6	-	70	67.32143	N	2100-2200	360	41.39%	20.56%	2.22%	2.22%	1.11%	2.50%	6.94%	0.00%	0.00%	0.00%	0.56%	7.50%	2.78%	0.00%	3.89%	2.50%	5.56%	0.28%	100%
Road 6	6	-	70	67.16518	N	2200-2300	381	33.33%	33.86%	3.67%	3.67%	1.84%	2.62%	2.62%	0.00%	0.52%	1.05%	0.52%	5.51%	2.36%	0.00%	2.89%	2.89%	2.62%	0.00%	100%
Road 6	6	-	70	67.34375	N	2300-0000	357	49.58%	23.25%	5.04%	5.32%	3.08%	1.40%	1.40%	0.00%	0.00%	0.00%	0.28%	3.08%	1.12%	0.00%	2.52%	2.24%	1.68%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2028)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 7	7	-	70	68.61607	N	0000-0100	186	38.71%	20.97%	2.69%	3.76%	2.15%	2.15%	6.45%	0.00%	0.00%	0.00%	0.54%	3.23%	1.61%	0.00%	3.23%	2.15%	12.37%	0.00%	100%
Road 7	7	-	70	68.92113	N	0100-0200	145	32.41%	15.86%	5.52%	6.21%	3.45%	4.14%	10.34%	0.00%	0.00%	0.00%	0.00%	2.76%	0.69%	0.00%	2.76%	2.07%	13.79%	0.00%	100%
Road 7	7	-	70	69.3006	N	0200-0300	94	37.23%	19.15%	5.32%	5.32%	3.19%	2.13%	7.45%	0.00%	0.00%	0.00%	0.00%	4.26%	1.06%	0.00%	3.19%	1.06%	10.64%	0.00%	100%
Road 7	7	-	70	69.43452	N	0300-0400	76	31.58%	15.79%	7.89%	10.53%	5.26%	2.63%	6.58%	0.00%	0.00%	0.00%	0.00%	2.63%	1.32%	0.00%	3.95%	1.32%	10.53%	0.00%	100%
Road 7	7	-	70	69.17411	N	0400-0500	111	33.33%	16.22%	4.50%	6.31%	3.60%	3.60%	9.91%	0.00%	0.00%	0.90%	0.00%	3.60%	0.90%	0.00%	3.60%	2.70%	10.81%	0.00%	100%
Road 7	7	-	70	68.52679	N	0500-0600	198	33.84%	19.70%	4.55%	6.06%	3.54%	3.54%	9.60%	0.00%	0.00%	0.00%	0.51%	3.03%	1.52%	0.00%	3.03%	3.03%	8.08%	0.00%	100%
Road 7	7	-	70	67.36607	N	0600-0700	354	28.53%	22.03%	5.37%	6.78%	4.52%	3.95%	9.04%	0.00%	0.00%	0.00%	0.28%	3.11%	1.69%	0.00%	3.95%	2.54%	8.19%	0.00%	100%
Road 7	7	-	70	65.79613	N	0700-0800	565	32.92%	20.18%	4.96%	6.37%	4.25%	3.19%	6.19%	0.00%	0.18%	0.18%	0.35%	4.07%	1.77%	0.00%	2.83%	3.36%	9.20%	0.00%	100%
Road 7	7	-	70	61.36905	N	0800-0900	855	34.50%	21.75%	4.80%	5.61%	2.81%	2.81%	5.96%	0.23%	0.12%	0.47%	0.35%	4.56%	2.81%	0.00%	2.46%	1.87%	8.77%	0.12%	100%
Road 7	7	-	70	62.61905	N	0900-1000	792	34.60%	20.83%	5.18%	6.57%	4.04%	5.18%	7.45%	0.00%	0.00%	0.25%	0.13%	2.78%	1.14%	0.00%	2.27%	1.26%	8.33%	0.00%	100%
Road 7	7	-	70	64.54365	N	1000-1100	695	28.92%	18.13%	5.61%	6.62%	5.47%	4.60%	11.37%	0.29%	0.14%	0.14%	0.29%	3.02%	1.29%	0.00%	2.59%	0.72%	10.79%	0.00%	100%
Road 7	7	-	70	64.56349	N	1100-1200	694	24.93%	14.12%	7.35%	8.93%	6.34%	6.34%	13.26%	0.00%	0.14%	0.29%	0.14%	2.02%	0.86%	0.00%	2.31%	0.86%	12.10%	0.00%	100%
Road 7	7	-	70	64.58333	N	1200-1300	693	31.02%	10.53%	6.64%	8.51%	6.35%	5.34%	10.39%	0.00%	0.14%	0.14%	0.14%	3.03%	1.44%	0.00%	2.31%	0.87%	13.13%	0.00%	100%
Road 7	7	-	70	64.80159	N	1300-1400	682	24.34%	13.34%	6.89%	8.80%	6.01%	4.99%	12.02%	0.15%	0.29%	0.44%	0.44%	4.25%	2.20%	0.00%	2.49%	1.03%	12.17%	0.15%	100%
Road 7	7	-	70	64.16667	N	1400-1500	714	27.17%	14.29%	7.00%	8.26%	5.32%	4.48%	10.36%	0.14%	0.42%	0.70%	0.56%	4.62%	2.80%	0.00%	2.52%	1.12%	10.08%	0.14%	100%
Road 7	7	-	70	64.4246	N	1500-1600	701	31.38%	14.12%	5.42%	7.56%	4.42%	4.14%	9.99%	0.29%	0.00%	0.29%	0.29%	4.28%	2.14%	0.00%	2.43%	2.57%	10.56%	0.14%	100%
Road 7	7	-	70	63.94841	N	1600-1700	725	30.48%	11.45%	6.48%	8.83%	5.24%	4.41%	10.34%	0.00%	0.28%	0.55%	0.41%	4.41%	2.07%	0.00%	2.07%	2.62%	10.21%	0.14%	100%
Road 7	7	-	70	63.11508	N	1700-1800	767	41.98%	12.78%	4.30%	7.17%	2.74%	3.13%	6.91%	0.00%	0.13%	0.26%	0.39%	4.17%	2.22%	0.00%	1.83%	3.65%	8.21%	0.13%	100%
Road 7	7	-	70	62.51984	N	1800-1900	797	45.17%	14.30%	4.02%	4.02%	2.13%	1.88%	5.14%	0.00%	0.25%	0.38%	0.38%	5.40%	2.13%	0.00%	2.38%	4.52%	7.78%	0.13%	100%
Road 7	7	-	70	65.52083	N	1900-2000	602	36.38%	17.61%	3.65%	3.99%	2.16%	3.16%	7.64%	0.00%	0.33%	0.33%	0.50%	5.48%	1.99%	0.00%	2.99%	4.98%	8.64%	0.17%	100%
Road 7	7	-	70	66.30952	N	2000-2100	496	40.73%	18.95%	3.02%	3.02%	2.02%	3.02%	6.85%	0.00%	0.00%	0.00%	0.40%	4.84%	1.61%	0.00%	3.23%	3.43%	8.87%	0.00%	100%
Road 7	7	-	70	66.91964	N	2100-2200	414	37.68%	19.08%	1.93%	2.66%	1.69%	2.42%	9.66%	0.00%	0.00%	0.00%	0.48%	6.52%	2.90%	0.00%	3.38%	2.42%	8.94%	0.24%	100%
Road 7	7	-	70	66.67411	N	2200-2300	447	30.43%	29.31%	3.36%	3.80%	2.01%	2.91%	6.49%	0.00%	0.45%	0.89%	0.45%	4.70%	2.01%	0.00%	2.46%	3.13%	7.61%	0.00%	100%
Road 7	7	-	70	66.94196	N	2300-0000	411	46.23%	20.44%	4.62%	5.84%	3.41%	1.46%	3.65%	0.00%	0.00%	0.00%	0.24%	2.68%	0.97%	0.00%	2.19%	2.19%	6.08%	0.00%	100%
Road 8	8	-	50	45	N	0000-0100	36	13.89%	0.00%	0.00%	2.78%	2.78%	2.78%	22.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.78%	52.78%	0.00%	100%
Road 8	8	-	50	45	N	0100-0200	30	10.00%	0.00%	0.00%	6.67%	3.33%	3.33%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.67%	0.00%	100%
Road 8	8	-	50	45	N	0200-0300	15	13.33%	0.00%	0.00%	6.67%	0.00%	0.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.67%	0.00%	100%
Road 8	8	-	50	45	N	0300-0400	14	14.29%	0.00%	0.00%	14.29%	7.14%	0.00%	21.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	42.86%	0.00%	100%
Road 8	8	-	50	45	N	0400-0500	21	14.29%	0.00%	0.00%	4.76%	4.76%	4.76%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	38.10%	0.00%	100%
Road 8	8	-	50	45	N	0500-0600	34	14.71%	0.00%	0.00%	5.88%	5.88%	5.88%	35.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.94%	29.41%	0.00%	100%
Road 8	8	-	50	39.93333	N	0600-0700	62	11.29%	1.61%	1.61%	8.06%	6.45%	6.45%	33.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.61%	29.03%	0.00%	100%
Road 8	8	-	50	38.6	N	0700-0800	102	13.73%	0.98%	0.98%	7.84%	6.86%	4.90%	22.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.94%	39.22%	0.00%	100%
Road 8	8	-	50	35.6	N	0800-0900	192	8.85%	0.52%	2.60%	11.98%	7.29%	4.69%	26.04%	1.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.98%	0.00%	100%
Road 8	8	-	50	36.73333	N	0900-1000	158	7.59%	0.00%	3.16%	6.96%	7.59%	9.49%	27.85%	0.00%	0.00%	0.00%	0.63%	0.00%	1.27%	0.00%	0.00%	0.00%	35.44%	0.00%	100%
Road 8	8	-	50	36.66667	N	1000-1100	160	8.75%	0.00%	1.25%	10.00%	5.63%	5.63%	36.25%	1.25%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	0.00%	1.25%	28.75%	0.00%	100%
Road 8	8	-	50	36.7	N	1100-1200	159	11.32%	0.00%	2.52%	4.40%	3.14%	5.66%	34.59%	0.00%	0.00%	0.00%	0.00%	0.63%	0.00%	0.00%	0.00%	0.63%	37.11%	0.00%	100%
Road 8	8	-	50	36.33333	N	1200-1300	170	10.59%	1.18%	1.18%	6.47%	4.12%	5.29%	32.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.59%	0.00%	0.00%	0.59%	37.65%	0.00%	100%
Road 8	8	-	50	36.6	N	1300-1400	162	12.35%	0.62%	1.23%	9.88%	6.79%	6.17%	29.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.62%	0.00%	0.00%	1.23%	31.48%	0.00%	100%
Road 8	8	-	50	37.36667	N	1400-1500	139	15.11%	0.72%	2.16%	7.19%	5.04%	2.88%	27.34%	0.00%	0.00%	0.00%	0.00%	0.00%	1.44%	0.00%	0.00%	0.72%	37.41%	0.00%	100%
Road 8	8	-	50	37.36667	N	1500-1600	139	13.67%	1.44%	1.44%	5.04%	4.32%	5.04%	32.37%	0.72%	0.00%	0.00%	0.00%	0.00%	0.72%	0.00%	0.00%	1.44%	33.81%	0.00%	100%
Road 8	8	-	50	37.03333	N	1600-1700	149	10.74%	0.00%	1.34%	8.72%	7.38%	4.70%	34.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.68%	30.20%	0.00%	100%
Road 8	8	-	50	36.8	N	1700-1800	156	21.79%	0.64%	0.64%	7.69%	3.85%	3.21%	24.36%	0.00%	0.00%	0.00%	0.00%	0.00%	1.28%	0.00%	0.00%	7.05%	29.49%	0.00%	100%
Road 8	8	-	50	38.43333	N	1800-1900	107	21.50%	1.87%	0.93%	9.35%	2.80%	1.87%	18.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.80%	40.19%	0.00%	100%
Road 8	8	-	50	45	N	1900-2000	77	14.29%	1.30%	0.00%	7.79%	2.60%	1.30%	32.47%	0.00%	0.00%	0.00%	0.00%	0.00%	1.30%	0.00%	0.00%	0.00%	38.96%	0.00%	100%
Road 8	8	-	50	45	N	2000-2100	77	10.39%	2.60%	0.00%	1.30%	5.19%	7.79%	23.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.90%	45.45%	0.00%	100%
Road 8	8	-	50	45	N	2100-2200	54	12.96%	9.26%	0.00%	5.56%	5.56%	1.85%	27.78%	0.00%	0.00%	0.00%	0.00%	0.00%	3.70%	0.00%	0.00%	1.85%	31.48%	0.00%	100%
Road 8	8	-	50	39.86667	N	2200-2300	64	14.06%	3.13%	1.56%	4.69%	3.13%	4.69%	29.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.13%	35.94%	0.00%	100%
Road 8	8	-	50	40.58333	N	2300-0000	53	26.42%	1.89%	1.89%	9.43%	3.77%	1.89%	16.98%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.89%	35.85%	0.00%	100%
Road 9	9	-	50	35	Y	0000-0100	14	28.57%	7.14%	0.00%	21.43%	7.14%	7.14%	21.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.14%	0.00%	100%
Road 9	9	-	50	35	Y	0100-0200	11	27.27%	9.09%	0.00%	18.18%	9.09%	9.09%	18.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.09%	0.00%	100%
Road 9	9	-	50	35	Y	0200-0300	5	40.00%	20.00%	0.00%	20.00%	0.00%	0.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
Road 9	9	-	50	35	Y	0300-0400	4	50.00%	0.00%	0.00%	25.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
Road 9	9	-	50	35	Y	0400-0500	10	30.00%	10.00%	0.00%	10.00%	10.00%	10.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	100%
Road 9	9	-	50	35	Y	0500-0600	17	35.29%	11.76%	0.00%	11.76%	5.88%	5.88%	17.65%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.88%	5.88%	0.00%	100%
Road 9	9	-	50	35	Y	0600-0700	32	25.00%	9.38%	0.00%	15.63%	6.25%	6.25%	18.75%	9.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.13%	6.25%	0.00%	100%
Road 9	9	-	50	32.95833	Y	0700-0800	49	30.61%	8.16%	2.04%	16.33%	6.12%	4.08%	12.24%	10.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.12%	4.08%	0.00%	100%
Road 9	9	-	50	30.20833	Y	0800-0900	115	16.52%	7.83%	3.48%	18.26%	9.57%	3.48%	28.70%	4.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.74%	6.09%	0.00%	100%
Road 9	9	-	50	31.375	Y	0900-1000	87	25.29%	5.75%	4.60%	10.34%	8.05%	6.90%	18.39%	6.90%	0.00%	0.00%	1.15%	1.15%	0.00%	0.00%	0.00%	1.15%	10.34%	0.00%	100%
Road 9	9	-	50	31.95833	Y	1000-1100	73	21.92%	5.48%	1.37%	13.70%	4.11%	12.33%	23.29%	4.11%	0.00%	0.00%	0.00%	1.37%	0.00%	0.00%	0.00%	0.00%	12.33%	0.00%	100%
Road 9	9	-	50	31.83333	Y	1100-1200	76	27.63%	2.63%	1.32%	19.74%	0.00%	9.21%	22.37%	5.26%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.95%	7.89%	0.00%	100%
Road 9	9	-	50	31.91667	Y	1200-1300	74	14.86%	9.46%	1.35%	18.92%	10.81%	9.46%	25.68%	2.70%	0.00%	0.00%	0.00%	0.00%	1.35%	0.00%	0.00%	1.35%	4.05%	0.00%	100%
Road 9	9	-	50	32.45833	Y	1300-1400	61	11.48%	0.00%	3.28%	22.95%	16.39%	16.39%	14.75%	4.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.84%	0.00%	100%
Road 9	9	-	50	32.16667	Y	1400-1500	68	27.94%	8.82%	1.47%	17.65%	11.76%	0.00%	17.65%	5.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.47%	7.35%	0.00%	100%
Road 9	9	-	50	35	Y	1500-1600	57	38.60%	5.26%	0.00%	10.53%	5.26%	3.51%	19.30%	8.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.75%	7.02%	0.00%	100%
Road 9	9	-	50	35	Y	1600-1700	80	28.75%	3.75%	0.00%	28.75%	6.25%	1.25%	18.75%	5.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	1.25%	5.00%	0.00%	100%
Road 9	9	-	50	35	Y	1700-1800	69	40.58%	1.45%	0.00%	20.29%	4.35%	2.90%	7.25%	8.70%	0.00%	0.00%	0.00%	0.00%	1.45%	0.00%	0.00%	5.80%	7.25%	0.00%	100%
Road 9	9	-	50	35	Y	1800-1900	44	40.91%	11.36%	0.00%	15.91%	4.55%	4.55%	9.09%	4.55%	0.00%	0.00%	0.00%	0.00%	2.27%	0.00%	0.00%	4.55%	2.27%	0.00%	100%
Road 9	9	-	50	35	Y	1900-2000	43	25.58%	18.60%	0.00%	18.60%	4.65%	2.33%	13.95%	0.00%	0.00%	0.00%	0.00%	2.33%	0.00%	0.00%	0.00%	11.63%	2.33%	0.00%	100%
Road 9	9	-	50	35	Y	2000-2100	29	34.48%	20.69%	0.00%	3.45%	6.90%	13.79%	6.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.90%	6.90%	0.00%	100%
Road 9	9	-	50	35	Y	2100-2200	28	57.14%	14.29%	0.00%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
Road 9	9	-	50	35	Y	2200-2300	33	33.33%	15.15%	0.00%	12.12%	6.06%	6.06%	18.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.03%	6.06%	0.00%	100%
Road 9	9	-	50	35	Y	2300-0000	30	40.00%	13.33%	0.00%	16.67%	6.67%	3.33%	13.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.33%	3.33%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2028)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 10	10	-	50	35	Y	0000-0100	45	13.33%	4.44%	0.00%	6.67%	2.22%	2.22%	24.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.22%	44.44%	0.00%	100%
Road 10	10	-	50	35	Y	0100-0200	34	14.71%	2.94%	0.00%	8.82%	2.94%	2.94%	23.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.94%	41.18%	0.00%	100%
Road 10	10	-	50	35	Y	0200-0300	19	15.79%	5.26%	0.00%	5.26%	0.00%	5.26%	31.58%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.84%	0.00%	100%
Road 10	10	-	50	35	Y	0300-0400	12	16.67%	8.33%	0.00%	8.33%	0.00%	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	100%
Road 10	10	-	50	35	Y	0400-0500	23	13.04%	4.35%	0.00%	8.70%	4.35%	4.35%	30.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	34.78%	0.00%	100%
Road 10	10	-	50	35	Y	0500-0600	41	19.51%	4.88%	0.00%	7.32%	4.88%	4.88%	31.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.44%	24.39%	0.00%	100%
Road 10	10	-	50	31.58333	Y	0600-0700	82	13.41%	3.66%	1.22%	7.32%	4.88%	6.10%	31.71%	3.66%	0.00%	0.00%	0.00%	0.00%	1.22%	0.00%	0.00%	2.44%	24.39%	0.00%	100%
Road 10	10	-	50	29.85	Y	0700-0800	129	15.50%	3.88%	0.78%	8.53%	4.65%	4.65%	22.48%	3.88%	0.00%	0.00%	0.00%	0.00%	0.78%	0.00%	0.00%	3.10%	31.78%	0.00%	100%
Road 10	10	-	50	27.86667	Y	0800-0900	248	11.29%	3.23%	2.42%	9.68%	2.02%	4.44%	31.45%	2.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.81%	31.85%	0.00%	100%
Road 10	10	-	50	28.7	Y	0900-1000	198	8.59%	3.03%	2.53%	8.59%	4.55%	5.56%	28.79%	3.03%	0.00%	0.00%	0.00%	0.51%	1.01%	0.00%	0.00%	1.01%	32.83%	0.00%	100%
Road 10	10	-	50	28.41667	Y	1000-1100	215	11.63%	1.86%	1.40%	8.37%	5.58%	7.44%	33.49%	2.33%	0.00%	0.00%	0.00%	0.47%	0.00%	0.00%	0.00%	0.93%	26.51%	0.00%	100%
Road 10	10	-	50	28.41667	Y	1100-1200	215	12.56%	0.93%	1.40%	8.84%	2.33%	6.51%	34.42%	1.86%	0.00%	0.00%	0.00%	0.47%	0.00%	0.00%	0.00%	0.93%	29.77%	0.00%	100%
Road 10	10	-	50	28.3	Y	1200-1300	222	10.81%	3.15%	0.90%	8.56%	4.95%	5.86%	33.78%	0.90%	0.00%	0.00%	0.00%	0.00%	0.90%	0.00%	0.00%	0.90%	29.28%	0.00%	100%
Road 10	10	-	50	28.8	Y	1300-1400	192	10.42%	0.52%	1.04%	11.46%	6.77%	6.77%	29.69%	1.56%	0.00%	0.00%	0.00%	0.00%	0.52%	0.00%	0.00%	1.04%	30.21%	0.00%	100%
Road 10	10	-	50	28.98333	Y	1400-1500	181	12.71%	3.87%	1.10%	11.60%	6.08%	2.21%	27.62%	2.21%	0.00%	0.00%	0.00%	0.00%	1.10%	0.00%	0.00%	1.10%	30.39%	0.00%	100%
Road 10	10	-	50	28.91667	Y	1500-1600	185	15.14%	2.70%	1.08%	8.65%	3.78%	5.41%	31.35%	1.62%	0.00%	0.00%	0.00%	0.00%	0.54%	0.00%	0.00%	0.54%	29.19%	0.00%	100%
Road 10	10	-	50	28.56667	Y	1600-1700	206	14.08%	0.97%	0.97%	15.05%	6.31%	2.91%	32.52%	1.94%	0.00%	0.00%	0.00%	0.00%	0.49%	0.00%	0.00%	1.46%	23.30%	0.00%	100%
Road 10	10	-	50	28.75	Y	1700-1800	195	23.59%	1.03%	0.51%	11.79%	3.59%	3.59%	23.08%	2.56%	0.00%	0.00%	0.00%	0.00%	1.54%	0.00%	0.00%	2.56%	26.15%	0.00%	100%
Road 10	10	-	50	29.98333	Y	1800-1900	121	19.83%	2.48%	0.83%	9.09%	4.13%	3.31%	19.01%	1.65%	0.00%	0.00%	0.00%	0.00%	0.83%	0.00%	0.00%	2.48%	36.36%	0.00%	100%
Road 10	10	-	50	35	Y	1900-2000	109	16.51%	9.17%	0.00%	5.50%	1.83%	1.83%	28.44%	0.92%	0.00%	0.00%	0.00%	0.92%	0.92%	0.00%	0.00%	4.59%	29.36%	0.00%	100%
Road 10	10	-	50	35	Y	2000-2100	72	11.11%	5.56%	0.00%	0.00%	2.78%	5.56%	27.78%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%	45.83%	0.00%	100%
Road 10	10	-	50	35	Y	2100-2200	74	21.62%	10.81%	0.00%	10.81%	4.05%	1.35%	24.32%	0.00%	0.00%	0.00%	0.00%	0.00%	2.70%	0.00%	0.00%	1.35%	22.97%	0.00%	100%
Road 10	10	-	50	35	Y	2200-2300	77	20.78%	6.49%	0.00%	6.49%	2.60%	5.19%	20.78%	0.00%	0.00%	0.00%	0.00%	0.00%	1.30%	0.00%	0.00%	1.30%	35.06%	0.00%	100%
Road 10	10	-	50	32	Y	2300-0000	72	23.61%	5.56%	1.39%	9.72%	2.78%	2.78%	22.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%	30.56%	0.00%	100%
Road 11	11	-	50	35	Y	0000-0100	44	9.09%	2.27%	0.00%	6.82%	2.27%	2.27%	6.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	70.45%	0.00%	100%
Road 11	11	-	50	35	Y	0100-0200	31	9.68%	3.23%	0.00%	6.45%	3.23%	3.23%	6.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	67.74%	0.00%	100%
Road 11	11	-	50	35	Y	0200-0300	15	13.33%	6.67%	0.00%	6.67%	0.00%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	66.67%	0.00%	100%
Road 11	11	-	50	35	Y	0300-0400	14	14.29%	0.00%	0.00%	7.14%	0.00%	0.00%	7.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	71.43%	0.00%	100%
Road 11	11	-	50	35	Y	0400-0500	20	15.00%	5.00%	0.00%	5.00%	5.00%	5.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	55.00%	0.00%	100%
Road 11	11	-	50	35	Y	0500-0600	27	22.22%	7.41%	0.00%	7.41%	3.70%	3.70%	11.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.70%	40.74%	0.00%	100%
Road 11	11	-	50	35	Y	0600-0700	52	15.38%	5.77%	0.00%	9.62%	3.85%	3.85%	11.54%	5.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.92%	42.31%	0.00%	100%
Road 11	11	-	50	30.45833	Y	0700-0800	109	13.76%	3.67%	0.92%	7.34%	2.75%	1.83%	5.50%	4.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.75%	56.88%	0.00%	100%
Road 11	11	-	50	28.58333	Y	0800-0900	205	11.22%	4.39%	1.95%	10.24%	5.37%	1.95%	16.10%	2.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.98%	45.37%	0.00%	100%
Road 11	11	-	50	29.55	Y	0900-1000	147	14.97%	3.40%	2.72%	6.12%	4.76%	4.08%	10.88%	4.08%	0.00%	0.00%	0.68%	0.68%	0.00%	0.00%	0.00%	0.68%	46.94%	0.00%	100%
Road 11	11	-	50	29.98333	Y	1000-1100	121	13.22%	3.31%	0.83%	8.26%	2.48%	7.44%	14.05%	2.48%	0.00%	0.00%	0.00%	0.83%	0.00%	0.00%	0.00%	0.00%	47.11%	0.00%	100%
Road 11	11	-	50	29.73333	Y	1100-1200	136	15.44%	1.47%	0.74%	11.03%	0.00%	5.15%	12.50%	2.94%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.21%	48.53%	0.00%	100%
Road 11	11	-	50	29.26667	Y	1200-1300	164	9.15%	4.27%	0.61%	8.54%	4.88%	4.27%	11.59%	1.22%	0.00%	0.00%	0.00%	0.00%	0.61%	0.00%	0.00%	0.61%	54.27%	0.00%	100%
Road 11	11	-	50	29.98333	Y	1300-1400	121	5.79%	0.00%	1.65%	11.57%	8.26%	8.26%	7.44%	2.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	54.55%	0.00%	100%
Road 11	11	-	50	30.16667	Y	1400-1500	116	16.38%	5.17%	0.86%	10.34%	6.90%	0.00%	10.34%	3.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.86%	45.69%	0.00%	100%
Road 11	11	-	50	35	Y	1500-1600	117	18.80%	2.56%	0.00%	5.13%	2.56%	1.71%	9.40%	4.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.85%	54.70%	0.00%	100%
Road 11	11	-	50	35	Y	1600-1700	140	16.43%	2.14%	0.00%	16.43%	3.57%	0.71%	10.71%	2.86%	0.00%	0.00%	0.00%	0.00%	0.71%	0.00%	0.00%	0.71%	45.71%	0.00%	100%
Road 11	11	-	50	35	Y	1700-1800	143	20.98%	0.70%	0.00%	9.79%	2.10%	1.40%	3.50%	4.20%	0.00%	0.00%	0.00%	0.00%	0.70%	0.00%	0.00%	2.80%	53.85%	0.00%	100%
Road 11	11	-	50	35	Y	1800-1900	118	16.95%	4.24%	0.00%	5.93%	1.69%	1.69%	3.39%	1.69%	0.00%	0.00%	0.00%	0.00%	0.85%	0.00%	0.00%	1.69%	61.86%	0.00%	100%
Road 11	11	-	50	35	Y	1900-2000	91	12.09%	8.79%	0.00%	8.79%	2.20%	1.10%	6.59%	0.00%	0.00%	0.00%	0.00%	1.10%	0.00%	0.00%	0.00%	5.49%	53.85%	0.00%	100%
Road 11	11	-	50	35	Y	2000-2100	81	17.28%	7.41%	0.00%	1.23%	2.47%	4.94%	2.47%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.47%	61.73%	0.00%	100%
Road 11	11	-	50	35	Y	2100-2200	58	27.59%	6.90%	0.00%	13.79%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	51.72%	0.00%	100%
Road 11	11	-	50	35	Y	2200-2300	63	17.46%	7.94%	0.00%	6.35%	3.17%	3.17%	9.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.59%	50.79%	0.00%	100%
Road 11	11	-	50	35	Y	2300-0000	60	20.00%	6.67%	0.00%	8.33%	3.33%	1.67%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.67%	51.67%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	0000-0100	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	0100-0200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	0200-0300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	0300-0400	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	0400-0500	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	0500-0600	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	0600-0700	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	0700-0800	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	0800-0900	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	0900-1000	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	1000-1100	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	1100-1200	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	1200-1300	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	1300-1400	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	1400-1500	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	1500-1600	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	1600-1700	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	1700-1800	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	1800-1900	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	1900-2000	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	2000-2100	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	2100-2200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	2200-2300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	P	2300-0000	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2028)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Haul Road 2	HR2	-	8	8	P	0000-0100	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	0100-0200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	0200-0300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	0300-0400	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	0400-0500	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	0500-0600	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	0600-0700	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	0700-0800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	0800-0900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	0900-1000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	1000-1100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	1100-1200	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	1200-1300	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	1300-1400	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	1400-1500	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	1500-1600	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	1600-1700	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	1700-1800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	1800-1900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	1900-2000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	2000-2100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	2100-2200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	2200-2300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	P	2300-0000	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	0000-0100	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	0100-0200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	0200-0300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	0300-0400	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	0400-0500	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	0500-0600	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	0600-0700	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	0700-0800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	0800-0900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	0900-1000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	1000-1100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	1100-1200	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	1200-1300	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	1300-1400	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	1400-1500	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	1500-1600	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	1600-1700	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	1700-1800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	1800-1900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	1900-2000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	2000-2100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	2100-2200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	2200-2300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	P	2300-0000	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons

Traffic Data and Road Segments (Year 2028)

Road ID	Segment ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Road height (mAG)	Physical Road width (m)	Road elevation (m)	Barrier 1 width (m)	Barrier 1 height (m)	Barrier 1 DCL (m)	Barrier 2 width (m)	Barrier 2 height (m)	Barrier 2 DCL (m)
1	101	828242.3	824610.5	828289.6	824616.5	0	8.8							
1	102	828289.6	824616.5	828345.2	824613.2	0	8.8							
1	103	828345.2	824613.2	828393.7	824604.3	0	8.8							
2	201	828243.6	824599.7	828289.2	824602.8	0	6							
2	202	828289.2	824602.8	828319.6	824603.4	0	6							
2	203	828319.6	824603.4	828361.2	824598.3	0	6							
2	204	828361.2	824598.3	828391.9	824591.4	0	6							
3	301	827622.1	824564.9	827684.2	824567.6	0	14.5							
3	302	827684.2	824567.6	827744.3	824569.4	0	9.5							
3	303	827744.3	824569.4	827964.2	824571.3	15	8.8	20						
3	304	827964.2	824571.3	828081.5	824573.3	0	10.7							
3	305	828081.5	824573.3	828242.6	824603.5	0	14.6							
4	401	827377.9	824531.6	827454.6	824530.9	0	6							
4	402	827454.6	824530.9	827480.4	824531.6	0	6							
4	403	827480.4	824531.6	827514.3	824536.6	0	6							
4	404	827514.3	824536.6	827566.9	824551.5	0	6							
4	405	827566.9	824551.5	827622.4	824561.6	0	6							
5	501	827368.6	824570.9	827455.4	824571.3	12	8.8	25						
5	502	827455.4	824571.3	827555.4	824571.4	25	8.8	20						
5	503	827555.4	824571.4	827622.4	824570.1	10	8.8	25						
6	601	827366.9	824580.9	827460.9	824580.1	10	8.8	25						
6	602	827460.9	824580.1	827610.6	824580.7	30	8.8	22						
6	603	827610.6	824580.7	827733.2	824581.3	0	8.8							
6	604	827733.2	824581.3	828037.8	824582.2	15	8.8	20						
7	701	828037.6	824586.5	828080.8	824587.4	0	17.7							
7	702	828080.8	824587.4	828201.9	824614.1	0	14.9		1	5	7.5			
7	703	828201.9	824614.1	828267.3	824626.1	0	14.9		1	5	7.5			
7	704	828267.3	824626.1	828346.3	824627.8	0	15.5		1	5	7.75			
7	705	828346.3	824627.8	828395.2	824618.9	0	17.7		1	5	8.85			
8	801	827738.6	824652.6	827741.8	824624.8	0	7.75							
8	802	827741.8	824624.8	827761.8	824604.4	0	7.75							
8	803	827761.8	824604.4	827791.9	824599.8	0	7.75							
8	804	827791.9	824599.8	827913.9	824595.7	0	7.75							
8	805	827913.9	824595.7	828037.8	824592.1	0	7.75							
9	901	827882.4	824651.4	827956.1	824648.4	0	10.5							
9	902	827956.1	824648.4	827974.8	824648.9	0	12.4							
9	903	827974.8	824648.9	828037.8	824627.1	0	8							
9	904	828037.8	824627.1	828058.9	824623.6	0	7.9							
9	905	828058.9	824623.6	828088	824624.9	0	7.9							
9	906	828088	824624.9	828155.8	824654.4	0	7.9							
9	907	828155.8	824654.4	828269.5	824708.4	0	10.15							
9	908	828269.5	824708.4	828357.8	824774.9	0	5.5							
9	909	828357.8	824774.9	828400.6	824792.5	0	10.5							
10	1001	827359.4	824666.1	827665.9	824660.6	0	10.2							
10	1002	827665.9	824660.6	827700.1	824659.6	0	10.5							
10	1003	827700.1	824659.6	827738.6	824652.6	0	10.5							
11	1101	827738.6	824652.6	827818.3	824648.1	0	10							
11	1102	827818.3	824648.1	827882.4	824651.4	0	10							
HR1	HR1	827867.4	824736.8	827898.8	824735.9	0	7.3							
HR2	HR2	827878.3	824733.2	827876.4	824656.6	0	3.65							
HR3	HR3	827882	824733.1	827880.4	824656.6	0	3.65							

Appendix 3.4 Calculation of Vehicular Emisisons

Traffic Data and Road Segments (Year 2028)

Start Profile	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9
Y	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	1	0	0
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 1	1	0000-0100	0.101331508	3.40434E-07	0.001010861	0.604914749	2.03228E-06	0.0060345	0.706246257	2.37271E-06	0.007045362	0.029061453	9.76351E-08	0.000289911	0.031578268	1.06091E-07	0.000315018
Road 1	1	0100-0200	0.078726147	1.61058E-07	0.000478233	0.479193211	9.80331E-07	0.002910927	0.557919358	1.14139E-06	0.00338916	0.023159725	4.73801E-08	0.000140687	0.025161835	5.1476E-08	0.000152849
Road 1	1	0200-0300	0.076392987	1.10403E-07	0.000327822	0.496621039	7.17714E-07	0.00213113	0.573014026	8.28117E-07	0.002458952	0.022881039	3.30676E-08	9.81885E-05	0.024866104	3.59364E-08	0.000106707
Road 1	1	0300-0400	0.064440545	6.65208E-08	0.000197522	0.402483636	4.15477E-07	0.001233687	0.466924182	4.81998E-07	0.001431209	0.018418909	1.90135E-08	5.64574E-05	0.020009636	2.06556E-08	6.13333E-05
Road 1	1	0400-0500	0.083398953	1.34615E-07	0.000399718	0.484238721	7.81617E-07	0.002320877	0.567637674	9.16232E-07	0.002720594	0.022962674	3.70644E-08	0.000110056	0.024948372	4.02695E-08	0.000119573
Road 1	1	0500-0600	0.068870266	2.43011E-07	0.000721579	0.414597713	1.46292E-06	0.00434389	0.483467979	1.70593E-06	0.005065469	0.019296011	6.80865E-08	0.000202171	0.020965798	7.39784E-08	0.000219666
Road 1	1	0600-0700	0.092274392	5.83642E-07	0.001733026	0.497897181	3.14924E-06	0.009351121	0.590171573	3.73288E-06	0.011084148	0.023371128	1.47824E-07	0.000438939	0.025431068	1.60853E-07	0.000477627
Road 1	1	0700-0800	0.077299466	8.15358E-07	0.002421068	0.433546655	4.57307E-06	0.013578952	0.510846121	5.38843E-06	0.01600002	0.019362616	2.04238E-07	0.000606449	0.021047758	2.22013E-07	0.000659229
Road 1	1	0800-0900	0.08288598	1.07963E-06	0.003205787	0.449685764	5.85739E-06	0.017392528	0.532571744	6.93703E-06	0.020598315	0.021000821	2.73547E-07	0.00081225	0.022812939	2.97151E-07	0.000882338
Road 1	1	0900-1000	0.087897997	1.17791E-06	0.003497609	0.491172871	6.58216E-06	0.019544596	0.579070868	7.76007E-06	0.023042205	0.022414048	3.00368E-07	0.000891893	0.024364874	3.26511E-07	0.000969519
Road 1	1	1000-1100	0.101848187	1.32854E-06	0.003944866	0.548463597	7.15432E-06	0.021243532	0.650311784	8.48286E-06	0.025188398	0.026393381	3.44283E-07	0.00102229	0.028678158	3.74086E-07	0.001110785
Road 1	1	1100-1200	0.091999228	1.1638E-06	0.003455717	0.531163027	6.71929E-06	0.019951789	0.623162255	7.8831E-06	0.023407506	0.025052047	3.16912E-07	0.000941016	0.027219807	3.44335E-07	0.001022443
Road 1	1	1200-1300	0.095157076	1.19125E-06	0.003537212	0.541955517	6.78462E-06	0.020145757	0.637112594	7.97587E-06	0.023682968	0.025994558	3.2542E-07	0.000966279	0.028243733	3.53577E-07	0.001049886
Road 1	1	1300-1400	0.099402341	1.32275E-06	0.003927688	0.554626135	7.38044E-06	0.02191496	0.654028477	8.70319E-06	0.025842648	0.026341382	3.50526E-07	0.001040828	0.028635867	3.81059E-07	0.00113149
Road 1	1	1400-1500	0.094287945	1.36088E-06	0.004040886	0.514735176	7.42927E-06	0.022059939	0.609023121	8.79014E-06	0.026100825	0.024361001	3.51607E-07	0.001044036	0.026485488	3.8227E-07	0.001135085
Road 1	1	1500-1600	0.101530251	1.36441E-06	0.004051376	0.55229486	7.42198E-06	0.022038302	0.653825112	8.78639E-06	0.026089679	0.025715307	3.45574E-07	0.001026122	0.027956578	3.75693E-07	0.001115555
Road 1	1	1600-1700	0.097171417	1.37696E-06	0.004088647	0.53625947	7.59902E-06	0.022563997	0.633430887	8.97598E-06	0.026652644	0.025039272	3.54817E-07	0.001053568	0.027222464	3.85754E-07	0.00114543
Road 1	1	1700-1800	0.077476478	1.10224E-06	0.003272903	0.438163325	6.23363E-06	0.018509698	0.515639802	7.33587E-06	0.021782602	0.020100778	2.85968E-07	0.000849134	0.021854222	3.10914E-07	0.000923206
Road 1	1	1800-1900	0.069086512	1.00362E-06	0.002980083	0.418953127	6.08614E-06	0.018071762	0.488039638	7.08977E-06	0.021051845	0.018688953	2.71495E-07	0.000806158	0.020320517	2.95197E-07	0.000876536
Road 1	1	1900-2000	0.083350624	9.27682E-07	0.002754594	0.483580034	5.38219E-06	0.015981486	0.566930658	6.30987E-06	0.018736081	0.022596054	2.51491E-07	0.000746761	0.024556981	2.73316E-07	0.000811566
Road 1	1	2000-2100	0.075660338	7.14286E-07	0.00212095	0.452489125	4.27181E-06	0.012684409	0.528149463	4.9861E-06	0.014805359	0.021362803	2.0168E-07	0.000598853	0.023212704	2.19144E-07	0.000650711
Road 1	1	2100-2200	0.079596841	6.85716E-07	0.002036117	0.480805251	4.14207E-06	0.012299175	0.560402092	4.82779E-06	0.014335292	0.023158867	1.99511E-07	0.000592412	0.025194139	2.17044E-07	0.000644475
Road 1	1	2200-2300	0.077524736	6.32944E-07	0.001879419	0.468442161	3.82456E-06	0.011356365	0.545966897	4.4575E-06	0.013235784	0.021963908	1.79322E-07	0.000532467	0.023893609	1.95077E-07	0.000579249
Road 1	1	2300-0000	0.067946154	4.97354E-07	0.001476807	0.424642692	3.10831E-06	0.009229589	0.492588846	3.60566E-06	0.010706396	0.018573718	1.35956E-07	0.000403699	0.020208974	1.47926E-07	0.000439241
Road 2	2	0000-0100	0.167772115	2.01948E-07	0.000476018	0.714830192	8.60444E-07	0.002028182	0.882602308	1.06239E-06	0.0025042	0.02753	3.3138E-08	7.81106E-05	0.029925192	3.60211E-08	8.49065E-05
Road 2	2	0100-0200	0.118771765	9.34778E-08	0.00022034	0.59121	4.65304E-07	0.001096784	0.709981765	5.58782E-07	0.001317124	0.024328235	1.91472E-08	4.51326E-05	0.026453235	2.08197E-08	4.90748E-05
Road 2	2	0200-0300	0.123898261	6.59644E-08	0.000155487	0.683987826	3.6416E-07	0.000858374	0.807886087	4.30125E-07	0.001013861	0.027973478	1.48933E-08	3.51055E-05	0.030403043	1.61868E-08	3.81545E-05
Road 2	2	0300-0400	0.107362	3.72785E-08	8.78704E-05	0.396989333	1.37844E-07	0.000324916	0.504351333	1.75122E-07	0.000412786	0.014837333	5.15185E-09	1.21436E-05	0.016128	5.6E-09	1.32E-05
Road 2	2	0400-0500	0.145105185	9.06907E-08	0.00021377	0.704312222	4.40195E-07	0.001037599	0.849417407	5.30886E-07	0.001251369	0.029534815	1.84593E-08	4.3511E-05	0.032092222	2.00576E-08	4.72785E-05
Road 2	2	0500-0600	0.115097895	1.51865E-07	0.000357967	0.516823509	6.8192E-07	0.001607377	0.631921404	8.33785E-07	0.001965344	0.019796667	2.61206E-08	6.15698E-05	0.021522281	2.83975E-08	6.69366E-05
Road 2	2	0600-0700	0.161577212	3.88982E-07	0.000916883	0.659473077	1.58762E-06	0.003742235	0.821050288	1.9766E-06	0.004659118	0.025222212	6.07201E-08	0.000143126	0.027416923	6.60037E-08	0.00015558
Road 2	2	0700-0800	0.132126625	4.89358E-07	0.001153482	0.55729775	2.06407E-06	0.00486528	0.689424375	2.55342E-06	0.006018763	0.01990725	7.37306E-08	0.000173793	0.021648125	8.01782E-08	0.000188991
Road 2	2	0800-0900	0.148749375	1.04675E-06	0.002467342	0.6311525	4.44144E-06	0.010469079	0.779901875	5.4882E-06	0.012936421	0.022734079	1.59981E-07	0.000377096	0.024745493	1.74135E-07	0.000410459
Road 2	2	0900-1000	0.173418016	1.01161E-06	0.002384489	0.74237754	4.33054E-06	0.010207654	0.915795556	5.34214E-06	0.012592144	0.026635198	1.55372E-07	0.000366233	0.028972262	1.69005E-07	0.000398367
Road 2	2	1000-1100	0.193055668	8.35681E-07	0.001969812	0.81732984	3.53798E-06	0.008339491	1.010385508	4.37366E-06	0.010309303	0.03064631	1.32659E-07	0.000312695	0.033308984	1.44185E-07	0.000339863
Road 2	2	1100-1200	0.22839459	9.67505E-07	0.002280539	0.934890929	3.9603E-06	0.009334964	1.163285519	4.92781E-06	0.011615503	0.036251639	1.53566E-07	0.000361976	0.039400546	1.66905E-07	0.000393418
Road 2	2	1200-1300	0.176527895	7.76396E-07	0.001830069	0.776653	3.41583E-06	0.008051582	0.953180895	4.19223E-06	0.009881651	0.028837421	1.26831E-07	0.000298958	0.031347158	1.37869E-07	0.000324977
Road 2	2	1300-1400	0.195013677	1.00667E-06	0.002372851	0.80077417	4.13363E-06	0.009743512	0.995787848	5.14029E-06	0.012116363	0.030425426	1.57057E-07	0.000370205	0.03306565	1.70686E-07	0.00040233
Road 2	2	1400-1500	0.167439455	6.39526E-07	0.001507448	0.726255455	2.77389E-06	0.006538437	0.893694909	3.41342E-06	0.008045885	0.027471879	1.04927E-07	0.000247328	0.02985897	1.14045E-07	0.000268819
Road 2	2	1500-1600	0.209629016	8.88012E-07	0.002093163	0.828109617	3.50796E-06	0.008268743	1.037738634	4.39598E-06	0.010361906	0.03210918	1.36018E-07	0.000320613	0.034895191	1.4782E-07	0.000348431
Road 2	2	1600-1700	0.17597819	9.00259E-07	0.002122031	0.74367638	3.80446E-06	0.008967613	0.91965457	4.70471E-06	0.011089644	0.026893077	1.37578E-07	0.00032429	0.029220769	1.49486E-07	0.000352358
Road 2	2	1700-1800	0.135665135	6.97168E-07	0.001643319	0.541628514	2.78337E-06	0.006560774	0.677293649	3.48054E-06	0.008204093	0.019805631	1.01779E-07	0.000239907	0.021516982	1.10573E-07	0.000260636
Road 2	2	1800-1900	0.14959932	8.65737E-07	0.002040658	0.67767364	3.92172E-06	0.009244027	0.82727296	4.78746E-06	0.011284685	0.02604136	1.50702E-07	0.000355226	0.02832264	1.63904E-07	0.000386344
Road 2	2	1900-2000	0.127866391	5.00218E-07	0.001179081	0.585764083	2.29153E-06	0.005401446	0.713630473	2.79175E-06	0.006580527	0.022251006	8.70468E-08	0.000205181	0.024179408	9.45907E-08	0.000222963
Road 2	2	2000-2100	0.12156068	4.13644E-07	0.000975014	0.524665782	1.78532E-06	0.004208242	0.646226463	2.19897E-06	0.005183256	0.019367959	6.59049E-08	0.000155347	0.021051701	7.16343E-08	0.000168852
Road 2	2	2100-2200	0.094595621	3.35026E-07	0.000789702	0.442540588	1.56733E-06	0.00369441	0.537136209	1.90236E-06	0.004484112	0.015661373	5.54674E-08	0.000130744	0.017022092	6.02866E-08	0.000142104
Road 2	2	2200-2300	0.13717136	3.96908E-07	0.000935565	0.59125688	1.71081E-06	0.004032615	0.72842824	2.10772E-06	0.004968181	0.02236192	6.47046E-08	0.000152518	0.02430048	7.03139E-08	0.000165739
Road 2	2	2300-0000	0.122605135	3.15027E-07	0.000742561	0.56238036	1.44501E-06	0.003406071	0.684985495	1.76003E-06	0.004148632	0.020350541	5.22896E-08	0.000123254	0.022114595	5.68222E-08	0.000133938
Road 3	3	0000-0100	0.105944	3.90838E-07	0.005544671	0.589696696	2.17545E-06	0.030862287	0.695640696	2.56629E-06	0.036406958	0.027639609	1.01965E-07	0.001446543	0.030030565	1.10786E-07	0.001571676
Road 3	3	0100-0200	0.079634789	1.81377E-07	0.002573136	0.468523592	1.06712E-06	0.015138798	0.54815838	1.24849E-06	0.017711934	0.022343944	5.08909E-08	0.000721971	0.024275423	5.52901E-08	0.00078438
Road 3	3	0200-0300	0.078477273	1.24615E-07	0.001767871	0.498187879	7.9108E-07	0.011222766	0.576665152	9.15696E-07	0.012990638	0.022849394	3.62829E-08	0.000514732	0.02483202	3.94312E-08	0.000559395
Road 3	3	0300-0400	0.065676	7.3739E-08	0.001046107	0.369914	4.15328E-07	0.005892104	0.43559	4.89067E-07	0.006938211	0.016289	1.82888E-08	0.000259456	0.017692	1.9864E-08	0.000281804
Road 3	3	0400-0500	0.087251681	1.58141E-07	0.002243488	0.488535133	8.85455E-07	0.012561625	0.575786814	1.0436E-06	0.014805113	0.023123451	4.19105E-08	0.00059457	0.025122212	4.55332E-08	0.000645963
Road 3	3	0500-0600	0.070762967	2.79212E-07	0.003961072	0.401203821	1.58304E-06	0.022458034	0.471966789	1.86225E-06	0.026419106	0.018306057	7.22308E-08	0.001024711	0.019887927	7.84724E-08	0.001113259
Road 3	3	0600-0700	0.097958604	6.97618E-07	0.009896853	0.49523723	3.52686E-06	0.0500343	0.593195833	4.22448E-06	0.059931153	0.022843356	1.6268E-07	0.002307887	0.024857027	1.77021E-07	0.00251133
Road 3	3	0700-0800	0.080471032	9.38353E-07	0.013312069	0.429446176	5.00767E-06	0.071041926	0.509917208	5.94602E-06	0.084353994	0.018831884	2.19594E-07	0.003115299	0.020474856	2.38752E-07	0.003387091
Road 3	3	0800-0900	0.08892344	1.42201E-06	0.020173581	0.445269348	7.12049E-06	0.101015852	0.534192788	8.54251E-06	0.121189433	0.019833601	3.17168E-07	0.004499542	0.021551535	3.4464E-07	0.00488928
Road 3	3	0900-1000	0.09595314	1.48518E-06	0.021069687	0.49838085	7.71402E-06	0.109436006	0.59433399	9.1992E-06	0.130505692	0.02199914	3.40506E-07	0.004830639	0.023905534	3.70014E-07	0.005249251
Road 3	3	1000-1100	0.109030205	1.53719E-06	0.02180757	0.553280796	7.80058E-06	0.110663919	0.662311001	9.33777E-06	0.132471489	0.025930557	3.65589E-07	0.005186475	0.02820934	3.97717E-07	0.005642264
Road 3	3	1100-1200	0.107536897	1.47302E-06	0.020897144	0.561667541	7.6936E-06	0.109146238	0.669204438	9.16661E-06	0.130043382	0.025939496	3.55313E-07	0.005040702	0.028219941	3.8655E-07	0.00548385
Road 3	3	1200-1300	0.101379637	1.38868E-06	0.019700633	0.541265211	7.41413E-06	0.105181548	0.642644848	8.80281E-06	0.124882181	0.025189824	3.45045E-07	0.004895021	0.027406206	3.75404E-07	0.00532572

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 3	3	1300-1400	0.108106224	1.6074E-06	0.022803526	0.554160054	8.23962E-06	0.116892467	0.662266278	9.84701E-06	0.139695993	0.025689752	3.81972E-07	0.005418901	0.02791972	4.15129E-07	0.005889282
Road 3	3	1400-1500	0.099236103	1.48665E-06	0.021090562	0.51652349	7.73801E-06	0.109776284	0.615759593	9.22466E-06	0.130866846	0.024070246	3.60595E-07	0.005115628	0.026156221	3.91845E-07	0.005558959
Road 3	3	1500-1600	0.110129587	1.58095E-06	0.022428417	0.558030547	8.01075E-06	0.113645589	0.668160134	9.59171E-06	0.136074005	0.025750536	3.69659E-07	0.00524422	0.028012369	4.02129E-07	0.005704853
Road 3	3	1600-1700	0.104127039	1.63007E-06	0.023125169	0.537188986	8.40948E-06	0.11930221	0.641316025	1.00395E-05	0.142427379	0.024283945	3.80155E-07	0.005393127	0.026388617	4.13103E-07	0.005860545
Road 3	3	1700-1800	0.082797497	1.30015E-06	0.018444695	0.430150306	6.75453E-06	0.095824045	0.512947804	8.05468E-06	0.11426874	0.01916714	3.00976E-07	0.00426984	0.020825781	3.27021E-07	0.004639333
Road 3	3	1800-1900	0.078362639	1.29084E-06	0.018312645	0.43769518	7.20999E-06	0.102285431	0.516057819	8.50082E-06	0.120598076	0.019075433	3.14222E-07	0.004457757	0.020751821	3.41837E-07	0.004849514
Road 3	3	1900-2000	0.083479526	1.01762E-06	0.014436607	0.46584775	5.67871E-06	0.080561801	0.549327276	6.69633E-06	0.094998408	0.021457092	2.61563E-07	0.003710702	0.023327329	2.84362E-07	0.004034133
Road 3	3	2000-2100	0.077909476	8.11012E-07	0.011505528	0.432734407	4.50462E-06	0.063905421	0.510643883	5.31563E-06	0.075410949	0.019943267	2.07603E-07	0.002945185	0.02166641	2.2554E-07	0.003199656
Road 3	3	2100-2200	0.076598618	7.55594E-07	0.01071933	0.439127106	4.33169E-06	0.061452129	0.515725724	5.08729E-06	0.072171459	0.02036865	2.00923E-07	0.002850421	0.022134163	2.18339E-07	0.003097489
Road 3	3	2200-2300	0.082554423	7.45489E-07	0.010575973	0.459738739	4.15156E-06	0.058896714	0.542293162	4.89705E-06	0.069472687	0.02104595	1.90051E-07	0.002696178	0.022868366	2.06507E-07	0.002929646
Road 3	3	2300-0000	0.072037829	5.80038E-07	0.008228789	0.422534163	3.40218E-06	0.048265534	0.494571992	3.98222E-06	0.056494323	0.018316713	1.47484E-07	0.002092295	0.019900817	1.60238E-07	0.002273245
Road 4	4	0000-0100	0.283915143	2.30024E-07	0.000898994	1.403126	1.13679E-06	0.004442885	1.687041143	1.36682E-06	0.005341879	0.065353429	5.29484E-08	0.000206936	0.071049714	5.75634E-08	0.000224973
Road 4	4	0100-0200	0.268011	1.24079E-07	0.000484934	1.3262955	6.14026E-07	0.002399776	1.5943065	7.38105E-07	0.00288471	0.062396	2.8887E-08	0.000112898	0.067833	3.14042E-08	0.000122736
Road 4	4	0200-0300	0.290278462	8.73523E-08	0.000341396	1.388837692	4.17937E-07	0.00163341	1.679116154	5.0529E-07	0.001974806	0.066256923	1.99384E-08	7.79247E-05	0.072022308	2.16734E-08	8.47053E-05
Road 4	4	0300-0400	0.263768571	4.27403E-08	0.00016704	1.354341429	2.19453E-07	0.000857683	1.61811	2.62194E-07	0.001024723	0.064771429	1.04954E-08	4.10187E-05	0.070427143	1.14118E-08	4.46004E-05
Road 4	4	0400-0500	0.270545714	8.76769E-08	0.000342664	1.295015714	4.19681E-07	0.001640225	1.565561429	5.07358E-07	0.00198289	0.06161	1.99662E-08	7.80332E-05	0.066970714	2.17035E-08	8.48229E-05
Road 4	4	0500-0600	0.249702917	1.38724E-07	0.00054217	1.151735833	6.39853E-07	0.002500717	1.40143875	7.78577E-07	0.003042886	0.054404167	3.02245E-08	0.000118126	0.059127917	3.28488E-08	0.000128382
Road 4	4	0600-0700	0.278279434	3.41408E-07	0.001334312	1.289990943	1.58263E-06	0.00618533	1.568270377	1.92404E-06	0.007519642	0.059383208	7.28544E-08	0.000284734	0.064556604	7.92014E-08	0.00030954
Road 4	4	0700-0800	0.278380326	5.92847E-07	0.002317004	1.338858152	2.85127E-06	0.011143529	1.617238478	3.44412E-06	0.013460533	0.060218043	1.28242E-07	0.000501204	0.06547837	1.39445E-07	0.000544987
Road 4	4	0800-0900	0.285260323	1.0235E-06	0.004000124	1.375829935	4.93643E-06	0.019292869	1.661090258	5.95993E-06	0.023292993	0.062363677	2.23759E-07	0.000874508	0.067778452	2.43187E-07	0.000950438
Road 4	4	0900-1000	0.289781959	9.92772E-07	0.003880015	1.326713649	4.54522E-06	0.017763939	1.616495608	5.53799E-06	0.021643955	0.05895	2.01958E-07	0.000789307	0.064073108	2.1951E-07	0.000857902
Road 4	4	1000-1100	0.323084722	1.07695E-06	0.004209003	1.482325	4.94108E-06	0.019311068	1.805409722	6.01803E-06	0.023520071	0.066186458	2.20622E-07	0.000862248	0.071936875	2.3979E-07	0.000937161
Road 4	4	1100-1200	0.300374452	1.07773E-06	0.004212065	1.369479935	4.91364E-06	0.019203825	1.669854387	5.99138E-06	0.02341589	0.061772194	2.21636E-07	0.000866214	0.06713329	2.40872E-07	0.000941391
Road 4	4	1200-1300	0.307891419	1.05481E-06	0.004122491	1.465089392	5.01929E-06	0.019616712	1.772980811	6.0741E-06	0.023739202	0.065637568	2.24869E-07	0.00087885	0.071341824	2.44412E-07	0.000955226
Road 4	4	1300-1400	0.316702133	1.09966E-06	0.004297765	1.472107467	5.11148E-06	0.01997704	1.7888096	6.21114E-06	0.024274805	0.065523933	2.27514E-07	0.000889184	0.071213733	2.4727E-07	0.000966397
Road 4	4	1400-1500	0.287179	9.30673E-07	0.003637316	1.378125286	4.46615E-06	0.01745489	1.665304286	5.39682E-06	0.021092206	0.062004286	2.0094E-07	0.000785326	0.067392	2.184E-07	0.000853565
Road 4	4	1500-1600	0.32230184	9.32586E-07	0.003644796	1.49802144	4.33455E-06	0.016940585	1.82032328	5.26714E-06	0.020585381	0.06813688	1.97155E-07	0.000770535	0.07406856	2.14319E-07	0.000837615
Road 4	4	1600-1700	0.302124032	8.67208E-07	0.003389279	1.418381613	4.07128E-06	0.015911647	1.720505645	4.93849E-06	0.019300926	0.063601452	1.8256E-07	0.000713492	0.069138226	1.98452E-07	0.000775604
Road 4	4	1700-1800	0.290498976	8.54013E-07	0.003337711	1.386684724	4.0766E-06	0.015932423	1.677183701	4.93061E-06	0.019270133	0.062012362	1.82305E-07	0.000712496	0.067415039	1.98188E-07	0.00077457
Road 4	4	1800-1900	0.32093717	7.87485E-07	0.0030777	1.545416415	3.79199E-06	0.014820121	1.866353585	4.57948E-06	0.017897821	0.07162434	1.75745E-07	0.000686858	0.07785783	1.9104E-07	0.000746635
Road 4	4	1900-2000	0.289001216	4.95048E-07	0.001934781	1.39541	2.39029E-06	0.009341872	1.684411216	2.88533E-06	0.011276653	0.064756622	1.10926E-07	0.000433527	0.070419595	1.20626E-07	0.000471439
Road 4	4	2000-2100	0.252343061	2.86222E-07	0.001118633	1.224503878	1.3889E-06	0.00542821	1.476846939	1.67513E-06	0.006546843	0.056802653	6.44289E-08	0.000251805	0.061768776	7.00618E-08	0.00027382
Road 4	4	2100-2200	0.21090973	1.8064E-07	0.00070599	1.046270811	8.96112E-07	0.003502242	1.257180541	1.07675E-06	0.004208233	0.046458649	3.9791E-08	0.000155514	0.050506486	4.32579E-08	0.000169063
Road 4	4	2200-2300	0.284256349	4.14541E-07	0.001620135	1.352735079	1.97274E-06	0.007709987	1.636991429	2.38728E-06	0.009330122	0.062423651	9.10345E-08	0.000355787	0.067882698	9.89956E-08	0.000386901
Road 4	4	2300-0000	0.264182857	2.99652E-07	0.001171119	1.291926327	1.46538E-06	0.005727092	1.556109184	1.76503E-06	0.006898212	0.059772245	6.77972E-08	0.00026497	0.064977959	7.37019E-08	0.000288046
Road 5	5	0000-0100	0.089717979	3.24992E-07	0.001604148	0.507908964	1.83984E-06	0.00908136	0.597626943	2.16483E-06	0.010685509	0.022048446	7.98677E-08	0.000394224	0.023959119	8.67889E-08	0.000428387
Road 5	5	0100-0200	0.060465328	1.38453E-07	0.000683398	0.37637418	8.61818E-07	0.004253901	0.436839508	1.00027E-06	0.004937299	0.016575738	3.7955E-08	0.000187344	0.018009918	4.12389E-08	0.000203554
Road 5	5	0200-0300	0.058036279	9.36772E-08	0.000462387	0.409981047	6.61756E-07	0.003266404	0.468017326	7.55433E-07	0.003728792	0.017064767	2.75445E-08	0.000135959	0.018547674	2.99381E-08	0.000147773
Road 5	5	0300-0400	0.051708571	6.11419E-08	0.000301794	0.29395381	3.47581E-07	0.001715645	0.345662381	4.08722E-07	0.002017439	0.011434127	1.35201E-08	6.67346E-05	0.012420794	1.46867E-08	7.24933E-05
Road 5	5	0400-0500	0.071424141	1.32714E-07	0.00065507	0.414981212	7.7108E-07	0.003806023	0.486405354	9.03794E-07	0.004461093	0.018360101	3.41151E-08	0.000168391	0.019946566	3.70629E-08	0.000182941
Road 5	5	0500-0600	0.057954636	2.39302E-07	0.001181187	0.345353773	1.42601E-06	0.007038735	0.403308409	1.66531E-06	0.008219922	0.014679227	6.06124E-08	0.000299181	0.015945682	6.58418E-08	0.000324993
Road 5	5	0600-0700	0.084906082	6.1831E-07	0.003051956	0.433652088	3.15798E-06	0.015587659	0.51855817	3.77629E-06	0.018639615	0.018808892	1.36972E-07	0.000676087	0.02047482	1.49103E-07	0.000735969
Road 5	5	0700-0800	0.065844376	7.82273E-07	0.00386127	0.356237441	4.23233E-06	0.020890604	0.422081817	5.0146E-06	0.024751873	0.014195766	1.68655E-07	0.000832473	0.015430142	1.8332E-07	0.00090486
Road 5	5	0800-0900	0.070389348	1.11371E-06	0.005497209	0.350433345	5.54458E-06	0.027367853	0.420822693	6.65829E-06	0.032865061	0.014042337	2.22179E-07	0.001096667	0.015289146	2.41906E-07	0.001194039
Road 5	5	0900-1000	0.077422868	1.18576E-06	0.005852847	0.416673309	6.38148E-06	0.031498768	0.494096176	7.56724E-06	0.037351614	0.017117426	2.62159E-07	0.001294006	0.018623027	2.85218E-07	0.001407823
Road 5	5	1000-1100	0.088338052	1.21697E-06	0.006006917	0.461164169	6.35313E-06	0.031358793	0.549502221	7.57009E-06	0.03736571	0.020298283	2.79635E-07	0.001380267	0.022065995	3.03987E-07	0.00150047
Road 5	5	1100-1200	0.087190172	1.14388E-06	0.00564615	0.476172346	6.24708E-06	0.030835363	0.563362518	7.39096E-06	0.036481514	0.020369256	2.67232E-07	0.001319046	0.022143104	2.90504E-07	0.001433915
Road 5	5	1200-1300	0.081043607	1.07541E-06	0.005308183	0.445634809	5.91336E-06	0.029188128	0.526678416	6.98877E-06	0.034496311	0.019191061	2.54656E-07	0.001256973	0.020861301	2.76819E-07	0.001366371
Road 5	5	1300-1400	0.088847825	1.2957E-06	0.006395515	0.466348494	6.80092E-06	0.033569071	0.555196319	8.09661E-06	0.039964586	0.020244389	2.95231E-07	0.001457248	0.022009897	3.20978E-07	0.001584334
Road 5	5	1400-1500	0.083405894	1.24295E-06	0.006135147	0.439541121	6.55022E-06	0.03233164	0.522947015	7.79317E-06	0.038466787	0.01922267	2.86464E-07	0.001413976	0.020898161	3.11433E-07	0.001537221
Road 5	5	1500-1600	0.093109117	1.34561E-06	0.006641874	0.478442571	6.91443E-06	0.034129369	0.571551688	8.26004E-06	0.040771244	0.020631688	2.98168E-07	0.001471747	0.022433455	3.24207E-07	0.001600275
Road 5	5	1600-1700	0.088663705	1.41948E-06	0.007006524	0.46570789	7.45587E-06	0.036801909	0.554371594	8.87536E-06	0.043808433	0.020049308	3.20985E-07	0.001584368	0.021812802	3.49218E-07	0.001723726
Road 5	5	1700-1800	0.065498425	1.04616E-06	0.005163785	0.345867603	5.52427E-06	0.027267616	0.411366028	6.57043E-06	0.032431401	0.014233866	2.27346E-07	0.001122174	0.015501598	2.47595E-07	0.00122212
Road 5	5	1800-1900	0.061306627	1.05745E-06	0.005219521	0.355615919	6.13384E-06	0.030276414	0.416922546	7.19129E-06	0.035495935	0.014269053	2.4612E-07	0.001214838	0.0155037	2.67416E-07	0.001319953
Road 5	5	1900-2000	0.0711157	9.15641E-07	0.004519572	0.407215612	5.24305E-06	0.025879523	0.478331312	6.1587E-06	0.030399095	0.01771102	2.28036E-07	0.001125578	0.019244402	2.47779E-07	0.001223028
Road 5	5	2000-2100	0.06896805	7.76667E-07	0.003833601	0.3894741	4.38597E-06	0.021648986	0.45844215	5.16264E-06	0.025482587	0.01728705	1.94674E-07	0.000960904	0.018784467	2.11537E-07	0.001044138
Road 5	5	2100-2200	0.071429758	7.74895E-07	0.003824853	0.414653201	4.4983E-06	0.022203456	0.486082958	5.2732E-06	0.026028309	0.01893526	2.05416E-07	0.001013927	0.020580052	2.2326E-07	0.001102001
Road 5	5	2200-2300	0.069087956	6.47051E-07	0.003193821	0.397029078	3.71842E-06	0.018353994	0.466117034	4.36547E-06	0.021547815	0.01692998	1.5856E-07	0.000782645	0.018395431	1.72285E-07	0.00085039
Road 5	5	2300-0000	0.060544768	5.14767E-07	0.002540871	0.366817196	3.11877E-06	0.015394146	0.427361965	3.63354E-06	0.017935017	0.014645254	1.24518E-07	0.000614615	0.015942605	1.35548E-07	0.00066906
Road 6	6	0000-0100	0.0538884	1.51713E-07	0.001979438	0.356982067	1.00502E-06	0.01311273	0.410870467	1.15673E-06	0.015092168	0.0144748	4.07511E-08	0.000531691	0.015725933	4.42735E-08	0.000577648
Road 6	6	0100-0200	0.071313246	1.52585E-07	0.001990813	0.410162982	8.77601E-07	0.011450297	0.481476228	1.03019E-06	0.01344111	0.01691614	3.61944E-08	0.000472239	0.018382456	3.93318E-08	0.000513173

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 6	6	0200-0300	0.065112152	9.65439E-08	0.001259635	0.381336456	5.6542E-07	0.007377188	0.446448608	6.61964E-07	0.008636823	0.015256582	2.26214E-08	0.000295148	0.016573797	2.45745E-08	0.00032063
Road 6	6	0300-0400	0.066753871	7.76791E-08	0.0010135	0.435249839	5.06484E-07	0.006608239	0.50200371	5.84163E-07	0.007621739	0.017635323	2.05216E-08	0.000267751	0.01917371	2.23117E-08	0.000291107
Road 6	6	0400-0500	0.072254	1.22051E-07	0.001592428	0.433598778	7.3243E-07	0.009556217	0.505852778	8.54481E-07	0.011148645	0.018071333	3.05259E-08	0.00039828	0.019637444	3.31714E-08	0.000432796
Road 6	6	0500-0600	0.064723148	1.96793E-07	0.002567616	0.401009506	1.21929E-06	0.01590835	0.465732654	1.41608E-06	0.018475966	0.016091235	4.89261E-08	0.000638351	0.017485988	5.31669E-08	0.000693682
Road 6	6	0600-0700	0.069400552	3.77743E-07	0.004928518	0.449846	2.44849E-06	0.031946061	0.519246552	2.82623E-06	0.036874579	0.018143034	9.87515E-08	0.001288438	0.019715621	1.07311E-07	0.001400116
Road 6	6	0700-0800	0.064702035	5.61042E-07	0.007320072	0.382443874	3.31624E-06	0.043267832	0.447145909	3.87728E-06	0.050587904	0.014680584	1.27298E-07	0.00166089	0.015987208	1.38628E-07	0.001808715
Road 6	6	0800-0900	0.054826631	6.81217E-07	0.00888802	0.334418157	4.15512E-06	0.054212981	0.389244789	4.83634E-06	0.063101001	0.011901767	1.47879E-07	0.001929412	0.012929985	1.60654E-07	0.002096097
Road 6	6	0900-1000	0.057619384	6.84555E-07	0.008931569	0.334528863	3.97441E-06	0.051855252	0.392148246	4.65897E-06	0.060786822	0.012182291	1.44733E-07	0.001888374	0.013234455	1.57234E-07	0.00205147
Road 6	6	1000-1100	0.077215327	7.75342E-07	0.010116091	0.429421533	4.31195E-06	0.056259135	0.50663686	5.08729E-06	0.066375226	0.017896187	1.79701E-07	0.002344605	0.01944628	1.95266E-07	0.002547685
Road 6	6	1100-1200	0.088969361	8.88358E-07	0.011590644	0.470997782	4.70291E-06	0.061360084	0.559967143	5.59126E-06	0.072950727	0.019611748	1.95823E-07	0.002554956	0.021314774	2.12828E-07	0.002776821
Road 6	6	1200-1300	0.085496119	8.39236E-07	0.010949733	0.433019598	4.25055E-06	0.055458062	0.518515717	5.08978E-06	0.066407795	0.017943652	1.76136E-07	0.002298095	0.019497189	1.91386E-07	0.002497061
Road 6	6	1300-1400	0.099391593	9.71904E-07	0.012680688	0.512250038	5.00905E-06	0.065354451	0.611641631	5.98096E-06	0.078035139	0.021953225	2.1467E-07	0.002800861	0.023853973	2.33257E-07	0.003043364
Road 6	6	1400-1500	0.094144756	1.01425E-06	0.013233157	0.47789324	5.14847E-06	0.067173539	0.572037997	6.16272E-06	0.080406696	0.020028885	2.15777E-07	0.002815296	0.021764181	2.34471E-07	0.003059213
Road 6	6	1500-1600	0.082752473	8.72877E-07	0.011388663	0.435406317	4.59269E-06	0.059922026	0.51815879	5.46556E-06	0.071310689	0.018249146	1.92493E-07	0.002511507	0.019831566	2.09184E-07	0.002729284
Road 6	6	1600-1700	0.086761997	9.37968E-07	0.012237916	0.436053264	4.71409E-06	0.061505999	0.52281526	5.65206E-06	0.073743915	0.018092222	1.95592E-07	0.002551936	0.019659288	2.12533E-07	0.002772974
Road 6	6	1700-1800	0.065195885	7.46424E-07	0.009738801	0.34113718	3.90566E-06	0.050958231	0.406333066	4.65209E-06	0.060697031	0.013440623	1.53881E-07	0.002007727	0.014600361	1.67159E-07	0.002180966
Road 6	6	1800-1900	0.063759666	8.2452E-07	0.010757732	0.340830319	4.40751E-06	0.057505965	0.404589985	5.23203E-06	0.068263696	0.014061597	1.8184E-07	0.002372517	0.015281263	1.97612E-07	0.002578303
Road 6	6	1900-2000	0.075746469	7.44954E-07	0.009719617	0.405224466	3.98532E-06	0.051997492	0.480970935	4.73027E-06	0.061717108	0.016820057	1.65422E-07	0.002158312	0.01828563	1.79836E-07	0.002346371
Road 6	6	2000-2100	0.059964665	4.70444E-07	0.006138004	0.358041722	2.80896E-06	0.036649273	0.418006388	3.2794E-06	0.042787277	0.014799976	1.16111E-07	0.001514931	0.016116531	1.2644E-07	0.001649694
Road 6	6	2100-2200	0.083896556	5.66869E-07	0.007396088	0.454818861	3.0731E-06	0.040095572	0.538715417	3.63997E-06	0.04749166	0.020486972	1.38425E-07	0.001806075	0.022288833	1.506E-07	0.001964922
Road 6	6	2200-2300	0.063172047	4.51737E-07	0.005893935	0.369536089	2.64252E-06	0.03447762	0.432708136	3.09425E-06	0.040371556	0.01360084	9.72583E-08	0.001268955	0.014806509	1.0588E-07	0.001381443
Road 6	6	2300-0000	0.042405378	2.84135E-07	0.003707188	0.274848599	1.84161E-06	0.024027976	0.317253978	2.12574E-06	0.027735164	0.010031092	6.72128E-08	0.000876944	0.01093521	7.32708E-08	0.000955984
Road 7	7	0000-0100	0.07864442	2.12376E-07	0.001935082	0.47281771	1.27682E-06	0.011633896	0.551462131	1.4892E-06	0.013568978	0.022183978	5.99069E-08	0.000545847	0.024101129	6.50841E-08	0.000593019
Road 7	7	0100-0200	0.096619793	2.03404E-07	0.001853329	0.535001931	1.12628E-06	0.010262233	0.631621724	1.32969E-06	0.012115562	0.025355172	5.33776E-08	0.000486355	0.027550897	5.8E-08	0.000528472
Road 7	7	0200-0300	0.08296617	1.13228E-07	0.001031686	0.477380319	6.51503E-07	0.005936232	0.560346489	7.64731E-07	0.006967918	0.02182	2.97788E-08	0.000271332	0.023704681	3.23509E-08	0.000294768
Road 7	7	0300-0400	0.084522237	9.32629E-08	0.000849773	0.5170225	5.70489E-07	0.005198063	0.601544737	6.63752E-07	0.006047836	0.023260921	2.56664E-08	0.000233862	0.025273421	2.7887E-08	0.000254095
Road 7	7	0400-0500	0.093701441	1.51006E-07	0.001375903	0.529459009	8.53257E-07	0.007774524	0.62316045	1.00426E-06	0.009150427	0.024682703	3.97777E-08	0.000362438	0.026821171	4.3224E-08	0.000393839
Road 7	7	0500-0600	0.084486414	2.42871E-07	0.002212945	0.485126111	1.39458E-06	0.012706863	0.569612525	1.63745E-06	0.014919808	0.021951667	6.3104E-08	0.000574978	0.023855657	6.85774E-08	0.000624849
Road 7	7	0600-0700	0.089517881	4.60084E-07	0.004192099	0.529404944	2.72092E-06	0.024791897	0.618922825	3.181E-06	0.028983996	0.023607006	1.2133E-07	0.00110551	0.025684915	1.3201E-07	0.001202818
Road 7	7	0700-0800	0.085186	6.98781E-07	0.006367005	0.473668336	3.8855E-06	0.035403101	0.558854336	4.58428E-06	0.041770106	0.020724071	1.7E-07	0.001548966	0.022522265	1.8475E-07	0.001683368
Road 7	7	0800-0900	0.084324444	1.04675E-06	0.009537578	0.466847623	5.79516E-06	0.052803143	0.551172067	6.84191E-06	0.062340721	0.020242959	2.51284E-07	0.002289595	0.022024947	2.73404E-07	0.002491148
Road 7	7	0900-1000	0.085592354	9.84203E-07	0.00896765	0.455190982	5.23411E-06	0.0476911	0.540783336	6.21832E-06	0.05665875	0.019767109	2.27296E-07	0.002071032	0.021491376	2.47123E-07	0.002251686
Road 7	7	1000-1100	0.101655205	1.02574E-06	0.009346154	0.540001799	5.44884E-06	0.04964763	0.641657004	6.47459E-06	0.058993784	0.025171554	2.53991E-07	0.002314266	0.027347468	2.75947E-07	0.002514319
Road 7	7	1100-1200	0.112745347	1.13601E-06	0.010350864	0.581636488	5.86051E-06	0.053398569	0.694381835	6.99652E-06	0.063749433	0.027253876	2.74607E-07	0.002502109	0.029611282	2.9836E-07	0.002718537
Road 7	7	1200-1300	0.110157504	1.10834E-06	0.010098708	0.559429336	5.62863E-06	0.051285782	0.66958684	6.73697E-06	0.06138449	0.026401371	2.65634E-07	0.00242035	0.028680693	2.88567E-07	0.002629307
Road 7	7	1300-1400	0.117709003	1.16552E-06	0.010619708	0.599364765	5.93472E-06	0.054074696	0.717073768	7.10023E-06	0.064694404	0.028007258	2.77319E-07	0.002526815	0.03042717	3.0128E-07	0.00274514
Road 7	7	1400-1500	0.109402502	1.1341E-06	0.010333417	0.56015374	5.80671E-06	0.052908318	0.669556242	6.9408E-06	0.063241736	0.025775042	2.67191E-07	0.002434535	0.028020196	2.90465E-07	0.002646597
Road 7	7	1500-1600	0.101576085	1.03379E-06	0.009419503	0.528054118	5.37429E-06	0.048968292	0.629630203	6.40808E-06	0.058387795	0.024513381	2.49486E-07	0.002273211	0.026649586	2.71227E-07	0.002471309
Road 7	7	1600-1700	0.105720587	1.11281E-06	0.010139489	0.53051834	5.58422E-06	0.05088115	0.636238927	6.69704E-06	0.061020639	0.024463186	2.57499E-07	0.002346224	0.026595697	2.79946E-07	0.00255075
Road 7	7	1700-1800	0.081673038	9.09491E-07	0.008286909	0.427194785	4.75714E-06	0.04334508	0.508867823	5.66663E-06	0.05163199	0.019097536	2.12665E-07	0.001937721	0.020765619	2.31241E-07	0.002106972
Road 7	7	1800-1900	0.0756044	8.74842E-07	0.007971203	0.402904165	4.66213E-06	0.042479421	0.478508564	5.53697E-06	0.050450624	0.017985345	2.08114E-07	0.00189625	0.019555094	2.26278E-07	0.002061753
Road 7	7	1900-2000	0.087779917	7.67213E-07	0.006990531	0.471438621	4.12046E-06	0.037543967	0.559218538	4.88768E-06	0.044534498	0.021380864	1.86873E-07	0.001702708	0.023239502	2.03118E-07	0.001850725
Road 7	7	2000-2100	0.081183334	5.84619E-07	0.005326808	0.450218228	3.24212E-06	0.029540868	0.531401562	3.82674E-06	0.034867677	0.020609919	1.48417E-07	0.001352311	0.022398569	1.61297E-07	0.001469672
Road 7	7	2100-2200	0.093323599	5.6094E-07	0.005111052	0.505837198	3.04043E-06	0.027703179	0.599160797	3.60137E-06	0.032814231	0.023952657	1.43972E-07	0.001311815	0.026053043	1.56597E-07	0.001426847
Road 7	7	2200-2300	0.078549826	5.09773E-07	0.004644845	0.442661244	2.87279E-06	0.026175653	0.52121107	3.38256E-06	0.030820499	0.018704049	1.21386E-07	0.001106017	0.020350895	1.32073E-07	0.001203399
Road 7	7	2300-0000	0.05535159	3.30291E-07	0.003009473	0.336557484	2.00829E-06	0.018298672	0.391909074	2.33858E-06	0.021308145	0.014049878	8.38376E-08	0.000763894	0.015299611	9.12949E-08	0.000831842
Road 8	8	0000-0100	0.249021111	1.81106E-07	0.001089696	1.2342025	8.97602E-07	0.005400769	1.483223611	1.07871E-06	0.006490466	0.0587825	4.27509E-08	0.000257227	0.063909167	4.64794E-08	0.000279661
Road 8	8	0100-0200	0.258222	1.56498E-07	0.000941632	1.275670333	7.73134E-07	0.004651858	1.533892333	9.29632E-07	0.00559349	0.060614	3.67358E-08	0.000221035	0.065882333	3.99287E-08	0.000240246
Road 8	8	0200-0300	0.244548667	7.41057E-08	0.000445885	1.270458	3.84987E-07	0.002316425	1.515006667	4.59093E-07	0.002762311	0.061048667	1.84996E-08	0.00011131	0.066351333	2.01065E-08	0.000120978
Road 8	8	0300-0400	0.222701429	6.29863E-08	0.000378981	1.133204286	3.20502E-07	0.001928426	1.355905714	3.83488E-07	0.002307407	0.052202143	1.47642E-08	8.88348E-05	0.056739286	1.60475E-08	9.65559E-05
Road 8	8	0400-0500	0.252276667	1.07026E-07	0.000643966	1.210332381	5.13474E-07	0.003089518	1.462609048	6.20501E-07	0.003733484	0.05746619	2.43796E-08	0.000146689	0.062455714	2.64964E-08	0.000159426
Road 8	8	0500-0600	0.239966176	1.64825E-07	0.000991735	1.132133529	7.77627E-07	0.004678895	1.372099706	9.42452E-07	0.00567063	0.053295882	3.66073E-08	0.000220262	0.057924412	3.97865E-08	0.000239391
Road 8	8	0600-0700	0.268897742	3.36801E-07	0.002026495	1.253930806	1.57058E-06	0.009450004	1.522828548	1.90738E-06	0.011476499	0.056429194	7.0679E-08	0.000425268	0.061365645	7.6862E-08	0.00046247
Road 8	8	0700-0800	0.266068725	5.48263E-07	0.003298836	1.253116667	2.58218E-06	0.015536686	1.519185392	3.13044E-06	0.018835522	0.056004412	1.15403E-07	0.000694367	0.060898137	1.25487E-07	0.000755042
Road 8	8	0800-0900	0.294566094	1.14256E-06	0.006874652	1.392158021	5.39989E-06	0.032490506	1.686724115	6.54245E-06	0.039365158	0.060607708	2.35084E-07	0.001414477	0.06585625	2.55442E-07	0.001536968
Road 8	8	0900-1000	0.313183734	9.99657E-07	0.006014825	1.40647462	4.48935E-06	0.027011935	1.719658354	5.48901E-06	0.03302676	0.062361646	1.99053E-07	0.001197682	0.067777152	2.16339E-07	0.001301689
Road 8	8	1000-1100	0.296703688	9.59042E-07	0.005770449	1.373206875	4.43865E-06	0.02670685	1.669910563	5.39769E-06	0.032477299	0.06119575	1.97804E-07	0.001190167	0.066515938	2.15001E-07	0.001293637
Road 8	8	1100-1200	0.308358931	9.90486E-07	0.005959645	1.440195975	4.62608E-06	0.027834629	1.748554906	5.61657E-06	0.033794273	0.065189182	2.09396E-07	0.00125991	0.070850503	2.2758E-07	0.001369326
Road 8	8	1200-1300	0.310975882	1.068E-06	0.006426024	1.464866294	5.03085E-06	0.030270084	1.775842176	6.09885E-06	0.036696108	0.065540529	2.25089E-07	0.001354333	0.071213353	2.44571E-07	0.001471557
Road 8	8	1300-1400	0.285341975	9.33846E-07	0.005618849	1.32616358	4.34017E-06	0.026114326	1.611505556	5.27402E-06	0.031733176	0.058504136	1.91468E-07	0.001152042	0.063588148	2.08107E-07	0.001252154
Road 8	8	1400-1500	0.277849496	7.80224E-07	0.004694519	1.344303669	3.77491E-06	0.02271323	1.622153165	4.55514E-06	0.027407749	0.060468561	1.69801E-07	0.001021671	0.065720647	1.84549E-07	0.00111041

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 8	8	1500-1600	0.286540216	8.04628E-07	0.004841357	1.352258777	3.79725E-06	0.022847639	1.638798993	4.60188E-06	0.027688996	0.061339424	1.72246E-07	0.001036385	0.066668993	1.87212E-07	0.001126433
Road 8	8	1600-1700	0.286724966	8.63071E-07	0.005193002	1.340587315	4.0353E-06	0.024279967	1.627312282	4.89837E-06	0.029472969	0.060337181	1.81621E-07	0.001092793	0.065585772	1.9742E-07	0.001187853
Road 8	8	1700-1800	0.235300705	7.41554E-07	0.004461846	1.144606923	3.60725E-06	0.021704395	1.379907628	4.3488E-06	0.026166241	0.050976923	1.60655E-07	0.00096664	0.055421474	1.74662E-07	0.001050919
Road 8	8	1800-1900	0.236285981	5.1076E-07	0.003073183	1.177952897	2.54628E-06	0.015320693	1.414238879	3.05704E-06	0.018393876	0.052339346	1.13138E-07	0.000680736	0.056900654	1.22997E-07	0.000740061
Road 8	8	1900-2000	0.234546364	3.6485E-07	0.002195261	1.197120519	1.86219E-06	0.011204573	1.431666883	2.22704E-06	0.013399834	0.057075195	8.87836E-08	0.000534201	0.062028961	9.64895E-08	0.000580566
Road 8	8	2000-2100	0.258020909	4.01366E-07	0.002414973	1.202383247	1.87037E-06	0.01125383	1.460404156	2.27174E-06	0.013668804	0.056335584	8.76331E-08	0.000527279	0.06124987	9.52776E-08	0.000573274
Road 8	8	2100-2200	0.213654444	2.33078E-07	0.001402402	1.088684259	1.18766E-06	0.00714599	1.302338704	1.42073E-06	0.008548392	0.050966296	5.55996E-08	0.000334537	0.055395	6.04309E-08	0.000363606
Road 8	8	2200-2300	0.257474219	3.32896E-07	0.002002998	1.239769531	1.60293E-06	0.009644676	1.49724375	1.93583E-06	0.011647674	0.056676719	7.3279E-08	0.000440911	0.061639375	7.96954E-08	0.000479518
Road 8	8	2300-0000	0.201486038	2.15733E-07	0.001298038	1.009959057	1.08137E-06	0.006506484	1.211445094	1.2971E-06	0.007804522	0.045511509	4.87295E-08	0.0002932	0.049482264	5.2981E-08	0.000318781
Road 9	9	0000-0100	0.676065011	1.76792E-07	0.001956369	3.696144369	9.66547E-07	0.010695749	4.37220938	1.14334E-06	0.012652118	0.035406028	9.25873E-09	0.000102456	0.038465224	1.00587E-08	0.000111309
Road 9	9	0100-0200	0.703050393	1.44453E-07	0.001598503	3.668603806	7.53771E-07	0.008341185	4.371654199	8.98224E-07	0.009939688	0.035178244	7.22791E-09	7.99836E-05	0.038218841	7.85265E-09	8.68969E-05
Road 9	9	0200-0300	0.35140514	3.28189E-08	0.000363172	2.426316801	2.26602E-07	0.002507562	2.777721941	2.59421E-07	0.002870734	0.023685396	2.21206E-09	2.44785E-05	0.025722272	2.40229E-09	2.65836E-05
Road 9	9	0300-0400	0.435297761	3.25231E-08	0.000359899	2.879971994	2.15176E-07	0.002381127	3.315269755	2.47699E-07	0.002741026	0.029606746	2.21206E-09	2.44785E-05	0.03215284	2.40229E-09	2.65836E-05
Road 9	9	0400-0500	0.768494671	1.43545E-07	0.001588456	3.972134319	7.41942E-07	0.008210284	4.740628989	8.85487E-07	0.00979874	0.037618026	7.02655E-09	7.77553E-05	0.040873683	7.63466E-09	8.44847E-05
Road 9	9	0500-0600	0.561073923	1.78162E-07	0.001971529	3.157113187	1.0025E-06	0.011093621	3.71818711	1.18066E-06	0.01306515	0.036759626	1.16726E-08	0.000129168	0.040531658	1.28703E-08	0.000142422
Road 9	9	0600-0700	0.616964899	3.68771E-07	0.004080794	3.495007723	2.08903E-06	0.023117048	4.111972622	2.4578E-06	0.027197842	0.035977858	2.15046E-08	0.000237969	0.039406887	2.35542E-08	0.000260649
Road 9	9	0700-0800	0.443161563	4.05606E-07	0.004488409	2.584226713	2.36523E-06	0.026173448	3.027388276	2.77083E-06	0.030661857	0.03293523	3.01441E-08	0.000333573	0.036399511	3.33148E-08	0.00036866
Road 9	9	0800-0900	0.773874777	1.66232E-06	0.018395127	4.505176148	9.67733E-06	0.107088755	5.279050925	1.13397E-05	0.125483881	0.045959781	9.87238E-08	0.001092471	0.050135738	1.07694E-07	0.001191734
Road 9	9	0900-1000	0.747452742	1.21464E-06	0.013441175	3.981730529	6.47049E-06	0.071602036	4.729183271	7.68513E-06	0.085043211	0.04070789	6.61521E-08	0.000732035	0.044363985	7.20935E-08	0.000797782
Road 9	9	1000-1100	0.915739992	1.24865E-06	0.013817494	4.757045374	6.48644E-06	0.071778504	5.672785365	7.73509E-06	0.085595999	0.044561932	6.07621E-08	0.00067239	0.048460942	6.60786E-08	0.000731222
Road 9	9	1100-1200	0.719289704	1.02109E-06	0.011299304	4.033423927	5.72576E-06	0.063360955	4.752713631	6.74685E-06	0.074660259	0.042605117	6.04813E-08	0.000669283	0.046726997	6.63327E-08	0.000734033
Road 9	9	1200-1300	0.81224589	1.1227E-06	0.012423773	4.269326754	5.90116E-06	0.065301832	5.081572644	7.02386E-06	0.077725605	0.042686885	5.90027E-08	0.000652921	0.046553617	6.43474E-08	0.000712065
Road 9	9	1300-1400	0.878766925	1.00127E-06	0.01107995	3.988184921	4.54413E-06	0.050285106	4.866951845	5.5454E-06	0.061365056	0.040222091	4.5829E-08	0.000507141	0.043735709	4.98324E-08	0.000551443
Road 9	9	1400-1500	0.548667762	6.9689E-07	0.007711744	3.299606641	4.19099E-06	0.046377286	3.848274402	4.88788E-06	0.05408903	0.035403748	4.49681E-08	0.000497614	0.038648243	4.90891E-08	0.000543216
Road 9	9	1500-1600	0.574442767	6.116E-07	0.00676793	3.392213982	3.61164E-06	0.039966153	3.966656749	4.22324E-06	0.046734083	0.034812067	3.70639E-08	0.000410146	0.037999778	4.04578E-08	0.000447703
Road 9	9	1600-1700	0.521235031	7.78878E-07	0.008619019	3.207241212	4.79256E-06	0.05303418	3.728476243	5.57144E-06	0.061653199	0.033122354	4.94945E-08	0.000547703	0.03610725	5.39548E-08	0.000597061
Road 9	9	1700-1800	0.394895546	5.08953E-07	0.005632038	2.371483509	3.05644E-06	0.033822324	2.766379055	3.56539E-06	0.039454362	0.031412032	4.04847E-08	0.000448001	0.034704742	4.47285E-08	0.000494962
Road 9	9	1800-1900	0.374948865	3.08156E-07	0.003410036	2.114039942	1.73745E-06	0.019226495	2.488988808	2.0456E-06	0.022636531	0.027514505	2.26131E-08	0.000250235	0.030341147	2.49362E-08	0.000275943
Road 9	9	1900-2000	0.417334253	3.35196E-07	0.003709255	2.454750116	1.97161E-06	0.021817752	2.872084369	2.30681E-06	0.025527007	0.036161745	2.90445E-08	0.000321405	0.040462238	3.24986E-08	0.000359627
Road 9	9	2000-2100	0.545281788	2.95369E-07	0.003268536	2.465771025	1.33566E-06	0.014780359	3.011052813	1.63103E-06	0.018048895	0.031637223	1.71373E-08	0.00018964	0.035065317	1.89942E-08	0.000210189
Road 9	9	2100-2200	0.0229898	1.20237E-08	0.000133054	0.339911157	1.77775E-07	0.001967242	0.362900958	1.89798E-07	0.002100295	0.008624852	4.51082E-09	4.99165E-05	0.009337531	4.88356E-09	5.40411E-05
Road 9	9	2200-2300	0.574536311	3.54142E-07	0.003918913	3.206346504	1.97638E-06	0.021870497	3.780882815	2.33052E-06	0.02578941	0.033924875	2.09112E-08	0.000231402	0.037163224	2.29073E-08	0.00025349
Road 9	9	2300-0000	0.405637248	2.27303E-07	0.002515321	2.328719473	1.30492E-06	0.014440182	2.734356721	1.53222E-06	0.016955503	0.027973486	1.56752E-08	0.000173461	0.030719409	1.72139E-08	0.000190488
Road 10	10	0000-0100	1.22557359	9.43858E-07	0.007647267	7.641359284	5.88489E-06	0.047680138	8.866932874	6.82874E-06	0.055327406	0.067028313	5.16209E-08	0.00041824	0.073091303	5.62902E-08	0.000456071
Road 10	10	0100-0200	1.174971829	6.83693E-07	0.005539375	7.254786437	4.22142E-06	0.034202505	8.429758265	4.90511E-06	0.03974188	0.065088553	3.78738E-08	0.000306858	0.071052151	4.13439E-08	0.000334974
Road 10	10	0200-0300	1.252164714	4.07165E-07	0.003298902	7.626471238	2.47989E-06	0.02009239	8.878635952	2.88705E-06	0.023391293	0.064341593	2.09219E-08	0.000169512	0.069943517	2.27434E-08	0.00018427
Road 10	10	0300-0400	1.135330532	2.33162E-07	0.001889113	7.293127687	1.49779E-06	0.01213527	8.428458218	1.73095E-06	0.014024383	0.061292249	1.25876E-08	0.000101986	0.06663178	1.36841E-08	0.000110871
Road 10	10	0400-0500	1.216737995	4.78939E-07	0.003880425	7.349561887	2.89297E-06	0.023439247	8.566299883	3.37191E-06	0.027319672	0.062832204	2.47323E-08	0.000200385	0.06830162	2.68852E-08	0.000217828
Road 10	10	0500-0600	1.076631081	7.5545E-07	0.006120757	6.436561364	4.5164E-06	0.036592505	7.513192445	5.27185E-06	0.042713262	0.058595869	4.11155E-08	0.000333123	0.063937306	4.48635E-08	0.00036349
Road 10	10	0600-0700	1.154408795	1.62005E-06	0.013125863	6.795465237	9.53648E-06	0.07726582	7.949874032	1.11565E-05	0.090391683	0.063662673	8.93416E-08	0.000723858	0.069486936	9.75151E-08	0.000790081
Road 10	10	0700-0800	1.108665556	2.44763E-06	0.019831001	6.595206493	1.45604E-05	0.117970244	7.703872049	1.7008E-05	0.137801245	0.064369047	1.42109E-07	0.001151387	0.070294257	1.5519E-07	0.001257372
Road 10	10	0800-0900	1.245498206	5.28627E-06	0.042830107	7.472027359	3.17136E-05	0.256947565	8.717525565	3.69998E-05	0.299777671	0.07106163	3.01607E-07	0.002443662	0.077368566	3.28376E-07	0.002660545
Road 10	10	0900-1000	1.272237548	4.3111E-06	0.03492913	7.459228333	2.52763E-05	0.204792224	8.731465881	2.95874E-05	0.239721354	0.070537883	2.39025E-07	0.001936609	0.07681785	2.60305E-07	0.002109025
Road 10	10	1000-1100	1.275881057	4.69465E-06	0.038036717	7.275436179	2.67702E-05	0.216896162	8.551317236	3.14649E-05	0.254932878	0.070351297	2.5886E-07	0.002097321	0.076604718	2.8187E-07	0.002283749
Road 10	10	1100-1200	1.307576644	4.81128E-06	0.038981629	7.629694047	2.80738E-05	0.227457339	8.937270691	3.2885E-05	0.266438968	0.073003051	2.68618E-07	0.002176376	0.07949012	2.92487E-07	0.002369769
Road 10	10	1200-1300	1.301701519	4.9456E-06	0.040069946	7.601313937	2.888E-05	0.233989309	8.903015456	3.38256E-05	0.274059255	0.072994422	2.7733E-07	0.002246969	0.079475461	3.01954E-07	0.002446473
Road 10	10	1300-1400	1.263163832	4.15065E-06	0.033629103	7.270533635	2.38903E-05	0.193562797	8.533697468	2.8041E-05	0.227191899	0.06957901	2.28631E-07	0.001852396	0.075772457	2.48982E-07	0.002017284
Road 10	10	1400-1500	1.150854819	3.56495E-06	0.028883744	6.952029871	2.1535E-05	0.174479567	8.10288469	2.51E-05	0.203363311	0.06669193	2.06589E-07	0.00167381	0.072642419	2.25021E-07	0.001823154
Road 10	10	1500-1600	1.220677163	3.8648E-06	0.031313162	7.194883616	2.27798E-05	0.184565224	8.415560779	2.66446E-05	0.215878385	0.068075408	2.15535E-07	0.00174629	0.074085938	2.34565E-07	0.001900474
Road 10	10	1600-1700	1.114513954	3.92923E-06	0.031835165	6.673428633	2.35272E-05	0.190620942	7.787942587	2.74565E-05	0.222456107	0.065124157	2.29596E-07	0.001860217	0.070972036	2.50213E-07	0.002027257
Road 10	10	1700-1800	1.012647629	3.37946E-06	0.027380876	6.064960579	2.02403E-05	0.163989849	7.077608208	2.36198E-05	0.191370724	0.06098908	2.03536E-07	0.001649077	0.06657939	2.22192E-07	0.001800233
Road 10	10	1800-1900	1.095032093	2.2676E-06	0.018372429	6.596800157	1.36607E-05	0.110680999	7.691832251	1.59283E-05	0.129053428	0.064101546	1.32742E-07	0.001075495	0.069941046	1.44835E-07	0.00117347
Road 10	10	1900-2000	1.064110791	1.98504E-06	0.016083024	6.627211324	1.23627E-05	0.100164007	7.691322116	1.43477E-05	0.116247031	0.06141291	1.14562E-07	0.000928198	0.067220859	1.25396E-07	0.001015979
Road 10	10	2000-2100	1.363844972	1.68055E-06	0.013616073	8.232637217	1.01444E-05	0.082191299	9.596482189	1.1825E-05	0.095807372	0.07065763	8.70656E-08	0.000705417	0.076955671	9.48261E-08	0.000768294
Road 10	10	2100-2200	0.908412012	1.15045E-06	0.009321138	5.666134618	7.17585E-06	0.058139726	6.57454663	8.32631E-06	0.067460864	0.051275527	6.49377E-08	0.000526134	0.05586737	7.0753E-08	0.00057325
Road 10	10	2200-2300	1.084865242	1.42962E-06	0.011582996	6.516295411	8.5871E-06	0.069573822	7.601160653	1.00167E-05	0.081156817	0.057643477	7.59619E-08	0.000615454	0.062788495	8.27419E-08	0.000670386
Road 10	10	2300-0000	0.990279939	1.22024E-06	0.009886552	6.060969152	7.46843E-06	0.060510249	7.051249091	8.68867E-06	0.070396801	0.056580086	6.9719E-08	0.000564873	0.061681215	7.60047E-08	0.0006158
Road 11	11	0000-0100	1.372152369	1.04817E-06	0.003173555	8.525390483	6.51245E-06	0.019717778	9.897542852	7.56062E-06	0.022891333	0.071361009	5.45119E-08	0.000165046	0.07758439	5.92659E-08	0.000179439
Road 11	11	0100-0200	1.344264083	7.23475E-07	0.00219047	8.255693956	4.44317E-06	0.013452602	9.599958039	5.16664E-06	0.015643072	0.069347119	3.73222E-08	0.000113001	0.075393782	4.05765E-08	0.000122854
Road 11	11	0200-0300	1.249156121	3.25301E-07	0.000984916	7.998301293	2.08289E-06	0.006306379	9.247457414	2.40819E-06	0.007291294	0.066655132	1.73581E-08	5.25552E-05	0.072467424	1.88717E-08	5.7138E-05
Road 11	11	0300-0400	1.338250512	3.25269E-07	0.000984819	8.530694526	2.07343E-06	0.006277742	9.868945037	2.3987E-06	0.007262561	0.071416213	1.73581E-08	5.25552E-05	0.077643668	1.88717E-08	5.7138E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 11	11	0400-0500	1.233963141	4.28459E-07	0.001297249	7.381558929	2.56304E-06	0.007760132	8.61552207	2.9915E-06	0.009057381	0.062879013	2.1833E-08	6.61038E-05	0.068356841	2.3735E-08	7.18626E-05
Road 11	11	0500-0600	0.982687882	4.60635E-07	0.001394667	5.984472576	2.80522E-06	0.008493382	6.967160458	3.26586E-06	0.009888049	0.055789394	2.61513E-08	7.91783E-05	0.061016229	2.86014E-08	8.65965E-05
Road 11	11	0600-0700	1.033567481	9.33082E-07	0.002825096	6.302575345	5.68982E-06	0.01722711	7.336142825	6.62291E-06	0.020052205	0.056040221	5.05919E-08	0.000153177	0.061111931	5.51705E-08	0.00016704
Road 11	11	0700-0800	1.176474434	2.22631E-06	0.006740623	7.278004415	1.37726E-05	0.041699403	8.454478849	1.59989E-05	0.048440026	0.068937856	1.30455E-07	0.00039498	0.075228404	1.42359E-07	0.000431022
Road 11	11	0800-0900	1.185332909	4.21863E-06	0.012772774	7.213682877	2.56737E-05	0.077732374	8.399015786	2.98923E-05	0.090505148	0.06812238	2.42449E-07	0.000734065	0.074189179	2.64041E-07	0.000799439
Road 11	11	0900-1000	1.166415517	2.97679E-06	0.00901284	6.885903738	1.75734E-05	0.053207065	8.052319255	2.05502E-05	0.062219905	0.064206234	1.6386E-07	0.000496119	0.069877461	1.78333E-07	0.00053994
Road 11	11	1000-1100	1.262125355	2.65134E-06	0.008027474	7.295397284	1.53254E-05	0.046400787	8.557522639	1.79767E-05	0.05442826	0.066514967	1.39728E-07	0.000423054	0.072316932	1.51916E-07	0.000459956
Road 11	11	1100-1200	1.188147818	2.80535E-06	0.008493768	7.169037647	1.69269E-05	0.051249637	8.357185465	1.97322E-05	0.059743405	0.067538742	1.59466E-07	0.000482817	0.073650896	1.73898E-07	0.000526512
Road 11	11	1200-1300	1.31138379	3.7338E-06	0.011304847	7.809308726	2.22348E-05	0.06732052	9.120692515	2.59686E-05	0.078625367	0.072699406	2.06991E-07	0.000626709	0.079123046	2.25281E-07	0.000682084
Road 11	11	1300-1400	1.327940736	2.7896E-06	0.008446078	7.535693326	1.58302E-05	0.047929137	8.863634063	1.86198E-05	0.056375215	0.069261385	1.45497E-07	0.000440522	0.075303952	1.58191E-07	0.000478954
Road 11	11	1400-1500	1.058238016	2.13117E-06	0.006452565	6.541983311	1.31748E-05	0.039889487	7.600221327	1.5306E-05	0.046342051	0.06171668	1.24291E-07	0.000376315	0.067182246	1.35298E-07	0.000409641
Road 11	11	1500-1600	1.149782727	2.3355E-06	0.007071193	7.178674191	1.45817E-05	0.044149026	8.328456919	1.69172E-05	0.051220219	0.062159725	1.26262E-07	0.000382284	0.067661431	1.37437E-07	0.000416119
Road 11	11	1600-1700	1.024935261	2.49116E-06	0.007542503	6.451325819	1.56803E-05	0.047475335	7.476261079	1.81715E-05	0.055017838	0.056701345	1.37816E-07	0.000417265	0.061707	1.49982E-07	0.000454102
Road 11	11	1700-1800	1.045564072	2.59576E-06	0.007859189	6.575396086	1.63243E-05	0.049425262	7.620960158	1.89201E-05	0.057284451	0.059670747	1.48141E-07	0.000448527	0.065147679	1.61738E-07	0.000489695
Road 11	11	1800-1900	1.176018237	2.4092E-06	0.007294358	7.370556122	1.50994E-05	0.045716533	8.546574359	1.75086E-05	0.053010891	0.064204447	1.3153E-07	0.000398234	0.069970351	1.43342E-07	0.000433997
Road 11	11	1900-2000	1.092497695	1.72599E-06	0.005225802	6.846509284	1.08165E-05	0.03274927	7.939006979	1.25425E-05	0.037975072	0.063578847	1.00446E-07	0.00030412	0.069672486	1.10073E-07	0.000333268
Road 11	11	2000-2100	1.200846291	1.68869E-06	0.005112855	7.273682388	1.02286E-05	0.030969228	8.474528679	1.19173E-05	0.036082083	0.064037192	9.00523E-08	0.000272652	0.069867112	9.82506E-08	0.000297474
Road 11	11	2100-2200	0.888821772	8.94994E-07	0.002709778	5.739177906	5.77903E-06	0.017497206	6.627999678	6.67403E-06	0.020206984	0.049753377	5.00989E-08	0.000151685	0.054080187	5.44557E-08	0.000164876
Road 11	11	2200-2300	1.109170252	1.21315E-06	0.003673075	6.813527404	7.4523E-06	0.02256335	7.922697657	8.66545E-06	0.026236425	0.059741601	6.53424E-08	0.000197837	0.065104546	7.12081E-08	0.000215597
Road 11	11	2300-0000	1.050759968	1.09454E-06	0.003313949	6.551131492	6.8241E-06	0.020661345	7.601891461	7.91864E-06	0.023975294	0.058056743	6.04758E-08	0.000183103	0.063279704	6.59164E-08	0.000199575
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.752441612	5.17376E-06	0.002840282	15.18171354	2.85371E-05	0.015666217	17.93415515	3.37108E-05	0.018506499	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	0800-0900	2.750441612	5.17E-06	0.002838218	15.17311354	2.85209E-05	0.015657342	17.92355515	3.36909E-05	0.018495561	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	0900-1000	2.743641612	5.15722E-06	0.002831201	15.14344354	2.84651E-05	0.015626726	17.88708515	3.36223E-05	0.018457927	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1000-1100	2.747141612	5.1638E-06	0.002834813	15.15873354	2.84939E-05	0.015642504	17.90587515	3.36577E-05	0.018477316	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1100-1200	2.751941612	5.17282E-06	0.002839766	15.17971354	2.85333E-05	0.015664153	17.93165515	3.37061E-05	0.018503919	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1200-1300	2.753941612	5.17658E-06	0.00284183	15.18850354	2.85498E-05	0.015673224	17.94244515	3.37264E-05	0.018515053	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1300-1400	2.756541612	5.18147E-06	0.002844513	15.19969354	2.85709E-05	0.015684771	17.95623515	3.37523E-05	0.018529284	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1400-1500	2.750941612	5.17094E-06	0.002838734	15.17531354	2.8525E-05	0.015659613	17.92625515	3.3696E-05	0.018498347	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1500-1600	2.745441612	5.1606E-06	0.002833059	15.15123354	2.84798E-05	0.015634764	17.89667515	3.36404E-05	0.018467823	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1600-1700	2.746241612	5.16211E-06	0.002833884	15.15463354	2.84862E-05	0.015638273	17.90087515	3.36483E-05	0.018472157	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1700-1800	2.751341612	5.17169E-06	0.002839147	15.17721354	2.85286E-05	0.015661573	17.92855515	3.37003E-05	0.01850072	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1800-1900	2.751341612	5.17169E-06	0.002839147	15.17721354	2.85286E-05	0.015661573	17.92855515	3.37003E-05	0.01850072	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1900-2000	2.748841612	5.167E-06	0.002836567	15.16592354	2.85074E-05	0.015649923	17.91476515	3.36744E-05	0.01848649	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	2000-2100	2.746241612	5.16211E-06	0.002833884	15.15463354	2.84862E-05	0.015638273	17.90087515	3.36483E-05	0.018472157	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.752441612	3.56534E-06	0.002591035	15.18171354	1.96654E-05	0.014291441	17.93415515	2.32308E-05	0.016882476	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	0800-0900	2.750441612	3.56275E-06	0.002589153	15.17311354	1.96543E-05	0.014283345	17.92355515	2.3217E-05	0.016872498	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	0900-1000	2.743641612	3.55394E-06	0.002582751	15.14344354	1.96159E-05	0.014255415	17.88708515	2.31698E-05	0.016838166	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	1000-1100	2.747141612	3.55847E-06	0.002586046	15.15873354	1.96357E-05	0.014269808	17.90587515	2.31941E-05	0.016855854	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	1100-1200	2.751941612	3.56469E-06	0.002590565	15.17971354	1.96628E-05	0.014289558	17.93165515	2.32275E-05	0.016880123	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	1200-1300	2.753941612	3.56728E-06	0.002592447	15.18850354	1.96742E-05	0.014297832	17.94244515	2.32415E-05	0.01689028	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	1300-1400	2.756541612	3.57065E-06	0.002594895	15.19969354	1.96887E-05	0.014308366	17.95623515	2.32594E-05	0.016903261	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	1400-1500	2.750941612	3.5634E-06	0.002589623	15.17531354	1.96571E-05	0.014285416	17.92625515	2.32205E-05	0.016875039	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	1500-1600	2.745441612	3.55627E-06	0.002584446	15.15123354	1.9626E-05	0.014262748	17.89667515	2.31822E-05	0.016847194	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	1600-1700	2.746241612	3.55731E-06	0.002585199	15.15463354	1.96304E-05	0.014265949	17.90087515	2.31877E-05	0.016851148	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Haul Road 2	HR2	1700-1800	2.751341612	3.56391E-06	0.00259	15.17721354	1.96596E-05	0.014287205	17.92855515	2.32235E-05	0.016877204	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	1800-1900	2.751341612	3.56391E-06	0.00259	15.17721354	1.96596E-05	0.014287205	17.92855515	2.32235E-05	0.016877204	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	1900-2000	2.748841612	3.56068E-06	0.002587646	15.16592354	1.9645E-05	0.014276577	17.91476515	2.32057E-05	0.016864223	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	2000-2100	2.746241612	3.55731E-06	0.002585199	15.15463354	1.96304E-05	0.014265949	17.90087515	2.31877E-05	0.016851148	0.22195	2.875E-07	0.000208935	0.24124	3.12487E-07	0.000227093
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.752441612	3.56534E-06	0.002396683	15.18171354	1.96654E-05	0.013219448	17.93415515	2.32308E-05	0.015616132	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	0800-0900	2.750441612	3.56275E-06	0.002394942	15.17311354	1.96543E-05	0.01321196	17.92355515	2.3217E-05	0.015606902	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	0900-1000	2.743641612	3.55394E-06	0.002389021	15.14344354	1.96159E-05	0.013186125	17.88708515	2.31698E-05	0.015575145	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	1000-1100	2.747141612	3.55847E-06	0.002392068	15.15873354	1.96357E-05	0.013199438	17.90587515	2.31941E-05	0.015591507	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	1100-1200	2.751941612	3.56469E-06	0.002396248	15.17971354	1.96628E-05	0.013217707	17.93165515	2.32275E-05	0.015613955	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	1200-1300	2.753941612	3.56728E-06	0.002397989	15.18850354	1.96742E-05	0.013225361	17.94244515	2.32415E-05	0.01562335	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	1300-1400	2.756541612	3.57065E-06	0.002400253	15.19969354	1.96887E-05	0.013235104	17.95623515	2.32594E-05	0.015635358	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	1400-1500	2.750941612	3.5634E-06	0.002395377	15.17531354	1.96571E-05	0.013213875	17.92625515	2.32205E-05	0.015609253	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	1500-1600	2.745441612	3.55627E-06	0.002390588	15.15123354	1.9626E-05	0.013192908	17.89667515	2.31822E-05	0.015583496	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	1600-1700	2.746241612	3.55731E-06	0.002391285	15.15463354	1.96304E-05	0.013195868	17.90087515	2.31877E-05	0.015587153	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	1700-1800	2.751341612	3.56391E-06	0.002395725	15.17721354	1.96596E-05	0.01321553	17.92855515	2.32235E-05	0.015611255	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	1800-1900	2.751341612	3.56391E-06	0.002395725	15.17721354	1.96596E-05	0.01321553	17.92855515	2.32235E-05	0.015611255	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	1900-2000	2.748841612	3.56068E-06	0.002393549	15.16592354	1.9645E-05	0.013205699	17.91476515	2.32057E-05	0.015599248	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	2000-2100	2.746241612	3.55731E-06	0.002391285	15.15463354	1.96304E-05	0.013195868	17.90087515	2.31877E-05	0.015587153	0.22195	2.875E-07	0.000193263	0.24124	3.12487E-07	0.000210059
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.099355866	3.33797E-07	2.71549E-06	0.08905257	2.99182E-07	2.43389E-06	0.592254078	1.98974E-06	1.61868E-05	0.526676983	1.76943E-06	1.43946E-05	0.615729553	2.06861E-06	1.68285E-05
Road 1	1	0100-0200	0.077171651	1.57877E-07	1.28436E-06	0.06883633	1.40825E-07	1.14563E-06	0.469047798	9.59576E-07	7.80629E-06	0.414786789	8.48569E-07	6.90324E-06	0.483623119	9.89394E-07	8.04887E-06
Road 1	1	0200-0300	0.074258312	1.07318E-07	8.73046E-07	0.067170779	9.70749E-08	7.89719E-07	0.48107987	6.95254E-07	5.656E-06	0.429173377	6.20239E-07	5.04574E-06	0.496344156	7.17314E-07	5.83546E-06
Road 1	1	0300-0400	0.062911091	6.4942E-08	5.28313E-07	0.056470909	5.82939E-08	4.7423E-07	0.391095636	4.03721E-07	3.28433E-06	0.346363636	3.57545E-07	2.90868E-06	0.402834545	4.15839E-07	3.38291E-06
Road 1	1	0400-0500	0.081531628	1.31601E-07	1.0706E-06	0.073242442	1.18222E-07	9.61751E-07	0.472334419	7.62402E-07	6.20225E-06	0.419899651	6.77766E-07	5.51373E-06	0.493142093	7.95988E-07	6.47548E-06
Road 1	1	0500-0600	0.066996011	2.36397E-07	1.92313E-06	0.060377021	2.13042E-07	1.73313E-06	0.402022287	1.41855E-06	1.15401E-05	0.357120426	1.26011E-06	1.02512E-05	0.417497447	1.47315E-06	1.19843E-05
Road 1	1	0600-0700	0.088953947	5.6264E-07	4.57716E-06	0.080876884	5.11552E-07	4.16155E-06	0.478224065	3.0248E-06	2.46072E-05	0.430803205	2.72486E-06	2.21672E-05	0.511680089	3.23641E-06	2.63287E-05
Road 1	1	0700-0800	0.07440032	7.84778E-07	6.38429E-06	0.068338167	7.20834E-07	5.86409E-06	0.414920961	4.37661E-06	3.56043E-05	0.376904306	3.9756E-06	3.23421E-05	0.445242473	4.69644E-06	3.82062E-05
Road 1	1	0800-0900	0.079589813	1.0367E-06	8.4337E-06	0.073411282	9.56221E-07	7.779E-06	0.429608559	5.59588E-06	4.55233E-05	0.393717349	5.12838E-06	4.17201E-05	0.467128631	6.0846E-06	4.94991E-05
Road 1	1	0900-1000	0.085115168	1.14062E-06	9.27911E-06	0.077448277	1.03788E-06	8.44328E-06	0.474235868	6.35519E-06	5.17004E-05	0.428604748	5.74369E-06	4.67258E-05	0.506053025	6.78157E-06	5.5169E-05
Road 1	1	1000-1100	0.098085827	1.27946E-06	1.04086E-05	0.090466417	1.18007E-06	9.60005E-06	0.526896504	6.87299E-06	5.59128E-05	0.48369882	6.30951E-06	5.13288E-05	0.574165237	7.48958E-06	6.09288E-05
Road 1	1	1100-1200	0.088997789	1.12584E-06	9.15884E-06	0.081345059	1.02903E-06	8.37129E-06	0.512710964	6.48587E-06	5.27635E-05	0.465638234	5.89039E-06	4.79192E-05	0.546983294	6.91942E-06	5.62905E-05
Road 1	1	1200-1300	0.091678096	1.1477E-06	9.33668E-06	0.083171349	1.0412E-06	8.47034E-06	0.520613328	6.51744E-06	5.30203E-05	0.469957976	5.8833E-06	4.78615E-05	0.553129325	6.9245E-06	5.63318E-05
Road 1	1	1300-1400	0.096037094	1.27797E-06	1.03965E-05	0.087045994	1.15833E-06	9.42315E-06	0.534746446	7.1159E-06	5.78889E-05	0.481742468	6.41057E-06	5.2151E-05	0.568788463	7.5689E-06	6.15741E-05
Road 1	1	1400-1500	0.091438518	1.31975E-06	1.07364E-05	0.082715501	1.19385E-06	9.71213E-06	0.498144317	7.18981E-06	5.84902E-05	0.448067191	6.46704E-06	5.26103E-05	0.530782692	7.66088E-06	6.23224E-05
Road 1	1	1500-1600	0.098622891	1.32534E-06	1.07818E-05	0.089135335	1.19784E-06	9.7446E-06	0.535542193	7.19685E-06	5.85474E-05	0.48135852	6.46871E-06	5.26239E-05	0.570493855	7.66655E-06	6.23685E-05
Road 1	1	1600-1700	0.094128053	1.33383E-06	1.08509E-05	0.085406305	1.21024E-06	9.84551E-06	0.51778106	7.33718E-06	5.9689E-05	0.466835748	6.61526E-06	5.38161E-05	0.552242053	7.8255E-06	6.36616E-05
Road 1	1	1700-1800	0.075231293	1.0703E-06	8.70701E-06	0.06729277	9.57356E-07	7.78823E-06	0.424330145	6.03683E-06	4.91105E-05	0.375938668	5.34838E-06	4.35098E-05	0.443231438	6.30573E-06	5.12981E-05
Road 1	1	1800-1900	0.067223398	9.76556E-07	7.94443E-06	0.060252842	8.75295E-07	7.12065E-06	0.406977674	5.91218E-06	4.80964E-05	0.360192351	5.23252E-06	4.25674E-05	0.420445194	6.10782E-06	4.9688E-05
Road 1	1	1900-2000	0.080372327	8.94534E-07	7.27717E-06	0.072982901	8.12291E-07	6.60811E-06	0.464057825	5.16491E-06	4.20173E-05	0.417923153	4.65143E-06	3.78401E-05	0.490906054	5.46373E-06	4.44482E-05
Road 1	1	2000-2100	0.07330833	6.92081E-07	5.63018E-06	0.065904394	6.22183E-07	5.06155E-06	0.437041889	4.12598E-06	3.35654E-05	0.388997674	3.67241E-06	2.98756E-05	0.454902068	4.29459E-06	3.49371E-05
Road 1	1	2100-2200	0.075979346	6.54552E-07	5.32488E-06	0.06900305	5.94452E-07	4.83595E-06	0.456456623	3.93231E-06	3.19899E-05	0.410905773	3.5399E-06	2.87976E-05	0.479908824	4.13435E-06	3.36335E-05
Road 1	1	2200-2300	0.075640161	6.17558E-07	5.02392E-06	0.068300552	5.57634E-07	4.53644E-06	0.455689471	3.72044E-06	3.02663E-05	0.407263425	3.32507E-06	2.70499E-05	0.475563977	3.8827E-06	3.15864E-05
Road 1	1	2300-0000	0.066214795	4.8468E-07	3.94295E-06	0.059510949	4.35609E-07	3.54375E-06	0.411383026	3.01125E-06	2.4497E-05	0.364579615	2.66866E-06	2.17099E-05	0.424090564	3.10427E-06	2.52537E-05
Road 2	2	0000-0100	0.164530192	1.98046E-07	1.27896E-06	0.147472692	1.77513E-07	1.14636E-06	0.700139231	8.4276E-07	5.44246E-06	0.623733077	7.5079E-07	4.84853E-06	0.771205769	9.28303E-07	5.99489E-06
Road 2	2	0100-0200	0.116430294	9.1635E-08	5.9177E-07	0.103832647	8.17201E-08	5.27741E-07	0.578770294	4.55514E-07	2.94166E-06	0.512346176	4.03235E-07	2.60405E-06	0.616178824	4.84956E-07	3.1318E-06
Road 2	2	0200-0300	0.120502609	6.41565E-08	4.14316E-07	0.109171739	5.81238E-08	3.75358E-07	0.66373087	3.53375E-07	2.28206E-06	0.595907391	3.17266E-07	2.04887E-06	0.70507913	3.75389E-07	2.42423E-06
Road 2	2	0300-0400	0.104881333	3.64171E-08	2.35178E-07	0.094192	3.27056E-08	2.11209E-07	0.386032667	1.34039E-07	8.65612E-07	0.342581333	1.18952E-07	7.68179E-07	0.436773333	1.51657E-07	9.79389E-07
Road 2	2	0400-0500	0.141868519	8.86678E-08	5.72608E-07	0.127530741	7.97067E-08	5.14738E-07	0.687696296	4.2981E-07	2.77567E-06	0.614234444	3.83897E-07	2.47917E-06	0.741765185	4.63603E-07	2.9939E-06
Road 2	2	0500-0600	0.112011404	1.47793E-07	9.54432E-07	0.101030351	1.33304E-07	8.60864E-07	0.501564561	6.61787E-07	4.27375E-06	0.447192632	5.90046E-07	3.81046E-06	0.548222982	7.2335E-07	4.67132E-06
Road 2	2	0600-0700	0.155807692	3.75093E-07	2.42231E-06	0.14171625	3.41169E-07	2.20323E-06	0.634185	1.52674E-06	9.85955E-06	0.572967308	1.37937E-06	8.90781E-06	0.714683558	1.72053E-06	1.1111E-05
Road 2	2	0700-0800	0.12718125	4.71042E-07	3.04194E-06	0.116878313	4.32883E-07	2.79551E-06	0.53389475	1.97739E-06	1.27698E-05	0.48598175	1.79993E-06	1.16238E-05	0.602860063	2.23282E-06	1.44193E-05
Road 2	2	0800-0900	0.142827993	1.00509E-06	6.49075E-06	0.131765855	9.27241E-07	5.98803E-06	0.603411941	4.24623E-06	2.74218E-05	0.553319803	3.89373E-06	2.51453E-05	0.685085658	4.82097E-06	3.11334E-05
Road 2	2	0900-1000	0.167926111	9.79569E-07	6.32596E-06	0.152795714	8.91308E-07	5.75598E-06	0.717345873	4.18452E-06	2.70232E-05	0.649454325	3.78848E-06	2.44657E-05	0.80225004	4.67979E-06	3.02216E-05
Road 2	2	1000-1100	0.185953743	8.04939E-07	5.19822E-06	0.171518556	7.42453E-07	4.79469E-06	0.785603797	3.40065E-06	2.1961E-05	0.722020802	3.12541E-06	2.01836E-05	0.893539358	3.86787E-06	2.49783E-05
Road 2	2	1100-1200	0.220973989	9.3607E-07	6.04505E-06	0.202026284	8.55806E-07	5.52671E-06	0.903710383	3.82822E-06	2.47223E-05	0.824107869	3.49101E-06	2.25446E-05	1.026134153	4.34682E-06	2.80713E-05
Road 2	2	1200-1300	0.170070158	7.47994E-07	4.83047E-06	0.154349368	6.78851E-07	4.38396E-06	0.746329	3.28247E-06	2.11978E-05	0.674053789	2.96459E-06	1.9145E-05	0.828403158	3.64344E-06	2.3529E-05
Road 2	2	1300-1400	0.188397937	9.72517E-07	6.28042E-06	0.170681525	8.81064E-07	5.68983E-06	0.772324664	3.98677E-06	2.57462E-05	0.696363004	3.59465E-06	2.32139E-05	0.867044529	4.47572E-06	2.89037E-05
Road 2	2	1400-1500	0.162387818	6.20231E-07	4.00539E-06	0.146926	5.61176E-07	3.62402E-06	0.703412485	2.68664E-06	1.73501E-05	0.634024242	2.42162E-06	1.56386E-05	0.780950242	2.9828E-06	1.92626E-05
Road 2	2	1500-1600	0.203632842	8.62611E-07	5.57066E-06	0.183981421	7.79366E-07	5.03307E-06	0.803554645	3.40395E-06	2.19824E-05	0.723769454	3.06597E-06	1.97997E-05	0.907750874	3.84533E-06	2.48328E-05
Road 2	2	1600-1700	0.170527828	8.72376E-07	5.63372E-06	0.154761584	7.9172E-07	5.11285E-06	0.718917738	3.6778E-06	2.37509E-05	0.649634525	3.32336E-06	2.14619E-05	0.804396109	4.11508E-06	2.65748E-05
Road 2	2	1700-1800	0.131770946	6.77156E-07	4.37301E-06	0.117950901	6.06137E-07	3.91437E-06	0.525130315	2.69859E-06	1.74272E-05	0.467044685	2.40009E-06	1.54996E-05	0.584995586	3.00623E-06	1.94139E-05
Road 2	2	1800-1900	0.14563452	8.42792E-07	5.44267E-06	0.1306954	7.56339E-07	4.88436E-06	0.6589642	3.81345E-06	2.46269E-05	0.58711864	3.39768E-06	2.19419E-05	0.71781404	4.15402E-06	2.68262E-05
Road 2	2	1900-2000	0.123298639	4.82349E-07	3.11496E-06	0.111997988	4.3814E-07	2.82947E-06	0.562533254	2.20065E-06	1.42116E-05	0.507117751	1.98386E-06	1.28116E-05	0.61911574	2.422E-06	1.56411E-05
Road 2	2	2000-2100	0.117771769	4.00751E-07	2.58801E-06	0.105876803	3.60275E-07	2.32662E-06	0.506650136	1.72402E-06	1.11335E-05	0.450672041	1.53354E-06	9.90343E-06	0.556548844	1.89381E-06	1.22301E-05
Road 2	2	2100-2200	0.090272026	3.19713E-07	2.06468E-06	0.081943399	2.90216E-07	1.87419E-06	0.418907386	1.48363E-06	9.58114E-06	0.375167712	1.32872E-06	8.58074E-06	0.457111111	1.61894E-06	1.04549E-05
Road 2	2	2200-2300	0.13386392	3.87338E-07	2.50139E-06	0.12097336	3.50039E-07	2.26052E-06	0.57554448	1.66535E-06	1.07547E-05	0.51546488	1.49151E-06	9.63201E-06	0.63643824	1.84155E-06	1.18925E-05
Road 2	2	2300-0000	0.119517658	3.07094E-07	1.98318E-06	0.107486667	2.76181E-07	1.78355E-06	0.545674865	1.40208E-06	9.0545E-06	0.485253784	1.24683E-06	8.05192E-06	0.59274045	1.52301E-06	9.83547E-06
Road 3	3	0000-0100	0.10346413	3.81689E-07	1.48353E-05	0.092663304	3.41844E-07	1.32866E-05	0.574287478	2.1186E-06	8.23447E-05	0.510419348	1.88299E-06	7.3187E-05	0.603082652	2.22483E-06	8.64736E-05
Road 3	3	0100-0200	0.077952676	1.77546E-07	6.90078E-06	0.070437042	1.60429E-07	6.23546E-06	0.457794718	1.04268E-06	4.05264E-05	0.410623592	9.35243E-07	3.63505E-05	0.481060634	1.09567E-06	4.2586E-05
Road 3	3	0200-0300	0.076169394	1.20951E-07	4.70104E-06	0.069033939	1.0962E-07	4.26066E-06	0.48189596	7.6521E-07	2.97418E-05	0.431138687	6.84612E-07	2.66091E-05	0.500172626	7.94232E-07	3.08698E-05
Road 3	3	0300-0400	0.064292286	7.21854E-08	2.80566E-06	0.057551429	6.46169E-08	2.5115E-06	0.360767286	4.05058E-07	1.57436E-05	0.317729143	3.56736E-07	1.38654E-05	0.375280571	4.21353E-07	1.63769E-05
Road 3	3	0400-0500	0.085301416	1.54606E-07	6.00915E-06	0.076640796	1.38909E-07	5.39905E-06	0.476623628	8.63866E-07	3.35763E-05	0.424120531	7.68705E-07	2.98777E-05	0.500761327	9.07615E-07	3.52767E-05
Road 3	3	0500-0600	0.068738943	2.71225E-07	1.05418E-05	0.062051138	2.44837E-07	9.5162E-06	0.388435041	1.53266E-06	5.95706E-05	0.34565935	1.36388E-06	5.30105E-05	0.407710488	1.60872E-06	6.25267E-05
Road 3	3	0600-0700	0.09431027	6.71636E-07	2.61048E-05	0.085879752	6.11598E-07	2.37713E-05	0.475029707	3.38295E-06	0.000131487	0.428900653	3.05444E-06	0.000118718	0.514780405	3.66604E-06	0.00014249
Road 3	3	0700-0800	0.077318735	9.01595E-07	3.50427E-05	0.070983177	8.27717E-07	3.21713E-05	0.410368212	4.7852E-06	0.000185989	0.372596561	4.34476E-06	0.00016887	0.443579739	5.17247E-06	0.000201041
Road 3	3	0800-0900	0.0855968	1.36882E-06	5.32024E-05	0.078491956	1.2552E-06	4.87864E-05	0.426408385	6.81888E-06	0.000265033	0.388000221	6.20468E-06	0.00024116	0.466492177	7.45988E-06	0.000289947
Road 3	3	0900-1000	0.092712104	1.43501E-06	5.57754E-05	0.085399834	1.32183E-06	5.13763E-05	0.480212591	7.43281E-06	0.000288895	0.439573326	6.80379E-06	0.000264446	0.524973161	8.12562E-06	0.000315823
Road 3	3	1000-1100	0.105486166	1.48722E-06	5.78047E-05	0.096757622	1.36416E-06	5.30216E-05	0.534391809	7.53426E-06	0.000292838	0.487442901	6.87234E-06	0.000267111	0.584200523	8.23651E-06	0.000320132
Road 3	3	1100-1200	0.104075656	1.42561E-06	5.54097E-05	0.094616288	1.29603E-06	5.03735E-05	0.542497201	7.43101E-06	0.000288825	0.489914356	6.71074E-06	0.00026083	0.584530644	8.00677E-06	0.000311203
Road 3	3	1200-1300	0.097921475	1.34131E-06	5.21332E-05	0.089336101	1.22371E-06	4.75624E-05	0.5217274	7.14651E-06	0.000277767	0.473199052	6.48178E-06	0.00025193	0.562535152	7.70548E-06	0.000299493

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.104424013	1.55265E-06	6.03474E-05	0.094334358	1.40263E-06	5.45165E-05	0.534321694	7.94465E-06	0.000308789	0.479792859	7.13388E-06	0.000277276	0.574127217	8.5365E-06	0.000331793
Road 3	3	1400-1500	0.096205128	1.44124E-06	5.60175E-05	0.086668073	1.29837E-06	5.04644E-05	0.499848822	7.48821E-06	0.000291048	0.447754315	6.70778E-06	0.000260715	0.534422388	8.00615E-06	0.000311179
Road 3	3	1500-1600	0.106960693	1.53546E-06	5.96796E-05	0.097370045	1.39779E-06	5.43284E-05	0.541077721	7.76739E-06	0.000301899	0.490067665	7.03512E-06	0.000273437	0.587437709	8.4329E-06	0.000327766
Road 3	3	1600-1700	0.101289621	1.58565E-06	6.16302E-05	0.091425133	1.43122E-06	5.56281E-05	0.521549795	8.16465E-06	0.00031734	0.46731915	7.3157E-06	0.000284343	0.558744283	8.74692E-06	0.000339971
Road 3	3	1700-1800	0.080230776	1.25984E-06	4.89669E-05	0.072560368	1.1394E-06	4.42854E-05	0.415818509	6.52948E-06	0.000253785	0.372815975	5.85423E-06	0.000227539	0.445376343	6.99362E-06	0.000271824
Road 3	3	1800-1900	0.075943194	1.25098E-06	4.86226E-05	0.068031032	1.12065E-06	4.35568E-05	0.42261777	6.96162E-06	0.000270581	0.374230925	6.16456E-06	0.000239601	0.442261957	7.28521E-06	0.000283158
Road 3	3	1900-2000	0.080888171	9.86032E-07	3.83246E-05	0.073089474	8.90965E-07	3.46296E-05	0.449911579	5.48445E-06	0.000213167	0.402595724	4.90767E-06	0.000190749	0.475685197	5.79863E-06	0.000225378
Road 3	3	2000-2100	0.075618706	7.87166E-07	3.05952E-05	0.067803344	7.0581E-07	2.74331E-05	0.418712219	4.35866E-06	0.00016941	0.371550401	3.86772E-06	0.000150328	0.439353744	4.57353E-06	0.000177762
Road 3	3	2100-2200	0.073249675	7.22559E-07	2.8084E-05	0.066202081	6.53039E-07	2.5382E-05	0.417554878	4.1189E-06	0.000160091	0.373601984	3.68533E-06	0.00014324	0.439804065	4.33837E-06	0.000168622
Road 3	3	2200-2300	0.080334565	7.25443E-07	2.81961E-05	0.072393073	6.53729E-07	2.54088E-05	0.44535698	4.02169E-06	0.000156313	0.397104352	3.58596E-06	0.000139377	0.469497425	4.23969E-06	0.000164786
Road 3	3	2300-0000	0.070180319	5.65082E-07	2.19633E-05	0.063202052	5.08894E-07	1.97794E-05	0.409370259	3.29619E-06	0.000128115	0.363778526	2.92909E-06	0.000113846	0.426980578	3.43799E-06	0.000133626
Road 4	4	0000-0100	0.277322571	2.24683E-07	2.40581E-06	0.248405143	2.01254E-07	2.15494E-06	1.370132571	1.11006E-06	1.18861E-05	1.226346286	9.93568E-07	1.06387E-05	1.474751429	1.19482E-06	1.27936E-05
Road 4	4	0100-0200	0.2623785	1.21472E-07	1.30067E-06	0.237284	1.09854E-07	1.17627E-06	1.298471	6.01144E-07	6.4368E-06	1.1738095	5.4343E-07	5.81882E-06	1.4110935	6.53284E-07	6.99509E-06
Road 4	4	0200-0300	0.282035385	8.48718E-08	9.08771E-07	0.256176923	7.70903E-08	8.2545E-07	1.349129231	4.05988E-07	4.34715E-06	1.225297692	3.68724E-07	3.94814E-06	1.481474615	4.45814E-07	4.77359E-06
Road 4	4	0300-0400	0.258332857	4.18595E-08	4.48214E-07	0.23197	3.75877E-08	4.02474E-07	1.326211429	2.14895E-07	2.30101E-06	1.19066	1.92931E-07	2.06582E-06	1.42263	2.30519E-07	2.4683E-06
Road 4	4	0400-0500	0.264553571	8.5735E-08	9.18014E-07	0.237919286	7.71035E-08	8.25591E-07	1.266232143	4.10353E-07	4.39389E-06	1.138498571	3.68958E-07	3.95065E-06	1.376417857	4.46061E-07	4.77624E-06
Road 4	4	0500-0600	0.242717917	1.34843E-07	1.44385E-06	0.219530833	1.21962E-07	1.30591E-06	1.119122917	6.21735E-07	6.65728E-06	1.010783333	5.61546E-07	6.0128E-06	1.230314167	6.83508E-07	7.31871E-06
Road 4	4	0600-0700	0.268013396	3.28813E-07	3.52079E-06	0.244238113	2.99644E-07	3.20846E-06	1.241892075	1.52362E-06	1.63143E-05	1.130841698	1.38738E-06	1.48554E-05	1.375079811	1.68702E-06	1.80639E-05
Road 4	4	0700-0800	0.267622609	5.69937E-07	6.10265E-06	0.24604837	5.23992E-07	5.61068E-06	1.28665837	2.74011E-06	2.93399E-05	1.181387826	2.51592E-06	2.69394E-05	1.427436196	3.03991E-06	3.25501E-05
Road 4	4	0800-0900	0.274760516	9.85831E-07	1.05559E-05	0.252115032	9.04579E-07	9.68585E-06	1.324324452	4.75163E-06	5.08784E-05	1.214529161	4.35769E-06	4.66603E-05	1.466644194	5.26227E-06	5.63461E-05
Road 4	4	0900-1000	0.279998649	9.59255E-07	1.02713E-05	0.25768	8.82793E-07	9.45257E-06	1.281443986	4.39013E-06	4.70077E-05	1.178526014	4.03754E-06	4.32323E-05	1.436206014	4.92034E-06	5.26849E-05
Road 4	4	1000-1100	0.312619653	1.04207E-06	1.1158E-05	0.28669625	9.55654E-07	1.02327E-05	1.434033611	4.78011E-06	5.11834E-05	1.314830764	4.38277E-06	4.69288E-05	1.601527014	5.33842E-06	5.71616E-05
Road 4	4	1100-1200	0.290734387	1.04314E-06	1.11695E-05	0.264286258	9.48249E-07	1.01535E-05	1.325231484	4.75488E-06	5.09133E-05	1.204072839	4.32017E-06	4.62585E-05	1.468359097	5.26842E-06	5.6412E-05
Road 4	4	1200-1300	0.297367838	1.01876E-06	1.09085E-05	0.271306689	9.29477E-07	9.95244E-06	1.415047635	4.84785E-06	5.19087E-05	1.29042277	4.42089E-06	4.73371E-05	1.561729459	5.35037E-06	5.72895E-05
Road 4	4	1300-1400	0.306021467	1.06257E-06	1.13776E-05	0.276392933	9.59698E-07	1.0276E-05	1.422006733	4.93752E-06	5.28689E-05	1.283988067	4.45829E-06	4.77375E-05	1.560381	5.41799E-06	5.80135E-05
Road 4	4	1400-1500	0.278439857	9.02351E-07	9.662E-06	0.250741	8.12587E-07	8.70083E-06	1.335823143	4.32906E-06	4.63537E-05	1.202044714	3.89552E-06	4.17115E-05	1.452785714	4.7081E-06	5.04124E-05
Road 4	4	1500-1600	0.31304352	9.05797E-07	9.69889E-06	0.28483232	8.24168E-07	8.82484E-06	1.45477816	4.20943E-06	4.50728E-05	1.32331632	3.82904E-06	4.09997E-05	1.60814864	4.65321E-06	4.98246E-05
Road 4	4	1600-1700	0.293984839	8.43845E-07	9.03554E-06	0.265344839	7.61638E-07	8.1553E-06	1.379952581	3.96098E-06	4.24124E-05	1.245045403	3.57374E-06	3.82661E-05	1.510390242	4.33538E-06	4.64214E-05
Road 4	4	1700-1800	0.281675906	8.28075E-07	8.86668E-06	0.254921575	7.49422E-07	8.0245E-06	1.344238268	3.95181E-06	4.23143E-05	1.215903543	3.57453E-06	3.82746E-05	1.470825118	4.32395E-06	4.62991E-05
Road 4	4	1800-1900	0.311157642	7.63489E-07	8.17511E-06	0.279155377	6.84965E-07	7.33431E-06	1.498109717	3.67592E-06	3.93602E-05	1.343674906	3.29698E-06	3.53027E-05	1.622830283	3.98194E-06	4.2637E-05
Road 4	4	1900-2000	0.280145676	4.79879E-07	5.13834E-06	0.253456622	4.34162E-07	4.64882E-06	1.352344865	2.31652E-06	2.48043E-05	1.222877027	2.09474E-06	2.24296E-05	1.476333649	2.5289E-06	2.70784E-05
Road 4	4	2000-2100	0.245033265	2.77931E-07	2.97597E-06	0.219862857	2.49381E-07	2.67027E-06	1.188390816	1.34794E-06	1.44332E-05	1.064879592	1.20785E-06	1.29331E-05	1.284742449	1.45723E-06	1.56034E-05
Road 4	4	2100-2200	0.201909459	1.72932E-07	1.85168E-06	0.18281	1.56573E-07	1.67652E-06	1.000331081	8.56765E-07	9.17388E-06	0.903933243	7.74202E-07	8.28983E-06	1.086743243	9.30775E-07	9.96635E-06
Road 4	4	2200-2300	0.276829365	4.03709E-07	4.32275E-06	0.249744921	3.64211E-07	3.89982E-06	1.316922222	1.92051E-06	2.0564E-05	1.187186349	1.73131E-06	1.85382E-05	1.43693127	2.09552E-06	2.2438E-05
Road 4	4	2300-0000	0.25761898	2.92207E-07	3.12883E-06	0.232249388	2.63431E-07	2.82071E-06	1.259201837	1.42826E-06	1.52932E-05	1.134255102	1.28654E-06	1.37757E-05	1.36650449	1.54997E-06	1.65964E-05
Road 5	5	0000-0100	0.08759487	3.17301E-07	4.29092E-06	0.078449793	2.84174E-07	3.84294E-06	0.49415399	1.79001E-06	2.42066E-05	0.437997306	1.58659E-06	2.14557E-05	0.516447098	1.87076E-06	2.52987E-05
Road 5	5	0100-0200	0.059179262	1.35508E-07	1.8325E-06	0.05345377	1.22398E-07	1.65521E-06	0.36744123	8.41363E-07	1.13779E-05	0.328400738	7.51969E-07	1.0169E-05	0.381854508	8.74367E-07	1.18242E-05
Road 5	5	0200-0300	0.056302442	9.08786E-08	1.22897E-06	0.050961395	8.22575E-08	1.11238E-06	0.395896163	6.39022E-07	8.64161E-06	0.352049767	5.68248E-07	7.68453E-06	0.403011163	6.50506E-07	8.79691E-06
Road 5	5	0300-0400	0.050569365	5.97949E-08	8.08617E-07	0.04524381	5.34977E-08	7.2346E-07	0.286285714	3.38514E-07	4.57778E-06	0.250138095	2.95771E-07	3.99977E-06	0.295381905	3.49269E-07	4.72323E-06
Road 5	5	0400-0500	0.069824646	1.29742E-07	1.75452E-06	0.062709697	1.16521E-07	1.57574E-06	0.404553636	7.51704E-07	1.01654E-05	0.35869697	6.66498E-07	9.01317E-06	0.421406667	7.83019E-07	1.05889E-05
Road 5	5	0500-0600	0.056287455	2.32418E-07	3.14303E-06	0.050771818	2.09643E-07	2.83505E-06	0.333995273	1.37911E-06	1.865E-05	0.295888091	1.22176E-06	1.65221E-05	0.346659909	1.4314E-06	1.93571E-05
Road 5	5	0600-0700	0.081731031	5.95188E-07	8.04884E-06	0.074403402	5.41827E-07	7.32722E-06	0.415500232	3.02579E-06	4.09183E-05	0.374182423	2.7249E-06	3.68494E-05	0.448585825	3.26673E-06	4.41766E-05
Road 5	5	0700-0800	0.063246445	7.51408E-07	1.01614E-05	0.058024044	6.89362E-07	9.32237E-06	0.339688673	4.03572E-06	5.45757E-05	0.307134013	3.64895E-06	4.93454E-05	0.365158057	4.33831E-06	5.86678E-05
Road 5	5	0800-0900	0.067709348	1.0713E-06	1.44874E-05	0.062079122	9.8222E-07	1.32828E-05	0.334780308	5.29692E-06	7.16312E-05	0.303488754	4.80182E-06	6.49359E-05	0.365567877	5.78404E-06	7.82187E-05
Road 5	5	0900-1000	0.074818248	1.14587E-06	1.54957E-05	0.068919877	1.05553E-06	1.42741E-05	0.401114326	6.14319E-06	8.30755E-05	0.3665719	5.61416E-06	7.59214E-05	0.435491777	6.66969E-06	9.01955E-05
Road 5	5	1000-1100	0.085476035	1.17754E-06	1.59241E-05	0.07838985	1.07992E-06	1.4604E-05	0.44510406	6.13188E-06	8.29225E-05	0.405153215	5.5815E-06	7.54797E-05	0.483543065	6.66142E-06	9.00837E-05
Road 5	5	1100-1200	0.084395722	1.10722E-06	1.49731E-05	0.076722961	1.00656E-06	1.36119E-05	0.45958166	6.02942E-06	8.1537E-05	0.413943019	5.43067E-06	7.344E-05	0.49066598	6.43723E-06	8.70518E-05
Road 5	5	1200-1300	0.078286832	1.03883E-06	1.40483E-05	0.071402801	9.47481E-07	1.2813E-05	0.42915239	5.69465E-06	7.70098E-05	0.388312786	5.15272E-06	6.96813E-05	0.459715587	6.1002E-06	8.24942E-05
Road 5	5	1300-1400	0.085829755	1.25168E-06	1.69268E-05	0.077540335	1.1308E-06	1.5292E-05	0.449309434	6.55243E-06	8.86097E-05	0.402583925	5.87102E-06	7.93948E-05	0.48012426	7.00181E-06	9.46868E-05
Road 5	5	1400-1500	0.080869887	1.20516E-06	1.62975E-05	0.072836839	1.08544E-06	1.46787E-05	0.425087065	6.33482E-06	8.56669E-05	0.380230869	5.66635E-06	7.66272E-05	0.453067708	6.7518E-06	9.13058E-05
Road 5	5	1500-1600	0.090438247	1.30701E-06	1.76749E-05	0.082314208	1.1896E-06	1.60872E-05	0.463631351	6.70038E-06	9.06105E-05	0.419351013	6.06044E-06	8.19565E-05	0.501665221	7.25004E-06	9.80437E-05
Road 5	5	1600-1700	0.086260023	1.381E-06	1.86756E-05	0.077849672	1.24635E-06	1.68547E-05	0.4518583	7.23414E-06	9.78287E-05	0.404052732	6.46879E-06	8.74786E-05	0.481902403	7.71514E-06	0.000104333
Road 5	5	1700-1800	0.06346611	1.01369E-06	1.37084E-05	0.057370024	9.16327E-07	1.23917E-05	0.333968954	5.33423E-06	7.21357E-05	0.298344266	4.76522E-06	6.4441E-05	0.355714289	5.68155E-06	7.68326E-05
Road 5	5	1800-1900	0.059397388	1.02452E-06	1.38547E-05	0.053194657	9.17528E-07	1.24079E-05	0.342865974	5.91392E-06	7.99751E-05	0.302242437	5.21323E-06	7.04995E-05	0.355437095	6.13076E-06	8.29074E-05
Road 5	5	1900-2000	0.068884023	8.86908E-07	1.19938E-05	0.062223397	8.0115E-07	1.08341E-05	0.392959082	5.0595E-06	6.84205E-05	0.350697187	4.51536E-06	6.1062E-05	0.412920583	5.31651E-06	7.18961E-05
Road 5	5	2000-2100	0.06693775	7.53803E-07	1.01938E-05	0.059998617	6.7566E-07	9.13708E-06	0.3766258	4.24128E-06	5.73556E-05	0.333577517	3.7565E-06	5.07999E-05	0.393576133	4.43216E-06	5.9937E-05
Road 5	5	2100-2200	0.068297007	7.4091E-07	1.00195E-05	0.061723806	6.69601E-07	9.05514E-06	0.393996765	4.27421E-06	5.7801E-05	0.352088564	3.81958E-06	5.16529E-05	0.41381237	4.48918E-06	6.0708E-05
Road 5	5	2200-2300	0.067207435	6.29439E-07	8.51202E-06	0.060538337	5.66979E-07	7.66736E-06	0.384030561	3.59668E-06	4.86386E-05	0.341262325	3.19613E-06	4.32219E-05	0.401800661	3.76311E-06	5.08893E-05
Road 5	5	2300-0000	0.058963841	5.01325E-07	6.77952E-06	0.053084172	4.51335E-07	6.10349E-06	0.354823775	3.0168E-06	4.07968E-05	0.314113267	2.67067E-06	3.6116E-05	0.367197439	3.12201E-06	4.22195E-05
Road 6	6	0000-0100	0.052557467	1.47966E-07	5.28918E-06	0.046935733	1.32139E-07	4.72343E-06	0.3458766	9.73752E-07	3.48077E-05	0.303005	8.53055E-07	3.04932E-05	0.349940733	9.85194E-07	3.52167E-05
Road 6	6	0100-0200	0.069799825	1.49346E-07	5.33853E-06	0.063025877	1.34853E-07	4.82044E-06	0.400124211	8.56122E-07	3.06029E-05	0.35652114	7.62827E-07	2.7268E-05	0.419547018	8.97679E-07	3.20884E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.063211013	9.3725E-08	3.35029E-06	0.05733519	8.50128E-08	3.03886E-06	0.368700253	5.46684E-07	1.95417E-05	0.329347595	4.88334E-07	1.7456E-05	0.386682785	5.73347E-07	2.04948E-05
Road 6	6	0300-0400	0.065345968	7.60407E-08	2.71815E-06	0.058685806	6.82905E-08	2.44111E-06	0.424968548	4.9452E-07	1.76771E-05	0.376151613	4.37714E-07	1.56465E-05	0.434837419	5.06005E-07	1.80876E-05
Road 6	6	0400-0500	0.070631889	1.19311E-07	4.26487E-06	0.063428111	1.07142E-07	3.8299E-06	0.422497667	7.13678E-07	2.55111E-05	0.373739222	6.31316E-07	2.2567E-05	0.437167333	7.38458E-07	2.63969E-05
Road 6	6	0500-0600	0.062882654	1.91197E-07	6.83453E-06	0.056766049	1.72599E-07	6.16973E-06	0.387900864	1.17943E-06	4.21598E-05	0.343883272	1.04559E-06	3.73756E-05	0.400649321	1.21819E-06	4.35454E-05
Road 6	6	0600-0700	0.066771966	3.63436E-07	1.29914E-05	0.060729172	3.30545E-07	1.18157E-05	0.42979969	2.33938E-06	8.36232E-05	0.384435966	2.09246E-06	7.47971E-05	0.445165138	2.42301E-06	8.66127E-05
Road 6	6	0700-0800	0.062148939	5.38904E-07	1.92636E-05	0.057015216	4.94389E-07	1.76724E-05	0.364418442	3.15993E-06	0.000112955	0.329099307	2.85368E-06	0.000102007	0.386114524	3.34807E-06	0.00011968
Road 6	6	0800-0900	0.052677689	6.54516E-07	2.33963E-05	0.048189909	5.98756E-07	2.14031E-05	0.31734645	3.94301E-06	0.000140946	0.284653625	3.5368E-06	0.000126426	0.332843535	4.13556E-06	0.000147829
Road 6	6	0900-1000	0.055596145	6.60517E-07	2.36108E-05	0.051071374	6.0676E-07	2.16892E-05	0.320178878	3.80393E-06	0.000135975	0.289048515	3.43408E-06	0.000122754	0.340119889	4.04084E-06	0.000144444
Road 6	6	1000-1100	0.074696654	7.50051E-07	2.68113E-05	0.068400318	6.86828E-07	2.45513E-05	0.413619664	4.15328E-06	0.000148463	0.374113009	3.75658E-06	0.000134282	0.442513327	4.44341E-06	0.000158834
Road 6	6	1100-1200	0.086124492	8.59952E-07	3.07398E-05	0.078271335	7.81538E-07	2.79368E-05	0.454474211	4.53792E-06	0.000162212	0.409074417	4.0846E-06	0.000146008	0.487345752	4.86614E-06	0.000173945
Road 6	6	1200-1300	0.08258304	8.10641E-07	2.89771E-05	0.075373346	7.3987E-07	2.64473E-05	0.417215966	4.09542E-06	0.000146395	0.377970249	3.71018E-06	0.000132624	0.453343595	4.45005E-06	0.000159071
Road 6	6	1300-1400	0.096023512	9.38969E-07	3.35643E-05	0.086742303	8.48212E-07	3.03201E-05	0.493573109	4.82642E-06	0.000172525	0.442381382	4.32584E-06	0.000154631	0.529123685	5.17405E-06	0.000184951
Road 6	6	1400-1500	0.091292369	9.83518E-07	3.51568E-05	0.082241986	8.86015E-07	3.16715E-05	0.462060557	4.9779E-06	0.00017794	0.412983606	4.44919E-06	0.00015904	0.495225592	5.3352E-06	0.000190712
Road 6	6	1500-1600	0.080372456	8.47773E-07	3.03044E-05	0.073104004	7.71105E-07	2.75639E-05	0.421567331	4.44671E-06	0.000158952	0.380382473	4.01229E-06	0.000143423	0.453486477	4.7834E-06	0.000170987
Road 6	6	1600-1700	0.084411701	9.12559E-07	3.26203E-05	0.076179549	8.23563E-07	2.9439E-05	0.423165017	4.57476E-06	0.000163529	0.378628906	4.09329E-06	0.000146318	0.454808455	4.91685E-06	0.000175757
Road 6	6	1700-1800	0.063181951	7.23367E-07	2.58574E-05	0.057135852	6.54145E-07	2.3383E-05	0.329438541	3.77173E-06	0.000134824	0.294413443	3.37072E-06	0.00012049	0.351549295	4.02487E-06	0.000143873
Road 6	6	1800-1900	0.061769405	7.98782E-07	2.85532E-05	0.05533328	7.15552E-07	2.55781E-05	0.328951872	4.2539E-06	0.00015206	0.290755559	3.75996E-06	0.000134403	0.346088839	4.47551E-06	0.000159981
Road 6	6	1900-2000	0.073376221	7.21643E-07	2.57958E-05	0.066278149	6.51835E-07	2.33004E-05	0.391004771	3.84547E-06	0.00013746	0.348883664	3.43121E-06	0.000122652	0.415161813	4.08305E-06	0.000145952
Road 6	6	2000-2100	0.058210526	4.56682E-07	1.63245E-05	0.052131124	4.08987E-07	1.46196E-05	0.345904019	2.71374E-06	9.70051E-05	0.305409761	2.39605E-06	8.56489E-05	0.357540885	2.80503E-06	0.000100269
Road 6	6	2100-2200	0.080228361	5.42084E-07	1.93773E-05	0.072523944	4.90027E-07	1.75165E-05	0.432536472	2.92254E-06	0.000104469	0.387104667	2.61557E-06	9.34961E-05	0.459628611	3.1056E-06	0.000111013
Road 6	6	2200-2300	0.061432598	4.39298E-07	1.57031E-05	0.055260551	3.95163E-07	1.41255E-05	0.356155249	2.54683E-06	9.10389E-05	0.313892415	2.24461E-06	8.02358E-05	0.369152966	2.63978E-06	9.43613E-05
Road 6	6	2300-0000	0.041279384	2.7659E-07	9.88699E-06	0.037150196	2.48923E-07	8.89799E-06	0.265445098	1.7786E-06	6.35778E-05	0.234103557	1.5686E-06	5.60711E-05	0.271253754	1.81752E-06	6.49691E-05
Road 7	7	0000-0100	0.076868651	2.0758E-07	5.18189E-06	0.06875572	1.85672E-07	4.63498E-06	0.460541323	1.24367E-06	3.10461E-05	0.407028208	1.09916E-06	2.74387E-05	0.475783928	1.28483E-06	3.20736E-05
Road 7	7	0100-0200	0.094633431	1.99222E-07	4.97323E-06	0.085108988	1.79171E-07	4.47269E-06	0.522954591	1.10092E-06	2.74826E-05	0.466257601	9.81563E-07	2.4503E-05	0.55136659	1.16073E-06	2.89757E-05
Road 7	7	0200-0300	0.08061143	1.10014E-07	2.74631E-06	0.073125106	9.97973E-08	2.49127E-06	0.462570067	6.31291E-07	1.57591E-05	0.415254255	5.66717E-07	1.41471E-05	0.488379362	6.66514E-07	1.66384E-05
Road 7	7	0300-0400	0.082709048	9.12622E-08	2.2782E-06	0.074357632	8.20471E-08	2.04816E-06	0.50469481	5.56887E-07	1.39017E-05	0.449359079	4.95828E-07	1.23775E-05	0.523716711	5.77876E-07	1.44257E-05
Road 7	7	0400-0500	0.091606216	1.47629E-07	3.68531E-06	0.082321532	1.32666E-07	3.31178E-06	0.516516216	8.32398E-07	2.07794E-05	0.459469099	7.40463E-07	1.84844E-05	0.541790631	8.7313E-07	2.17962E-05
Road 7	7	0500-0600	0.082137898	2.3612E-07	5.89433E-06	0.074179646	2.13243E-07	5.32323E-06	0.470260434	1.35185E-06	3.37465E-05	0.419342374	1.20548E-06	3.00926E-05	0.49352202	1.41872E-06	3.54158E-05
Road 7	7	0600-0700	0.086211948	4.43093E-07	1.10611E-05	0.078441893	4.03158E-07	1.00641E-05	0.507263396	2.60712E-06	6.50822E-05	0.455983333	2.34356E-06	5.8503E-05	0.534425226	2.74672E-06	6.85671E-05
Road 7	7	0700-0800	0.081906012	6.71875E-07	1.67722E-05	0.075232283	6.17131E-07	1.54056E-05	0.452948399	3.71554E-06	9.27519E-05	0.411529799	3.37578E-06	8.42705E-05	0.486762081	3.99291E-06	9.96761E-05
Road 7	7	0800-0900	0.081037479	1.00595E-06	2.51118E-05	0.074441024	9.24066E-07	2.30677E-05	0.445470904	5.5298E-06	0.000138042	0.404728799	5.02406E-06	0.000125417	0.479169823	5.94812E-06	0.000148485
Road 7	7	0900-1000	0.08272809	9.51267E-07	2.37467E-05	0.075746648	8.7099E-07	2.17427E-05	0.437704222	5.03304E-06	0.000125641	0.396493298	4.55917E-06	0.000113812	0.472239945	5.43016E-06	0.000135554
Road 7	7	1000-1100	0.098173599	9.90613E-07	2.47289E-05	0.090151769	9.09669E-07	2.27083E-05	0.519928551	5.2463E-06	0.000130965	0.473873215	4.78158E-06	0.000119364	0.564024984	5.69125E-06	0.000142072
Road 7	7	1100-1200	0.109113696	1.09942E-06	2.74451E-05	0.09938627	1.00141E-06	2.49984E-05	0.561793623	5.66058E-06	0.000141306	0.508684564	5.12545E-06	0.000127948	0.608070834	6.12686E-06	0.000152946
Road 7	7	1200-1300	0.106322145	1.06975E-06	2.67044E-05	0.096829074	9.74234E-07	2.43201E-05	0.538913708	5.42222E-06	0.000135356	0.488715307	4.91715E-06	0.000122748	0.585544381	5.89138E-06	0.000147068
Road 7	7	1300-1400	0.113727346	1.12609E-06	2.81109E-05	0.102853734	1.01842E-06	2.54232E-05	0.578018959	5.72336E-06	0.000142874	0.519970899	5.14858E-06	0.000128525	0.622824633	6.16701E-06	0.000153949
Road 7	7	1400-1500	0.106074109	1.09959E-06	2.74494E-05	0.09568853	9.91933E-07	2.47619E-05	0.542118138	5.61974E-06	0.000140287	0.486404023	5.0422E-06	0.00012587	0.582092553	6.03413E-06	0.000150632
Road 7	7	1500-1600	0.098639968	1.00391E-06	2.50609E-05	0.089518063	9.11073E-07	2.27433E-05	0.511796622	5.20882E-06	0.000130029	0.461734618	4.69932E-06	0.00011731	0.551252681	5.61039E-06	0.000140054
Road 7	7	1600-1700	0.102698742	1.081E-06	2.69854E-05	0.092872167	9.7757E-07	2.44033E-05	0.514363455	5.41418E-06	0.000135156	0.462536442	4.86865E-06	0.000121537	0.55540861	5.84622E-06	0.000145941
Road 7	7	1700-1800	0.079218318	8.82156E-07	2.20215E-05	0.071379525	7.94865E-07	1.98424E-05	0.413332462	4.60277E-06	0.0001149	0.369347248	4.11296E-06	0.000102673	0.440726773	4.90783E-06	0.000122515
Road 7	7	1800-1900	0.073374598	8.4904E-07	2.11948E-05	0.065779262	7.61152E-07	1.90008E-05	0.390099701	4.51397E-06	0.000112683	0.34623251	4.00636E-06	0.000100012	0.412011772	4.76752E-06	0.000119013
Road 7	7	1900-2000	0.08490456	7.42082E-07	1.85248E-05	0.076861196	6.71781E-07	1.67699E-05	0.454402649	3.97156E-06	9.91432E-05	0.407761395	3.56391E-06	8.89669E-05	0.484622591	4.23569E-06	0.000105737
Road 7	7	2000-2100	0.078741633	5.67036E-07	1.41551E-05	0.070640599	5.08698E-07	1.26988E-05	0.43533252	3.13492E-06	7.82579E-05	0.386639969	2.78428E-06	6.95047E-05	0.457280568	3.29298E-06	8.22035E-05
Road 7	7	2100-2200	0.089199332	5.3615E-07	1.33841E-05	0.080785612	4.85578E-07	1.21216E-05	0.481205776	2.89238E-06	7.22033E-05	0.4322466	2.5981E-06	6.48571E-05	0.513032212	3.08368E-06	7.69787E-05
Road 7	7	2200-2300	0.076496174	4.96445E-07	1.23929E-05	0.068927497	4.47326E-07	1.11667E-05	0.428610895	2.7816E-06	6.94379E-05	0.380545985	2.46967E-06	6.1651E-05	0.449473482	2.917E-06	7.28177E-05
Road 7	7	2300-0000	0.053922933	3.21766E-07	8.03232E-06	0.048534574	2.89613E-07	7.22967E-06	0.325933619	1.94489E-06	4.85508E-05	0.289062068	1.72487E-06	4.30585E-05	0.337596642	2.01449E-06	5.02881E-05
Road 8	8	0000-0100	0.243280833	1.76932E-07	2.91665E-06	0.217834722	1.58425E-07	2.61158E-06	1.205282778	8.76569E-07	1.44499E-05	1.078891389	7.84648E-07	1.29346E-05	1.296726111	9.43074E-07	1.55462E-05
Road 8	8	0100-0200	0.252797333	1.53211E-07	2.52562E-06	0.228633667	1.38566E-07	2.28421E-06	1.248924667	7.56924E-07	1.24776E-05	1.129111333	6.8431E-07	1.12806E-05	1.357745	8.22876E-07	1.35648E-05
Road 8	8	0200-0300	0.237639333	7.20119E-08	1.18709E-06	0.215919333	6.54301E-08	1.07859E-06	1.234190667	3.73997E-07	6.1652E-06	1.121142667	3.3974E-07	5.60049E-06	1.337062	4.0517E-07	6.67908E-06
Road 8	8	0300-0400	0.218142143	6.16968E-08	1.01705E-06	0.196060714	5.54515E-08	9.14097E-07	1.109811429	3.13886E-07	5.17429E-06	0.997083571	2.82003E-07	4.64872E-06	1.193144286	3.37455E-07	5.56282E-06
Road 8	8	0400-0500	0.246701429	1.04661E-07	1.7253E-06	0.221920952	9.41483E-08	1.552E-06	1.183478571	5.02082E-07	8.27663E-06	1.064325238	4.51532E-07	7.44333E-06	1.28624619	5.4568E-07	8.99533E-06
Road 8	8	0500-0600	0.233273824	1.60228E-07	2.64131E-06	0.21107	1.44977E-07	2.3899E-06	1.100382353	7.55818E-07	1.24594E-05	0.99494	6.83393E-07	1.12655E-05	1.20601	8.28371E-07	1.36554E-05
Road 8	8	0600-0700	0.259014677	3.24422E-07	5.34798E-06	0.236125323	2.95753E-07	4.87538E-06	1.207318065	1.5122E-06	2.4928E-05	1.099738226	1.37745E-06	2.27067E-05	1.335863548	1.6732E-06	2.75821E-05
Road 8	8	0700-0800	0.255800294	5.27104E-07	8.68911E-06	0.235215784	4.84687E-07	7.98988E-06	1.204559804	2.48212E-06	4.09169E-05	1.106566961	2.2802E-06	3.75882E-05	1.341782745	2.76489E-06	4.55781E-05
Road 8	8	0800-0900	0.283704635	1.10043E-06	1.81402E-05	0.260477552	1.01034E-06	1.6655E-05	1.340460313	5.19936E-06	8.57095E-05	1.229941979	4.77068E-06	7.86429E-05	1.490419531	5.78102E-06	9.5298E-05
Road 8	8	0900-1000	0.302642595	9.66011E-07	1.59243E-05	0.278581899	8.89211E-07	1.46583E-05	1.359052911	4.33799E-06	7.15101E-05	1.251004304	3.9931E-06	6.58248E-05	1.529586203	4.88232E-06	8.04831E-05
Road 8	8	1000-1100	0.287107875	9.28025E-07	1.52982E-05	0.263324875	8.51151E-07	1.40309E-05	1.328390188	4.29379E-06	7.07815E-05	1.217706438	3.93602E-06	6.48838E-05	1.481031313	4.78717E-06	7.89147E-05
Road 8	8	1100-1200	0.298470755	9.58724E-07	1.58042E-05	0.271308491	8.71476E-07	1.4366E-05	1.393746541	4.47688E-06	7.37997E-05	1.266592327	4.06845E-06	6.70668E-05	1.537900818	4.93992E-06	8.14328E-05
Road 8	8	1200-1300	0.300390176	1.03164E-06	1.70062E-05	0.274037294	9.41138E-07	1.55143E-05	1.414768412	4.8588E-06	8.00955E-05	1.290143235	4.43079E-06	7.304E-05	1.564180529	5.37193E-06	8.85543E-05
Road 8	8	1300-1400	0.275728395	9.02384E-07	1.48755E-05	0.24906858	8.15134E-07	1.34372E-05	1.281072716	4.1926E-06	6.91135E-05	1.156839568	3.78602E-06	6.24111E-05	1.405908148	4.60115E-06	7.58483E-05
Road 8	8	1400-1500	0.269407266	7.56517E-07	1.24709E-05	0.242639928	6.81353E-07	1.12318E-05	1.303269137	3.65969E-06	6.03285E-05	1.173363525	3.2949E-06	5.43152E-05	1.416003453	3.97625E-06	6.5547E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.278293741	7.81471E-07	1.28823E-05	0.253202878	7.11014E-07	1.17208E-05	1.313009209	3.68704E-06	6.07794E-05	1.193746187	3.35214E-06	5.52587E-05	1.446949065	4.06315E-06	6.69795E-05
Road 8	8	1600-1700	0.278993624	8.39799E-07	1.38438E-05	0.251755436	7.57809E-07	1.24922E-05	1.304175503	3.9257E-06	6.47137E-05	1.176479195	3.54132E-06	5.83773E-05	1.428234631	4.29913E-06	7.08696E-05
Road 8	8	1700-1800	0.228134936	7.18971E-07	1.1852E-05	0.206377564	6.50402E-07	1.07216E-05	1.109180577	3.4956E-06	5.76236E-05	1.00223609	3.15856E-06	5.20677E-05	1.208613654	3.80896E-06	6.27893E-05
Road 8	8	1800-1900	0.229115421	4.9526E-07	8.16417E-06	0.205616822	4.44465E-07	7.32683E-06	1.141695981	2.46791E-06	4.06825E-05	1.023453458	2.21231E-06	3.64692E-05	1.22907028	2.65678E-06	4.3796E-05
Road 8	8	1900-2000	0.227359481	3.5367E-07	5.83012E-06	0.205728961	3.20023E-07	5.27546E-06	1.160276104	1.80487E-06	2.97527E-05	1.049517532	1.63258E-06	2.69125E-05	1.255246494	1.95261E-06	3.2188E-05
Road 8	8	2000-2100	0.250536364	3.89723E-07	6.42444E-06	0.224804416	3.49696E-07	5.7646E-06	1.167047922	1.81541E-06	2.99263E-05	1.046065844	1.62721E-06	2.6824E-05	1.27087026	1.97691E-06	3.25886E-05
Road 8	8	2100-2200	0.204482037	2.23071E-07	3.67725E-06	0.185061296	2.01885E-07	3.328E-06	1.040523333	1.13512E-06	1.8712E-05	0.939548519	1.02496E-06	1.68961E-05	1.124609815	1.22685E-06	2.02241E-05
Road 8	8	2200-2300	0.2507425	3.24192E-07	5.34419E-06	0.226202813	2.92464E-07	4.82116E-06	1.206712188	1.56019E-06	2.57192E-05	1.087314063	1.40582E-06	2.31744E-05	1.313516875	1.69828E-06	2.79956E-05
Road 8	8	2300-0000	0.196495472	2.10389E-07	3.46819E-06	0.177204151	1.89734E-07	3.12769E-06	0.98441283	1.05402E-06	1.73751E-05	0.886886415	9.49596E-07	1.56537E-05	1.064090566	1.13933E-06	1.87814E-05
Road 9	9	0000-0100	0.67199903	1.75729E-07	5.32768E-06	0.653494969	1.7089E-07	5.18098E-06	3.674944839	9.61003E-07	2.91354E-05	3.583520695	9.37096E-07	2.84105E-05	4.237015665	1.10799E-06	3.35915E-05
Road 9	9	0100-0200	0.699075458	1.43636E-07	4.3547E-06	0.680332287	1.39785E-07	4.23794E-06	3.649293027	7.49803E-07	2.27323E-05	3.559764202	7.31408E-07	2.21746E-05	4.240096489	8.71193E-07	2.64125E-05
Road 9	9	0200-0300	0.348846352	3.25799E-08	9.87747E-07	0.340658873	3.18153E-08	9.64564E-07	2.406427876	2.24744E-07	6.81372E-06	2.341835062	2.18712E-07	6.63083E-06	2.682493935	2.50527E-07	7.59539E-06
Road 9	9	0300-0400	0.43297304	3.23494E-08	9.80759E-07	0.422204813	3.15449E-08	9.56367E-07	2.86538045	2.14086E-07	6.49058E-06	2.798638193	2.09099E-07	6.3394E-06	3.220843006	2.40644E-07	7.29577E-06
Road 9	9	0400-0500	0.763859433	1.42679E-07	4.32568E-06	0.743299365	1.38838E-07	4.20925E-06	3.950735467	7.37945E-07	2.23727E-05	3.855613575	7.20177E-07	2.18341E-05	4.59891294	8.59016E-07	2.60433E-05
Road 9	9	0500-0600	0.556854194	1.76822E-07	5.36083E-06	0.542458723	1.72251E-07	5.22224E-06	3.133986059	9.95158E-07	3.01708E-05	3.052098869	9.69156E-07	2.93825E-05	3.594557592	1.14141E-06	3.46048E-05
Road 9	9	0600-0700	0.610642407	3.64992E-07	1.10657E-05	0.595921506	3.56193E-07	1.07989E-05	3.456602951	2.06607E-06	6.26384E-05	3.366940485	2.01248E-06	6.10136E-05	3.962861991	2.36867E-06	7.18125E-05
Road 9	9	0700-0800	0.437948682	4.00835E-07	1.21524E-05	0.427399019	3.91179E-07	1.18596E-05	2.54811256	2.33217E-06	7.0706E-05	2.476318023	2.26646E-06	6.87138E-05	2.903717042	2.65764E-06	8.05734E-05
Road 9	9	0800-0900	0.765116515	1.64351E-06	4.98272E-05	0.747216824	1.60506E-06	4.86615E-05	4.455664546	9.57098E-06	0.000290169	4.360064376	9.36562E-06	0.000283944	5.1072812	1.09707E-05	0.000332605
Road 9	9	0900-1000	0.740121412	1.20273E-06	3.64639E-05	0.7225231	1.17413E-06	3.55969E-05	3.943992319	6.40916E-06	0.000194311	3.855605327	6.26553E-06	0.000189956	4.578128427	7.43966E-06	0.000225553
Road 9	9	1000-1100	0.907167409	1.23696E-06	3.75018E-05	0.887063389	1.20955E-06	3.66707E-05	4.717678843	6.43276E-06	0.000195026	4.623817942	6.30478E-06	0.000191146	5.510881331	7.51432E-06	0.000227817
Road 9	9	1100-1200	0.712927032	1.01206E-06	3.06832E-05	0.695629195	9.87501E-07	2.99387E-05	4.000172657	5.67856E-06	0.000172161	3.90508808	5.54358E-06	0.000168068	4.600717275	6.53108E-06	0.000198007
Road 9	9	1200-1300	0.80408843	1.11143E-06	3.36959E-05	0.783872465	1.08349E-06	3.28487E-05	4.229920759	5.84669E-06	0.000177258	4.130918761	5.70985E-06	0.000173109	4.914791226	6.79333E-06	0.000205958
Road 9	9	1300-1400	0.869635737	9.90862E-07	3.00406E-05	0.844559704	9.62291E-07	2.91744E-05	3.950319184	4.50099E-06	0.000136459	3.844161875	4.38003E-06	0.000132792	4.688721578	5.34232E-06	0.000161967
Road 9	9	1400-1500	0.543671722	6.90545E-07	2.09357E-05	0.527957051	6.70585E-07	2.03305E-05	3.27121116	4.15493E-06	0.000125968	3.180055421	4.03915E-06	0.000122457	3.708012472	4.70973E-06	0.000142788
Road 9	9	1500-1600	0.570089047	6.06965E-07	1.84017E-05	0.556456831	5.92451E-07	1.79617E-05	3.36755152	3.58538E-06	0.0001087	3.289386852	3.50216E-06	0.000106177	3.845843683	4.09461E-06	0.000124139
Road 9	9	1600-1700	0.517227056	7.72889E-07	2.34322E-05	0.503909498	7.52989E-07	2.28288E-05	3.182473973	4.75555E-06	0.000144177	3.100696172	4.63335E-06	0.000140472	3.60460567	5.38634E-06	0.000163301
Road 9	9	1700-1800	0.391491166	5.04565E-07	1.52972E-05	0.380657442	4.90602E-07	1.48739E-05	2.349407787	3.02798E-06	9.18013E-05	2.277242077	2.93497E-06	8.89815E-05	2.657899519	3.42558E-06	0.000103855
Road 9	9	1800-1900	0.371813663	3.05579E-07	9.26445E-06	0.361058765	2.9674E-07	8.99647E-06	2.094572199	1.72145E-06	5.21903E-05	2.025414731	1.66461E-06	5.04671E-05	2.386473495	1.96135E-06	5.94635E-05
Road 9	9	1900-2000	0.413348278	3.31994E-07	1.00653E-05	0.402188338	3.23031E-07	9.79353E-06	2.428126221	1.95023E-06	5.91264E-05	2.357897169	1.89382E-06	5.74162E-05	2.760085507	2.21685E-06	6.72098E-05
Road 9	9	2000-2100	0.540603347	2.92835E-07	8.87806E-06	0.524973204	2.84368E-07	8.62137E-06	2.442890253	1.32327E-06	4.01184E-05	2.369529069	1.28353E-06	3.89136E-05	2.894502273	1.5679E-06	4.7535E-05
Road 9	9	2100-2200	0.022087974	1.15521E-08	3.50232E-07	0.020396961	1.06677E-08	3.23419E-07	0.32322911	1.6905E-07	5.12519E-06	0.293068419	1.53276E-07	4.64695E-06	0.31346538	1.63943E-07	4.97037E-06
Road 9	9	2200-2300	0.570517713	3.51665E-07	1.06617E-05	0.555823807	3.42608E-07	1.03871E-05	3.182486897	1.96167E-06	5.94733E-05	3.104814738	1.9138E-06	5.80218E-05	3.660638545	2.2564E-06	6.84088E-05
Road 9	9	2300-0000	0.402643876	2.25626E-07	6.84044E-06	0.391494232	2.19378E-07	6.65102E-06	2.308271554	1.29346E-06	3.92148E-05	2.243525647	1.25718E-06	3.81148E-05	2.635019879	1.47656E-06	4.47658E-05
Road 10	10	0000-0100	1.218683261	9.38552E-07	2.08336E-05	1.188819713	9.15553E-07	2.03231E-05	7.60560748	5.85735E-06	0.000130019	7.454931083	5.74131E-06	0.000127443	8.643750796	6.65686E-06	0.000147767
Road 10	10	0100-0200	1.168978372	6.80206E-07	1.5099E-05	1.142310088	6.64688E-07	1.47545E-05	7.224559172	4.20383E-06	9.33151E-05	7.090467914	4.1258E-06	9.15831E-05	8.232778002	4.79049E-06	0.000106338
Road 10	10	0200-0300	1.243674433	4.04404E-07	8.97681E-06	1.217196784	3.95794E-07	8.78569E-06	7.584972506	2.46639E-06	5.47481E-05	7.454702347	2.42403E-06	5.38078E-05	8.671899131	2.81983E-06	6.25935E-05
Road 10	10	0300-0400	1.129723379	2.32011E-07	5.15009E-06	1.102723268	2.26466E-07	5.027E-06	7.263006741	1.4916E-06	3.311E-05	7.118244349	1.46187E-06	3.24501E-05	8.220967618	1.68834E-06	3.74771E-05
Road 10	10	0400-0500	1.210147022	4.76344E-07	1.05737E-05	1.180970906	4.6486E-07	1.03188E-05	7.317571082	2.88038E-06	6.39376E-05	7.175229372	2.82435E-06	6.26939E-05	8.356200277	3.28921E-06	7.30127E-05
Road 10	10	0500-0600	1.069228146	7.50255E-07	1.66539E-05	1.044596198	7.32972E-07	1.62702E-05	6.400405502	4.49103E-06	9.96903E-05	6.278623349	4.40558E-06	9.77935E-05	7.323219548	5.13855E-06	0.000114064
Road 10	10	0600-0700	1.143099967	1.60418E-06	3.5609E-05	1.11713054	1.56773E-06	3.48E-05	6.739431424	9.45784E-06	0.000209942	6.609865794	9.27601E-06	0.000205906	7.726996334	1.08437E-05	0.000240706
Road 10	10	0700-0800	1.096795916	2.42142E-06	5.37498E-05	1.0728993	2.36866E-06	5.25787E-05	6.535195482	1.44279E-05	0.000320265	6.414798594	1.41621E-05	0.000314365	7.487697894	1.65308E-05	0.000366944
Road 10	10	0800-0900	1.232353031	5.23048E-06	0.000116104	1.204237979	5.11115E-06	0.000113455	7.405906584	3.14329E-05	0.000697736	7.268004811	3.08476E-05	0.000684744	8.472242791	3.59588E-05	0.0007982
Road 10	10	0900-1000	1.260173807	4.27022E-06	9.47888E-05	1.232724086	4.17721E-06	9.27241E-05	7.400824151	2.50784E-05	0.000556681	7.268914511	2.46314E-05	0.000546759	8.501638598	2.88086E-05	0.000639483
Road 10	10	1000-1100	1.263894924	4.65055E-06	0.000103231	1.234190431	4.54125E-06	0.000100805	7.220770722	2.65691E-05	0.000589771	7.083828239	2.60652E-05	0.000578586	8.31801867	3.06065E-05	0.000679391
Road 10	10	1100-1200	1.295586009	4.76716E-06	0.00010582	1.262673784	4.64606E-06	0.000103131	7.574063939	2.78691E-05	0.000618627	7.419569618	2.73006E-05	0.000606008	8.682243402	3.19466E-05	0.00070914
Road 10	10	1200-1300	1.288977566	4.89726E-06	0.000108708	1.257289293	4.77687E-06	0.000106035	7.542159707	2.86552E-05	0.000636078	7.39368032	2.80911E-05	0.000623556	8.650969613	3.28679E-05	0.000729591
Road 10	10	1300-1400	1.250955596	4.11053E-06	9.12441E-05	1.217231063	3.99972E-06	8.87842E-05	7.214391847	2.37059E-05	0.000526214	7.057772654	2.31912E-05	0.00051479	8.275003717	2.71909E-05	0.000603575
Road 10	10	1400-1500	1.140963515	3.53431E-06	7.84534E-05	1.109684898	3.43742E-06	7.63027E-05	6.90337861	2.13843E-05	0.000474681	6.748073701	2.09032E-05	0.000464002	7.857758599	2.43406E-05	0.000540305
Road 10	10	1500-1600	1.210926408	3.83393E-06	8.51042E-05	1.181175415	3.73974E-06	8.30133E-05	7.148537455	2.26331E-05	0.000502401	7.007553506	2.21867E-05	0.000492493	8.188728921	2.59265E-05	0.000575506
Road 10	10	1600-1700	1.105959409	3.89907E-06	8.65502E-05	1.07601004	3.79349E-06	8.42064E-05	6.631781264	2.33804E-05	0.00051899	6.484648066	2.28617E-05	0.000507476	7.560658106	2.66552E-05	0.000591682
Road 10	10	1700-1800	1.003944825	3.35042E-06	7.43714E-05	0.977618185	3.26256E-06	7.24211E-05	6.021783231	2.00962E-05	0.000446089	5.890390459	1.96577E-05	0.000436355	6.868008645	2.29203E-05	0.000508776
Road 10	10	1800-1900	1.085848234	2.24859E-06	4.99133E-05	1.055843876	2.18645E-06	4.85341E-05	6.551616734	1.35672E-05	0.000301159	6.403759018	1.3261E-05	0.000294362	7.459602894	1.54474E-05	0.000342896
Road 10	10	1900-2000	1.056256157	1.97038E-06	4.37378E-05	1.03259655	1.92625E-06	4.27581E-05	6.585946768	1.22857E-05	0.000272713	6.462712843	1.20558E-05	0.00026761	7.495309393	1.39821E-05	0.000310368
Road 10	10	2000-2100	1.3544113	1.66893E-06	3.70463E-05	1.321929377	1.6289E-06	3.61578E-05	8.187344895	1.00886E-05	0.000223943	8.032878597	9.89825E-06	0.000219718	9.354807974	1.15272E-05	0.000255876
Road 10	10	2100-2200	0.898926932	1.13844E-06	2.52707E-05	0.878946127	1.11314E-06	2.4709E-05	5.614041058	7.10988E-06	0.000157822	5.506882093	6.97417E-06	0.00015481	6.385828221	8.0873E-06	0.000179519
Road 10	10	2200-2300	1.077963012	1.42053E-06	3.15323E-05	1.052892131	1.38749E-06	3.0799E-05	6.480603461	8.54006E-06	0.000189569	6.356899059	8.37705E-06	0.000185951	7.40979119	9.76453E-06	0.00021675
Road 10	10	2300-0000	0.983819818	1.21228E-06	2.69097E-05	0.959194394	1.18194E-06	2.62362E-05	6.027099696	7.4267E-06	0.000164855	5.903141834	7.27395E-06	0.000161465	6.862336228	8.45589E-06	0.000187701
Road 11	11	0000-0100	1.364455672	1.04229E-06	8.6459E-06	1.33089096	1.01665E-06	8.43322E-06	8.487078241	6.48318E-06	5.37785E-05	8.321207538	6.35648E-06	5.27275E-05	9.652098498	7.37313E-06	6.11607E-05
Road 11	11	0100-0200	1.337404878	7.19784E-07	5.97067E-06	1.306808254	7.03317E-07	5.83407E-06	8.222019572	4.42505E-06	3.67061E-05	8.072147203	4.34438E-06	3.6037E-05	9.378955457	5.0477E-06	4.18711E-05
Road 11	11	0200-0300	1.240695089	3.23098E-07	2.68012E-06	1.214260699	3.16214E-07	2.62302E-06	7.954143385	2.07139E-06	1.71824E-05	7.815574046	2.03531E-06	1.6883E-05	9.029834745	2.35152E-06	1.9506E-05
Road 11	11	0300-0400	1.331676718	3.23671E-07	2.68488E-06	1.299959669	3.15962E-07	2.62093E-06	8.497427074	2.06535E-06	1.71322E-05	8.337070583	2.02637E-06	1.68089E-05	9.637030252	2.34233E-06	1.94298E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.227195522	4.2611E-07	3.53461E-06	1.197180488	4.15688E-07	3.44816E-06	7.348979503	2.55173E-06	2.11668E-05	7.204028557	2.5014E-06	2.07493E-05	8.401209045	2.91709E-06	2.41975E-05
Road 11	11	0500-0600	0.975845022	4.57427E-07	3.7944E-06	0.953052386	4.46743E-07	3.70577E-06	5.949267168	2.78872E-06	2.31327E-05	5.830004302	2.73281E-06	2.26689E-05	6.783056688	3.17956E-06	2.63747E-05
Road 11	11	0600-0700	1.023948954	9.24398E-07	7.66796E-06	1.001744624	9.04353E-07	7.50168E-06	6.250594274	5.6429E-06	4.68083E-05	6.130595505	5.53457E-06	4.59097E-05	7.132340129	6.43892E-06	5.34113E-05
Road 11	11	0700-0800	1.163989314	2.20269E-06	1.82715E-05	1.138845352	2.15511E-06	1.78768E-05	7.212847338	1.36493E-05	0.000113222	7.08208233	1.34019E-05	0.000111169	8.220927682	1.5557E-05	0.000129046
Road 11	11	0800-0900	1.172836579	4.17416E-06	3.4625E-05	1.146224014	4.07944E-06	3.38393E-05	7.149577453	2.54455E-05	0.000211073	7.01613383	2.49706E-05	0.000207133	8.162357844	2.90501E-05	0.000240973
Road 11	11	0900-1000	1.155454945	2.94882E-06	2.44607E-05	1.130502421	2.88514E-06	2.39324E-05	6.831711177	1.74351E-05	0.000144626	6.709601789	1.71235E-05	0.000142041	7.840104211	2.00086E-05	0.000165973
Road 11	11	1000-1100	1.250827195	2.62761E-06	2.17962E-05	1.222787227	2.5687E-06	2.13076E-05	7.242438272	1.52141E-05	0.000126203	7.109773329	1.49355E-05	0.000123891	8.332560556	1.75042E-05	0.000145198
Road 11	11	1100-1200	1.177769748	2.78085E-06	2.30673E-05	1.149120177	2.7132E-06	2.25062E-05	7.117390683	1.6805E-05	0.000139398	6.972461412	1.64628E-05	0.00013656	8.121581589	1.9176E-05	0.000159066
Road 11	11	1200-1300	1.298774361	3.6979E-06	3.06744E-05	1.26741744	3.60862E-06	2.99338E-05	7.748996422	2.20631E-05	0.000183015	7.597519048	2.16318E-05	0.000179438	8.864936488	2.52404E-05	0.000209372
Road 11	11	1300-1400	1.315153774	2.76274E-06	2.29171E-05	1.279827359	2.68853E-06	2.23015E-05	7.477392253	1.57077E-05	0.000130297	7.315171754	1.53669E-05	0.00012747	8.594999113	1.80555E-05	0.000149772
Road 11	11	1400-1500	1.049246761	2.11307E-06	1.75281E-05	1.020668604	2.05551E-06	1.70506E-05	6.495975252	1.30822E-05	0.000108518	6.34905697	1.27863E-05	0.000106063	7.369725575	1.48418E-05	0.000123114
Road 11	11	1500-1600	1.141766608	2.31921E-06	1.92381E-05	1.117378967	2.26968E-06	1.88271E-05	7.13764294	1.44983E-05	0.000120265	7.012198072	1.42435E-05	0.000118151	8.129577039	1.65132E-05	0.000136978
Road 11	11	1600-1700	1.018118633	2.47459E-06	2.0527E-05	0.994159334	2.41636E-06	2.00439E-05	6.415194184	1.55925E-05	0.000129341	6.287422525	1.52819E-05	0.000126765	7.281581859	1.76983E-05	0.000146809
Road 11	11	1700-1800	1.037755062	2.57637E-06	2.13712E-05	1.014093806	2.51763E-06	2.08839E-05	6.534261945	1.62222E-05	0.000134565	6.408720243	1.59105E-05	0.000131979	7.422814049	1.84282E-05	0.000152863
Road 11	11	1800-1900	1.167351147	2.39145E-06	1.98373E-05	1.138993941	2.33336E-06	1.93554E-05	7.32593832	1.5008E-05	0.000124493	7.179979053	1.4709E-05	0.000122012	8.318972994	1.70423E-05	0.000141368
Road 11	11	1900-2000	1.084279049	1.71301E-06	1.42096E-05	1.059457757	1.6738E-06	1.38843E-05	6.802986785	1.07478E-05	8.91537E-05	6.672863166	1.05422E-05	8.74484E-05	7.732320923	1.2216E-05	0.000101333
Road 11	11	2000-2100	1.192382247	1.67679E-06	1.39091E-05	1.163216334	1.63577E-06	1.35689E-05	7.231725986	1.01696E-05	8.43578E-05	7.089088679	9.96903E-06	8.26939E-05	8.252305013	1.16048E-05	9.62628E-05
Road 11	11	2100-2200	0.879550572	8.85659E-07	7.34661E-06	0.860012788	8.65985E-07	7.18342E-06	5.68762027	5.72712E-06	4.75069E-05	5.580545254	5.6193E-06	4.66125E-05	6.440558042	6.48528E-06	5.3796E-05
Road 11	11	2200-2300	1.102052903	1.20537E-06	9.99865E-06	1.076223436	1.17712E-06	9.7643E-06	6.775837679	7.41107E-06	6.14754E-05	6.645602976	7.26863E-06	6.02939E-05	7.721826412	8.44575E-06	7.00582E-05
Road 11	11	2300-0000	1.044312467	1.08783E-06	9.0236E-06	1.019677922	1.06216E-06	8.81074E-06	6.51650341	6.78802E-06	5.63072E-05	6.390089593	6.65634E-06	5.52149E-05	7.409767515	7.71851E-06	6.40256E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.696471612	5.06856E-06	7.62336E-06	2.583451612	4.85611E-06	7.30383E-06	14.93658354	2.80763E-05	4.22281E-05	14.44149354	2.71457E-05	4.08284E-05	17.02494515	3.20018E-05	4.81323E-05
Haul Road 1	HR1	0800-0900	2.696671612	5.06893E-06	7.62392E-06	2.581451612	4.85235E-06	7.29818E-06	14.93747354	2.8078E-05	4.22306E-05	14.43260354	2.7129E-05	4.08033E-05	17.01405515	3.19813E-05	4.81015E-05
Haul Road 1	HR1	0900-1000	2.694881612	5.06557E-06	7.61886E-06	2.583551612	4.8563E-06	7.30412E-06	14.92947354	2.80629E-05	4.2208E-05	14.44189354	2.71464E-05	4.08296E-05	17.02544515	3.20027E-05	4.81337E-05
Haul Road 1	HR1	1000-1100	2.699971612	5.07513E-06	7.63325E-06	2.583451612	4.85611E-06	7.30383E-06	14.95206354	2.81054E-05	4.22719E-05	14.44159354	2.71459E-05	4.08287E-05	17.02504515	3.2002E-05	4.81325E-05
Haul Road 1	HR1	1100-1200	2.705171612	5.08491E-06	7.64795E-06	2.576851612	4.84371E-06	7.28517E-06	14.97444354	2.81475E-05	4.23352E-05	14.41252354	2.70912E-05	4.07465E-05	16.98937515	3.19349E-05	4.80317E-05
Haul Road 1	HR1	1200-1300	2.704271612	5.08322E-06	7.64541E-06	2.580651612	4.85085E-06	7.29592E-06	14.97075354	2.81405E-05	4.23247E-05	14.42920354	2.71226E-05	4.07937E-05	17.00985515	3.19734E-05	4.80896E-05
Haul Road 1	HR1	1300-1400	2.706971612	5.08829E-06	7.65304E-06	2.570361612	4.83151E-06	7.26683E-06	14.98284354	2.81632E-05	4.23589E-05	14.38423354	2.7038E-05	4.06665E-05	16.95459515	3.18695E-05	4.79334E-05
Haul Road 1	HR1	1400-1500	2.706671612	5.08773E-06	7.6522E-06	2.566361612	4.82399E-06	7.25552E-06	14.98134354	2.81604E-05	4.23547E-05	14.36634354	2.70044E-05	4.0616E-05	16.93270515	3.18284E-05	4.78715E-05
Haul Road 1	HR1	1500-1600	2.703771612	5.08228E-06	7.644E-06	2.576851612	4.84371E-06	7.28517E-06	14.96845354	2.81362E-05	4.23182E-05	14.41252354	2.70912E-05	4.07465E-05	16.98937515	3.19349E-05	4.80317E-05
Haul Road 1	HR1	1600-1700	2.706971612	5.08829E-06	7.65304E-06	2.569261612	4.82944E-06	7.26372E-06	14.98284354	2.81632E-05	4.23589E-05	14.37913354	2.70284E-05	4.06521E-05	16.94839515	3.18579E-05	4.79158E-05
Haul Road 1	HR1	1700-1800	2.706971612	5.08829E-06	7.65304E-06	2.572761612	4.83602E-06	7.27361E-06	14.98284354	2.81632E-05	4.23589E-05	14.39462354	2.70576E-05	4.06959E-05	16.96738515	3.18936E-05	4.79695E-05
Haul Road 1	HR1	1800-1900	2.706971612	5.08829E-06	7.65304E-06	2.562061612	4.81591E-06	7.24336E-06	14.98284354	2.81632E-05	4.23589E-05	14.34776354	2.69695E-05	4.05634E-05	16.90982515	3.17854E-05	4.78068E-05
Haul Road 1	HR1	1900-2000	2.704271612	5.08322E-06	7.64541E-06	2.570161612	4.83113E-06	7.26626E-06	14.97075354	2.81405E-05	4.23247E-05	14.38333354	2.70363E-05	4.0664E-05	16.95349515	3.18675E-05	4.79303E-05
Haul Road 1	HR1	2000-2100	2.704271612	5.08322E-06	7.64541E-06	2.560161612	4.81233E-06	7.23799E-06	14.97075354	2.81405E-05	4.23247E-05	14.33937354	2.69537E-05	4.05397E-05	16.89953515	3.1766E-05	4.77777E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.696471612	3.49284E-06	6.95438E-06	2.583451612	3.34644E-06	6.66289E-06	14.93658354	1.93479E-05	3.85224E-05	14.44149354	1.87066E-05	3.72456E-05	17.02494515	2.2053E-05	4.39084E-05
Haul Road 2	HR2	0800-0900	2.696671612	3.4931E-06	6.95489E-06	2.581451612	3.34385E-06	6.65773E-06	14.93747354	1.93491E-05	3.85247E-05	14.43260354	1.86951E-05	3.72226E-05	17.01405515	2.20389E-05	4.38804E-05
Haul Road 2	HR2	0900-1000	2.694881612	3.49078E-06	6.95028E-06	2.583551612	3.34657E-06	6.66315E-06	14.92947354	1.93387E-05	3.85041E-05	14.44189354	1.87071E-05	3.72466E-05	17.02544515	2.20537E-05	4.39097E-05
Haul Road 2	HR2	1000-1100	2.699971612	3.49737E-06	6.9634E-06	2.583451612	3.34644E-06	6.66289E-06	14.95206354	1.9368E-05	3.85623E-05	14.44159354	1.87067E-05	3.72458E-05	17.02504515	2.20532E-05	4.39087E-05
Haul Road 2	HR2	1100-1200	2.705171612	3.50411E-06	6.97681E-06	2.576851612	3.33789E-06	6.64587E-06	14.97444354	1.93969E-05	3.86201E-05	14.41252354	1.86691E-05	3.71708E-05	16.98937515	2.2007E-05	4.38167E-05
Haul Road 2	HR2	1200-1300	2.704271612	3.50294E-06	6.97449E-06	2.580651612	3.34281E-06	6.65567E-06	14.97075354	1.93922E-05	3.86106E-05	14.42920354	1.86907E-05	3.72139E-05	17.00985515	2.20335E-05	4.38695E-05
Haul Road 2	HR2	1300-1400	2.706971612	3.50644E-06	6.98146E-06	2.570361612	3.32948E-06	6.62913E-06	14.98284354	1.94078E-05	3.86417E-05	14.38423354	1.86324E-05	3.70979E-05	16.95459515	2.19619E-05	4.3727E-05
Haul Road 2	HR2	1400-1500	2.706671612	3.50605E-06	6.98068E-06	2.566361612	3.3243E-06	6.61881E-06	14.98134354	1.94059E-05	3.86379E-05	14.36634354	1.86093E-05	3.70517E-05	16.93270515	2.19336E-05	4.36706E-05
Haul Road 2	HR2	1500-1600	2.703771612	3.50229E-06	6.9732E-06	2.576851612	3.33789E-06	6.64587E-06	14.96845354	1.93892E-05	3.86046E-05	14.41252354	1.86691E-05	3.71708E-05	16.98937515	2.2007E-05	4.38167E-05
Haul Road 2	HR2	1600-1700	2.706971612	3.50644E-06	6.98146E-06	2.569261612	3.32806E-06	6.62629E-06	14.98284354	1.94078E-05	3.86417E-05	14.37913354	1.86258E-05	3.70847E-05	16.94839515	2.19539E-05	4.3711E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.706971612	3.50644E-06	6.98146E-06	2.572761612	3.33259E-06	6.63532E-06	14.98284354	1.94078E-05	3.86417E-05	14.39462354	1.86459E-05	3.71247E-05	16.96738515	2.19785E-05	4.376E-05
Haul Road 2	HR2	1800-1900	2.706971612	3.50644E-06	6.98146E-06	2.562061612	3.31873E-06	6.60772E-06	14.98284354	1.94078E-05	3.86417E-05	14.34776354	1.85852E-05	3.70038E-05	16.90982515	2.19039E-05	4.36115E-05
Haul Road 2	HR2	1900-2000	2.704271612	3.50294E-06	6.97449E-06	2.570161612	3.32922E-06	6.62861E-06	14.97075354	1.93922E-05	3.86106E-05	14.38333354	1.86313E-05	3.70956E-05	16.95349515	2.19605E-05	4.37242E-05
Haul Road 2	HR2	2000-2100	2.704271612	3.50294E-06	6.97449E-06	2.560161612	3.31627E-06	6.60282E-06	14.97075354	1.93922E-05	3.86106E-05	14.33937354	1.85743E-05	3.69822E-05	16.89953515	2.18906E-05	4.3585E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.696471612	3.49284E-06	6.43273E-06	2.583451612	3.34644E-06	6.16311E-06	14.93658354	1.93479E-05	3.56329E-05	14.44149354	1.87066E-05	3.44518E-05	17.02494515	2.2053E-05	4.06149E-05
Haul Road 3	HR3	0800-0900	2.696671612	3.4931E-06	6.43321E-06	2.581451612	3.34385E-06	6.15834E-06	14.93747354	1.93491E-05	3.5635E-05	14.43260354	1.86951E-05	3.44306E-05	17.01405515	2.20389E-05	4.05889E-05
Haul Road 3	HR3	0900-1000	2.694881612	3.49078E-06	6.42894E-06	2.583551612	3.34657E-06	6.16335E-06	14.92947354	1.93387E-05	3.56159E-05	14.44189354	1.87071E-05	3.44527E-05	17.02544515	2.20537E-05	4.06161E-05
Haul Road 3	HR3	1000-1100	2.699971612	3.49737E-06	6.44108E-06	2.583451612	3.34644E-06	6.16311E-06	14.95206354	1.9368E-05	3.56698E-05	14.44159354	1.87067E-05	3.4452E-05	17.02504515	2.20532E-05	4.06151E-05
Haul Road 3	HR3	1100-1200	2.705171612	3.50411E-06	6.45349E-06	2.576851612	3.33789E-06	6.14737E-06	14.97444354	1.93969E-05	3.57232E-05	14.41252354	1.86691E-05	3.43827E-05	16.98937515	2.2007E-05	4.053E-05
Haul Road 3	HR3	1200-1300	2.704271612	3.50294E-06	6.45134E-06	2.580651612	3.34281E-06	6.15643E-06	14.97075354	1.93922E-05	3.57144E-05	14.42920354	1.86907E-05	3.44225E-05	17.00985515	2.20335E-05	4.05789E-05
Haul Road 3	HR3	1300-1400	2.706971612	3.50644E-06	6.45778E-06	2.570361612	3.32948E-06	6.13188E-06	14.98284354	1.94078E-05	3.57432E-05	14.38423354	1.86324E-05	3.43152E-05	16.95459515	2.19619E-05	4.04471E-05
Haul Road 3	HR3	1400-1500	2.706671612	3.50605E-06	6.45707E-06	2.566361612	3.3243E-06	6.12234E-06	14.98134354	1.94059E-05	3.57397E-05	14.36634354	1.86093E-05	3.42725E-05	16.93270515	2.19336E-05	4.03949E-05
Haul Road 3	HR3	1500-1600	2.703771612	3.50229E-06	6.45015E-06	2.576851612	3.33789E-06	6.14737E-06	14.96845354	1.93892E-05	3.57089E-05	14.41252354	1.86691E-05	3.43827E-05	16.98937515	2.2007E-05	4.053E-05
Haul Road 3	HR3	1600-1700	2.706971612	3.50644E-06	6.45778E-06	2.569261612	3.32806E-06	6.12926E-06	14.98284354	1.94078E-05	3.57432E-05	14.37913354	1.86258E-05	3.4303E-05	16.94839515	2.19539E-05	4.04323E-05
Haul Road 3	HR3	1700-1800	2.706971612	3.50644E-06	6.45778E-06	2.572761612	3.33259E-06	6.13761E-06	14.98284354	1.94078E-05	3.57432E-05	14.39462354	1.86459E-05	3.434E-05	16.96738515	2.19785E-05	4.04776E-05
Haul Road 3	HR3	1800-1900	2.706971612	3.50644E-06	6.45778E-06	2.562061612	3.31873E-06	6.11208E-06	14.98284354	1.94078E-05	3.57432E-05	14.34776354	1.85852E-05	3.42282E-05	16.90982515	2.19039E-05	4.03403E-05
Haul Road 3	HR3	1900-2000	2.704271612	3.50294E-06	6.45134E-06	2.570161612	3.32922E-06	6.13141E-06	14.97075354	1.93922E-05	3.57144E-05	14.38333354	1.86313E-05	3.4313E-05	16.95349515	2.19605E-05	4.04444E-05
Haul Road 3	HR3	2000-2100	2.704271612	3.50294E-06	6.45134E-06	2.560161612	3.31627E-06	6.10755E-06	14.97075354	1.93922E-05	3.57144E-05	14.33937354	1.85743E-05	3.42082E-05	16.89953515	2.18906E-05	4.03157E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.092324581	3.10175E-07	2.52332E-06	0.084590279	2.8419E-07	2.31193E-06	0.546881173	1.83731E-06	1.49468E-05	0.49905352	1.67663E-06	1.36396E-05	0.583643799	1.96082E-06	1.59515E-05
Road 1	1	0100-0200	0.07218	1.47666E-07	1.20128E-06	0.065536422	1.34074E-07	1.09071E-06	0.436117523	8.92207E-07	7.25824E-06	0.394068532	8.06184E-07	6.55842E-06	0.459604954	9.40258E-07	7.64914E-06
Road 1	1	0200-0300	0.069815195	1.00897E-07	8.20809E-07	0.063126104	9.12295E-08	7.42166E-07	0.447380649	6.46552E-07	5.2598E-06	0.400761818	5.79179E-07	4.71171E-06	0.463887922	6.70409E-07	5.45387E-06
Road 1	1	0300-0400	0.058831455	6.07307E-08	4.94053E-07	0.052923455	5.46319E-08	4.44439E-07	0.361789455	3.73469E-07	3.03822E-06	0.322614182	3.33029E-07	2.70924E-06	0.375537636	3.87661E-07	3.15368E-06
Road 1	1	0400-0500	0.076590349	1.23626E-07	1.00571E-06	0.068695116	1.10882E-07	9.0204E-07	0.44009686	7.10367E-07	5.77894E-06	0.392185465	6.33032E-07	5.14981E-06	0.460880581	7.43914E-07	6.05185E-06
Road 1	1	0500-0600	0.062889521	2.21907E-07	1.80525E-06	0.056427287	1.99105E-07	1.61975E-06	0.372989521	1.3161E-06	1.07067E-05	0.331706862	1.17044E-06	9.52168E-06	0.388134149	1.36954E-06	1.11414E-05
Road 1	1	0600-0700	0.083845341	5.30328E-07	4.3143E-06	0.075632285	4.7838E-07	3.89169E-06	0.447346053	2.8295E-06	2.30184E-05	0.401135163	2.53721E-06	2.06406E-05	0.476767448	3.01559E-06	2.45323E-05
Road 1	1	0700-0800	0.069750125	7.35728E-07	5.98525E-06	0.064357936	6.78851E-07	5.52255E-06	0.385193861	4.06304E-06	3.30535E-05	0.352862811	3.72201E-06	3.02791E-05	0.417220747	4.40086E-06	3.58017E-05
Road 1	1	0800-0900	0.074720648	9.73276E-07	7.91774E-06	0.069506527	9.05359E-07	7.36523E-06	0.401242133	5.22639E-06	4.25175E-05	0.371550504	4.83964E-06	3.93712E-05	0.441057032	5.745E-06	4.67364E-05
Road 1	1	0900-1000	0.080570476	1.07972E-06	8.78366E-06	0.074144734	9.93606E-07	8.08313E-06	0.447248627	5.99353E-06	4.87583E-05	0.409753221	5.49106E-06	4.46706E-05	0.483897955	6.48467E-06	5.27537E-05
Road 1	1	1000-1100	0.093145971	1.21502E-06	9.8844E-06	0.08556541	1.11614E-06	9.07997E-06	0.498844806	6.50708E-06	5.2936E-05	0.45676246	5.95814E-06	4.84704E-05	0.542327871	7.07428E-06	5.75504E-05
Road 1	1	1100-1200	0.084760089	1.07223E-06	8.72273E-06	0.077055445	9.74763E-07	7.92984E-06	0.486522018	6.15458E-06	5.00684E-05	0.440258813	5.56934E-06	4.53074E-05	0.517314258	6.5441E-06	5.32372E-05
Road 1	1	1200-1300	0.087085397	1.0902E-06	8.86895E-06	0.07970045	9.97752E-07	8.11686E-06	0.49290075	6.17051E-06	5.0198E-05	0.44979045	5.63082E-06	4.58076E-05	0.5294909	6.62857E-06	5.39244E-05
Road 1	1	1300-1400	0.091272116	1.21456E-06	9.88065E-06	0.083484556	1.11093E-06	9.03761E-06	0.506167814	6.7356E-06	5.47951E-05	0.461422496	6.14018E-06	4.99512E-05	0.544907052	7.25111E-06	5.89888E-05
Road 1	1	1400-1500	0.086522952	1.2488E-06	1.01592E-05	0.079321053	1.14486E-06	9.31357E-06	0.469675917	6.77892E-06	5.51475E-05	0.429111482	6.19344E-06	5.03846E-05	0.508432536	7.3383E-06	5.96982E-05
Road 1	1	1500-1600	0.092838282	1.2476E-06	1.01494E-05	0.085102821	1.14365E-06	9.30375E-06	0.502247179	6.74942E-06	5.49075E-05	0.458972221	6.16787E-06	5.01765E-05	0.544075042	7.31152E-06	5.94803E-05
Road 1	1	1600-1700	0.088540715	1.25466E-06	1.02068E-05	0.080438066	1.13984E-06	9.27278E-06	0.484941563	6.87183E-06	5.59033E-05	0.438917404	6.21964E-06	5.05977E-05	0.51935547	7.35949E-06	5.98705E-05
Road 1	1	1700-1800	0.070420277	1.00185E-06	8.1502E-06	0.064427282	9.16589E-07	7.45659E-06	0.394525778	5.61281E-06	4.5661E-05	0.359272507	5.11127E-06	4.1581E-05	0.423699789	6.02786E-06	4.90375E-05
Road 1	1	1800-1900	0.062727713	9.11247E-07	7.41313E-06	0.057372804	8.33456E-07	6.78029E-06	0.376139186	5.46418E-06	4.44519E-05	0.341843928	4.96598E-06	4.03989E-05	0.399216731	5.79943E-06	4.71792E-05
Road 1	1	1900-2000	0.074140742	8.25178E-07	6.71294E-06	0.069636408	7.75045E-07	6.3051E-06	0.424964621	4.72981E-06	3.84777E-05	0.397773895	4.42718E-06	3.60157E-05	0.467410304	5.20222E-06	4.23208E-05
Road 1	1	2000-2100	0.067330378	6.35645E-07	5.17107E-06	0.062621113	5.91187E-07	4.80939E-06	0.398462942	3.76177E-06	3.06025E-05	0.368695507	3.48074E-06	2.83163E-05	0.43131662	4.07193E-06	3.31257E-05
Road 1	1	2100-2200	0.070012048	6.03144E-07	4.90667E-06	0.065481765	5.64117E-07	4.58917E-06	0.417752593	3.59888E-06	2.92774E-05	0.388954488	3.35079E-06	2.72592E-05	0.454436253	3.91491E-06	3.18483E-05
Road 1	1	2200-2300	0.067982322	5.55036E-07	4.5153E-06	0.063679862	5.19909E-07	4.22953E-06	0.405079609	3.30724E-06	2.69049E-05	0.377786322	3.0844E-06	2.50921E-05	0.441466184	3.60431E-06	2.93216E-05
Road 1	1	2300-0000	0.059201718	4.33346E-07	3.52533E-06	0.056496385	4.13543E-07	3.36424E-06	0.362645821	2.6545E-06	2.15948E-05	0.344458897	2.52138E-06	2.05118E-05	0.400955282	2.93492E-06	2.3876E-05
Road 2	2	0000-0100	0.152916346	1.84066E-07	1.18868E-06	0.140093269	1.68631E-07	1.089E-06	0.647445577	7.79333E-07	5.03285E-06	0.591336538	7.11794E-07	4.5967E-06	0.731429808	8.80425E-07	5.6857E-06
Road 2	2	0100-0200	0.108892353	8.57023E-08	5.53457E-07	0.098852059	7.78002E-08	5.02426E-07	0.53852	4.23835E-07	2.73709E-06	0.486805	3.83134E-07	2.47424E-06	0.585657059	4.60934E-07	2.97667E-06
Road 2	2	0200-0300	0.113418696	6.0385E-08	3.8996E-07	0.102695652	5.46759E-08	3.53092E-07	0.620362609	3.30286E-07	2.13295E-06	0.55815	2.97163E-07	1.91905E-06	0.660845652	3.51839E-07	2.27214E-06
Road 2	2	0300-0400	0.098108	3.40653E-08	2.1999E-07	0.08833	3.06701E-08	1.98065E-07	0.357729333	1.24212E-07	8.02146E-07	0.319404	1.10904E-07	7.16208E-07	0.407734	1.41574E-07	9.14273E-07
Road 2	2	0400-0500	0.133358148	8.33488E-08	5.38259E-07	0.119653704	7.47836E-08	4.82945E-07	0.643177407	4.01986E-07	2.59599E-06	0.57482963	3.59269E-07	2.32012E-06	0.694483333	4.34052E-07	2.80307E-06
Road 2	2	0500-0600	0.105234737	1.38851E-07	8.96689E-07	0.094465789	1.24642E-07	8.04928E-07	0.466720351	6.15812E-07	3.97685E-06	0.416045439	5.48949E-07	3.54506E-06	0.510511228	6.73591E-07	4.34999E-06
Road 2	2	0600-0700	0.146905385	3.53661E-07	2.28391E-06	0.132549231	3.191E-07	2.06072E-06	0.594673462	1.43162E-06	9.24527E-06	0.534256346	1.28617E-06	8.30598E-06	0.666805577	1.60527E-06	1.03667E-05
Road 2	2	0700-0800	0.119279875	4.41777E-07	2.85295E-06	0.11010175	4.07784E-07	2.63343E-06	0.49655125	1.83908E-06	1.18766E-05	0.455460875	1.68689E-06	1.08938E-05	0.565562625	2.09468E-06	1.35272E-05
Road 2	2	0800-0900	0.134080559	9.4353E-07	6.09322E-06	0.124736151	8.77773E-07	5.66857E-06	0.563853224	3.96786E-06	2.5624E-05	0.522175099	3.67457E-06	2.373E-05	0.64691125	4.55234E-06	2.93986E-05
Road 2	2	0900-1000	0.158944405	9.27176E-07	5.98761E-06	0.146253492	8.53145E-07	5.50953E-06	0.67716381	3.95012E-06	2.55095E-05	0.62105369	3.62281E-06	2.33958E-05	0.767307183	4.47596E-06	2.89053E-05
Road 2	2	1000-1100	0.176591658	7.64413E-07	4.9365E-06	0.162225561	7.02226E-07	4.53491E-06	0.744302995	3.22187E-06	2.08065E-05	0.682169733	2.95291E-06	1.90696E-05	0.844395294	3.65514E-06	2.36045E-05
Road 2	2	1100-1200	0.210496557	8.91687E-07	5.75843E-06	0.191331585	8.10502E-07	5.23414E-06	0.85957388	3.64125E-06	2.35148E-05	0.779967486	3.30403E-06	2.13371E-05	0.971299071	4.11453E-06	2.65712E-05
Road 2	2	1200-1300	0.161564947	7.10587E-07	4.5889E-06	0.147898316	6.50479E-07	4.20073E-06	0.706825105	3.10872E-06	2.00758E-05	0.645281105	2.83804E-06	1.83278E-05	0.793179421	3.48852E-06	2.25285E-05
Road 2	2	1300-1400	0.179019596	9.24106E-07	5.96778E-06	0.16361	8.44561E-07	5.45409E-06	0.731574888	3.77642E-06	2.43877E-05	0.666996323	3.44306E-06	2.22349E-05	0.830606323	4.28762E-06	2.7689E-05
Road 2	2	1400-1500	0.153700182	5.87049E-07	3.79111E-06	0.140878545	5.38078E-07	3.47485E-06	0.664119636	2.53657E-06	1.63809E-05	0.607432303	2.32005E-06	1.49827E-05	0.748310848	2.85813E-06	1.84575E-05
Road 2	2	1500-1600	0.191663224	8.11907E-07	5.24321E-06	0.175597158	7.43849E-07	4.8037E-06	0.754700055	3.19699E-06	2.06459E-05	0.690362896	2.92445E-06	1.88858E-05	0.865960055	3.6683E-06	2.36895E-05
Road 2	2	1600-1700	0.160463484	8.2089E-07	5.30122E-06	0.145785882	7.45803E-07	4.81632E-06	0.674411403	3.45011E-06	2.22805E-05	0.611109593	3.12628E-06	2.01892E-05	0.756895475	3.87208E-06	2.50055E-05
Road 2	2	1700-1800	0.123420135	6.34242E-07	4.09588E-06	0.112963378	5.80506E-07	3.74885E-06	0.489582432	2.51591E-06	1.62475E-05	0.446691351	2.2955E-06	1.48241E-05	0.55965473	2.876E-06	1.85729E-05
Road 2	2	1800-1900	0.13601476	7.87122E-07	5.08316E-06	0.12450604	7.20521E-07	4.65305E-06	0.61200488	3.54169E-06	2.28719E-05	0.55830176	3.23091E-06	2.08649E-05	0.6828078	3.95143E-06	2.5518E-05
Road 2	2	1900-2000	0.113758047	4.45026E-07	2.87393E-06	0.106878876	4.18114E-07	2.70014E-06	0.51562645	2.01715E-06	1.30266E-05	0.482894497	1.8891E-06	1.21996E-05	0.589773373	2.30722E-06	1.48998E-05
Road 2	2	2000-2100	0.108184762	3.68129E-07	2.37734E-06	0.100601769	3.42325E-07	2.2107E-06	0.461671224	1.57096E-06	1.01451E-05	0.426969184	1.45288E-06	9.38257E-06	0.527570952	1.79521E-06	1.15933E-05
Road 2	2	2100-2200	0.083155882	2.9451E-07	1.90192E-06	0.07776	2.754E-07	1.77851E-06	0.381798105	1.3522E-06	8.73239E-06	0.35447	1.25541E-06	8.10734E-06	0.43223	1.53081E-06	9.88585E-06
Road 2	2	2200-2300	0.12038672	3.48341E-07	2.24955E-06	0.11279136	3.26364E-07	2.10763E-06	0.51278288	1.48375E-06	9.58189E-06	0.4786808	1.38507E-06	8.94466E-06	0.59147216	1.71144E-06	1.10523E-05
Road 2	2	2300-0000	0.106949099	2.748E-07	1.77463E-06	0.102066036	2.62253E-07	1.6936E-06	0.482694775	1.24026E-06	8.00946E-06	0.45896973	1.1793E-06	7.61579E-06	0.561035766	1.44155E-06	9.30939E-06
Road 3	3	0000-0100	0.09694787	3.5765E-07	1.3901E-05	0.08823613	3.25512E-07	1.26518E-05	0.535412478	1.97519E-06	7.67706E-05	0.484945783	1.78901E-06	6.95344E-05	0.573181913	2.11452E-06	8.21862E-05
Road 3	3	0100-0200	0.072844789	1.65912E-07	6.4486E-06	0.066083099	1.50512E-07	5.85002E-06	0.425252254	9.68561E-07	3.76456E-05	0.383861479	8.74289E-07	3.39814E-05	0.449944577	1.0248E-06	3.98314E-05
Road 3	3	0200-0300	0.071593434	1.13684E-07	4.41862E-06	0.064694646	1.0273E-07	3.99284E-06	0.448238485	7.11765E-07	2.76645E-05	0.401520303	6.3758E-07	2.47811E-05	0.466214949	7.4031E-07	2.8774E-05
Road 3	3	0300-0400	0.059825429	6.71701E-08	2.61073E-06	0.053933143	6.05544E-08	2.3536E-06	0.331204714	3.71866E-07	1.44535E-05	0.295750429	3.32059E-07	1.29063E-05	0.349683571	3.92614E-07	1.52599E-05
Road 3	3	0400-0500	0.080436372	1.45788E-07	5.66643E-06	0.071887699	1.30294E-07	5.06421E-06	0.446517965	8.093E-07	3.14555E-05	0.396288053	7.1826E-07	2.7917E-05	0.468175752	8.48554E-07	3.29812E-05
Road 3	3	0500-0600	0.065027967	2.56583E-07	9.97273E-06	0.057997886	2.28844E-07	8.89459E-06	0.363851626	1.43566E-06	5.58005E-05	0.321059065	1.26681E-06	4.92378E-05	0.379056951	1.49566E-06	5.81324E-05
Road 3	3	0600-0700	0.089590968	6.38028E-07	2.47985E-05	0.081574077	5.80935E-07	2.25795E-05	0.44861232	3.19482E-06	0.000124175	0.406101126	2.89207E-06	0.000112408	0.487675203	3.47301E-06	0.000134987
Road 3	3	0700-0800	0.072603439	8.46611E-07	3.29056E-05	0.066799959	7.78938E-07	3.02754E-05	0.381726506	4.45122E-06	0.000173008	0.348660138	4.06564E-06	0.000158021	0.415460096	4.84458E-06	0.000188297
Road 3	3	0800-0900	0.080805737	1.2922E-06	5.02246E-05	0.074254203	1.18743E-06	4.61525E-05	0.400786048	6.40914E-06	0.000249107	0.365862849	5.85067E-06	0.000227401	0.440117051	7.0381E-06	0.000273553
Road 3	3	0900-1000	0.087887202	1.36033E-06	5.28727E-05	0.080824383	1.25101E-06	4.86237E-05	0.453622373	7.02124E-06	0.000272898	0.415152808	6.4258E-06	0.000249755	0.495977192	7.67682E-06	0.000298379
Road 3	3	1000-1100	0.100485961	1.41673E-06	5.50647E-05	0.091460614	1.28948E-06	5.01189E-05	0.507621536	7.15684E-06	0.000278168	0.459978623	6.48513E-06	0.000252061	0.551439238	7.77461E-06	0.00030218
Road 3	3	1100-1200	0.098641733	1.35117E-06	5.25167E-05	0.090535562	1.24014E-06	4.8201E-05	0.51198185	7.01301E-06	0.000272578	0.468018478	6.41081E-06	0.000249172	0.55855404	7.65095E-06	0.000297373
Road 3	3	1200-1300	0.092540351	1.2676E-06	4.92683E-05	0.084618806	1.15909E-06	4.50509E-05	0.490983091	6.72538E-06	0.000261399	0.447455117	6.12914E-06	0.000238224	0.532073923	7.28823E-06	0.000283275

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.099007778	1.47211E-06	5.72174E-05	0.090072017	1.33925E-06	5.20533E-05	0.504480518	7.50095E-06	0.000291543	0.457477573	6.80208E-06	0.00026438	0.54754959	8.14133E-06	0.000316433
Road 3	3	1400-1500	0.091017206	1.36352E-06	5.29967E-05	0.083312066	1.24809E-06	4.85102E-05	0.47113758	7.05808E-06	0.00027433	0.429980139	6.44151E-06	0.000250365	0.513292206	7.6896E-06	0.000298875
Road 3	3	1500-1600	0.100658782	1.445E-06	5.61634E-05	0.092155173	1.32292E-06	5.14187E-05	0.507312972	7.28268E-06	0.000283059	0.46308657	6.64779E-06	0.000258383	0.555241743	7.97072E-06	0.000309802
Road 3	3	1600-1700	0.094841086	1.4847E-06	5.77065E-05	0.087373156	1.36779E-06	5.31626E-05	0.485619508	7.60218E-06	0.000295478	0.445871076	6.97993E-06	0.000271293	0.533244232	8.34773E-06	0.000324455
Road 3	3	1700-1800	0.075085945	1.17905E-06	4.58269E-05	0.068643902	1.0779E-06	4.18951E-05	0.386526496	6.06952E-06	0.000235907	0.351712942	5.52285E-06	0.000214659	0.420356844	6.60075E-06	0.000256554
Road 3	3	1800-1900	0.070631091	1.16348E-06	4.52215E-05	0.064776407	1.06704E-06	4.14731E-05	0.389679649	6.41904E-06	0.000249492	0.35507628	5.84904E-06	0.000227337	0.419852687	6.91607E-06	0.00026881
Road 3	3	1900-2000	0.074854961	9.12486E-07	3.54661E-05	0.069514763	8.47389E-07	3.29359E-05	0.413282474	5.03794E-06	0.000195812	0.38196075	4.65612E-06	0.000180972	0.451475513	5.50351E-06	0.000213908
Road 3	3	2000-2100	0.069462974	7.23087E-07	2.81046E-05	0.064598182	6.72446E-07	2.61363E-05	0.381639353	3.97274E-06	0.00015441	0.353078906	3.67543E-06	0.000142855	0.417677088	4.34788E-06	0.000168991
Road 3	3	2100-2200	0.067342667	6.6429E-07	2.58193E-05	0.062982813	6.21283E-07	2.41477E-05	0.380973951	3.75805E-06	0.000146066	0.354491057	3.49681E-06	0.000135912	0.41747387	4.1181E-06	0.00016006
Road 3	3	2200-2300	0.072024085	6.50397E-07	2.52793E-05	0.068755329	6.20879E-07	2.4132E-05	0.395019361	3.56713E-06	0.000138645	0.375779751	3.39339E-06	0.000131893	0.44453508	4.01427E-06	0.000156025
Road 3	3	2300-0000	0.062880159	5.06302E-07	1.96787E-05	0.059811614	4.81594E-07	1.87184E-05	0.361857629	2.91363E-06	0.000113245	0.342708486	2.75944E-06	0.000107252	0.4025201	3.24103E-06	0.000125971
Road 4	4	0000-0100	0.259887143	2.10557E-07	2.25455E-06	0.236466571	1.91582E-07	2.05138E-06	1.283497714	1.03987E-06	1.11345E-05	1.167395714	9.45807E-07	1.01273E-05	1.403862286	1.13739E-06	1.21787E-05
Road 4	4	0100-0200	0.245402	1.13612E-07	1.21651E-06	0.2226685	1.03087E-07	1.10381E-06	1.2140405	5.62056E-07	6.01826E-06	1.1014005	5.09908E-07	5.45988E-06	1.324069	6.12995E-07	6.56369E-06
Road 4	4	0200-0300	0.265536154	7.99067E-08	8.55607E-07	0.240351538	7.2328E-08	7.74458E-07	1.270216154	3.82241E-07	4.09288E-06	1.149573846	3.45937E-07	3.70414E-06	1.389925385	4.18265E-07	4.4786E-06
Road 4	4	0300-0400	0.240955714	3.90438E-08	4.18064E-07	0.217642857	3.52662E-08	3.77616E-07	1.237042857	2.00447E-07	2.1463E-06	1.117025714	1.81E-07	1.93807E-06	1.334668571	2.16266E-07	2.31568E-06
Road 4	4	0400-0500	0.249663571	8.09095E-08	8.66345E-07	0.223220714	7.234E-08	7.74587E-07	1.194832857	3.87214E-07	4.14613E-06	1.068097857	3.46143E-07	3.70635E-06	1.291318571	4.18483E-07	4.48094E-06
Road 4	4	0500-0600	0.229896667	1.2772E-07	1.36758E-06	0.20533625	1.14076E-07	1.22147E-06	1.05909875	5.88388E-07	6.30021E-06	0.944949167	5.24972E-07	5.62118E-06	1.150285417	6.39047E-07	6.84265E-06
Road 4	4	0600-0700	0.254770755	3.12566E-07	3.34682E-06	0.232090189	2.8474E-07	3.04888E-06	1.17972566	1.44735E-06	1.54976E-05	1.074084528	1.31774E-06	1.41098E-05	1.306174717	1.60248E-06	1.71587E-05
Road 4	4	0700-0800	0.25162413	5.35866E-07	5.73783E-06	0.2317075	4.93451E-07	5.28367E-06	1.208552391	2.57377E-06	2.75588E-05	1.111862065	2.36785E-06	2.5354E-05	1.343569565	2.86131E-06	3.06377E-05
Road 4	4	0800-0900	0.259524581	9.31165E-07	9.97052E-06	0.238523871	8.55815E-07	9.1637E-06	1.250476065	4.48666E-06	4.80413E-05	1.148693613	4.12147E-06	4.4131E-05	1.387217484	4.97728E-06	5.32947E-05
Road 4	4	0900-1000	0.265317432	9.08958E-07	9.73274E-06	0.243690946	8.34867E-07	8.9394E-06	1.213755338	4.15824E-06	4.45246E-05	1.114106216	3.81685E-06	4.08692E-05	1.357797162	4.65171E-06	4.98086E-05
Road 4	4	1000-1100	0.297782986	9.9261E-07	1.06284E-05	0.270880417	9.02935E-07	9.66824E-06	1.36586875	4.5529E-06	4.87505E-05	1.2420725	4.14024E-06	4.4332E-05	1.512952917	5.04318E-06	5.40002E-05
Road 4	4	1100-1200	0.275553161	9.88675E-07	1.05863E-05	0.252767677	9.06921E-07	9.71093E-06	1.255715871	4.50546E-06	4.82426E-05	1.151456194	4.13138E-06	4.42371E-05	1.404223871	5.0383E-06	5.3948E-05
Road 4	4	1200-1300	0.281115405	9.63081E-07	1.03123E-05	0.256888649	8.80081E-07	9.42354E-06	1.337069324	4.5807E-06	4.90482E-05	1.221539865	4.18491E-06	4.48102E-05	1.478428514	5.06499E-06	5.42337E-05
Road 4	4	1300-1400	0.290112067	1.00733E-06	1.07861E-05	0.263827533	9.16068E-07	9.80887E-06	1.34791	4.68024E-06	5.01141E-05	1.225267067	4.2544E-06	4.55543E-05	1.4890946	5.17047E-06	5.53632E-05
Road 4	4	1400-1500	0.263364214	8.53495E-07	9.13887E-06	0.240994714	7.81001E-07	8.36263E-06	1.262987214	4.09301E-06	4.38263E-05	1.155026071	3.74314E-06	4.008E-05	1.396020786	4.52414E-06	4.84426E-05
Road 4	4	1500-1600	0.294494	8.52124E-07	9.12418E-06	0.26946168	7.79692E-07	8.34862E-06	1.36837816	3.95943E-06	4.23959E-05	1.25172392	3.62189E-06	3.87816E-05	1.5211856	4.40158E-06	4.71302E-05
Road 4	4	1600-1700	0.275269032	7.90124E-07	8.46032E-06	0.253476935	7.27573E-07	7.79054E-06	1.291819758	3.708E-06	3.97037E-05	1.189348468	3.41387E-06	3.65543E-05	1.442825403	4.14144E-06	4.43448E-05
Road 4	4	1700-1800	0.263731339	7.75321E-07	8.30181E-06	0.241165748	7.08983E-07	7.59149E-06	1.258151024	3.69873E-06	3.96045E-05	1.149810945	3.38023E-06	3.61941E-05	1.390976693	4.08921E-06	4.37856E-05
Road 4	4	1800-1900	0.289794434	7.1107E-07	7.61383E-06	0.265738491	6.52044E-07	6.98181E-06	1.395027736	3.42298E-06	3.66519E-05	1.279152358	3.13866E-06	3.36075E-05	1.544890849	3.7907E-06	4.05893E-05
Road 4	4	1900-2000	0.259443108	4.44416E-07	4.75862E-06	0.241148649	4.13079E-07	4.42307E-06	1.251914595	2.14448E-06	2.29622E-05	1.163363919	1.9928E-06	2.13381E-05	1.404512568	2.40588E-06	2.57611E-05
Road 4	4	2000-2100	0.225242041	2.55483E-07	2.7356E-06	0.20949102	2.37617E-07	2.5443E-06	1.091207347	1.23771E-06	1.32529E-05	1.014169592	1.15033E-06	1.23173E-05	1.223660612	1.38795E-06	1.48616E-05
Road 4	4	2100-2200	0.185951622	1.59264E-07	1.70533E-06	0.174075946	1.49093E-07	1.59642E-06	0.919898378	7.87876E-07	8.43624E-06	0.860196757	7.36743E-07	7.88873E-06	1.034272703	8.85835E-07	9.48515E-06
Road 4	4	2200-2300	0.248520952	3.62426E-07	3.88071E-06	0.237319365	3.46091E-07	3.70579E-06	1.181309048	1.72274E-06	1.84464E-05	1.127753333	1.64464E-06	1.76101E-05	1.365072698	1.99073E-06	2.13159E-05
Road 4	4	2300-0000	0.231093673	2.6212E-07	2.80667E-06	0.219946327	2.49476E-07	2.67129E-06	1.128657959	1.28019E-06	1.37077E-05	1.073671633	1.21782E-06	1.30399E-05	1.293617959	1.4673E-06	1.57112E-05
Road 5	5	0000-0100	0.082067306	2.97278E-07	4.02015E-06	0.074699585	2.7059E-07	3.65924E-06	0.45985886	1.66578E-06	2.25267E-05	0.415840622	1.50633E-06	2.03704E-05	0.490540207	1.77692E-06	2.40296E-05
Road 5	5	0100-0200	0.055281721	1.26584E-07	1.71181E-06	0.050147705	1.14828E-07	1.55284E-06	0.340304836	7.79227E-07	1.05376E-05	0.306467213	7.01745E-07	9.48984E-06	0.356614918	8.16573E-07	1.10427E-05
Road 5	5	0200-0300	0.05287	8.53382E-08	1.15404E-06	0.047731628	7.70443E-08	1.04188E-06	0.366442209	5.9148E-07	7.99869E-06	0.326863023	5.27594E-07	7.13476E-06	0.374594651	6.04639E-07	8.17664E-06
Road 5	5	0300-0400	0.047046032	5.56288E-08	7.52278E-07	0.042384921	5.01173E-08	6.77746E-07	0.261068889	3.08696E-07	4.17456E-06	0.232085556	2.74425E-07	3.71111E-06	0.274470476	3.24543E-07	4.38885E-06
Road 5	5	0400-0500	0.065821616	1.22304E-07	1.65394E-06	0.058818586	1.09291E-07	1.47797E-06	0.378055152	7.02467E-07	9.4996E-06	0.334677576	6.21867E-07	8.40963E-06	0.393496162	7.31158E-07	9.88759E-06
Road 5	5	0500-0600	0.053221818	2.1976E-07	2.97185E-06	0.047444182	1.95903E-07	2.64924E-06	0.311896591	1.28786E-06	1.7416E-05	0.274285409	1.13256E-06	1.53158E-05	0.321729591	1.32846E-06	1.79651E-05
Road 5	5	0600-0700	0.077624974	5.65287E-07	7.64448E-06	0.070667242	5.14619E-07	6.95929E-06	0.391689278	2.85239E-06	3.85734E-05	0.353942655	2.57751E-06	3.48562E-05	0.424609897	3.09213E-06	4.18154E-05
Road 5	5	0700-0800	0.059365434	7.05299E-07	9.53789E-06	0.054593049	6.486E-07	8.77114E-06	0.314828278	3.74036E-06	5.05816E-05	0.286752117	3.4068E-06	4.60707E-05	0.341345166	4.0554E-06	5.48419E-05
Road 5	5	0800-0900	0.063936999	1.01162E-06	1.36803E-05	0.058754781	9.29622E-07	1.25715E-05	0.31395841	4.96747E-06	6.71761E-05	0.285741601	4.52102E-06	6.11387E-05	0.344496382	5.45065E-06	7.37101E-05
Road 5	5	0900-1000	0.070948309	1.0866E-06	1.46942E-05	0.065250074	9.99325E-07	1.35141E-05	0.378520662	5.79716E-06	7.83961E-05	0.346090797	5.30049E-06	7.16795E-05	0.41134087	6.29982E-06	8.51936E-05
Road 5	5	1000-1100	0.081421499	1.12169E-06	1.51688E-05	0.074103692	1.02087E-06	1.38055E-05	0.422332698	5.81817E-06	7.86802E-05	0.382154264	5.26466E-06	7.1195E-05	0.456257956	6.28554E-06	8.50005E-05
Road 5	5	1100-1200	0.07999269	1.04945E-06	1.4192E-05	0.073411488	9.63112E-07	1.30244E-05	0.43299	5.68056E-06	7.68192E-05	0.395287296	5.18592E-06	7.01302E-05	0.468698784	6.14903E-06	8.31545E-05
Road 5	5	1200-1300	0.073985021	9.81746E-07	1.32763E-05	0.067629208	8.97407E-07	1.21358E-05	0.403126591	5.3493E-06	7.23395E-05	0.366996676	4.86987E-06	6.58562E-05	0.434625884	5.76728E-06	7.7992E-05
Road 5	5	1300-1400	0.081357902	1.18647E-06	1.60448E-05	0.07403816	1.07972E-06	1.46013E-05	0.423559344	6.17691E-06	8.35315E-05	0.383750927	5.59637E-06	7.56807E-05	0.457789086	6.67609E-06	9.0282E-05
Road 5	5	1400-1500	0.07648796	1.13985E-06	1.54145E-05	0.070041725	1.04379E-06	1.41154E-05	0.400285428	5.96521E-06	8.06687E-05	0.365050516	5.44013E-06	7.35679E-05	0.435092242	6.48392E-06	8.76833E-05
Road 5	5	1500-1600	0.085091519	1.22974E-06	1.663E-05	0.077928377	1.12622E-06	1.523E-05	0.434270896	6.27606E-06	8.48724E-05	0.396116195	5.72465E-06	7.74155E-05	0.474044571	6.85087E-06	9.26456E-05
Road 5	5	1600-1700	0.080763916	1.29301E-06	1.74856E-05	0.074404689	1.1912E-06	1.61088E-05	0.420043681	6.7248E-06	9.09407E-05	0.385357456	6.16948E-06	8.3431E-05	0.459762145	7.36068E-06	9.95399E-05
Road 5	5	1700-1800	0.059384172	9.48497E-07	1.28267E-05	0.054286428	8.67075E-07	1.17256E-05	0.309556322	4.9443E-06	6.68627E-05	0.281147756	4.49055E-06	6.07266E-05	0.335434183	5.35763E-06	7.24522E-05
Road 5	5	1800-1900	0.05523827	9.52777E-07	1.28846E-05	0.050645843	8.73565E-07	1.18134E-05	0.315044157	5.43404E-06	7.34855E-05	0.286432427	4.94053E-06	6.68117E-05	0.33707827	5.81409E-06	7.86251E-05
Road 5	5	1900-2000	0.063704913	8.20225E-07	1.10921E-05	0.059184213	7.62019E-07	1.03049E-05	0.360284825	4.6388E-06	6.27314E-05	0.332460204	4.28055E-06	5.78867E-05	0.391644417	5.04257E-06	6.81916E-05
Road 5	5	2000-2100	0.061465733	6.92182E-07	9.3605E-06	0.057163517	6.43733E-07	8.70533E-06	0.342810283	3.86048E-06	5.22059E-05	0.316851783	3.56815E-06	4.82528E-05	0.3740153	4.21188E-06	5.69581E-05
Road 5	5	2100-2200	0.062793893	6.8121E-07	9.21213E-06	0.058719394	6.37008E-07	8.61438E-06	0.359142128	3.8961E-06	5.26877E-05	0.333981678	3.62315E-06	4.89965E-05	0.392701073	4.26016E-06	5.76109E-05
Road 5	5	2200-2300	0.060227655	5.64069E-07	7.62801E-06	0.057488838	5.38418E-07	7.28113E-06	0.339436112	3.17903E-06	4.29906E-05	0.322544489	3.02083E-06	4.08512E-05	0.380033327	3.55925E-06	4.81324E-05
Road 5	5	2300-0000	0.052807152	4.4898E-07	6.07164E-06	0.050222914	4.27008E-07	5.77451E-06	0.31242181	2.65629E-06	3.59215E-05	0.295530751	2.51268E-06	3.39794E-05	0.345753664	2.93968E-06	3.97539E-05
Road 6	6	0000-0100	0.049151	1.38376E-07	4.94637E-06	0.0446444	1.25688E-07	4.49284E-06	0.319392533	8.99191E-07	3.21424E-05	0.2866962	8.0714E-07	2.8852E-05	0.3313406	9.32828E-07	3.33448E-05
Road 6	6	0100-0200	0.065179737	1.39461E-07	4.98517E-06	0.059121228	1.26498E-07	4.5218E-06	0.369647982	7.90913E-07	2.8272E-05	0.332262281	7.10922E-07	2.54126E-05	0.391383509	8.3742E-07	2.99344E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.059448228	8.81458E-08	3.15086E-06	0.053771772	7.97292E-08	2.84999E-06	0.342442152	5.0775E-07	1.815E-05	0.306586076	4.54585E-07	1.62496E-05	0.360357848	5.34314E-07	1.90996E-05
Road 6	6	0300-0400	0.060940806	7.09146E-08	2.53491E-06	0.055107742	6.41269E-08	2.29228E-06	0.391615	4.55708E-07	1.62897E-05	0.351006613	4.08454E-07	1.46006E-05	0.406114355	4.72581E-07	1.68928E-05
Road 6	6	0400-0500	0.066575333	1.12458E-07	4.01993E-06	0.059492444	1.00494E-07	3.59225E-06	0.394209667	6.65895E-07	2.3803E-05	0.348312222	5.88365E-07	2.10317E-05	0.407804667	6.88859E-07	2.46239E-05
Road 6	6	0500-0600	0.059460556	1.80792E-07	6.46259E-06	0.053078272	1.61387E-07	5.76892E-06	0.362389321	1.10186E-06	3.9387E-05	0.318953333	9.69791E-07	3.46661E-05	0.372031605	1.13118E-06	4.0435E-05
Road 6	6	0600-0700	0.063362207	3.44877E-07	1.2328E-05	0.057672862	3.1391E-07	1.1221E-05	0.403195517	2.19457E-06	7.8447E-05	0.36278069	1.97459E-06	7.05838E-05	0.420453552	2.2885E-06	8.18048E-05
Road 6	6	0700-0800	0.058344416	5.05914E-07	1.80844E-05	0.05367	4.65382E-07	1.66355E-05	0.337332338	2.92507E-06	0.000104559	0.307159199	2.66343E-06	9.52068E-05	0.360829199	3.12881E-06	0.000111842
Road 6	6	0800-0900	0.049656465	6.16978E-07	2.20545E-05	0.045537387	5.65799E-07	2.0225E-05	0.295751148	3.67469E-06	0.000131355	0.266953142	3.31687E-06	0.000118565	0.312490529	3.88267E-06	0.00013879
Road 6	6	0900-1000	0.052645245	6.25459E-07	2.23576E-05	0.048285829	5.73666E-07	2.05062E-05	0.299972385	3.56386E-06	0.000127394	0.271869779	3.22998E-06	0.000115459	0.320155608	3.80365E-06	0.000135965
Road 6	6	1000-1100	0.071087364	7.13809E-07	2.55158E-05	0.064627888	6.48947E-07	2.31972E-05	0.391132336	3.92747E-06	0.000140391	0.352387888	3.53843E-06	0.000126485	0.417015776	4.18738E-06	0.000149682
Road 6	6	1100-1200	0.08160938	8.14868E-07	2.91282E-05	0.074903759	7.47913E-07	2.67349E-05	0.427957707	4.27315E-06	0.000152748	0.390648195	3.90062E-06	0.000139431	0.465551955	4.64853E-06	0.000166166
Road 6	6	1200-1300	0.078069388	7.66334E-07	2.73933E-05	0.071408489	7.0095E-07	2.50561E-05	0.392211262	3.84997E-06	0.000137621	0.357421893	3.50848E-06	0.000125414	0.428830382	4.20943E-06	0.00015047
Road 6	6	1300-1400	0.09102691	8.90109E-07	3.18178E-05	0.082830173	8.09957E-07	2.89527E-05	0.465387274	4.5508E-06	0.000162673	0.421680307	4.12341E-06	0.000147395	0.50451048	4.93337E-06	0.000176348
Road 6	6	1400-1500	0.086370209	9.3049E-07	3.32612E-05	0.079063031	8.51768E-07	3.04472E-05	0.434892456	4.68522E-06	0.000167477	0.396461289	4.27119E-06	0.000152678	0.475524321	5.12295E-06	0.000183125
Road 6	6	1500-1600	0.075603612	7.97471E-07	2.85063E-05	0.069184324	7.2976E-07	2.60859E-05	0.394174537	4.15777E-06	0.000148623	0.359025302	3.78702E-06	0.00013537	0.428209626	4.51678E-06	0.000161456
Road 6	6	1600-1700	0.079013542	8.542E-07	3.05342E-05	0.072799757	7.87024E-07	2.81329E-05	0.393624444	4.2554E-06	0.000152113	0.361119635	3.904E-06	0.000139552	0.433919392	4.69102E-06	0.000167685
Road 6	6	1700-1800	0.05913	6.76976E-07	2.41992E-05	0.054063344	6.18968E-07	2.21256E-05	0.305439082	3.49696E-06	0.000125002	0.277555607	3.17772E-06	0.000113591	0.331618951	3.79669E-06	0.000135716
Road 6	6	1800-1900	0.057437634	7.42765E-07	2.65508E-05	0.052653324	6.80896E-07	2.43393E-05	0.302943454	3.91757E-06	0.000140037	0.275726792	3.56561E-06	0.000127456	0.328380116	4.24651E-06	0.000151795
Road 6	6	1900-2000	0.067859294	6.67385E-07	2.38563E-05	0.063028531	6.19875E-07	2.2158E-05	0.358428473	3.52508E-06	0.000126007	0.330559027	3.25099E-06	0.00011621	0.393587557	3.87087E-06	0.000138368
Road 6	6	2000-2100	0.053411555	4.19032E-07	1.49787E-05	0.04964823	3.89508E-07	1.39233E-05	0.314111077	2.46431E-06	8.80891E-05	0.289792895	2.27353E-06	8.12693E-05	0.339441124	2.66303E-06	9.51926E-05
Road 6	6	2100-2200	0.073779222	4.98508E-07	1.78196E-05	0.068996	4.66189E-07	1.66644E-05	0.394738278	2.66715E-06	9.53398E-05	0.367328861	2.48195E-06	8.87197E-05	0.436324861	2.94814E-06	0.000105384
Road 6	6	2200-2300	0.054970131	3.93086E-07	1.40512E-05	0.05245315	3.75087E-07	1.34078E-05	0.312144121	2.23211E-06	7.97889E-05	0.295728399	2.11472E-06	7.55928E-05	0.348181549	2.48981E-06	8.90007E-05
Road 6	6	2300-0000	0.03695591	2.47621E-07	8.85146E-06	0.035142829	2.35473E-07	8.4172E-06	0.232821793	1.56001E-06	5.57641E-05	0.219930392	1.47363E-06	5.26764E-05	0.255073221	1.70911E-06	6.10936E-05
Road 7	7	0000-0100	0.07173756	1.93724E-07	4.83599E-06	0.06536871	1.76525E-07	4.40665E-06	0.426150631	1.1508E-06	2.87278E-05	0.385662151	1.04146E-06	2.59983E-05	0.45103086	1.21799E-06	3.0405E-05
Road 7	7	0100-0200	0.088450516	1.86206E-07	4.6483E-06	0.080261083	1.68965E-07	4.21792E-06	0.485578372	1.02224E-06	2.55184E-05	0.438244232	9.2259E-07	2.30308E-05	0.518505315	1.09155E-06	2.72488E-05
Road 7	7	0200-0300	0.07586136	1.03532E-07	2.58449E-06	0.068664236	9.37093E-08	2.33929E-06	0.431686262	5.89143E-07	1.47069E-05	0.388030968	5.29564E-07	1.32196E-05	0.456695204	6.23273E-07	1.55589E-05
Road 7	7	0300-0400	0.077265519	8.52557E-08	2.12826E-06	0.069802237	7.70207E-08	1.92269E-06	0.46787937	5.16264E-07	1.28876E-05	0.420110526	4.63555E-07	1.15719E-05	0.489912763	5.40576E-07	1.34945E-05
Road 7	7	0400-0500	0.086278155	1.39043E-07	3.47096E-06	0.077222523	1.24449E-07	3.10665E-06	0.482981632	7.78355E-07	1.94303E-05	0.429210811	6.917E-07	1.72671E-05	0.506433333	8.16149E-07	2.03737E-05
Road 7	7	0500-0600	0.077526553	2.22864E-07	5.56341E-06	0.069373889	1.99428E-07	4.97837E-06	0.439850925	1.26443E-06	3.15643E-05	0.390006263	1.12114E-06	2.79874E-05	0.459380152	1.32057E-06	3.29658E-05
Road 7	7	0600-0700	0.08164613	4.19627E-07	1.04753E-05	0.07410358	3.80861E-07	9.50754E-06	0.476125234	2.44708E-06	6.10872E-05	0.428687817	2.20328E-06	5.50009E-05	0.502791396	2.58414E-06	6.45085E-05
Road 7	7	0700-0800	0.076894779	6.30768E-07	1.5746E-05	0.070839409	5.81096E-07	1.4506E-05	0.421178088	3.45492E-06	8.62462E-05	0.38533415	3.1609E-06	7.89063E-05	0.456173559	3.74199E-06	9.34123E-05
Road 7	7	0800-0900	0.076329033	9.47502E-07	2.36527E-05	0.070427497	8.74244E-07	2.1824E-05	0.416697372	5.17263E-06	0.000129126	0.381136426	4.7312E-06	0.000118106	0.451563923	5.60544E-06	0.00013993
Road 7	7	0900-1000	0.078311452	9.00481E-07	2.2479E-05	0.071945875	8.27285E-07	2.06517E-05	0.411796166	4.73513E-06	0.000118204	0.375444235	4.31713E-06	0.00010777	0.44739011	5.14441E-06	0.000128421
Road 7	7	1000-1100	0.093382651	9.4227E-07	2.35221E-05	0.085205947	8.59764E-07	2.14625E-05	0.492423186	4.96876E-06	0.000124036	0.446956594	4.50998E-06	0.000112584	0.53216254	5.36974E-06	0.000134046
Road 7	7	1100-1200	0.103598668	1.04385E-06	2.60579E-05	0.094742424	9.54615E-07	2.38303E-05	0.531399298	5.35433E-06	0.000133661	0.484309671	4.87986E-06	0.000121817	0.579052095	5.83447E-06	0.000145647
Road 7	7	1200-1300	0.100681753	1.013E-06	2.52877E-05	0.092097879	9.26632E-07	2.31318E-05	0.508755017	5.11878E-06	0.000127781	0.464334472	4.67185E-06	0.000116625	0.55643235	5.59848E-06	0.000139756
Road 7	7	1300-1400	0.107914422	1.06853E-06	2.66741E-05	0.098357334	9.73902E-07	2.43118E-05	0.546461915	5.41089E-06	0.000135073	0.496629385	4.91746E-06	0.000122756	0.594986719	5.89137E-06	0.000147068
Road 7	7	1400-1500	0.100358648	1.04034E-06	2.59704E-05	0.091919752	9.52865E-07	2.37866E-05	0.511088523	5.29808E-06	0.000132257	0.466639286	4.83731E-06	0.000120755	0.558559039	5.79017E-06	0.000144542
Road 7	7	1500-1600	0.092801659	9.44492E-07	2.35776E-05	0.084963825	8.64722E-07	2.15863E-05	0.479515067	4.88028E-06	0.000121828	0.437519935	4.45287E-06	0.000111158	0.52248376	5.31759E-06	0.000132744
Road 7	7	1600-1700	0.096329901	1.01397E-06	2.53119E-05	0.088302441	9.29469E-07	2.32026E-05	0.480435918	5.05706E-06	0.000126241	0.439074611	4.62169E-06	0.000115372	0.527377053	5.55116E-06	0.000138575
Road 7	7	1700-1800	0.074156183	8.25785E-07	2.06143E-05	0.067815621	7.55178E-07	1.88517E-05	0.384500268	4.2817E-06	0.000106885	0.35010925	3.89873E-06	9.7325E-05	0.417924871	4.65391E-06	0.000116177
Road 7	7	1800-1900	0.068366221	7.91087E-07	1.97481E-05	0.062619301	7.24588E-07	1.80881E-05	0.360673058	4.17346E-06	0.000104183	0.328716139	3.80368E-06	9.49522E-05	0.39133544	4.52826E-06	0.00011304
Road 7	7	1900-2000	0.078469218	6.85836E-07	1.71207E-05	0.073183071	6.39634E-07	1.59673E-05	0.417141572	3.6459E-06	9.10135E-05	0.387217481	3.38435E-06	8.44845E-05	0.460400552	4.02399E-06	0.000100452
Road 7	7	2000-2100	0.072303649	5.20674E-07	1.29977E-05	0.06722498	4.84102E-07	1.20848E-05	0.3967825	2.85732E-06	7.1328E-05	0.366955565	2.64253E-06	6.59661E-05	0.434180544	3.12663E-06	7.80509E-05
Road 7	7	2100-2200	0.08210413	4.93503E-07	1.23194E-05	0.076790628	4.61565E-07	1.15222E-05	0.440155942	2.64564E-06	6.60439E-05	0.409979831	2.46426E-06	6.15161E-05	0.486770459	2.92583E-06	7.30382E-05
Road 7	7	2200-2300	0.068583605	4.45094E-07	1.1111E-05	0.065015573	4.21939E-07	1.0533E-05	0.37847552	2.45623E-06	6.13156E-05	0.356777229	2.31542E-06	5.78003E-05	0.421792802	2.73735E-06	6.83333E-05
Road 7	7	2300-0000	0.04828399	2.88117E-07	7.19235E-06	0.045983219	2.74388E-07	6.84963E-06	0.287528418	1.71572E-06	4.283E-05	0.272487183	1.62597E-06	4.05895E-05	0.318470401	1.90036E-06	4.74391E-05
Road 8	8	0000-0100	0.227961667	1.6579E-07	2.73299E-06	0.207378611	1.50821E-07	2.48622E-06	1.129108056	8.21169E-07	1.35367E-05	1.026901667	7.46838E-07	1.23113E-05	1.234280278	8.97658E-07	1.47976E-05
Road 8	8	0100-0200	0.236444	1.43299E-07	2.36224E-06	0.214562333	1.30038E-07	2.14362E-06	1.167793667	7.07754E-07	1.16671E-05	1.059528	6.42138E-07	1.05854E-05	1.274090333	7.72176E-07	1.2729E-05
Road 8	8	0200-0300	0.223774	6.78103E-08	1.11783E-06	0.202628667	6.14026E-08	1.0122E-06	1.162142	3.52164E-07	5.8053E-06	1.052039333	3.188E-07	5.25529E-06	1.254668	3.80202E-07	6.26749E-06
Road 8	8	0300-0400	0.203592143	5.75816E-08	9.49211E-07	0.184065	5.20588E-08	8.5817E-07	1.035642857	2.92909E-07	4.8285E-06	0.935864286	2.64689E-07	4.3633E-06	1.119929286	3.16748E-07	5.22147E-06
Road 8	8	0400-0500	0.232851905	9.87857E-08	1.62844E-06	0.208247619	8.83475E-08	1.45637E-06	1.116866667	4.73822E-07	7.81078E-06	0.998662857	4.23675E-07	6.98413E-06	1.206910476	5.12023E-07	8.4405E-06
Road 8	8	0500-0600	0.220996765	1.51796E-07	2.5023E-06	0.197467647	1.35634E-07	2.23588E-06	1.042128824	7.15806E-07	1.17998E-05	0.930534412	6.39155E-07	1.05362E-05	1.128002059	7.74789E-07	1.27721E-05
Road 8	8	0600-0700	0.246234839	3.08415E-07	5.08411E-06	0.224420968	2.81093E-07	4.63371E-06	1.14716	1.43685E-06	2.36859E-05	1.044790484	1.30863E-06	2.15722E-05	1.269211452	1.58972E-06	2.62059E-05
Road 8	8	0700-0800	0.240532353	4.95642E-07	8.17048E-06	0.221527157	4.5648E-07	7.5249E-06	1.131908824	2.33242E-06	3.8449E-05	1.041773725	2.14669E-06	3.53873E-05	1.263300882	2.60317E-06	4.29122E-05
Road 8	8	0800-0900	0.268082708	1.03984E-06	1.71413E-05	0.246500885	9.56125E-07	1.57614E-05	1.26615474	4.91115E-06	8.09584E-05	1.163608646	4.51339E-06	7.44016E-05	1.410109531	5.46952E-06	9.01629E-05
Road 8	8	0900-1000	0.286813228	9.15485E-07	1.50914E-05	0.263492089	8.41045E-07	1.38643E-05	1.287941835	4.11101E-06	6.77684E-05	1.183095127	3.77634E-06	6.22516E-05	1.446587215	4.61739E-06	7.61159E-05
Road 8	8	1000-1100	0.27349425	8.84022E-07	1.45728E-05	0.24881475	8.0425E-07	1.32578E-05	1.265129938	4.08931E-06	6.74107E-05	1.150128938	3.71759E-06	6.1283E-05	1.398943688	4.52184E-06	7.45408E-05
Road 8	8	1100-1200	0.282875786	9.08631E-07	1.49784E-05	0.259484151	8.33495E-07	1.37398E-05	1.320851824	4.24274E-06	6.99399E-05	1.211240063	3.89065E-06	6.41359E-05	1.470724214	4.72414E-06	7.78757E-05
Road 8	8	1200-1300	0.283916882	9.75068E-07	1.60736E-05	0.259461706	8.91081E-07	1.46891E-05	1.336856412	4.59122E-06	7.56846E-05	1.221301588	4.19437E-06	6.91426E-05	1.480763294	5.08545E-06	8.38317E-05
Road 8	8	1300-1400	0.261414568	8.55539E-07	1.41032E-05	0.23775679	7.78113E-07	1.28269E-05	1.214366481	3.97429E-06	6.55147E-05	1.104005	3.61311E-06	5.95607E-05	1.34176179	4.39122E-06	7.23876E-05
Road 8	8	1400-1500	0.254837986	7.15606E-07	1.17965E-05	0.233215396	6.54888E-07	1.07956E-05	1.232599424	3.46124E-06	5.70572E-05	1.12759482	3.16638E-06	5.21965E-05	1.360810216	3.82127E-06	6.29921E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.261809928	7.35183E-07	1.21192E-05	0.239504245	6.72547E-07	1.10867E-05	1.234578705	3.4668E-06	5.71488E-05	1.128912014	3.17008E-06	5.22575E-05	1.368416259	3.84262E-06	6.33442E-05
Road 8	8	1600-1700	0.261202081	7.86245E-07	1.29609E-05	0.240536577	7.24039E-07	1.19355E-05	1.220753624	3.67459E-06	6.05743E-05	1.123719799	3.38251E-06	5.57594E-05	1.364256376	4.10655E-06	6.76949E-05
Road 8	8	1700-1800	0.213539808	6.72974E-07	1.10937E-05	0.195237244	6.15293E-07	1.01429E-05	1.037379551	3.26932E-06	5.38935E-05	0.947202179	2.98512E-06	4.92086E-05	1.142439423	3.60042E-06	5.93515E-05
Road 8	8	1800-1900	0.213427009	4.61347E-07	7.60514E-06	0.195779159	4.23199E-07	6.97628E-06	1.062673738	2.29709E-06	3.78667E-05	0.974170841	2.10578E-06	3.4713E-05	1.16995	2.52898E-06	4.16893E-05
Road 8	8	1900-2000	0.210603506	3.27605E-07	5.40045E-06	0.195771558	3.04534E-07	5.02012E-06	1.074341299	1.6712E-06	2.75491E-05	0.998503506	1.55323E-06	2.56044E-05	1.194275065	1.85776E-06	3.06245E-05
Road 8	8	2000-2100	0.230296883	3.5824E-07	5.90545E-06	0.214203636	3.33206E-07	5.49277E-06	1.071849481	1.66732E-06	2.74852E-05	0.996318831	1.54983E-06	2.55484E-05	1.210522468	1.88303E-06	3.10411E-05
Road 8	8	2100-2200	0.188250926	2.05365E-07	3.38536E-06	0.176177037	1.92193E-07	3.16823E-06	0.956273333	1.04321E-06	1.71969E-05	0.893758333	9.75009E-07	1.60727E-05	1.06993537	1.1672E-06	1.92409E-05
Road 8	8	2200-2300	0.225095	2.91032E-07	4.79755E-06	0.214943281	2.77906E-07	4.58118E-06	1.0819125	1.39884E-06	2.30593E-05	1.032625156	1.33511E-06	2.20088E-05	1.247568438	1.61302E-06	2.659E-05
Road 8	8	2300-0000	0.176332642	1.88801E-07	3.11231E-06	0.167861321	1.7973E-07	2.96279E-06	0.882521698	9.44922E-07	1.55767E-05	0.839566226	8.98929E-07	1.48185E-05	1.007427547	1.07866E-06	1.77813E-05
Road 9	9	0000-0100	0.660421824	1.72701E-07	5.23589E-06	0.645765875	1.68869E-07	5.1197E-06	3.616884033	9.4582E-07	2.8675E-05	3.545822181	9.27238E-07	2.81117E-05	4.191588056	1.09611E-06	3.32314E-05
Road 9	9	0100-0200	0.686749855	1.41103E-07	4.27792E-06	0.670470084	1.37758E-07	4.17651E-06	3.58906909	7.3743E-07	2.23571E-05	3.513404565	7.21883E-07	2.18858E-05	4.183874648	8.59641E-07	2.60623E-05
Road 9	9	0200-0300	0.343484719	3.20792E-08	9.72565E-07	0.335712051	3.13533E-08	9.50557E-07	2.361398381	2.20539E-07	6.68622E-06	2.304392006	2.15215E-07	6.52481E-06	2.640104056	2.46568E-07	7.47537E-06
Road 9	9	0300-0400	0.42585962	3.1818E-08	9.64646E-07	0.416271667	3.11016E-08	9.42927E-07	2.820517957	2.10734E-07	6.38896E-06	2.762443045	2.06395E-07	6.25741E-06	3.178714712	2.37497E-07	7.20034E-06
Road 9	9	0400-0500	0.752095998	1.40482E-07	4.25907E-06	0.731963632	1.36721E-07	4.14506E-06	3.894261519	7.27396E-07	2.20529E-05	3.80449521	7.10629E-07	2.15446E-05	4.536458843	8.4735E-07	2.56897E-05
Road 9	9	0500-0600	0.548476532	1.74162E-07	5.28018E-06	0.533673899	1.69461E-07	5.13767E-06	3.08283122	9.78914E-07	2.96784E-05	3.004603606	9.54074E-07	2.89253E-05	3.538277505	1.12354E-06	3.40629E-05
Road 9	9	0600-0700	0.601989109	3.59819E-07	1.09089E-05	0.587818239	3.51349E-07	1.06521E-05	3.399705841	2.03206E-06	6.16074E-05	3.320571124	1.98476E-06	6.01733E-05	3.908389362	2.33611E-06	7.08254E-05
Road 9	9	0700-0800	0.429949523	3.93513E-07	1.19304E-05	0.420367873	3.84744E-07	1.16645E-05	2.490193095	2.27916E-06	6.90988E-05	2.429289237	2.22342E-06	6.74088E-05	2.84965711	2.60816E-06	7.90733E-05
Road 9	9	0800-0900	0.752563227	1.61654E-06	4.90097E-05	0.73630401	1.58162E-06	4.79509E-05	4.389441279	9.42873E-06	0.000285857	4.30173993	9.24034E-06	0.000280145	5.038043941	1.0822E-05	0.000328096
Road 9	9	0900-1000	0.728920086	1.18453E-06	3.59121E-05	0.71255404	1.15793E-06	3.51058E-05	3.888963129	6.31974E-06	0.0001916	3.80628708	6.18539E-06	0.000187526	4.51884112	7.34332E-06	0.000222632
Road 9	9	1000-1100	0.895290068	1.22077E-06	3.70108E-05	0.874644411	1.19262E-06	3.61573E-05	4.66297113	6.35816E-06	0.000192764	4.567239427	6.22763E-06	0.000188807	5.441883838	7.42024E-06	0.000224964
Road 9	9	1100-1200	0.703103087	9.9811E-07	3.02604E-05	0.687536152	9.76012E-07	2.95904E-05	3.946892419	5.60293E-06	0.000169867	3.863005123	5.48384E-06	0.000166257	4.550541275	6.45985E-06	0.000195848
Road 9	9	1200-1300	0.791935609	1.09463E-06	3.31866E-05	0.773560418	1.06923E-06	3.24166E-05	4.170201109	5.76414E-06	0.000174755	4.082547402	5.64299E-06	0.000171082	4.85610782	6.71222E-06	0.000203499
Road 9	9	1300-1400	0.856236151	9.75595E-07	2.95777E-05	0.834084447	9.50355E-07	2.88125E-05	3.893647437	4.43642E-06	0.000134502	3.801305633	4.3312E-06	0.000131312	4.63539008	5.28156E-06	0.000160124
Road 9	9	1400-1500	0.535056319	6.79602E-07	2.06039E-05	0.522297175	6.63396E-07	2.01126E-05	3.221968515	4.09238E-06	0.000124071	3.149251035	4.00002E-06	0.000121271	3.67154821	4.66342E-06	0.000141384
Road 9	9	1500-1600	0.56134339	5.97654E-07	1.81194E-05	0.549539389	5.85086E-07	1.77384E-05	3.318668975	3.53333E-06	0.000107122	3.251605123	3.46193E-06	0.000104958	3.801144512	4.04702E-06	0.000122696
Road 9	9	1600-1700	0.508588405	7.59981E-07	2.30408E-05	0.497867553	7.4396E-07	2.25551E-05	3.129535468	4.67645E-06	0.000141779	3.064714888	4.57958E-06	0.000138842	3.562582441	5.32355E-06	0.000161397
Road 9	9	1700-1800	0.38440705	4.95435E-07	1.50204E-05	0.375562782	4.84036E-07	1.46748E-05	2.301500425	2.96624E-06	8.99294E-05	2.242798386	2.89058E-06	8.76356E-05	2.618361168	3.37462E-06	0.00010231
Road 9	9	1800-1900	0.364656392	2.99697E-07	9.08611E-06	0.356627527	2.93098E-07	8.88605E-06	2.047232503	1.68254E-06	5.10107E-05	1.997331012	1.64153E-06	4.97673E-05	2.35395854	1.93463E-06	5.86534E-05
Road 9	9	1900-2000	0.404536736	3.24917E-07	9.85072E-06	0.397131383	3.18969E-07	9.67039E-06	2.372896012	1.90587E-06	5.77815E-05	2.324818326	1.86725E-06	5.66107E-05	2.721949709	2.18622E-06	6.62811E-05
Road 9	9	2000-2100	0.528308541	2.86175E-07	8.67615E-06	0.518460996	2.80841E-07	8.51443E-06	2.385835993	1.29236E-06	3.91814E-05	2.338481361	1.26671E-06	3.84037E-05	2.856942357	1.54755E-06	4.69181E-05
Road 9	9	2100-2200	0.020690184	1.0821E-08	3.28068E-07	0.019642201	1.02729E-08	3.11451E-07	0.29881674	1.56282E-07	4.7381E-06	0.279546469	1.46204E-07	4.43255E-06	0.29918867	1.56477E-07	4.744E-06
Road 9	9	2200-2300	0.55515369	3.42195E-07	1.03745E-05	0.548353489	3.38003E-07	1.02475E-05	3.101622128	1.91183E-06	5.79621E-05	3.065385215	1.88949E-06	5.72849E-05	3.613738704	2.22749E-06	6.75324E-05
Road 9	9	2300-0000	0.391006899	2.19105E-07	6.64274E-06	0.386152659	2.16385E-07	6.56027E-06	2.24098698	1.25576E-06	3.80717E-05	2.212777325	1.23995E-06	3.75924E-05	2.598929983	1.45634E-06	4.41527E-05
Road 10	10	0000-0100	1.200662453	9.24673E-07	2.05256E-05	1.17649863	9.06064E-07	2.01125E-05	7.514164222	5.78693E-06	0.000128456	7.39312978	5.69371E-06	0.000126387	8.56962841	6.59978E-06	0.000146499
Road 10	10	0100-0200	1.150843912	6.69654E-07	1.48647E-05	1.126781051	6.55652E-07	1.45539E-05	7.132371149	4.15019E-06	9.21243E-05	7.012419184	4.08039E-06	9.0575E-05	8.139200235	4.73604E-06	0.000105129
Road 10	10	0200-0300	1.226720468	3.98891E-07	8.85443E-06	1.20100903	3.9053E-07	8.66885E-06	7.500781295	2.43902E-06	5.41404E-05	7.375464787	2.39827E-06	5.32359E-05	8.576473817	2.7888E-06	6.19047E-05
Road 10	10	0300-0400	1.111865768	2.28343E-07	5.06868E-06	1.088095682	2.23462E-07	4.96032E-06	7.165820183	1.47164E-06	3.2667E-05	7.040542386	1.44591E-06	3.20958E-05	8.128638068	1.66937E-06	3.70562E-05
Road 10	10	0400-0500	1.193804735	4.69911E-07	1.04309E-05	1.164894066	4.58531E-07	1.01783E-05	7.237094213	2.8487E-06	6.32344E-05	7.097321803	2.79368E-06	6.20132E-05	8.262215869	3.25221E-06	7.21915E-05
Road 10	10	0500-0600	1.055575914	7.40676E-07	1.64413E-05	1.029502671	7.22381E-07	1.60351E-05	6.331429691	4.44263E-06	9.86159E-05	6.205182129	4.35405E-06	9.66496E-05	7.2346848	5.07643E-06	0.000112685
Road 10	10	0600-0700	1.128527217	1.58373E-06	3.5155E-05	1.103791985	1.54902E-06	3.43845E-05	6.664995796	9.35338E-06	0.000207623	6.545000417	9.18498E-06	0.000203885	7.648792402	1.0734E-05	0.000238269
Road 10	10	0700-0800	1.079055036	2.38225E-06	5.28804E-05	1.05705399	2.33368E-06	5.18022E-05	6.444036269	1.42266E-05	0.000315798	6.335167927	1.39863E-05	0.000310463	7.392221917	1.632E-05	0.000362265
Road 10	10	0800-0900	1.213463098	5.15031E-06	0.000114325	1.187345441	5.03946E-06	0.000111864	7.313787281	3.10419E-05	0.000689058	7.185150068	3.0496E-05	0.000676938	8.372495509	3.55354E-05	0.000788802
Road 10	10	0900-1000	1.242129137	4.20908E-06	9.34315E-05	1.215495615	4.11883E-06	9.14282E-05	7.314591698	2.47862E-05	0.000550195	7.186315115	2.43515E-05	0.000540546	8.40181073	2.84704E-05	0.000631975
Road 10	10	1000-1100	1.246950459	4.5882E-06	0.000101847	1.216082318	4.47462E-06	9.9326E-05	7.143037127	2.62831E-05	0.000583422	7.001047514	2.57606E-05	0.000571825	8.217129833	3.02352E-05	0.000671151
Road 10	10	1100-1200	1.276713912	4.69772E-06	0.000104278	1.248356371	4.59337E-06	0.000101962	7.485641647	2.75437E-05	0.000611405	7.353140214	2.70562E-05	0.000600583	8.601496585	3.16495E-05	0.000702545
Road 10	10	1200-1300	1.269157712	4.82196E-06	0.000107036	1.239811235	4.71046E-06	0.000104561	7.449230935	2.83021E-05	0.00062824	7.312533062	2.77828E-05	0.000616712	8.552344298	3.24932E-05	0.000721273
Road 10	10	1300-1400	1.232854363	4.05105E-06	8.99238E-05	1.202906936	3.95265E-06	8.77394E-05	7.130383895	2.34298E-05	0.000520087	6.992212293	2.29758E-05	0.000510008	8.195119229	2.69284E-05	0.000597748
Road 10	10	1400-1500	1.123965361	3.48166E-06	7.72846E-05	1.09866751	3.4033E-06	7.55451E-05	6.819235861	2.11237E-05	0.000468895	6.694336974	2.07368E-05	0.000460307	7.793004484	2.41401E-05	0.000535852
Road 10	10	1500-1600	1.191394945	3.77209E-06	8.37315E-05	1.164935132	3.68832E-06	8.18719E-05	7.056131217	2.23405E-05	0.000495907	6.931222153	2.1945E-05	0.000487128	8.096157286	2.56334E-05	0.000569
Road 10	10	1600-1700	1.086390945	3.83008E-06	8.50188E-05	1.063617088	3.74979E-06	8.32365E-05	6.535756515	2.30419E-05	0.000511475	6.424401604	2.26493E-05	0.000502761	7.488018691	2.63991E-05	0.000585997
Road 10	10	1700-1800	0.986283394	3.29148E-06	7.30631E-05	0.964050629	3.21728E-06	7.14161E-05	5.933160334	1.98005E-05	0.000439524	5.822479279	1.94311E-05	0.000431324	6.786529908	2.26484E-05	0.000502741
Road 10	10	1800-1900	1.065826515	2.20712E-06	4.89929E-05	1.043316646	2.16051E-06	4.79582E-05	6.452367222	1.33616E-05	0.000296596	6.342027108	1.31331E-05	0.000291524	7.385343753	1.52936E-05	0.000339483
Road 10	10	1900-2000	1.037911236	1.93616E-06	4.29782E-05	1.021715921	1.90595E-06	4.23076E-05	6.490921931	1.21084E-05	0.000268778	6.405810982	1.19497E-05	0.000265254	7.427526902	1.38556E-05	0.000307562
Road 10	10	2000-2100	1.328891673	1.63748E-06	3.63483E-05	1.308586804	1.61246E-06	3.57929E-05	8.066033205	9.93911E-06	0.000220625	7.969145531	9.81972E-06	0.000217975	9.277732335	1.14322E-05	0.000253767
Road 10	10	2100-2200	0.882270697	1.11735E-06	2.48025E-05	0.869796694	1.10155E-06	2.44518E-05	5.525192672	6.99736E-06	0.000155325	5.458092587	6.91238E-06	0.000153438	6.327889281	8.01393E-06	0.00017789
Road 10	10	2200-2300	1.051749793	1.38598E-06	3.07655E-05	1.041342856	1.37227E-06	3.04611E-05	6.351430098	8.36984E-06	0.000185791	6.300032404	8.30211E-06	0.000184287	7.34137526	9.67438E-06	0.000214748
Road 10	10	2300-0000	0.958070783	1.18055E-06	2.62054E-05	0.947157432	1.1671E-06	2.59069E-05	5.897730029	7.26729E-06	0.000161317	5.842958876	7.1998E-06	0.000159818	6.790116308	8.3669E-06	0.000185725
Road 11	11	0000-0100	1.34419646	1.02682E-06	8.51753E-06	1.317019786	1.00606E-06	8.34532E-06	8.386966847	6.40671E-06	5.31442E-05	8.253157198	6.3045E-06	5.22963E-05	9.570176984	7.31055E-06	6.06416E-05
Road 11	11	0100-0200	1.316649222	7.08613E-07	5.878E-06	1.289071566	6.93771E-07	5.75489E-06	8.119952687	4.37011E-06	3.62504E-05	7.985203201	4.29759E-06	3.56489E-05	9.274274767	4.99136E-06	4.14038E-05
Road 11	11	0200-0300	1.223779366	3.18693E-07	2.64358E-06	1.198133297	3.12014E-07	2.58818E-06	7.864492713	2.04804E-06	1.69887E-05	7.731340476	2.01337E-06	1.67011E-05	8.929473772	2.32538E-06	1.92892E-05
Road 11	11	0300-0400	1.310764669	3.18589E-07	2.64272E-06	1.282771628	3.11785E-07	2.58628E-06	8.39162344	2.03963E-06	1.69189E-05	8.249993398	2.00521E-06	1.66334E-05	9.532765025	2.31699E-06	1.92196E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.210371392	4.20268E-07	3.48616E-06	1.180667622	4.09954E-07	3.4006E-06	7.266916124	2.52323E-06	2.09304E-05	7.124754374	2.47387E-06	2.0521E-05	8.305421997	2.88383E-06	2.39216E-05
Road 11	11	0500-0600	0.963187149	4.51494E-07	3.74518E-06	0.939117496	4.40211E-07	3.65159E-06	5.880928433	2.75669E-06	2.28669E-05	5.758499878	2.6993E-06	2.23909E-05	6.697617374	3.13951E-06	2.60425E-05
Road 11	11	0600-0700	1.011496075	9.13156E-07	7.5747E-06	0.990409989	8.9412E-07	7.4168E-06	6.180870498	5.57995E-06	4.62862E-05	6.070988186	5.48075E-06	4.54633E-05	7.061398175	6.37487E-06	5.28801E-05
Road 11	11	0700-0800	1.145354342	2.16742E-06	1.7979E-05	1.122191886	2.12359E-06	1.76154E-05	7.113990954	1.34622E-05	0.00011167	6.995514539	1.3238E-05	0.000109811	8.117706426	1.53616E-05	0.000127426
Road 11	11	0800-0900	1.15499675	4.11067E-06	3.40983E-05	1.130251588	4.0226E-06	3.33678E-05	7.060477864	2.51284E-05	0.000208442	6.936106366	2.46858E-05	0.000204771	8.066357954	2.87084E-05	0.000238138
Road 11	11	0900-1000	1.139045732	2.90694E-06	2.41133E-05	1.114827097	2.84513E-06	2.36006E-05	6.752082089	1.72319E-05	0.00014294	6.633319671	1.69288E-05	0.000140426	7.748146768	1.97739E-05	0.000164026
Road 11	11	1000-1100	1.234771785	2.59388E-06	2.15164E-05	1.205734695	2.53288E-06	2.10104E-05	7.167172725	1.5056E-05	0.000124891	7.029823262	1.47675E-05	0.000122498	8.235557958	1.73004E-05	0.000143508
Road 11	11	1100-1200	1.1613455	2.74207E-06	2.27457E-05	1.136686792	2.68384E-06	2.22627E-05	7.034604078	1.66095E-05	0.000137777	6.910708635	1.6317E-05	0.00013535	8.047395427	1.90008E-05	0.000157613
Road 11	11	1200-1300	1.279169622	3.64208E-06	3.02114E-05	1.250015878	3.55907E-06	2.95228E-05	7.654144979	2.17931E-05	0.000180775	7.514966054	2.13968E-05	0.000177488	8.764981932	2.49559E-05	0.000207011
Road 11	11	1300-1400	1.296226523	2.72298E-06	2.25873E-05	1.264832833	2.65703E-06	2.20403E-05	7.390387085	1.55249E-05	0.000128781	7.246916689	1.52236E-05	0.000126281	8.511749522	1.78806E-05	0.000148321
Road 11	11	1400-1500	1.033724221	2.08181E-06	1.72687E-05	1.010620382	2.03528E-06	1.68828E-05	6.416483192	1.29221E-05	0.00010719	6.298546242	1.26846E-05	0.00010522	7.309166624	1.47198E-05	0.000122102
Road 11	11	1500-1600	1.125762258	2.2867E-06	1.89684E-05	1.104110115	2.24272E-06	1.86036E-05	7.055791508	1.43321E-05	0.000118886	6.944517561	1.41061E-05	0.000117011	8.048627677	1.63488E-05	0.000135614
Road 11	11	1600-1700	1.002496197	2.43662E-06	2.0212E-05	0.984298008	2.39239E-06	1.98451E-05	6.331690074	1.53895E-05	0.000127657	6.235258727	1.51551E-05	0.000125713	7.219556734	1.75475E-05	0.000145558
Road 11	11	1700-1800	1.021896235	2.537E-06	2.10446E-05	1.001914625	2.48739E-06	2.06331E-05	6.449486642	1.60117E-05	0.000132819	6.343541397	1.57487E-05	0.000130637	7.345456022	1.82361E-05	0.00015127
Road 11	11	1800-1900	1.148422804	2.35267E-06	1.95156E-05	1.12721215	2.30922E-06	1.91552E-05	7.227962343	1.48073E-05	0.000122828	7.119131722	1.45843E-05	0.000120978	8.246343872	1.68936E-05	0.000140133
Road 11	11	1900-2000	1.065022467	1.68259E-06	1.39572E-05	1.048065245	1.6558E-06	1.3735E-05	6.702621226	1.05892E-05	8.78384E-05	6.61273955	1.04472E-05	8.66605E-05	7.660804795	1.2103E-05	0.000100395
Road 11	11	2000-2100	1.169491197	1.6446E-06	1.36421E-05	1.151261842	1.61896E-06	1.34294E-05	7.119854449	1.00123E-05	8.30528E-05	7.03016647	9.88617E-06	8.20066E-05	8.181428313	1.15051E-05	9.5436E-05
Road 11	11	2100-2200	0.863261612	8.69256E-07	7.21055E-06	0.851076379	8.56987E-07	7.10877E-06	5.598646119	5.63753E-06	4.67637E-05	5.53170185	5.57012E-06	4.62046E-05	6.382778229	6.4271E-06	5.33133E-05
Road 11	11	2200-2300	1.075060262	1.17585E-06	9.75375E-06	1.064325095	1.16411E-06	9.65635E-06	6.639842817	7.26233E-06	6.02416E-05	6.585750014	7.20316E-06	5.97508E-05	7.650075109	8.36727E-06	6.94072E-05
Road 11	11	2300-0000	1.018584255	1.06103E-06	8.80129E-06	1.007725213	1.04971E-06	8.70746E-06	6.384575259	6.6506E-06	5.51673E-05	6.32869628	6.59239E-06	5.46844E-05	7.336421493	7.64211E-06	6.33919E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.612831612	4.91134E-06	7.38689E-06	2.508501612	4.71523E-06	7.09194E-06	14.57001354	2.73872E-05	4.11918E-05	14.11321354	2.65286E-05	3.99003E-05	16.62171515	3.12438E-05	4.69923E-05
Haul Road 1	HR1	0800-0900	2.619131612	4.92318E-06	7.40471E-06	2.512101612	4.722E-06	7.10211E-06	14.59779354	2.74395E-05	4.12703E-05	14.12899354	2.65583E-05	3.99449E-05	16.64109515	3.12803E-05	4.7047E-05
Haul Road 1	HR1	0900-1000	2.621621612	4.92786E-06	7.41175E-06	2.513591612	4.7248E-06	7.10633E-06	14.60859354	2.74598E-05	4.13008E-05	14.13530354	2.65701E-05	3.99628E-05	16.64889515	3.12949E-05	4.70691E-05
Haul Road 1	HR1	1000-1100	2.633321612	4.94985E-06	7.44482E-06	2.512301612	4.72237E-06	7.10268E-06	14.66005354	2.75565E-05	4.14463E-05	14.12959354	2.65594E-05	3.99466E-05	16.64189515	3.12818E-05	4.70493E-05
Haul Road 1	HR1	1100-1200	2.631621612	4.94666E-06	7.44002E-06	2.520891612	4.73852E-06	7.12697E-06	14.65225354	2.75418E-05	4.14243E-05	14.16757354	2.66308E-05	4.0054E-05	16.68846515	3.13693E-05	4.7181E-05
Haul Road 1	HR1	1200-1300	2.627021612	4.93801E-06	7.42701E-06	2.512201612	4.72218E-06	7.1024E-06	14.63247354	2.75046E-05	4.13684E-05	14.12929354	2.65588E-05	3.99458E-05	16.64149515	3.1281E-05	4.70482E-05
Haul Road 1	HR1	1300-1400	2.633721612	4.9506E-06	7.44595E-06	2.512201612	4.72218E-06	7.1024E-06	14.66175354	2.75597E-05	4.14511E-05	14.12929354	2.65588E-05	3.99458E-05	16.64149515	3.1281E-05	4.70482E-05
Haul Road 1	HR1	1400-1500	2.630421612	4.9444E-06	7.43662E-06	2.516791612	4.73081E-06	7.11537E-06	14.64706354	2.75321E-05	4.14096E-05	14.14949354	2.65968E-05	4.00029E-05	16.66628515	3.13276E-05	4.71183E-05
Haul Road 1	HR1	1500-1600	2.620321612	4.92542E-06	7.40807E-06	2.507601612	4.71354E-06	7.08939E-06	14.60319354	2.74496E-05	4.12856E-05	14.10911354	2.65209E-05	3.98887E-05	16.61671515	3.12344E-05	4.69781E-05
Haul Road 1	HR1	1600-1700	2.617031612	4.91923E-06	7.39877E-06	2.512301612	4.72237E-06	7.10268E-06	14.58850354	2.7422E-05	4.1244E-05	14.12959354	2.65594E-05	3.99466E-05	16.64189515	3.12818E-05	4.70493E-05
Haul Road 1	HR1	1700-1800	2.617031612	4.91923E-06	7.39877E-06	2.503601612	4.70602E-06	7.07808E-06	14.58850354	2.7422E-05	4.1244E-05	14.09182354	2.64884E-05	3.98398E-05	16.59542515	3.11944E-05	4.69179E-05
Haul Road 1	HR1	1800-1900	2.610331612	4.90664E-06	7.37983E-06	2.501401612	4.70188E-06	7.07186E-06	14.55912354	2.73668E-05	4.1161E-05	14.08193354	2.64698E-05	3.98119E-05	16.58333515	3.11717E-05	4.68838E-05
Haul Road 1	HR1	1900-2000	2.600241612	4.88767E-06	7.3513E-06	2.508301612	4.71485E-06	7.09137E-06	14.51494354	2.72837E-05	4.10361E-05	14.11231354	2.65269E-05	3.98978E-05	16.62061515	3.12418E-05	4.69891E-05
Haul Road 1	HR1	2000-2100	2.590841612	4.87E-06	7.32473E-06	2.500701612	4.70057E-06	7.06989E-06	14.47378354	2.72064E-05	4.09197E-05	14.07893354	2.64642E-05	3.98034E-05	16.57963515	3.11647E-05	4.68733E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.612831612	3.3845E-06	6.73866E-06	2.508501612	3.24935E-06	6.46959E-06	14.57001354	1.88731E-05	3.7577E-05	14.11321354	1.82814E-05	3.63989E-05	16.62171515	2.15307E-05	4.28685E-05
Haul Road 2	HR2	0800-0900	2.619131612	3.39266E-06	6.75491E-06	2.512101612	3.25402E-06	6.47887E-06	14.59779354	1.89091E-05	3.76487E-05	14.12899354	1.83018E-05	3.64396E-05	16.64109515	2.15558E-05	4.29185E-05
Haul Road 2	HR2	0900-1000	2.621621612	3.39588E-06	6.76133E-06	2.513591612	3.25595E-06	6.48272E-06	14.60859354	1.8923E-05	3.76765E-05	14.13530354	1.831E-05	3.64559E-05	16.64889515	2.15659E-05	4.29386E-05
Haul Road 2	HR2	1000-1100	2.633321612	3.41104E-06	6.79151E-06	2.512301612	3.25428E-06	6.47939E-06	14.66005354	1.89897E-05	3.78092E-05	14.12959354	1.83026E-05	3.64411E-05	16.64189515	2.15569E-05	4.29205E-05
Haul Road 2	HR2	1100-1200	2.631621612	3.40884E-06	6.78712E-06	2.520891612	3.2654E-06	6.50154E-06	14.65225354	1.89796E-05	3.77891E-05	14.16757354	1.83518E-05	3.65391E-05	16.68846515	2.16172E-05	4.30406E-05
Haul Road 2	HR2	1200-1300	2.627021612	3.40288E-06	6.77526E-06	2.512201612	3.25415E-06	6.47913E-06	14.63247354	1.8954E-05	3.77381E-05	14.12929354	1.83022E-05	3.64404E-05	16.64149515	2.15563E-05	4.29195E-05
Haul Road 2	HR2	1300-1400	2.633721612	3.41156E-06	6.79254E-06	2.512201612	3.25415E-06	6.47913E-06	14.66175354	1.89919E-05	3.78136E-05	14.12929354	1.83022E-05	3.64404E-05	16.64149515	2.15563E-05	4.29195E-05
Haul Road 2	HR2	1400-1500	2.630421612	3.40728E-06	6.78403E-06	2.516791612	3.26009E-06	6.49097E-06	14.64706354	1.89729E-05	3.77757E-05	14.14949354	1.83284E-05	3.64925E-05	16.66628515	2.15885E-05	4.29834E-05
Haul Road 2	HR2	1500-1600	2.620321612	3.3942E-06	6.75798E-06	2.507601612	3.24819E-06	6.46727E-06	14.60319354	1.89161E-05	3.76626E-05	14.10911354	1.82761E-05	3.63883E-05	16.61671515	2.15242E-05	4.28556E-05
Haul Road 2	HR2	1600-1700	2.617031612	3.38994E-06	6.7495E-06	2.512301612	3.25428E-06	6.47939E-06	14.58850354	1.8897E-05	3.76247E-05	14.12959354	1.83026E-05	3.64411E-05	16.64189515	2.15569E-05	4.29205E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.617031612	3.38994E-06	6.7495E-06	2.503601612	3.24301E-06	6.45695E-06	14.58850354	1.8897E-05	3.76247E-05	14.09182354	1.82537E-05	3.63437E-05	16.59542515	2.14967E-05	4.28007E-05
Haul Road 2	HR2	1800-1900	2.610331612	3.38126E-06	6.73222E-06	2.501401612	3.24016E-06	6.45128E-06	14.55912354	1.8859E-05	3.75489E-05	14.08193354	1.82408E-05	3.63182E-05	16.58333515	2.1481E-05	4.27695E-05
Haul Road 2	HR2	1900-2000	2.600241612	3.36819E-06	6.70619E-06	2.508301612	3.2491E-06	6.46907E-06	14.51494354	1.88017E-05	3.7435E-05	14.11231354	1.82802E-05	3.63966E-05	16.62061515	2.15293E-05	4.28657E-05
Haul Road 2	HR2	2000-2100	2.590841612	3.35601E-06	6.68195E-06	2.500701612	3.23925E-06	6.44947E-06	14.47378354	1.87484E-05	3.73288E-05	14.07893354	1.8237E-05	3.63105E-05	16.57963515	2.14762E-05	4.276E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.612831612	3.3845E-06	6.2332E-06	2.508501612	3.24935E-06	5.98431E-06	14.57001354	1.88731E-05	3.47584E-05	14.11321354	1.82814E-05	3.36686E-05	16.62171515	2.15307E-05	3.9653E-05
Haul Road 3	HR3	0800-0900	2.619131612	3.39266E-06	6.24823E-06	2.512101612	3.25402E-06	5.9929E-06	14.59779354	1.89091E-05	3.48247E-05	14.12899354	1.83018E-05	3.37063E-05	16.64109515	2.15558E-05	3.96992E-05
Haul Road 3	HR3	0900-1000	2.621621612	3.39588E-06	6.25417E-06	2.513591612	3.25595E-06	5.99645E-06	14.60859354	1.8923E-05	3.48504E-05	14.13530354	1.831E-05	3.37213E-05	16.64889515	2.15659E-05	3.97178E-05
Haul Road 3	HR3	1000-1100	2.633321612	3.41104E-06	6.28208E-06	2.512301612	3.25428E-06	5.99337E-06	14.66005354	1.89897E-05	3.49732E-05	14.12959354	1.83026E-05	3.37077E-05	16.64189515	2.15569E-05	3.97011E-05
Haul Road 3	HR3	1100-1200	2.631621612	3.40884E-06	6.27803E-06	2.520891612	3.2654E-06	6.01387E-06	14.65225354	1.89796E-05	3.49546E-05	14.16757354	1.83518E-05	3.37983E-05	16.68846515	2.16172E-05	3.98122E-05
Haul Road 3	HR3	1200-1300	2.627021612	3.40288E-06	6.26705E-06	2.512201612	3.25415E-06	5.99314E-06	14.63247354	1.8954E-05	3.49074E-05	14.12929354	1.83022E-05	3.3707E-05	16.64149515	2.15563E-05	3.97001E-05
Haul Road 3	HR3	1300-1400	2.633721612	3.41156E-06	6.28304E-06	2.512201612	3.25415E-06	5.99314E-06	14.66175354	1.89919E-05	3.49772E-05	14.12929354	1.83022E-05	3.3707E-05	16.64149515	2.15563E-05	3.97001E-05
Haul Road 3	HR3	1400-1500	2.630421612	3.40728E-06	6.27516E-06	2.516791612	3.26009E-06	6.00409E-06	14.64706354	1.89729E-05	3.49422E-05	14.14949354	1.83284E-05	3.37552E-05	16.66628515	2.15885E-05	3.97593E-05
Haul Road 3	HR3	1500-1600	2.620321612	3.3942E-06	6.25107E-06	2.507601612	3.24819E-06	5.98216E-06	14.60319354	1.89161E-05	3.48375E-05	14.10911354	1.82761E-05	3.36589E-05	16.61671515	2.15242E-05	3.9641E-05
Haul Road 3	HR3	1600-1700	2.617031612	3.38994E-06	6.24322E-06	2.512301612	3.25428E-06	5.99337E-06	14.58850354	1.8897E-05	3.48025E-05	14.12959354	1.83026E-05	3.37077E-05	16.64189515	2.15569E-05	3.97011E-05
Haul Road 3	HR3	1700-1800	2.617031612	3.38994E-06	6.24322E-06	2.503601612	3.24301E-06	5.97262E-06	14.58850354	1.8897E-05	3.48025E-05	14.09182354	1.82537E-05	3.36176E-05	16.59542515	2.14967E-05	3.95902E-05
Haul Road 3	HR3	1800-1900	2.610331612	3.38126E-06	6.22724E-06	2.501401612	3.24016E-06	5.96737E-06	14.55912354	1.8859E-05	3.47324E-05	14.08193354	1.82408E-05	3.3594E-05	16.58333515	2.1481E-05	3.95614E-05
Haul Road 3	HR3	1900-2000	2.600241612	3.36819E-06	6.20317E-06	2.508301612	3.2491E-06	5.98383E-06	14.51494354	1.88017E-05	3.4627E-05	14.11231354	1.82802E-05	3.36665E-05	16.62061515	2.15293E-05	3.96503E-05
Haul Road 3	HR3	2000-2100	2.590841612	3.35601E-06	6.18074E-06	2.500701612	3.23925E-06	5.9657E-06	14.47378354	1.87484E-05	3.45288E-05	14.07893354	1.8237E-05	3.35869E-05	16.57963515	2.14762E-05	3.95526E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.091301061	3.06736E-07	2.49534E-06	0.083497654	2.8052E-07	2.28207E-06	0.540972458	1.81746E-06	1.47853E-05	0.492328101	1.65403E-06	1.34558E-05	0.575825754	1.93455E-06	1.57378E-05
Road 1	1	0100-0200	0.071158349	1.45575E-07	1.18428E-06	0.064688349	1.32339E-07	1.0766E-06	0.429904037	8.79496E-07	7.15483E-06	0.388752018	7.95307E-07	6.46994E-06	0.453440367	9.27646E-07	7.54654E-06
Road 1	1	0200-0300	0.068567532	9.90935E-08	8.0614E-07	0.062096364	8.97414E-08	7.30059E-07	0.438814545	6.34173E-07	5.15909E-06	0.393715714	5.68996E-07	4.62887E-06	0.455812078	6.58737E-07	5.35893E-06
Road 1	1	0300-0400	0.058558	6.04484E-08	4.91757E-07	0.052219818	5.39056E-08	4.3853E-07	0.360097636	3.71722E-07	3.02402E-06	0.318007091	3.28273E-07	2.67055E-06	0.370226909	3.82179E-07	3.10908E-06
Road 1	1	0400-0500	0.076590349	1.23626E-07	1.00571E-06	0.067791279	1.09423E-07	8.90171E-07	0.44009686	7.10367E-07	5.77894E-06	0.386755698	6.24268E-07	5.07851E-06	0.454546977	7.33691E-07	5.96868E-06
Road 1	1	0500-0600	0.064055426	2.26021E-07	1.83872E-06	0.056756702	2.00268E-07	1.62921E-06	0.380908298	1.34405E-06	1.0934E-05	0.333806915	1.17785E-06	9.58196E-06	0.390563617	1.37811E-06	1.12112E-05
Road 1	1	0600-0700	0.087168249	5.51346E-07	4.48528E-06	0.076312611	4.82683E-07	3.9267E-06	0.466198843	2.94874E-06	2.39885E-05	0.404873947	2.56086E-06	2.0833E-05	0.481186558	3.04354E-06	2.47597E-05
Road 1	1	0700-0800	0.073643915	7.768E-07	6.31938E-06	0.06415331	6.76692E-07	5.50499E-06	0.408251868	4.30626E-06	3.50321E-05	0.351621904	3.70892E-06	3.01727E-05	0.415775214	4.38562E-06	3.56776E-05
Road 1	1	0800-0900	0.078754856	1.02582E-06	8.34523E-06	0.069135634	9.00528E-07	7.32593E-06	0.423798977	5.5202E-06	4.49077E-05	0.369508761	4.81305E-06	3.91548E-05	0.438644395	5.71357E-06	4.64808E-05
Road 1	1	0900-1000	0.083490798	1.11885E-06	9.10203E-06	0.073566947	9.85863E-07	8.02014E-06	0.463585252	6.21246E-06	5.05393E-05	0.406463459	5.44698E-06	4.4312E-05	0.480030406	6.43284E-06	5.23321E-05
Road 1	1	1000-1100	0.095936547	1.25142E-06	1.01805E-05	0.084636806	1.10403E-06	8.98143E-06	0.513727712	6.70122E-06	5.45154E-05	0.451643669	5.89137E-06	4.79272E-05	0.536280475	6.9954E-06	5.69086E-05
Road 1	1	1100-1200	0.08719957	1.10309E-06	8.97378E-06	0.077055445	9.74763E-07	7.92984E-06	0.500866617	6.33604E-06	5.15446E-05	0.440258813	5.56934E-06	4.53074E-05	0.517314258	6.5441E-06	5.32372E-05
Road 1	1	1200-1300	0.089681499	1.1227E-06	9.13335E-06	0.07970045	9.97752E-07	8.11686E-06	0.50823009	6.36241E-06	5.17592E-05	0.44979045	5.63082E-06	4.58076E-05	0.5294909	6.62857E-06	5.39244E-05
Road 1	1	1300-1400	0.09346378	1.24373E-06	1.01179E-05	0.081951128	1.09053E-06	8.87161E-06	0.519048646	6.90701E-06	5.61895E-05	0.452840762	6.02598E-06	4.90222E-05	0.53479189	7.11651E-06	5.78938E-05
Road 1	1	1400-1500	0.088215865	1.27324E-06	1.0358E-05	0.078166359	1.12819E-06	9.17799E-06	0.479546138	6.92138E-06	5.63064E-05	0.422889155	6.10364E-06	4.9654E-05	0.501055514	7.23183E-06	5.8832E-05
Road 1	1	1500-1600	0.094912975	1.27548E-06	1.03762E-05	0.085102821	1.14365E-06	9.30375E-06	0.514308659	6.91151E-06	5.62261E-05	0.458972221	6.16787E-06	5.01765E-05	0.544075042	7.31152E-06	5.94803E-05
Road 1	1	1600-1700	0.090344702	1.28022E-06	1.04148E-05	0.080746901	1.14422E-06	9.30838E-06	0.495667682	7.02382E-06	5.71398E-05	0.440642609	6.24409E-06	5.07966E-05	0.52138951	7.38831E-06	6.0105E-05
Road 1	1	1700-1800	0.07119843	1.01292E-06	8.24026E-06	0.064204974	9.13427E-07	7.43086E-06	0.399521253	5.68388E-06	4.62392E-05	0.357915607	5.09197E-06	4.14239E-05	0.42212058	6.00539E-06	4.88548E-05
Road 1	1	1800-1900	0.06269208	9.1073E-07	7.40892E-06	0.056472661	8.2038E-07	6.67391E-06	0.376409289	5.46811E-06	4.44839E-05	0.336025103	4.88145E-06	3.97113E-05	0.392497765	5.70183E-06	4.63852E-05
Road 1	1	1900-2000	0.076310169	8.49323E-07	6.90937E-06	0.068777218	7.65482E-07	6.22731E-06	0.439236644	4.88865E-06	3.97699E-05	0.392622715	4.36984E-06	3.55493E-05	0.461399933	5.13533E-06	4.17766E-05
Road 1	1	2000-2100	0.068662008	6.48217E-07	5.27334E-06	0.062035825	5.85661E-07	4.76444E-06	0.407212664	3.84437E-06	3.12745E-05	0.364988946	3.44575E-06	2.80317E-05	0.427024771	4.03141E-06	3.27961E-05
Road 1	1	2100-2200	0.07195366	6.19871E-07	5.04274E-06	0.065694989	5.65953E-07	4.60412E-06	0.430435098	3.70814E-06	3.01663E-05	0.390256166	3.362E-06	2.73504E-05	0.455951155	3.92796E-06	3.19545E-05
Road 1	1	2200-2300	0.070191954	5.73076E-07	4.66206E-06	0.063889103	5.21617E-07	4.24343E-06	0.419736759	3.4269E-06	2.78784E-05	0.379063172	3.09483E-06	2.51769E-05	0.442952276	3.61645E-06	2.94203E-05
Road 1	1	2300-0000	0.061155923	4.4765E-07	3.6417E-06	0.055744487	4.0804E-07	3.31946E-06	0.376301923	2.75446E-06	2.2408E-05	0.339616641	2.48593E-06	2.02234E-05	0.395361128	2.89397E-06	2.35429E-05
Road 2	2	0000-0100	0.151220577	1.82025E-07	1.1755E-06	0.138270192	1.66436E-07	1.07483E-06	0.640404615	7.70857E-07	4.97812E-06	0.583465769	7.0232E-07	4.53551E-06	0.721735962	8.68756E-07	5.61034E-06
Road 2	2	0100-0200	0.107327059	8.44704E-08	5.45501E-07	0.097560882	7.6784E-08	4.95864E-07	0.530852353	4.178E-07	2.69811E-06	0.480259706	3.77982E-07	2.44097E-06	0.577820588	4.54766E-07	2.93684E-06
Road 2	2	0200-0300	0.111434783	5.93287E-08	3.83139E-07	0.101021739	5.37847E-08	3.47336E-07	0.608853043	3.24158E-07	2.09338E-06	0.548664783	2.92113E-07	1.88644E-06	0.649686522	3.45898E-07	2.23377E-06
Road 2	2	0300-0400	0.097689333	3.39199E-08	2.19051E-07	0.087163333	3.0265E-08	1.95449E-07	0.356014667	1.23616E-07	7.98301E-07	0.314904667	1.09342E-07	7.06119E-07	0.402068	1.39607E-07	9.01568E-07
Road 2	2	0400-0500	0.133358148	8.33488E-08	5.38259E-07	0.118065556	7.3791E-08	4.76535E-07	0.643177407	4.01986E-07	2.59599E-06	0.567045926	3.54404E-07	2.2887E-06	0.685111481	4.28195E-07	2.76524E-06
Road 2	2	0500-0600	0.107143333	1.4137E-07	9.12952E-07	0.095021053	1.25375E-07	8.0966E-07	0.476321053	6.28479E-07	4.05866E-06	0.418664035	5.52404E-07	3.56737E-06	0.513685088	6.77779E-07	4.37703E-06
Road 2	2	0600-0700	0.152680673	3.67565E-07	2.3737E-06	0.133746058	3.21981E-07	2.07932E-06	0.61922875	1.49074E-06	9.62703E-06	0.539154615	1.29796E-06	8.38213E-06	0.672900673	1.61995E-06	1.04615E-05
Road 2	2	0700-0800	0.12593775	4.66436E-07	3.0122E-06	0.109757375	4.06509E-07	2.62519E-06	0.525904188	1.94779E-06	1.25787E-05	0.453885813	1.68106E-06	1.08561E-05	0.563643188	2.08757E-06	1.34813E-05
Road 2	2	0800-0900	0.141382829	9.94916E-07	6.42507E-06	0.12408273	8.73175E-07	5.63888E-06	0.595474474	4.19038E-06	2.7061E-05	0.519254934	3.65402E-06	2.35973E-05	0.643337664	4.52719E-06	2.92362E-05
Road 2	2	0900-1000	0.16478131	9.61224E-07	6.20749E-06	0.14510373	8.46438E-07	5.46622E-06	0.701918492	4.09452E-06	2.6442E-05	0.616113849	3.594E-06	2.32097E-05	0.761217579	4.44044E-06	2.86759E-05
Road 2	2	1000-1100	0.181870802	7.87265E-07	5.08408E-06	0.160425775	6.94436E-07	4.4846E-06	0.766508984	3.31799E-06	2.14273E-05	0.674592674	2.92011E-06	1.88578E-05	0.835018449	3.61455E-06	2.33424E-05
Road 2	2	1100-1200	0.216614044	9.17601E-07	5.92578E-06	0.191331585	8.10502E-07	5.23414E-06	0.884705464	3.74771E-06	2.42023E-05	0.779967486	3.30403E-06	2.13371E-05	0.971299071	4.11453E-06	2.65712E-05
Road 2	2	1200-1300	0.166404421	7.31871E-07	4.72635E-06	0.147898316	6.50479E-07	4.20073E-06	0.728685895	3.20487E-06	2.06967E-05	0.645281105	2.83804E-06	1.83278E-05	0.793179421	3.48852E-06	2.25285E-05
Road 2	2	1300-1400	0.183322287	9.46316E-07	6.11122E-06	0.160592332	8.28984E-07	5.35349E-06	0.750031928	3.87169E-06	2.5003E-05	0.654517668	3.37864E-06	2.1819E-05	0.81511	4.20763E-06	2.71725E-05
Road 2	2	1400-1500	0.156685455	5.98451E-07	3.86474E-06	0.138869152	5.30403E-07	3.42529E-06	0.677684606	2.58838E-06	1.67155E-05	0.598613091	2.28637E-06	1.47652E-05	0.737482242	2.81677E-06	1.81904E-05
Road 2	2	1500-1600	0.195962404	8.30119E-07	5.36082E-06	0.175597158	7.43849E-07	4.8037E-06	0.772323279	3.27165E-06	2.1128E-05	0.690362896	2.92445E-06	1.88858E-05	0.865960055	3.6683E-06	2.36895E-05
Road 2	2	1600-1700	0.163698054	8.37437E-07	5.40809E-06	0.146339367	7.48634E-07	4.83461E-06	0.688895339	3.52421E-06	2.2759E-05	0.613484253	3.13843E-06	2.02677E-05	0.75982362	3.88706E-06	2.51023E-05
Road 2	2	1700-1800	0.124755045	6.41102E-07	4.14018E-06	0.112561937	5.78443E-07	3.73553E-06	0.49546	2.54611E-06	1.64426E-05	0.445044234	2.28703E-06	1.47694E-05	0.557606171	2.86548E-06	1.8505E-05
Road 2	2	1800-1900	0.13591116	7.86523E-07	5.07929E-06	0.12254616	7.09179E-07	4.57981E-06	0.61203288	3.54186E-06	2.2873E-05	0.5491646	3.17804E-06	2.05234E-05	0.67171076	3.88722E-06	2.51033E-05
Road 2	2	1900-2000	0.117082781	4.58032E-07	2.95793E-06	0.105572604	4.13004E-07	2.66714E-06	0.532637337	2.0837E-06	1.34563E-05	0.476710296	1.86491E-06	1.20434E-05	0.582282899	2.27791E-06	1.47105E-05
Road 2	2	2000-2100	0.110331769	3.75434E-07	2.42452E-06	0.09963932	3.3905E-07	2.18955E-06	0.471837279	1.60556E-06	1.03685E-05	0.422610136	1.43805E-06	9.28678E-06	0.522249456	1.7771E-06	1.14763E-05
Road 2	2	2100-2200	0.085478693	3.02737E-07	1.95505E-06	0.078005948	2.76271E-07	1.78413E-06	0.393999935	1.39542E-06	9.01146E-06	0.35570902	1.2598E-06	8.13568E-06	0.433714967	1.53607E-06	9.91981E-06
Road 2	2	2200-2300	0.12430192	3.5967E-07	2.32271E-06	0.11318984	3.27517E-07	2.11507E-06	0.5309168	1.53622E-06	9.92074E-06	0.48023976	1.38958E-06	8.97379E-06	0.5934296	1.7171E-06	1.10889E-05
Road 2	2	2300-0000	0.110457568	2.83815E-07	1.83285E-06	0.100706847	2.58761E-07	1.67105E-06	0.500331622	1.28557E-06	8.30211E-06	0.452666577	1.1631E-06	7.5112E-06	0.553373423	1.42186E-06	9.18225E-06
Road 3	3	0000-0100	0.095020652	3.5054E-07	1.36246E-05	0.086816304	3.20274E-07	1.24482E-05	0.524385261	1.93451E-06	7.51895E-05	0.476850783	1.75915E-06	6.83737E-05	0.563667087	2.07942E-06	8.08219E-05
Road 3	3	0100-0200	0.07181331	1.63563E-07	6.35729E-06	0.065216761	1.48539E-07	5.77333E-06	0.419272324	9.54941E-07	3.71162E-05	0.37858493	8.62271E-07	3.35143E-05	0.44380169	1.01081E-06	3.92876E-05
Road 3	3	0200-0300	0.070465758	1.11894E-07	4.34903E-06	0.063832929	1.01361E-07	3.93966E-06	0.440766162	6.99899E-07	2.72033E-05	0.395763737	6.28439E-07	2.44259E-05	0.459596667	7.29801E-07	2.83655E-05
Road 3	3	0300-0400	0.059825429	6.71701E-08	2.61073E-06	0.053217571	5.9751E-08	2.32237E-06	0.331204714	3.71866E-07	1.44535E-05	0.291507429	3.27295E-07	1.27212E-05	0.344725	3.87046E-07	1.50435E-05
Road 3	3	0400-0500	0.08075531	1.46367E-07	5.6889E-06	0.072102389	1.30683E-07	5.07933E-06	0.448408496	8.12727E-07	3.15886E-05	0.397519381	7.20492E-07	2.80037E-05	0.46962177	8.51175E-07	3.3083E-05
Road 3	3	0500-0600	0.065826179	2.59732E-07	1.00951E-05	0.058338211	2.30187E-07	8.94678E-06	0.368645976	1.45458E-06	5.65358E-05	0.323111382	1.27491E-06	4.95526E-05	0.381449593	1.5051E-06	5.84993E-05
Road 3	3	0600-0700	0.092552793	6.5912E-07	2.56184E-05	0.081038446	5.7712E-07	2.24312E-05	0.463998153	3.30439E-06	0.000128433	0.403197905	2.8714E-06	0.000111604	0.484236351	3.44852E-06	0.000134035
Road 3	3	0700-0800	0.07652077	8.9229E-07	3.46811E-05	0.066571431	7.76273E-07	3.01718E-05	0.403589697	4.70616E-06	0.000182917	0.347341802	4.05027E-06	0.000157424	0.413913232	4.82654E-06	0.000187596
Road 3	3	0800-0900	0.08488997	1.35751E-06	5.27631E-05	0.07384679	1.18092E-06	4.58992E-05	0.421592899	6.74187E-06	0.00026204	0.363750451	5.81689E-06	0.000226088	0.437597242	6.99781E-06	0.000271987
Road 3	3	0900-1000	0.091081927	1.40978E-06	5.47947E-05	0.080160642	1.24074E-06	4.82244E-05	0.470075855	7.27591E-06	0.000282796	0.411729772	6.37282E-06	0.000247696	0.491890415	7.61356E-06	0.00029592
Road 3	3	1000-1100	0.102870944	1.45035E-06	5.63716E-05	0.090405995	1.27461E-06	4.9541E-05	0.51915463	7.31944E-06	0.000284488	0.454731775	6.41116E-06	0.000249186	0.54513777	7.68577E-06	0.000298727
Road 3	3	1100-1200	0.101491475	1.39021E-06	5.40339E-05	0.089209614	1.22197E-06	4.7495E-05	0.526997459	7.21869E-06	0.000280572	0.461127084	6.31642E-06	0.000245503	0.550336698	7.53839E-06	0.000292998
Road 3	3	1200-1300	0.095553747	1.30887E-06	5.08726E-05	0.084301663	1.15475E-06	4.48821E-05	0.507548267	6.95228E-06	0.000270218	0.445698244	6.10508E-06	0.000237289	0.529999906	7.25982E-06	0.000282171

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.101628188	1.51108E-06	5.87317E-05	0.089725556	1.3341E-06	5.18531E-05	0.518639817	7.71148E-06	0.000299726	0.455700356	6.77566E-06	0.000263353	0.545425912	8.10975E-06	0.000315206
Road 3	3	1400-1500	0.093003105	1.39327E-06	5.41531E-05	0.083003448	1.24347E-06	4.83305E-05	0.482278469	7.22499E-06	0.000280817	0.428303897	6.4164E-06	0.000249389	0.511307345	7.65987E-06	0.00029772
Road 3	3	1500-1600	0.10292219	1.47749E-06	5.74263E-05	0.092155173	1.32292E-06	5.14187E-05	0.519536827	7.45816E-06	0.00028988	0.46308657	6.64779E-06	0.000258383	0.555241743	7.97072E-06	0.000309802
Road 3	3	1600-1700	0.097003084	1.51854E-06	5.9022E-05	0.086391732	1.35243E-06	5.25655E-05	0.497615195	7.78997E-06	0.000302776	0.440735369	6.89954E-06	0.000268168	0.5271271	8.25197E-06	0.000320733
Road 3	3	1700-1800	0.076106742	1.19508E-06	4.64499E-05	0.068643902	1.0779E-06	4.18951E-05	0.392413871	6.16197E-06	0.0002395	0.351712942	5.52285E-06	0.000214659	0.420356844	6.60075E-06	0.000256554
Road 3	3	1800-1900	0.071608004	1.17957E-06	4.5847E-05	0.064984197	1.07046E-06	4.16061E-05	0.396357264	6.52904E-06	0.000253767	0.356353272	5.87007E-06	0.000228155	0.421337468	6.94053E-06	0.000269761
Road 3	3	1900-2000	0.076249224	9.29483E-07	3.61267E-05	0.068655803	8.36918E-07	3.25289E-05	0.422149934	5.14603E-06	0.000200013	0.376926658	4.59476E-06	0.000178587	0.445582461	5.43168E-06	0.000211116
Road 3	3	2000-2100	0.070674422	7.35697E-07	2.85947E-05	0.06375433	6.63661E-07	2.57949E-05	0.389134453	4.05076E-06	0.000157443	0.348257458	3.62524E-06	0.000140904	0.412011787	4.28891E-06	0.000166699
Road 3	3	2100-2200	0.068908	6.79731E-07	2.64194E-05	0.063185008	6.23277E-07	2.42252E-05	0.390804911	3.85503E-06	0.000149835	0.355686504	3.50861E-06	0.000136371	0.418871512	4.13188E-06	0.000160596
Road 3	3	2200-2300	0.074227584	6.70295E-07	2.60527E-05	0.067666092	6.11043E-07	2.37497E-05	0.408362291	3.68762E-06	0.000143329	0.369415897	3.33592E-06	0.000129659	0.437081989	3.94697E-06	0.000153409
Road 3	3	2300-0000	0.064671454	5.20725E-07	2.02393E-05	0.059025637	4.75266E-07	1.84724E-05	0.373538705	3.00768E-06	0.000116901	0.33782261	2.7201E-06	0.000105723	0.396848247	3.19536E-06	0.000124196
Road 4	4	0000-0100	0.254733714	2.06381E-07	2.20985E-06	0.232697429	1.88528E-07	2.01868E-06	1.257840857	1.01908E-06	1.09119E-05	1.148482	9.30483E-07	9.96322E-06	1.381179429	1.11901E-06	1.19819E-05
Road 4	4	0100-0200	0.2418685	1.11976E-07	1.19899E-06	0.2197255	1.01725E-07	1.08923E-06	1.1965565	5.53961E-07	5.93158E-06	1.0868985	5.03194E-07	5.38799E-06	1.306624	6.04919E-07	6.47721E-06
Road 4	4	0200-0300	0.261423077	7.8669E-08	8.42354E-07	0.237162308	7.13683E-08	7.64182E-07	1.250546154	3.76322E-07	4.02949E-06	1.134402308	3.41371E-07	3.65526E-06	1.371564615	4.12739E-07	4.41944E-06
Road 4	4	0300-0400	0.240955714	3.90438E-08	4.18064E-07	0.214758571	3.47988E-08	3.72611E-07	1.237042857	2.00447E-07	2.1463E-06	1.102288571	1.78612E-07	1.9125E-06	1.317047143	2.1341E-07	2.28511E-06
Road 4	4	0400-0500	0.250696429	8.12442E-08	8.69929E-07	0.223849286	7.25438E-08	7.76768E-07	1.199716429	3.88797E-07	4.16307E-06	1.071314286	3.47185E-07	3.71751E-06	1.295163571	4.19729E-07	4.49428E-06
Road 4	4	0500-0600	0.232715417	1.29286E-07	1.38434E-06	0.206540833	1.14745E-07	1.22864E-06	1.072202917	5.95668E-07	6.37816E-06	0.950607917	5.28116E-07	5.65484E-06	1.15714875	6.4286E-07	6.88348E-06
Road 4	4	0600-0700	0.263121887	3.22812E-07	3.45653E-06	0.230538113	2.82836E-07	3.02849E-06	1.218674906	1.49513E-06	1.60093E-05	1.066895472	1.30892E-06	1.40154E-05	1.297433585	1.59176E-06	1.70439E-05
Road 4	4	0700-0800	0.265105543	5.64577E-07	6.04525E-06	0.230945435	4.91828E-07	5.26629E-06	1.273656196	2.71242E-06	2.90434E-05	1.108083587	2.35981E-06	2.52678E-05	1.339029022	2.85164E-06	3.05341E-05
Road 4	4	0800-0900	0.272642452	9.78231E-07	1.04745E-05	0.237201935	8.51072E-07	9.11292E-06	1.313983548	4.71452E-06	5.04811E-05	1.142396903	4.09888E-06	4.38891E-05	1.379598839	4.94995E-06	5.3002E-05
Road 4	4	0900-1000	0.275118986	9.42537E-07	1.00923E-05	0.241736486	8.28171E-07	8.86771E-06	1.258499324	4.31153E-06	4.6166E-05	1.104898716	3.7853E-06	4.05314E-05	1.346635203	4.61347E-06	4.93991E-05
Road 4	4	1000-1100	0.304970139	1.01657E-06	1.0885E-05	0.267797153	8.92657E-07	9.5582E-06	1.3986325	4.66211E-06	4.99199E-05	1.227894514	4.09298E-06	4.38259E-05	1.495691667	4.98564E-06	5.33841E-05
Road 4	4	1100-1200	0.28359529	1.01753E-06	1.08953E-05	0.249053548	8.93595E-07	9.56824E-06	1.29231471	4.63678E-06	4.96487E-05	1.134635613	4.07103E-06	4.35909E-05	1.383689161	4.96463E-06	5.31591E-05
Road 4	4	1200-1300	0.290279392	9.94476E-07	1.06484E-05	0.255895473	8.76679E-07	9.38711E-06	1.38084027	4.73066E-06	5.06539E-05	1.216919595	4.16908E-06	4.46407E-05	1.472815068	5.04576E-06	5.40278E-05
Road 4	4	1300-1400	0.297802133	1.03404E-06	1.1072E-05	0.262804267	9.12515E-07	9.77082E-06	1.383750533	4.80469E-06	5.14466E-05	1.220638267	4.23833E-06	4.53822E-05	1.483442533	5.15084E-06	5.5153E-05
Road 4	4	1400-1500	0.2691905	8.72377E-07	9.34104E-06	0.240089786	7.78069E-07	8.33123E-06	1.291036571	4.18391E-06	4.47996E-05	1.150658643	3.72899E-06	3.99284E-05	1.390748429	4.50706E-06	4.82596E-05
Road 4	4	1500-1600	0.30116576	8.71429E-07	9.33089E-06	0.26946168	7.79692E-07	8.34862E-06	1.39950192	4.04948E-06	4.33602E-05	1.25172392	3.62189E-06	3.87816E-05	1.5211856	4.40158E-06	4.71302E-05
Road 4	4	1600-1700	0.281547419	8.08145E-07	8.65328E-06	0.250595645	7.19302E-07	7.70199E-06	1.321414516	3.79295E-06	4.06133E-05	1.175790323	3.37495E-06	3.61376E-05	1.426385968	4.09426E-06	4.38396E-05
Road 4	4	1700-1800	0.26723378	7.85618E-07	8.41206E-06	0.241165748	7.08983E-07	7.59149E-06	1.275140551	3.74868E-06	4.01393E-05	1.149810945	3.38023E-06	3.61941E-05	1.390976693	4.08921E-06	4.37856E-05
Road 4	4	1800-1900	0.293578679	7.20355E-07	7.71326E-06	0.266638396	6.54252E-07	7.00545E-06	1.413394528	3.46805E-06	3.71344E-05	1.283446604	3.1492E-06	3.37203E-05	1.550085	3.80345E-06	4.07257E-05
Road 4	4	1900-2000	0.264274324	4.52692E-07	4.84724E-06	0.238157838	4.07956E-07	4.36822E-06	1.275426081	2.18476E-06	2.33935E-05	1.148881351	1.96799E-06	2.10724E-05	1.387039189	2.37595E-06	2.54406E-05
Road 4	4	2000-2100	0.229040204	2.59791E-07	2.78173E-06	0.206783469	2.34546E-07	2.51142E-06	1.110162857	1.25921E-06	1.34831E-05	1.000935306	1.13532E-06	1.21565E-05	1.207718776	1.36987E-06	1.46679E-05
Road 4	4	2100-2200	0.190158108	1.62867E-07	1.74391E-06	0.174614865	1.49554E-07	1.60137E-06	0.941091351	8.06027E-07	8.6306E-06	0.862963243	7.39112E-07	7.9141E-06	1.037578108	8.88666E-07	9.51547E-06
Road 4	4	2200-2300	0.255982857	3.73308E-07	3.99723E-06	0.233534762	3.40572E-07	3.6467E-06	1.217184762	1.77506E-06	1.90066E-05	1.109752857	1.61839E-06	1.7329E-05	1.343287619	1.95896E-06	2.09757E-05
Road 4	4	2300-0000	0.237610408	2.69512E-07	2.88582E-06	0.217013061	2.46149E-07	2.63566E-06	1.160581224	1.3164E-06	1.40955E-05	1.059449388	1.20169E-06	1.28672E-05	1.276462449	1.44784E-06	1.55029E-05
Road 5	5	0000-0100	0.080446425	2.91407E-07	3.94075E-06	0.073509482	2.66279E-07	3.60094E-06	0.450265181	1.63103E-06	2.20567E-05	0.408803575	1.48084E-06	2.00257E-05	0.482313057	1.74712E-06	2.36266E-05
Road 5	5	0100-0200	0.054509836	1.24816E-07	1.68791E-06	0.049496721	1.13337E-07	1.53268E-06	0.335560082	7.68362E-07	1.03907E-05	0.30217082	6.91908E-07	9.3568E-06	0.351667541	8.05245E-07	1.08895E-05
Road 5	5	0200-0300	0.052021279	8.39683E-08	1.13552E-06	0.047097791	7.60212E-08	1.02805E-06	0.36015814	5.81336E-07	7.86152E-06	0.322021628	5.1978E-07	7.02908E-06	0.369119419	5.95801E-07	8.05713E-06
Road 5	5	0300-0400	0.047046032	5.56288E-08	7.52278E-07	0.041823333	4.94533E-08	6.68766E-07	0.261068889	3.08696E-07	4.17456E-06	0.228639683	2.70351E-07	3.65601E-06	0.270463016	3.19804E-07	4.32477E-06
Road 5	5	0400-0500	0.066082626	1.22789E-07	1.66049E-06	0.058991919	1.09613E-07	1.48232E-06	0.379676667	7.0548E-07	9.54034E-06	0.335735455	6.23833E-07	8.43621E-06	0.394727374	7.33446E-07	9.91853E-06
Road 5	5	0500-0600	0.053875591	2.22459E-07	3.00836E-06	0.047721591	1.97049E-07	2.66473E-06	0.316085818	1.30516E-06	1.76499E-05	0.2760705	1.13993E-06	1.54155E-05	0.323792091	1.33698E-06	1.80802E-05
Road 5	5	0600-0700	0.080196804	5.84016E-07	7.89775E-06	0.07020482	5.11251E-07	6.91375E-06	0.405277397	2.95134E-06	3.99116E-05	0.351367268	2.55876E-06	3.46025E-05	0.421572088	3.07001E-06	4.15163E-05
Road 5	5	0700-0800	0.062559336	7.43244E-07	1.0051E-05	0.05441425	6.46476E-07	8.74241E-06	0.333275403	3.95952E-06	5.35454E-05	0.285619352	3.39334E-06	4.58887E-05	0.340033602	4.03981E-06	5.46312E-05
Road 5	5	0800-0900	0.067154638	1.06253E-06	1.43687E-05	0.05840261	9.2405E-07	1.24961E-05	0.330438754	5.22823E-06	7.07023E-05	0.284051305	4.49428E-06	6.0777E-05	0.342453915	5.41833E-06	7.32731E-05
Road 5	5	0900-1000	0.073481838	1.1254E-06	1.5219E-05	0.064712047	9.91085E-07	1.34026E-05	0.392177341	6.00632E-06	8.12246E-05	0.343231667	5.2567E-06	7.10874E-05	0.407943713	6.24779E-06	8.449E-05
Road 5	5	1000-1100	0.083336962	1.14807E-06	1.55256E-05	0.073270245	1.00939E-06	1.36502E-05	0.431705995	5.9473E-06	8.04265E-05	0.377773488	5.20431E-06	7.03789E-05	0.451043733	6.2137E-06	8.40291E-05
Road 5	5	1100-1200	0.082278727	1.07945E-06	1.45975E-05	0.07233133	9.48941E-07	1.28327E-05	0.445700758	5.84731E-06	7.90743E-05	0.389459828	5.10947E-06	6.90963E-05	0.461791159	6.05841E-06	8.1929E-05
Road 5	5	1200-1300	0.076372249	1.01342E-06	1.37047E-05	0.067391669	8.94255E-07	1.20932E-05	0.416908883	5.53218E-06	7.48127E-05	0.365538826	4.85052E-06	6.55946E-05	0.432930495	5.74478E-06	7.76877E-05
Road 5	5	1300-1400	0.083502638	1.21775E-06	1.64678E-05	0.073757066	1.07562E-06	1.45459E-05	0.435752844	6.35473E-06	8.59362E-05	0.382242986	5.57438E-06	7.53833E-05	0.456000051	6.65E-06	8.99292E-05
Road 5	5	1400-1500	0.078177254	1.16503E-06	1.57549E-05	0.069779673	1.03988E-06	1.40626E-05	0.409909018	6.10863E-06	8.26081E-05	0.363615718	5.41875E-06	7.32787E-05	0.43339539	6.45863E-06	8.73413E-05
Road 5	5	1500-1600	0.08702174	1.25763E-06	1.70072E-05	0.077928377	1.12622E-06	1.523E-05	0.444924026	6.43002E-06	8.69544E-05	0.396116195	5.72465E-06	7.74155E-05	0.474044571	6.85087E-06	9.26456E-05
Road 5	5	1600-1700	0.082598992	1.32239E-06	1.78829E-05	0.073544045	1.17742E-06	1.59225E-05	0.430654654	6.89468E-06	9.3238E-05	0.380939179	6.09874E-06	8.24745E-05	0.454483224	7.27617E-06	9.8397E-05
Road 5	5	1700-1800	0.060182444	9.61247E-07	1.29991E-05	0.054286428	8.67075E-07	1.17256E-05	0.314522961	5.02363E-06	6.79355E-05	0.281147756	4.49055E-06	6.07266E-05	0.335434183	5.35763E-06	7.24522E-05
Road 5	5	1800-1900	0.055993591	9.65805E-07	1.30608E-05	0.050816268	8.76504E-07	1.18531E-05	0.320904135	5.53511E-06	7.48524E-05	0.287501578	4.95897E-06	6.70611E-05	0.338317845	5.83547E-06	7.89142E-05
Road 5	5	1900-2000	0.064938601	8.36109E-07	1.13069E-05	0.058457566	7.52663E-07	1.01784E-05	0.368186181	4.74054E-06	6.41071E-05	0.327957274	4.22257E-06	5.71026E-05	0.38641484	4.97524E-06	6.72811E-05
Road 5	5	2000-2100	0.062555833	7.04458E-07	9.52651E-06	0.05642675	6.35436E-07	8.59313E-06	0.349645533	3.93745E-06	5.32469E-05	0.312486067	3.51899E-06	4.75879E-05	0.368912817	4.15442E-06	5.61811E-05
Road 5	5	2100-2200	0.064257145	6.97084E-07	9.4268E-06	0.058908062	6.39055E-07	8.64206E-06	0.368520467	3.99784E-06	5.40635E-05	0.335117215	3.63547E-06	4.91631E-05	0.394025277	4.27452E-06	5.78052E-05
Road 5	5	2200-2300	0.062083828	5.81453E-07	7.8631E-06	0.056581383	5.29919E-07	7.1662E-06	0.351256132	3.28973E-06	4.44876E-05	0.316982806	2.96874E-06	4.01468E-05	0.373564188	3.49866E-06	4.7313E-05
Road 5	5	2300-0000	0.054317682	4.61823E-07	6.24531E-06	0.049565519	4.21419E-07	5.69892E-06	0.322865651	2.74509E-06	3.71223E-05	0.29122872	2.4761E-06	3.34848E-05	0.340794238	2.89752E-06	3.91837E-05
Road 6	6	0000-0100	0.048155067	1.35572E-07	4.84614E-06	0.043928733	1.23673E-07	4.42082E-06	0.312353867	8.79375E-07	3.14341E-05	0.28156	7.9268E-07	2.83351E-05	0.325488733	9.16353E-07	3.27559E-05
Road 6	6	0100-0200	0.064272982	1.37521E-07	4.91582E-06	0.058347719	1.24843E-07	4.46263E-06	0.364539912	7.79984E-07	2.78813E-05	0.327556667	7.00853E-07	2.50527E-05	0.385904386	8.25696E-07	2.95153E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.058508481	8.67524E-08	3.10105E-06	0.053070127	7.86888E-08	2.81281E-06	0.33672557	4.99274E-07	1.7847E-05	0.302203924	4.48088E-07	1.60173E-05	0.355274051	5.26776E-07	1.88301E-05
Road 6	6	0300-0400	0.060940806	7.09146E-08	2.53491E-06	0.054389032	6.32905E-08	2.26238E-06	0.391615	4.55708E-07	1.62897E-05	0.346121613	4.02769E-07	1.43974E-05	0.400510645	4.6606E-07	1.66597E-05
Road 6	6	0400-0500	0.066839111	1.12904E-07	4.03586E-06	0.059669889	1.00794E-07	3.60297E-06	0.395919	6.68782E-07	2.39062E-05	0.349421111	5.90238E-07	2.10986E-05	0.409091	6.91032E-07	2.47016E-05
Road 6	6	0500-0600	0.060203765	1.83052E-07	6.54337E-06	0.053385679	1.62321E-07	5.80233E-06	0.367231235	1.11658E-06	3.99133E-05	0.320991049	9.75986E-07	3.48876E-05	0.374376728	1.13831E-06	4.06899E-05
Road 6	6	0600-0700	0.065451448	3.56248E-07	1.27344E-05	0.057293241	3.11844E-07	1.11472E-05	0.417594172	2.27294E-06	8.12484E-05	0.360100621	1.96001E-06	7.00623E-05	0.417393862	2.27185E-06	8.12095E-05
Road 6	6	0700-0800	0.061450758	5.3285E-07	1.90472E-05	0.05347855	4.63722E-07	1.65762E-05	0.357228896	3.09759E-06	0.000110726	0.306007511	2.65344E-06	9.48498E-05	0.359486061	3.11717E-06	0.000111426
Road 6	6	0800-0900	0.052197326	6.48548E-07	2.3183E-05	0.045296949	5.62811E-07	2.01182E-05	0.311801405	3.87411E-06	0.000138484	0.265306586	3.29641E-06	0.000117833	0.310603535	3.85923E-06	0.000137952
Road 6	6	0900-1000	0.05453793	6.47945E-07	2.31614E-05	0.047910284	5.69204E-07	2.03467E-05	0.310804566	3.69255E-06	0.000131994	0.269479494	3.20159E-06	0.000114444	0.317389779	3.77079E-06	0.00013479
Road 6	6	1000-1100	0.072745944	7.30463E-07	2.61111E-05	0.063916093	6.418E-07	2.29418E-05	0.399375009	4.01024E-06	0.00014335	0.348260579	3.49699E-06	0.000125003	0.412176673	4.13879E-06	0.000147945
Road 6	6	1100-1200	0.083956259	8.38302E-07	2.99659E-05	0.073842049	7.37312E-07	2.63559E-05	0.440525658	4.39864E-06	0.000157234	0.38484797	3.8427E-06	0.000137361	0.458690019	4.58001E-06	0.000163717
Road 6	6	1200-1300	0.080584455	7.91022E-07	2.82758E-05	0.071132008	6.98236E-07	2.49591E-05	0.405539771	3.98081E-06	0.000142298	0.35602979	3.49481E-06	0.000124925	0.427161797	4.19305E-06	0.000149884
Road 6	6	1300-1400	0.093419789	9.13508E-07	3.26542E-05	0.082506449	8.06792E-07	2.88395E-05	0.478717102	4.68115E-06	0.000167332	0.42003261	4.1073E-06	0.000146819	0.50253906	4.91409E-06	0.000175659
Road 6	6	1400-1500	0.088270871	9.50966E-07	3.39932E-05	0.078773902	8.48653E-07	3.03359E-05	0.445416272	4.79859E-06	0.00017153	0.394906568	4.25444E-06	0.000152079	0.47368047	5.10309E-06	0.000182415
Road 6	6	1500-1600	0.077315943	8.15532E-07	2.9152E-05	0.069184324	7.2976E-07	2.60859E-05	0.404146495	4.26296E-06	0.000152383	0.359025302	3.78702E-06	0.00013537	0.428209626	4.51678E-06	0.000161456
Road 6	6	1600-1700	0.080838455	8.73929E-07	3.12394E-05	0.071995625	7.78331E-07	2.78222E-05	0.40346401	4.36177E-06	0.000155916	0.356926424	3.85866E-06	0.000137932	0.428922049	4.637E-06	0.000165754
Road 6	6	1700-1800	0.059921492	6.86038E-07	2.45231E-05	0.054063344	6.18968E-07	2.21256E-05	0.310314148	3.55277E-06	0.000126997	0.277555607	3.17772E-06	0.000113591	0.331618951	3.79669E-06	0.000135716
Road 6	6	1800-1900	0.058248491	7.53251E-07	2.69257E-05	0.052832787	6.83217E-07	2.44222E-05	0.308242279	3.98609E-06	0.000142487	0.276731655	3.57861E-06	0.000127921	0.329564441	4.26182E-06	0.000152343
Road 6	6	1900-2000	0.069172176	6.80297E-07	2.43179E-05	0.062247538	6.12194E-07	2.18835E-05	0.366311908	3.60262E-06	0.000128779	0.326072805	3.20687E-06	0.000114633	0.388320344	3.81907E-06	0.000136516
Road 6	6	2000-2100	0.054374761	4.26589E-07	1.52488E-05	0.049008612	3.84489E-07	1.37439E-05	0.320589785	2.51514E-06	8.9906E-05	0.285698708	2.24141E-06	8.01211E-05	0.334707321	2.62589E-06	9.38651E-05
Road 6	6	2100-2200	0.075471778	5.09944E-07	1.82284E-05	0.069220694	4.67707E-07	1.67186E-05	0.404886	2.73572E-06	9.77908E-05	0.368571111	2.49035E-06	8.90198E-05	0.437791806	2.95805E-06	0.000105738
Road 6	6	2200-2300	0.056680105	4.05314E-07	1.44883E-05	0.051598215	3.68974E-07	1.31893E-05	0.323827927	2.31566E-06	8.27755E-05	0.290394882	2.07659E-06	7.42295E-05	0.341993097	2.44556E-06	8.74188E-05
Road 6	6	2300-0000	0.038012885	2.54703E-07	9.10462E-06	0.034684286	2.324E-07	8.30737E-06	0.240871541	1.61395E-06	5.76921E-05	0.216655042	1.45169E-06	5.18919E-05	0.251339328	1.68409E-06	6.01993E-05
Road 7	7	0000-0100	0.070520409	1.90437E-07	4.75394E-06	0.064381272	1.73859E-07	4.34008E-06	0.41870183	1.13069E-06	2.82256E-05	0.379482722	1.02478E-06	2.55818E-05	0.443863994	1.19864E-06	2.99219E-05
Road 7	7	0100-0200	0.087195695	1.83564E-07	4.58235E-06	0.079209629	1.66752E-07	4.16267E-06	0.478739789	1.00784E-06	2.5159E-05	0.43224905	9.09969E-07	2.27158E-05	0.511458679	1.07672E-06	2.68784E-05
Road 7	7	0200-0300	0.07462383	1.01843E-07	2.54232E-06	0.067689894	9.23796E-08	2.3061E-06	0.424300851	5.79063E-07	1.44553E-05	0.382207872	5.21617E-07	1.30213E-05	0.449897766	6.13997E-07	1.53274E-05
Road 7	7	0300-0400	0.077147194	8.51252E-08	2.125E-06	0.068895658	7.60203E-08	1.89772E-06	0.467118763	5.15425E-07	1.28667E-05	0.414373026	4.57224E-07	1.14138E-05	0.483268684	5.33245E-07	1.33115E-05
Road 7	7	0400-0500	0.086499666	1.394E-07	3.47987E-06	0.077010899	1.24108E-07	3.09814E-06	0.484304829	7.80488E-07	1.94835E-05	0.42795788	6.89681E-07	1.72167E-05	0.504968779	8.13789E-07	2.03148E-05
Road 7	7	0500-0600	0.078651162	2.26097E-07	5.64412E-06	0.069778333	2.0059E-07	5.00739E-06	0.446767727	1.28431E-06	3.20607E-05	0.392445354	1.12815E-06	2.81624E-05	0.462223687	1.32875E-06	3.31698E-05
Road 7	7	0600-0700	0.084532345	4.34461E-07	1.08456E-05	0.074025452	3.8046E-07	9.49751E-06	0.494072232	2.53932E-06	6.33898E-05	0.428087062	2.20019E-06	5.49239E-05	0.502112514	2.58065E-06	6.44214E-05
Road 7	7	0700-0800	0.081058218	6.64921E-07	1.65986E-05	0.070612853	5.79237E-07	1.44597E-05	0.445611141	3.65535E-06	9.12494E-05	0.383960343	3.14963E-06	7.8625E-05	0.454573196	3.72886E-06	9.30846E-05
Road 7	7	0800-0900	0.080306862	9.9688E-07	2.48854E-05	0.070056034	8.69633E-07	2.17089E-05	0.439265702	5.45278E-06	0.000136119	0.378933512	4.70385E-06	0.000117423	0.448989545	5.57348E-06	0.000139132
Road 7	7	0900-1000	0.081165809	9.33303E-07	2.32983E-05	0.071348191	8.20413E-07	2.04802E-05	0.426819332	4.90788E-06	0.000122517	0.372314079	4.28114E-06	0.000106871	0.44366227	5.10155E-06	0.000127351
Road 7	7	1000-1100	0.095804417	9.66707E-07	2.41321E-05	0.084266028	8.50279E-07	2.12257E-05	0.504672475	5.09236E-06	0.000127122	0.441811384	4.45806E-06	0.000111288	0.526077412	5.30834E-06	0.000132513
Road 7	7	1100-1200	0.106585227	1.07394E-06	2.68091E-05	0.093870229	9.45827E-07	2.36109E-05	0.546992412	5.51144E-06	0.000137584	0.479681477	4.83322E-06	0.000120653	0.573551706	5.77905E-06	0.000144264
Road 7	7	1200-1300	0.103849668	1.04487E-06	2.60834E-05	0.091869756	9.24337E-07	2.30745E-05	0.525286306	5.28511E-06	0.000131933	0.463180518	4.66024E-06	0.000116335	0.555050274	5.58457E-06	0.000139409
Road 7	7	1300-1400	0.110661877	1.09574E-06	2.73532E-05	0.097470016	9.65116E-07	2.40925E-05	0.561217405	5.55699E-06	0.000138721	0.492086592	4.87248E-06	0.000121633	0.589556608	5.8376E-06	0.000145725
Road 7	7	1400-1500	0.102462101	1.06215E-06	2.65147E-05	0.091209161	9.45499E-07	2.36027E-05	0.522665266	5.41809E-06	0.000135253	0.463076048	4.80037E-06	0.000119833	0.554285209	5.74587E-06	0.000143436
Road 7	7	1500-1600	0.094900358	9.65851E-07	2.41108E-05	0.084963825	8.64722E-07	2.15863E-05	0.491231607	4.99952E-06	0.000124804	0.437519935	4.45287E-06	0.000111158	0.52248376	5.31759E-06	0.000132744
Road 7	7	1600-1700	0.098436497	1.03614E-06	2.58654E-05	0.087768603	9.2385E-07	2.30623E-05	0.491681793	5.17543E-06	0.000129196	0.436425781	4.59381E-06	0.000114676	0.524194384	5.51766E-06	0.000137739
Road 7	7	1700-1800	0.075082999	8.36106E-07	2.08719E-05	0.067732086	7.54248E-07	1.88285E-05	0.389954368	4.34244E-06	0.000108401	0.349642373	3.89353E-06	9.71953E-05	0.417374459	4.64778E-06	0.000116024
Road 7	7	1800-1900	0.068941549	7.97744E-07	1.99143E-05	0.06240463	7.22104E-07	1.80261E-05	0.364561151	4.21845E-06	0.000105306	0.327509401	3.78971E-06	9.46036E-05	0.389914031	4.51182E-06	0.00011263
Road 7	7	1900-2000	0.080255922	7.01452E-07	1.75105E-05	0.072280616	6.31746E-07	1.57704E-05	0.427750453	3.73862E-06	9.33281E-05	0.382111849	3.33973E-06	8.33705E-05	0.454392465	3.97148E-06	9.9141E-05
Road 7	7	2000-2100	0.073635639	5.30266E-07	1.32372E-05	0.066438156	4.78436E-07	1.19433E-05	0.404877941	2.91561E-06	7.27832E-05	0.362373943	2.60953E-06	6.51425E-05	0.428812099	3.08797E-06	7.70858E-05
Road 7	7	2100-2200	0.084122398	5.05634E-07	1.26223E-05	0.077041812	4.63075E-07	1.15599E-05	0.451994382	2.7168E-06	6.78202E-05	0.411348333	2.47249E-06	6.17214E-05	0.488390145	2.93556E-06	7.32813E-05
Road 7	7	2200-2300	0.070738676	4.5908E-07	1.14601E-05	0.064408581	4.17999E-07	1.04346E-05	0.392206252	2.54534E-06	6.35401E-05	0.353169767	2.292E-06	5.72159E-05	0.417578348	2.71E-06	6.76505E-05
Road 7	7	2300-0000	0.049729995	2.96746E-07	7.40774E-06	0.045378132	2.70778E-07	6.75949E-06	0.297452164	1.77494E-06	4.43082E-05	0.268589097	1.60271E-06	4.00088E-05	0.313967229	1.87349E-06	4.67683E-05
Road 8	8	0000-0100	0.223403333	1.62475E-07	2.67834E-06	0.204056667	1.48405E-07	2.4464E-06	1.106586944	8.04791E-07	1.32667E-05	1.010245833	7.34724E-07	1.21117E-05	1.2143025	8.83129E-07	1.45581E-05
Road 8	8	0100-0200	0.233043333	1.41238E-07	2.32826E-06	0.211726	1.28319E-07	2.11529E-06	1.150984667	6.97566E-07	1.14991E-05	1.045581333	6.33686E-07	1.04461E-05	1.257307333	7.62004E-07	1.25614E-05
Road 8	8	0200-0300	0.220312	6.67612E-08	1.10053E-06	0.199952	6.05915E-08	9.98828E-07	1.144196667	3.46726E-07	5.71565E-06	1.038186	3.14602E-07	5.18609E-06	1.238138	3.75193E-07	6.18492E-06
Road 8	8	0300-0400	0.203592143	5.75816E-08	9.49211E-07	0.181647143	5.13749E-08	8.46897E-07	1.035642857	2.92909E-07	4.8285E-06	0.923594286	2.61219E-07	4.30609E-06	1.105241429	3.12594E-07	5.15299E-06
Road 8	8	0400-0500	0.233805238	9.91901E-08	1.63511E-06	0.208837619	8.85978E-08	1.4605E-06	1.121429048	4.75758E-07	7.84269E-06	1.001650952	4.24943E-07	7.00502E-06	1.210488571	5.13541E-07	8.46552E-06
Road 8	8	0500-0600	0.223702353	1.53654E-07	2.53293E-06	0.198625294	1.36429E-07	2.24899E-06	1.054949118	7.24612E-07	1.19449E-05	0.936074412	6.4296E-07	1.0599E-05	1.134699706	7.7939E-07	1.28479E-05
Road 8	8	0600-0700	0.254315645	3.18537E-07	5.25096E-06	0.222941452	2.7924E-07	4.60316E-06	1.184890161	1.4841E-06	2.44649E-05	1.037798065	1.29987E-06	2.14278E-05	1.260739516	1.57911E-06	2.6031E-05
Road 8	8	0700-0800	0.253400196	5.22158E-07	8.60758E-06	0.220799314	4.5498E-07	7.50018E-06	1.192639608	2.45756E-06	4.0512E-05	1.038262059	2.13945E-06	3.5268E-05	1.259061373	2.59443E-06	4.27682E-05
Road 8	8	0800-0900	0.281582552	1.0922E-06	1.80045E-05	0.245173073	9.50974E-07	1.56765E-05	1.330187865	5.15952E-06	8.50527E-05	1.157195573	4.48852E-06	7.39915E-05	1.402368646	5.43949E-06	8.9668E-05
Road 8	8	0900-1000	0.297391899	9.49251E-07	1.5648E-05	0.261381266	8.34308E-07	1.37533E-05	1.335358418	4.26236E-06	7.02633E-05	1.173389684	3.74537E-06	6.17409E-05	1.434770949	4.57967E-06	7.54942E-05
Road 8	8	1000-1100	0.280085813	9.05328E-07	1.4924E-05	0.245987125	7.9511E-07	1.31071E-05	1.295425688	4.18723E-06	6.9025E-05	1.136976063	3.67507E-06	6.05822E-05	1.382963188	4.47018E-06	7.36893E-05
Road 8	8	1100-1200	0.291143962	9.3519E-07	1.54163E-05	0.255667987	8.21237E-07	1.35378E-05	1.359347233	4.36639E-06	7.19783E-05	1.193552264	3.83383E-06	6.31993E-05	1.449220252	4.65507E-06	7.67371E-05
Road 8	8	1200-1300	0.293179471	1.00688E-06	1.6598E-05	0.258477059	8.87699E-07	1.46334E-05	1.380605294	4.74147E-06	7.81614E-05	1.216708353	4.17859E-06	6.88826E-05	1.475185412	5.06629E-06	8.35159E-05
Road 8	8	1300-1400	0.268329753	8.7817E-07	1.44763E-05	0.236840494	7.75114E-07	1.27775E-05	1.246625741	4.07987E-06	6.72551E-05	1.099840185	3.59948E-06	5.9336E-05	1.336680679	4.37459E-06	7.21135E-05
Road 8	8	1400-1500	0.260467842	7.31415E-07	1.20571E-05	0.232338561	6.52425E-07	1.0755E-05	1.259803309	3.53763E-06	5.83165E-05	1.123349209	3.15446E-06	5.2E-05	1.35568777	3.80688E-06	6.2755E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.267726619	7.51798E-07	1.23931E-05	0.239504245	6.72547E-07	1.10867E-05	1.262868561	3.54624E-06	5.84584E-05	1.128912014	3.17008E-06	5.22575E-05	1.368416259	3.84262E-06	6.33442E-05
Road 8	8	1600-1700	0.267156577	8.04168E-07	1.32564E-05	0.237801007	7.15805E-07	1.17998E-05	1.248811946	3.75905E-06	6.19665E-05	1.110875503	3.34385E-06	5.51221E-05	1.34867651	4.05965E-06	6.69218E-05
Road 8	8	1700-1800	0.216408077	6.82013E-07	1.12427E-05	0.195237244	6.15293E-07	1.01429E-05	1.051563974	3.31402E-06	5.46304E-05	0.947202179	2.98512E-06	4.92086E-05	1.142439423	3.60042E-06	5.93515E-05
Road 8	8	1800-1900	0.216208131	4.67359E-07	7.70424E-06	0.196433458	4.24614E-07	6.9996E-06	1.076894673	2.32783E-06	3.83735E-05	0.977445514	2.11286E-06	3.48297E-05	1.173878972	2.53748E-06	4.18293E-05
Road 8	8	1900-2000	0.21452013	3.33698E-07	5.50089E-06	0.193354156	3.00773E-07	4.95813E-06	1.094450649	1.70248E-06	2.80647E-05	0.986137403	1.53399E-06	2.52873E-05	1.179491558	1.83476E-06	3.02454E-05
Road 8	8	2000-2100	0.234193896	3.64302E-07	6.00538E-06	0.211432208	3.28895E-07	5.4217E-06	1.090387273	1.69616E-06	2.79605E-05	0.983326883	1.52962E-06	2.52152E-05	1.194759091	1.85851E-06	3.06369E-05
Road 8	8	2100-2200	0.192537963	2.10041E-07	3.46245E-06	0.176717407	1.92783E-07	3.17795E-06	0.978487593	1.06744E-06	1.75964E-05	0.896658519	9.78173E-07	1.61248E-05	1.073375926	1.17096E-06	1.93028E-05
Road 8	8	2200-2300	0.231852031	2.99768E-07	4.94157E-06	0.211516406	2.73476E-07	4.50815E-06	1.114935469	1.44153E-06	2.37631E-05	1.016052188	1.31368E-06	2.16556E-05	1.227568594	1.58716E-06	2.61637E-05
Road 8	8	2300-0000	0.181286792	1.94105E-07	3.19975E-06	0.165626981	1.77338E-07	2.92335E-06	0.907433962	9.71596E-07	1.60164E-05	0.828463208	8.87041E-07	1.46225E-05	0.994090189	1.06438E-06	1.75459E-05
Road 9	9	0000-0100	0.657571945	1.71956E-07	5.2133E-06	0.643479791	1.68271E-07	5.10158E-06	3.603536293	9.4233E-07	2.85692E-05	3.534390693	9.24248E-07	2.8021E-05	4.177870483	1.09252E-06	3.31226E-05
Road 9	9	0100-0200	0.684294449	1.40599E-07	4.26262E-06	0.668373112	1.37328E-07	4.16345E-06	3.579010402	7.35363E-07	2.22945E-05	3.503350317	7.19817E-07	2.18232E-05	4.171723428	8.57145E-07	2.59866E-05
Road 9	9	0200-0300	0.342244873	3.19634E-08	9.69055E-07	0.33467982	3.12569E-08	9.47635E-07	2.352647062	2.19722E-07	6.66144E-06	2.296219438	2.14452E-07	6.50167E-06	2.630899258	2.45709E-07	7.4493E-06
Road 9	9	0300-0400	0.425735006	3.18087E-08	9.64363E-07	0.415121667	3.10157E-08	9.40322E-07	2.819826351	2.10682E-07	6.38739E-06	2.754999848	2.05839E-07	6.24055E-06	3.170121515	2.36855E-07	7.18087E-06
Road 9	9	0400-0500	0.752652047	1.40585E-07	4.26222E-06	0.731690879	1.3667E-07	4.14352E-06	3.896696854	7.27851E-07	2.20667E-05	3.803179983	7.10384E-07	2.15372E-05	4.534870862	8.47054E-07	2.56807E-05
Road 9	9	0500-0600	0.5503857	1.74768E-07	5.29856E-06	0.53439684	1.69691E-07	5.14463E-06	3.092789547	9.82076E-07	2.97742E-05	3.0080689	9.55175E-07	2.89586E-05	3.54246574	1.12487E-06	3.41033E-05
Road 9	9	0600-0700	0.607309801	3.63E-07	1.10053E-05	0.58743889	3.51123E-07	1.06452E-05	3.427164535	2.04848E-06	6.2105E-05	3.316942392	1.98259E-06	6.01076E-05	3.904381282	2.33372E-06	7.07528E-05
Road 9	9	0700-0800	0.436320103	3.99344E-07	1.21072E-05	0.419984688	3.84393E-07	1.16539E-05	2.524785297	2.31082E-06	7.00587E-05	2.424070889	2.21864E-06	6.7264E-05	2.844055577	2.60304E-06	7.89179E-05
Road 9	9	0800-0900	0.763166515	1.63932E-06	4.97002E-05	0.735238448	1.57933E-06	4.78815E-05	4.440309904	9.538E-06	0.00028917	4.295288518	9.22648E-06	0.000279725	5.030526966	1.08058E-05	0.000327607
Road 9	9	0900-1000	0.736153634	1.19628E-06	3.62685E-05	0.71104472	1.15548E-06	3.50314E-05	3.917844966	6.36667E-06	0.000193022	3.798278801	6.17237E-06	0.000187132	4.509323521	7.32785E-06	0.000222163
Road 9	9	1000-1100	0.901202152	1.22883E-06	3.72552E-05	0.872241672	1.18934E-06	3.6058E-05	4.685184698	6.38845E-06	0.000193683	4.556605214	6.21313E-06	0.000188367	5.428846886	7.40247E-06	0.000224425
Road 9	9	1100-1200	0.708240736	1.0054E-06	3.04815E-05	0.685822627	9.7358E-07	2.95166E-05	3.970252343	5.63609E-06	0.000170873	3.854387861	5.47161E-06	0.000165886	4.540210489	6.44519E-06	0.000195403
Road 9	9	1200-1300	0.798700498	1.10398E-06	3.34701E-05	0.773022603	1.06849E-06	3.23941E-05	4.201110407	5.80687E-06	0.00017605	4.080150683	5.63967E-06	0.000170982	4.853173286	6.70816E-06	0.000203376
Road 9	9	1300-1400	0.86260066	9.82846E-07	2.97976E-05	0.832303286	9.48326E-07	2.8751E-05	3.920273508	4.46676E-06	0.000135421	3.794201179	4.32311E-06	0.000131066	4.626504465	5.27143E-06	0.000159817
Road 9	9	1400-1500	0.538284674	6.83702E-07	2.07282E-05	0.521382557	6.62234E-07	2.00774E-05	3.240918176	4.11645E-06	0.000124801	3.144437949	3.99391E-06	0.000121086	3.665820506	4.65614E-06	0.000141163
Road 9	9	1500-1600	0.564510939	6.01026E-07	1.82217E-05	0.549539389	5.85086E-07	1.77384E-05	3.336953814	3.5528E-06	0.000107713	3.251605123	3.46193E-06	0.000104958	3.801144512	4.04702E-06	0.000122696
Road 9	9	1600-1700	0.511445883	7.6425E-07	2.31703E-05	0.497016481	7.42689E-07	2.25166E-05	3.147285903	4.70297E-06	0.000142583	3.059823595	4.57228E-06	0.000138621	3.556840076	5.31496E-06	0.000161137
Road 9	9	1700-1800	0.385760525	4.97179E-07	1.50733E-05	0.375476134	4.83924E-07	1.46714E-05	2.311792381	2.9795E-06	9.03315E-05	2.242285443	2.88992E-06	8.76156E-05	2.617761577	3.37385E-06	0.000102287
Road 9	9	1800-1900	0.365701812	3.00556E-07	9.11216E-06	0.356432905	2.92939E-07	8.8812E-06	2.057422937	1.69092E-06	5.12646E-05	1.995910107	1.64036E-06	4.97319E-05	2.352343012	1.9333E-06	5.86131E-05
Road 9	9	1900-2000	0.407008645	3.26902E-07	9.91091E-06	0.395784381	3.17887E-07	9.63759E-06	2.390624362	1.92011E-06	5.82132E-05	2.315387397	1.85968E-06	5.63811E-05	2.711171778	2.17757E-06	6.60187E-05
Road 9	9	2000-2100	0.53084331	2.87548E-07	8.71778E-06	0.516814634	2.79949E-07	8.48739E-06	2.39945382	1.29974E-06	3.9405E-05	2.330082636	1.26216E-06	3.82658E-05	2.846897269	1.54211E-06	4.67532E-05
Road 9	9	2100-2200	0.021136597	1.10545E-08	3.35146E-07	0.019670773	1.02879E-08	3.11904E-07	0.306494723	1.60298E-07	4.85985E-06	0.280247897	1.4657E-07	4.44367E-06	0.29991867	1.56858E-07	4.75557E-06
Road 9	9	2200-2300	0.559349146	3.44781E-07	1.04529E-05	0.546991203	3.37163E-07	1.0222E-05	3.123852625	1.92553E-06	5.83775E-05	3.057748288	1.88478E-06	5.71422E-05	3.604739491	2.22195E-06	6.73642E-05
Road 9	9	2300-0000	0.39400945	2.20787E-07	6.69375E-06	0.384910971	2.15689E-07	6.53917E-06	2.258511227	1.26558E-06	3.83694E-05	2.204709217	1.23543E-06	3.74554E-05	2.589620188	1.45112E-06	4.39945E-05
Road 10	10	0000-0100	1.195397119	9.20618E-07	2.04355E-05	1.172613331	9.03072E-07	2.00461E-05	7.487972	5.76676E-06	0.000128008	7.373092092	5.67828E-06	0.000126044	8.545705423	6.58135E-06	0.00014609
Road 10	10	0100-0200	1.147213037	6.67541E-07	1.48178E-05	1.123677691	6.53846E-07	1.45138E-05	7.115165522	4.14018E-06	9.19021E-05	6.996479102	4.07111E-06	9.03691E-05	8.120156793	4.72496E-06	0.000104883
Road 10	10	0200-0300	1.222588889	3.97547E-07	8.82461E-06	1.197750386	3.89471E-07	8.64533E-06	7.480579716	2.43245E-06	5.39946E-05	7.359495	2.39308E-06	5.31206E-05	8.557245386	2.78255E-06	6.17659E-05
Road 10	10	0300-0400	1.111865768	2.28343E-07	5.06868E-06	1.085151996	2.22857E-07	4.9469E-06	7.165820183	1.47164E-06	3.2667E-05	7.024859506	1.44269E-06	3.20244E-05	8.110011502	1.66555E-06	3.69713E-05
Road 10	10	0400-0500	1.194908648	4.70346E-07	1.04406E-05	1.165581022	4.58802E-07	1.01843E-05	7.242448996	2.85081E-06	6.32812E-05	7.100799629	2.79505E-06	6.20435E-05	8.266380652	3.25385E-06	7.22279E-05
Road 10	10	0500-0600	1.05851689	7.42739E-07	1.64871E-05	1.030789989	7.23284E-07	1.60552E-05	6.345490179	4.4525E-06	9.88349E-05	6.211239446	4.3583E-06	9.67439E-05	7.242029434	5.08158E-06	0.000112799
Road 10	10	0600-0700	1.137632948	1.59651E-06	3.54387E-05	1.102074	1.54661E-06	3.4331E-05	6.707650186	9.41324E-06	0.000208952	6.535770231	9.17203E-06	0.000203597	7.637844231	1.07186E-05	0.000237928
Road 10	10	0700-0800	1.09381023	2.41483E-06	5.36035E-05	1.056201741	2.3318E-06	5.17605E-05	6.514222393	1.43816E-05	0.000319237	6.329704301	1.39742E-05	0.000310195	7.385906042	1.6306E-05	0.000361955
Road 10	10	0800-0900	1.229687121	5.21917E-06	0.000115853	1.185720786	5.03256E-06	0.000111711	7.390207986	3.13663E-05	0.000696257	7.176648416	3.04599E-05	0.000676137	8.362369202	3.54924E-05	0.000787848
Road 10	10	0900-1000	1.254065905	4.24953E-06	9.43294E-05	1.213026653	4.11046E-06	9.12425E-05	7.368457794	2.49687E-05	0.000554247	7.17432693	2.43109E-05	0.000539645	8.387353584	2.84214E-05	0.000630887
Road 10	10	1000-1100	1.255037129	4.61796E-06	0.000102508	1.212548537	4.46162E-06	9.90374E-05	7.177033449	2.64082E-05	0.000586199	6.985211834	2.57024E-05	0.000570531	8.197760371	3.0164E-05	0.000669569
Road 10	10	1100-1200	1.286635386	4.73422E-06	0.000105089	1.243761434	4.57647E-06	0.000101587	7.530448526	2.77086E-05	0.000615065	7.33210962	2.69788E-05	0.000598865	8.575871054	3.15552E-05	0.000700452
Road 10	10	1200-1300	1.280284153	4.86423E-06	0.000107974	1.238624028	4.70595E-06	0.000104461	7.500159088	2.84956E-05	0.000632536	7.307143017	2.77623E-05	0.000616257	8.545767045	3.24682E-05	0.000720718
Road 10	10	1300-1400	1.241608839	4.07982E-06	9.05623E-05	1.201769853	3.94891E-06	8.76565E-05	7.17069896	2.35623E-05	0.000523027	6.98704297	2.29588E-05	0.000509631	8.188812823	2.69077E-05	0.000597288
Road 10	10	1400-1500	1.130556665	3.50208E-06	7.77378E-05	1.097631322	3.40009E-06	7.54739E-05	6.851866381	2.12247E-05	0.000471139	6.689437637	2.07216E-05	0.00045997	7.787068959	2.41217E-05	0.000535444
Road 10	10	1500-1600	1.1983977	3.79426E-06	8.42237E-05	1.164935132	3.68832E-06	8.18719E-05	7.08967075	2.24467E-05	0.000498264	6.931222153	2.1945E-05	0.000487128	8.096157286	2.56334E-05	0.000569
Road 10	10	1600-1700	1.092938156	3.85317E-06	8.55312E-05	1.060599071	3.73915E-06	8.30004E-05	6.568008764	2.31556E-05	0.000513999	6.409959134	2.25984E-05	0.000501631	7.470558204	2.63375E-05	0.000584631
Road 10	10	1700-1800	0.989741774	3.30302E-06	7.33193E-05	0.964050629	3.21728E-06	7.14161E-05	5.951122304	1.98604E-05	0.000440854	5.822479279	1.94311E-05	0.000431324	6.786529908	2.26484E-05	0.000502741
Road 10	10	1800-1900	1.069451853	2.21463E-06	4.91596E-05	1.044158216	2.16225E-06	4.79969E-05	6.471806812	1.34019E-05	0.00029749	6.346024463	1.31414E-05	0.000291708	7.390182679	1.53037E-05	0.000339705
Road 10	10	1900-2000	1.042240645	1.94424E-06	4.31575E-05	1.019033113	1.90095E-06	4.21965E-05	6.514197774	1.21518E-05	0.000269742	6.391315319	1.19226E-05	0.000264654	7.410348432	1.38236E-05	0.00030685
Road 10	10	2000-2100	1.333840115	1.64358E-06	3.64836E-05	1.305062618	1.60812E-06	3.56965E-05	8.0900616	9.96871E-06	0.000221282	7.952275239	9.79893E-06	0.000217513	9.257337857	1.14071E-05	0.00025321
Road 10	10	2100-2200	0.886665741	1.12291E-06	2.4926E-05	0.87035318	1.10226E-06	2.44675E-05	5.549195441	7.02775E-06	0.000156	5.461060425	6.91614E-06	0.000153522	6.331413606	8.01839E-06	0.000177989
Road 10	10	2200-2300	1.058705197	1.39515E-06	3.0969E-05	1.037856996	1.36768E-06	3.03592E-05	6.385750332	8.41507E-06	0.000186795	6.282610648	8.27915E-06	0.000183778	7.320467645	9.64683E-06	0.000214137
Road 10	10	2300-0000	0.964374578	1.18832E-06	2.63779E-05	0.944359003	1.16366E-06	2.58304E-05	5.929617248	7.30658E-06	0.000162189	5.828415994	7.18188E-06	0.000159421	6.772774997	8.34553E-06	0.000185251
Road 11	11	0000-0100	1.33826146	1.02228E-06	8.47992E-06	1.312646054	1.00272E-06	8.31761E-06	8.357556165	6.38424E-06	5.29578E-05	8.231261803	6.28777E-06	5.21576E-05	9.543907857	7.29049E-06	6.04752E-05
Road 11	11	0100-0200	1.312425612	7.0634E-07	5.85915E-06	1.28549272	6.91845E-07	5.73891E-06	8.099566601	4.35914E-06	3.61594E-05	7.967692686	4.28817E-06	3.55707E-05	9.253185406	4.98001E-06	4.13096E-05
Road 11	11	0200-0300	1.219649366	3.17617E-07	2.63466E-06	1.194881015	3.11167E-07	2.58115E-06	7.84303138	2.04246E-06	1.69423E-05	7.714355505	2.00895E-06	1.66644E-05	8.90923652	2.32011E-06	1.92455E-05
Road 11	11	0300-0400	1.310764669	3.18589E-07	2.64272E-06	1.279307342	3.10943E-07	2.5793E-06	8.39162344	2.03963E-06	1.69189E-05	8.232445341	2.00094E-06	1.6598E-05	9.511752683	2.31188E-06	1.91773E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.211505892	4.20662E-07	3.48942E-06	1.181362622	4.10195E-07	3.4026E-06	7.272350124	2.52512E-06	2.09461E-05	7.128284374	2.4751E-06	2.05311E-05	8.309646997	2.88529E-06	2.39337E-05
Road 11	11	0500-0600	0.965891593	4.52762E-07	3.75569E-06	0.940276385	4.40755E-07	3.65609E-06	5.894339173	2.76297E-06	2.29191E-05	5.764307655	2.70202E-06	2.24135E-05	6.70458404	3.14277E-06	2.60696E-05
Road 11	11	0600-0700	1.019245113	9.20152E-07	7.63273E-06	0.988913014	8.92769E-07	7.40559E-06	6.219314152	5.61466E-06	4.6574E-05	6.062238987	5.47285E-06	4.53978E-05	7.051152001	6.36562E-06	5.28034E-05
Road 11	11	0700-0800	1.160887003	2.19682E-06	1.82228E-05	1.121289172	2.12188E-06	1.76012E-05	7.190663248	1.36073E-05	0.000112874	6.989674126	1.3227E-05	0.000109719	8.110963298	1.53489E-05	0.00012732
Road 11	11	0800-0900	1.170326462	4.16522E-06	3.45509E-05	1.128698062	4.01707E-06	3.33219E-05	7.134005439	2.53901E-05	0.000210613	6.927926144	2.46567E-05	0.000204529	8.056624207	2.86737E-05	0.000237851
Road 11	11	0900-1000	1.149890177	2.93462E-06	2.43429E-05	1.112585155	2.83941E-06	2.35531E-05	6.800685191	1.73559E-05	0.000143969	6.622126299	1.69002E-05	0.000140189	7.734711454	1.97396E-05	0.000163742
Road 11	11	1000-1100	1.242452186	2.61001E-06	2.16503E-05	1.202396489	2.52587E-06	2.09523E-05	7.199941759	1.51249E-05	0.000125462	7.0144322	1.47352E-05	0.00012223	8.216828688	1.7261E-05	0.000143182
Road 11	11	1100-1200	1.169934645	2.76235E-06	2.29139E-05	1.132692958	2.67441E-06	2.21845E-05	7.075073501	1.6705E-05	0.00013857	6.891434482	1.62714E-05	0.000134973	8.02412744	1.89459E-05	0.000157157
Road 11	11	1200-1300	1.290148524	3.67334E-06	3.04706E-05	1.248861	3.55578E-06	2.94955E-05	7.706076504	2.19409E-05	0.000182002	7.509438737	2.1381E-05	0.000177357	8.758299737	2.49368E-05	0.000206853
Road 11	11	1300-1400	1.305381628	2.74221E-06	2.27468E-05	1.263637048	2.65452E-06	2.20194E-05	7.432217738	1.56128E-05	0.00012951	7.241543301	1.52123E-05	0.000126187	8.505180349	1.78668E-05	0.000148206
Road 11	11	1400-1500	1.039691079	2.09382E-06	1.73684E-05	1.009714692	2.03345E-06	1.68677E-05	6.447410395	1.29844E-05	0.000107706	6.29392538	1.26753E-05	0.000105142	7.303640072	1.47087E-05	0.00012201
Road 11	11	1500-1600	1.131511711	2.29838E-06	1.90653E-05	1.104110115	2.24272E-06	1.86036E-05	7.08562024	1.43927E-05	0.000119388	6.944517561	1.41061E-05	0.000117011	8.048627677	1.63488E-05	0.000135614
Road 11	11	1600-1700	1.007734052	2.44935E-06	2.03176E-05	0.981852242	2.38645E-06	1.97958E-05	6.359727747	1.54577E-05	0.000128223	6.222804068	1.51249E-05	0.000125462	7.204656309	1.75113E-05	0.000145258
Road 11	11	1700-1800	1.024998834	2.5447E-06	2.11085E-05	1.001914625	2.48739E-06	2.06331E-05	6.466794597	1.60547E-05	0.000133175	6.343541397	1.57487E-05	0.000130637	7.345456022	1.82361E-05	0.00015127
Road 11	11	1800-1900	1.151826681	2.35964E-06	1.95734E-05	1.127989692	2.31081E-06	1.91684E-05	7.247096346	1.48465E-05	0.000123153	7.123070875	1.45924E-05	0.000121045	8.251060567	1.69032E-05	0.000140214
Road 11	11	1900-2000	1.069559394	1.68976E-06	1.40167E-05	1.045219523	1.6513E-06	1.36977E-05	6.727109424	1.06279E-05	8.81593E-05	6.59750667	1.04231E-05	8.64608E-05	7.642726193	1.20744E-05	0.000100159
Road 11	11	2000-2100	1.173920718	1.65083E-06	1.36937E-05	1.148082546	1.61449E-06	1.33923E-05	7.142351309	1.00439E-05	8.33152E-05	7.014430134	9.86404E-06	8.1823E-05	8.16251268	1.14785E-05	9.52154E-05
Road 11	11	2100-2200	0.867554162	8.73579E-07	7.24641E-06	0.851602241	8.57516E-07	7.11317E-06	5.62241678	5.66146E-06	4.69623E-05	5.534735298	5.57317E-06	4.62299E-05	6.386337539	6.43069E-06	5.33431E-05
Road 11	11	2200-2300	1.082218409	1.18368E-06	9.81869E-06	1.060736028	1.16018E-06	9.62379E-06	6.675977945	7.30185E-06	6.05694E-05	6.567414646	7.18311E-06	5.95845E-05	7.628150674	8.34329E-06	6.92083E-05
Road 11	11	2300-0000	1.024923824	1.06763E-06	8.85607E-06	1.00490743	1.04678E-06	8.68311E-06	6.417083233	6.68446E-06	5.54482E-05	6.31385315	6.57693E-06	5.45562E-05	7.31876058	7.62371E-06	6.32393E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.683181612	5.04357E-06	7.58579E-06	2.504501612	4.70771E-06	7.08063E-06	14.87861354	2.79673E-05	4.20642E-05	14.09562354	2.64955E-05	3.98506E-05	16.60012515	3.12032E-05	4.69312E-05
Haul Road 1	HR1	0800-0900	2.686181612	5.04921E-06	7.59427E-06	2.505501612	4.70959E-06	7.08346E-06	14.89140354	2.79914E-05	4.21004E-05	14.09972354	2.65032E-05	3.98622E-05	16.60522515	3.12128E-05	4.69456E-05
Haul Road 1	HR1	0900-1000	2.670491612	5.01972E-06	7.54991E-06	2.503601612	4.70602E-06	7.07808E-06	14.82295354	2.78627E-05	4.19069E-05	14.09182354	2.64884E-05	3.98398E-05	16.59542515	3.11944E-05	4.69179E-05
Haul Road 1	HR1	1000-1100	2.665601612	5.01053E-06	7.53608E-06	2.498401612	4.69624E-06	7.06338E-06	14.80125354	2.78219E-05	4.18455E-05	14.06884354	2.64452E-05	3.97749E-05	16.56724515	3.11414E-05	4.68383E-05
Haul Road 1	HR1	1100-1200	2.670491612	5.01972E-06	7.54991E-06	2.503001612	4.70489E-06	7.07639E-06	14.82295354	2.78627E-05	4.19069E-05	14.08893354	2.6483E-05	3.98317E-05	16.59193515	3.11878E-05	4.69081E-05
Haul Road 1	HR1	1200-1300	2.670491612	5.01972E-06	7.54991E-06	2.507601612	4.71354E-06	7.08939E-06	14.82295354	2.78627E-05	4.19069E-05	14.10911354	2.65209E-05	3.98887E-05	16.61671515	3.12344E-05	4.69781E-05
Haul Road 1	HR1	1300-1400	2.669191612	5.01728E-06	7.54623E-06	2.507601612	4.71354E-06	7.08939E-06	14.81695354	2.78514E-05	4.18899E-05	14.10911354	2.65209E-05	3.98887E-05	16.61671515	3.12344E-05	4.69781E-05
Haul Road 1	HR1	1400-1500	2.659801612	4.99963E-06	7.51969E-06	2.512201612	4.72218E-06	7.1024E-06	14.77577354	2.7774E-05	4.17735E-05	14.12929354	2.65588E-05	3.99458E-05	16.64149515	3.1281E-05	4.70482E-05
Haul Road 1	HR1	1500-1600	2.650401612	4.98196E-06	7.49311E-06	2.507601612	4.71354E-06	7.08939E-06	14.73461354	2.76966E-05	4.16571E-05	14.10911354	2.65209E-05	3.98887E-05	16.61671515	3.12344E-05	4.69781E-05
Haul Road 1	HR1	1600-1700	2.647211612	4.97596E-06	7.48409E-06	2.498401612	4.69624E-06	7.06338E-06	14.72091354	2.76709E-05	4.16184E-05	14.06884354	2.64452E-05	3.97749E-05	16.56724515	3.11414E-05	4.68383E-05
Haul Road 1	HR1	1700-1800	2.634721612	4.95248E-06	7.44878E-06	2.503601612	4.70602E-06	7.07808E-06	14.66594354	2.75676E-05	4.1463E-05	14.09182354	2.64884E-05	3.98398E-05	16.59542515	3.11944E-05	4.69179E-05
Haul Road 1	HR1	1800-1900	2.627421612	4.93876E-06	7.42814E-06	2.505501612	4.70959E-06	7.08346E-06	14.63437354	2.75082E-05	4.13737E-05	14.09972354	2.65032E-05	3.98622E-05	16.60522515	3.12128E-05	4.69456E-05
Haul Road 1	HR1	1900-2000	2.624521612	4.93331E-06	7.41994E-06	2.493311612	4.68668E-06	7.04899E-06	14.62148354	2.7484E-05	4.13373E-05	14.04635354	2.64029E-05	3.97113E-05	16.53966515	3.10896E-05	4.67603E-05
Haul Road 1	HR1	2000-2100	2.612831612	4.91134E-06	7.38689E-06	2.485211612	4.67145E-06	7.02609E-06	14.57001354	2.73872E-05	4.11918E-05	14.01078354	2.63361E-05	3.96107E-05	16.49599515	3.10075E-05	4.66368E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.683181612	3.47562E-06	6.9201E-06	2.504501612	3.24417E-06	6.45927E-06	14.87861354	1.92728E-05	3.83729E-05	14.09562354	1.82586E-05	3.63535E-05	16.60012515	2.15028E-05	4.28128E-05
Haul Road 2	HR2	0800-0900	2.686181612	3.47951E-06	6.92784E-06	2.505501612	3.24547E-06	6.46185E-06	14.89140354	1.92894E-05	3.84059E-05	14.09972354	1.82639E-05	3.63641E-05	16.60522515	2.15094E-05	4.2826E-05
Haul Road 2	HR2	0900-1000	2.670491612	3.45919E-06	6.88737E-06	2.503601612	3.24301E-06	6.45695E-06	14.82295354	1.92007E-05	3.82294E-05	14.09182354	1.82537E-05	3.63437E-05	16.59542515	2.14967E-05	4.28007E-05
Haul Road 2	HR2	1000-1100	2.665601612	3.45285E-06	6.87476E-06	2.498401612	3.23627E-06	6.44354E-06	14.80125354	1.91726E-05	3.81734E-05	14.06884354	1.82239E-05	3.62845E-05	16.56724515	2.14602E-05	4.2728E-05
Haul Road 2	HR2	1100-1200	2.670491612	3.45919E-06	6.88737E-06	2.503001612	3.24223E-06	6.4554E-06	14.82295354	1.92007E-05	3.82294E-05	14.08893354	1.82499E-05	3.63363E-05	16.59193515	2.14921E-05	4.27917E-05
Haul Road 2	HR2	1200-1300	2.670491612	3.45919E-06	6.88737E-06	2.507601612	3.24819E-06	6.46727E-06	14.82295354	1.92007E-05	3.82294E-05	14.10911354	1.82761E-05	3.63883E-05	16.61671515	2.15242E-05	4.28556E-05
Haul Road 2	HR2	1300-1400	2.669191612	3.4575E-06	6.88402E-06	2.507601612	3.24819E-06	6.46727E-06	14.81695354	1.91929E-05	3.82139E-05	14.10911354	1.82761E-05	3.63883E-05	16.61671515	2.15242E-05	4.28556E-05
Haul Road 2	HR2	1400-1500	2.659801612	3.44534E-06	6.8598E-06	2.512201612	3.25415E-06	6.47913E-06	14.77577354	1.91396E-05	3.81077E-05	14.12929354	1.83022E-05	3.64404E-05	16.64149515	2.15563E-05	4.29195E-05
Haul Road 2	HR2	1500-1600	2.650401612	3.43316E-06	6.83556E-06	2.507601612	3.24819E-06	6.46727E-06	14.73461354	1.90863E-05	3.80015E-05	14.10911354	1.82761E-05	3.63883E-05	16.61671515	2.15242E-05	4.28556E-05
Haul Road 2	HR2	1600-1700	2.647211612	3.42903E-06	6.82733E-06	2.498401612	3.23627E-06	6.44354E-06	14.72091354	1.90685E-05	3.79662E-05	14.06884354	1.82239E-05	3.62845E-05	16.56724515	2.14602E-05	4.2728E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.634721612	3.41285E-06	6.79512E-06	2.503601612	3.24301E-06	6.45695E-06	14.66594354	1.89973E-05	3.78244E-05	14.09182354	1.82537E-05	3.63437E-05	16.59542515	2.14967E-05	4.28007E-05
Haul Road 2	HR2	1800-1900	2.627421612	3.4034E-06	6.77629E-06	2.505501612	3.24547E-06	6.46185E-06	14.63437354	1.89564E-05	3.7743E-05	14.09972354	1.82639E-05	3.63641E-05	16.60522515	2.15094E-05	4.2826E-05
Haul Road 2	HR2	1900-2000	2.624521612	3.39964E-06	6.76881E-06	2.493311612	3.22968E-06	6.43041E-06	14.62148354	1.89397E-05	3.77098E-05	14.04635354	1.81948E-05	3.62265E-05	16.53966515	2.14244E-05	4.26569E-05
Haul Road 2	HR2	2000-2100	2.612831612	3.3845E-06	6.73866E-06	2.485211612	3.21919E-06	6.40952E-06	14.57001354	1.88731E-05	3.7577E-05	14.01078354	1.81487E-05	3.61347E-05	16.49599515	2.13679E-05	4.25443E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.683181612	3.47562E-06	6.40103E-06	2.504501612	3.24417E-06	5.97477E-06	14.87861354	1.92728E-05	3.54946E-05	14.09562354	1.82586E-05	3.36267E-05	16.60012515	2.15028E-05	3.96014E-05
Haul Road 3	HR3	0800-0900	2.686181612	3.47951E-06	6.40819E-06	2.505501612	3.24547E-06	5.97715E-06	14.89140354	1.92894E-05	3.55251E-05	14.09972354	1.82639E-05	3.36365E-05	16.60522515	2.15094E-05	3.96136E-05
Haul Road 3	HR3	0900-1000	2.670491612	3.45919E-06	6.37075E-06	2.503601612	3.24301E-06	5.97262E-06	14.82295354	1.92007E-05	3.53618E-05	14.09182354	1.82537E-05	3.36176E-05	16.59542515	2.14967E-05	3.95902E-05
Haul Road 3	HR3	1000-1100	2.665601612	3.45285E-06	6.35909E-06	2.498401612	3.23627E-06	5.96021E-06	14.80125354	1.91726E-05	3.531E-05	14.06884354	1.82239E-05	3.35628E-05	16.56724515	2.14602E-05	3.9523E-05
Haul Road 3	HR3	1100-1200	2.670491612	3.45919E-06	6.37075E-06	2.503001612	3.24223E-06	5.97119E-06	14.82295354	1.92007E-05	3.53618E-05	14.08893354	1.82499E-05	3.36107E-05	16.59193515	2.14921E-05	3.95819E-05
Haul Road 3	HR3	1200-1300	2.670491612	3.45919E-06	6.37075E-06	2.507601612	3.24819E-06	5.98216E-06	14.82295354	1.92007E-05	3.53618E-05	14.10911354	1.82761E-05	3.36589E-05	16.61671515	2.15242E-05	3.9641E-05
Haul Road 3	HR3	1300-1400	2.669191612	3.4575E-06	6.36765E-06	2.507601612	3.24819E-06	5.98216E-06	14.81695354	1.91929E-05	3.53475E-05	14.10911354	1.82761E-05	3.36589E-05	16.61671515	2.15242E-05	3.9641E-05
Haul Road 3	HR3	1400-1500	2.659801612	3.44534E-06	6.34525E-06	2.512201612	3.25415E-06	5.99314E-06	14.77577354	1.91396E-05	3.52493E-05	14.12929354	1.83022E-05	3.3707E-05	16.64149515	2.15563E-05	3.97001E-05
Haul Road 3	HR3	1500-1600	2.650401612	3.43316E-06	6.32283E-06	2.507601612	3.24819E-06	5.98216E-06	14.73461354	1.90863E-05	3.51511E-05	14.10911354	1.82761E-05	3.36589E-05	16.61671515	2.15242E-05	3.9641E-05
Haul Road 3	HR3	1600-1700	2.647211612	3.42903E-06	6.31522E-06	2.498401612	3.23627E-06	5.96021E-06	14.72091354	1.90685E-05	3.51184E-05	14.06884354	1.82239E-05	3.35628E-05	16.56724515	2.14602E-05	3.9523E-05
Haul Road 3	HR3	1700-1800	2.634721612	3.41285E-06	6.28542E-06	2.503601612	3.24301E-06	5.97262E-06	14.66594354	1.89973E-05	3.49872E-05	14.09182354	1.82537E-05	3.36176E-05	16.59542515	2.14967E-05	3.95902E-05
Haul Road 3	HR3	1800-1900	2.627421612	3.4034E-06	6.26801E-06	2.505501612	3.24547E-06	5.97715E-06	14.63437354	1.89564E-05	3.49119E-05	14.09972354	1.82639E-05	3.36365E-05	16.60522515	2.15094E-05	3.96136E-05
Haul Road 3	HR3	1900-2000	2.624521612	3.39964E-06	6.26109E-06	2.493311612	3.22968E-06	5.94807E-06	14.62148354	1.89397E-05	3.48812E-05	14.04635354	1.81948E-05	3.35091E-05	16.53966515	2.14244E-05	3.94572E-05
Haul Road 3	HR3	2000-2100	2.612831612	3.3845E-06	6.2332E-06	2.485211612	3.21919E-06	5.92875E-06	14.57001354	1.88731E-05	3.47584E-05	14.01078354	1.81487E-05	3.34243E-05	16.49599515	2.13679E-05	3.9353E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.087824916	2.95057E-07	2.40034E-06	0.078050391	2.62219E-07	2.13319E-06	0.518753408	1.74281E-06	1.4178E-05	0.458977207	1.54198E-06	1.25443E-05	0.537027598	1.8042E-06	1.46775E-05
Road 1	1	0100-0200	0.067853486	1.38814E-07	1.12928E-06	0.060461101	1.23691E-07	1.00625E-06	0.408425596	8.35555E-07	6.79737E-06	0.362407431	7.41412E-07	6.03149E-06	0.422868532	8.65103E-07	7.03774E-06
Road 1	1	0200-0300	0.065395584	9.45094E-08	7.68848E-07	0.058160909	8.40539E-08	6.83791E-07	0.415980909	6.01174E-07	4.89064E-06	0.367101429	5.30533E-07	4.31597E-06	0.425262338	6.14587E-07	4.99976E-06
Road 1	1	0300-0400	0.054815818	5.65854E-08	4.60331E-07	0.048705091	5.02774E-08	4.09014E-07	0.334858909	3.45669E-07	2.81207E-06	0.29533	3.04864E-07	2.48011E-06	0.344035091	3.55141E-07	2.88913E-06
Road 1	1	0400-0500	0.071153605	1.1485E-07	9.34322E-07	0.064625233	1.04313E-07	8.48598E-07	0.406663721	6.56402E-07	5.33992E-06	0.36794	5.93897E-07	4.83144E-06	0.432565233	6.9821E-07	5.68004E-06
Road 1	1	0500-0600	0.058798457	2.07472E-07	1.68782E-06	0.052999468	1.8701E-07	1.52136E-06	0.34635617	1.22213E-06	9.94219E-06	0.310351011	1.09508E-06	8.90866E-06	0.363350479	1.28209E-06	1.043E-05
Road 1	1	0600-0700	0.079240415	5.01202E-07	4.07735E-06	0.070149703	4.43702E-07	3.60958E-06	0.421002018	2.66287E-06	2.16628E-05	0.370768991	2.34514E-06	1.90781E-05	0.440918694	2.78884E-06	2.26877E-05
Road 1	1	0700-0800	0.067379039	7.10717E-07	5.78179E-06	0.058975623	6.22078E-07	5.06069E-06	0.37042694	3.90728E-06	3.17863E-05	0.321558594	3.39182E-06	2.75929E-05	0.380534217	4.01389E-06	3.26536E-05
Road 1	1	0800-0900	0.072939697	9.50078E-07	7.72902E-06	0.063609352	8.28545E-07	6.74034E-06	0.390633141	5.0882E-06	4.13933E-05	0.338997824	4.41562E-06	3.59218E-05	0.402607176	5.24417E-06	4.26621E-05
Road 1	1	0900-1000	0.079158137	1.06079E-06	8.62969E-06	0.069114874	9.26202E-07	7.53479E-06	0.438408095	5.87506E-06	4.77945E-05	0.381032437	5.10618E-06	4.15395E-05	0.450147311	6.03238E-06	4.90743E-05
Road 1	1	1000-1100	0.091325827	1.19128E-06	9.69125E-06	0.079337986	1.03491E-06	8.41913E-06	0.48858246	6.37321E-06	5.1847E-05	0.422787568	5.51497E-06	4.48651E-05	0.502125554	6.54987E-06	5.32842E-05
Road 1	1	1100-1200	0.08230997	1.04123E-06	8.47059E-06	0.072401484	9.1589E-07	7.4509E-06	0.471359985	5.96277E-06	4.85081E-05	0.412900371	5.22325E-06	4.24919E-05	0.485301855	6.13914E-06	4.99428E-05
Road 1	1	1200-1300	0.08447904	1.05757E-06	8.60352E-06	0.074603928	9.33949E-07	7.59782E-06	0.4776397	5.97946E-06	4.86438E-05	0.420201949	5.26041E-06	4.27942E-05	0.494805877	6.19436E-06	5.0392E-05
Road 1	1	1300-1400	0.089014161	1.18452E-06	9.63622E-06	0.077847898	1.03593E-06	8.42741E-06	0.492981566	6.56013E-06	5.33677E-05	0.429553865	5.7161E-06	4.65013E-05	0.507401763	6.75202E-06	5.49287E-05
Road 1	1	1400-1500	0.084835787	1.22445E-06	9.96109E-06	0.07289212	1.05207E-06	8.55871E-06	0.459945267	6.63847E-06	5.4005E-05	0.393626697	5.68129E-06	4.62181E-05	0.466518817	6.73335E-06	5.47768E-05
Road 1	1	1500-1600	0.091445126	1.22888E-06	9.99712E-06	0.079603953	1.06975E-06	8.7026E-06	0.494219777	6.64154E-06	5.40299E-05	0.42836993	5.75662E-06	4.6831E-05	0.507973883	6.82638E-06	5.55336E-05
Road 1	1	1600-1700	0.085644927	1.21362E-06	9.87302E-06	0.074968715	1.06234E-06	8.64228E-06	0.468298132	6.63598E-06	5.39847E-05	0.40810751	5.78305E-06	4.7046E-05	0.483076225	6.84539E-06	5.56883E-05
Road 1	1	1700-1800	0.06940285	9.87375E-07	8.03244E-06	0.059655237	8.48699E-07	6.90429E-06	0.38838971	5.52551E-06	4.49509E-05	0.331333338	4.71379E-06	3.83474E-05	0.390988575	5.56249E-06	4.52517E-05
Road 1	1	1800-1900	0.061279858	8.90214E-07	7.24202E-06	0.053573307	7.78261E-07	6.33127E-06	0.366682506	5.32681E-06	4.33344E-05	0.317672248	4.61483E-06	3.75424E-05	0.371245556	5.39309E-06	4.38736E-05
Road 1	1	1900-2000	0.072719798	8.09363E-07	6.58428E-06	0.064082597	7.13232E-07	5.80224E-06	0.4162843	4.63319E-06	3.76917E-05	0.36449828	4.05682E-06	3.30028E-05	0.428580877	4.77005E-06	3.88051E-05
Road 1	1	2000-2100	0.066019503	6.2327E-07	5.07039E-06	0.05767161	5.4446E-07	4.42926E-06	0.389658111	3.67864E-06	2.99263E-05	0.338162545	3.19249E-06	2.59714E-05	0.395834155	3.73695E-06	3.04006E-05
Road 1	1	2100-2200	0.068709978	5.91927E-07	4.81542E-06	0.060407146	5.20399E-07	4.23353E-06	0.408976819	3.52328E-06	2.86624E-05	0.357372549	3.07872E-06	2.50458E-05	0.417779695	3.59912E-06	2.92793E-05
Road 1	1	2200-2300	0.066642437	5.44096E-07	4.42631E-06	0.059976667	4.89674E-07	3.98357E-06	0.396252299	3.23517E-06	2.63186E-05	0.354565241	2.89482E-06	2.35498E-05	0.414541908	3.38449E-06	2.75333E-05
Road 1	1	2300-0000	0.059398744	4.34788E-07	3.53707E-06	0.052304897	3.82862E-07	3.11464E-06	0.363339	2.65958E-06	2.1636E-05	0.317076231	2.32094E-06	1.88812E-05	0.369381128	2.7038E-06	2.19958E-05
Road 2	2	0000-0100	0.145446731	1.75075E-07	1.13062E-06	0.129260577	1.55591E-07	1.00479E-06	0.614522308	7.39703E-07	4.77693E-06	0.544194615	6.55049E-07	4.23024E-06	0.673455192	8.10641E-07	5.23504E-06
Road 2	2	0100-0200	0.102353235	8.05558E-08	5.20221E-07	0.091178824	7.17611E-08	4.63426E-07	0.504520294	3.97076E-07	2.56428E-06	0.447757941	3.52402E-07	2.27578E-06	0.538936765	4.24163E-07	2.7392E-06
Road 2	2	0200-0300	0.106338261	5.66153E-08	3.65616E-07	0.094672174	5.04042E-08	3.25505E-07	0.57879913	3.08157E-07	1.99005E-06	0.512622609	2.72924E-07	1.76252E-06	0.607294783	3.23328E-07	2.08802E-06
Road 2	2	0300-0400	0.091472	3.17611E-08	2.0511E-07	0.081294	2.82271E-08	1.82288E-07	0.331428	1.15079E-07	7.4317E-07	0.292669333	1.01621E-07	6.5626E-07	0.373963333	1.29848E-07	8.38548E-07
Road 2	2	0400-0500	0.123898519	7.74366E-08	5.00078E-07	0.11257963	7.03623E-08	4.54393E-07	0.595742222	3.72339E-07	2.40453E-06	0.539973333	3.37483E-07	2.17943E-06	0.652552963	4.07846E-07	2.63383E-06
Road 2	2	0500-0600	0.098409123	1.29845E-07	8.38529E-07	0.088790351	1.17154E-07	7.56569E-07	0.434193158	5.72894E-07	3.69969E-06	0.389694737	5.14181E-07	3.32053E-06	0.478485088	6.31334E-07	4.0771E-06
Road 2	2	0600-0700	0.138851538	3.34272E-07	2.1587E-06	0.122957212	2.96008E-07	1.91159E-06	0.560405577	1.34912E-06	8.71251E-06	0.494298462	1.18998E-06	7.68476E-06	0.617255673	1.48599E-06	9.59635E-06
Road 2	2	0700-0800	0.115279875	4.26963E-07	2.75728E-06	0.10090275	3.73714E-07	2.41341E-06	0.477918813	1.77007E-06	1.14309E-05	0.415452	1.53871E-06	9.93685E-06	0.51635475	1.91243E-06	1.23503E-05
Road 2	2	0800-0900	0.130916809	9.21266E-07	5.94945E-06	0.11414398	8.03235E-07	5.18722E-06	0.549028947	3.86354E-06	2.49503E-05	0.476271941	3.35154E-06	2.16439E-05	0.590415921	4.15478E-06	2.68312E-05
Road 2	2	0900-1000	0.156169246	9.10987E-07	5.88307E-06	0.136239087	7.94728E-07	5.13228E-06	0.664197778	3.87449E-06	2.50211E-05	0.577745873	3.37018E-06	2.17643E-05	0.71398496	4.16491E-06	2.68966E-05
Road 2	2	1000-1100	0.173176578	7.4963E-07	4.84104E-06	0.150364439	6.50883E-07	4.20334E-06	0.729245882	3.15669E-06	2.03856E-05	0.631727059	2.73456E-06	1.76595E-05	0.782091497	3.38544E-06	2.18629E-05
Road 2	2	1100-1200	0.204409071	8.659E-07	5.59189E-06	0.179702623	7.6124E-07	4.91602E-06	0.833975082	3.53281E-06	2.28145E-05	0.732111311	3.1013E-06	2.00279E-05	0.911813934	3.86255E-06	2.49439E-05
Road 2	2	1200-1300	0.156769947	6.89497E-07	4.45271E-06	0.138405895	6.0873E-07	3.93112E-06	0.685067368	3.01303E-06	1.94578E-05	0.603030579	2.65222E-06	1.71278E-05	0.741436474	3.26095E-06	2.10589E-05
Road 2	2	1300-1400	0.174552556	9.01047E-07	5.81887E-06	0.152470359	7.87058E-07	5.08274E-06	0.712586682	3.6784E-06	2.37547E-05	0.62081139	3.20465E-06	2.06953E-05	0.773281749	3.99171E-06	2.57781E-05
Road 2	2	1400-1500	0.150652727	5.7541E-07	3.71594E-06	0.129461091	4.94469E-07	3.19324E-06	0.650626909	2.48503E-06	1.60481E-05	0.557520424	2.12942E-06	1.37516E-05	0.686981515	2.62389E-06	1.69448E-05
Road 2	2	1500-1600	0.188728689	7.99476E-07	5.16294E-06	0.16408459	6.95081E-07	4.48876E-06	0.742912732	3.14706E-06	2.03234E-05	0.644567596	2.73046E-06	1.7633E-05	0.808652186	3.42554E-06	2.21218E-05
Road 2	2	1600-1700	0.155203846	7.93983E-07	5.12746E-06	0.135850271	6.94975E-07	4.48808E-06	0.651625928	3.33355E-06	2.15277E-05	0.568602715	2.90882E-06	1.87849E-05	0.704452986	3.6038E-06	2.3273E-05
Road 2	2	1700-1800	0.121647658	6.25134E-07	4.03705E-06	0.104558108	5.37313E-07	3.46991E-06	0.482153964	2.47774E-06	1.6001E-05	0.412531486	2.11995E-06	1.36905E-05	0.517089595	2.65727E-06	1.71604E-05
Road 2	2	1800-1900	0.13289212	7.69052E-07	4.96646E-06	0.11627032	6.72861E-07	4.34527E-06	0.59737196	3.45701E-06	2.23251E-05	0.520082	3.00973E-06	1.94366E-05	0.63635232	3.68259E-06	2.37818E-05
Road 2	2	1900-2000	0.111597811	4.36575E-07	2.81936E-06	0.098396746	3.84932E-07	2.48585E-06	0.505177396	1.97627E-06	1.27626E-05	0.442734793	1.73199E-06	1.11851E-05	0.541131538	2.11693E-06	1.36709E-05
Road 2	2	2000-2100	0.106056463	3.60887E-07	2.33057E-06	0.092618163	3.15159E-07	2.03527E-06	0.451389252	1.53598E-06	9.91919E-06	0.391333469	1.33162E-06	8.59948E-06	0.483951633	1.64678E-06	1.06347E-05
Road 2	2	2100-2200	0.081582092	2.88937E-07	1.86592E-06	0.071674248	2.53846E-07	1.63931E-06	0.373303922	1.32212E-06	8.53811E-06	0.324846928	1.1505E-06	7.42981E-06	0.396521176	1.40435E-06	9.06913E-06
Road 2	2	2200-2300	0.11800688	3.41455E-07	2.20508E-06	0.10627088	3.07497E-07	1.98578E-06	0.50183872	1.45208E-06	9.37739E-06	0.44954752	1.30077E-06	8.40027E-06	0.5558184	1.60827E-06	1.03861E-05
Road 2	2	2300-0000	0.107280541	2.75651E-07	1.78013E-06	0.094493243	2.42795E-07	1.56795E-06	0.483798378	1.24309E-06	8.02777E-06	0.423088198	1.0871E-06	7.0204E-06	0.517581441	1.3299E-06	8.58834E-06
Road 3	3	0000-0100	0.091605	3.3794E-07	1.31349E-05	0.081415696	3.0035E-07	1.16739E-05	0.504075913	1.85958E-06	7.22774E-05	0.44606613	1.64558E-06	6.39596E-05	0.527481826	1.94593E-06	7.56335E-05
Road 3	3	0100-0200	0.068825986	1.56759E-07	6.09284E-06	0.060893451	1.38692E-07	5.39061E-06	0.400270775	9.11663E-07	3.54341E-05	0.352520563	8.02907E-07	3.1207E-05	0.413414014	9.41599E-07	3.65976E-05
Road 3	3	0200-0300	0.067614949	1.07367E-07	4.17308E-06	0.060820707	9.65781E-08	3.75375E-06	0.42055798	6.67811E-07	2.59561E-05	0.3759	5.96897E-07	2.31999E-05	0.436720707	6.93476E-07	2.69537E-05
Road 3	3	0300-0400	0.055706857	6.25459E-08	2.431E-06	0.050501286	5.67013E-08	2.20384E-06	0.306111857	3.43693E-07	1.33585E-05	0.275688857	3.09535E-07	1.20308E-05	0.326190143	3.66236E-07	1.42347E-05
Road 3	3	0400-0500	0.074231593	1.34542E-07	5.22933E-06	0.067372832	1.22111E-07	4.74616E-06	0.409680796	7.42534E-07	2.88604E-05	0.37041	6.71357E-07	2.6094E-05	0.437782832	7.93468E-07	3.08401E-05
Road 3	3	0500-0600	0.06103439	2.40825E-07	9.36027E-06	0.054278089	2.14167E-07	8.32412E-06	0.338824837	1.33691E-06	5.19624E-05	0.29917187	1.18045E-06	4.58812E-05	0.353449959	1.39462E-06	5.42053E-05
Road 3	3	0600-0700	0.083916284	5.97615E-07	2.32278E-05	0.074186869	5.28326E-07	2.05347E-05	0.41797482	2.97663E-06	0.000115694	0.367715023	2.6187E-06	0.000101782	0.441901892	3.14703E-06	0.000122317
Road 3	3	0700-0800	0.070157015	8.18084E-07	3.17969E-05	0.062440798	7.28107E-07	2.82997E-05	0.367114924	4.28084E-06	0.000166385	0.324319409	3.78181E-06	0.000146989	0.386760206	4.50992E-06	0.000175289
Road 3	3	0800-0900	0.077726359	1.24296E-06	4.83106E-05	0.068975557	1.10302E-06	4.28715E-05	0.383728445	6.13637E-06	0.000238505	0.338796399	5.41784E-06	0.000210578	0.407771956	6.52086E-06	0.000253449
Road 3	3	0900-1000	0.086327658	1.33619E-06	5.19345E-05	0.07521372	1.16417E-06	4.52484E-05	0.444440269	6.87912E-06	0.000267374	0.385594653	5.9683E-06	0.000231973	0.460808373	7.13247E-06	0.000277221
Road 3	3	1000-1100	0.097388441	1.37306E-06	5.33673E-05	0.084665131	1.19367E-06	4.63951E-05	0.490814937	6.91988E-06	0.000268959	0.425217747	5.99505E-06	0.000233012	0.509882878	7.18872E-06	0.000279407
Road 3	3	1100-1200	0.095447518	1.30742E-06	5.08161E-05	0.08403685	1.15112E-06	4.47411E-05	0.494416838	6.77241E-06	0.000263227	0.433777037	5.94178E-06	0.000230942	0.517813888	7.0929E-06	0.000275683
Road 3	3	1200-1300	0.090406557	1.23837E-06	4.81323E-05	0.078720773	1.0783E-06	4.19108E-05	0.478960012	6.56069E-06	0.000254997	0.41548404	5.69121E-06	0.000221203	0.494204813	6.76951E-06	0.000263114

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.096508803	1.43496E-06	5.57732E-05	0.083794919	1.24592E-06	4.84257E-05	0.491118274	7.30227E-06	0.000283821	0.424856419	6.31705E-06	0.000245528	0.508651338	7.56297E-06	0.000293953
Road 3	3	1400-1500	0.088935557	1.33234E-06	5.17846E-05	0.07758758	1.16233E-06	4.5177E-05	0.459847591	6.88895E-06	0.000267756	0.399742976	5.98853E-06	0.000232759	0.477330557	7.15086E-06	0.000277936
Road 3	3	1500-1600	0.09909143	1.4225E-06	5.52889E-05	0.086063609	1.23548E-06	4.80199E-05	0.499055542	7.16414E-06	0.000278452	0.431774391	6.19829E-06	0.000240912	0.517838	7.43377E-06	0.000288932
Road 3	3	1600-1700	0.091959682	1.43959E-06	5.59533E-05	0.081732162	1.27948E-06	4.97303E-05	0.470246496	7.36152E-06	0.000286124	0.416220338	6.51576E-06	0.000253251	0.4979525	7.79525E-06	0.000302982
Road 3	3	1700-1800	0.074000112	1.162E-06	4.51641E-05	0.063457222	9.96451E-07	3.87296E-05	0.380435792	5.97388E-06	0.00023219	0.324077436	5.0889E-06	0.000197793	0.387534658	6.08535E-06	0.000236522
Road 3	3	1800-1900	0.069377381	1.14283E-06	4.44188E-05	0.060392833	9.94828E-07	3.86665E-05	0.382058608	6.29351E-06	0.000244613	0.329800049	5.43267E-06	0.000211154	0.390192882	6.4275E-06	0.000249821
Road 3	3	1900-2000	0.072425408	8.8287E-07	3.43149E-05	0.063903395	7.78986E-07	3.02772E-05	0.398658263	4.85967E-06	0.000188883	0.349508658	4.26053E-06	0.000165596	0.413412053	5.03952E-06	0.000195873
Road 3	3	2000-2100	0.06790339	7.06852E-07	2.74736E-05	0.059480478	6.19172E-07	2.40657E-05	0.372086703	3.8733E-06	0.000150545	0.323762928	3.37026E-06	0.000130994	0.383243405	3.98944E-06	0.000155059
Road 3	3	2100-2200	0.065903398	6.50092E-07	2.52675E-05	0.05911348	5.83115E-07	2.26642E-05	0.371728293	3.66685E-06	0.000142521	0.331510927	3.27013E-06	0.000127102	0.390624407	3.85325E-06	0.000149766
Road 3	3	2200-2300	0.070791297	6.39264E-07	2.48466E-05	0.063459893	5.7306E-07	2.22734E-05	0.387463268	3.4989E-06	0.000135993	0.345245773	3.11766E-06	0.000121176	0.408705666	3.69072E-06	0.000143449
Road 3	3	2300-0000	0.063085916	5.07959E-07	1.97431E-05	0.055317829	4.45411E-07	1.7312E-05	0.362568327	2.91935E-06	0.000113468	0.315146255	2.53751E-06	9.86267E-05	0.370464084	2.98292E-06	0.000115939
Road 4	4	0000-0100	0.245580857	1.98966E-07	2.13044E-06	0.218081429	1.76686E-07	1.89188E-06	1.212280286	9.82172E-07	1.05167E-05	1.076261429	8.71971E-07	9.3367E-06	1.294342857	1.04866E-06	1.12286E-05
Road 4	4	0100-0200	0.2318565	1.07341E-07	1.14936E-06	0.2050715	9.49405E-08	1.01658E-06	1.1471275	5.31078E-07	5.68655E-06	1.014559	4.69703E-07	5.02938E-06	1.2196305	5.64644E-07	6.04597E-06
Road 4	4	0200-0300	0.251045385	7.55461E-08	8.08915E-07	0.226064615	6.80287E-08	7.28423E-07	1.200793846	3.6135E-07	3.86918E-06	1.081534615	3.25462E-07	3.48491E-06	1.307599231	3.93491E-07	4.21333E-06
Road 4	4	0300-0400	0.224685714	3.64074E-08	3.89835E-07	0.203931429	3.30444E-08	3.53826E-07	1.15363	1.86931E-07	2.00158E-06	1.046847143	1.69628E-07	1.81631E-06	1.250778571	2.02672E-07	2.17013E-06
Road 4	4	0400-0500	0.230463571	7.46873E-08	7.9972E-07	0.209182143	6.77905E-08	7.25872E-07	1.103069286	3.57476E-07	3.8277E-06	1.000966429	3.24387E-07	3.4734E-06	1.210148571	3.92178E-07	4.19927E-06
Road 4	4	0500-0600	0.2160125	1.20007E-07	1.28498E-06	0.192250417	1.06806E-07	1.14363E-06	0.994330833	5.52406E-07	5.91493E-06	0.884392917	4.91329E-07	5.26095E-06	1.076643333	5.98135E-07	6.40458E-06
Road 4	4	0600-0700	0.238682075	2.92828E-07	3.13547E-06	0.2111	2.58988E-07	2.77314E-06	1.10477434	1.35539E-06	1.4513E-05	0.976386415	1.19788E-06	1.28264E-05	1.187486415	1.45687E-06	1.55995E-05
Road 4	4	0700-0800	0.243312283	5.18165E-07	5.54829E-06	0.216582174	4.6124E-07	4.93876E-06	1.16786663	2.48712E-06	2.66311E-05	1.038584783	2.2118E-06	2.3683E-05	1.255166957	2.67304E-06	2.86218E-05
Road 4	4	0800-0900	0.249701419	8.95919E-07	9.59313E-06	0.221504774	7.94751E-07	8.50986E-06	1.202816129	4.31566E-06	4.62103E-05	1.066458839	3.82641E-06	4.09716E-05	1.287963613	4.62117E-06	4.94815E-05
Road 4	4	0900-1000	0.260529595	8.92555E-07	9.5571E-06	0.226523514	7.76053E-07	8.30965E-06	1.191552635	4.08217E-06	4.37102E-05	1.035241081	3.54666E-06	3.79761E-05	1.261764595	4.32271E-06	4.62858E-05
Road 4	4	1000-1100	0.288638333	9.62128E-07	1.03021E-05	0.250616597	8.35389E-07	8.94499E-06	1.323540625	4.4118E-06	4.72397E-05	1.148997292	3.82999E-06	4.10099E-05	1.399613889	4.66538E-06	4.99549E-05
Road 4	4	1100-1200	0.266647548	9.56722E-07	1.02442E-05	0.234482258	8.41314E-07	9.00843E-06	1.21484471	4.35882E-06	4.66724E-05	1.068009419	3.83198E-06	4.10312E-05	1.302491677	4.67329E-06	5.00396E-05
Road 4	4	1200-1300	0.274493446	9.40394E-07	1.00693E-05	0.238808716	8.18141E-07	8.76031E-06	1.305728919	4.47333E-06	4.78985E-05	1.135537432	3.89027E-06	4.16553E-05	1.374346149	4.70841E-06	5.04156E-05
Road 4	4	1300-1400	0.282720667	9.81669E-07	1.05113E-05	0.245264333	8.51612E-07	9.1187E-06	1.3135492	4.56093E-06	4.88366E-05	1.139022133	3.95494E-06	4.23478E-05	1.384286467	4.80655E-06	5.14665E-05
Road 4	4	1400-1500	0.257289071	8.33807E-07	8.92806E-06	0.224321143	7.26967E-07	7.78405E-06	1.233776071	3.99835E-06	4.28126E-05	1.074762357	3.48303E-06	3.72948E-05	1.2990835	4.20999E-06	4.50788E-05
Road 4	4	1500-1600	0.28990656	8.3885E-07	8.98205E-06	0.25146664	7.27623E-07	7.79108E-06	1.34696176	3.89746E-06	4.17323E-05	1.16802952	3.37972E-06	3.61886E-05	1.41949616	4.10734E-06	4.39796E-05
Road 4	4	1600-1700	0.266917016	7.66151E-07	8.20362E-06	0.23702	6.80335E-07	7.28474E-06	1.252487258	3.5951E-06	3.84948E-05	1.111769032	3.19119E-06	3.41699E-05	1.348789032	3.87152E-06	4.14546E-05
Road 4	4	1700-1800	0.259905906	7.64075E-07	8.1814E-06	0.222922047	6.5535E-07	7.01721E-06	1.239692205	3.64447E-06	3.90234E-05	1.062504646	3.12357E-06	3.34458E-05	1.285426693	3.77892E-06	4.0463E-05
Road 4	4	1800-1900	0.284657547	6.98465E-07	7.47887E-06	0.247891604	6.08253E-07	6.51291E-06	1.370303302	3.36232E-06	3.60023E-05	1.192972925	2.9272E-06	3.13432E-05	1.440864528	3.53545E-06	3.78562E-05
Road 4	4	1900-2000	0.251148378	4.30208E-07	4.60648E-06	0.221707838	3.79777E-07	4.0665E-06	1.211611486	2.07545E-06	2.2223E-05	1.069338243	1.83174E-06	1.96135E-05	1.291046081	2.21151E-06	2.368E-05
Road 4	4	2000-2100	0.220189796	2.49752E-07	2.67424E-06	0.192917143	2.18818E-07	2.34301E-06	1.066501633	1.20969E-06	1.29528E-05	0.933284082	1.05859E-06	1.13349E-05	1.126201224	1.2774E-06	1.36779E-05
Road 4	4	2100-2200	0.182001892	1.55881E-07	1.66911E-06	0.163482973	1.4002E-07	1.49928E-06	0.899777027	7.70642E-07	8.25171E-06	0.807353784	6.91484E-07	7.40411E-06	0.970836757	8.31504E-07	8.90339E-06
Road 4	4	2200-2300	0.244309683	3.56285E-07	3.81495E-06	0.219095714	3.19515E-07	3.42123E-06	1.161047302	1.69319E-06	1.813E-05	1.04087873	1.51795E-06	1.62535E-05	1.259974444	1.83746E-06	1.96748E-05
Road 4	4	2300-0000	0.231854898	2.62984E-07	2.81592E-06	0.203461429	2.30778E-07	2.47107E-06	1.132267959	1.28429E-06	1.37516E-05	0.992664694	1.12594E-06	1.20561E-05	1.196126122	1.35672E-06	1.45272E-05
Road 5	5	0000-0100	0.07754829	2.80909E-07	3.79878E-06	0.068935389	2.4971E-07	3.37687E-06	0.432388601	1.56627E-06	2.1181E-05	0.382135596	1.38424E-06	1.87193E-05	0.451070984	1.63395E-06	2.20962E-05
Road 5	5	0100-0200	0.052224918	1.19584E-07	1.61716E-06	0.046214098	1.05821E-07	1.43103E-06	0.319752705	7.32166E-07	9.90122E-06	0.281061557	6.43572E-07	8.70314E-06	0.327275656	7.49392E-07	1.01342E-05
Road 5	5	0200-0300	0.049901744	8.05471E-08	1.08925E-06	0.044853953	7.23994E-08	9.79071E-07	0.342750814	5.53239E-07	7.48155E-06	0.305395698	4.92944E-07	6.66617E-06	0.350249651	5.65343E-07	7.64524E-06
Road 5	5	0300-0400	0.043777619	5.17641E-08	7.00015E-07	0.039673333	4.6911E-08	6.34387E-07	0.240432698	2.84295E-07	3.84458E-06	0.215858413	2.55238E-07	3.45163E-06	0.255531746	3.02149E-07	4.08602E-06
Road 5	5	0400-0500	0.06073202	1.12847E-07	1.52605E-06	0.055124848	1.02428E-07	1.38515E-06	0.346121212	6.43131E-07	8.69718E-06	0.312537172	5.80728E-07	7.85329E-06	0.36766202	6.83156E-07	9.23844E-06
Road 5	5	0500-0600	0.049935909	2.06192E-07	2.78837E-06	0.044395318	1.83314E-07	2.47899E-06	0.289719545	1.19629E-06	1.61776E-05	0.255240545	1.05392E-06	1.42524E-05	0.299635864	1.23724E-06	1.67314E-05
Road 5	5	0600-0700	0.072700052	5.29422E-07	7.15948E-06	0.064268015	4.68018E-07	6.32909E-06	0.364369588	2.65344E-06	3.5883E-05	0.320104253	2.33109E-06	3.15238E-05	0.384372268	2.79911E-06	3.78529E-05
Road 5	5	0700-0800	0.057343476	6.81277E-07	9.21303E-06	0.05103703	6.06352E-07	8.19981E-06	0.302199731	3.59032E-06	4.85526E-05	0.266291564	3.16371E-06	4.27835E-05	0.317328594	3.77006E-06	5.09833E-05
Road 5	5	0800-0900	0.061487177	9.72855E-07	1.31561E-05	0.054579265	8.63557E-07	1.1678E-05	0.299916856	4.74531E-06	6.41717E-05	0.264269964	4.1813E-06	5.65445E-05	0.318849229	5.04486E-06	6.82225E-05
Road 5	5	0900-1000	0.069669436	1.06701E-06	1.44294E-05	0.060772537	9.30751E-07	1.25867E-05	0.370633946	5.67638E-06	7.67627E-05	0.321377512	4.922E-06	6.65611E-05	0.382150049	5.85275E-06	7.91478E-05
Road 5	5	1000-1100	0.078911213	1.0871E-06	1.47011E-05	0.068645027	9.45673E-07	1.27885E-05	0.407963052	5.62021E-06	7.60032E-05	0.353120136	4.86468E-06	6.5786E-05	0.421765163	5.81035E-06	7.85745E-05
Road 5	5	1100-1200	0.077396581	1.01539E-06	1.37314E-05	0.068173705	8.94396E-07	1.20951E-05	0.417801001	5.48129E-06	7.41245E-05	0.366239299	4.80483E-06	6.49766E-05	0.434413004	5.69922E-06	7.70717E-05
Road 5	5	1200-1300	0.072241598	9.58611E-07	1.29635E-05	0.062962405	8.35481E-07	1.12984E-05	0.393106337	5.21633E-06	7.05414E-05	0.340583607	4.51938E-06	6.11164E-05	0.403546011	5.35486E-06	7.24148E-05
Road 5	5	1300-1400	0.0792939	1.15637E-06	1.56378E-05	0.068907529	1.0049E-06	1.35895E-05	0.412199665	6.01125E-06	8.12912E-05	0.356236268	5.19511E-06	7.02545E-05	0.425143797	6.20001E-06	8.38439E-05
Road 5	5	1400-1500	0.074731814	1.11368E-06	1.50606E-05	0.065249937	9.72381E-07	1.31497E-05	0.390568174	5.8204E-06	7.87104E-05	0.339260214	5.05579E-06	6.83704E-05	0.404510151	6.02817E-06	8.15201E-05
Road 5	5	1500-1600	0.083768831	1.21062E-06	1.63715E-05	0.072813052	1.05229E-06	1.42303E-05	0.427094818	6.17235E-06	8.34699E-05	0.369213065	5.33585E-06	7.21577E-05	0.442026117	6.38814E-06	8.6388E-05
Road 5	5	1600-1700	0.078307503	1.25368E-06	1.69538E-05	0.069608792	1.11442E-06	1.50705E-05	0.406582943	6.5093E-06	8.80264E-05	0.359601419	5.75713E-06	7.78548E-05	0.429210211	6.87155E-06	9.29253E-05
Road 5	5	1700-1800	0.058510658	9.34545E-07	1.2638E-05	0.050187955	8.01613E-07	1.08404E-05	0.304545899	4.86427E-06	6.57805E-05	0.258761692	4.133E-06	5.58913E-05	0.308949647	4.93461E-06	6.67317E-05
Road 5	5	1800-1900	0.054221284	9.35236E-07	1.26474E-05	0.04722506	8.14561E-07	1.10155E-05	0.308701251	5.32463E-06	7.2006E-05	0.265631382	4.58174E-06	6.19598E-05	0.312856442	5.3963E-06	7.29752E-05
Road 5	5	1900-2000	0.061650306	7.93771E-07	1.07343E-05	0.054405466	7.00491E-07	9.47287E-06	0.347184898	4.47014E-06	6.04505E-05	0.303839504	3.91205E-06	5.29034E-05	0.358244971	4.61254E-06	6.23762E-05
Road 5	5	2000-2100	0.060082167	6.76601E-07	9.1498E-06	0.052639917	5.92792E-07	8.01644E-06	0.334058467	3.76192E-06	5.08731E-05	0.2903545	3.26976E-06	4.42175E-05	0.342994417	3.86255E-06	5.2234E-05
Road 5	5	2100-2200	0.061448374	6.66613E-07	9.01474E-06	0.055102924	5.97776E-07	8.08383E-06	0.350323685	3.80043E-06	5.1394E-05	0.312180069	3.38664E-06	4.57981E-05	0.367282993	3.98441E-06	5.3882E-05
Road 5	5	2200-2300	0.059192184	5.54371E-07	7.49687E-06	0.053058076	4.96922E-07	6.71996E-06	0.332728717	3.11621E-06	4.21411E-05	0.295908176	2.77136E-06	3.74777E-05	0.348966253	3.26828E-06	4.41976E-05
Road 5	5	2300-0000	0.052981148	4.50459E-07	6.09164E-06	0.046447042	3.94904E-07	5.34037E-06	0.312935519	2.66066E-06	3.59806E-05	0.271353091	2.30711E-06	3.11995E-05	0.317800132	2.70202E-06	3.65399E-05
Road 6	6	0000-0100	0.0463774	1.30567E-07	4.66724E-06	0.041143667	1.15832E-07	4.14054E-06	0.298660267	8.40823E-07	3.0056E-05	0.262254667	7.3833E-07	2.63923E-05	0.303398333	8.54162E-07	3.05328E-05
Road 6	6	0100-0200	0.061566316	1.3173E-07	4.7088E-06	0.054480088	1.16568E-07	4.16682E-06	0.34682886	7.42089E-07	2.65267E-05	0.304418158	6.51345E-07	2.32829E-05	0.358898246	7.67913E-07	2.74498E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.056176456	8.32947E-08	2.97745E-06	0.050586076	7.50056E-08	2.68115E-06	0.321105063	4.76113E-07	1.70191E-05	0.287066582	4.25643E-07	1.5215E-05	0.337652658	5.00649E-07	1.78962E-05
Road 6	6	0300-0400	0.056854839	6.61599E-08	2.36495E-06	0.051699032	6.01603E-08	2.15049E-06	0.362947258	4.22349E-07	1.50972E-05	0.327874355	3.81535E-07	1.36383E-05	0.379573387	4.41696E-07	1.57888E-05
Road 6	6	0400-0500	0.061425556	1.03759E-07	3.70898E-06	0.05576	9.41892E-08	3.36688E-06	0.360339778	6.08682E-07	2.17579E-05	0.324954444	5.4891E-07	1.96213E-05	0.380714444	6.43099E-07	2.29882E-05
Road 6	6	0500-0600	0.055835062	1.69769E-07	6.06855E-06	0.049703765	1.51126E-07	5.40215E-06	0.336757654	1.02393E-06	3.66012E-05	0.296918765	9.02794E-07	3.22712E-05	0.346622531	1.05392E-06	3.76734E-05
Road 6	6	0600-0700	0.059303966	3.22788E-07	1.15384E-05	0.05246631	2.85571E-07	1.0208E-05	0.373695276	2.034E-06	7.27073E-05	0.327458586	1.78234E-06	6.37114E-05	0.379924897	2.06791E-06	7.39194E-05
Road 6	6	0700-0800	0.056359372	4.88702E-07	1.74691E-05	0.050168896	4.35023E-07	1.55503E-05	0.323713528	2.80698E-06	0.000100338	0.28537342	2.47452E-06	8.84541E-05	0.335542316	2.90954E-06	0.000104004
Road 6	6	0800-0900	0.047704955	5.9273E-07	2.11877E-05	0.042307085	5.25662E-07	1.87903E-05	0.280811843	3.48907E-06	0.00012472	0.246022613	3.05681E-06	0.000109269	0.288329698	3.58247E-06	0.000128059
Road 6	6	0900-1000	0.051625308	6.13341E-07	2.19245E-05	0.044922954	5.33713E-07	1.90781E-05	0.292413523	3.47406E-06	0.000124183	0.251479384	2.98773E-06	0.000106799	0.296402338	3.52145E-06	0.000125877
Road 6	6	1000-1100	0.068866131	6.91505E-07	2.47185E-05	0.05984071	6.00878E-07	2.1479E-05	0.376857421	3.78414E-06	0.000135267	0.325140785	3.26483E-06	0.000116705	0.384981495	3.86571E-06	0.000138184
Road 6	6	1100-1200	0.078976372	7.88578E-07	2.81885E-05	0.069586955	6.94825E-07	2.48372E-05	0.412863647	4.12244E-06	0.00014736	0.361960489	3.61417E-06	0.000129192	0.431547444	4.30899E-06	0.000154029
Road 6	6	1200-1300	0.07625065	7.48481E-07	2.67552E-05	0.066485545	6.52627E-07	2.33288E-05	0.382621434	3.75584E-06	0.000134256	0.331935086	3.2583E-06	0.000116471	0.398420631	3.91092E-06	0.0001398
Road 6	6	1300-1400	0.088704184	8.67396E-07	3.10059E-05	0.077090173	7.53828E-07	2.69463E-05	0.452936104	4.42905E-06	0.000158321	0.391480038	3.8281E-06	0.000136839	0.468570211	4.58193E-06	0.000163785
Road 6	6	1400-1500	0.084363293	9.08869E-07	3.24884E-05	0.073658885	7.93547E-07	2.83661E-05	0.424312909	4.57124E-06	0.000163403	0.368402213	3.9689E-06	0.000141872	0.442061098	4.76245E-06	0.000170238
Road 6	6	1500-1600	0.074395783	7.8473E-07	2.80509E-05	0.0646379	6.81804E-07	2.43717E-05	0.38755153	4.08791E-06	0.000146126	0.334365445	3.5269E-06	0.000126072	0.399003345	4.20871E-06	0.000150444
Road 6	6	1600-1700	0.076623455	8.28362E-07	2.96106E-05	0.068130365	7.36544E-07	2.63285E-05	0.380995139	4.11887E-06	0.000147233	0.336961875	3.64283E-06	0.000130216	0.40509224	4.37938E-06	0.000156545
Road 6	6	1700-1800	0.058245443	6.66849E-07	2.38372E-05	0.049983098	5.72254E-07	2.04558E-05	0.300539164	3.44086E-06	0.000122997	0.255558393	2.92588E-06	0.000104588	0.305541492	3.49813E-06	0.000125044
Road 6	6	1800-1900	0.056418737	7.29589E-07	2.60799E-05	0.04908939	6.34808E-07	2.26918E-05	0.296916197	3.83963E-06	0.000137251	0.25590656	3.3093E-06	0.000118294	0.304995951	3.94411E-06	0.000140986
Road 6	6	1900-2000	0.065659905	6.45754E-07	2.30831E-05	0.057916279	5.69597E-07	2.03608E-05	0.345349695	3.39646E-06	0.00012141	0.301932462	2.96946E-06	0.000106146	0.35984874	3.53905E-06	0.000126507
Road 6	6	2000-2100	0.052202608	4.09547E-07	1.46397E-05	0.045702273	3.5855E-07	1.28167E-05	0.30584122	2.39943E-06	8.57699E-05	0.265080239	2.07965E-06	7.43389E-05	0.310782512	2.4382E-06	8.71556E-05
Road 6	6	2100-2200	0.072177917	4.87689E-07	1.74329E-05	0.064750722	4.37505E-07	1.5639E-05	0.385202611	2.60272E-06	9.30367E-05	0.343511917	2.32103E-06	8.29673E-05	0.408262639	2.75853E-06	9.86063E-05
Road 6	6	2200-2300	0.05401378	3.86247E-07	1.38068E-05	0.048385853	3.46002E-07	1.23682E-05	0.305445879	2.18421E-06	7.80768E-05	0.270233255	1.93241E-06	6.90759E-05	0.318619108	2.27841E-06	8.14441E-05
Road 6	6	2300-0000	0.037076667	2.4843E-07	8.88038E-06	0.03250084	2.1777E-07	7.7844E-06	0.2331207	1.56201E-06	5.58357E-05	0.201583081	1.3507E-06	4.8282E-05	0.234083922	1.56847E-06	5.60664E-05
Road 7	7	0000-0100	0.067897903	1.83355E-07	4.57715E-06	0.060256935	1.62721E-07	4.06205E-06	0.401268065	1.08361E-06	2.70504E-05	0.353867634	9.55604E-07	2.3855E-05	0.41412457	1.11833E-06	2.79171E-05
Road 7	7	0100-0200	0.083414766	1.75604E-07	4.38366E-06	0.073986502	1.55756E-07	3.88818E-06	0.456045804	9.60065E-07	2.39664E-05	0.402571609	8.47492E-07	2.11562E-05	0.476558111	1.00325E-06	2.50443E-05
Road 7	7	0200-0300	0.071503925	9.75848E-08	2.43603E-06	0.064154364	8.75545E-08	2.18565E-06	0.404720112	5.52341E-07	1.37882E-05	0.361247704	4.93012E-07	1.23072E-05	0.425402067	5.80566E-07	1.44928E-05
Road 7	7	0300-0400	0.072123192	7.95816E-08	1.98662E-06	0.065089281	7.18203E-08	1.79287E-06	0.434623641	4.79569E-07	1.19716E-05	0.390449072	4.30826E-07	1.07548E-05	0.455538353	5.02647E-07	1.25477E-05
Road 7	7	0400-0500	0.079823021	1.2864E-07	3.21127E-06	0.072479685	1.16806E-07	2.91585E-06	0.44420397	7.15863E-07	1.78703E-05	0.401635139	6.4726E-07	1.61577E-05	0.474114824	7.64066E-07	1.90736E-05
Road 7	7	0500-0600	0.072716778	2.09037E-07	5.21826E-06	0.065048404	1.86993E-07	4.66796E-06	0.40977963	1.17799E-06	2.94064E-05	0.364266899	1.04715E-06	2.61403E-05	0.429315303	1.23414E-06	3.08083E-05
Road 7	7	0600-0700	0.076717493	3.94296E-07	9.84291E-06	0.067888298	3.48917E-07	8.71011E-06	0.444403124	2.28405E-06	5.70172E-05	0.390702892	2.00805E-06	5.01274E-05	0.45859119	2.35697E-06	5.88376E-05
Road 7	7	0700-0800	0.074297469	6.09462E-07	1.52142E-05	0.065766342	5.39481E-07	1.34672E-05	0.405176407	3.32366E-06	8.29695E-05	0.356117945	2.92124E-06	7.29236E-05	0.421884287	3.46072E-06	8.63908E-05
Road 7	7	0800-0900	0.073785927	9.15934E-07	2.28647E-05	0.065066674	8.07698E-07	2.01628E-05	0.400451776	4.97096E-06	0.000124091	0.350596444	4.35209E-06	0.000108642	0.415663118	5.15979E-06	0.000128805
Road 7	7	0900-1000	0.076875067	8.83965E-07	2.20666E-05	0.066939244	7.69716E-07	1.92146E-05	0.402731498	4.6309E-06	0.000115602	0.348204621	4.00391E-06	9.99506E-05	0.415143864	4.77362E-06	0.000119165
Road 7	7	1000-1100	0.090849069	9.16705E-07	2.28839E-05	0.078914437	7.9628E-07	1.98777E-05	0.477774019	4.82094E-06	0.000120346	0.41301584	4.1675E-06	0.000104034	0.491930277	4.96378E-06	0.000123912
Road 7	7	1100-1200	0.100372619	1.01134E-06	2.52465E-05	0.088334175	8.90046E-07	2.22185E-05	0.513907082	5.17808E-06	0.000129262	0.45085632	4.54278E-06	0.000113403	0.539190494	5.43283E-06	0.000135621
Road 7	7	1200-1300	0.09810724	9.87094E-07	2.46411E-05	0.08587379	8.64009E-07	2.15685E-05	0.495343764	4.98384E-06	0.000124413	0.432340917	4.34995E-06	0.000108589	0.518214707	5.21396E-06	0.000130157
Road 7	7	1300-1400	0.105187864	1.04154E-06	2.60001E-05	0.091577557	9.06771E-07	2.2636E-05	0.532152498	5.2692E-06	0.000131536	0.461661287	4.57122E-06	0.000114113	0.553238844	5.47799E-06	0.000136749
Road 7	7	1400-1500	0.098160655	1.01756E-06	2.54016E-05	0.085208059	8.8329E-07	2.20498E-05	0.499441378	5.17734E-06	0.000129243	0.431788483	4.47604E-06	0.000111736	0.516996541	5.35933E-06	0.000133786
Road 7	7	1500-1600	0.091357634	9.29795E-07	2.32107E-05	0.079373725	8.07828E-07	2.0166E-05	0.471664465	4.80038E-06	0.000119833	0.407853379	4.15094E-06	0.000103621	0.487227105	4.95877E-06	0.000123787
Road 7	7	1600-1700	0.093332566	9.82416E-07	2.45243E-05	0.082495728	8.68348E-07	2.16768E-05	0.464850579	4.89301E-06	0.000122145	0.40940087	4.30934E-06	0.000107575	0.491896599	5.17769E-06	0.000129252
Road 7	7	1700-1800	0.073067478	8.13662E-07	2.03116E-05	0.062755843	6.98834E-07	1.74452E-05	0.378521221	4.21512E-06	0.000105223	0.322793642	3.59455E-06	8.97317E-05	0.385549484	4.29338E-06	0.000107177
Road 7	7	1800-1900	0.067009912	7.75393E-07	1.93563E-05	0.058444083	6.76275E-07	1.6882E-05	0.353039649	4.08513E-06	0.000101978	0.305578779	3.53595E-06	8.82688E-05	0.364022861	4.21222E-06	0.000105151
Road 7	7	1900-2000	0.076301572	6.6689E-07	1.66478E-05	0.067289832	5.88126E-07	1.46815E-05	0.404584613	3.53615E-06	8.82737E-05	0.354451807	3.09798E-06	7.73356E-05	0.421741639	3.6861E-06	9.20171E-05
Road 7	7	2000-2100	0.070747708	5.0947E-07	1.2718E-05	0.061886008	4.45655E-07	1.1125E-05	0.387217529	2.78844E-06	6.96085E-05	0.33635996	2.4222E-06	6.04661E-05	0.398245968	2.86786E-06	7.1591E-05
Road 7	7	2100-2200	0.080416089	4.83357E-07	1.20662E-05	0.071636371	4.30584E-07	1.07488E-05	0.430176163	2.58566E-06	6.45464E-05	0.381224773	2.29143E-06	5.72015E-05	0.452861144	2.72201E-06	6.79502E-05
Road 7	7	2200-2300	0.067334899	4.36991E-07	1.09087E-05	0.060420063	3.92115E-07	9.78846E-06	0.370465391	2.40425E-06	6.00179E-05	0.329495178	2.13836E-06	5.33804E-05	0.389915241	2.53048E-06	6.31689E-05
Road 7	7	2300-0000	0.048444793	2.89077E-07	7.2163E-06	0.042551169	2.53909E-07	6.33839E-06	0.288055474	1.71887E-06	4.29085E-05	0.250530077	1.49495E-06	3.73188E-05	0.293081246	1.74886E-06	4.36572E-05
Road 8	8	0000-0100	0.215354167	1.56621E-07	2.58184E-06	0.191217778	1.39067E-07	2.29248E-06	1.066505278	7.7564E-07	1.27861E-05	0.946605278	6.8844E-07	1.13487E-05	1.137823056	8.27508E-07	1.36412E-05
Road 8	8	0100-0200	0.223420667	1.35406E-07	2.23212E-06	0.197636333	1.1978E-07	1.97452E-06	1.103455333	6.68761E-07	1.10243E-05	0.976045667	5.91543E-07	9.75136E-06	1.173682	7.11322E-07	1.17259E-05
Road 8	8	0200-0300	0.211603333	6.41222E-08	1.05703E-06	0.190630667	5.77669E-08	9.52265E-07	1.098766	3.32959E-07	5.48871E-06	0.989942	2.99982E-07	4.9451E-06	1.180572667	3.57749E-07	5.89736E-06
Road 8	8	0300-0400	0.189965714	5.37277E-08	8.85681E-07	0.172597857	4.88156E-08	8.04706E-07	0.966265	2.73287E-07	4.50503E-06	0.87748	2.48176E-07	4.09109E-06	1.050077857	2.96992E-07	4.8958E-06
Road 8	8	0400-0500	0.214986667	9.12065E-08	1.5035E-06	0.195195714	8.28103E-08	1.3651E-06	1.031265714	4.37507E-07	7.21213E-06	0.936026667	3.97102E-07	6.54608E-06	1.131222381	4.79913E-07	7.91118E-06
Road 8	8	0500-0600	0.207701765	1.42664E-07	2.35176E-06	0.184923529	1.27018E-07	2.09385E-06	0.978977353	6.72429E-07	1.10847E-05	0.871129118	5.98351E-07	9.8636E-06	1.056052647	7.25369E-07	1.19574E-05
Road 8	8	0600-0700	0.230797258	2.89079E-07	4.76537E-06	0.204187419	2.5575E-07	4.21594E-06	1.074480484	1.34581E-06	2.21852E-05	0.950095	1.19002E-06	1.9617E-05	1.154282419	1.44577E-06	2.38329E-05
Road 8	8	0700-0800	0.23259951	4.79296E-07	7.90101E-06	0.207090686	4.26732E-07	7.03452E-06	1.094046569	2.2544E-06	3.71629E-05	0.973406667	2.00581E-06	3.3065E-05	1.180497353	2.43254E-06	4.00995E-05
Road 8	8	0800-0900	0.257982813	1.00066E-06	1.64955E-05	0.229008646	8.88276E-07	1.46429E-05	1.218206198	4.72516E-06	7.78925E-05	1.080617813	4.19149E-06	6.90951E-05	1.309626458	5.07976E-06	8.3738E-05
Road 8	8	0900-1000	0.281660316	8.99037E-07	1.48203E-05	0.244960633	7.81895E-07	1.28892E-05	1.264787468	4.0371E-06	6.65501E-05	1.099795506	3.51046E-06	5.78686E-05	1.344756139	4.29235E-06	7.07578E-05
Road 8	8	1000-1100	0.265102563	8.56897E-07	1.41256E-05	0.230226375	7.44166E-07	1.22673E-05	1.225748375	3.96201E-06	6.53123E-05	1.063812625	3.43859E-06	5.66838E-05	1.294039	4.18275E-06	6.89511E-05
Road 8	8	1100-1200	0.273736541	8.79275E-07	1.44945E-05	0.240701132	7.73161E-07	1.27453E-05	1.277911698	4.10481E-06	6.76662E-05	1.123453145	3.60867E-06	5.94875E-05	1.364154277	4.38183E-06	7.22328E-05
Road 8	8	1200-1300	0.277285706	9.52294E-07	1.56982E-05	0.241199765	8.28363E-07	1.36552E-05	1.305425471	4.48328E-06	7.39052E-05	1.135358118	3.89921E-06	6.4277E-05	1.376557882	4.72757E-06	7.79323E-05
Road 8	8	1300-1400	0.254758148	8.33754E-07	1.37441E-05	0.221058148	7.23463E-07	1.1926E-05	1.183439877	3.87308E-06	6.38462E-05	1.026409938	3.35916E-06	5.53745E-05	1.247468086	4.08262E-06	6.73005E-05
Road 8	8	1400-1500	0.248965971	6.99117E-07	1.15247E-05	0.217095612	6.09622E-07	1.00494E-05	1.20422964	3.38157E-06	5.5744E-05	1.049439712	2.94691E-06	4.85787E-05	1.266535324	3.55653E-06	5.86281E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.257678921	7.23583E-07	1.1928E-05	0.223496835	6.27597E-07	1.03457E-05	1.215193165	3.41236E-06	5.62515E-05	1.05318482	2.95743E-06	4.87521E-05	1.276681655	3.58503E-06	5.90978E-05
Road 8	8	1600-1700	0.253285034	7.62414E-07	1.25681E-05	0.22491047	6.77003E-07	1.11601E-05	1.183479262	3.56239E-06	5.87247E-05	1.050300067	3.16151E-06	5.21163E-05	1.275210537	3.83851E-06	6.32764E-05
Road 8	8	1700-1800	0.210417628	6.63134E-07	1.09315E-05	0.180418205	5.68591E-07	9.373E-06	1.022031859	3.22095E-06	5.30961E-05	0.874848718	2.7571E-06	4.54497E-05	1.055266923	3.32569E-06	5.48227E-05
Road 8	8	1800-1900	0.209659813	4.53204E-07	7.4709E-06	0.182685888	3.94897E-07	6.50972E-06	1.043752243	2.25619E-06	3.71925E-05	0.908456075	1.96373E-06	3.23714E-05	1.091141963	2.35863E-06	3.88811E-05
Road 8	8	1900-2000	0.203852727	3.17104E-07	5.22734E-06	0.180048701	2.80076E-07	4.61694E-06	1.03989026	1.61761E-06	2.66656E-05	0.917977403	1.42796E-06	2.35395E-05	1.098026104	1.70804E-06	2.81564E-05
Road 8	8	2000-2100	0.225143766	3.50224E-07	5.77331E-06	0.197258312	3.06846E-07	5.05825E-06	1.047645714	1.62967E-06	2.68645E-05	0.916947273	1.42636E-06	2.3513E-05	1.114205584	1.73321E-06	2.85713E-05
Road 8	8	2100-2200	0.18423963	2.00989E-07	3.31322E-06	0.16539963	1.80436E-07	2.97442E-06	0.935171667	1.02019E-06	1.68174E-05	0.83847963	9.14705E-07	1.50786E-05	1.003879259	1.09514E-06	1.8053E-05
Road 8	8	2200-2300	0.221274688	2.86093E-07	4.71613E-06	0.1984375	2.56566E-07	4.22939E-06	1.063207656	1.37465E-06	2.26606E-05	0.952730938	1.23181E-06	2.0306E-05	1.151168438	1.48838E-06	2.45354E-05
Road 8	8	2300-0000	0.176909057	1.89418E-07	3.12248E-06	0.155333962	1.66317E-07	2.74168E-06	0.885315472	9.47914E-07	1.5626E-05	0.776298113	8.31188E-07	1.37018E-05	0.931632075	9.97505E-07	1.64435E-05
Road 9	9	0000-0100	0.651531589	1.70376E-07	5.16541E-06	0.634040541	1.65803E-07	5.02674E-06	3.572839324	9.34303E-07	2.83258E-05	3.488978913	9.12373E-07	2.7661E-05	4.123019455	1.07818E-06	3.26877E-05
Road 9	9	0100-0200	0.676777444	1.39054E-07	4.2158E-06	0.657940572	1.35184E-07	4.09846E-06	3.541552244	7.27666E-07	2.20611E-05	3.455508217	7.09987E-07	2.15251E-05	4.113448789	8.45171E-07	2.56236E-05
Road 9	9	0200-0300	0.338753376	3.16373E-08	9.59169E-07	0.330941017	3.09077E-08	9.37048E-07	2.32455756	2.17098E-07	6.58191E-06	2.26972392	2.11977E-07	6.42665E-06	2.600664937	2.42885E-07	7.3637E-06
Road 9	9	0300-0400	0.41921782	3.13217E-08	9.49601E-07	0.410286612	3.06544E-08	9.2937E-07	2.779731463	2.07687E-07	6.29657E-06	2.726085165	2.03679E-07	6.17505E-06	3.136371776	2.34333E-07	7.10442E-06
Road 9	9	0400-0500	0.737649538	1.37783E-07	4.17726E-06	0.721369297	1.34742E-07	4.08507E-06	3.828675356	7.15146E-07	2.16815E-05	3.757752055	7.01898E-07	2.12799E-05	4.479121352	8.3664E-07	2.5365E-05
Road 9	9	0500-0600	0.539728171	1.71384E-07	5.19596E-06	0.525827912	1.6697E-07	5.06214E-06	3.034695719	9.6363E-07	2.9215E-05	2.962842716	9.40813E-07	2.85232E-05	3.488670628	1.10778E-06	3.35854E-05
Road 9	9	0600-0700	0.592438312	3.54111E-07	1.07358E-05	0.575774205	3.4415E-07	1.04338E-05	3.341818875	1.99746E-06	6.05584E-05	3.252173842	1.94388E-06	5.89339E-05	3.827948047	2.28803E-06	6.93677E-05
Road 9	9	0700-0800	0.425692835	3.89617E-07	1.18123E-05	0.41250532	3.77548E-07	1.14463E-05	2.457926989	2.24963E-06	6.82035E-05	2.379011192	2.1774E-06	6.60137E-05	2.791516511	2.55495E-06	7.746E-05
Road 9	9	0800-0900	0.745382223	1.60112E-06	4.85421E-05	0.721912517	1.5507E-06	4.70136E-05	4.347906035	9.33951E-06	0.000283152	4.228381951	9.08276E-06	0.000275368	4.950294468	1.06335E-05	0.000322382
Road 9	9	0900-1000	0.725202342	1.17849E-06	3.57289E-05	0.699663171	1.13698E-06	3.44707E-05	3.866580177	6.28337E-06	0.000190497	3.746722924	6.08859E-06	0.000184592	4.446386095	7.22558E-06	0.000219062
Road 9	9	1000-1100	0.8887366	1.21183E-06	3.67398E-05	0.858797613	1.17101E-06	3.55022E-05	4.630117242	6.31336E-06	0.000191406	4.498193686	6.13348E-06	0.000185953	5.356991299	7.30449E-06	0.000221455
Road 9	9	1100-1200	0.697311685	9.89889E-07	3.00111E-05	0.676180224	9.59891E-07	2.91016E-05	3.913233211	5.55514E-06	0.000168419	3.807428936	5.40495E-06	0.000163865	4.48360916	6.36484E-06	0.000192967
Road 9	9	1200-1300	0.786507701	1.08713E-06	3.29592E-05	0.760187921	1.05075E-06	3.18562E-05	4.142959519	5.72649E-06	0.000173614	4.0218918	5.55915E-06	0.00016854	4.782079722	6.60989E-06	0.000200396
Road 9	9	1300-1400	0.849957679	9.68441E-07	2.93608E-05	0.818378498	9.3246E-07	2.827E-05	3.866678648	4.40569E-06	0.00013357	3.738222374	4.25933E-06	0.000129133	4.556600872	5.19179E-06	0.000157403
Road 9	9	1400-1500	0.53169965	6.75338E-07	2.04747E-05	0.51239882	6.50823E-07	1.97314E-05	3.200934474	4.06567E-06	0.000123261	3.097776854	3.93464E-06	0.000119289	3.610175673	4.58546E-06	0.00013902
Road 9	9	1500-1600	0.559151224	5.9532E-07	1.80487E-05	0.541185433	5.76192E-07	1.74688E-05	3.303278041	3.51695E-06	0.000106626	3.20963953	3.41725E-06	0.000103603	3.750824963	3.99344E-06	0.000121072
Road 9	9	1600-1700	0.504534251	7.53922E-07	2.28571E-05	0.490086099	7.32333E-07	2.22026E-05	3.104264264	4.63868E-06	0.000140634	3.020852647	4.51404E-06	0.000136855	3.510938746	5.24637E-06	0.000159058
Road 9	9	1700-1800	0.382834485	4.93408E-07	1.4959E-05	0.368668496	4.7515E-07	1.44054E-05	2.290390818	2.95192E-06	8.94953E-05	2.203648548	2.84012E-06	8.61059E-05	2.572317044	3.31528E-06	0.000100511
Road 9	9	1800-1900	0.362742444	2.98124E-07	9.03842E-06	0.350785711	2.88297E-07	8.74049E-06	2.034728484	1.67227E-06	5.06991E-05	1.963403883	1.61365E-06	4.89219E-05	2.314189594	1.90194E-06	5.76624E-05
Road 9	9	1900-2000	0.401248312	3.22276E-07	9.77064E-06	0.389012831	3.12448E-07	9.4727E-06	2.350281926	1.88771E-06	5.72308E-05	2.276171866	1.82818E-06	5.54262E-05	2.665184698	2.14063E-06	6.48989E-05
Road 9	9	2000-2100	0.525066422	2.84419E-07	8.62291E-06	0.50817298	2.75268E-07	8.34547E-06	2.367625658	1.2825E-06	3.88823E-05	2.292715825	1.24192E-06	3.76521E-05	2.800888805	1.51719E-06	4.59976E-05
Road 9	9	2100-2200	0.020267135	1.05998E-08	3.2136E-07	0.018640141	9.74885E-09	2.95562E-07	0.290629692	1.52E-07	4.60829E-06	0.263089842	1.37597E-07	4.17161E-06	0.281729983	1.47346E-07	4.46717E-06
Road 9	9	2200-2300	0.552650685	3.40652E-07	1.03278E-05	0.539156929	3.32334E-07	1.00756E-05	3.086378022	1.90243E-06	5.76772E-05	3.017801966	1.86016E-06	5.63957E-05	3.556958896	2.1925E-06	6.64713E-05
Road 9	9	2300-0000	0.39122074	2.19225E-07	6.64637E-06	0.378988724	2.1237E-07	6.43856E-06	2.240396033	1.25543E-06	3.80616E-05	2.17169624	1.21693E-06	3.68945E-05	2.550684963	1.4293E-06	4.33331E-05
Road 10	10	0000-0100	1.185828852	9.13249E-07	2.0272E-05	1.157555857	8.91475E-07	1.97886E-05	7.438950891	5.729E-06	0.00012717	7.29805896	5.6205E-06	0.000124762	8.455614817	6.51197E-06	0.00014455
Road 10	10	0100-0200	1.136465757	6.61287E-07	1.4679E-05	1.108179894	6.44828E-07	1.43137E-05	7.05988036	4.10801E-06	9.1188E-05	6.919791719	4.02649E-06	8.93786E-05	8.027971613	4.67132E-06	0.000103692
Road 10	10	0200-0300	1.211909556	3.94075E-07	8.74753E-06	1.186436968	3.85792E-07	8.56367E-06	7.427802682	2.41529E-06	5.36137E-05	7.304756791	2.37528E-06	5.27255E-05	8.491193759	2.76107E-06	6.12892E-05
Road 10	10	0300-0400	1.095320682	2.24946E-07	4.99326E-06	1.074136561	2.20595E-07	4.89669E-06	7.077773219	1.45356E-06	3.22656E-05	6.967391841	1.43089E-06	3.17624E-05	8.041528402	1.65149E-06	3.66591E-05
Road 10	10	0400-0500	1.172842761	4.6166E-07	1.02478E-05	1.149544536	4.52489E-07	1.00442E-05	7.135193542	2.80859E-06	6.23441E-05	7.023546503	2.76464E-06	6.13685E-05	8.173091039	3.21713E-06	7.14127E-05
Road 10	10	0500-0600	1.040781205	7.30295E-07	1.62108E-05	1.015664556	7.12671E-07	1.58196E-05	6.259012814	4.39182E-06	9.7488E-05	6.138047208	4.30694E-06	9.56039E-05	7.153711763	5.01961E-06	0.000111424
Road 10	10	0600-0700	1.110929122	1.55903E-06	3.46068E-05	1.080867478	1.51684E-06	3.36704E-05	6.577235597	9.23022E-06	0.000204889	6.433157007	9.02803E-06	0.000200401	7.514024485	1.05449E-05	0.000234071
Road 10	10	0700-0800	1.069760424	2.36173E-06	5.24249E-05	1.040323803	2.29675E-06	5.09823E-05	6.395515989	1.41195E-05	0.00031342	6.252341178	1.38034E-05	0.000306404	7.292664981	1.61002E-05	0.000357386
Road 10	10	0800-0900	1.201193379	5.09823E-06	0.000113169	1.166243413	4.94989E-06	0.000109876	7.25191357	3.07793E-05	0.000683228	7.083278353	3.00636E-05	0.000667341	8.249521766	3.50135E-05	0.000777216
Road 10	10	0900-1000	1.236206231	4.18901E-06	9.2986E-05	1.194388736	4.0473E-06	8.98405E-05	7.284183654	2.46832E-05	0.000547908	7.087356953	2.40162E-05	0.000533103	8.281745689	2.80635E-05	0.000622943
Road 10	10	1000-1100	1.236375194	4.54929E-06	0.000100983	1.192938753	4.38946E-06	9.74357E-05	7.092837122	2.60984E-05	0.000579322	6.897361054	2.53791E-05	0.000563356	8.090299807	2.97686E-05	0.000660792
Road 10	10	1100-1200	1.265581552	4.65676E-06	0.000103369	1.225661132	4.50987E-06	0.000100108	7.432946036	2.73498E-05	0.000607101	7.249279568	2.6674E-05	0.0005921	8.4749407	3.11839E-05	0.000692208
Road 10	10	1200-1300	1.261215374	4.79178E-06	0.000106366	1.217940666	4.62737E-06	0.000102717	7.411464149	2.81587E-05	0.000625055	7.212285488	2.74019E-05	0.000608257	8.430226153	3.20293E-05	0.000710974
Road 10	10	1300-1400	1.224472682	4.02351E-06	8.93124E-05	1.181870522	3.88352E-06	8.6205E-05	7.091072635	2.33006E-05	0.000517219	6.896407718	2.2661E-05	0.00050302	8.07827824	2.65445E-05	0.000589226
Road 10	10	1400-1500	1.117122504	3.46046E-06	7.68141E-05	1.079858247	3.34503E-06	7.42518E-05	6.784565495	2.10163E-05	0.000466511	6.603677597	2.04559E-05	0.000454073	7.683535845	2.3801E-05	0.000528325
Road 10	10	1500-1600	1.186517253	3.75665E-06	8.33887E-05	1.14602747	3.62845E-06	8.05431E-05	7.032358696	2.22653E-05	0.000494236	6.843172993	2.16663E-05	0.00048094	7.989200464	2.52947E-05	0.000561483
Road 10	10	1600-1700	1.07765339	3.79928E-06	8.4335E-05	1.046418805	3.68916E-06	8.18906E-05	6.492570493	2.28896E-05	0.000508096	6.342056257	2.2359E-05	0.000496317	7.388475063	2.60481E-05	0.000578207
Road 10	10	1700-1800	0.982488083	3.27881E-06	7.27819E-05	0.946227891	3.1578E-06	7.00958E-05	5.913831793	1.9736E-05	0.000438092	5.736261335	1.91434E-05	0.000424937	6.682489226	2.23012E-05	0.000495033
Road 10	10	1800-1900	1.06097619	2.19708E-06	4.877E-05	1.026628883	2.12595E-06	4.71911E-05	6.428366704	1.33119E-05	0.000295493	6.261239657	1.29658E-05	0.000287811	7.28786854	1.50918E-05	0.000335002
Road 10	10	1900-2000	1.030496197	1.92233E-06	4.26712E-05	1.00454955	1.87393E-06	4.15967E-05	6.45090527	1.20338E-05	0.000267121	6.317870557	1.17856E-05	0.000261613	7.322420107	1.36595E-05	0.000303209
Road 10	10	2000-2100	1.322324261	1.62939E-06	3.61686E-05	1.287175281	1.58608E-06	3.52072E-05	8.034260701	9.89996E-06	0.000219756	7.86807916	9.69518E-06	0.00021521	9.155254441	1.12813E-05	0.000250417
Road 10	10	2100-2200	0.878024179	1.11197E-06	2.46831E-05	0.858712739	1.08751E-06	2.41402E-05	5.501443405	6.96728E-06	0.000154657	5.399740038	6.83848E-06	0.000151798	6.258452777	7.92599E-06	0.000175938
Road 10	10	2200-2300	1.047777531	1.38075E-06	3.06494E-05	1.024491046	1.35006E-06	2.99682E-05	6.330900846	8.34279E-06	0.00018519	6.217338996	8.19314E-06	0.000181868	7.241830042	9.5432E-06	0.000211836
Road 10	10	2300-0000	0.958748226	1.18139E-06	2.6224E-05	0.931122525	1.14735E-06	2.54684E-05	5.900267891	7.27041E-06	0.000161386	5.762564079	7.10073E-06	0.000157619	6.693686603	8.24808E-06	0.000183088
Road 11	11	0000-0100	1.327574786	1.01412E-06	8.4122E-06	1.295711726	9.8978E-07	8.2103E-06	8.304680834	6.34385E-06	5.26228E-05	8.148057067	6.22421E-06	5.16303E-05	9.443768793	7.21399E-06	5.98406E-05
Road 11	11	0100-0200	1.300232857	6.99778E-07	5.80472E-06	1.267721085	6.8228E-07	5.65957E-06	8.039382555	4.32675E-06	3.58908E-05	7.881364011	4.24171E-06	3.51853E-05	9.149085096	4.92399E-06	4.08449E-05
Road 11	11	0200-0300	1.208999297	3.14844E-07	2.61165E-06	1.183616	3.08233E-07	2.55682E-06	7.786896476	2.02784E-06	1.68211E-05	7.65619604	1.9938E-06	1.65387E-05	8.83981204	2.30203E-06	1.90956E-05
Road 11	11	0300-0400	1.291305913	3.13859E-07	2.60349E-06	1.266329522	3.07788E-07	2.55313E-06	8.29285554	2.01562E-06	1.67198E-05	8.167062629	1.98505E-06	1.64662E-05	9.433392152	2.29284E-06	1.90193E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.188841622	4.12792E-07	3.42415E-06	1.164895163	4.04477E-07	3.35517E-06	7.163175374	2.48721E-06	2.06316E-05	7.049756279	2.44783E-06	2.0305E-05	8.214651442	2.85231E-06	2.36601E-05
Road 11	11	0500-0600	0.949495279	4.45076E-07	3.69194E-06	0.926332189	4.34218E-07	3.60188E-06	5.810207736	2.72353E-06	2.25919E-05	5.69348984	2.66882E-06	2.21381E-05	6.61982203	3.10304E-06	2.574E-05
Road 11	11	0600-0700	0.996454168	8.99577E-07	7.46206E-06	0.970846079	8.76458E-07	7.27029E-06	6.099570141	5.50656E-06	4.56773E-05	5.968579559	5.3883E-06	4.46964E-05	6.939425638	6.26476E-06	5.19667E-05
Road 11	11	0700-0800	1.135581152	2.14893E-06	1.78255E-05	1.104569641	2.09024E-06	1.73387E-05	7.061449035	1.33628E-05	0.000110846	6.905402733	1.30675E-05	0.000108396	8.009972374	1.51578E-05	0.000125735
Road 11	11	0800-0900	1.143381867	4.06933E-06	3.37554E-05	1.110270985	3.95149E-06	3.27779E-05	7.000463092	2.49148E-05	0.000206671	6.837867511	2.43362E-05	0.00020187	7.948138496	2.82876E-05	0.000234648
Road 11	11	0900-1000	1.133618898	2.89309E-06	2.39984E-05	1.095628236	2.79613E-06	2.31942E-05	6.723390115	1.71587E-05	0.000142332	6.542534396	1.66971E-05	0.000138504	7.638162632	1.94932E-05	0.000161698
Road 11	11	1000-1100	1.224856894	2.57305E-06	2.13437E-05	1.183896945	2.48701E-06	2.06299E-05	7.118510392	1.49538E-05	0.000124043	6.929459489	1.45567E-05	0.000120749	8.113356434	1.70437E-05	0.000141379
Road 11	11	1100-1200	1.151666868	2.71921E-06	2.25561E-05	1.116979166	2.63731E-06	2.18767E-05	6.98466553	1.64916E-05	0.000136799	6.815572863	1.60923E-05	0.000133487	7.932552029	1.87296E-05	0.000155364
Road 11	11	1200-1300	1.271230245	3.61948E-06	3.00238E-05	1.228363819	3.49742E-06	2.90114E-05	7.615722097	2.16837E-05	0.000179868	7.412875492	2.11061E-05	0.000175077	8.641239311	2.46035E-05	0.000204088
Road 11	11	1300-1400	1.287381638	2.7044E-06	2.24332E-05	1.242728378	2.61059E-06	2.16551E-05	7.349808389	1.54397E-05	0.000128074	7.14711446	1.50139E-05	0.000124542	8.389842838	1.76245E-05	0.000146197
Road 11	11	1400-1500	1.027430369	2.06913E-06	1.71636E-05	0.993475443	2.00075E-06	1.65964E-05	6.383483045	1.28556E-05	0.000106638	6.213786197	1.25139E-05	0.000103804	7.20726164	1.45146E-05	0.0001204
Road 11	11	1500-1600	1.121769822	2.27859E-06	1.89011E-05	1.088600374	2.21122E-06	1.83422E-05	7.033855594	1.42875E-05	0.000118516	6.86767909	1.395E-05	0.000115716	7.956279463	1.61612E-05	0.000134058
Road 11	11	1600-1700	0.995474549	2.41956E-06	2.00704E-05	0.970520887	2.3589E-06	1.95673E-05	6.294198239	1.52984E-05	0.000126901	6.164326207	1.49827E-05	0.000124283	7.134847094	1.73416E-05	0.00014385
Road 11	11	1700-1800	1.018464576	2.52848E-06	2.09739E-05	0.98589696	2.44763E-06	2.03033E-05	6.430911991	1.59656E-05	0.000132436	6.262016012	1.55463E-05	0.000128958	7.247912973	1.7994E-05	0.000149261
Road 11	11	1800-1900	1.143856823	2.34332E-06	1.9438E-05	1.111429558	2.27689E-06	1.8887E-05	7.204267867	1.47587E-05	0.000122425	7.039316896	1.44208E-05	0.000119622	8.150746454	1.66977E-05	0.000138509
Road 11	11	1900-2000	1.057249793	1.67031E-06	1.38553E-05	1.030040351	1.62732E-06	1.34988E-05	6.660479766	1.05226E-05	8.72861E-05	6.519730551	1.03003E-05	8.54416E-05	7.549770902	1.19276E-05	9.89403E-05
Road 11	11	2000-2100	1.163542403	1.63623E-06	1.35727E-05	1.132054047	1.59195E-06	1.32054E-05	7.089937189	9.97022E-06	8.27038E-05	6.937180032	9.75541E-06	8.09219E-05	8.069234079	1.13474E-05	9.41273E-05
Road 11	11	2100-2200	0.859125981	8.65092E-07	7.17601E-06	0.840228418	8.46063E-07	7.01816E-06	5.575380977	5.6141E-06	4.65694E-05	5.473109201	5.51112E-06	4.57152E-05	6.313337619	6.35718E-06	5.27333E-05
Road 11	11	2200-2300	1.070946364	1.17135E-06	9.71642E-06	1.046962545	1.14512E-06	9.49882E-06	6.618185411	7.23864E-06	6.00451E-05	6.49879195	7.10805E-06	5.89619E-05	7.545754495	8.25317E-06	6.84607E-05
Road 11	11	2300-0000	1.019291176	1.06176E-06	8.8074E-06	0.991690968	1.03301E-06	8.56891E-06	6.387124786	6.65325E-06	5.51893E-05	6.246740169	6.50702E-06	5.39763E-05	7.238431138	7.54003E-06	6.25452E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.569161612	4.82925E-06	7.26343E-06	2.429351612	4.56645E-06	6.86817E-06	14.37903354	2.70283E-05	4.06518E-05	13.76624354	2.58764E-05	3.89194E-05	16.19559515	3.04428E-05	4.57875E-05
Haul Road 1	HR1	0800-0900	2.569161612	4.82925E-06	7.26343E-06	2.425351612	4.55893E-06	6.85686E-06	14.37903354	2.70283E-05	4.06518E-05	13.74855354	2.58431E-05	3.88694E-05	16.17390515	3.04021E-05	4.57262E-05
Haul Road 1	HR1	0900-1000	2.597741612	4.88297E-06	7.34423E-06	2.427751612	4.56344E-06	6.86364E-06	14.50415354	2.72634E-05	4.10056E-05	13.75914354	2.58631E-05	3.88993E-05	16.18689515	3.04265E-05	4.5763E-05
Haul Road 1	HR1	1000-1100	2.592041612	4.87226E-06	7.32812E-06	2.421061612	4.55087E-06	6.84473E-06	14.47927354	2.72167E-05	4.09352E-05	13.73016354	2.58086E-05	3.88174E-05	16.15122515	3.03594E-05	4.56621E-05
Haul Road 1	HR1	1100-1200	2.588251612	4.86513E-06	7.3174E-06	2.432151612	4.57171E-06	6.87608E-06	14.46258354	2.71853E-05	4.0888E-05	13.77863354	2.58997E-05	3.89544E-05	16.21078515	3.04714E-05	4.58305E-05
Haul Road 1	HR1	1200-1300	2.595841612	4.8794E-06	7.33886E-06	2.426651612	4.56138E-06	6.86053E-06	14.49596354	2.72481E-05	4.09824E-05	13.75435354	2.5854E-05	3.88858E-05	16.18100515	3.04154E-05	4.57463E-05
Haul Road 1	HR1	1300-1400	2.599641612	4.88654E-06	7.3496E-06	2.426651612	4.56138E-06	6.86053E-06	14.51265354	2.72794E-05	4.10296E-05	13.75435354	2.5854E-05	3.88858E-05	16.18100515	3.04154E-05	4.57463E-05
Haul Road 1	HR1	1400-1500	2.599641612	4.88654E-06	7.3496E-06	2.432151612	4.57171E-06	6.87608E-06	14.51265354	2.72794E-05	4.10296E-05	13.77863354	2.58997E-05	3.89544E-05	16.21078515	3.04714E-05	4.58305E-05
Haul Road 1	HR1	1500-1600	2.599641612	4.88654E-06	7.3496E-06	2.426651612	4.56138E-06	6.86053E-06	14.51265354	2.72794E-05	4.10296E-05	13.75435354	2.5854E-05	3.88858E-05	16.18100515	3.04154E-05	4.57463E-05
Haul Road 1	HR1	1600-1700	2.576851612	4.84371E-06	7.28517E-06	2.432951612	4.57322E-06	6.87834E-06	14.41252354	2.70912E-05	4.07465E-05	13.78192354	2.59059E-05	3.89637E-05	16.21487515	3.04791E-05	4.58421E-05
Haul Road 1	HR1	1700-1800	2.597741612	4.88297E-06	7.34423E-06	2.412061612	4.53395E-06	6.81929E-06	14.50415354	2.72634E-05	4.10056E-05	13.69069354	2.57344E-05	3.87058E-05	16.10275515	3.02683E-05	4.55251E-05
Haul Road 1	HR1	1800-1900	2.587051612	4.86288E-06	7.31401E-06	2.420461612	4.54974E-06	6.84303E-06	14.45718354	2.71752E-05	4.08728E-05	13.72706354	2.58028E-05	3.88086E-05	16.14752515	3.03525E-05	4.56516E-05
Haul Road 1	HR1	1900-2000	2.558471612	4.80916E-06	7.23321E-06	2.410561612	4.53113E-06	6.81504E-06	14.33216354	2.69402E-05	4.05193E-05	13.68419354	2.57222E-05	3.86874E-05	16.09475515	3.02533E-05	4.55025E-05
Haul Road 1	HR1	2000-2100	2.562061612	4.81591E-06	7.24336E-06	2.405671612	4.52194E-06	6.80122E-06	14.34776354	2.69695E-05	4.05634E-05	13.66280354	2.5682E-05	3.86269E-05	16.06847515	3.02039E-05	4.54282E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.569161612	3.32793E-06	6.62604E-06	2.429351612	3.14683E-06	6.26546E-06	14.37903354	1.86257E-05	3.70845E-05	13.76624354	1.78319E-05	3.5504E-05	16.19559515	2.09788E-05	4.17695E-05
Haul Road 2	HR2	0800-0900	2.569161612	3.32793E-06	6.62604E-06	2.425351612	3.14165E-06	6.25514E-06	14.37903354	1.86257E-05	3.70845E-05	13.74855354	1.7809E-05	3.54584E-05	16.17390515	2.09507E-05	4.17136E-05
Haul Road 2	HR2	0900-1000	2.597741612	3.36495E-06	6.69975E-06	2.427751612	3.14476E-06	6.26133E-06	14.50415354	1.87878E-05	3.74072E-05	13.75914354	1.78227E-05	3.54857E-05	16.18689515	2.09675E-05	4.17471E-05
Haul Road 2	HR2	1000-1100	2.592041612	3.35757E-06	6.68504E-06	2.421061612	3.13609E-06	6.24408E-06	14.47927354	1.87555E-05	3.7343E-05	13.73016354	1.77852E-05	3.5411E-05	16.15122515	2.09213E-05	4.16551E-05
Haul Road 2	HR2	1100-1200	2.588251612	3.35266E-06	6.67527E-06	2.432151612	3.15046E-06	6.27268E-06	14.46258354	1.87339E-05	3.72999E-05	13.77863354	1.7848E-05	3.5536E-05	16.21078515	2.09984E-05	4.18087E-05
Haul Road 2	HR2	1200-1300	2.595841612	3.36249E-06	6.69485E-06	2.426651612	3.14333E-06	6.25849E-06	14.49596354	1.87772E-05	3.7386E-05	13.75435354	1.78165E-05	3.54734E-05	16.18100515	2.09599E-05	4.17319E-05
Haul Road 2	HR2	1300-1400	2.599641612	3.36741E-06	6.70465E-06	2.426651612	3.14333E-06	6.25849E-06	14.51265354	1.87988E-05	3.74291E-05	13.75435354	1.78165E-05	3.54734E-05	16.18100515	2.09599E-05	4.17319E-05
Haul Road 2	HR2	1400-1500	2.599641612	3.36741E-06	6.70465E-06	2.432151612	3.15046E-06	6.27268E-06	14.51265354	1.87988E-05	3.74291E-05	13.77863354	1.7848E-05	3.5536E-05	16.21078515	2.09984E-05	4.18087E-05
Haul Road 2	HR2	1500-1600	2.599641612	3.36741E-06	6.70465E-06	2.426651612	3.14333E-06	6.25849E-06	14.51265354	1.87988E-05	3.74291E-05	13.75435354	1.78165E-05	3.54734E-05	16.18100515	2.09599E-05	4.17319E-05
Haul Road 2	HR2	1600-1700	2.576851612	3.33789E-06	6.64587E-06	2.432951612	3.15149E-06	6.27474E-06	14.41252354	1.86691E-05	3.71708E-05	13.78192354	1.78522E-05	3.55445E-05	16.21487515	2.10037E-05	4.18192E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.597741612	3.36495E-06	6.69975E-06	2.412061612	3.12443E-06	6.22086E-06	14.50415354	1.87878E-05	3.74072E-05	13.69069354	1.77341E-05	3.53092E-05	16.10275515	2.08585E-05	4.15301E-05
Haul Road 2	HR2	1800-1900	2.587051612	3.3511E-06	6.67218E-06	2.420461612	3.13531E-06	6.24253E-06	14.45718354	1.87269E-05	3.7286E-05	13.72706354	1.77812E-05	3.5403E-05	16.14752515	2.09165E-05	4.16455E-05
Haul Road 2	HR2	1900-2000	2.558471612	3.31408E-06	6.59847E-06	2.410561612	3.12249E-06	6.217E-06	14.33216354	1.8565E-05	3.69636E-05	13.68419354	1.77256E-05	3.52924E-05	16.09475515	2.08481E-05	4.15094E-05
Haul Road 2	HR2	2000-2100	2.562061612	3.31873E-06	6.60772E-06	2.405671612	3.11615E-06	6.20438E-06	14.34776354	1.85852E-05	3.70038E-05	13.66280354	1.76979E-05	3.52373E-05	16.06847515	2.08141E-05	4.14416E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.569161612	3.32793E-06	6.12902E-06	2.429351612	3.14683E-06	5.79549E-06	14.37903354	1.86257E-05	3.43028E-05	13.76624354	1.78319E-05	3.28409E-05	16.19559515	2.09788E-05	3.86364E-05
Haul Road 3	HR3	0800-0900	2.569161612	3.32793E-06	6.12902E-06	2.425351612	3.14165E-06	5.78595E-06	14.37903354	1.86257E-05	3.43028E-05	13.74855354	1.7809E-05	3.27987E-05	16.17390515	2.09507E-05	3.85846E-05
Haul Road 3	HR3	0900-1000	2.597741612	3.36495E-06	6.1972E-06	2.427751612	3.14476E-06	5.79167E-06	14.50415354	1.87878E-05	3.46013E-05	13.75914354	1.78227E-05	3.2824E-05	16.18689515	2.09675E-05	3.86156E-05
Haul Road 3	HR3	1000-1100	2.592041612	3.35757E-06	6.1836E-06	2.421061612	3.13609E-06	5.77571E-06	14.47927354	1.87555E-05	3.45419E-05	13.73016354	1.77852E-05	3.27548E-05	16.15122515	2.09213E-05	3.85305E-05
Haul Road 3	HR3	1100-1200	2.588251612	3.35266E-06	6.17456E-06	2.432151612	3.15046E-06	5.80217E-06	14.46258354	1.87339E-05	3.45021E-05	13.77863354	1.7848E-05	3.28705E-05	16.21078515	2.09984E-05	3.86726E-05
Haul Road 3	HR3	1200-1300	2.595841612	3.36249E-06	6.19267E-06	2.426651612	3.14333E-06	5.78905E-06	14.49596354	1.87772E-05	3.45817E-05	13.75435354	1.78165E-05	3.28125E-05	16.18100515	2.09599E-05	3.86016E-05
Haul Road 3	HR3	1300-1400	2.599641612	3.36741E-06	6.20173E-06	2.426651612	3.14333E-06	5.78905E-06	14.51265354	1.87988E-05	3.46215E-05	13.75435354	1.78165E-05	3.28125E-05	16.18100515	2.09599E-05	3.86016E-05
Haul Road 3	HR3	1400-1500	2.599641612	3.36741E-06	6.20173E-06	2.432151612	3.15046E-06	5.80217E-06	14.51265354	1.87988E-05	3.46215E-05	13.77863354	1.7848E-05	3.28705E-05	16.21078515	2.09984E-05	3.86726E-05
Haul Road 3	HR3	1500-1600	2.599641612	3.36741E-06	6.20173E-06	2.426651612	3.14333E-06	5.78905E-06	14.51265354	1.87988E-05	3.46215E-05	13.75435354	1.78165E-05	3.28125E-05	16.18100515	2.09599E-05	3.86016E-05
Haul Road 3	HR3	1600-1700	2.576851612	3.33789E-06	6.14737E-06	2.432951612	3.15149E-06	5.80408E-06	14.41252354	1.86691E-05	3.43827E-05	13.78192354	1.78522E-05	3.28783E-05	16.21487515	2.10037E-05	3.86824E-05
Haul Road 3	HR3	1700-1800	2.597741612	3.36495E-06	6.1972E-06	2.412061612	3.12443E-06	5.75424E-06	14.50415354	1.87878E-05	3.46013E-05	13.69069354	1.77341E-05	3.26607E-05	16.10275515	2.08585E-05	3.84149E-05
Haul Road 3	HR3	1800-1900	2.587051612	3.3511E-06	6.1717E-06	2.420461612	3.13531E-06	5.77428E-06	14.45718354	1.87269E-05	3.44892E-05	13.72706354	1.77812E-05	3.27474E-05	16.14752515	2.09165E-05	3.85217E-05
Haul Road 3	HR3	1900-2000	2.558471612	3.31408E-06	6.10352E-06	2.410561612	3.12249E-06	5.75066E-06	14.33216354	1.8565E-05	3.4191E-05	13.68419354	1.77256E-05	3.26452E-05	16.09475515	2.08481E-05	3.83958E-05
Haul Road 3	HR3	2000-2100	2.562061612	3.31873E-06	6.11208E-06	2.405671612	3.11615E-06	5.739E-06	14.34776354	1.85852E-05	3.42282E-05	13.66280354	1.76979E-05	3.25941E-05	16.06847515	2.08141E-05	3.83331E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.087481844	2.93905E-07	2.39096E-06	0.076666257	2.57569E-07	2.09536E-06	0.516621397	1.73565E-06	1.41197E-05	0.450553352	1.51368E-06	1.2314E-05	0.527219609	1.77125E-06	1.44094E-05
Road 1	1	0100-0200	0.067782385	1.38669E-07	1.12809E-06	0.059129541	1.20967E-07	9.84084E-07	0.407928257	8.34538E-07	6.78909E-06	0.354089266	7.24394E-07	5.89306E-06	0.413218807	8.45361E-07	6.87714E-06
Road 1	1	0200-0300	0.065784675	9.50717E-08	7.73422E-07	0.056593247	8.17883E-08	6.6536E-07	0.418505584	6.04822E-07	4.92032E-06	0.35658013	5.15328E-07	4.19227E-06	0.413173377	5.97116E-07	4.85763E-06
Road 1	1	0300-0400	0.054933091	5.67065E-08	4.61315E-07	0.047591273	4.91276E-08	3.99661E-07	0.335429818	3.46258E-07	2.81686E-06	0.288216	2.9752E-07	2.42037E-06	0.335807273	3.46648E-07	2.82003E-06
Road 1	1	0400-0500	0.072785116	1.17483E-07	9.55746E-07	0.062132209	1.00288E-07	8.15862E-07	0.416422791	6.72154E-07	5.46807E-06	0.35313407	5.69999E-07	4.63702E-06	0.415266279	6.70287E-07	5.45289E-06
Road 1	1	0500-0600	0.060528245	2.13576E-07	1.73747E-06	0.052304149	1.84557E-07	1.5014E-06	0.357151915	1.26022E-06	1.02521E-05	0.30606234	1.07995E-06	8.78555E-06	0.358366489	1.26451E-06	1.02869E-05
Road 1	1	0600-0700	0.081332878	5.14437E-07	4.18502E-06	0.069205401	4.37729E-07	3.56099E-06	0.432569674	2.73604E-06	2.22581E-05	0.365619763	2.31257E-06	1.88131E-05	0.434825163	2.7503E-06	2.23741E-05
Road 1	1	0700-0800	0.068983381	7.2764E-07	5.91946E-06	0.057958737	6.11352E-07	4.97344E-06	0.37986774	4.00686E-06	3.25964E-05	0.315763915	3.33069E-06	2.70957E-05	0.373722651	3.94204E-06	3.20691E-05
Road 1	1	0800-0900	0.074669092	9.72604E-07	7.91228E-06	0.062564957	8.14941E-07	6.62967E-06	0.400353127	5.21481E-06	4.24233E-05	0.333282017	4.34117E-06	3.53161E-05	0.395846974	5.15611E-06	4.19458E-05
Road 1	1	0900-1000	0.078222087	1.04825E-06	8.52764E-06	0.068096555	9.12555E-07	7.42377E-06	0.433118305	5.80418E-06	4.72178E-05	0.375229384	5.02841E-06	4.09069E-05	0.443325938	5.94097E-06	4.83306E-05
Road 1	1	1000-1100	0.091333108	1.19138E-06	9.69202E-06	0.07817495	1.01974E-06	8.29571E-06	0.488693727	6.37466E-06	5.18588E-05	0.41635846	5.4311E-06	4.41828E-05	0.49453341	6.45084E-06	5.24785E-05
Road 1	1	1100-1200	0.082832611	1.04784E-06	8.52437E-06	0.071	8.98161E-07	7.30667E-06	0.474690237	6.0049E-06	4.88508E-05	0.404773991	5.12045E-06	4.16556E-05	0.475773991	6.01861E-06	4.89623E-05
Road 1	1	1200-1300	0.086437256	1.08209E-06	8.80295E-06	0.072452864	9.07021E-07	7.37875E-06	0.488962024	6.1212E-06	4.97969E-05	0.407993643	5.10758E-06	4.15509E-05	0.480446507	6.0146E-06	4.89297E-05
Road 1	1	1300-1400	0.090146643	1.19959E-06	9.75881E-06	0.075203413	1.00074E-06	8.14114E-06	0.499619986	6.64847E-06	5.40863E-05	0.414679055	5.51816E-06	4.4891E-05	0.489882468	6.51889E-06	5.30322E-05
Road 1	1	1400-1500	0.085654746	1.23627E-06	1.00572E-05	0.071013914	1.02496E-06	8.33818E-06	0.464785787	6.70834E-06	5.45733E-05	0.383256255	5.53161E-06	4.50004E-05	0.454270169	6.55656E-06	5.33386E-05
Road 1	1	1500-1600	0.092312961	1.24054E-06	1.0092E-05	0.078025237	1.04854E-06	8.53001E-06	0.499158659	6.70791E-06	5.45699E-05	0.41977074	5.64106E-06	4.58909E-05	0.497795978	6.6896E-06	5.44209E-05
Road 1	1	1600-1700	0.08872498	1.25727E-06	1.02281E-05	0.073388556	1.03995E-06	8.46012E-06	0.485900225	6.88541E-06	5.60138E-05	0.399375351	5.65932E-06	4.60394E-05	0.472763907	6.69926E-06	5.44995E-05
Road 1	1	1700-1800	0.069263325	9.8539E-07	8.0163E-06	0.058664921	8.3461E-07	6.78967E-06	0.387558113	5.51368E-06	4.48546E-05	0.325863166	4.63597E-06	3.77143E-05	0.384528087	5.47058E-06	4.45039E-05
Road 1	1	1800-1900	0.060864871	8.84186E-07	7.19298E-06	0.052436667	7.61749E-07	6.19694E-06	0.364092571	5.28918E-06	4.30283E-05	0.310673256	4.51316E-06	3.67152E-05	0.363109922	5.27491E-06	4.29122E-05
Road 1	1	1900-2000	0.073341248	8.16279E-07	6.64055E-06	0.062710304	6.97958E-07	5.67799E-06	0.420167572	4.67641E-06	3.80433E-05	0.356266577	3.9652E-06	3.22575E-05	0.41897688	4.66316E-06	3.79355E-05
Road 1	1	2000-2100	0.064776879	6.11538E-07	4.97496E-06	0.056395964	5.32417E-07	4.33129E-06	0.382035149	3.60668E-06	2.93408E-05	0.330244871	3.11774E-06	2.53633E-05	0.386640835	3.65016E-06	2.96946E-05
Road 1	1	2100-2200	0.067275251	5.79567E-07	4.71486E-06	0.060133769	5.18044E-07	4.21437E-06	0.400190153	3.44758E-06	2.80466E-05	0.355671786	3.06406E-06	2.49266E-05	0.415805556	3.58211E-06	2.9141E-05
Road 1	1	2200-2300	0.066352276	5.41727E-07	4.40703E-06	0.058421494	4.76977E-07	3.88028E-06	0.39438423	3.21992E-06	2.61945E-05	0.344877954	2.81573E-06	2.29064E-05	0.403299448	3.2927E-06	2.67866E-05
Road 1	1	2300-0000	0.05824541	4.26346E-07	3.46839E-06	0.051157974	3.74467E-07	3.04635E-06	0.355898769	2.60511E-06	2.1193E-05	0.309689179	2.26687E-06	1.84413E-05	0.360847154	2.64134E-06	2.14877E-05
Road 2	2	0000-0100	0.144879615	1.74392E-07	1.12621E-06	0.126959231	1.52821E-07	9.86905E-07	0.612004231	7.36672E-07	4.75735E-06	0.534311154	6.43152E-07	4.15341E-06	0.661270385	7.95974E-07	5.14032E-06
Road 2	2	0100-0200	0.102245882	8.04713E-08	5.19676E-07	0.089158824	7.01713E-08	4.53159E-07	0.503893235	3.96583E-07	2.56109E-06	0.437528235	3.44351E-07	2.22378E-06	0.526687059	4.14522E-07	2.67694E-06
Road 2	2	0200-0300	0.106939565	5.69354E-08	3.67683E-07	0.092142174	4.90572E-08	3.16806E-07	0.582236087	3.09987E-07	2.00186E-06	0.498359565	2.6533E-07	1.71348E-06	0.590501739	3.14388E-07	2.03028E-06
Road 2	2	0300-0400	0.091642667	3.18204E-08	2.05493E-07	0.079422667	2.75773E-08	1.78092E-07	0.332016	1.15283E-07	7.44489E-07	0.285696667	9.92002E-08	6.40625E-07	0.365119333	1.26778E-07	8.18717E-07
Road 2	2	0400-0500	0.126762593	7.92266E-08	5.11638E-07	0.108221111	6.76382E-08	4.36801E-07	0.609794074	3.81121E-07	2.46124E-06	0.518595926	3.24122E-07	2.09315E-06	0.626817037	3.91761E-07	2.52995E-06
Road 2	2	0500-0600	0.101320351	1.33687E-07	8.63335E-07	0.087604386	1.15589E-07	7.46463E-07	0.447520351	5.90478E-07	3.81325E-06	0.384382105	5.07171E-07	3.27526E-06	0.471986491	6.2276E-07	4.02172E-06
Road 2	2	0600-0700	0.142541538	3.43156E-07	2.21607E-06	0.121300962	2.92021E-07	1.88584E-06	0.575633558	1.38578E-06	8.94926E-06	0.487496538	1.1736E-06	7.57901E-06	0.6087975	1.46562E-06	9.46485E-06
Road 2	2	0700-0800	0.11803125	4.37153E-07	2.82309E-06	0.09913325	3.6716E-07	2.37108E-06	0.48995175	1.81464E-06	1.17187E-05	0.40799025	1.51108E-06	9.75837E-06	0.5071235	1.87824E-06	1.21295E-05
Road 2	2	0800-0900	0.134022566	9.43122E-07	6.09059E-06	0.112241053	7.89844E-07	5.10074E-06	0.562592664	3.95899E-06	2.55667E-05	0.468207796	3.2948E-06	2.12775E-05	0.580448849	4.08464E-06	2.63782E-05
Road 2	2	0900-1000	0.154341468	9.00325E-07	5.81421E-06	0.134184167	7.82741E-07	5.05486E-06	0.656223611	3.82797E-06	2.47207E-05	0.569009603	3.31922E-06	2.14352E-05	0.70319377	4.10196E-06	2.64901E-05
Road 2	2	1000-1100	0.173184652	7.49665E-07	4.84126E-06	0.148104278	6.411E-07	4.14016E-06	0.729454385	3.15759E-06	2.03914E-05	0.622204011	2.69334E-06	1.73933E-05	0.770308289	3.33444E-06	2.15335E-05
Road 2	2	1100-1200	0.205726776	8.71481E-07	5.62794E-06	0.176194317	7.46379E-07	4.82004E-06	0.839578361	3.55655E-06	2.29678E-05	0.71780082	3.04068E-06	1.96364E-05	0.893995137	3.78706E-06	2.44565E-05
Road 2	2	1200-1300	0.160352684	7.05255E-07	4.55447E-06	0.134429632	5.91241E-07	3.81818E-06	0.701272737	3.0843E-06	1.99181E-05	0.585550737	2.57534E-06	1.66313E-05	0.719980368	3.16658E-06	2.04495E-05
Road 2	2	1300-1400	0.176798161	9.12639E-07	5.89373E-06	0.147234753	7.60031E-07	4.90821E-06	0.722088206	3.72745E-06	2.40715E-05	0.599222466	3.09321E-06	1.99756E-05	0.74645722	3.85324E-06	2.48838E-05
Road 2	2	1400-1500	0.152186848	5.81269E-07	3.75378E-06	0.126137636	4.81776E-07	3.11126E-06	0.657266424	2.51039E-06	1.62119E-05	0.542929636	2.07369E-06	1.33917E-05	0.669067273	2.55547E-06	1.65029E-05
Road 2	2	1500-1600	0.190565574	8.07257E-07	5.21319E-06	0.160814426	6.81228E-07	4.3993E-06	0.750206393	3.17796E-06	2.05229E-05	0.631645738	2.67572E-06	1.72795E-05	0.792460164	3.35695E-06	2.16789E-05
Road 2	2	1600-1700	0.160784118	8.2253E-07	5.31182E-06	0.133012579	6.80458E-07	4.39433E-06	0.675704706	3.45673E-06	2.23232E-05	0.556496109	2.84689E-06	1.83849E-05	0.689508688	3.52735E-06	2.27793E-05
Road 2	2	1700-1800	0.121415721	6.23942E-07	4.02936E-06	0.102869685	5.28636E-07	3.41388E-06	0.481166712	2.47266E-06	1.59682E-05	0.40575464	2.08513E-06	1.34656E-05	0.508624324	2.61376E-06	1.68794E-05
Road 2	2	1800-1900	0.13203708	7.64103E-07	4.93451E-06	0.11384284	6.58813E-07	4.25455E-06	0.59331616	3.43354E-06	2.21735E-05	0.50895184	2.94532E-06	1.90206E-05	0.62279468	3.60414E-06	2.32752E-05
Road 2	2	1900-2000	0.112583787	4.40432E-07	2.84427E-06	0.096240947	3.76498E-07	2.43139E-06	0.509847988	1.99454E-06	1.28806E-05	0.432827219	1.69324E-06	1.09348E-05	0.529068166	2.06973E-06	1.33661E-05
Road 2	2	2000-2100	0.104046735	3.54048E-07	2.28641E-06	0.09055034	3.08123E-07	1.98983E-06	0.442510748	1.50577E-06	9.72409E-06	0.382129252	1.3003E-06	8.39722E-06	0.472679592	1.60842E-06	1.0387E-05
Road 2	2	2100-2200	0.079889608	2.82942E-07	1.82721E-06	0.071362484	2.52742E-07	1.63218E-06	0.365000719	1.29271E-06	8.3482E-06	0.323216209	1.14472E-06	7.39252E-06	0.394578693	1.39747E-06	9.0247E-06
Road 2	2	2200-2300	0.1175056	3.40005E-07	2.19572E-06	0.10350976	2.99507E-07	1.93419E-06	0.4994896	1.44528E-06	9.33349E-06	0.43737344	1.26555E-06	8.17279E-06	0.5408832	1.56506E-06	1.0107E-05
Road 2	2	2300-0000	0.105221261	2.7036E-07	1.74596E-06	0.092441802	2.37524E-07	1.53391E-06	0.474038108	1.21801E-06	7.86582E-06	0.413346667	1.06207E-06	6.85875E-06	0.505788468	1.2996E-06	8.39266E-06
Road 3	3	0000-0100	0.091249217	3.36627E-07	1.30839E-05	0.079633826	2.93777E-07	1.14184E-05	0.50198913	1.85189E-06	7.19782E-05	0.435828478	1.60781E-06	6.24917E-05	0.515462304	1.90159E-06	7.391E-05
Road 3	3	0100-0200	0.06855669	1.56146E-07	6.069E-06	0.059796972	1.36195E-07	5.29354E-06	0.398608451	9.07877E-07	3.52869E-05	0.345909859	7.8785E-07	3.06217E-05	0.405706831	9.24044E-07	3.59153E-05
Road 3	3	0200-0300	0.067614949	1.07367E-07	4.17308E-06	0.059548081	9.45573E-08	3.67521E-06	0.42055798	6.67811E-07	2.59561E-05	0.367490303	5.83544E-07	2.26809E-05	0.427038384	6.78101E-07	2.63561E-05
Road 3	3	0300-0400	0.056683	6.36419E-08	2.4736E-06	0.049419286	5.54864E-08	2.15662E-06	0.311735	3.50006E-07	1.36039E-05	0.269405	3.02479E-07	1.17566E-05	0.318824286	3.57966E-07	1.39132E-05
Road 3	3	0400-0500	0.076166283	1.38049E-07	5.36562E-06	0.066221947	1.20025E-07	4.66508E-06	0.420696372	7.62499E-07	2.96364E-05	0.363820796	6.59414E-07	2.56298E-05	0.430042743	7.79439E-07	3.02948E-05
Road 3	3	0500-0600	0.062855569	2.48011E-07	9.63957E-06	0.053542642	2.11265E-07	8.21133E-06	0.349495528	1.37901E-06	5.35988E-05	0.294959065	1.16383E-06	4.52351E-05	0.348501707	1.37509E-06	5.34464E-05
Road 3	3	0600-0700	0.086367207	6.15069E-07	2.39062E-05	0.0731725	5.21102E-07	2.02539E-05	0.430706059	3.0673E-06	0.000119218	0.362500653	2.58157E-06	0.000100339	0.435673153	3.10267E-06	0.000120593
Road 3	3	0700-0800	0.071822545	8.37505E-07	3.25517E-05	0.060043164	7.00149E-07	2.7213E-05	0.376419959	4.38934E-06	0.000170603	0.311329972	3.63034E-06	0.000141102	0.371373136	4.33049E-06	0.000168315
Road 3	3	0800-0900	0.080017874	1.2796E-06	4.97349E-05	0.06817011	1.09014E-06	4.23709E-05	0.395554002	6.32548E-06	0.000245855	0.33481679	5.3542E-06	0.000208104	0.402986901	6.44434E-06	0.000250475
Road 3	3	0900-1000	0.085529078	1.32383E-06	5.14541E-05	0.073707886	1.14086E-06	4.43425E-05	0.440306456	6.81514E-06	0.000264887	0.37765657	5.84543E-06	0.000227197	0.451364456	6.98629E-06	0.00027154
Road 3	3	1000-1100	0.097625916	1.3764E-06	5.34974E-05	0.083379022	1.17554E-06	4.56903E-05	0.4920776	6.93769E-06	0.00026965	0.418602753	5.90178E-06	0.000229387	0.501981775	7.07732E-06	0.000275078
Road 3	3	1100-1200	0.096620995	1.32349E-06	5.14408E-05	0.082377857	1.12839E-06	4.38578E-05	0.500878841	6.86093E-06	0.000266667	0.425057939	5.82235E-06	0.0002263	0.507435796	6.95074E-06	0.000270158
Road 3	3	1200-1300	0.092087459	1.26139E-06	4.90272E-05	0.077952763	1.06778E-06	4.15019E-05	0.488324625	6.68896E-06	0.000259983	0.411402693	5.6353E-06	0.00021903	0.489355457	6.70308E-06	0.000260532

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.09770822	1.45279E-06	5.64663E-05	0.082545933	1.22735E-06	4.77039E-05	0.497541381	7.39778E-06	0.000287533	0.418410787	6.22121E-06	0.000241803	0.500956721	7.44856E-06	0.000289507
Road 3	3	1400-1500	0.090041542	1.34891E-06	5.24286E-05	0.076068276	1.13957E-06	4.42924E-05	0.465874368	6.97924E-06	0.000271265	0.39169455	5.86795E-06	0.000228073	0.467762827	7.00753E-06	0.000272365
Road 3	3	1500-1600	0.100846145	1.44769E-06	5.62679E-05	0.084335698	1.21067E-06	4.70558E-05	0.508259128	7.29626E-06	0.000283587	0.422913989	6.0711E-06	0.000235968	0.507249687	7.28177E-06	0.000283024
Road 3	3	1600-1700	0.094973986	1.48678E-06	5.77874E-05	0.078415379	1.22756E-06	4.77122E-05	0.486299416	7.61282E-06	0.000295891	0.398852859	6.24388E-06	0.000242684	0.477268238	7.47144E-06	0.000290396
Road 3	3	1700-1800	0.074280123	1.1664E-06	4.5335E-05	0.062423534	9.80219E-07	3.80987E-05	0.38199523	5.99836E-06	0.000233141	0.318583228	5.00262E-06	0.000194439	0.381006762	5.98284E-06	0.000232538
Road 3	3	1800-1900	0.068920925	1.13531E-06	4.41266E-05	0.059130331	9.74031E-07	3.78582E-05	0.379373145	6.24927E-06	0.000242893	0.322425725	5.3112E-06	0.000206433	0.381556056	6.28523E-06	0.000244291
Road 3	3	1900-2000	0.073255947	8.92994E-07	3.47084E-05	0.062802947	7.65572E-07	2.97558E-05	0.403483697	4.91849E-06	0.000191169	0.343216921	4.18383E-06	0.000162615	0.406019868	4.94941E-06	0.000192371
Road 3	3	2000-2100	0.066816965	6.95542E-07	2.7034E-05	0.057869507	6.02402E-07	2.34139E-05	0.365876163	3.80865E-06	0.000148033	0.314579076	3.27466E-06	0.000127278	0.372448582	3.87707E-06	0.000150692
Road 3	3	2100-2200	0.065417008	6.45295E-07	2.5081E-05	0.05757413	5.6793E-07	2.2074E-05	0.368894114	3.63889E-06	0.000141435	0.322415691	3.18041E-06	0.000123615	0.379989821	3.74834E-06	0.000145689
Road 3	3	2200-2300	0.070264476	6.34507E-07	2.46617E-05	0.061801083	5.5808E-07	2.16912E-05	0.384401155	3.47125E-06	0.000134919	0.335666998	3.03116E-06	0.000117814	0.397468082	3.58924E-06	0.000139505
Road 3	3	2300-0000	0.061684183	4.96672E-07	1.93044E-05	0.054107689	4.35667E-07	1.69333E-05	0.353998227	2.85034E-06	0.000110786	0.307672131	2.47733E-06	9.62876E-05	0.361779821	2.913E-06	0.000113221
Road 4	4	0000-0100	0.244590857	1.98164E-07	2.12186E-06	0.213221429	1.72749E-07	1.84972E-06	1.207481143	9.78283E-07	1.0475E-05	1.052218286	8.52492E-07	9.12812E-06	1.265439714	1.02524E-06	1.09778E-05
Road 4	4	0100-0200	0.230978	1.06934E-07	1.14501E-06	0.2013515	9.32183E-08	9.98142E-07	1.142553	5.2896E-07	5.66388E-06	0.996078	4.61147E-07	4.93777E-06	1.1974295	5.54366E-07	5.93591E-06
Road 4	4	0200-0300	0.251045385	7.55461E-08	8.08915E-07	0.22132	6.66009E-08	7.13135E-07	1.200793846	3.6135E-07	3.86918E-06	1.058723077	3.18597E-07	3.4114E-06	1.280043077	3.85198E-07	4.12454E-06
Road 4	4	0300-0400	0.228585714	3.70394E-08	3.96602E-07	0.19961	3.23442E-08	3.46328E-07	1.173514286	1.90153E-07	2.03608E-06	1.02442	1.65994E-07	1.77739E-06	1.22403	1.98338E-07	2.12372E-06
Road 4	4	0400-0500	0.236526429	7.66521E-08	8.20758E-07	0.205545	6.66118E-08	7.13251E-07	1.131825714	3.66795E-07	3.92749E-06	0.983654286	3.18777E-07	3.41333E-06	1.189199286	3.85389E-07	4.12658E-06
Road 4	4	0500-0600	0.222442083	1.23579E-07	1.32323E-06	0.1896475	1.0536E-07	1.12815E-06	1.024191667	5.68995E-07	6.09256E-06	0.87239875	4.84666E-07	5.1896E-06	1.06204625	5.90026E-07	6.31775E-06
Road 4	4	0600-0700	0.245689623	3.01425E-07	3.22753E-06	0.208166415	2.55389E-07	2.7346E-06	1.137437736	1.39547E-06	1.49421E-05	0.962847736	1.18127E-06	1.26486E-05	1.171014151	1.43666E-06	1.53832E-05
Road 4	4	0700-0800	0.249127391	5.30549E-07	5.6809E-06	0.208292065	4.43585E-07	4.74972E-06	1.195997826	2.54703E-06	2.72725E-05	0.99864087	2.12674E-06	2.27722E-05	1.206932935	2.57032E-06	2.75219E-05
Road 4	4	0800-0900	0.257092774	9.22439E-07	9.87709E-06	0.218894	7.85384E-07	8.40956E-06	1.238566258	4.44393E-06	4.75837E-05	1.053983742	3.78165E-06	4.04924E-05	1.272877742	4.56704E-06	4.89019E-05
Road 4	4	0900-1000	0.258149054	8.844E-07	9.46978E-06	0.22188777	7.60171E-07	8.13959E-06	1.180424459	4.04405E-06	4.33019E-05	1.013939189	3.47368E-06	3.71947E-05	1.235826959	4.23385E-06	4.53343E-05
Road 4	4	1000-1100	0.289259861	9.642E-07	1.03242E-05	0.246709167	8.22364E-07	8.80553E-06	1.326665139	4.42222E-06	4.73512E-05	1.131166944	3.77056E-06	4.03735E-05	1.377876111	4.59292E-06	4.91791E-05
Road 4	4	1100-1200	0.269933806	9.68513E-07	1.03704E-05	0.229770065	8.24406E-07	8.8274E-06	1.229956645	4.41304E-06	4.7253E-05	1.046696774	3.75551E-06	4.02124E-05	1.276466839	4.57992E-06	4.90398E-05
Road 4	4	1200-1300	0.279690946	9.582E-07	1.026E-05	0.236450608	8.10062E-07	8.67381E-06	1.330347365	4.55767E-06	4.88016E-05	1.124201892	3.85143E-06	4.12395E-05	1.3606525	4.66149E-06	4.99133E-05
Road 4	4	1300-1400	0.286286333	9.9405E-07	1.06439E-05	0.241561067	8.38754E-07	8.98102E-06	1.330017867	4.61812E-06	4.94489E-05	1.121719267	3.89486E-06	4.17045E-05	1.363280333	4.73361E-06	5.06855E-05
Road 4	4	1400-1500	0.260534429	8.44325E-07	9.04067E-06	0.219820214	7.1238E-07	7.62787E-06	1.249306929	4.04868E-06	4.33516E-05	1.053265857	3.41336E-06	3.65488E-05	1.273086071	4.12574E-06	4.41767E-05
Road 4	4	1500-1600	0.29512208	8.53941E-07	9.14364E-06	0.24634032	7.1279E-07	7.63226E-06	1.37123008	3.96768E-06	4.24842E-05	1.14421608	3.31081E-06	3.54508E-05	1.3905564	4.0236E-06	4.3083E-05
Road 4	4	1600-1700	0.27569379	7.91343E-07	8.47337E-06	0.227263226	6.5233E-07	6.98487E-06	1.293771532	3.7136E-06	3.97637E-05	1.065833145	3.05934E-06	3.27581E-05	1.293096371	3.71167E-06	3.97429E-05
Road 4	4	1700-1800	0.260917323	7.67049E-07	8.21323E-06	0.219180079	6.44349E-07	6.89942E-06	1.244517638	3.65865E-06	3.91753E-05	1.04472622	3.0713E-06	3.28862E-05	1.263906299	3.71565E-06	3.97856E-05
Road 4	4	1800-1900	0.282763962	6.93819E-07	7.42912E-06	0.242575755	5.95209E-07	6.37325E-06	1.361199811	3.33998E-06	3.57631E-05	1.167544528	2.86481E-06	3.06752E-05	1.410120283	3.46002E-06	3.70484E-05
Road 4	4	1900-2000	0.254017162	4.35122E-07	4.6591E-06	0.217898243	3.73252E-07	3.99662E-06	1.225597838	2.0994E-06	2.24795E-05	1.050708649	1.79983E-06	1.92718E-05	1.268606892	2.17308E-06	2.32684E-05
Road 4	4	2000-2100	0.216677143	2.45768E-07	2.63158E-06	0.187676122	2.12873E-07	2.27936E-06	1.049294898	1.19017E-06	1.27439E-05	0.907704898	1.02957E-06	1.10242E-05	1.09538102	1.24245E-06	1.33036E-05
Road 4	4	2100-2200	0.180660811	1.54733E-07	1.65681E-06	0.159275676	1.36417E-07	1.46069E-06	0.89329973	7.65095E-07	8.19231E-06	0.786298649	6.7345E-07	7.21102E-06	0.945574324	8.09867E-07	8.67171E-06
Road 4	4	2200-2300	0.242462698	3.53591E-07	3.78611E-06	0.213336984	3.11116E-07	3.3313E-06	1.152451429	1.68066E-06	1.79958E-05	1.013379048	1.47784E-06	1.58241E-05	1.226716032	1.78896E-06	1.91554E-05
Road 4	4	2300-0000	0.226740816	2.57183E-07	2.75381E-06	0.198882245	2.25584E-07	2.41546E-06	1.107154082	1.2558E-06	1.34466E-05	0.970517755	1.10082E-06	1.17871E-05	1.1694	1.3264E-06	1.42026E-05
Road 5	5	0000-0100	0.077249845	2.79828E-07	3.78416E-06	0.067415699	2.44205E-07	3.30243E-06	0.430582332	1.55973E-06	2.10925E-05	0.373320052	1.3523E-06	1.82875E-05	0.440735751	1.59651E-06	2.15899E-05
Road 5	5	0100-0200	0.05202377	1.19123E-07	1.61093E-06	0.045382869	1.03917E-07	1.40529E-06	0.318390984	7.29048E-07	9.85906E-06	0.27572623	6.31355E-07	8.53793E-06	0.321109098	7.35272E-07	9.94323E-06
Road 5	5	0200-0300	0.049901744	8.05471E-08	1.08925E-06	0.043919186	7.08906E-08	9.58667E-07	0.342750814	5.53239E-07	7.48155E-06	0.298396977	4.81647E-07	6.5134E-06	0.342316163	5.52537E-07	7.47207E-06
Road 5	5	0300-0400	0.044553016	5.26809E-08	7.12414E-07	0.038819048	4.59009E-08	6.20726E-07	0.244957143	2.89645E-07	3.91693E-06	0.210815397	2.49275E-07	3.37099E-06	0.249634444	2.95176E-07	3.99172E-06
Road 5	5	0400-0500	0.062316566	1.15791E-07	1.56586E-06	0.05418697	1.00685E-07	1.36159E-06	0.355526465	6.60607E-07	8.93351E-06	0.306929697	5.70309E-07	7.71239E-06	0.361116667	6.70994E-07	9.07398E-06
Road 5	5	0500-0600	0.051426864	2.12348E-07	2.87162E-06	0.043792818	1.80826E-07	2.44535E-06	0.2989755	1.23451E-06	1.66945E-05	0.251606682	1.03892E-06	1.40495E-05	0.2953995	1.21974E-06	1.64948E-05
Road 5	5	0600-0700	0.074818582	5.4485E-07	7.36811E-06	0.063392706	4.61644E-07	6.24289E-06	0.375572371	2.73502E-06	3.69862E-05	0.315529716	2.29778E-06	3.10733E-05	0.378922423	2.75942E-06	3.73162E-05
Road 5	5	0700-0800	0.058698136	6.97371E-07	9.43068E-06	0.049062543	5.82894E-07	7.88258E-06	0.310052938	3.68362E-06	4.98143E-05	0.255477409	3.03523E-06	4.1046E-05	0.304539953	3.61813E-06	4.89286E-05
Road 5	5	0800-0900	0.06330331	1.00159E-06	1.35447E-05	0.053951483	8.53624E-07	1.15437E-05	0.309283535	4.89351E-06	6.61758E-05	0.261144757	4.13185E-06	5.58758E-05	0.31509624	4.98548E-06	6.74195E-05
Road 5	5	0900-1000	0.069025564	1.05715E-06	1.4296E-05	0.059561373	9.12201E-07	1.23359E-05	0.367186863	5.62358E-06	7.60488E-05	0.31479087	4.82112E-06	6.51969E-05	0.374352243	5.73332E-06	7.75328E-05
Road 5	5	1000-1100	0.07908921	1.08955E-06	1.47343E-05	0.067576894	9.30958E-07	1.25895E-05	0.40910767	5.63598E-06	7.62164E-05	0.347673351	4.78964E-06	6.47713E-05	0.415250245	5.7206E-06	7.73608E-05
Road 5	5	1100-1200	0.078335007	1.02771E-06	1.38979E-05	0.066826352	8.7672E-07	1.1856E-05	0.423388698	5.55459E-06	7.51158E-05	0.358865579	4.70809E-06	6.36684E-05	0.425691931	5.58481E-06	7.55244E-05
Road 5	5	1200-1300	0.073599236	9.76627E-07	1.32071E-05	0.062364158	8.27542E-07	1.1191E-05	0.400904484	5.31981E-06	7.19408E-05	0.337277765	4.47551E-06	6.05232E-05	0.399641924	5.30306E-06	7.17142E-05
Road 5	5	1300-1400	0.080291673	1.17092E-06	1.58346E-05	0.067871454	9.89792E-07	1.33851E-05	0.417676525	6.09112E-06	8.23713E-05	0.350848172	5.11654E-06	6.91919E-05	0.418719627	6.10633E-06	8.2577E-05
Road 5	5	1400-1500	0.075675038	1.12774E-06	1.52506E-05	0.063966096	9.53248E-07	1.2891E-05	0.395756877	5.89773E-06	7.97561E-05	0.33243636	4.9541E-06	6.69952E-05	0.396402456	5.90735E-06	7.98862E-05
Road 5	5	1500-1600	0.085267701	1.23228E-06	1.66644E-05	0.071352	1.03118E-06	1.39448E-05	0.435046221	6.28727E-06	8.50239E-05	0.361604013	5.22588E-06	7.06706E-05	0.432956013	6.25706E-06	8.46154E-05
Road 5	5	1600-1700	0.080873376	1.29476E-06	1.75093E-05	0.066767151	1.06893E-06	1.44553E-05	0.420613306	6.73392E-06	9.1064E-05	0.344555451	5.51625E-06	7.45973E-05	0.411322603	6.58518E-06	8.90526E-05
Road 5	5	1700-1800	0.05873215	9.38083E-07	1.26859E-05	0.049334512	7.87982E-07	1.0656E-05	0.305833502	4.88484E-06	6.60586E-05	0.254370482	4.06286E-06	5.49428E-05	0.303704994	4.85084E-06	6.55989E-05
Road 5	5	1800-1900	0.053876464	9.29288E-07	1.25669E-05	0.046202655	7.96926E-07	1.0777E-05	0.306480903	5.28634E-06	7.14881E-05	0.259633983	4.4783E-06	6.05608E-05	0.305836638	5.27522E-06	7.13378E-05
Road 5	5	1900-2000	0.062352668	8.02814E-07	1.08566E-05	0.053461356	6.88335E-07	9.30848E-06	0.351443455	4.52497E-06	6.1192E-05	0.298341676	3.84126E-06	5.19461E-05	0.351803032	4.5296E-06	6.12546E-05
Road 5	5	2000-2100	0.059134667	6.65931E-07	9.00551E-06	0.05121895	5.7679E-07	7.80004E-06	0.328434333	3.69858E-06	5.00167E-05	0.282027567	3.17599E-06	4.29495E-05	0.333246517	3.75278E-06	5.07495E-05
Road 5	5	2100-2200	0.060990986	6.61651E-07	8.94764E-06	0.053669187	5.82222E-07	7.8735E-06	0.347606834	3.77096E-06	5.09954E-05	0.303547907	3.29299E-06	4.45318E-05	0.357217093	3.87522E-06	5.24053E-05
Road 5	5	2200-2300	0.058757956	5.50304E-07	7.44187E-06	0.051669639	4.83918E-07	6.54411E-06	0.330047415	3.0911E-06	4.18015E-05	0.287576573	2.69333E-06	3.64224E-05	0.339246212	3.17725E-06	4.29665E-05
Road 5	5	2300-0000	0.051807395	4.4048E-07	5.95669E-06	0.045433355	3.86286E-07	5.22382E-06	0.305411965	2.59669E-06	3.51155E-05	0.264819514	2.25156E-06	3.04483E-05	0.31025287	2.63785E-06	3.56721E-05
Road 6	6	0000-0100	0.0461996	1.30066E-07	4.64935E-06	0.0402216	1.13236E-07	4.04775E-06	0.2973464	8.37124E-07	2.99238E-05	0.255915133	7.20482E-07	2.57543E-05	0.296136733	8.33718E-07	2.9802E-05
Road 6	6	0100-0200	0.061330175	1.31224E-07	4.69074E-06	0.053494737	1.14459E-07	4.09146E-06	0.34534386	7.38911E-07	2.64131E-05	0.298589386	6.38874E-07	2.28371E-05	0.352084123	7.53333E-07	2.69286E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.056176456	8.32947E-08	2.97745E-06	0.049542278	7.3458E-08	2.62582E-06	0.321105063	4.76113E-07	1.70191E-05	0.280666835	4.16154E-07	1.48758E-05	0.330209114	4.89612E-07	1.75016E-05
Road 6	6	0300-0400	0.057824032	6.72877E-08	2.40526E-06	0.050617097	5.89013E-08	2.10548E-06	0.369440806	4.29905E-07	1.53674E-05	0.320633226	3.73109E-07	1.33371E-05	0.371250323	4.32011E-07	1.54426E-05
Road 6	6	0400-0500	0.063021556	1.06455E-07	3.80535E-06	0.054813333	9.25901E-08	3.30972E-06	0.370199556	6.25337E-07	2.23533E-05	0.319066222	5.38963E-07	1.92658E-05	0.373879556	6.31553E-07	2.25755E-05
Road 6	6	0500-0600	0.057466049	1.74728E-07	6.24581E-06	0.049034259	1.49091E-07	5.32939E-06	0.347473272	1.05651E-06	3.77658E-05	0.29271642	8.90016E-07	3.18145E-05	0.341750679	1.03911E-06	3.71439E-05
Road 6	6	0600-0700	0.061051931	3.32302E-07	1.18785E-05	0.05175169	2.81681E-07	1.0069E-05	0.385441172	2.09793E-06	7.49926E-05	0.322704621	1.75646E-06	6.27864E-05	0.37445631	2.03814E-06	7.28554E-05
Road 6	6	0700-0800	0.057696104	5.00293E-07	1.78834E-05	0.048255952	4.18436E-07	1.49574E-05	0.332169091	2.8803E-06	0.000102959	0.273811039	2.37426E-06	8.48703E-05	0.322066991	2.7927E-06	9.98276E-05
Road 6	6	0800-0900	0.049119335	6.10304E-07	2.18159E-05	0.041778293	5.19092E-07	1.85554E-05	0.290152613	3.60512E-06	0.000128869	0.243123263	3.02079E-06	0.000107981	0.284901556	3.53988E-06	0.000126536
Road 6	6	0900-1000	0.051148183	6.07673E-07	2.17218E-05	0.044002828	5.22781E-07	1.86873E-05	0.289588294	3.44049E-06	0.000122984	0.24614158	2.92432E-06	0.000104532	0.290144408	3.4471E-06	0.00012322
Road 6	6	1000-1100	0.069024131	6.93091E-07	2.47752E-05	0.058897701	5.91409E-07	2.11405E-05	0.37812228	3.79684E-06	0.000135721	0.320103626	3.21425E-06	0.000114897	0.379001327	3.80566E-06	0.000136037
Road 6	6	1100-1200	0.07994703	7.9827E-07	2.85349E-05	0.068210695	6.81083E-07	2.43459E-05	0.418455771	4.17827E-06	0.000149356	0.354704868	3.54172E-06	0.000126602	0.422915564	4.22281E-06	0.000150948
Road 6	6	1200-1300	0.077683327	7.62545E-07	2.72579E-05	0.065814799	6.46042E-07	2.30934E-05	0.39016088	3.82984E-06	0.000136901	0.328741683	3.22695E-06	0.00011535	0.394556482	3.87299E-06	0.000138444
Road 6	6	1300-1400	0.089830653	8.78412E-07	3.13997E-05	0.07591737	7.4236E-07	2.65364E-05	0.458922898	4.48759E-06	0.000160413	0.385565451	3.77026E-06	0.000134772	0.461482821	4.51262E-06	0.000161308
Road 6	6	1400-1500	0.085434077	9.20405E-07	3.29007E-05	0.072198153	7.7781E-07	2.78036E-05	0.429952909	4.632E-06	0.000165575	0.360983554	3.88897E-06	0.000139015	0.433181707	4.66678E-06	0.000166819
Road 6	6	1500-1600	0.075753772	7.99054E-07	2.8563E-05	0.063300801	6.677E-07	2.38676E-05	0.394844431	4.16484E-06	0.000148876	0.327449448	3.45395E-06	0.000123465	0.390750249	4.12165E-06	0.000147332
Road 6	6	1600-1700	0.079130694	8.55467E-07	3.05795E-05	0.065336372	7.06339E-07	2.52488E-05	0.394093646	4.26047E-06	0.000152295	0.322894479	3.49075E-06	0.00012478	0.388230851	4.19709E-06	0.000150029
Road 6	6	1700-1800	0.058483311	6.69572E-07	2.39345E-05	0.049166377	5.62903E-07	2.01215E-05	0.301798574	3.45528E-06	0.000123512	0.251234967	2.87638E-06	0.000102819	0.300401344	3.43928E-06	0.00012294
Road 6	6	1800-1900	0.056044819	7.24754E-07	2.5907E-05	0.048047039	6.21329E-07	2.221E-05	0.294775022	3.81194E-06	0.000136261	0.250138462	3.23471E-06	0.000115628	0.298185501	3.85604E-06	0.000137838
Road 6	6	1900-2000	0.066410401	6.53135E-07	2.33469E-05	0.056910592	5.59706E-07	2.00072E-05	0.349568645	3.43795E-06	0.000122893	0.296441927	2.91546E-06	0.000104216	0.353352519	3.47516E-06	0.000124223
Road 6	6	2000-2100	0.051375861	4.03061E-07	1.44078E-05	0.04446299	3.48828E-07	1.24692E-05	0.300547464	2.3579E-06	8.42853E-05	0.257384785	2.01927E-06	7.21808E-05	0.301847775	2.3681E-06	8.465E-05
Road 6	6	2100-2200	0.071663472	4.84213E-07	1.73086E-05	0.063066694	4.26126E-07	1.52323E-05	0.382216861	2.58255E-06	9.23156E-05	0.334090417	2.25737E-06	8.06917E-05	0.397157111	2.68349E-06	9.5924E-05
Road 6	6	2200-2300	0.053623543	3.83457E-07	1.3707E-05	0.047104593	3.3684E-07	1.20407E-05	0.302840026	2.16558E-06	7.74107E-05	0.262303806	1.87571E-06	6.7049E-05	0.309408399	2.21255E-06	7.90897E-05
Road 6	6	2300-0000	0.036257087	2.42939E-07	8.68408E-06	0.031797983	2.13061E-07	7.61606E-06	0.227384762	1.52358E-06	5.44618E-05	0.196651317	1.31765E-06	4.71007E-05	0.2284493	1.53071E-06	5.47168E-05
Road 7	7	0000-0100	0.067631452	1.82636E-07	4.55919E-06	0.059007863	1.59348E-07	3.97785E-06	0.399571237	1.07902E-06	2.6936E-05	0.346143199	9.34745E-07	2.33343E-05	0.405151062	1.09409E-06	2.73121E-05
Road 7	7	0100-0200	0.083174345	1.75098E-07	4.37102E-06	0.072542621	1.52716E-07	3.8123E-06	0.454634552	9.57094E-07	2.38922E-05	0.394405862	8.30301E-07	2.0727E-05	0.466948483	9.83018E-07	2.45393E-05
Road 7	7	0200-0300	0.071651809	9.77866E-08	2.44107E-06	0.062692323	8.55592E-08	2.13584E-06	0.405567021	5.53496E-07	1.38171E-05	0.352588884	4.81195E-07	1.20122E-05	0.415281207	5.66754E-07	1.4148E-05
Road 7	7	0300-0400	0.072953277	8.04976E-08	2.00948E-06	0.063698393	7.02856E-08	1.75456E-06	0.439843279	4.85329E-07	1.21154E-05	0.381734272	4.2121E-07	1.05148E-05	0.445432664	4.91496E-07	1.22693E-05
Road 7	7	0400-0500	0.081807297	1.31838E-07	3.2911E-06	0.070689488	1.13921E-07	2.84383E-06	0.455680991	7.34359E-07	1.8332E-05	0.391272381	6.3056E-07	1.57408E-05	0.461961869	7.44481E-07	1.85847E-05
Road 7	7	0500-0600	0.074849008	2.15167E-07	5.37127E-06	0.064183805	1.84508E-07	4.60592E-06	0.422489794	1.21452E-06	3.03185E-05	0.359221622	1.03265E-06	2.57782E-05	0.423405427	1.21716E-06	3.03842E-05
Road 7	7	0600-0700	0.078873559	4.05377E-07	1.01195E-05	0.066967875	3.44187E-07	8.59202E-06	0.457627712	2.35201E-06	5.87139E-05	0.385181057	1.97967E-06	4.9419E-05	0.452148932	2.32386E-06	5.8011E-05
Road 7	7	0700-0800	0.076062336	6.23939E-07	1.55756E-05	0.063739349	5.22854E-07	1.30521E-05	0.415474655	3.40814E-06	8.50783E-05	0.344719885	2.82774E-06	7.05896E-05	0.408459234	3.35059E-06	8.36417E-05
Road 7	7	0800-0900	0.075833041	9.41345E-07	2.3499E-05	0.064197698	7.96911E-07	1.98935E-05	0.412221673	5.11707E-06	0.000127739	0.345810823	4.29269E-06	0.000107159	0.41000852	5.0896E-06	0.000127053
Road 7	7	0900-1000	0.076098384	8.75034E-07	2.18437E-05	0.065679835	7.55234E-07	1.88531E-05	0.398502449	4.58227E-06	0.000114388	0.341634544	3.92836E-06	9.80647E-05	0.40731438	4.68359E-06	0.000116918
Road 7	7	1000-1100	0.090988364	9.18111E-07	2.2919E-05	0.077715514	7.84182E-07	1.95757E-05	0.478755911	4.83085E-06	0.000120594	0.406634828	4.10312E-06	0.000102427	0.484350342	4.8873E-06	0.000122003
Road 7	7	1100-1200	0.101401614	1.02171E-06	2.55053E-05	0.086618835	8.72763E-07	2.1787E-05	0.51951768	5.23461E-06	0.000130673	0.441879806	4.45234E-06	0.000111145	0.528498641	5.3251E-06	0.000132932
Road 7	7	1200-1300	0.100104199	1.00719E-06	2.51427E-05	0.084451541	8.49699E-07	2.12113E-05	0.505645166	5.08749E-06	0.000127	0.425151779	4.27761E-06	0.000106783	0.50960332	5.12731E-06	0.000127994
Road 7	7	1300-1400	0.106545902	1.05498E-06	2.63358E-05	0.089583045	8.87022E-07	2.2143E-05	0.539117603	5.33817E-06	0.000133258	0.451463042	4.47024E-06	0.000111592	0.541046087	5.35726E-06	0.000133735
Road 7	7	1400-1500	0.099309279	1.02947E-06	2.56988E-05	0.083332425	8.63846E-07	2.15644E-05	0.505511226	5.24027E-06	0.000130814	0.422174206	4.37637E-06	0.000109249	0.505506632	5.24022E-06	0.000130813
Road 7	7	1500-1600	0.092730273	9.43765E-07	2.35595E-05	0.077769701	7.91503E-07	1.97585E-05	0.47901151	4.87515E-06	0.0001217	0.399509585	4.06602E-06	0.000101501	0.477279285	4.85752E-06	0.00012126
Road 7	7	1600-1700	0.096486377	1.01561E-06	2.5353E-05	0.079694653	8.38864E-07	2.09408E-05	0.481142284	5.06449E-06	0.000126426	0.395258071	4.16048E-06	0.000103859	0.474952724	4.99934E-06	0.0001248
Road 7	7	1700-1800	0.073198824	8.15124E-07	2.03482E-05	0.061707616	6.87161E-07	1.71538E-05	0.379192906	4.2226E-06	0.00010541	0.317386159	3.53433E-06	8.82285E-05	0.379093775	4.2215E-06	0.000105382
Road 7	7	1800-1900	0.066561782	7.70207E-07	1.92269E-05	0.057186153	6.61719E-07	1.65187E-05	0.350557039	4.05641E-06	0.000101261	0.2988573	3.45817E-06	8.63272E-05	0.356043453	4.11989E-06	0.000102846
Road 7	7	1900-2000	0.077095566	6.7383E-07	1.6821E-05	0.066022741	5.77051E-07	1.44051E-05	0.409050868	3.57518E-06	8.92482E-05	0.34749711	3.03719E-06	7.58182E-05	0.41351985	3.61424E-06	9.02233E-05
Road 7	7	2000-2100	0.069547016	5.00823E-07	1.25022E-05	0.060312062	4.3432E-07	1.08421E-05	0.38027494	2.73844E-06	6.83605E-05	0.327347059	2.3573E-06	5.88458E-05	0.387659121	2.79162E-06	6.96879E-05
Road 7	7	2100-2200	0.079450022	4.7755E-07	1.19212E-05	0.070314143	4.22637E-07	1.05504E-05	0.424770558	2.55317E-06	6.37354E-05	0.373871892	2.24723E-06	5.60982E-05	0.444186035	2.66987E-06	6.66486E-05
Road 7	7	2200-2300	0.066910014	4.34233E-07	1.08399E-05	0.058834523	3.81825E-07	9.53159E-06	0.367851885	2.38729E-06	5.95945E-05	0.320157625	2.07776E-06	5.18677E-05	0.378992148	2.45959E-06	6.13993E-05
Road 7	7	2300-0000	0.047421989	2.82974E-07	7.06394E-06	0.041625566	2.48386E-07	6.20051E-06	0.281505733	1.67978E-06	4.19329E-05	0.244601695	1.45957E-06	3.64357E-05	0.286227261	1.70796E-06	4.26362E-05
Road 8	8	0000-0100	0.214531944	1.56023E-07	2.57198E-06	0.186958889	1.3597E-07	2.24142E-06	1.062201111	7.7251E-07	1.27345E-05	0.925407778	6.73024E-07	1.10945E-05	1.112366667	8.08994E-07	1.3336E-05
Road 8	8	0100-0200	0.222565667	1.34888E-07	2.22358E-06	0.194056	1.1761E-07	1.93875E-06	1.099064	6.66099E-07	1.09804E-05	0.958277333	5.80774E-07	9.57384E-06	1.152333333	6.98384E-07	1.15126E-05
Road 8	8	0200-0300	0.211603333	6.41222E-08	1.05703E-06	0.186646	5.65594E-08	9.3236E-07	1.098766	3.32959E-07	5.48871E-06	0.969132667	2.93677E-07	4.84115E-06	1.155778667	3.50236E-07	5.77351E-06
Road 8	8	0300-0400	0.193236429	5.46527E-08	9.0093E-07	0.168963571	4.77877E-08	7.87762E-07	0.982797143	2.77963E-07	4.58211E-06	0.858847143	2.42906E-07	4.00422E-06	1.027810714	2.90694E-07	4.79198E-06
Road 8	8	0400-0500	0.22062619	9.3599E-08	1.54294E-06	0.191811429	8.13745E-08	1.34143E-06	1.058097619	4.4889E-07	7.39978E-06	0.919885238	3.90254E-07	6.4332E-06	1.111696667	4.71629E-07	7.77462E-06
Road 8	8	0500-0600	0.213862353	1.46895E-07	2.42151E-06	0.182428235	1.25304E-07	2.06559E-06	1.008211176	6.92509E-07	1.14157E-05	0.859350588	5.90261E-07	9.73023E-06	1.041778824	7.15565E-07	1.17958E-05
Road 8	8	0600-0700	0.237580323	2.97575E-07	4.90542E-06	0.201343387	2.52188E-07	4.15722E-06	1.106144355	1.38547E-06	2.2839E-05	0.936980161	1.17359E-06	1.93462E-05	1.138323548	1.42578E-06	2.35034E-05
Road 8	8	0700-0800	0.238154804	4.90743E-07	8.08972E-06	0.199178627	4.10429E-07	6.76576E-06	1.120303333	2.3085E-06	3.80548E-05	0.936110294	1.92895E-06	3.17981E-05	1.135288922	2.33938E-06	3.85639E-05
Road 8	8	0800-0900	0.265612344	1.03025E-06	1.69833E-05	0.226327031	8.77875E-07	1.44714E-05	1.254169323	4.86466E-06	8.0192E-05	1.067968229	4.14242E-06	6.82863E-05	1.29429526	5.0203E-06	8.27577E-05
Road 8	8	0900-1000	0.279092468	8.90841E-07	1.46852E-05	0.239957025	7.65923E-07	1.2626E-05	1.253110823	3.99983E-06	6.59357E-05	1.077270316	3.43856E-06	5.66834E-05	1.317227342	4.20448E-06	6.93093E-05
Road 8	8	1000-1100	0.265674688	8.58746E-07	1.41561E-05	0.226641875	7.3258E-07	1.20763E-05	1.228561063	3.97111E-06	6.54622E-05	1.047271	3.38512E-06	5.58024E-05	1.273912875	4.1177E-06	6.78787E-05
Road 8	8	1100-1200	0.277102453	8.90087E-07	1.46727E-05	0.235868742	7.57639E-07	1.24894E-05	1.293763019	4.15572E-06	6.85055E-05	1.101003082	3.53656E-06	5.82988E-05	1.336871824	4.29419E-06	7.07882E-05
Road 8	8	1200-1300	0.282479941	9.70133E-07	1.59923E-05	0.238805824	8.20141E-07	1.35197E-05	1.330130765	4.56813E-06	7.53038E-05	1.124020059	3.86027E-06	6.36351E-05	1.362825882	4.68041E-06	7.71548E-05
Road 8	8	1300-1400	0.257962593	8.44241E-07	1.3917E-05	0.21772858	7.12566E-07	1.17464E-05	1.198259321	3.92158E-06	6.46457E-05	1.010842716	3.30821E-06	5.45346E-05	1.228571296	4.02078E-06	6.6281E-05
Road 8	8	1400-1500	0.252103453	7.07927E-07	1.16699E-05	0.212749065	5.97417E-07	9.84819E-06	1.219326259	3.42397E-06	5.64428E-05	1.028481583	2.88806E-06	4.76086E-05	1.241230647	3.48548E-06	5.74568E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.262340216	7.36673E-07	1.21438E-05	0.21894964	6.14828E-07	1.01352E-05	1.237109353	3.4739E-06	5.7266E-05	1.031663381	2.89699E-06	4.77559E-05	1.250613022	3.51182E-06	5.78911E-05
Road 8	8	1600-1700	0.261628322	7.87528E-07	1.29821E-05	0.215591879	6.48953E-07	1.06978E-05	1.222497383	3.67984E-06	6.06608E-05	1.00692396	3.03094E-06	4.9964E-05	1.222515839	3.6799E-06	6.06617E-05
Road 8	8	1700-1800	0.211253141	6.65767E-07	1.09749E-05	0.1774075	5.59102E-07	9.21659E-06	1.025862115	3.23302E-06	5.32951E-05	0.860096923	2.71061E-06	4.46834E-05	1.037504423	3.26971E-06	5.39E-05
Road 8	8	1800-1900	0.20826243	4.50183E-07	7.4211E-06	0.178776449	3.86446E-07	6.37042E-06	1.036753645	2.24106E-06	3.69431E-05	0.88910028	1.92189E-06	3.16817E-05	1.067876729	2.30834E-06	3.80521E-05
Road 8	8	1900-2000	0.206230649	3.20803E-07	5.28832E-06	0.176911818	2.75196E-07	4.53651E-06	1.051874156	1.63625E-06	2.69729E-05	0.902072727	1.40322E-06	2.31316E-05	1.078984545	1.67842E-06	2.76681E-05
Road 8	8	2000-2100	0.221553117	3.44638E-07	5.68123E-06	0.191891948	2.98499E-07	4.92064E-06	1.030768571	1.60342E-06	2.64317E-05	0.891855584	1.38733E-06	2.28696E-05	1.083747532	1.68583E-06	2.77903E-05
Road 8	8	2100-2200	0.182882222	1.99508E-07	3.28881E-06	0.161117222	1.75764E-07	2.89741E-06	0.928378519	1.01278E-06	1.66952E-05	0.816465926	8.9069E-07	1.46827E-05	0.977583148	1.06645E-06	1.75801E-05
Road 8	8	2200-2300	0.219599219	2.83926E-07	4.68042E-06	0.193224063	2.49825E-07	4.11827E-06	1.055277031	1.3644E-06	2.24916E-05	0.927481406	1.19917E-06	1.97678E-05	1.120705469	1.44899E-06	2.38861E-05
Road 8	8	2300-0000	0.173021132	1.85255E-07	3.05386E-06	0.151853019	1.6259E-07	2.68024E-06	0.86567	9.26879E-07	1.52793E-05	0.759020566	8.12689E-07	1.33969E-05	0.910873585	9.75279E-07	1.60771E-05
Road 9	9	0000-0100	0.650912715	1.70215E-07	5.1605E-06	0.631122345	1.65039E-07	5.0036E-06	3.569306657	9.33379E-07	2.82978E-05	3.47501191	9.08721E-07	2.75503E-05	4.106134255	1.07376E-06	3.25539E-05
Road 9	9	0100-0200	0.676246554	1.38945E-07	4.21249E-06	0.655110788	1.34603E-07	4.08083E-06	3.538504772	7.2704E-07	2.20421E-05	3.442607641	7.07337E-07	2.14448E-05	4.097718429	8.41939E-07	2.55256E-05
Road 9	9	0200-0300	0.338874667	3.16486E-08	9.59512E-07	0.329408466	3.07646E-08	9.32709E-07	2.32534235	2.17172E-07	6.58413E-06	2.258847411	2.10961E-07	6.39585E-06	2.588255877	2.41726E-07	7.32856E-06
Road 9	9	0300-0400	0.420396402	3.14098E-08	9.52271E-07	0.408505189	3.05213E-08	9.25335E-07	2.786486917	2.08192E-07	6.31187E-06	2.715296379	2.02873E-07	6.15062E-06	3.123801568	2.33394E-07	7.07595E-06
Road 9	9	0400-0500	0.742063209	1.38608E-07	4.20225E-06	0.717652797	1.34048E-07	4.06402E-06	3.846767615	7.18525E-07	2.1784E-05	3.741426319	6.98849E-07	2.11874E-05	4.459079116	8.32897E-07	2.52515E-05
Road 9	9	0500-0600	0.543436462	1.72561E-07	5.23165E-06	0.524296258	1.66484E-07	5.04739E-06	3.050782436	9.68738E-07	2.93698E-05	2.955030757	9.38333E-07	2.8448E-05	3.479327015	1.10482E-06	3.34954E-05
Road 9	9	0600-0700	0.596494013	3.56535E-07	1.08093E-05	0.574012551	3.43097E-07	1.04019E-05	3.359671646	2.00813E-06	6.08819E-05	3.24336787	1.93862E-06	5.87743E-05	3.817380421	2.28172E-06	6.91762E-05
Road 9	9	0700-0800	0.428388224	3.92084E-07	1.18871E-05	0.409216026	3.74537E-07	1.13551E-05	2.469303213	2.26004E-06	6.85191E-05	2.361220791	2.16112E-06	6.552E-05	2.770436817	2.53566E-06	7.68751E-05
Road 9	9	0800-0900	0.750908702	1.61299E-06	4.8902E-05	0.719599694	1.54573E-06	4.6863E-05	4.372598762	9.39255E-06	0.00028476	4.217038011	9.0584E-06	0.000274629	4.936637705	1.06041E-05	0.000321492
Road 9	9	0900-1000	0.723169322	1.17518E-06	3.56288E-05	0.696422447	1.13172E-06	3.4311E-05	3.852980387	6.26126E-06	0.000189827	3.732271738	6.06511E-06	0.00018388	4.428694184	7.19683E-06	0.000218191
Road 9	9	1000-1100	0.889073286	1.21229E-06	3.67538E-05	0.855779493	1.16689E-06	3.53774E-05	4.629773302	6.3129E-06	0.000191392	4.48520942	6.11578E-06	0.000185416	5.340988913	7.28267E-06	0.000220793
Road 9	9	1100-1200	0.699025599	9.92322E-07	3.00849E-05	0.673145279	9.55583E-07	2.8971E-05	3.918881938	5.56316E-06	0.000168662	3.792851554	5.38425E-06	0.000163238	4.465996833	6.33984E-06	0.000192209
Road 9	9	1200-1300	0.790568805	1.09274E-06	3.31293E-05	0.757419985	1.04692E-06	3.17402E-05	4.160160548	5.75026E-06	0.000174334	4.009724668	5.54233E-06	0.00016803	4.767144653	6.58925E-06	0.000199771
Road 9	9	1300-1400	0.852974793	9.71879E-07	2.94651E-05	0.814077961	9.2756E-07	2.81214E-05	3.877406466	4.41791E-06	0.000133941	3.720966133	4.23967E-06	0.000128537	4.535044094	5.16722E-06	0.000156658
Road 9	9	1400-1500	0.533309538	6.77383E-07	2.05367E-05	0.509670093	6.47357E-07	1.96263E-05	3.206917604	4.07327E-06	0.000123492	3.083957687	3.91709E-06	0.000118757	3.593627779	4.56445E-06	0.000138383
Road 9	9	1500-1600	0.561167115	5.97466E-07	1.81138E-05	0.538848477	5.73704E-07	1.73933E-05	3.311322571	3.52551E-06	0.000106885	3.19801574	3.40488E-06	0.000103228	3.736864216	3.97858E-06	0.000120621
Road 9	9	1600-1700	0.508699493	7.60147E-07	2.30458E-05	0.486201026	7.26527E-07	2.20266E-05	3.126446498	4.67183E-06	0.000141639	2.999119344	4.48157E-06	0.00013587	3.48532037	5.20809E-06	0.000157897
Road 9	9	1700-1800	0.38296188	4.93572E-07	1.49639E-05	0.367281174	4.73362E-07	1.43512E-05	2.286137829	2.94644E-06	8.93291E-05	2.195902506	2.83014E-06	8.58032E-05	2.56318368	3.3035E-06	0.000100154
Road 9	9	1800-1900	0.362011724	2.97524E-07	9.02021E-06	0.349066589	2.86884E-07	8.69766E-06	2.026826696	1.66577E-06	5.05022E-05	1.953922751	1.60585E-06	4.86857E-05	2.30298934	1.89274E-06	5.73834E-05
Road 9	9	1900-2000	0.402302066	3.23122E-07	9.7963E-06	0.387345208	3.11109E-07	9.43209E-06	2.353018662	1.8899E-06	5.72974E-05	2.266888258	1.82073E-06	5.52001E-05	2.654233466	2.13184E-06	6.46322E-05
Road 9	9	2000-2100	0.522693633	2.83133E-07	8.58394E-06	0.505128642	2.73619E-07	8.29548E-06	2.353891151	1.27506E-06	3.86568E-05	2.280144697	1.23511E-06	3.74457E-05	2.785273338	1.50873E-06	4.57412E-05
Road 9	9	2100-2200	0.020076399	1.05E-08	3.18336E-07	0.018386453	9.61617E-09	2.91539E-07	0.286662842	1.49925E-07	4.54539E-06	0.258754971	1.3533E-07	4.10287E-06	0.277141423	1.44946E-07	4.39441E-06
Road 9	9	2200-2300	0.551778639	3.40114E-07	1.03115E-05	0.536089407	3.30443E-07	1.00183E-05	3.080656829	1.89891E-06	5.75703E-05	3.00266971	1.85083E-06	5.61129E-05	3.538759118	2.18128E-06	6.61312E-05
Road 9	9	2300-0000	0.389040751	2.18003E-07	6.60933E-06	0.377061238	2.1129E-07	6.40582E-06	2.226111632	1.24742E-06	3.7819E-05	2.161350369	1.21113E-06	3.67187E-05	2.538411607	1.42242E-06	4.31246E-05
Road 10	10	0000-0100	1.184829108	9.12479E-07	2.02549E-05	1.152576403	8.8764E-07	1.97035E-05	7.433310537	5.72466E-06	0.000127074	7.273383586	5.60149E-06	0.00012434	8.425959989	6.48913E-06	0.000144043
Road 10	10	0100-0200	1.135500044	6.60725E-07	1.46665E-05	1.104270108	6.42553E-07	1.42632E-05	7.054351161	4.10479E-06	9.11166E-05	6.900501313	4.01527E-06	8.91294E-05	8.004771421	4.65782E-06	0.000103393
Road 10	10	0200-0300	1.211909556	3.94075E-07	8.74753E-06	1.181571928	3.8421E-07	8.52855E-06	7.427802682	2.41529E-06	5.36137E-05	7.281257162	2.36764E-06	5.25559E-05	8.46282909	2.75185E-06	6.10845E-05
Road 10	10	0300-0400	1.099212349	2.25745E-07	5.011E-06	1.069666915	2.19677E-07	4.87631E-06	7.098154886	1.45775E-06	3.23585E-05	6.944242886	1.42614E-06	3.16568E-05	8.013909802	1.64581E-06	3.65332E-05
Road 10	10	0400-0500	1.179376925	4.64232E-07	1.03049E-05	1.145590808	4.50933E-07	1.00096E-05	7.16613024	2.82077E-06	6.26144E-05	7.004542026	2.75716E-06	6.12025E-05	8.150132834	3.2081E-06	7.12121E-05
Road 10	10	0500-0600	1.047525598	7.35027E-07	1.63159E-05	1.012926226	7.10749E-07	1.5777E-05	6.289996031	4.41356E-06	9.79706E-05	6.124935576	4.29774E-06	9.53997E-05	7.137861802	5.00849E-06	0.000111177
Road 10	10	0600-0700	1.118544291	1.56972E-06	3.4844E-05	1.077681525	1.51237E-06	3.35711E-05	6.611694564	9.27858E-06	0.000205962	6.418288205	9.00716E-06	0.000199938	7.49596973	1.05195E-05	0.000233509
Road 10	10	0700-0800	1.076094687	2.37572E-06	5.27353E-05	1.031239396	2.27669E-06	5.05371E-05	6.424405696	1.41833E-05	0.000314836	6.209155926	1.37081E-05	0.000304287	7.240395322	1.59848E-05	0.000354824
Road 10	10	0800-0900	1.210337318	5.13704E-06	0.00011403	1.163010718	4.93617E-06	0.000109571	7.293847852	3.09573E-05	0.000687179	7.067983864	2.99987E-05	0.0006659	8.230994581	3.49348E-05	0.000775471
Road 10	10	0900-1000	1.233218825	4.17888E-06	9.27613E-05	1.188649039	4.02785E-06	8.94088E-05	7.268177789	2.46289E-05	0.000546704	7.060923344	2.39266E-05	0.000531115	8.249572383	2.79545E-05	0.000620523
Road 10	10	1000-1100	1.237101607	4.55196E-06	0.000101043	1.188492706	4.3731E-06	9.70726E-05	7.094942253	2.61061E-05	0.000579494	6.877593943	2.53064E-05	0.000561741	8.066086649	2.96795E-05	0.000658814
Road 10	10	1100-1200	1.26965348	4.67174E-06	0.000103702	1.219857179	4.48851E-06	9.96343E-05	7.450478085	2.74143E-05	0.000608533	7.222803701	2.65766E-05	0.000589937	8.44266088	3.10651E-05	0.000689572
Road 10	10	1200-1300	1.267403624	4.81529E-06	0.000106888	1.215044584	4.61636E-06	0.000102472	7.439298515	2.82644E-05	0.000627403	7.199198699	2.73522E-05	0.000607154	8.414243284	3.19685E-05	0.000709626
Road 10	10	1300-1400	1.22843082	4.03652E-06	8.96011E-05	1.17764698	3.86965E-06	8.5897E-05	7.108464435	2.33578E-05	0.000518488	6.877256526	2.25981E-05	0.000501624	8.054903506	2.64677E-05	0.000587521
Road 10	10	1400-1500	1.120674639	3.47147E-06	7.70583E-05	1.074831341	3.32946E-06	7.39061E-05	6.800760444	2.10664E-05	0.000467625	6.579514484	2.03811E-05	0.000452412	7.654345825	2.37105E-05	0.000526318
Road 10	10	1500-1600	1.191959159	3.77388E-06	8.37712E-05	1.140635038	3.61138E-06	8.01641E-05	7.057307265	2.23442E-05	0.000495989	6.818249822	2.15874E-05	0.000479188	7.95888486	2.51987E-05	0.000559352
Road 10	10	1600-1700	1.086773737	3.83143E-06	8.50487E-05	1.036274631	3.6534E-06	8.10968E-05	6.53560426	2.30413E-05	0.000511463	6.293478407	2.21877E-05	0.000492515	7.329753038	2.58411E-05	0.000573612
Road 10	10	1700-1800	0.983400725	3.28186E-06	7.28495E-05	0.942603891	3.14571E-06	6.98273E-05	5.91641257	1.97446E-05	0.000438283	5.718764748	1.9085E-05	0.000423641	6.661368639	2.22307E-05	0.000493469
Road 10	10	1800-1900	1.059145654	2.19329E-06	4.86858E-05	1.021686144	2.11572E-06	4.69639E-05	6.417993223	1.32904E-05	0.000295016	6.237601526	1.29169E-05	0.000286724	7.259287671	1.50326E-05	0.000333688
Road 10	10	1900-2000	1.033003535	1.92701E-06	4.2775E-05	1.001171268	1.86763E-06	4.14569E-05	6.462013459	1.20545E-05	0.000267581	6.300936983	1.1754E-05	0.000260911	7.302108252	1.36216E-05	0.000302368
Road 10	10	2000-2100	1.317788729	1.6238E-06	3.60446E-05	1.280468961	1.57782E-06	3.50238E-05	8.0119876	9.87251E-06	0.000219146	7.836335516	9.65607E-06	0.000214342	9.116804478	1.12339E-05	0.000249366
Road 10	10	2100-2200	0.876653586	1.11023E-06	2.46446E-05	0.854327445	1.08196E-06	2.40169E-05	5.493479479	6.95719E-06	0.000154433	5.376865404	6.80951E-06	0.000151155	6.231192849	7.89147E-06	0.000175172
Road 10	10	2200-2300	1.046118944	1.37856E-06	3.06008E-05	1.019225675	1.34312E-06	2.98142E-05	6.322123765	8.33122E-06	0.000184933	6.191626449	8.15925E-06	0.000181116	7.210852123	9.50238E-06	0.00021093
Road 10	10	2300-0000	0.953762614	1.17524E-06	2.60876E-05	0.926738624	1.14194E-06	2.53484E-05	5.874451272	7.2386E-06	0.00016068	5.740947884	7.0741E-06	0.000157028	6.667686508	8.21604E-06	0.000182377
Road 11	11	0000-0100	1.326430145	1.01325E-06	8.40495E-06	1.2900953	9.85489E-07	8.17472E-06	8.298988622	6.33951E-06	5.25867E-05	8.120335583	6.20303E-06	5.14547E-05	9.410430883	7.18852E-06	5.96294E-05
Road 11	11	0100-0200	1.29910143	6.99169E-07	5.79967E-06	1.263227449	6.79862E-07	5.63951E-06	8.033774944	4.32373E-06	3.58657E-05	7.859327575	4.22985E-06	3.50869E-05	9.122555023	4.90971E-06	4.07264E-05
Road 11	11	0200-0300	1.208999297	3.14844E-07	2.61165E-06	1.178739617	3.06963E-07	2.54629E-06	7.786896476	2.02784E-06	1.68211E-05	7.631260209	1.98731E-06	1.64849E-05	8.809999826	2.29427E-06	1.90312E-05
Road 11	11	0300-0400	1.295890913	3.14973E-07	2.61273E-06	1.261044522	3.06504E-07	2.54247E-06	8.31633554	2.02133E-06	1.67671E-05	8.140660415	1.97863E-06	1.64129E-05	9.401704937	2.28514E-06	1.89554E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.195562411	4.15126E-07	3.4435E-06	1.160818375	4.03062E-07	3.34343E-06	7.194510577	2.49809E-06	2.07219E-05	7.030440131	2.44113E-06	2.02493E-05	8.191258506	2.84419E-06	2.35928E-05
Road 11	11	0500-0600	0.955682681	4.47976E-07	3.716E-06	0.923806208	4.33034E-07	3.59205E-06	5.83927247	2.73716E-06	2.2705E-05	5.680920362	2.66293E-06	2.20892E-05	6.60472657	3.09597E-06	2.56813E-05
Road 11	11	0600-0700	1.002943089	9.05435E-07	7.51065E-06	0.968137653	8.74013E-07	7.25001E-06	6.130118528	5.53413E-06	4.59061E-05	5.955142725	5.37617E-06	4.45958E-05	6.923280378	6.25018E-06	5.18458E-05
Road 11	11	0700-0800	1.142234768	2.16152E-06	1.793E-05	1.095010788	2.07216E-06	1.71887E-05	7.093175869	1.34229E-05	0.000111344	6.858256307	1.29783E-05	0.000107656	7.953267095	1.50505E-05	0.000124845
Road 11	11	0800-0900	1.152006501	4.10002E-06	3.401E-05	1.107217665	3.94062E-06	3.26877E-05	7.040743266	2.50582E-05	0.00020786	6.823161477	2.42838E-05	0.000201436	7.930379142	2.82244E-05	0.000234124
Road 11	11	0900-1000	1.130914882	2.88619E-06	2.39412E-05	1.090483678	2.78301E-06	2.30853E-05	6.707995007	1.71194E-05	0.000142007	6.518262136	1.66351E-05	0.00013799	7.608745814	1.94182E-05	0.000161075
Road 11	11	1000-1100	1.225566158	2.57454E-06	2.1356E-05	1.179720912	2.47823E-06	2.05571E-05	7.120647406	1.49583E-05	0.00012408	6.910346625	1.45165E-05	0.000120416	8.090067537	1.69948E-05	0.000140973
Road 11	11	1100-1200	1.15511884	2.72736E-06	2.26237E-05	1.111987034	2.62552E-06	2.17789E-05	6.999957717	1.65277E-05	0.000137098	6.79132904	1.60351E-05	0.000133012	7.903316074	1.86606E-05	0.000154791
Road 11	11	1200-1300	1.277434172	3.63714E-06	3.01704E-05	1.225541868	3.48939E-06	2.89448E-05	7.643967888	2.17641E-05	0.000180535	7.399491011	2.1068E-05	0.000174761	8.625032879	2.45574E-05	0.000203706
Road 11	11	1300-1400	1.29162118	2.7133E-06	2.25071E-05	1.23829846	2.60129E-06	2.15779E-05	7.36805308	1.5478E-05	0.000128392	7.127152682	1.4972E-05	0.000124194	8.365451142	1.75733E-05	0.000145772
Road 11	11	1400-1500	1.030712059	2.07574E-06	1.72184E-05	0.988925443	1.99159E-06	1.65204E-05	6.398066411	1.2885E-05	0.000106882	6.191212473	1.24684E-05	0.000103427	7.180137916	1.446E-05	0.000119947
Road 11	11	1500-1600	1.126185715	2.28756E-06	1.89755E-05	1.084225502	2.20233E-06	1.82685E-05	7.05512375	1.43307E-05	0.000118874	6.845956604	1.39058E-05	0.00011535	7.930182106	1.61082E-05	0.000133619
Road 11	11	1600-1700	1.002763518	2.43727E-06	2.02174E-05	0.962420744	2.33922E-06	1.9404E-05	6.331108524	1.53881E-05	0.000127646	6.122561805	1.48812E-05	0.000123441	7.084982549	1.72204E-05	0.000142845
Road 11	11	1700-1800	1.019308743	2.53058E-06	2.09913E-05	0.98265668	2.43958E-06	2.02365E-05	6.432787391	1.59703E-05	0.000132475	6.245475323	1.55053E-05	0.000128617	7.228132003	1.79448E-05	0.000148854
Road 11	11	1800-1900	1.142179607	2.33988E-06	1.94095E-05	1.106758415	2.26732E-06	1.88076E-05	7.194151044	1.4738E-05	0.000122253	7.015946492	1.43729E-05	0.000119225	8.122704906	1.66403E-05	0.000138032
Road 11	11	1900-2000	1.059894037	1.67449E-06	1.389E-05	1.026508146	1.62174E-06	1.34525E-05	6.672396253	1.05415E-05	8.74423E-05	6.501767527	1.02719E-05	8.52062E-05	7.528275673	1.18936E-05	9.86586E-05
Road 11	11	2000-2100	1.159472052	1.63051E-06	1.35252E-05	1.126050131	1.58351E-06	1.31353E-05	7.068880504	9.94061E-06	8.24582E-05	6.908194905	9.71465E-06	8.05838E-05	8.034245035	1.12982E-05	9.37191E-05
Road 11	11	2100-2200	0.857778793	8.63736E-07	7.16476E-06	0.835931678	8.41737E-07	6.98227E-06	5.567678401	5.60634E-06	4.65051E-05	5.449912629	5.48776E-06	4.55214E-05	6.285844308	6.3295E-06	5.25037E-05
Road 11	11	2200-2300	1.069243806	1.16949E-06	9.70098E-06	1.041542487	1.13919E-06	9.44965E-06	6.608917185	7.2285E-06	5.9961E-05	6.471765325	7.07849E-06	5.87167E-05	7.513307813	8.21768E-06	6.81663E-05
Road 11	11	2300-0000	1.014264597	1.05653E-06	8.76397E-06	0.987325287	1.02846E-06	8.53119E-06	6.36073065	6.62576E-06	5.49612E-05	6.224662988	6.48402E-06	5.37855E-05	7.211988275	7.51249E-06	6.23167E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.599641612	4.88654E-06	7.3496E-06	2.386081612	4.48512E-06	6.74584E-06	14.51265354	2.72794E-05	4.10296E-05	13.57646354	2.55197E-05	3.83828E-05	15.96254515	3.00048E-05	4.51287E-05
Haul Road 1	HR1	0800-0900	2.606931612	4.90025E-06	7.37021E-06	2.412061612	4.53395E-06	6.81929E-06	14.54423354	2.73388E-05	4.11189E-05	13.69069354	2.57344E-05	3.87058E-05	16.10275515	3.02683E-05	4.55251E-05
Haul Road 1	HR1	0900-1000	2.585751612	4.86044E-06	7.31034E-06	2.404471612	4.51968E-06	6.79783E-06	14.45169354	2.71648E-05	4.08573E-05	13.65730354	2.56716E-05	3.86114E-05	16.06177515	3.01913E-05	4.54092E-05
Haul Road 1	HR1	1000-1100	2.595041612	4.8779E-06	7.3366E-06	2.403571612	4.51799E-06	6.79528E-06	14.49236354	2.72413E-05	4.09722E-05	13.65341354	2.56643E-05	3.86004E-05	16.05698515	3.01823E-05	4.53957E-05
Haul Road 1	HR1	1100-1200	2.604241612	4.89519E-06	7.36261E-06	2.409461612	4.52906E-06	6.81193E-06	14.53273354	2.73172E-05	4.10864E-05	13.67920354	2.57128E-05	3.86733E-05	16.08866515	3.02419E-05	4.54852E-05
Haul Road 1	HR1	1200-1300	2.620321612	4.92542E-06	7.40807E-06	2.415361612	4.54015E-06	6.82862E-06	14.60329354	2.74498E-05	4.12859E-05	13.70488354	2.57611E-05	3.87459E-05	16.12024515	3.03012E-05	4.55745E-05
Haul Road 1	HR1	1300-1400	2.616031612	4.91735E-06	7.39594E-06	2.409461612	4.52906E-06	6.81193E-06	14.58430354	2.74141E-05	4.12322E-05	13.67920354	2.57128E-05	3.86733E-05	16.08866515	3.02419E-05	4.54852E-05
Haul Road 1	HR1	1400-1500	2.616031612	4.91735E-06	7.39594E-06	2.409461612	4.52906E-06	6.81193E-06	14.58430354	2.74141E-05	4.12322E-05	13.67920354	2.57128E-05	3.86733E-05	16.08866515	3.02419E-05	4.54852E-05
Haul Road 1	HR1	1500-1600	2.623121612	4.93068E-06	7.41599E-06	2.403571612	4.51799E-06	6.79528E-06	14.61538354	2.74725E-05	4.132E-05	13.65341354	2.56643E-05	3.86004E-05	16.05698515	3.01823E-05	4.53957E-05
Haul Road 1	HR1	1600-1700	2.619131612	4.92318E-06	7.40471E-06	2.385981612	4.48493E-06	6.74555E-06	14.59749354	2.74389E-05	4.12695E-05	13.57606354	2.55189E-05	3.83817E-05	15.96204515	3.00038E-05	4.51273E-05
Haul Road 1	HR1	1700-1800	2.602841612	4.89256E-06	7.35865E-06	2.393371612	4.49882E-06	6.76645E-06	14.52644354	2.73053E-05	4.10686E-05	13.60884354	2.55805E-05	3.84744E-05	16.00221515	3.00794E-05	4.52408E-05
Haul Road 1	HR1	1800-1900	2.578451612	4.84671E-06	7.2897E-06	2.396471612	4.50465E-06	6.77521E-06	14.41981354	2.71049E-05	4.07671E-05	13.62213354	2.56055E-05	3.8512E-05	16.01860515	3.01102E-05	4.52872E-05
Haul Road 1	HR1	1900-2000	2.573061612	4.83658E-06	7.27446E-06	2.391271612	4.49487E-06	6.76051E-06	14.39582354	2.70598E-05	4.06993E-05	13.59935354	2.55627E-05	3.84476E-05	15.99062515	3.00576E-05	4.52081E-05
Haul Road 1	HR1	2000-2100	2.541981612	4.77816E-06	7.18659E-06	2.375581612	4.46538E-06	6.71615E-06	14.25971354	2.6804E-05	4.03145E-05	13.53090354	2.5434E-05	3.8254E-05	15.90648515	2.98994E-05	4.49702E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.599641612	3.36741E-06	6.70465E-06	2.386081612	3.09078E-06	6.15386E-06	14.51265354	1.87988E-05	3.74291E-05	13.57646354	1.75861E-05	3.50146E-05	15.96254515	2.06769E-05	4.11684E-05
Haul Road 2	HR2	0800-0900	2.606931612	3.37685E-06	6.72345E-06	2.412061612	3.12443E-06	6.22086E-06	14.54423354	1.88397E-05	3.75105E-05	13.69069354	1.77341E-05	3.53092E-05	16.10275515	2.08585E-05	4.15301E-05
Haul Road 2	HR2	0900-1000	2.585751612	3.34942E-06	6.66882E-06	2.404471612	3.1146E-06	6.20129E-06	14.45169354	1.87198E-05	3.72719E-05	13.65730354	1.76908E-05	3.52231E-05	16.06177515	2.08054E-05	4.14244E-05
Haul Road 2	HR2	1000-1100	2.595041612	3.36145E-06	6.69278E-06	2.403571612	3.11343E-06	6.19897E-06	14.49236354	1.87725E-05	3.73768E-05	13.65341354	1.76858E-05	3.5213E-05	16.05698515	2.07992E-05	4.1412E-05
Haul Road 2	HR2	1100-1200	2.604241612	3.37337E-06	6.71651E-06	2.409461612	3.12106E-06	6.21416E-06	14.53273354	1.88248E-05	3.74809E-05	13.67920354	1.77192E-05	3.52796E-05	16.08866515	2.08402E-05	4.14937E-05
Haul Road 2	HR2	1200-1300	2.620321612	3.3942E-06	6.75798E-06	2.415361612	3.12871E-06	6.22938E-06	14.60329354	1.89162E-05	3.76628E-05	13.70488354	1.77524E-05	3.53458E-05	16.12024515	2.08811E-05	4.15752E-05
Haul Road 2	HR2	1300-1400	2.616031612	3.38864E-06	6.74692E-06	2.409461612	3.12106E-06	6.21416E-06	14.58430354	1.88916E-05	3.76139E-05	13.67920354	1.77192E-05	3.52796E-05	16.08866515	2.08402E-05	4.14937E-05
Haul Road 2	HR2	1400-1500	2.616031612	3.38864E-06	6.74692E-06	2.409461612	3.12106E-06	6.21416E-06	14.58430354	1.88916E-05	3.76139E-05	13.67920354	1.77192E-05	3.52796E-05	16.08866515	2.08402E-05	4.14937E-05
Haul Road 2	HR2	1500-1600	2.623121612	3.39783E-06	6.7652E-06	2.403571612	3.11343E-06	6.19897E-06	14.61538354	1.89318E-05	3.7694E-05	13.65341354	1.76858E-05	3.5213E-05	16.05698515	2.07992E-05	4.1412E-05
Haul Road 2	HR2	1600-1700	2.619131612	3.39266E-06	6.75491E-06	2.385981612	3.09065E-06	6.1536E-06	14.59749354	1.89087E-05	3.76479E-05	13.57606354	1.75856E-05	3.50136E-05	15.96204515	2.06762E-05	4.11672E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.602841612	3.37156E-06	6.7129E-06	2.393371612	3.10022E-06	6.17266E-06	14.52644354	1.88166E-05	3.74646E-05	13.60884354	1.7628E-05	3.50981E-05	16.00221515	2.07283E-05	4.12708E-05
Haul Road 2	HR2	1800-1900	2.578451612	3.33996E-06	6.65E-06	2.396471612	3.10424E-06	6.18066E-06	14.41981354	1.86785E-05	3.71896E-05	13.62213354	1.76453E-05	3.51324E-05	16.01860515	2.07495E-05	4.1313E-05
Haul Road 2	HR2	1900-2000	2.573061612	3.33298E-06	6.63609E-06	2.391271612	3.0975E-06	6.16725E-06	14.39582354	1.86474E-05	3.71278E-05	13.59935354	1.76157E-05	3.50736E-05	15.99062515	2.07132E-05	4.12409E-05
Haul Road 2	HR2	2000-2100	2.541981612	3.29272E-06	6.55594E-06	2.375581612	3.07718E-06	6.12678E-06	14.25971354	1.84711E-05	3.67767E-05	13.53090354	1.75271E-05	3.48971E-05	15.90648515	2.06043E-05	4.10239E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.599641612	3.36741E-06	6.20173E-06	2.386081612	3.09078E-06	5.69226E-06	14.51265354	1.87988E-05	3.46215E-05	13.57646354	1.75861E-05	3.23882E-05	15.96254515	2.06769E-05	3.80804E-05
Haul Road 3	HR3	0800-0900	2.606931612	3.37685E-06	6.21913E-06	2.412061612	3.12443E-06	5.75424E-06	14.54423354	1.88397E-05	3.46969E-05	13.69069354	1.77341E-05	3.26607E-05	16.10275515	2.08585E-05	3.84149E-05
Haul Road 3	HR3	0900-1000	2.585751612	3.34942E-06	6.1686E-06	2.404471612	3.1146E-06	5.73613E-06	14.45169354	1.87198E-05	3.44761E-05	13.65730354	1.76908E-05	3.2581E-05	16.06177515	2.08054E-05	3.83172E-05
Haul Road 3	HR3	1000-1100	2.595041612	3.36145E-06	6.19076E-06	2.403571612	3.11343E-06	5.73399E-06	14.49236354	1.87725E-05	3.45731E-05	13.65341354	1.76858E-05	3.25717E-05	16.05698515	2.07992E-05	3.83057E-05
Haul Road 3	HR3	1100-1200	2.604241612	3.37337E-06	6.21271E-06	2.409461612	3.12106E-06	5.74804E-06	14.53273354	1.88248E-05	3.46695E-05	13.67920354	1.77192E-05	3.26333E-05	16.08866515	2.08402E-05	3.83813E-05
Haul Road 3	HR3	1200-1300	2.620321612	3.3942E-06	6.25107E-06	2.415361612	3.12871E-06	5.76211E-06	14.60329354	1.89162E-05	3.48378E-05	13.70488354	1.77524E-05	3.26945E-05	16.12024515	2.08811E-05	3.84566E-05
Haul Road 3	HR3	1300-1400	2.616031612	3.38864E-06	6.24083E-06	2.409461612	3.12106E-06	5.74804E-06	14.58430354	1.88916E-05	3.47925E-05	13.67920354	1.77192E-05	3.26333E-05	16.08866515	2.08402E-05	3.83813E-05
Haul Road 3	HR3	1400-1500	2.616031612	3.38864E-06	6.24083E-06	2.409461612	3.12106E-06	5.74804E-06	14.58430354	1.88916E-05	3.47925E-05	13.67920354	1.77192E-05	3.26333E-05	16.08866515	2.08402E-05	3.83813E-05
Haul Road 3	HR3	1500-1600	2.623121612	3.39783E-06	6.25775E-06	2.403571612	3.11343E-06	5.73399E-06	14.61538354	1.89318E-05	3.48666E-05	13.65341354	1.76858E-05	3.25717E-05	16.05698515	2.07992E-05	3.83057E-05
Haul Road 3	HR3	1600-1700	2.619131612	3.39266E-06	6.24823E-06	2.385981612	3.09065E-06	5.69202E-06	14.59749354	1.89087E-05	3.48239E-05	13.57606354	1.75856E-05	3.23872E-05	15.96204515	2.06762E-05	3.80792E-05
Haul Road 3	HR3	1700-1800	2.602841612	3.37156E-06	6.20937E-06	2.393371612	3.10022E-06	5.70965E-06	14.52644354	1.88166E-05	3.46544E-05	13.60884354	1.7628E-05	3.24654E-05	16.00221515	2.07283E-05	3.81751E-05
Haul Road 3	HR3	1800-1900	2.578451612	3.33996E-06	6.15118E-06	2.396471612	3.10424E-06	5.71705E-06	14.41981354	1.86785E-05	3.44001E-05	13.62213354	1.76453E-05	3.24971E-05	16.01860515	2.07495E-05	3.82142E-05
Haul Road 3	HR3	1900-2000	2.573061612	3.33298E-06	6.13832E-06	2.391271612	3.0975E-06	5.70464E-06	14.39582354	1.86474E-05	3.43428E-05	13.59935354	1.76157E-05	3.24428E-05	15.99062515	2.07132E-05	3.81474E-05
Haul Road 3	HR3	2000-2100	2.541981612	3.29272E-06	6.06418E-06	2.375581612	3.07718E-06	5.66721E-06	14.25971354	1.84711E-05	3.40181E-05	13.53090354	1.75271E-05	3.22795E-05	15.90648515	2.06043E-05	3.79467E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.080428324	2.70208E-07	2.19818E-06	0.070187709	2.35803E-07	1.91829E-06	0.473604078	1.59112E-06	1.2944E-05	0.411327039	1.3819E-06	1.12419E-05	0.481514749	1.6177E-06	1.31602E-05
Road 1	1	0100-0200	0.062951743	1.28786E-07	1.0477E-06	0.055639083	1.13826E-07	9.25993E-07	0.377916055	7.73139E-07	6.2896E-06	0.332585596	6.80402E-07	5.53517E-06	0.388224679	7.94228E-07	6.46117E-06
Road 1	1	0200-0300	0.059978571	8.66807E-08	7.05161E-07	0.053450649	7.72466E-08	6.28413E-07	0.379505584	5.4846E-07	4.4618E-06	0.335749351	4.85223E-07	3.94736E-06	0.3892	5.6247E-07	4.57578E-06
Road 1	1	0300-0400	0.050653091	5.22883E-08	4.25373E-07	0.044947636	4.63986E-08	3.7746E-07	0.308034545	3.17979E-07	2.5868E-06	0.271481091	2.80245E-07	2.27984E-06	0.316428727	3.26644E-07	2.6573E-06
Road 1	1	0400-0500	0.0655	1.05724E-07	8.60084E-07	0.058125	9.38204E-08	7.63243E-07	0.373181163	6.02357E-07	4.90026E-06	0.329632907	5.32065E-07	4.32843E-06	0.387757907	6.25886E-07	5.09167E-06
Road 1	1	0500-0600	0.054281383	1.91533E-07	1.55815E-06	0.047804096	1.68678E-07	1.37222E-06	0.318323032	1.12321E-06	9.1375E-06	0.278503777	9.82709E-07	7.99448E-06	0.326307872	1.15139E-06	9.3667E-06
Road 1	1	0600-0700	0.074226677	4.69489E-07	3.81936E-06	0.064856231	4.10221E-07	3.3372E-06	0.393299614	2.48765E-06	2.02374E-05	0.341877656	2.1624E-06	1.75915E-05	0.406733887	2.57262E-06	2.09287E-05
Road 1	1	0700-0800	0.063876886	6.73776E-07	5.48127E-06	0.054580018	5.75713E-07	4.68351E-06	0.35007573	3.69262E-06	3.004E-05	0.296358416	3.126E-06	2.54305E-05	0.350938434	3.70172E-06	3.0114E-05
Road 1	1	0800-0900	0.070096599	9.13045E-07	7.42776E-06	0.058597853	7.63268E-07	6.2093E-06	0.374865403	4.88282E-06	3.97225E-05	0.311387867	4.05599E-06	3.29961E-05	0.36998572	4.81926E-06	3.92054E-05
Road 1	1	0900-1000	0.07577479	1.01545E-06	8.26084E-06	0.063698165	8.53613E-07	6.94427E-06	0.419038221	5.61549E-06	4.56828E-05	0.350312787	4.69451E-06	3.81905E-05	0.414010952	5.54812E-06	4.51348E-05
Road 1	1	1000-1100	0.088477295	1.15412E-06	9.38897E-06	0.073385698	9.57265E-07	7.78749E-06	0.472773281	6.16699E-06	5.01694E-05	0.390430691	5.09289E-06	4.14314E-05	0.463816388	6.05016E-06	4.92189E-05
Road 1	1	1100-1200	0.078374525	9.9145E-07	8.06559E-06	0.066323412	8.39001E-07	6.8254E-06	0.448184807	5.66961E-06	4.61231E-05	0.377369362	4.77378E-06	3.88354E-05	0.443692774	5.61278E-06	4.56608E-05
Road 1	1	1200-1300	0.081050615	1.01465E-06	8.25436E-06	0.069188486	8.66155E-07	7.0463E-06	0.45772036	5.7301E-06	4.66152E-05	0.389113508	4.87122E-06	3.96281E-05	0.458301994	5.73738E-06	4.66744E-05
Road 1	1	1300-1400	0.085317151	1.13532E-06	9.236E-06	0.072207913	9.60875E-07	7.81686E-06	0.472420606	6.28653E-06	5.11418E-05	0.397904683	5.29494E-06	4.30751E-05	0.470112595	6.25582E-06	5.0892E-05
Road 1	1	1400-1500	0.081064434	1.17002E-06	9.51827E-06	0.067343784	9.71985E-07	7.90724E-06	0.439393498	6.34185E-06	5.15919E-05	0.363003719	5.2393E-06	4.26225E-05	0.430347503	6.21128E-06	5.05297E-05
Road 1	1	1500-1600	0.086892263	1.1677E-06	9.49938E-06	0.073765852	9.91298E-07	8.06435E-06	0.469229134	6.30571E-06	5.12979E-05	0.396140447	5.32351E-06	4.33075E-05	0.469906299	6.31481E-06	5.13719E-05
Road 1	1	1600-1700	0.081971748	1.16157E-06	9.44958E-06	0.069586384	9.86068E-07	8.02181E-06	0.447953258	6.34769E-06	5.16394E-05	0.378124689	5.35819E-06	4.35896E-05	0.447711073	6.34425E-06	5.16114E-05
Road 1	1	1700-1800	0.066292084	9.43119E-07	7.67242E-06	0.055653047	7.91761E-07	6.44109E-06	0.370438496	5.27013E-06	4.28733E-05	0.308521069	4.38924E-06	3.57072E-05	0.364174116	5.18101E-06	4.21482E-05
Road 1	1	1800-1900	0.056432158	8.19791E-07	6.66913E-06	0.048429884	7.03542E-07	5.72342E-06	0.336298398	4.88542E-06	3.97436E-05	0.285725478	4.15074E-06	3.37669E-05	0.334155362	4.85428E-06	3.94903E-05
Road 1	1	1900-2000	0.067197976	7.47905E-07	6.08432E-06	0.060056796	6.68425E-07	5.43774E-06	0.383577892	4.26918E-06	3.47304E-05	0.340695565	3.7919E-06	3.08477E-05	0.400752361	4.46033E-06	3.62854E-05
Road 1	1	2000-2100	0.061512823	5.80724E-07	4.72427E-06	0.053632048	5.06324E-07	4.11902E-06	0.362127117	3.41873E-06	2.78119E-05	0.313359563	2.95833E-06	2.40665E-05	0.36699161	3.46465E-06	2.81855E-05
Road 1	1	2100-2200	0.063654183	5.48372E-07	4.46109E-06	0.056036253	4.82745E-07	3.9272E-06	0.377743464	3.25421E-06	2.64735E-05	0.330663181	2.84862E-06	2.31739E-05	0.386699434	3.33136E-06	2.71011E-05
Road 1	1	2200-2300	0.061325954	5.00691E-07	4.07319E-06	0.054394069	4.44096E-07	3.61278E-06	0.36314108	2.96483E-06	2.41194E-05	0.320139586	2.61375E-06	2.12633E-05	0.374533655	3.05785E-06	2.4876E-05
Road 1	1	2300-0000	0.052389897	3.83485E-07	3.1197E-06	0.047355385	3.46633E-07	2.81991E-06	0.318136077	2.3287E-06	1.89443E-05	0.285502436	2.08983E-06	1.7001E-05	0.332857821	2.43646E-06	1.9821E-05
Road 2	2	0000-0100	0.133166923	1.60294E-07	1.03516E-06	0.116209808	1.39882E-07	9.03345E-07	0.561417885	6.75781E-07	4.36413E-06	0.488042885	5.87459E-07	3.79375E-06	0.604252692	7.27341E-07	4.6971E-06
Road 2	2	0100-0200	0.094945882	7.47259E-08	4.82573E-07	0.083888824	6.60236E-08	4.26374E-07	0.466894118	3.67463E-07	2.37304E-06	0.410975294	3.23453E-07	2.08883E-06	0.494864118	3.89476E-07	2.5152E-06
Road 2	2	0200-0300	0.097565217	5.19444E-08	3.35452E-07	0.087068696	4.6356E-08	2.99363E-07	0.52930913	2.81808E-07	1.81989E-06	0.469898261	2.50177E-07	1.61562E-06	0.556966957	2.96533E-07	1.91498E-06
Road 2	2	0300-0400	0.084498	2.93396E-08	1.89472E-07	0.075036667	2.60544E-08	1.68257E-07	0.305156	1.05957E-07	6.8426E-07	0.269198	9.34715E-08	6.0363E-07	0.344234667	1.19526E-07	7.71887E-07
Road 2	2	0400-0500	0.114042593	7.12766E-08	4.60297E-07	0.101264815	6.32905E-08	4.08724E-07	0.54744963	3.42156E-07	2.20961E-06	0.484527407	3.0283E-07	1.95564E-06	0.585792222	3.6612E-07	2.36437E-06
Road 2	2	0500-0600	0.090892982	1.19928E-07	7.74485E-07	0.080140175	1.05741E-07	6.82862E-07	0.399529123	5.27156E-07	3.40433E-06	0.350220877	4.62097E-07	2.98418E-06	0.430361053	5.67838E-07	3.66704E-06
Road 2	2	0600-0700	0.130083269	3.13163E-07	2.02238E-06	0.113704038	2.73732E-07	1.76773E-06	0.523916538	1.26128E-06	8.14523E-06	0.456140192	1.09812E-06	7.09152E-06	0.569844231	1.37185E-06	8.85926E-06
Road 2	2	0700-0800	0.109262563	4.04676E-07	2.61336E-06	0.093357813	3.4577E-07	2.23295E-06	0.451914563	1.67376E-06	1.0809E-05	0.383125813	1.41898E-06	9.16366E-06	0.476483625	1.76475E-06	1.13966E-05
Road 2	2	0800-0900	0.125769605	8.85045E-07	5.71554E-06	0.105091414	7.39532E-07	4.77583E-06	0.526711151	3.70649E-06	2.39361E-05	0.437376349	3.07783E-06	1.98763E-05	0.542467763	3.81737E-06	2.46522E-05
Road 2	2	0900-1000	0.149440437	8.71736E-07	5.62959E-06	0.125476825	7.31948E-07	4.72685E-06	0.635030278	3.70434E-06	2.39223E-05	0.531401032	3.09984E-06	2.00185E-05	0.656877857	3.83179E-06	2.47453E-05
Road 2	2	1000-1100	0.167722246	7.2602E-07	4.68857E-06	0.139066096	6.01976E-07	3.8875E-06	0.705904973	3.05565E-06	1.97331E-05	0.583702246	2.52667E-06	1.6317E-05	0.722768342	3.12865E-06	2.02045E-05
Road 2	2	1100-1200	0.19461459	8.24409E-07	5.32395E-06	0.16455541	6.97075E-07	4.50164E-06	0.79356071	3.36161E-06	2.1709E-05	0.669891749	2.83774E-06	1.83258E-05	0.834447158	3.53481E-06	2.28275E-05
Road 2	2	1200-1300	0.150360368	6.61307E-07	4.27066E-06	0.128360474	5.64548E-07	3.6458E-06	0.656592526	2.88779E-06	1.86491E-05	0.558592684	2.45677E-06	1.58656E-05	0.686953158	3.02132E-06	1.95114E-05
Road 2	2	1300-1400	0.167241435	8.63306E-07	5.57515E-06	0.14134722	7.2964E-07	4.71194E-06	0.682626682	3.52374E-06	2.2756E-05	0.574870269	2.9675E-06	1.91638E-05	0.716217489	3.69714E-06	2.38758E-05
Road 2	2	1400-1500	0.143986303	5.49948E-07	3.55151E-06	0.119579273	4.56726E-07	2.94949E-06	0.621535152	2.37392E-06	1.53305E-05	0.514413758	1.96477E-06	1.26883E-05	0.63399303	2.4215E-06	1.56378E-05
Road 2	2	1500-1600	0.179241694	7.59288E-07	4.90341E-06	0.151879945	6.4338E-07	4.15489E-06	0.705326557	2.98784E-06	1.92952E-05	0.596245792	2.52576E-06	1.63111E-05	0.748125738	3.16914E-06	2.0466E-05
Road 2	2	1600-1700	0.14850914	7.59734E-07	4.90629E-06	0.126077511	6.4498E-07	4.16522E-06	0.623269638	3.18849E-06	2.05909E-05	0.52708724	2.69644E-06	1.74134E-05	0.653164751	3.34142E-06	2.15786E-05
Road 2	2	1700-1800	0.116172027	5.96995E-07	3.85534E-06	0.097578964	5.01447E-07	3.2383E-06	0.460146036	2.36464E-06	1.52706E-05	0.384459279	1.97569E-06	1.27588E-05	0.482038243	2.47714E-06	1.59971E-05
Road 2	2	1800-1900	0.12242168	7.08459E-07	4.57516E-06	0.10514988	6.08506E-07	3.92967E-06	0.54919512	3.17821E-06	2.05246E-05	0.46915428	2.71501E-06	1.75333E-05	0.57430416	3.32352E-06	2.1463E-05
Road 2	2	1900-2000	0.103147929	4.03519E-07	2.60588E-06	0.09218426	3.60628E-07	2.3289E-06	0.46572787	1.82194E-06	1.17659E-05	0.413991124	1.61955E-06	1.04589E-05	0.506175385	1.98018E-06	1.27878E-05
Road 2	2	2000-2100	0.098808435	3.36223E-07	2.1713E-06	0.086073197	2.92888E-07	1.89144E-06	0.419255442	1.42663E-06	9.21306E-06	0.362469524	1.2334E-06	7.9652E-06	0.448542721	1.52629E-06	9.85664E-06
Road 2	2	2100-2200	0.075549739	2.67572E-07	1.72795E-06	0.06648183	2.35456E-07	1.52055E-06	0.344050523	1.21851E-06	7.86903E-06	0.299980784	1.06243E-06	6.86108E-06	0.366462614	1.29789E-06	8.38164E-06
Road 2	2	2200-2300	0.10862488	3.14308E-07	2.02977E-06	0.09634944	2.78789E-07	1.80039E-06	0.46026064	1.33177E-06	8.60046E-06	0.4062328	1.17544E-06	7.59089E-06	0.50258224	1.45423E-06	9.39128E-06
Road 2	2	2300-0000	0.094677027	2.43267E-07	1.571E-06	0.085567027	2.1986E-07	1.41983E-06	0.424324234	1.09028E-06	7.04091E-06	0.381457297	9.80133E-07	6.32961E-06	0.467024324	1.19999E-06	7.74944E-06
Road 3	3	0000-0100	0.084243826	3.10784E-07	1.20794E-05	0.074930609	2.76426E-07	1.0744E-05	0.462297391	1.70546E-06	6.62869E-05	0.409434043	1.51044E-06	5.87071E-05	0.484364652	1.78687E-06	6.94511E-05
Road 3	3	0100-0200	0.063417676	1.44441E-07	5.61406E-06	0.055955704	1.27446E-07	4.95349E-06	0.367703592	8.37488E-07	3.2551E-05	0.323047183	7.35778E-07	2.85978E-05	0.379002887	8.63223E-07	3.35513E-05
Road 3	3	0200-0300	0.061658687	9.79088E-08	3.80547E-06	0.054650303	8.67801E-08	3.37292E-06	0.381526162	6.05831E-07	2.35471E-05	0.335762525	5.33163E-07	2.07227E-05	0.390412828	6.19943E-07	2.40956E-05
Road 3	3	0300-0400	0.051619571	5.79568E-08	2.25264E-06	0.045540857	5.11318E-08	1.98737E-06	0.282336571	3.16999E-07	1.23209E-05	0.247192714	2.7754E-07	1.07873E-05	0.292733571	3.28672E-07	1.27747E-05
Road 3	3	0400-0500	0.068543363	1.24233E-07	4.82861E-06	0.060828407	1.1025E-07	4.28513E-06	0.377149115	6.83571E-07	2.65687E-05	0.333293097	6.04084E-07	2.34792E-05	0.394121504	7.14333E-07	2.77643E-05
Road 3	3	0500-0600	0.055796504	2.20158E-07	8.55699E-06	0.04914565	1.93915E-07	7.53701E-06	0.308145285	1.21586E-06	4.72573E-05	0.269636626	1.06391E-06	4.13516E-05	0.318782276	1.25783E-06	4.88886E-05
Road 3	3	0600-0700	0.078204955	5.56941E-07	2.16469E-05	0.068515225	4.87935E-07	1.89648E-05	0.388490631	2.76666E-06	0.000107533	0.338678378	2.41192E-06	9.37452E-05	0.407193604	2.89985E-06	0.00011271
Road 3	3	0700-0800	0.065997593	7.69582E-07	2.99117E-05	0.056146231	6.54707E-07	2.54468E-05	0.34410696	4.01255E-06	0.000155958	0.290130509	3.38314E-06	0.000131494	0.34627674	4.03785E-06	0.000156941
Road 3	3	0800-0900	0.074261314	1.18754E-06	4.61569E-05	0.064079318	1.02472E-06	3.98283E-05	0.365985176	5.85263E-06	0.000227477	0.314061916	5.0223E-06	0.000195204	0.378141234	6.04702E-06	0.000235032
Road 3	3	0900-1000	0.082223368	1.27267E-06	4.94654E-05	0.068805109	1.06498E-06	4.1393E-05	0.422832725	6.54468E-06	0.000254375	0.351841627	5.44586E-06	0.000211667	0.420646736	6.51084E-06	0.00025306
Road 3	3	1000-1100	0.094188931	1.32795E-06	5.1614E-05	0.079705381	1.12375E-06	4.36772E-05	0.474304573	6.68711E-06	0.000259911	0.399764403	5.63618E-06	0.000219064	0.479469784	6.75993E-06	0.000262742
Road 3	3	1100-1200	0.091058817	1.2473E-06	4.84796E-05	0.076855515	1.05275E-06	4.09177E-05	0.471140375	6.45358E-06	0.000250834	0.395936171	5.42345E-06	0.000210796	0.472791686	6.4762E-06	0.000251713
Road 3	3	1200-1300	0.085979309	1.17773E-06	4.57752E-05	0.072800211	9.97201E-07	3.87587E-05	0.455179016	6.23494E-06	0.000242336	0.383600948	5.25448E-06	0.000204228	0.456401159	6.25168E-06	0.000242987

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.092737875	1.37889E-06	5.35939E-05	0.077502082	1.15235E-06	4.4789E-05	0.472007346	7.01812E-06	0.000272777	0.39232069	5.83328E-06	0.000226725	0.469822772	6.98564E-06	0.000271514
Road 3	3	1400-1500	0.086460814	1.29526E-06	5.03437E-05	0.071872024	1.07671E-06	4.1849E-05	0.447062355	6.69741E-06	0.000260312	0.369654197	5.53777E-06	0.000215239	0.441526221	6.61448E-06	0.000257088
Road 3	3	1500-1600	0.093566581	1.34319E-06	5.22063E-05	0.07960124	1.14271E-06	4.44142E-05	0.470901821	6.75998E-06	0.000262744	0.398718302	5.72376E-06	0.000222468	0.478319542	6.86647E-06	0.000266882
Road 3	3	1600-1700	0.088780338	1.38982E-06	5.40188E-05	0.074236178	1.16214E-06	4.51694E-05	0.453784355	7.10381E-06	0.000276107	0.377287244	5.90628E-06	0.000229562	0.451523422	7.06842E-06	0.000274732
Road 3	3	1700-1800	0.070256813	1.10322E-06	4.28795E-05	0.059141021	9.28675E-07	3.60953E-05	0.360777732	5.66519E-06	0.000220192	0.301387109	4.7326E-06	0.000183944	0.360528131	5.66127E-06	0.000220039
Road 3	3	1800-1900	0.063347089	1.04349E-06	4.05579E-05	0.056010954	9.22647E-07	3.5861E-05	0.347271977	5.72048E-06	0.000222341	0.304835823	5.02144E-06	0.000195171	0.360846777	5.94409E-06	0.000231032
Road 3	3	1900-2000	0.068132618	8.30541E-07	3.2281E-05	0.059824013	7.29258E-07	2.83444E-05	0.374249553	4.56212E-06	0.000177318	0.326245895	3.97696E-06	0.000154574	0.386069908	4.70622E-06	0.000182919
Road 3	3	2000-2100	0.063178028	6.57662E-07	2.55617E-05	0.054988783	5.72415E-07	2.22483E-05	0.345237042	3.5938E-06	0.000139682	0.298134869	3.10349E-06	0.000120625	0.353123652	3.6759E-06	0.000142873
Road 3	3	2100-2200	0.061221854	6.03912E-07	2.34726E-05	0.053591512	5.28644E-07	2.05471E-05	0.344228748	3.39558E-06	0.000131978	0.299173317	2.95114E-06	0.000114704	0.352764829	3.47979E-06	0.000135251
Road 3	3	2200-2300	0.065148384	5.88307E-07	2.2866E-05	0.057453393	5.1882E-07	2.01652E-05	0.355135755	3.20697E-06	0.000124647	0.311196465	2.81019E-06	0.000109225	0.368649858	3.32901E-06	0.00012939
Road 3	3	2300-0000	0.056537211	4.55229E-07	1.76936E-05	0.050022251	4.02772E-07	1.56547E-05	0.322763606	2.59885E-06	0.000101011	0.283316255	2.28122E-06	8.86653E-05	0.333338506	2.68399E-06	0.00010432
Road 4	4	0000-0100	0.225691143	1.82852E-07	1.9579E-06	0.200583143	1.62509E-07	1.74008E-06	1.113997429	9.02544E-07	9.66406E-06	0.989594286	8.01755E-07	8.58485E-06	1.190177429	9.64264E-07	1.03249E-05
Road 4	4	0100-0200	0.2136125	9.88947E-08	1.05892E-06	0.188386	8.72157E-08	9.33869E-07	1.0565945	4.89164E-07	5.23776E-06	0.931839	4.31407E-07	4.61932E-06	1.120225	5.18623E-07	5.55319E-06
Road 4	4	0200-0300	0.229056923	6.89292E-08	7.38064E-07	0.203256154	6.1165E-08	6.5493E-07	1.095576154	3.29687E-07	3.53015E-06	0.97219	2.92557E-07	3.13258E-06	1.175446154	3.53722E-07	3.78751E-06
Road 4	4	0300-0400	0.208244286	3.37433E-08	3.61309E-07	0.184025714	2.9819E-08	3.19289E-07	1.069204286	1.73251E-07	1.8551E-06	0.944644286	1.53067E-07	1.63898E-06	1.12867	1.82886E-07	1.95827E-06
Road 4	4	0400-0500	0.212729286	6.894E-08	7.38181E-07	0.188767857	6.11748E-08	6.55034E-07	1.017912143	3.29879E-07	3.5322E-06	0.903231429	2.92714E-07	3.13426E-06	1.091999286	3.53889E-07	3.78929E-06
Road 4	4	0500-0600	0.197559167	1.09755E-07	1.17521E-06	0.174161667	9.67565E-08	1.03603E-06	0.9088925	5.0494E-07	5.40669E-06	0.800756667	4.44865E-07	4.76342E-06	0.974918333	5.41621E-07	5.79945E-06
Road 4	4	0600-0700	0.222481698	2.72952E-07	2.92266E-06	0.194941321	2.39164E-07	2.56087E-06	1.029359245	1.26287E-06	1.35223E-05	0.90128717	1.10575E-06	1.18399E-05	1.096228491	1.34491E-06	1.44007E-05
Road 4	4	0700-0800	0.228893913	4.87459E-07	5.21951E-06	0.19476337	4.14774E-07	4.44122E-06	1.098157283	2.33867E-06	2.50415E-05	0.933468261	1.98794E-06	2.1286E-05	1.12823163	2.40272E-06	2.57273E-05
Road 4	4	0800-0900	0.238553806	8.55922E-07	9.16485E-06	0.205695806	7.38029E-07	7.9025E-06	1.148805677	4.12187E-06	4.41353E-05	0.990256581	3.553E-06	3.80441E-05	1.195952387	4.29103E-06	4.59466E-05
Road 4	4	0900-1000	0.248053919	8.49814E-07	9.09945E-06	0.206893784	7.08803E-07	7.58956E-06	1.134005743	3.88502E-06	4.15992E-05	0.945016824	3.23756E-06	3.46664E-05	1.151910608	3.94636E-06	4.2256E-05
Road 4	4	1000-1100	0.279056736	9.30189E-07	9.96007E-06	0.235758889	7.85863E-07	8.41469E-06	1.279645	4.26548E-06	4.5673E-05	1.080958125	3.60319E-06	3.85815E-05	1.316717014	4.38906E-06	4.69962E-05
Road 4	4	1100-1200	0.254216903	9.12121E-07	9.76661E-06	0.214264452	7.68773E-07	8.2317E-06	1.158383355	4.15624E-06	4.45032E-05	0.975843935	3.50129E-06	3.74904E-05	1.190108387	4.27006E-06	4.57221E-05
Road 4	4	1200-1300	0.261033649	8.94282E-07	9.57559E-06	0.220717027	7.5616E-07	8.09664E-06	1.241368919	4.25284E-06	4.55376E-05	1.049224662	3.59457E-06	3.84891E-05	1.269941689	4.35073E-06	4.65857E-05
Road 4	4	1300-1400	0.2716666	9.43287E-07	1.01003E-05	0.226687333	7.87109E-07	8.42803E-06	1.261894867	4.38158E-06	4.69161E-05	1.052459267	3.65437E-06	3.91295E-05	1.2791466	4.44148E-06	4.75575E-05
Road 4	4	1400-1500	0.250120571	8.10576E-07	8.67931E-06	0.207571714	6.72686E-07	7.20284E-06	1.199187571	3.88626E-06	4.16124E-05	0.994441643	3.22273E-06	3.45076E-05	1.202013357	3.89541E-06	4.17104E-05
Road 4	4	1500-1600	0.27360328	7.91676E-07	8.47693E-06	0.23237696	6.72387E-07	7.19964E-06	1.27117184	3.67816E-06	3.93842E-05	1.07931056	3.12301E-06	3.34398E-05	1.31168752	3.79539E-06	4.06395E-05
Road 4	4	1600-1700	0.257586129	7.39368E-07	7.91684E-06	0.215135403	6.17518E-07	6.61213E-06	1.208578306	3.46907E-06	3.71453E-05	1.008735726	2.89545E-06	3.10032E-05	1.223871129	3.51296E-06	3.76153E-05
Road 4	4	1700-1800	0.246775748	7.25475E-07	7.76808E-06	0.207678504	6.10536E-07	6.53737E-06	1.176866142	3.45977E-06	3.70457E-05	0.98970126	2.90954E-06	3.11541E-05	1.197379764	3.52007E-06	3.76915E-05
Road 4	4	1800-1900	0.259832925	6.37553E-07	6.82665E-06	0.229835849	5.63949E-07	6.03853E-06	1.250657547	3.06874E-06	3.28588E-05	1.106342358	2.71464E-06	2.90672E-05	1.336178208	3.27859E-06	3.51057E-05
Road 4	4	1900-2000	0.236363243	4.04881E-07	4.3353E-06	0.20747527	3.55397E-07	3.80545E-06	1.140063514	1.95289E-06	2.09107E-05	1.000440135	1.71372E-06	1.83498E-05	1.207915405	2.06911E-06	2.21552E-05
Road 4	4	2000-2100	0.204905306	2.32416E-07	2.48861E-06	0.178202653	2.02128E-07	2.1643E-06	0.991701224	1.12485E-06	1.20444E-05	0.861542041	9.77212E-07	1.04636E-05	1.039744694	1.17934E-06	1.26279E-05
Road 4	4	2100-2200	0.169203243	1.44919E-07	1.55174E-06	0.148321622	1.27035E-07	1.36023E-06	0.836082162	7.16089E-07	7.66758E-06	0.731834595	6.26803E-07	6.71154E-06	0.880156216	7.53838E-07	8.07177E-06
Road 4	4	2200-2300	0.22486381	3.27926E-07	3.5113E-06	0.198310635	2.89203E-07	3.09666E-06	1.068356349	1.55802E-06	1.66826E-05	0.94194	1.37366E-06	1.47086E-05	1.140250635	1.66287E-06	1.78053E-05
Road 4	4	2300-0000	0.207843878	2.35749E-07	2.5243E-06	0.18388102	2.08569E-07	2.23327E-06	1.014386939	1.15058E-06	1.23199E-05	0.896753061	1.01715E-06	1.08912E-05	1.080634082	1.22572E-06	1.31245E-05
Road 5	5	0000-0100	0.07133228	2.58392E-07	3.49428E-06	0.063465648	2.29896E-07	3.10893E-06	0.396251347	1.43537E-06	1.94108E-05	0.350511036	1.26968E-06	1.71701E-05	0.413976684	1.49958E-06	2.02791E-05
Road 5	5	0100-0200	0.048133361	1.10215E-07	1.49046E-06	0.042473607	9.72556E-08	1.31521E-06	0.293367787	6.71751E-07	9.08421E-06	0.257279426	5.89116E-07	7.96672E-06	0.299753033	6.86371E-07	9.28193E-06
Road 5	5	0200-0300	0.045489651	7.34255E-08	9.92947E-07	0.040293023	6.50375E-08	8.79515E-07	0.310209535	5.00714E-07	6.77124E-06	0.272048256	4.39117E-07	5.93826E-06	0.312341279	5.04154E-07	6.81778E-06
Road 5	5	0300-0400	0.040566667	4.79673E-08	6.48671E-07	0.035763175	4.22875E-08	5.71862E-07	0.221323492	2.617E-07	3.53902E-06	0.193037778	2.28254E-07	3.08672E-06	0.228800952	2.70542E-07	3.65859E-06
Road 5	5	0400-0500	0.056089697	1.04221E-07	1.4094E-06	0.04977899	9.24947E-08	1.25082E-06	0.318364848	5.91556E-07	7.99973E-06	0.280931919	5.22002E-07	7.05913E-06	0.330710909	6.14497E-07	8.30995E-06
Road 5	5	0500-0600	0.045643909	1.8847E-07	2.54871E-06	0.040191318	1.65955E-07	2.24424E-06	0.263073227	1.08626E-06	1.46897E-05	0.229706318	9.48487E-07	1.28266E-05	0.269897636	1.11444E-06	1.50708E-05
Road 5	5	0600-0700	0.067749665	4.93372E-07	6.67196E-06	0.059360206	4.32278E-07	5.84577E-06	0.338414381	2.46443E-06	3.33269E-05	0.294615412	2.14547E-06	2.90136E-05	0.353975619	2.57775E-06	3.48594E-05
Road 5	5	0700-0800	0.053921264	6.40619E-07	8.66321E-06	0.045884739	5.4514E-07	7.37203E-06	0.282977678	3.36195E-06	4.54643E-05	0.237804487	2.82527E-06	3.82066E-05	0.283689226	3.37041E-06	4.55786E-05
Road 5	5	0800-0900	0.058757248	9.29661E-07	1.2572E-05	0.050718138	8.02466E-07	1.08519E-05	0.285877865	4.52318E-06	6.11678E-05	0.244752313	3.87249E-06	5.23684E-05	0.295470451	4.67495E-06	6.32203E-05
Road 5	5	0900-1000	0.066395502	1.01687E-06	1.37513E-05	0.055613174	8.51733E-07	1.15181E-05	0.352567377	5.39968E-06	7.30209E-05	0.29325239	4.49125E-06	6.07361E-05	0.348865564	5.34299E-06	7.22542E-05
Road 5	5	1000-1100	0.076321213	1.05142E-06	1.42186E-05	0.064627984	8.90333E-07	1.20401E-05	0.394158556	5.43004E-06	7.34314E-05	0.331915068	4.57255E-06	6.18355E-05	0.396543052	5.46289E-06	7.38756E-05
Road 5	5	1100-1200	0.073846595	9.68821E-07	1.31015E-05	0.062385021	8.18452E-07	1.10681E-05	0.39802804	5.22188E-06	7.06164E-05	0.334135222	4.38364E-06	5.92808E-05	0.396520243	5.2021E-06	7.03489E-05
Road 5	5	1200-1300	0.068742037	9.12174E-07	1.23355E-05	0.058243324	7.72861E-07	1.04515E-05	0.373492008	4.95606E-06	6.70217E-05	0.314348685	4.17126E-06	5.64087E-05	0.372592008	4.94412E-06	6.68602E-05
Road 5	5	1300-1400	0.076244402	1.1119E-06	1.50364E-05	0.063749138	9.29675E-07	1.25722E-05	0.396193102	5.77782E-06	7.81345E-05	0.328856422	4.79582E-06	6.48548E-05	0.39260556	5.7255E-06	7.7427E-05
Road 5	5	1400-1500	0.072681549	1.08313E-06	1.46474E-05	0.060444068	9.00762E-07	1.21812E-05	0.37973131	5.65891E-06	7.65265E-05	0.313688816	4.67472E-06	6.32171E-05	0.374132884	5.57548E-06	7.53982E-05
Road 5	5	1500-1600	0.07913761	1.14369E-06	1.54664E-05	0.067369377	9.73619E-07	1.31664E-05	0.402975896	5.82379E-06	7.87562E-05	0.340861169	4.92611E-06	6.66167E-05	0.408230545	5.89973E-06	7.97831E-05
Road 5	5	1600-1700	0.075600211	1.21034E-06	1.63677E-05	0.063251125	1.01264E-06	1.36941E-05	0.392378839	6.28189E-06	8.49512E-05	0.325855311	5.21687E-06	7.05486E-05	0.389106436	6.2295E-06	8.42427E-05
Road 5	5	1700-1800	0.055554054	8.87322E-07	1.19994E-05	0.046769777	7.47017E-07	1.01021E-05	0.288698425	4.61116E-06	6.23575E-05	0.240489483	3.84115E-06	5.19446E-05	0.28725926	4.58817E-06	6.20467E-05
Road 5	5	1800-1900	0.049513036	8.54026E-07	1.15491E-05	0.043804233	7.55557E-07	1.02175E-05	0.28017235	4.83255E-06	6.53515E-05	0.24521556	4.2296E-06	5.71977E-05	0.289019793	4.98516E-06	6.74152E-05
Road 5	5	1900-2000	0.058019475	7.47023E-07	1.01021E-05	0.050917507	6.55582E-07	8.86556E-06	0.325682726	4.19329E-06	5.67066E-05	0.283447434	3.64949E-06	4.93528E-05	0.334364942	4.30507E-06	5.82183E-05
Road 5	5	2000-2100	0.055919483	6.29724E-07	8.51587E-06	0.048635183	5.47694E-07	7.40656E-06	0.309807	3.48882E-06	4.71799E-05	0.267290717	3.01003E-06	4.07052E-05	0.3159259	3.55772E-06	4.81118E-05
Road 5	5	2100-2200	0.057075381	6.19174E-07	8.3732E-06	0.049948478	5.41858E-07	7.32765E-06	0.324260675	3.51769E-06	4.75704E-05	0.281553789	3.05439E-06	4.13051E-05	0.331502266	3.59625E-06	4.86328E-05
Road 5	5	2200-2300	0.054473928	5.10182E-07	6.89929E-06	0.048035491	4.49882E-07	6.08384E-06	0.304594409	2.85271E-06	3.85778E-05	0.266387936	2.49489E-06	3.37388E-05	0.314423427	2.94477E-06	3.98227E-05
Road 5	5	2300-0000	0.047480265	4.03689E-07	5.45916E-06	0.042005342	3.5714E-07	4.82967E-06	0.278070574	2.36423E-06	3.19719E-05	0.243594834	2.0711E-06	2.80079E-05	0.285600177	2.42824E-06	3.28376E-05
Road 6	6	0000-0100	0.042615533	1.19976E-07	4.28866E-06	0.0378354	1.06519E-07	3.80761E-06	0.272632467	7.67546E-07	2.74367E-05	0.239601067	6.74553E-07	2.41125E-05	0.277436467	7.81071E-07	2.79201E-05
Road 6	6	0100-0200	0.056738421	1.214E-07	4.33955E-06	0.050065088	1.07121E-07	3.82915E-06	0.317949649	6.80298E-07	2.43179E-05	0.278431754	5.95744E-07	2.12954E-05	0.328496842	7.02865E-07	2.51246E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.051283418	7.60396E-08	2.71811E-06	0.045516962	6.74895E-08	2.41248E-06	0.291419494	4.32097E-07	1.54457E-05	0.256521899	3.80353E-07	1.35961E-05	0.302038861	4.47843E-07	1.60086E-05
Road 6	6	0300-0400	0.0528	6.14414E-08	2.19628E-06	0.046772581	5.44276E-08	1.94556E-06	0.33551629	3.90428E-07	1.39562E-05	0.294947097	3.43219E-07	1.22687E-05	0.341719677	3.97647E-07	1.42143E-05
Road 6	6	0400-0500	0.056733222	9.58331E-08	3.42565E-06	0.050364556	8.50753E-08	3.0411E-06	0.331108333	5.59305E-07	1.99929E-05	0.291776	4.92865E-07	1.76179E-05	0.342140556	5.7794E-07	2.0659E-05
Road 6	6	0500-0600	0.051076481	1.553E-07	5.55135E-06	0.045044938	1.36961E-07	4.8958E-06	0.305962284	9.30291E-07	3.32541E-05	0.267393148	8.1302E-07	2.90622E-05	0.312438086	9.49981E-07	3.3958E-05
Road 6	6	0600-0700	0.055298586	3.00987E-07	1.07591E-05	0.048480103	2.63874E-07	9.43244E-06	0.346682931	1.88698E-06	6.74517E-05	0.301009138	1.63838E-06	5.85653E-05	0.349489241	1.90225E-06	6.79977E-05
Road 6	6	0700-0800	0.05301513	4.59703E-07	1.64325E-05	0.045147749	3.91484E-07	1.3994E-05	0.303230281	2.62936E-06	9.3989E-05	0.254938571	2.21062E-06	7.90206E-05	0.30008632	2.6021E-06	9.30145E-05
Road 6	6	0800-0900	0.045557326	5.66046E-07	2.02339E-05	0.039275906	4.88E-07	1.7444E-05	0.267251994	3.32059E-06	0.000118697	0.227253716	2.82361E-06	0.000100933	0.266529622	3.31161E-06	0.000118377
Road 6	6	0900-1000	0.049168673	5.84155E-07	2.08812E-05	0.041078088	4.88034E-07	1.74452E-05	0.277440521	3.29617E-06	0.000117825	0.228397393	2.71351E-06	9.69968E-05	0.269475482	3.20154E-06	0.000114442
Road 6	6	1000-1100	0.066597645	6.68726E-07	2.39043E-05	0.056307439	5.65399E-07	2.02107E-05	0.363871589	3.65374E-06	0.000130606	0.305234262	3.06495E-06	0.000109559	0.361541701	3.63035E-06	0.00012977
Road 6	6	1100-1200	0.075374079	7.52609E-07	2.69027E-05	0.063699812	6.36042E-07	2.27359E-05	0.393360357	3.9277E-06	0.000140399	0.330285865	3.2979E-06	0.000117887	0.393985677	3.93394E-06	0.000140622
Road 6	6	1200-1300	0.072565182	7.12305E-07	2.5462E-05	0.061500019	6.03688E-07	2.15794E-05	0.363697553	3.57008E-06	0.000127616	0.306566195	3.00927E-06	0.000107569	0.368066214	3.61296E-06	0.000129149
Road 6	6	1300-1400	0.085289347	8.34004E-07	2.98123E-05	0.071291536	6.97126E-07	2.49194E-05	0.435380806	4.25738E-06	0.000152184	0.361421228	3.53417E-06	0.000126332	0.432712764	4.23129E-06	0.000151252
Road 6	6	1400-1500	0.082061498	8.84071E-07	3.1602E-05	0.068249652	7.35272E-07	2.6283E-05	0.412508101	4.44406E-06	0.000158857	0.340566986	3.66902E-06	0.000131153	0.408816638	4.40429E-06	0.000157436
Road 6	6	1500-1600	0.070290783	7.41431E-07	2.65031E-05	0.059764057	6.30394E-07	2.2534E-05	0.365462135	3.85491E-06	0.000137797	0.308436566	3.2534E-06	0.000116296	0.368200623	3.8838E-06	0.00013883
Road 6	6	1600-1700	0.073990608	7.99898E-07	2.85931E-05	0.061909219	6.69289E-07	2.39244E-05	0.367604253	3.9741E-06	0.000142058	0.305291267	3.30045E-06	0.000117978	0.367200486	3.96973E-06	0.000141902
Road 6	6	1700-1800	0.055351672	6.33718E-07	2.26529E-05	0.046625689	5.33815E-07	1.90817E-05	0.284934787	3.2622E-06	0.000116611	0.237565721	2.71988E-06	9.72246E-05	0.28419141	3.25369E-06	0.000116306
Road 6	6	1800-1900	0.051499434	6.65974E-07	2.38059E-05	0.045549347	5.8903E-07	2.10554E-05	0.269602322	3.48641E-06	0.000124625	0.236311103	3.0559E-06	0.000109236	0.28186045	3.64493E-06	0.000130291
Road 6	6	1900-2000	0.061770954	6.07507E-07	2.17159E-05	0.054194885	5.32998E-07	1.90525E-05	0.323726546	3.1838E-06	0.000113808	0.281502729	2.76853E-06	9.89638E-05	0.335697615	3.30153E-06	0.000118016
Road 6	6	2000-2100	0.04856701	3.81025E-07	1.36201E-05	0.04220878	3.31142E-07	1.1837E-05	0.283235789	2.22208E-06	7.94304E-05	0.243695718	1.91188E-06	6.83419E-05	0.285904498	2.24302E-06	8.01789E-05
Road 6	6	2100-2200	0.067067917	4.53162E-07	1.61987E-05	0.058693972	3.96581E-07	1.41762E-05	0.356671528	2.40994E-06	8.61457E-05	0.310028389	2.09479E-06	7.48801E-05	0.368722361	2.49137E-06	8.90563E-05
Road 6	6	2200-2300	0.049682336	3.55273E-07	1.26996E-05	0.043755223	3.12889E-07	1.11845E-05	0.278630682	1.99246E-06	7.12224E-05	0.242353018	1.73304E-06	6.19492E-05	0.286108241	2.04593E-06	7.31338E-05
Road 6	6	2300-0000	0.033233725	2.22681E-07	7.95994E-06	0.029403866	1.97019E-07	7.04264E-06	0.206700196	1.38498E-06	4.95076E-05	0.180676611	1.21061E-06	4.32746E-05	0.210080476	1.40763E-06	5.03172E-05
Road 7	7	0000-0100	0.06229374	1.68222E-07	4.19936E-06	0.054949865	1.4839E-07	3.70429E-06	0.366628188	9.90064E-07	2.47152E-05	0.321337941	8.67759E-07	2.16621E-05	0.376287806	1.01615E-06	2.53664E-05
Road 7	7	0100-0200	0.077043273	1.62191E-07	4.04882E-06	0.068014581	1.43184E-07	3.57434E-06	0.419954761	8.84087E-07	2.20697E-05	0.36903658	7.76894E-07	1.93938E-05	0.437051161	9.20078E-07	2.29681E-05
Road 7	7	0200-0300	0.065410213	8.92684E-08	2.22843E-06	0.058177778	7.9398E-08	1.98203E-06	0.368763936	5.0327E-07	1.25632E-05	0.32620873	4.45192E-07	1.11135E-05	0.384386508	5.2459E-07	1.30955E-05
Road 7	7	0300-0400	0.066871974	7.37874E-08	1.84197E-06	0.059333985	6.54699E-08	1.63434E-06	0.401775789	4.43324E-07	1.10668E-05	0.354612234	3.91284E-07	9.76771E-06	0.413946219	4.56753E-07	1.14021E-05
Road 7	7	0400-0500	0.073631802	1.18662E-07	2.9622E-06	0.065365315	1.0534E-07	2.62964E-06	0.408375586	6.58123E-07	1.64289E-05	0.360775135	5.81412E-07	1.45139E-05	0.42614045	6.86752E-07	1.71436E-05
Road 7	7	0500-0600	0.066753182	1.91894E-07	4.7903E-06	0.058872323	1.69239E-07	4.22476E-06	0.374464293	1.07647E-06	2.68721E-05	0.328201768	9.43475E-07	2.35522E-05	0.387074091	1.11271E-06	2.7777E-05
Road 7	7	0600-0700	0.071646996	3.68235E-07	9.19236E-06	0.062745625	3.22486E-07	8.05031E-06	0.413656339	2.12602E-06	5.30724E-05	0.359841477	1.84943E-06	4.61679E-05	0.422587103	2.17192E-06	5.42182E-05
Road 7	7	0700-0800	0.070092859	5.74972E-07	1.43532E-05	0.059773667	4.90323E-07	1.22401E-05	0.381170046	3.12674E-06	7.80536E-05	0.322207074	2.64307E-06	6.59795E-05	0.38198074	3.13339E-06	7.82196E-05
Road 7	7	0800-0900	0.070636289	8.76836E-07	2.18887E-05	0.060254385	7.47961E-07	1.86716E-05	0.382580044	4.74912E-06	0.000118553	0.323613519	4.01714E-06	0.000100281	0.383867903	4.7651E-06	0.000118952
Road 7	7	0900-1000	0.073341759	8.43336E-07	2.10524E-05	0.06132301	7.05136E-07	1.76025E-05	0.383293381	4.40738E-06	0.000110023	0.317896058	3.6554E-06	9.12507E-05	0.379219069	4.36053E-06	0.000108853
Road 7	7	1000-1100	0.087909764	8.87046E-07	2.21436E-05	0.073810963	7.44783E-07	1.85922E-05	0.461764142	4.65939E-06	0.000116314	0.385575522	3.89062E-06	9.71225E-05	0.459386485	4.6354E-06	0.000115715
Road 7	7	1100-1200	0.095700638	9.6427E-07	2.40713E-05	0.08085421	8.14679E-07	2.0337E-05	0.489412178	4.93127E-06	0.000123101	0.411827945	4.14954E-06	0.000103586	0.492682155	4.96422E-06	0.000123923
Road 7	7	1200-1300	0.093613036	9.41876E-07	2.35123E-05	0.079506693	7.99947E-07	1.99693E-05	0.472283082	4.75182E-06	0.000118621	0.39980803	4.02262E-06	0.000100418	0.479314723	4.82257E-06	0.000120387
Road 7	7	1300-1400	0.101014927	1.00022E-06	2.49687E-05	0.084782325	8.39487E-07	2.09563E-05	0.510903622	5.0588E-06	0.000126284	0.426816776	4.2262E-06	0.0001055	0.511599101	5.06569E-06	0.000126456
Road 7	7	1400-1500	0.09487076	9.83456E-07	2.45503E-05	0.078851411	8.17395E-07	2.04048E-05	0.482562751	5.00238E-06	0.000124876	0.398924588	4.13536E-06	0.000103232	0.477775999	4.95276E-06	0.000123637
Road 7	7	1500-1600	0.086454437	8.79893E-07	2.1965E-05	0.07343051	7.47341E-07	1.86561E-05	0.445888072	4.53804E-06	0.000113284	0.376615702	3.83302E-06	9.56846E-05	0.450046212	4.58036E-06	0.000114341
Road 7	7	1600-1700	0.089809524	9.45333E-07	2.35986E-05	0.07550707	7.94786E-07	1.98404E-05	0.4471198	4.70637E-06	0.000117486	0.374009277	3.93681E-06	9.82757E-05	0.449516348	4.7316E-06	0.000118116
Road 7	7	1700-1800	0.06954456	7.74431E-07	1.93323E-05	0.05851417	6.516E-07	1.6266E-05	0.359694973	4.00548E-06	9.99897E-05	0.300385691	3.34502E-06	8.35026E-05	0.358899861	3.99662E-06	9.97687E-05
Road 7	7	1800-1900	0.06135921	7.10007E-07	1.77241E-05	0.053723451	6.21651E-07	1.55184E-05	0.322107261	3.7272E-06	9.30432E-05	0.279902069	3.23883E-06	8.08519E-05	0.33362552	3.86049E-06	9.63703E-05
Road 7	7	1900-2000	0.071329664	6.23435E-07	1.5563E-05	0.062994976	5.50588E-07	1.37445E-05	0.37714367	3.29631E-06	8.22866E-05	0.330942236	2.8925E-06	7.22062E-05	0.393937212	3.44309E-06	8.59506E-05
Road 7	7	2000-2100	0.065848526	4.7419E-07	1.18373E-05	0.057287403	4.12539E-07	1.02983E-05	0.35928249	2.58727E-06	6.45867E-05	0.310312146	2.23463E-06	5.57835E-05	0.367599549	2.64716E-06	6.60819E-05
Road 7	7	2100-2200	0.074644879	4.48668E-07	1.12002E-05	0.065470806	3.93525E-07	9.82367E-06	0.398154106	2.39318E-06	5.97416E-05	0.347300306	2.08752E-06	5.21112E-05	0.412771112	2.48104E-06	6.19349E-05
Road 7	7	2200-2300	0.061943356	4.02E-07	1.00352E-05	0.054699409	3.54989E-07	8.86167E-06	0.338746913	2.1984E-06	5.48793E-05	0.296453727	1.92393E-06	4.80275E-05	0.351153136	2.27892E-06	5.68892E-05
Road 7	7	2300-0000	0.043182507	2.57676E-07	6.43243E-06	0.038510777	2.29799E-07	5.73654E-06	0.25475259	1.52014E-06	3.79478E-05	0.225249061	1.34409E-06	3.35529E-05	0.263759838	1.57389E-06	3.92895E-05
Road 8	8	0000-0100	0.197879722	1.43913E-07	2.37234E-06	0.175856389	1.27896E-07	2.10831E-06	0.979808333	7.12588E-07	1.17467E-05	0.870190278	6.32866E-07	1.04326E-05	1.046046667	7.60761E-07	1.25409E-05
Road 8	8	0100-0200	0.205855333	1.24761E-07	2.05664E-06	0.181575667	1.10046E-07	1.81406E-06	1.016450333	6.16031E-07	1.0155E-05	0.896538667	5.43357E-07	8.95703E-06	1.078114333	6.53403E-07	1.07711E-05
Road 8	8	0200-0300	0.193150667	5.85305E-08	9.64853E-07	0.171482	5.19642E-08	8.56611E-07	1.002758667	3.03866E-07	5.00912E-06	0.890178	2.69751E-07	4.44674E-06	1.06166	3.21715E-07	5.30335E-06
Road 8	8	0300-0400	0.1762	4.98343E-08	8.215E-07	0.155925714	4.41002E-08	7.26975E-07	0.896082143	2.53437E-07	4.17782E-06	0.792524286	2.24148E-07	3.695E-06	0.94845	2.68248E-07	4.42198E-06
Road 8	8	0400-0500	0.198495714	8.42103E-08	1.38818E-06	0.176205714	7.47539E-08	1.23229E-06	0.951840952	4.03811E-07	6.65668E-06	0.84487	3.5843E-07	5.90858E-06	1.021075714	4.33184E-07	7.14087E-06
Road 8	8	0500-0600	0.190013529	1.30514E-07	2.15148E-06	0.167585294	1.15109E-07	1.89753E-06	0.895086176	6.14807E-07	1.01349E-05	0.789049706	5.41974E-07	8.93423E-06	0.956635	6.57083E-07	1.08318E-05
Road 8	8	0600-0700	0.215146774	2.69477E-07	4.44222E-06	0.188607258	2.36235E-07	3.89425E-06	1.001440968	1.25433E-06	2.06772E-05	0.877330161	1.09888E-06	1.81146E-05	1.065937419	1.33511E-06	2.20088E-05
Road 8	8	0700-0800	0.218838431	4.5094E-07	7.43357E-06	0.186266471	3.83822E-07	6.32716E-06	1.02900402	2.12037E-06	3.49535E-05	0.875260392	1.80357E-06	2.97311E-05	1.061526863	2.18739E-06	3.60583E-05
Road 8	8	0800-0900	0.246526927	9.56226E-07	1.5763E-05	0.21274026	8.25174E-07	1.36027E-05	1.163634271	4.51349E-06	7.44032E-05	1.003667448	3.89301E-06	6.41749E-05	1.216407708	4.71819E-06	7.77775E-05
Road 8	8	0900-1000	0.268199114	8.5607E-07	1.4112E-05	0.223772342	7.14263E-07	1.17744E-05	1.204080253	3.84333E-06	6.33558E-05	1.004447152	3.20611E-06	5.28516E-05	1.228219494	3.92038E-06	6.46259E-05
Road 8	8	1000-1100	0.25631225	8.28484E-07	1.36572E-05	0.216594438	7.00103E-07	1.15409E-05	1.184967563	3.8302E-06	6.31394E-05	1.000706813	3.23461E-06	5.33213E-05	1.21730125	3.93471E-06	6.48622E-05
Road 8	8	1100-1200	0.260965723	8.38254E-07	1.38183E-05	0.219938931	7.06471E-07	1.16459E-05	1.218496352	3.91396E-06	6.45201E-05	1.026465283	3.29713E-06	5.4352E-05	1.246404214	4.0036E-06	6.59979E-05
Road 8	8	1200-1300	0.263669118	9.0553E-07	1.49273E-05	0.222928882	7.65614E-07	1.26209E-05	1.241149882	4.26253E-06	7.02663E-05	1.049105059	3.60299E-06	5.93939E-05	1.272033941	4.3686E-06	7.20148E-05
Road 8	8	1300-1400	0.244813889	8.01209E-07	1.32076E-05	0.204346235	6.68769E-07	1.10244E-05	1.136965802	3.72098E-06	6.13389E-05	0.948530617	3.10428E-06	5.11729E-05	1.152876852	3.77305E-06	6.21973E-05
Road 8	8	1400-1500	0.242031079	6.79643E-07	1.12037E-05	0.200902662	5.64151E-07	9.29982E-06	1.170521151	3.28692E-06	5.41836E-05	0.971179065	2.72715E-06	4.4956E-05	1.172081727	3.2913E-06	5.42558E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.243226547	6.83E-07	1.1259E-05	0.206545971	5.79998E-07	9.56105E-06	1.146499065	3.21946E-06	5.30716E-05	0.972884101	2.73194E-06	4.5035E-05	1.179430072	3.31193E-06	5.4596E-05
Road 8	8	1600-1700	0.244414161	7.35711E-07	1.21279E-05	0.204103826	6.14373E-07	1.01277E-05	1.141879262	3.43717E-06	5.66605E-05	0.952865973	2.86822E-06	4.72816E-05	1.156969799	3.4826E-06	5.74093E-05
Road 8	8	1700-1800	0.199785769	6.29628E-07	1.03792E-05	0.168103526	5.29781E-07	8.73324E-06	0.9696725	3.05594E-06	5.0376E-05	0.814446026	2.56674E-06	4.23117E-05	0.982549551	3.09652E-06	5.1045E-05
Road 8	8	1800-1900	0.19144215	4.13824E-07	6.82174E-06	0.16945215	3.66291E-07	6.03816E-06	0.952492991	2.05892E-06	3.39406E-05	0.84246972	1.8211E-06	3.00201E-05	1.011921869	2.18739E-06	3.60582E-05
Road 8	8	1900-2000	0.191906753	2.98522E-07	4.92102E-06	0.168481299	2.62082E-07	4.32032E-06	0.978582597	1.52224E-06	2.50935E-05	0.85896974	1.33618E-06	2.20263E-05	1.027451039	1.59826E-06	2.63467E-05
Road 8	8	2000-2100	0.209504026	3.25895E-07	5.37226E-06	0.182194416	2.83414E-07	4.67197E-06	0.974251558	1.5155E-06	2.49825E-05	0.846535325	1.31683E-06	2.17075E-05	1.02872974	1.60025E-06	2.63795E-05
Road 8	8	2100-2200	0.171220926	1.86786E-07	3.0791E-06	0.149996667	1.63633E-07	2.69742E-06	0.868524259	9.47481E-07	1.56189E-05	0.759510926	8.28557E-07	1.36585E-05	0.909507593	9.9219E-07	1.63559E-05
Road 8	8	2200-2300	0.203662031	2.63321E-07	4.34074E-06	0.17961875	2.32234E-07	3.8283E-06	0.977976094	1.26445E-06	2.0844E-05	0.8618825	1.11435E-06	1.83697E-05	1.04150125	1.34659E-06	2.2198E-05
Road 8	8	2300-0000	0.158657358	1.69876E-07	2.80033E-06	0.140451887	1.50383E-07	2.479E-06	0.793251698	8.4934E-07	1.40011E-05	0.70146	7.51058E-07	1.23809E-05	0.841911887	9.01441E-07	1.48599E-05
Road 9	9	0000-0100	0.638676481	1.67015E-07	5.06349E-06	0.622088331	1.62677E-07	4.93198E-06	3.51069237	9.18051E-07	2.78331E-05	3.4325403	8.97614E-07	2.72135E-05	4.054628631	1.06029E-06	3.21455E-05
Road 9	9	0100-0200	0.663966684	1.36422E-07	4.136E-06	0.646053845	1.32742E-07	4.02442E-06	3.482658665	7.15566E-07	2.16943E-05	3.402101784	6.99014E-07	2.11925E-05	4.048155629	8.31756E-07	2.52169E-05
Road 9	9	0200-0300	0.332105083	3.10164E-08	9.40344E-07	0.324451878	3.03017E-08	9.18675E-07	2.276960797	2.12653E-07	6.44714E-06	2.225449718	2.07842E-07	6.30129E-06	2.549901596	2.38144E-07	7.21996E-06
Road 9	9	0300-0400	0.412421799	3.0814E-08	9.34207E-07	0.402732633	3.009E-08	9.12259E-07	2.738267225	2.04589E-07	6.20265E-06	2.681034863	2.00313E-07	6.07301E-06	3.083767496	2.30403E-07	6.98527E-06
Road 9	9	0400-0500	0.723860867	1.35208E-07	4.09918E-06	0.705635755	1.31803E-07	3.99597E-06	3.76792577	7.03799E-07	2.13375E-05	3.690006002	6.89244E-07	2.08963E-05	4.395641758	8.21048E-07	2.48922E-05
Road 9	9	0500-0600	0.528814794	1.67918E-07	5.09089E-06	0.514950225	1.63516E-07	4.95742E-06	2.976896729	9.45276E-07	2.86585E-05	2.910061158	9.24053E-07	2.80151E-05	3.425011383	1.08757E-06	3.29725E-05
Road 9	9	0600-0700	0.582747747	3.48319E-07	1.05602E-05	0.566088846	3.38361E-07	1.02583E-05	3.286979458	1.96469E-06	5.95646E-05	3.203990854	1.91508E-06	5.80607E-05	3.7700797	2.25344E-06	6.83191E-05
Road 9	9	0700-0800	0.418953482	3.83449E-07	1.16253E-05	0.403084096	3.68925E-07	1.11849E-05	2.413766796	2.20921E-06	6.69781E-05	2.328696723	2.13135E-06	6.46175E-05	2.731780819	2.50028E-06	7.58025E-05
Road 9	9	0800-0900	0.736665881	1.58239E-06	4.79744E-05	0.708980374	1.52292E-06	4.61714E-05	4.301304495	9.23941E-06	0.000280117	4.164972149	8.94656E-06	0.000271238	4.873952523	1.04695E-05	0.00031741
Road 9	9	0900-1000	0.715972017	1.16349E-06	3.52742E-05	0.685232222	1.11353E-06	3.37597E-05	3.820353657	6.20824E-06	0.000188219	3.682386973	5.98404E-06	0.000181422	4.367619195	7.09758E-06	0.000215182
Road 9	9	1000-1100	0.881278948	1.20166E-06	3.64315E-05	0.846282725	1.15394E-06	3.49848E-05	4.595886209	6.26669E-06	0.000189991	4.444337074	6.06005E-06	0.000183726	5.290619799	7.21399E-06	0.000218711
Road 9	9	1100-1200	0.689027789	9.78129E-07	2.96546E-05	0.663130966	9.41367E-07	2.854E-05	3.86996527	5.49372E-06	0.000166557	3.744412313	5.31549E-06	0.000161153	4.40754328	6.25686E-06	0.000189693
Road 9	9	1200-1300	0.776689686	1.07356E-06	3.25477E-05	0.746635043	1.03202E-06	3.12883E-05	4.096732236	5.66259E-06	0.000171676	3.961482242	5.47565E-06	0.000166009	4.708117285	6.50766E-06	0.000197297
Road 9	9	1300-1400	0.840284541	9.57419E-07	2.90267E-05	0.802660716	9.14551E-07	2.7727E-05	3.826342252	4.35973E-06	0.000132177	3.675233198	4.18756E-06	0.000126957	4.477893914	5.10211E-06	0.000154684
Road 9	9	1400-1500	0.526842547	6.69169E-07	2.02876E-05	0.502957715	6.38832E-07	1.93679E-05	3.172748037	4.02987E-06	0.000122176	3.050030362	3.874E-06	0.00011745	3.552988076	4.51283E-06	0.000136818
Road 9	9	1500-1600	0.551633652	5.87316E-07	1.7806E-05	0.532419891	5.66859E-07	1.71858E-05	3.26209308	3.4731E-06	0.000105296	3.166551665	3.37138E-06	0.000102212	3.698971556	3.93824E-06	0.000119398
Road 9	9	1600-1700	0.499810214	7.46863E-07	2.26431E-05	0.480615728	7.18181E-07	2.17736E-05	3.075427039	4.59559E-06	0.000139327	2.968259081	4.43545E-06	0.000134472	3.448874809	5.15363E-06	0.000156246
Road 9	9	1700-1800	0.377786141	4.86902E-07	1.47617E-05	0.362966466	4.67802E-07	1.41826E-05	2.255118234	2.90646E-06	8.8117E-05	2.172041099	2.79939E-06	8.48708E-05	2.535007564	3.26719E-06	9.90535E-05
Road 9	9	1800-1900	0.354721938	2.91532E-07	8.83857E-06	0.344458811	2.83097E-07	8.58285E-06	1.984996747	1.63139E-06	4.946E-05	1.929357696	1.58567E-06	4.80736E-05	2.273816508	1.86876E-06	5.66565E-05
Road 9	9	1900-2000	0.394454211	3.16819E-07	9.6052E-06	0.383303339	3.07863E-07	9.33367E-06	2.306073095	1.8522E-06	5.61543E-05	2.245511436	1.80356E-06	5.46796E-05	2.628814775	2.11142E-06	6.40132E-05
Road 9	9	2000-2100	0.515565683	2.79272E-07	8.46688E-06	0.499438763	2.70537E-07	8.20204E-06	2.322884916	1.25826E-06	3.81476E-05	2.257713945	1.22296E-06	3.70773E-05	2.757152709	1.4935E-06	4.52794E-05
Road 9	9	2100-2200	0.01914175	1.00112E-08	3.03516E-07	0.017534576	9.17063E-09	2.78032E-07	0.270764512	1.41611E-07	4.2933E-06	0.245631246	1.28466E-07	3.89478E-06	0.263165822	1.37636E-07	4.17281E-06
Road 9	9	2200-2300	0.542070253	3.3413E-07	1.013E-05	0.528104527	3.25522E-07	9.86905E-06	3.031673616	1.86871E-06	5.66549E-05	2.964609046	1.82737E-06	5.54017E-05	3.492713574	2.1529E-06	6.52707E-05
Road 9	9	2300-0000	0.380360131	2.13139E-07	6.46186E-06	0.370660694	2.07703E-07	6.29708E-06	2.178575979	1.22079E-06	3.70114E-05	2.1284875	1.19272E-06	3.61604E-05	2.499148193	1.40042E-06	4.24575E-05
Road 10	10	0000-0100	1.165357958	8.97484E-07	1.9922E-05	1.139565464	8.7762E-07	1.94811E-05	7.336365808	5.65E-06	0.000125417	7.2094393	5.55225E-06	0.000123247	8.349004764	6.42987E-06	0.000142728
Road 10	10	0100-0200	1.117123424	6.50032E-07	1.44292E-05	1.090570966	6.34582E-07	1.40862E-05	6.963554954	4.05196E-06	8.99438E-05	6.833798964	3.97645E-06	8.82679E-05	7.92436993	4.61104E-06	0.000102354
Road 10	10	0200-0300	1.189407048	3.86758E-07	8.58511E-06	1.1631212	3.7821E-07	8.39537E-06	7.318890871	2.37987E-06	5.28275E-05	7.192580993	2.3388E-06	5.19158E-05	8.355702193	2.71701E-06	6.03112E-05
Road 10	10	0300-0400	1.078538355	2.21499E-07	4.91675E-06	1.053877418	2.16434E-07	4.80433E-06	6.989720906	1.43548E-06	3.18642E-05	6.862428793	1.40933E-06	3.12839E-05	7.916306211	1.62577E-06	3.60882E-05
Road 10	10	0400-0500	1.153372428	4.53996E-07	1.00776E-05	1.127254989	4.43716E-07	9.84944E-06	7.041704221	2.77179E-06	6.15272E-05	6.917075191	2.72273E-06	6.04382E-05	8.04433018	3.16645E-06	7.02877E-05
Road 10	10	0500-0600	1.02120208	7.16556E-07	1.59059E-05	0.99660507	6.99297E-07	1.55227E-05	6.164096551	4.32522E-06	9.60096E-05	6.04794214	4.24372E-06	9.42005E-05	7.04454721	4.94301E-06	0.000109723
Road 10	10	0600-0700	1.093226503	1.53419E-06	3.40554E-05	1.063319292	1.49222E-06	3.31237E-05	6.491145056	9.10941E-06	0.000202207	6.3508967	8.91259E-06	0.000197838	7.414215992	1.04048E-05	0.000230962
Road 10	10	0700-0800	1.053813726	2.32653E-06	5.16434E-05	1.016451102	2.24404E-06	4.98124E-05	6.316456449	1.3945E-05	0.000309546	6.13909485	1.35534E-05	0.000300854	7.155545951	1.57975E-05	0.000350666
Road 10	10	0800-0900	1.187336484	5.03942E-06	0.000111863	1.146688016	4.86689E-06	0.000108034	7.183735944	3.049E-05	0.000676805	6.990429995	2.96695E-05	0.000658593	8.137118011	3.45364E-05	0.000766626
Road 10	10	0900-1000	1.220802034	4.13681E-06	9.18273E-05	1.17025431	3.96552E-06	8.80252E-05	7.210326619	2.44329E-05	0.000542352	6.975414567	2.36369E-05	0.000524683	8.145668877	2.76024E-05	0.000612708
Road 10	10	1000-1100	1.225401281	4.50891E-06	0.000100087	1.176023167	4.32722E-06	9.60541E-05	7.04267588	2.59138E-05	0.000575225	6.82191283	2.51015E-05	0.000557194	7.997935997	2.94287E-05	0.000653248
Road 10	10	1100-1200	1.250230106	4.60027E-06	0.000102115	1.200660743	4.41788E-06	9.80664E-05	7.361472297	2.70868E-05	0.000601263	7.134978013	2.62534E-05	0.000582764	8.335638756	3.06713E-05	0.00068083
Road 10	10	1200-1300	1.244838819	4.72956E-06	0.000104985	1.196062453	4.54424E-06	0.000100871	7.335503373	2.787E-05	0.000618649	7.112237665	2.70218E-05	0.00059982	8.308300118	3.1566E-05	0.000700691
Road 10	10	1300-1400	1.211818907	3.98193E-06	8.83895E-05	1.160753685	3.81414E-06	8.46648E-05	7.032698448	2.31088E-05	0.000512961	6.800569953	2.23461E-05	0.00049603	7.961323638	2.61602E-05	0.000580695
Road 10	10	1400-1500	1.10895333	3.43516E-06	7.62524E-05	1.061068672	3.28683E-06	7.29598E-05	6.743890454	2.08903E-05	0.000463714	6.513528525	2.01767E-05	0.000447875	7.574597197	2.34635E-05	0.000520834
Road 10	10	1500-1600	1.169313308	3.70218E-06	8.21796E-05	1.12596945	3.56495E-06	7.91334E-05	6.951432129	2.2009E-05	0.000488548	6.750430113	2.13726E-05	0.000474422	7.876399563	2.49376E-05	0.000553555
Road 10	10	1600-1700	1.067840456	3.76468E-06	8.35671E-05	1.023633495	3.60883E-06	8.01075E-05	6.444587519	2.27205E-05	0.000504341	6.233236319	2.19753E-05	0.000487801	7.256869815	2.55842E-05	0.000567908
Road 10	10	1700-1800	0.96953343	3.23558E-06	7.18222E-05	0.931374581	3.10823E-06	6.89955E-05	5.848686617	1.95186E-05	0.000433266	5.664906799	1.89052E-05	0.000419652	6.59628138	2.20135E-05	0.000488647
Road 10	10	1800-1900	1.037766806	2.14902E-06	4.77031E-05	1.009854244	2.09122E-06	4.642E-05	6.31458475	1.30763E-05	0.000290263	6.181070879	1.27998E-05	0.000284126	7.190925123	1.4891E-05	0.000330546
Road 10	10	1900-2000	1.017350559	1.89781E-06	4.21268E-05	0.992050076	1.85061E-06	4.10792E-05	6.381853676	1.1905E-05	0.000264262	6.255830549	1.16699E-05	0.000259044	7.247880625	1.35205E-05	0.000300123
Road 10	10	2000-2100	1.302588892	1.60507E-06	3.56288E-05	1.268235073	1.56274E-06	3.46892E-05	7.940168604	9.78401E-06	0.000217182	7.779455733	9.58598E-06	0.000212786	9.047690805	1.11487E-05	0.000247475
Road 10	10	2100-2200	0.86467231	1.09506E-06	2.43078E-05	0.842949473	1.06755E-06	2.36971E-05	5.430133783	6.87697E-06	0.000152652	5.318447485	6.73552E-06	0.000149513	6.161396958	7.80307E-06	0.00017321
Road 10	10	2200-2300	1.029778921	1.35703E-06	3.01229E-05	1.005395734	1.3249E-06	2.94096E-05	6.242607747	8.22643E-06	0.000182607	6.12542915	8.07202E-06	0.00017918	7.130824884	9.39692E-06	0.000208589
Road 10	10	2300-0000	0.935398901	1.15261E-06	2.55853E-05	0.912154543	1.12397E-06	2.49495E-05	5.783292884	7.12627E-06	0.000158186	5.669795247	6.98642E-06	0.000155082	6.58194979	8.11039E-06	0.000180032
Road 11	11	0000-0100	1.304530755	9.96517E-07	8.26619E-06	1.275410278	9.74272E-07	8.08166E-06	8.19112831	6.25711E-06	5.19033E-05	8.048443538	6.14812E-06	5.09991E-05	9.323853815	7.12239E-06	5.90808E-05
Road 11	11	0100-0200	1.278046569	6.87838E-07	5.70567E-06	1.24743838	6.71364E-07	5.56902E-06	7.931299818	4.26858E-06	3.54082E-05	7.783184101	4.18887E-06	3.4747E-05	9.030622482	4.86023E-06	4.0316E-05
Road 11	11	0200-0300	1.186556102	3.08999E-07	2.56317E-06	1.160327352	3.02169E-07	2.50651E-06	7.671235958	1.99772E-06	1.65712E-05	7.537128268	1.96279E-06	1.62815E-05	8.69745562	2.26496E-06	1.8788E-05
Road 11	11	0300-0400	1.271535951	3.09054E-07	2.56363E-06	1.242400256	3.01972E-07	2.50488E-06	8.193050306	1.99137E-06	1.65185E-05	8.046732117	1.9558E-06	1.62235E-05	9.289132373	2.25778E-06	1.87284E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.168821239	4.05841E-07	3.36648E-06	1.141973684	3.96519E-07	3.28915E-06	7.068149654	2.45422E-06	2.03579E-05	6.94163977	2.41029E-06	1.99936E-05	8.083613454	2.80681E-06	2.32827E-05
Road 11	11	0500-0600	0.931432134	4.36609E-07	3.62171E-06	0.908787776	4.25994E-07	3.53366E-06	5.718217769	2.68041E-06	2.22343E-05	5.607547225	2.62854E-06	2.18039E-05	6.516335001	3.05453E-06	2.53376E-05
Road 11	11	0600-0700	0.981390117	8.85977E-07	7.34925E-06	0.955915663	8.62979E-07	7.15848E-06	6.020801483	5.43545E-06	4.50875E-05	5.894521976	5.32144E-06	4.41418E-05	6.850437639	6.18442E-06	5.13003E-05
Road 11	11	0700-0800	1.118789824	2.11715E-06	1.7562E-05	1.079428586	2.04267E-06	1.69441E-05	6.975429798	1.32E-05	0.000109495	6.781683123	1.28334E-05	0.000106454	7.86111171	1.48761E-05	0.000123398
Road 11	11	0800-0900	1.130200909	4.02242E-06	3.33663E-05	1.091744592	3.88555E-06	3.22309E-05	6.934716551	2.46808E-05	0.00020473	6.748498791	2.40181E-05	0.000199232	7.840243383	2.79036E-05	0.000231463
Road 11	11	0900-1000	1.119602102	2.85732E-06	2.37017E-05	1.073756783	2.74032E-06	2.27312E-05	6.655061586	1.69843E-05	0.000140886	6.440146576	1.64358E-05	0.000136336	7.513903359	1.91761E-05	0.000159067
Road 11	11	1000-1100	1.214543431	2.55138E-06	2.11639E-05	1.16794983	2.45351E-06	2.0352E-05	7.070028398	1.4852E-05	0.000123198	6.856509277	1.44034E-05	0.000119478	8.024459107	1.68569E-05	0.00013983
Road 11	11	1100-1200	1.138271447	2.68759E-06	2.22937E-05	1.095317013	2.58617E-06	2.14525E-05	6.918384116	1.63351E-05	0.000135501	6.710967261	1.58453E-05	0.000131438	7.806284274	1.84315E-05	0.000152891
Road 11	11	1200-1300	1.255012416	3.5733E-06	2.96408E-05	1.206660026	3.43563E-06	2.84988E-05	7.53831217	2.14632E-05	0.000178039	7.311085712	2.08163E-05	0.000172673	8.517745738	2.42519E-05	0.000201172
Road 11	11	1300-1400	1.274176064	2.67665E-06	2.22031E-05	1.220549197	2.564E-06	2.12686E-05	7.289250493	1.53125E-05	0.000127018	7.047131078	1.48039E-05	0.000122799	8.267680275	1.73679E-05	0.000144068
Road 11	11	1400-1500	1.019998029	2.05416E-06	1.70394E-05	0.976358783	1.96628E-06	1.63104E-05	6.344849619	1.27778E-05	0.000105993	6.129764964	1.23447E-05	0.0001024	7.106123747	1.43109E-05	0.00011871
Road 11	11	1500-1600	1.107653878	2.24992E-06	1.86633E-05	1.072216759	2.17794E-06	1.80662E-05	6.962237893	1.4142E-05	0.000117309	6.786860198	1.37858E-05	0.000114354	7.859076957	1.59638E-05	0.000132421
Road 11	11	1600-1700	0.987672387	2.40059E-06	1.99131E-05	0.952325222	2.31468E-06	1.92005E-05	6.252498065	1.5197E-05	0.000126061	6.070893181	1.47556E-05	0.000122399	7.023218403	1.70703E-05	0.0001416
Road 11	11	1700-1800	1.006850946	2.49965E-06	2.07348E-05	0.972567361	2.41453E-06	2.00288E-05	6.368442866	1.58105E-05	0.00013115	6.194521206	1.53788E-05	0.000127568	7.167088566	1.77933E-05	0.000147597
Road 11	11	1800-1900	1.121941974	2.29842E-06	1.90656E-05	1.095601974	2.24446E-06	1.8618E-05	7.092032678	1.45288E-05	0.000120518	6.960115481	1.42586E-05	0.000118276	8.055717455	1.6503E-05	0.000136894
Road 11	11	1900-2000	1.043468153	1.64853E-06	1.36747E-05	1.016945509	1.60663E-06	1.33271E-05	6.587612309	1.04075E-05	8.63312E-05	6.453851687	1.01962E-05	8.45782E-05	7.470797196	1.18028E-05	9.79054E-05
Road 11	11	2000-2100	1.145844541	1.61134E-06	1.33662E-05	1.115121983	1.56814E-06	1.30079E-05	7.002950526	9.8479E-06	8.16891E-05	6.856396875	9.64181E-06	7.99796E-05	7.971518858	1.12099E-05	9.29874E-05
Road 11	11	2100-2200	0.846076161	8.51952E-07	7.06701E-06	0.82477368	8.30501E-07	6.88908E-06	5.503948491	5.54217E-06	4.59728E-05	5.390462174	5.4279E-06	4.50248E-05	6.215235853	6.2584E-06	5.19139E-05
Road 11	11	2200-2300	1.052408995	1.15107E-06	9.54824E-06	1.027305089	1.12361E-06	9.32048E-06	6.525340246	7.13709E-06	5.92027E-05	6.402262429	7.00247E-06	5.80861E-05	7.429567518	8.12609E-06	6.74066E-05
Road 11	11	2300-0000	0.99592112	1.03742E-06	8.60547E-06	0.972769046	1.0133E-06	8.40541E-06	6.267852988	6.52901E-06	5.41587E-05	6.152211816	6.40855E-06	5.31595E-05	7.124980862	7.42186E-06	6.15649E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.493811612	4.68762E-06	7.05041E-06	2.315321612	4.35211E-06	6.54579E-06	14.04865354	2.64072E-05	3.97178E-05	13.26697354	2.49379E-05	3.75079E-05	15.58229515	2.929E-05	4.40537E-05
Haul Road 1	HR1	0800-0900	2.512201612	4.72218E-06	7.1024E-06	2.344811612	4.40754E-06	6.62916E-06	14.12929354	2.65588E-05	3.99458E-05	13.39567354	2.51798E-05	3.78717E-05	15.74048515	2.95874E-05	4.45009E-05
Haul Road 1	HR1	0900-1000	2.535181612	4.76538E-06	7.16737E-06	2.329421612	4.37861E-06	6.58565E-06	14.23023354	2.67486E-05	4.02312E-05	13.32862354	2.50538E-05	3.76822E-05	15.65804515	2.94324E-05	4.42678E-05
Haul Road 1	HR1	1000-1100	2.549071612	4.79149E-06	7.20663E-06	2.354401612	4.42557E-06	6.65627E-06	14.29059354	2.6862E-05	4.04018E-05	13.43795354	2.52593E-05	3.79913E-05	15.79235515	2.96849E-05	4.46475E-05
Haul Road 1	HR1	1100-1200	2.528191612	4.75224E-06	7.1476E-06	2.334111612	4.38743E-06	6.59891E-06	14.19935354	2.66905E-05	4.01439E-05	13.34921354	2.50925E-05	3.77404E-05	15.68332515	2.94799E-05	4.43393E-05
Haul Road 1	HR1	1200-1300	2.531881612	4.75918E-06	7.15804E-06	2.340811612	4.40002E-06	6.61785E-06	14.21574354	2.67213E-05	4.01902E-05	13.37809354	2.51468E-05	3.7822E-05	15.71890515	2.95468E-05	4.44399E-05
Haul Road 1	HR1	1300-1400	2.548471612	4.79036E-06	7.20494E-06	2.340811612	4.40002E-06	6.61785E-06	14.28810354	2.68573E-05	4.03948E-05	13.37809354	2.51468E-05	3.7822E-05	15.71890515	2.95468E-05	4.44399E-05
Haul Road 1	HR1	1400-1500	2.563161612	4.81797E-06	7.24647E-06	2.347401612	4.41241E-06	6.63648E-06	14.35265354	2.69787E-05	4.05773E-05	13.40718354	2.52015E-05	3.79043E-05	15.75458515	2.96139E-05	4.45407E-05
Haul Road 1	HR1	1500-1600	2.526291612	4.74867E-06	7.14223E-06	2.340811612	4.40002E-06	6.61785E-06	14.19105354	2.66749E-05	4.01204E-05	13.37809354	2.51468E-05	3.7822E-05	15.71890515	2.95468E-05	4.44399E-05
Haul Road 1	HR1	1600-1700	2.531881612	4.75918E-06	7.15804E-06	2.327521612	4.37504E-06	6.58028E-06	14.21574354	2.67213E-05	4.01902E-05	13.32013354	2.50378E-05	3.76582E-05	15.64765515	2.94129E-05	4.42384E-05
Haul Road 1	HR1	1700-1800	2.531881612	4.75918E-06	7.15804E-06	2.335711612	4.39044E-06	6.60343E-06	14.21574354	2.67213E-05	4.01902E-05	13.35591354	2.51051E-05	3.77593E-05	15.69162515	2.94955E-05	4.43627E-05
Haul Road 1	HR1	1800-1900	2.474621612	4.65154E-06	6.99615E-06	2.338911612	4.39645E-06	6.61248E-06	13.96461354	2.62493E-05	3.94802E-05	13.36990354	2.51314E-05	3.77989E-05	15.70881515	2.95278E-05	4.44113E-05
Haul Road 1	HR1	1900-2000	2.484111612	4.66938E-06	7.02298E-06	2.338911612	4.39645E-06	6.61248E-06	14.00608354	2.63272E-05	3.95974E-05	13.36990354	2.51314E-05	3.77989E-05	15.70881515	2.95278E-05	4.44113E-05
Haul Road 1	HR1	2000-2100	2.474321612	4.65098E-06	6.9953E-06	2.321221612	4.3632E-06	6.56247E-06	13.96321354	2.62466E-05	3.94762E-05	13.29265354	2.49862E-05	3.75805E-05	15.61387515	2.93494E-05	4.41429E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.493811612	3.23033E-06	6.4317E-06	2.315321612	2.99912E-06	5.97137E-06	14.04865354	1.81977E-05	3.62324E-05	13.26697354	1.71852E-05	3.42164E-05	15.58229515	2.01843E-05	4.01878E-05
Haul Road 2	HR2	0800-0900	2.512201612	3.25415E-06	6.47913E-06	2.344811612	3.03732E-06	6.04742E-06	14.12929354	1.83022E-05	3.64404E-05	13.39567354	1.73519E-05	3.45483E-05	15.74048515	2.03892E-05	4.05957E-05
Haul Road 2	HR2	0900-1000	2.535181612	3.28391E-06	6.5384E-06	2.329421612	3.01739E-06	6.00773E-06	14.23023354	1.84329E-05	3.67007E-05	13.32862354	1.72651E-05	3.43754E-05	15.65804515	2.02824E-05	4.03831E-05
Haul Road 2	HR2	1000-1100	2.549071612	3.30191E-06	6.57422E-06	2.354401612	3.04974E-06	6.07216E-06	14.29059354	1.85111E-05	3.68564E-05	13.43795354	1.74067E-05	3.46574E-05	15.79235515	2.04564E-05	4.07295E-05
Haul Road 2	HR2	1100-1200	2.528191612	3.27486E-06	6.52037E-06	2.334111612	3.02346E-06	6.01983E-06	14.19935354	1.83929E-05	3.66211E-05	13.34921354	1.72917E-05	3.44285E-05	15.68332515	2.03152E-05	4.04483E-05
Haul Road 2	HR2	1200-1300	2.531881612	3.27964E-06	6.52989E-06	2.340811612	3.03214E-06	6.03711E-06	14.21574354	1.84142E-05	3.66633E-05	13.37809354	1.73291E-05	3.4503E-05	15.71890515	2.03613E-05	4.05401E-05
Haul Road 2	HR2	1300-1400	2.548471612	3.30113E-06	6.57267E-06	2.340811612	3.03214E-06	6.03711E-06	14.28810354	1.85079E-05	3.685E-05	13.37809354	1.73291E-05	3.4503E-05	15.71890515	2.03613E-05	4.05401E-05
Haul Road 2	HR2	1400-1500	2.563161612	3.32016E-06	6.61056E-06	2.347401612	3.04068E-06	6.0541E-06	14.35265354	1.85915E-05	3.70164E-05	13.40718354	1.73668E-05	3.4578E-05	15.75458515	2.04075E-05	4.06321E-05
Haul Road 2	HR2	1500-1600	2.526291612	3.2724E-06	6.51547E-06	2.340811612	3.03214E-06	6.03711E-06	14.19105354	1.83822E-05	3.65997E-05	13.37809354	1.73291E-05	3.4503E-05	15.71890515	2.03613E-05	4.05401E-05
Haul Road 2	HR2	1600-1700	2.531881612	3.27964E-06	6.52989E-06	2.327521612	3.01492E-06	6.00283E-06	14.21574354	1.84142E-05	3.66633E-05	13.32013354	1.72541E-05	3.43535E-05	15.64765515	2.0269E-05	4.03563E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.531881612	3.27964E-06	6.52989E-06	2.335711612	3.02553E-06	6.02395E-06	14.21574354	1.84142E-05	3.66633E-05	13.35591354	1.73004E-05	3.44458E-05	15.69162515	2.03259E-05	4.04697E-05
Haul Road 2	HR2	1800-1900	2.474621612	3.20547E-06	6.38221E-06	2.338911612	3.02968E-06	6.03221E-06	13.96461354	1.80889E-05	3.60157E-05	13.36990354	1.73185E-05	3.44819E-05	15.70881515	2.03482E-05	4.05141E-05
Haul Road 2	HR2	1900-2000	2.484111612	3.21776E-06	6.40669E-06	2.338911612	3.02968E-06	6.03221E-06	14.00608354	1.81426E-05	3.61226E-05	13.36990354	1.73185E-05	3.44819E-05	15.70881515	2.03482E-05	4.05141E-05
Haul Road 2	HR2	2000-2100	2.474321612	3.20508E-06	6.38144E-06	2.321221612	3.00676E-06	5.98658E-06	13.96321354	1.80871E-05	3.6012E-05	13.29265354	1.72185E-05	3.42826E-05	15.61387515	2.02252E-05	4.02692E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.493811612	3.23033E-06	5.94927E-06	2.315321612	2.99912E-06	5.52346E-06	14.04865354	1.81977E-05	3.35146E-05	13.26697354	1.71852E-05	3.16498E-05	15.58229515	2.01843E-05	3.71733E-05
Haul Road 3	HR3	0800-0900	2.512201612	3.25415E-06	5.99314E-06	2.344811612	3.03732E-06	5.59381E-06	14.12929354	1.83022E-05	3.3707E-05	13.39567354	1.73519E-05	3.19569E-05	15.74048515	2.03892E-05	3.75507E-05
Haul Road 3	HR3	0900-1000	2.535181612	3.28391E-06	6.04796E-06	2.329421612	3.01739E-06	5.55709E-06	14.23023354	1.84329E-05	3.39478E-05	13.32862354	1.72651E-05	3.17969E-05	15.65804515	2.02824E-05	3.7354E-05
Haul Road 3	HR3	1000-1100	2.549071612	3.30191E-06	6.08109E-06	2.354401612	3.04974E-06	5.61669E-06	14.29059354	1.85111E-05	3.40918E-05	13.43795354	1.74067E-05	3.20577E-05	15.79235515	2.04564E-05	3.76744E-05
Haul Road 3	HR3	1100-1200	2.528191612	3.27486E-06	6.03128E-06	2.334111612	3.02346E-06	5.56828E-06	14.19935354	1.83929E-05	3.38741E-05	13.34921354	1.72917E-05	3.1846E-05	15.68332515	2.03152E-05	3.74143E-05
Haul Road 3	HR3	1200-1300	2.531881612	3.27964E-06	6.04009E-06	2.340811612	3.03214E-06	5.58427E-06	14.21574354	1.84142E-05	3.39132E-05	13.37809354	1.73291E-05	3.19149E-05	15.71890515	2.03613E-05	3.74992E-05
Haul Road 3	HR3	1300-1400	2.548471612	3.30113E-06	6.07966E-06	2.340811612	3.03214E-06	5.58427E-06	14.28810354	1.85079E-05	3.40859E-05	13.37809354	1.73291E-05	3.19149E-05	15.71890515	2.03613E-05	3.74992E-05
Haul Road 3	HR3	1400-1500	2.563161612	3.32016E-06	6.11471E-06	2.347401612	3.04068E-06	5.59999E-06	14.35265354	1.85915E-05	3.42399E-05	13.40718354	1.73668E-05	3.19843E-05	15.75458515	2.04075E-05	3.75843E-05
Haul Road 3	HR3	1500-1600	2.526291612	3.2724E-06	6.02675E-06	2.340811612	3.03214E-06	5.58427E-06	14.19105354	1.83822E-05	3.38543E-05	13.37809354	1.73291E-05	3.19149E-05	15.71890515	2.03613E-05	3.74992E-05
Haul Road 3	HR3	1600-1700	2.531881612	3.27964E-06	6.04009E-06	2.327521612	3.01492E-06	5.55256E-06	14.21574354	1.84142E-05	3.39132E-05	13.32013354	1.72541E-05	3.17767E-05	15.64765515	2.0269E-05	3.73292E-05
Haul Road 3	HR3	1700-1800	2.531881612	3.27964E-06	6.04009E-06	2.335711612	3.02553E-06	5.5721E-06	14.21574354	1.84142E-05	3.39132E-05	13.35591354	1.73004E-05	3.1862E-05	15.69162515	2.03259E-05	3.74341E-05
Haul Road 3	HR3	1800-1900	2.474621612	3.20547E-06	5.90349E-06	2.338911612	3.02968E-06	5.57973E-06	13.96461354	1.80889E-05	3.33141E-05	13.36990354	1.73185E-05	3.18954E-05	15.70881515	2.03482E-05	3.74751E-05
Haul Road 3	HR3	1900-2000	2.484111612	3.21776E-06	5.92612E-06	2.338911612	3.02968E-06	5.57973E-06	14.00608354	1.81426E-05	3.34131E-05	13.36990354	1.73185E-05	3.18954E-05	15.70881515	2.03482E-05	3.74751E-05
Haul Road 3	HR3	2000-2100	2.474321612	3.20508E-06	5.90277E-06	2.321221612	3.00676E-06	5.53753E-06	13.96321354	1.80871E-05	3.33108E-05	13.29265354	1.72185E-05	3.17111E-05	15.61387515	2.02252E-05	3.72486E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.079971397	2.68673E-07	2.18569E-06	0.07265514	2.44093E-07	1.98573E-06	0.470936872	1.58216E-06	1.28711E-05	0.426416872	1.43259E-06	1.16544E-05	0.499072011	1.67669E-06	1.36401E-05
Road 1	1	0100-0200	0.060125413	1.23004E-07	1.00066E-06	0.055957248	1.14477E-07	9.31288E-07	0.36065	7.37816E-07	6.00224E-06	0.334661927	6.8465E-07	5.56973E-06	0.390619174	7.99127E-07	6.50102E-06
Road 1	1	0200-0300	0.056953506	8.23089E-08	6.69595E-07	0.053444156	7.72372E-08	6.28336E-07	0.359701688	5.19839E-07	4.22897E-06	0.336041429	4.85645E-07	3.9508E-06	0.389485584	5.62883E-07	4.57913E-06
Road 1	1	0300-0400	0.047420545	4.89514E-08	3.98227E-07	0.044695091	4.6138E-08	3.75339E-07	0.287498545	2.9678E-07	2.41435E-06	0.269993091	2.78709E-07	2.26734E-06	0.314688182	3.24847E-07	2.64268E-06
Road 1	1	0400-0500	0.062567209	1.00991E-07	8.21574E-07	0.058438488	9.43264E-08	7.67359E-07	0.356088488	5.74767E-07	4.67582E-06	0.331686395	5.3538E-07	4.35539E-06	0.390124884	6.29706E-07	5.12275E-06
Road 1	1	0500-0600	0.052845957	1.86468E-07	1.51695E-06	0.047805691	1.68684E-07	1.37227E-06	0.309905266	1.09351E-06	8.89586E-06	0.278595479	9.83032E-07	7.99711E-06	0.32640117	1.15172E-06	9.36938E-06
Road 1	1	0600-0700	0.070453383	4.45623E-07	3.62521E-06	0.064904777	4.10528E-07	3.3397E-06	0.372880237	2.3585E-06	1.91867E-05	0.342087626	2.16373E-06	1.76023E-05	0.406992404	2.57426E-06	2.0942E-05
Road 1	1	0700-0800	0.062651655	6.60853E-07	5.37613E-06	0.054719199	5.77181E-07	4.69545E-06	0.343336317	3.62153E-06	2.94617E-05	0.297425641	3.13726E-06	2.55221E-05	0.35214484	3.71444E-06	3.02175E-05
Road 1	1	0800-0900	0.068938847	8.97965E-07	7.30508E-06	0.05885268	7.66587E-07	6.2363E-06	0.368808285	4.80392E-06	3.90806E-05	0.313067378	4.07787E-06	3.31741E-05	0.371920058	4.84445E-06	3.94104E-05
Road 1	1	0900-1000	0.073788249	9.88829E-07	8.04427E-06	0.064036779	8.58151E-07	6.98118E-06	0.407881975	5.46599E-06	4.44666E-05	0.352461569	4.7233E-06	3.84248E-05	0.416498347	5.58145E-06	4.54059E-05
Road 1	1	1000-1100	0.08665364	1.13034E-06	9.19545E-06	0.073436374	9.57926E-07	7.79287E-06	0.462940432	6.03873E-06	4.9126E-05	0.390947986	5.09964E-06	4.14863E-05	0.46438436	6.05757E-06	4.92792E-05
Road 1	1	1100-1200	0.077960148	9.86208E-07	8.02294E-06	0.067256068	8.50799E-07	6.92138E-06	0.446052018	5.64263E-06	4.59036E-05	0.383259926	4.8483E-06	3.94416E-05	0.450515994	5.69909E-06	4.6363E-05
Road 1	1	1200-1300	0.08069931	1.01026E-06	8.21858E-06	0.069284318	8.67354E-07	7.05606E-06	0.455945232	5.70787E-06	4.64344E-05	0.389976732	4.88203E-06	3.9716E-05	0.459261049	5.74938E-06	4.67721E-05
Road 1	1	1300-1400	0.084581467	1.12553E-06	9.15636E-06	0.072796812	9.68711E-07	7.88061E-06	0.468121241	6.22932E-06	5.06764E-05	0.401525487	5.34312E-06	4.34671E-05	0.474322299	6.31183E-06	5.13477E-05
Road 1	1	1400-1500	0.080665826	1.16426E-06	9.47147E-06	0.069136398	9.97858E-07	8.11773E-06	0.436942367	6.30647E-06	5.13041E-05	0.373274356	5.38754E-06	4.38284E-05	0.442410754	6.3854E-06	5.19461E-05
Road 1	1	1500-1600	0.087229874	1.17223E-06	9.53629E-06	0.07383486	9.92225E-07	8.0719E-06	0.470915279	6.32837E-06	5.14822E-05	0.396908268	5.33383E-06	4.33915E-05	0.470743128	6.32605E-06	5.14634E-05
Road 1	1	1600-1700	0.083030358	1.17658E-06	9.57161E-06	0.069621457	9.86565E-07	8.02585E-06	0.453881669	6.43169E-06	5.23228E-05	0.378593921	5.36484E-06	4.36437E-05	0.448215377	6.3514E-06	5.16696E-05
Road 1	1	1700-1800	0.064083654	9.11701E-07	7.41682E-06	0.055254499	7.86091E-07	6.39496E-06	0.357456082	5.08543E-06	4.13707E-05	0.306413245	4.35926E-06	3.54632E-05	0.361667744	5.14535E-06	4.18582E-05
Road 1	1	1800-1900	0.056172532	8.1602E-07	6.63844E-06	0.049910891	7.25057E-07	5.89845E-06	0.334699819	4.86219E-06	3.95547E-05	0.295357868	4.29067E-06	3.49052E-05	0.34526876	5.01573E-06	4.08037E-05
Road 1	1	1900-2000	0.067507487	7.5135E-07	6.11235E-06	0.05991774	6.66877E-07	5.42515E-06	0.385383592	4.28927E-06	3.48939E-05	0.340118516	3.78548E-06	3.07954E-05	0.400036256	4.45236E-06	3.62206E-05
Road 1	1	2000-2100	0.060199423	5.68324E-07	4.6234E-06	0.053430417	5.0442E-07	4.10353E-06	0.35408994	3.34285E-06	2.71946E-05	0.312484632	2.95007E-06	2.39993E-05	0.36591505	3.45449E-06	2.81028E-05
Road 1	1	2100-2200	0.064202048	5.53092E-07	4.49949E-06	0.055825316	4.80928E-07	3.91242E-06	0.381404096	3.28574E-06	2.673E-05	0.329545447	2.83899E-06	2.30956E-05	0.385370763	3.31992E-06	2.7008E-05
Road 1	1	2200-2300	0.064039954	5.22849E-07	4.25345E-06	0.055664851	4.54471E-07	3.69719E-06	0.380572391	3.10715E-06	2.52771E-05	0.328115448	2.67887E-06	2.1793E-05	0.383780299	3.13334E-06	2.54902E-05
Road 1	1	2300-0000	0.054116513	3.96123E-07	3.22252E-06	0.048473051	3.54814E-07	2.88646E-06	0.329442333	2.41146E-06	1.96176E-05	0.292779205	2.14309E-06	1.74344E-05	0.341252256	2.49791E-06	2.03208E-05
Road 2	2	0000-0100	0.132388462	1.59356E-07	1.02911E-06	0.120273462	1.44774E-07	9.34934E-07	0.558203269	6.71911E-07	4.33914E-06	0.505798846	6.08832E-07	3.93178E-06	0.626072308	7.53606E-07	4.86671E-06
Road 2	2	0100-0200	0.090667941	7.1359E-08	4.6083E-07	0.084355	6.63905E-08	4.28743E-07	0.445545588	3.50661E-07	2.26453E-06	0.41352	3.25456E-07	2.10176E-06	0.497875	3.91846E-07	2.5305E-06
Road 2	2	0200-0300	0.092737826	4.93743E-08	3.18854E-07	0.087080435	4.63623E-08	2.99403E-07	0.502188696	2.67369E-07	1.72664E-06	0.470082174	2.50275E-07	1.61625E-06	0.557162609	2.96638E-07	1.91566E-06
Road 2	2	0300-0400	0.079108	2.74681E-08	1.77386E-07	0.074591333	2.58998E-08	1.67258E-07	0.284933333	9.89352E-08	6.38914E-07	0.267702	9.29521E-08	6.00275E-07	0.342293333	1.18852E-07	7.67534E-07
Road 2	2	0400-0500	0.108947037	6.80919E-08	4.39731E-07	0.101805185	6.36282E-08	4.10905E-07	0.52259963	3.26625E-07	2.10931E-06	0.487361111	3.04601E-07	1.96708E-06	0.589166296	3.68229E-07	2.37799E-06
Road 2	2	0500-0600	0.088529123	1.16809E-07	7.54343E-07	0.080089474	1.05674E-07	6.8243E-07	0.389006667	5.13273E-07	3.31466E-06	0.350306667	4.6221E-07	2.98491E-06	0.43039614	5.67884E-07	3.66734E-06
Road 2	2	0600-0700	0.123504519	2.97326E-07	1.9201E-06	0.113721346	2.73774E-07	1.768E-06	0.49689875	1.19624E-06	7.72519E-06	0.456388942	1.09871E-06	7.09539E-06	0.570110288	1.37249E-06	8.86339E-06
Road 2	2	0700-0800	0.107197125	3.97026E-07	2.56396E-06	0.093575875	3.46577E-07	2.23816E-06	0.44314975	1.6413E-06	1.05993E-05	0.384436375	1.42384E-06	9.19501E-06	0.47801225	1.77042E-06	1.14332E-05
Road 2	2	0800-0900	0.123732171	8.70708E-07	5.62295E-06	0.105535428	7.42657E-07	4.796E-06	0.518087632	3.6458E-06	2.35442E-05	0.439635658	3.09373E-06	1.9979E-05	0.545171086	3.83639E-06	2.4775E-05
Road 2	2	0900-1000	0.145497619	8.48736E-07	5.48105E-06	0.126121746	7.3571E-07	4.75114E-06	0.618139206	3.60581E-06	2.3286E-05	0.534559563	3.11826E-06	2.01374E-05	0.66068131	3.85397E-06	2.48886E-05
Road 2	2	1000-1100	0.164267968	7.11067E-07	4.592E-06	0.139155722	6.02364E-07	3.89001E-06	0.691275561	2.99233E-06	1.93242E-05	0.584417914	2.52977E-06	1.6337E-05	0.723573636	3.13214E-06	2.0227E-05
Road 2	2	1100-1200	0.193548525	8.19893E-07	5.29479E-06	0.166875574	7.06903E-07	4.56511E-06	0.789487978	3.34436E-06	2.15975E-05	0.67967235	2.87917E-06	1.85934E-05	0.846547923	3.58607E-06	2.31585E-05
Road 2	2	1200-1300	0.149735316	6.58558E-07	4.2529E-06	0.128567579	5.65459E-07	3.65168E-06	0.654036579	2.87655E-06	1.85765E-05	0.559772263	2.46196E-06	1.58991E-05	0.688339842	3.02742E-06	1.95508E-05
Road 2	2	1300-1400	0.165756682	8.55642E-07	5.52565E-06	0.142516233	7.35674E-07	4.75091E-06	0.676456726	3.49189E-06	2.25503E-05	0.57996426	2.9938E-06	1.93336E-05	0.722480493	3.72947E-06	2.40846E-05
Road 2	2	1400-1500	0.143290606	5.47291E-07	3.53435E-06	0.122775879	4.68936E-07	3.02834E-06	0.618221818	2.36126E-06	1.52488E-05	0.528676	2.01925E-06	1.30401E-05	0.651451879	2.48818E-06	1.60685E-05
Road 2	2	1500-1600	0.179951913	7.62296E-07	4.92284E-06	0.152054262	6.44119E-07	4.15966E-06	0.707984208	2.9991E-06	1.93679E-05	0.597140546	2.52955E-06	1.63356E-05	0.749194809	3.17367E-06	2.04953E-05
Road 2	2	1600-1700	0.150461176	7.6972E-07	4.97078E-06	0.126122398	6.45209E-07	4.1667E-06	0.631490905	3.23054E-06	2.08625E-05	0.52758543	2.69899E-06	1.74298E-05	0.653707828	3.3442E-06	2.15965E-05
Road 2	2	1700-1800	0.112291802	5.77055E-07	3.72657E-06	0.096857883	4.97742E-07	3.21437E-06	0.444310586	2.28326E-06	1.47451E-05	0.381751892	1.96178E-06	1.2669E-05	0.478609775	2.45952E-06	1.58834E-05
Road 2	2	1800-1900	0.12188852	7.05373E-07	4.55523E-06	0.10836404	6.27107E-07	4.04979E-06	0.54666464	3.16357E-06	2.043E-05	0.48425768	2.80242E-06	1.80977E-05	0.59262172	3.42952E-06	2.21475E-05
Road 2	2	1900-2000	0.103601834	4.05294E-07	2.61735E-06	0.091936213	3.59658E-07	2.32264E-06	0.467910769	1.83048E-06	1.18211E-05	0.413269231	1.61672E-06	1.04406E-05	0.505205444	1.97638E-06	1.27633E-05
Road 2	2	2000-2100	0.096673265	3.28958E-07	2.12438E-06	0.085747823	2.91781E-07	1.88429E-06	0.409891905	1.39477E-06	9.0073E-06	0.361455034	1.22995E-06	7.9429E-06	0.447202857	1.52173E-06	9.8272E-06
Road 2	2	2100-2200	0.076231373	2.69986E-07	1.74354E-06	0.066258627	2.34666E-07	1.51545E-06	0.347558954	1.23094E-06	7.94928E-06	0.299046928	1.05912E-06	6.83972E-06	0.365305556	1.29379E-06	8.35517E-06
Road 2	2	2200-2300	0.11341632	3.28172E-07	2.1193E-06	0.09858224	2.8525E-07	1.84211E-06	0.48201376	1.39472E-06	9.00694E-06	0.41623792	1.20439E-06	7.77785E-06	0.51482016	1.48964E-06	9.61996E-06
Road 2	2	2300-0000	0.097743514	2.51147E-07	1.62188E-06	0.087586036	2.25047E-07	1.45333E-06	0.439136396	1.12834E-06	7.28669E-06	0.390936396	1.00449E-06	6.48689E-06	0.478522432	1.22954E-06	7.94023E-06
Road 3	3	0000-0100	0.083028304	3.06299E-07	1.19051E-05	0.075361783	2.78017E-07	1.08058E-05	0.455492565	1.68036E-06	6.53112E-05	0.412010304	1.51995E-06	5.90765E-05	0.487372087	1.79796E-06	6.98823E-05
Road 3	3	0100-0200	0.06049007	1.37773E-07	5.3549E-06	0.056253451	1.28124E-07	4.97985E-06	0.350528239	7.98369E-07	3.10306E-05	0.324987324	7.40196E-07	2.87696E-05	0.381240775	8.6832E-07	3.37494E-05
Road 3	3	0200-0300	0.058275556	9.25367E-08	3.59667E-06	0.054653636	8.67854E-08	3.37313E-06	0.359685556	5.7115E-07	2.21992E-05	0.335879495	5.33348E-07	2.07299E-05	0.390533131	6.20134E-07	2.4103E-05
Road 3	3	0300-0400	0.048068857	5.39702E-08	2.09769E-06	0.04554	5.11309E-08	1.98733E-06	0.261932714	2.9409E-07	1.14305E-05	0.247310857	2.77673E-07	1.07924E-05	0.292850857	3.28804E-07	1.27798E-05
Road 3	3	0400-0500	0.065128673	1.18044E-07	4.58806E-06	0.060820354	1.10235E-07	4.28456E-06	0.358015664	6.48892E-07	2.52208E-05	0.333302389	6.041E-07	2.34799E-05	0.394122743	7.14335E-07	2.77644E-05
Road 3	3	0500-0600	0.05408313	2.13397E-07	8.29422E-06	0.050251382	1.98278E-07	7.70658E-06	0.29846187	1.17765E-06	4.57723E-05	0.275960122	1.08886E-06	4.23214E-05	0.326211504	1.28714E-06	5.0028E-05
Road 3	3	0600-0700	0.075985	5.41132E-07	2.10324E-05	0.068928356	4.90877E-07	1.90792E-05	0.377227635	2.68645E-06	0.000104416	0.340811847	2.42711E-06	9.43358E-05	0.409740203	2.91799E-06	0.000113415
Road 3	3	0700-0800	0.064953343	7.57405E-07	2.94384E-05	0.056608239	6.60095E-07	2.56562E-05	0.338615695	3.94851E-06	0.000153469	0.2928526	3.41488E-06	0.000132728	0.349460839	4.07498E-06	0.000158384
Road 3	3	0800-0900	0.073578134	1.17662E-06	4.57323E-05	0.063916169	1.02211E-06	3.97269E-05	0.362661775	5.79948E-06	0.000225411	0.313432808	5.01224E-06	0.000194813	0.377348977	6.03435E-06	0.00023454
Road 3	3	0900-1000	0.08066001	1.24847E-06	4.85249E-05	0.06952687	1.07615E-06	4.18272E-05	0.414677845	6.41845E-06	0.000249469	0.356085005	5.51154E-06	0.00021422	0.425611876	6.58769E-06	0.000256047
Road 3	3	1000-1100	0.092536485	1.30465E-06	5.07085E-05	0.079682924	1.12343E-06	4.36649E-05	0.465904516	6.56868E-06	0.000255308	0.399862935	5.63757E-06	0.000219118	0.479545859	6.761E-06	0.000262783
Road 3	3	1100-1200	0.09092219	1.24543E-06	4.84068E-05	0.07689411	1.05328E-06	4.09383E-05	0.470772354	6.44853E-06	0.000250638	0.39634322	5.42902E-06	0.000211012	0.47323733	6.4823E-06	0.000251951
Road 3	3	1200-1300	0.085979309	1.17773E-06	4.57752E-05	0.072852623	9.97919E-07	3.87866E-05	0.455179016	6.23494E-06	0.000242336	0.384169122	5.26226E-06	0.000204531	0.457021745	6.26018E-06	0.000243318

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.09152069	1.36079E-06	5.28905E-05	0.078064779	1.16072E-06	4.51142E-05	0.465588015	6.92267E-06	0.000269067	0.395630992	5.8825E-06	0.000228638	0.473695771	7.04322E-06	0.000273752
Road 3	3	1400-1500	0.084687762	1.2687E-06	4.93113E-05	0.071936906	1.07768E-06	4.18868E-05	0.437607056	6.55577E-06	0.000254806	0.370369208	5.54848E-06	0.000215655	0.442306113	6.62616E-06	0.000257542
Road 3	3	1500-1600	0.094769687	1.36046E-06	5.28775E-05	0.079657777	1.14352E-06	4.44457E-05	0.476970648	6.8471E-06	0.00026613	0.399289218	5.73196E-06	0.000222787	0.478946994	6.87548E-06	0.000267232
Road 3	3	1600-1700	0.088419928	1.38418E-06	5.37996E-05	0.075649549	1.18426E-06	4.60294E-05	0.451800645	7.07276E-06	0.0002749	0.384878863	6.02513E-06	0.000234182	0.460528412	7.20939E-06	0.000280211
Road 3	3	1700-1800	0.068499448	1.07563E-06	4.18069E-05	0.058683524	9.21491E-07	3.5816E-05	0.351245271	5.51551E-06	0.000214374	0.2991738	4.69784E-06	0.000182593	0.357857324	5.61933E-06	0.000218409
Road 3	3	1800-1900	0.06463036	1.06463E-06	4.13795E-05	0.056185813	9.25528E-07	3.59729E-05	0.354693817	5.84274E-06	0.000227092	0.306195794	5.04385E-06	0.000196042	0.362381607	5.96937E-06	0.000232015
Road 3	3	1900-2000	0.067304789	8.20449E-07	3.18888E-05	0.059638684	7.26999E-07	2.82566E-05	0.369556579	4.50492E-06	0.000175095	0.325573316	3.96876E-06	0.000154256	0.385212	4.69576E-06	0.000182512
Road 3	3	2000-2100	0.061820863	6.43535E-07	2.50126E-05	0.054765747	5.70093E-07	2.21581E-05	0.337420077	3.51243E-06	0.000136519	0.29717319	3.09347E-06	0.000120236	0.351938937	3.66357E-06	0.000142394
Road 3	3	2100-2200	0.061483268	6.06491E-07	2.35728E-05	0.054847919	5.41038E-07	2.10288E-05	0.34594187	3.41248E-06	0.000132635	0.306656244	3.02496E-06	0.000117572	0.361504163	3.56599E-06	0.000138601
Road 3	3	2200-2300	0.067735115	6.11666E-07	2.37739E-05	0.058797815	5.3096E-07	2.06371E-05	0.370414192	3.34494E-06	0.000130009	0.318983606	2.88051E-06	0.000111958	0.377781421	3.41147E-06	0.000132595
Road 3	3	2300-0000	0.057229721	4.60805E-07	1.79103E-05	0.051213625	4.12365E-07	1.60276E-05	0.327213705	2.63468E-06	0.000102403	0.29052012	2.33923E-06	9.09198E-05	0.341733745	2.75159E-06	0.000106947
Road 4	4	0000-0100	0.222369429	1.8016E-07	1.92908E-06	0.201689714	1.63406E-07	1.74968E-06	1.097667143	8.89314E-07	9.5224E-06	0.995157143	8.06262E-07	8.63311E-06	1.196846857	9.69668E-07	1.03828E-05
Road 4	4	0100-0200	0.2037465	9.43271E-08	1.01001E-06	0.189396	8.76833E-08	9.38876E-07	1.0077865	4.66568E-07	4.99581E-06	0.936772	4.33691E-07	4.64378E-06	1.126168	5.21374E-07	5.58265E-06
Road 4	4	0200-0300	0.216523846	6.51576E-08	6.97681E-07	0.203156154	6.1135E-08	6.54607E-07	1.035786154	3.11695E-07	3.3375E-06	0.971747692	2.92424E-07	3.13115E-06	1.174903846	3.53559E-07	3.78576E-06
Road 4	4	0300-0400	0.194088571	3.14495E-08	3.36748E-07	0.18394	2.98051E-08	3.1914E-07	0.996115714	1.61408E-07	1.72828E-06	0.944222857	1.52999E-07	1.63825E-06	1.128162857	1.82804E-07	1.95739E-06
Road 4	4	0400-0500	0.202130714	6.55053E-08	7.01403E-07	0.188675	6.11447E-08	6.54711E-07	0.967255714	3.13463E-07	3.35642E-06	0.902824286	2.92582E-07	3.13284E-06	1.091499286	3.53727E-07	3.78756E-06
Road 4	4	0500-0600	0.191545833	1.06414E-07	1.13944E-06	0.177972083	9.88734E-08	1.05869E-06	0.881187917	4.89549E-07	5.24188E-06	0.818334583	4.5463E-07	4.86799E-06	0.996306667	5.53504E-07	5.92668E-06
Road 4	4	0600-0700	0.216135472	2.65166E-07	2.83929E-06	0.196000566	2.40464E-07	2.57478E-06	1.000007358	1.22686E-06	1.31367E-05	0.90641566	1.11204E-06	1.19072E-05	1.102416226	1.3525E-06	1.4482E-05
Road 4	4	0700-0800	0.225212826	4.7962E-07	5.13557E-06	0.19630913	4.18066E-07	4.47647E-06	1.080521413	2.30111E-06	2.46393E-05	0.940750761	2.00345E-06	2.14521E-05	1.137059891	2.42152E-06	2.59286E-05
Road 4	4	0800-0900	0.236271548	8.47734E-07	9.07717E-06	0.205151032	7.36074E-07	7.88157E-06	1.137963226	4.08297E-06	4.37187E-05	0.987615613	3.54353E-06	3.79426E-05	1.192766645	4.2796E-06	4.58242E-05
Road 4	4	0900-1000	0.243212162	8.33227E-07	8.92184E-06	0.209134257	7.16478E-07	7.67175E-06	1.111883041	3.80923E-06	4.07876E-05	0.955511149	3.27351E-06	3.50514E-05	1.164645405	3.98999E-06	4.27231E-05
Road 4	4	1000-1100	0.274101667	9.13672E-07	9.78322E-06	0.235665833	7.85553E-07	8.41137E-06	1.256837083	4.18946E-06	4.48589E-05	1.080545486	3.60182E-06	3.85668E-05	1.316211319	4.38737E-06	4.69781E-05
Road 4	4	1100-1200	0.253878065	9.10905E-07	9.75359E-06	0.214314516	7.68953E-07	8.23362E-06	1.156631548	4.14995E-06	4.44359E-05	0.976188452	3.50253E-06	3.75036E-05	1.190502968	4.27148E-06	4.57372E-05
Road 4	4	1200-1300	0.261033649	8.94282E-07	9.57559E-06	0.2208775	7.5671E-07	8.10253E-06	1.241368919	4.25284E-06	4.55376E-05	1.049928446	3.59698E-06	3.85149E-05	1.270805946	4.35369E-06	4.66174E-05
Road 4	4	1300-1400	0.268047667	9.30721E-07	9.96577E-06	0.228355267	7.929E-07	8.49004E-06	1.245139	4.3234E-06	4.62931E-05	1.060264933	3.68148E-06	3.94197E-05	1.2886202	4.47438E-06	4.79097E-05
Road 4	4	1400-1500	0.244989786	7.93948E-07	8.50126E-06	0.207801857	6.73432E-07	7.21083E-06	1.174444429	3.80607E-06	4.07538E-05	0.995554357	3.22633E-06	3.45462E-05	1.203356214	3.89977E-06	4.1757E-05
Road 4	4	1500-1600	0.27718128	8.02029E-07	8.58779E-06	0.23251984	6.728E-07	7.20406E-06	1.28769648	3.72597E-06	3.98962E-05	1.08007376	3.12521E-06	3.34635E-05	1.3125936	3.79801E-06	4.06675E-05
Road 4	4	1600-1700	0.256496774	7.36241E-07	7.88336E-06	0.219245	6.29314E-07	6.73843E-06	1.203451129	3.45435E-06	3.69877E-05	1.028180968	2.95126E-06	3.16008E-05	1.247425968	3.58057E-06	3.83393E-05
Road 4	4	1700-1800	0.240557953	7.07196E-07	7.57235E-06	0.206091181	6.0587E-07	6.4874E-06	1.147017874	3.37202E-06	3.61062E-05	0.981903465	2.88661E-06	3.09086E-05	1.187994646	3.49248E-06	3.7396E-05
Road 4	4	1800-1900	0.265150472	6.50601E-07	6.96636E-06	0.230552925	5.65709E-07	6.05737E-06	1.276431415	3.13198E-06	3.3536E-05	1.109571132	2.72256E-06	2.9152E-05	1.340124057	3.28827E-06	3.52094E-05
Road 4	4	1900-2000	0.233459865	3.99908E-07	4.28205E-06	0.206837568	3.54305E-07	3.79375E-06	1.125951892	1.92871E-06	2.06519E-05	0.997405135	1.70852E-06	1.82941E-05	1.204242703	2.06282E-06	2.20878E-05
Road 4	4	2000-2100	0.200416735	2.27325E-07	2.4341E-06	0.177476327	2.01304E-07	2.15548E-06	0.969832449	1.10004E-06	1.17788E-05	0.857977551	9.73169E-07	1.04203E-05	1.035453878	1.17447E-06	1.25758E-05
Road 4	4	2100-2200	0.169877027	1.45497E-07	1.55792E-06	0.15170973	1.29937E-07	1.39131E-06	0.83951973	7.19033E-07	7.6991E-06	0.748896486	6.41416E-07	6.86801E-06	0.900606216	7.71353E-07	8.25932E-06
Road 4	4	2200-2300	0.23371254	3.40831E-07	3.64947E-06	0.202939524	2.95953E-07	3.16894E-06	1.110819048	1.61994E-06	1.73457E-05	0.963925238	1.40572E-06	1.50519E-05	1.166864762	1.70168E-06	1.82208E-05
Road 4	4	2300-0000	0.21030102	2.38536E-07	2.55414E-06	0.188145714	2.13406E-07	2.28506E-06	1.026540408	1.16436E-06	1.24675E-05	0.91787898	1.04111E-06	1.11478E-05	1.106024694	1.25452E-06	1.34329E-05
Road 5	5	0000-0100	0.070287306	2.54607E-07	3.4431E-06	0.063829223	2.31213E-07	3.12674E-06	0.390425855	1.41427E-06	1.91254E-05	0.352787668	1.27793E-06	1.72817E-05	0.416616891	1.50914E-06	2.04084E-05
Road 5	5	0100-0200	0.045914262	1.05134E-07	1.42175E-06	0.042702951	9.77808E-08	1.32231E-06	0.27959082	6.40204E-07	8.6576E-06	0.258912131	5.92854E-07	8.01728E-06	0.301615082	6.90635E-07	9.33959E-06
Road 5	5	0200-0300	0.042984419	6.93818E-08	9.38263E-07	0.040306047	6.50586E-08	8.79799E-07	0.292116279	4.71509E-07	6.3763E-06	0.272249884	4.39442E-07	5.94266E-06	0.31255593	5.04501E-07	6.82246E-06
Road 5	5	0300-0400	0.037762698	4.46518E-08	6.03835E-07	0.035770159	4.22958E-08	5.71974E-07	0.20498254	2.42378E-07	3.27772E-06	0.19320127	2.28447E-07	3.08934E-06	0.228971429	2.70743E-07	3.66131E-06
Road 5	5	0400-0500	0.053296566	9.90308E-08	1.33921E-06	0.049777778	9.24925E-08	1.25079E-06	0.302106869	5.61347E-07	7.5912E-06	0.281000202	5.22129E-07	7.06085E-06	0.33077798	6.14621E-07	8.31164E-06
Road 5	5	0500-0600	0.044236409	1.82658E-07	2.47012E-06	0.0411045	1.69726E-07	2.29523E-06	0.254730909	1.05182E-06	1.42239E-05	0.235203818	9.71187E-07	1.31335E-05	0.276308318	1.14091E-06	1.54288E-05
Road 5	5	0600-0700	0.065830851	4.79399E-07	6.483E-06	0.059720928	4.34905E-07	5.8813E-06	0.328549665	2.39259E-06	3.23555E-05	0.296532629	2.15943E-06	2.92024E-05	0.356253557	2.59434E-06	3.50837E-05
Road 5	5	0700-0800	0.053082148	6.30649E-07	8.52839E-06	0.046259447	5.49591E-07	7.43223E-06	0.278419889	3.3078E-06	4.47321E-05	0.240176935	2.85345E-06	3.85878E-05	0.286436382	3.40304E-06	4.602E-05
Road 5	5	0800-0900	0.058217438	9.2112E-07	1.24565E-05	0.050587663	8.00402E-07	1.0824E-05	0.283303132	4.48244E-06	6.06169E-05	0.244334093	3.86587E-06	5.22789E-05	0.294921756	4.66627E-06	6.31029E-05
Road 5	5	0900-1000	0.065139265	9.97628E-07	1.34911E-05	0.056230699	8.61191E-07	1.1646E-05	0.345794767	5.29596E-06	7.16182E-05	0.296870956	4.54667E-06	6.14855E-05	0.353101654	5.40786E-06	7.31315E-05
Road 5	5	1000-1100	0.074980204	1.03295E-06	1.39687E-05	0.064605967	8.9003E-07	1.2036E-05	0.387213501	5.33436E-06	7.21376E-05	0.332098243	4.57508E-06	6.18696E-05	0.39670421	5.46511E-06	7.39057E-05
Road 5	5	1100-1200	0.073746724	9.67511E-07	1.30838E-05	0.062415923	8.18858E-07	1.10736E-05	0.397815508	5.21909E-06	7.05787E-05	0.334594678	4.38967E-06	5.93623E-05	0.397010601	5.20853E-06	7.04359E-05
Road 5	5	1200-1300	0.068742037	9.12174E-07	1.23355E-05	0.058298175	7.73589E-07	1.04614E-05	0.373492008	4.95606E-06	6.70217E-05	0.314913041	4.17874E-06	5.65099E-05	0.373211216	4.95233E-06	6.69713E-05
Road 5	5	1300-1400	0.075230064	1.09711E-06	1.48364E-05	0.064216628	9.36492E-07	1.26644E-05	0.390777735	5.69884E-06	7.70665E-05	0.331764015	4.83823E-06	6.54282E-05	0.395980644	5.77472E-06	7.80926E-05
Road 5	5	1400-1500	0.071198237	1.06102E-06	1.43484E-05	0.06051903	9.01879E-07	1.21963E-05	0.371635227	5.53826E-06	7.48949E-05	0.314351096	4.68459E-06	6.33505E-05	0.374870126	5.58647E-06	7.55468E-05
Road 5	5	1500-1600	0.080149935	1.15832E-06	1.56642E-05	0.067406481	9.74155E-07	1.31737E-05	0.408139961	5.89842E-06	7.97654E-05	0.341441299	4.93449E-06	6.67301E-05	0.408847779	5.90865E-06	7.99038E-05
Road 5	5	1600-1700	0.075288148	1.20535E-06	1.63001E-05	0.064444455	1.03174E-06	1.39524E-05	0.390662415	6.25441E-06	8.45796E-05	0.332496659	5.32319E-06	7.19865E-05	0.396941114	6.35493E-06	8.59389E-05
Road 5	5	1700-1800	0.054164806	8.65132E-07	1.16993E-05	0.046410928	7.41286E-07	1.00245E-05	0.280930811	4.48709E-06	6.06798E-05	0.238788472	3.81398E-06	5.15772E-05	0.285199401	4.55527E-06	6.16017E-05
Road 5	5	1800-1900	0.050541143	8.71759E-07	1.1789E-05	0.043931153	7.57746E-07	1.02471E-05	0.286206931	4.93664E-06	6.67591E-05	0.246470261	4.25124E-06	5.74903E-05	0.290401415	5.00899E-06	6.77375E-05
Road 5	5	1900-2000	0.057299373	7.37751E-07	9.97674E-06	0.050771283	6.53699E-07	8.8401E-06	0.32160258	4.14075E-06	5.59962E-05	0.282948499	3.64307E-06	4.92659E-05	0.333719781	4.29677E-06	5.8106E-05
Road 5	5	2000-2100	0.0547215	6.16233E-07	8.33344E-06	0.048485083	5.46003E-07	7.3837E-06	0.302757217	3.40943E-06	4.61063E-05	0.266408333	3.00009E-06	4.05708E-05	0.314893417	3.5461E-06	4.79545E-05
Road 5	5	2100-2200	0.057317163	6.21797E-07	8.40867E-06	0.051128651	5.54661E-07	7.50079E-06	0.325904118	3.53552E-06	4.78115E-05	0.288670484	3.1316E-06	4.23492E-05	0.339799135	3.68626E-06	4.985E-05
Road 5	5	2200-2300	0.056642545	5.30492E-07	7.17395E-06	0.049163086	4.60443E-07	6.22665E-06	0.318012204	2.97838E-06	4.02772E-05	0.273194629	2.55864E-06	3.46009E-05	0.322357715	3.01908E-06	4.08276E-05
Road 5	5	2300-0000	0.04807011	4.08704E-07	5.52698E-06	0.043008587	3.6567E-07	4.94502E-06	0.282039956	2.39797E-06	3.24283E-05	0.249929161	2.12496E-06	2.87362E-05	0.292937748	2.49063E-06	3.36813E-05
Road 6	6	0000-0100	0.0419684	1.18154E-07	4.22354E-06	0.038062733	1.07159E-07	3.83049E-06	0.2685548	7.56066E-07	2.70263E-05	0.2414148	6.79659E-07	2.4295E-05	0.279477533	7.86817E-07	2.81255E-05
Road 6	6	0100-0200	0.054127018	1.15812E-07	4.13982E-06	0.050337982	1.07705E-07	3.85002E-06	0.302968333	6.48243E-07	2.31721E-05	0.280288421	5.99716E-07	2.14374E-05	0.330626404	7.07421E-07	2.52874E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.048498101	7.19097E-08	2.57048E-06	0.045520253	6.74944E-08	2.41265E-06	0.274835949	4.07508E-07	1.45668E-05	0.256668354	3.80571E-07	1.36039E-05	0.302188608	4.48065E-07	1.60165E-05
Road 6	6	0300-0400	0.049282903	5.73487E-08	2.04998E-06	0.046773871	5.44291E-08	1.94562E-06	0.311923226	3.62974E-07	1.29748E-05	0.295032097	3.43318E-07	1.22722E-05	0.341805968	3.97747E-07	1.42178E-05
Road 6	6	0400-0500	0.053913444	9.107E-08	3.25538E-06	0.050364222	8.50747E-08	3.04108E-06	0.314047444	5.30486E-07	1.89627E-05	0.291867778	4.9302E-07	1.76235E-05	0.342232	5.78095E-07	2.06645E-05
Road 6	6	0500-0600	0.049526358	1.50587E-07	5.38287E-06	0.046050741	1.40019E-07	5.00512E-06	0.296351605	9.01069E-07	3.22096E-05	0.273784568	8.32453E-07	2.97568E-05	0.319835309	9.72472E-07	3.47619E-05
Road 6	6	0600-0700	0.053746103	2.92537E-07	1.0457E-05	0.048767379	2.65438E-07	9.48833E-06	0.336534552	1.83174E-06	6.54772E-05	0.303183759	1.65021E-06	5.89884E-05	0.351951138	1.91565E-06	6.84767E-05
Road 6	6	0700-0800	0.052178268	4.52447E-07	1.61731E-05	0.045515931	3.94676E-07	1.41081E-05	0.298477208	2.58815E-06	9.25158E-05	0.257557965	2.23333E-06	7.98325E-05	0.303073896	2.62801E-06	9.39405E-05
Road 6	6	0800-0900	0.045147009	5.60948E-07	2.00516E-05	0.039197387	4.87025E-07	1.74092E-05	0.265021254	3.29287E-06	0.000117707	0.22708574	2.82152E-06	0.000100858	0.266283127	3.30855E-06	0.000118267
Road 6	6	0900-1000	0.048227662	5.72975E-07	2.04815E-05	0.041521706	4.93304E-07	1.76336E-05	0.27207278	3.2324E-06	0.000115545	0.231763112	2.75349E-06	9.84262E-05	0.273284818	3.2468E-06	0.00011606
Road 6	6	1000-1100	0.065431626	6.57018E-07	2.34857E-05	0.056314318	5.65468E-07	2.02132E-05	0.357472748	3.58949E-06	0.00012831	0.305604991	3.06867E-06	0.000109692	0.361919308	3.63414E-06	0.000129906
Road 6	6	1100-1200	0.075280489	7.51675E-07	2.68693E-05	0.063702895	6.36072E-07	2.2737E-05	0.393229662	3.92639E-06	0.000140353	0.330820977	3.30324E-06	0.000118078	0.394523872	3.93931E-06	0.000140815
Road 6	6	1200-1300	0.072565182	7.12305E-07	2.5462E-05	0.061559771	6.04275E-07	2.16004E-05	0.363697553	3.57008E-06	0.000127616	0.307089216	3.01441E-06	0.000107753	0.368648987	3.61868E-06	0.000129353
Road 6	6	1300-1400	0.084178714	8.23144E-07	2.94241E-05	0.071822534	7.02319E-07	2.5105E-05	0.429357159	4.19848E-06	0.000150079	0.364626372	3.56551E-06	0.000127453	0.436448906	4.26783E-06	0.000152558
Road 6	6	1400-1500	0.08039676	8.66136E-07	3.09609E-05	0.068306132	7.35881E-07	2.63047E-05	0.403663432	4.34878E-06	0.000155451	0.341361707	3.67758E-06	0.000131459	0.40966784	4.41346E-06	0.000157763
Road 6	6	1500-1600	0.071182242	7.50834E-07	2.68393E-05	0.059824537	6.31032E-07	2.25568E-05	0.370178327	3.90466E-06	0.000139576	0.309039146	3.25976E-06	0.000116523	0.368863683	3.89079E-06	0.00013908
Road 6	6	1600-1700	0.073689653	7.96645E-07	2.84768E-05	0.063091076	6.82066E-07	2.43811E-05	0.365983299	3.95658E-06	0.000141432	0.311504271	3.36761E-06	0.000120379	0.374595347	4.04968E-06	0.00014476
Road 6	6	1700-1800	0.053944721	6.1761E-07	2.20771E-05	0.046269574	5.29738E-07	1.8936E-05	0.277348311	3.17535E-06	0.000113506	0.235888426	2.70067E-06	9.65382E-05	0.282158	3.23041E-06	0.000115474
Road 6	6	1800-1900	0.052547562	6.79528E-07	2.42904E-05	0.045697576	5.90947E-07	2.11239E-05	0.275401147	3.5614E-06	0.000127306	0.237402235	3.07001E-06	0.00010974	0.283099811	3.66096E-06	0.000130864
Road 6	6	1900-2000	0.06100521	5.99976E-07	2.14467E-05	0.054026011	5.31337E-07	1.89931E-05	0.319639332	3.1436E-06	0.000112371	0.280963263	2.76323E-06	9.87742E-05	0.334989275	3.29456E-06	0.000117767
Road 6	6	2000-2100	0.047526364	3.72861E-07	1.33283E-05	0.042059665	3.29973E-07	1.17952E-05	0.276682727	2.17067E-06	7.75927E-05	0.242942081	1.90596E-06	6.81305E-05	0.285001746	2.23594E-06	7.99257E-05
Road 6	6	2100-2200	0.067346139	4.55041E-07	1.62659E-05	0.060074222	4.05907E-07	1.45095E-05	0.358450417	2.42196E-06	8.65753E-05	0.31775975	2.14703E-06	7.67475E-05	0.377833972	2.55293E-06	9.1257E-05
Road 6	6	2200-2300	0.05168937	3.69626E-07	1.32126E-05	0.044805328	3.20398E-07	1.14529E-05	0.291633281	2.08544E-06	7.45461E-05	0.24888084	1.77972E-06	6.36179E-05	0.293686168	2.10012E-06	7.50708E-05
Road 6	6	2300-0000	0.033648627	2.25461E-07	8.05932E-06	0.030113361	2.01773E-07	7.21257E-06	0.20975563	1.40546E-06	5.02394E-05	0.185476303	1.24277E-06	4.44242E-05	0.215589664	1.44455E-06	5.16367E-05
Road 7	7	0000-0100	0.061567066	1.66259E-07	4.15037E-06	0.055848506	1.50816E-07	3.76487E-06	0.362394446	9.78631E-07	2.44298E-05	0.327018521	8.83099E-07	2.2045E-05	0.382867028	1.03392E-06	2.58099E-05
Road 7	7	0100-0200	0.073524098	1.54783E-07	3.86388E-06	0.068390007	1.43974E-07	3.59407E-06	0.400482486	8.43094E-07	2.10464E-05	0.371319506	7.817E-07	1.95138E-05	0.439709513	9.25674E-07	2.31078E-05
Road 7	7	0200-0300	0.061965727	8.45675E-08	2.11108E-06	0.058170981	7.93887E-08	1.9818E-06	0.348751772	4.75958E-07	1.18815E-05	0.326319214	4.45343E-07	1.11172E-05	0.384490195	5.24732E-07	1.3099E-05
Road 7	7	0300-0400	0.062509983	6.89743E-08	1.72182E-06	0.059209605	6.53326E-08	1.63092E-06	0.374579312	4.13316E-07	1.03177E-05	0.353909868	3.90509E-07	9.74837E-06	0.413119474	4.55841E-07	1.13793E-05
Road 7	7	0400-0500	0.070106252	1.12981E-07	2.82037E-06	0.065484368	1.05532E-07	2.63443E-06	0.388328844	6.25816E-07	1.56224E-05	0.361563566	5.82682E-07	1.45457E-05	0.427047934	6.88215E-07	1.71801E-05
Road 7	7	0500-0600	0.064831644	1.8637E-07	4.65241E-06	0.059711262	1.71651E-07	4.28496E-06	0.363464867	1.04485E-06	2.60827E-05	0.333133279	9.57652E-07	2.39061E-05	0.392844541	1.1293E-06	2.81911E-05
Road 7	7	0600-0700	0.06905195	3.54898E-07	8.85941E-06	0.063009294	3.23841E-07	8.08413E-06	0.398292944	2.04706E-06	5.11012E-05	0.36150274	1.85797E-06	4.6381E-05	0.424512034	2.18181E-06	5.44652E-05
Road 7	7	0700-0800	0.068913056	5.65294E-07	1.41116E-05	0.060138177	4.93314E-07	1.23147E-05	0.374677755	3.07348E-06	7.67241E-05	0.324586254	2.66258E-06	6.64667E-05	0.384724431	3.15589E-06	7.87814E-05
Road 7	7	0800-0900	0.069816834	8.66664E-07	2.16348E-05	0.060245145	7.47847E-07	1.86687E-05	0.378166481	4.69433E-06	0.000117186	0.323961486	4.02146E-06	0.000100389	0.384206631	4.76931E-06	0.000119057
Road 7	7	0900-1000	0.071744432	8.24969E-07	2.05939E-05	0.061883341	7.11579E-07	1.77633E-05	0.374818258	4.30993E-06	0.00010759	0.321386775	3.69554E-06	9.22526E-05	0.383270117	4.40712E-06	0.000110016
Road 7	7	1000-1100	0.086265081	8.70451E-07	2.17293E-05	0.073815184	7.44826E-07	1.85933E-05	0.453072789	4.57169E-06	0.000114124	0.385976065	3.89466E-06	9.72234E-05	0.459791249	4.63949E-06	0.000115817
Road 7	7	1100-1200	0.095422896	9.61471E-07	2.40015E-05	0.081264332	8.18811E-07	2.04402E-05	0.48832621	4.92033E-06	0.000122827	0.414370313	4.17515E-06	0.000104225	0.495634645	4.99396E-06	0.000124666
Road 7	7	1200-1300	0.093469157	9.40429E-07	2.34762E-05	0.079579422	8.00679E-07	1.99876E-05	0.471624306	4.74519E-06	0.000118455	0.400440753	4.02899E-06	0.000100577	0.480020176	4.82967E-06	0.000120564
Road 7	7	1300-1400	0.099845024	9.88633E-07	2.46795E-05	0.08542624	8.45863E-07	2.11155E-05	0.504767808	4.99805E-06	0.000124768	0.4304845	4.26252E-06	0.000106406	0.51591074	5.10838E-06	0.000127522
Road 7	7	1400-1500	0.093453286	9.68762E-07	2.41835E-05	0.079644684	8.25618E-07	2.06101E-05	0.4749996	4.92397E-06	0.000122918	0.403387641	4.18163E-06	0.000104387	0.483032326	5.00724E-06	0.000124997
Road 7	7	1500-1600	0.087298088	8.88479E-07	2.21793E-05	0.073496191	7.4801E-07	1.86728E-05	0.450165906	4.58158E-06	0.000114371	0.377265403	3.83963E-06	9.58497E-05	0.450761594	4.58764E-06	0.000114522
Road 7	7	1600-1700	0.089973716	9.47061E-07	2.36417E-05	0.07644683	8.04677E-07	2.00874E-05	0.44796883	4.71531E-06	0.000117709	0.378928675	3.98859E-06	9.95683E-05	0.455375505	4.79327E-06	0.000119656
Road 7	7	1700-1800	0.067601252	7.52791E-07	1.87921E-05	0.058077697	6.46739E-07	1.61447E-05	0.349138018	3.88792E-06	9.70551E-05	0.298225423	3.32097E-06	8.29021E-05	0.35630312	3.9677E-06	9.90468E-05
Road 7	7	1800-1900	0.062064194	7.18164E-07	1.79277E-05	0.054396379	6.29438E-07	1.57128E-05	0.325976326	3.77197E-06	9.41608E-05	0.283899512	3.28509E-06	8.20066E-05	0.338295891	3.91453E-06	9.77194E-05
Road 7	7	1900-2000	0.070871182	6.19428E-07	1.54629E-05	0.062817388	5.49036E-07	1.37057E-05	0.374703627	3.27498E-06	8.17542E-05	0.330248782	2.88644E-06	7.20549E-05	0.39306617	3.43547E-06	8.57606E-05
Road 7	7	2000-2100	0.064428807	4.63966E-07	1.15821E-05	0.057085619	4.11086E-07	1.0262E-05	0.351163116	2.5288E-06	6.31272E-05	0.309286386	2.22724E-06	5.55991E-05	0.366372005	2.63832E-06	6.58612E-05
Road 7	7	2100-2200	0.075073136	4.51242E-07	1.12645E-05	0.066366352	3.98908E-07	9.95804E-06	0.400734914	2.4087E-06	6.01289E-05	0.352372044	2.118E-06	5.28722E-05	0.418738396	2.51691E-06	6.28302E-05
Road 7	7	2200-2300	0.064523627	4.18746E-07	1.04533E-05	0.055993128	3.63385E-07	9.07127E-06	0.354481974	2.30052E-06	5.74285E-05	0.304118024	1.97367E-06	4.92692E-05	0.360111152	2.33705E-06	5.83404E-05
Road 7	7	2300-0000	0.044028759	2.62726E-07	6.55849E-06	0.039424213	2.3525E-07	5.8726E-06	0.260239804	1.55289E-06	3.87651E-05	0.231014576	1.3785E-06	3.44118E-05	0.270438789	1.61375E-06	4.02844E-05
Road 8	8	0000-0100	0.194997222	1.41816E-07	2.33779E-06	0.176817222	1.28594E-07	2.11983E-06	0.965381667	7.02096E-07	1.15738E-05	0.875095	6.36433E-07	1.04914E-05	1.051912222	7.65027E-07	1.26112E-05
Road 8	8	0100-0200	0.19635	0.000000119	1.96167E-06	0.182535333	1.10627E-07	1.82365E-06	0.96955	5.87606E-07	9.68647E-06	0.901290333	5.46237E-07	9.0045E-06	1.083825667	6.56864E-07	1.08282E-05
Road 8	8	0200-0300	0.182619333	5.53392E-08	9.12246E-07	0.171402	5.194E-08	8.56211E-07	0.948212667	2.87337E-07	4.73665E-06	0.889771333	2.69628E-07	4.44471E-06	1.061173333	3.21568E-07	5.30092E-06
Road 8	8	0300-0400	0.16434	4.648E-08	7.66205E-07	0.155854286	4.408E-08	7.26642E-07	0.835321429	2.36253E-07	3.89453E-06	0.792160714	2.24045E-07	3.69331E-06	0.948015	2.68125E-07	4.41995E-06
Road 8	8	0400-0500	0.188631905	8.00257E-08	1.31919E-06	0.17612	7.47176E-08	1.23169E-06	0.904587143	3.83764E-07	6.32621E-06	0.844482381	3.58265E-07	5.90587E-06	1.020602381	4.32983E-07	7.13756E-06
Road 8	8	0500-0600	0.184247647	1.26554E-07	2.08619E-06	0.171235294	1.17616E-07	1.93886E-06	0.867870588	5.96113E-07	9.8267E-06	0.806258235	5.53794E-07	9.12908E-06	0.977493529	6.7141E-07	1.10679E-05
Road 8	8	0600-0700	0.209073548	2.6187E-07	4.31683E-06	0.189666935	2.37563E-07	3.91613E-06	0.972940323	1.21863E-06	2.00887E-05	0.882237097	1.10502E-06	1.82159E-05	1.071904032	1.34259E-06	2.2132E-05
Road 8	8	0700-0800	0.215327059	4.43704E-07	7.3143E-06	0.187741078	3.8686E-07	6.37725E-06	1.012513725	2.08639E-06	3.43934E-05	0.882034412	1.81753E-06	2.99612E-05	1.06977549	2.20439E-06	3.63385E-05
Road 8	8	0800-0900	0.2441925	9.47171E-07	1.56138E-05	0.212193073	8.23052E-07	1.35677E-05	1.152653333	4.4709E-06	7.37011E-05	1.000979219	3.88259E-06	6.4003E-05	1.213172292	4.70564E-06	7.75707E-05
Road 8	8	0900-1000	0.262973101	8.39389E-07	1.3837E-05	0.226192468	7.21988E-07	1.19017E-05	1.180670127	3.7686E-06	6.2124E-05	1.015451392	3.24124E-06	5.34306E-05	1.241643861	3.96323E-06	6.53323E-05
Road 8	8	1000-1100	0.251767125	8.13793E-07	1.34151E-05	0.216511313	6.99835E-07	1.15365E-05	1.163813688	3.76182E-06	6.20122E-05	1.000311938	3.23333E-06	5.33003E-05	1.21682325	3.93317E-06	6.48368E-05
Road 8	8	1100-1200	0.260622264	8.3715E-07	1.38001E-05	0.219979811	7.06602E-07	1.16481E-05	1.216605723	3.90789E-06	6.442E-05	1.026802642	3.29821E-06	5.43698E-05	1.246782453	4.00482E-06	6.60179E-05
Road 8	8	1200-1300	0.263669118	9.0553E-07	1.49273E-05	0.223085118	7.66151E-07	1.26297E-05	1.241149882	4.26253E-06	7.02663E-05	1.049765235	3.60525E-06	5.94313E-05	1.272850353	4.37141E-06	7.2061E-05
Road 8	8	1300-1400	0.241555926	7.90547E-07	1.30319E-05	0.205842593	6.73667E-07	1.11051E-05	1.121894506	3.67165E-06	6.05258E-05	0.955568272	3.12731E-06	5.15526E-05	1.161410864	3.80098E-06	6.26577E-05
Road 8	8	1400-1500	0.237078201	6.65735E-07	1.09744E-05	0.201121942	5.64767E-07	9.30997E-06	1.146441871	3.2193E-06	5.3069E-05	0.972211799	2.73005E-06	4.50038E-05	1.173333741	3.29482E-06	5.43138E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.246379568	6.91854E-07	1.14049E-05	0.206696547	5.80421E-07	9.56802E-06	1.161516475	3.26163E-06	5.37668E-05	0.973565755	2.73385E-06	4.50665E-05	1.180262302	3.31427E-06	5.46345E-05
Road 8	8	1600-1700	0.243394362	7.32642E-07	1.20773E-05	0.207986913	6.26062E-07	1.03204E-05	1.137087718	3.42275E-06	5.64227E-05	0.971286577	2.92367E-06	4.81956E-05	1.17927349	3.54973E-06	5.8516E-05
Road 8	8	1700-1800	0.194734295	6.13708E-07	1.01167E-05	0.166789615	5.2564E-07	8.66498E-06	0.944975	2.9781E-06	4.90929E-05	0.807990705	2.54639E-06	4.19764E-05	0.974780321	3.07203E-06	5.06413E-05
Road 8	8	1800-1900	0.195340935	4.22252E-07	6.96067E-06	0.169974673	3.6742E-07	6.05678E-06	0.972128318	2.10137E-06	3.46403E-05	0.844973458	1.82651E-06	3.01093E-05	1.014948131	2.19393E-06	3.61661E-05
Road 8	8	1900-2000	0.189495065	2.9477E-07	4.85917E-06	0.167990519	2.61319E-07	4.30774E-06	0.966533636	1.5035E-06	2.47846E-05	0.856345065	1.33209E-06	2.1959E-05	1.024335584	1.59341E-06	2.62668E-05
Road 8	8	2000-2100	0.204916234	3.18759E-07	5.25462E-06	0.181454675	2.82263E-07	4.653E-06	0.952787792	1.48211E-06	2.44321E-05	0.842996623	1.31133E-06	2.16168E-05	1.024451299	1.59359E-06	2.62697E-05
Road 8	8	2100-2200	0.171905185	1.87533E-07	3.09141E-06	0.153450926	1.67401E-07	2.75954E-06	0.872129444	9.51414E-07	1.56837E-05	0.777367222	8.48037E-07	1.39796E-05	0.930818148	1.01544E-06	1.67391E-05
Road 8	8	2200-2300	0.211675781	2.73682E-07	4.51154E-06	0.183807344	2.3765E-07	3.91757E-06	1.016986563	1.31489E-06	2.16755E-05	0.882079219	1.14047E-06	1.88002E-05	1.065886563	1.37812E-06	2.27177E-05
Road 8	8	2300-0000	0.160529245	1.7188E-07	2.83337E-06	0.143693585	1.53854E-07	2.53622E-06	0.802723396	8.59482E-07	1.41682E-05	0.717944717	7.68708E-07	1.26719E-05	0.861638302	9.22562E-07	1.52081E-05
Road 9	9	0000-0100	0.636901131	1.66551E-07	5.04942E-06	0.623819813	1.6313E-07	4.94571E-06	3.502333338	9.15865E-07	2.77669E-05	3.44082976	8.99782E-07	2.72793E-05	4.064649573	1.06291E-06	3.2225E-05
Road 9	9	0100-0200	0.656981327	1.34987E-07	4.09249E-06	0.646765971	1.32888E-07	4.02885E-06	3.45106563	7.09075E-07	2.14975E-05	3.405582704	6.99729E-07	2.12141E-05	4.052348675	8.32617E-07	2.5243E-05
Road 9	9	0200-0300	0.328449909	3.0675E-08	9.29995E-07	0.324428986	3.02995E-08	9.1861E-07	2.252305564	2.1035E-07	6.37733E-06	2.225804458	2.07875E-07	6.30229E-06	2.550233444	2.38175E-07	7.2209E-06
Road 9	9	0300-0400	0.406757056	3.03907E-08	9.21375E-07	0.402571865	3.0078E-08	9.11895E-07	2.704881555	2.02094E-07	6.12702E-06	2.680276776	2.00256E-07	6.07129E-06	3.082848641	2.30334E-07	6.98319E-06
Road 9	9	0400-0500	0.716015691	1.33742E-07	4.05475E-06	0.705790552	1.31832E-07	3.99684E-06	3.734392313	6.97535E-07	2.11476E-05	3.690968094	6.89424E-07	2.09017E-05	4.396758647	8.21256E-07	2.48985E-05
Road 9	9	0500-0600	0.525382685	1.66829E-07	5.05785E-06	0.516563048	1.64028E-07	4.97294E-06	2.960042447	9.39924E-07	2.84963E-05	2.917898455	9.26542E-07	2.80906E-05	3.434461503	1.09057E-06	3.30635E-05
Road 9	9	0600-0700	0.578064875	3.4552E-07	1.04753E-05	0.566566945	3.38647E-07	1.0267E-05	3.263774935	1.95082E-06	5.91441E-05	3.206707855	1.91671E-06	5.811E-05	3.773274799	2.25535E-06	6.8377E-05
Road 9	9	0700-0800	0.417122632	3.81774E-07	1.15745E-05	0.403641307	3.69435E-07	1.12004E-05	2.403874172	2.20016E-06	6.67036E-05	2.332363843	2.13471E-06	6.47193E-05	2.73600515	2.50414E-06	7.59197E-05
Road 9	9	0800-0900	0.734457739	1.57765E-06	4.78306E-05	0.708848089	1.52264E-06	4.61628E-05	4.290420516	9.21603E-06	0.000279408	4.16480373	8.9462E-06	0.000271228	4.873651819	1.04688E-05	0.00031739
Road 9	9	0900-1000	0.711943839	1.15694E-06	3.50757E-05	0.686734164	1.11597E-06	3.38337E-05	3.802174183	6.1787E-06	0.000187324	3.689469784	5.99555E-06	0.000181771	4.376203948	7.11153E-06	0.000215605
Road 9	9	1000-1100	0.877176109	1.19607E-06	3.62619E-05	0.846289011	1.15395E-06	3.49851E-05	4.577966282	6.24225E-06	0.00018925	4.444759937	6.06062E-06	0.000183744	5.291048949	7.21457E-06	0.000218729
Road 9	9	1100-1200	0.688551972	9.77454E-07	2.96341E-05	0.66371087	9.4219E-07	2.8565E-05	3.867931409	5.49083E-06	0.000166469	3.747757065	5.32024E-06	0.000161297	4.411467935	6.26243E-06	0.000189862
Road 9	9	1200-1300	0.776458009	1.07324E-06	3.2538E-05	0.746796242	1.03224E-06	3.1295E-05	4.095731099	5.66121E-06	0.000171634	3.9629324	5.47765E-06	0.000166069	4.709728642	6.50989E-06	0.000197364
Road 9	9	1300-1400	0.837506583	9.54254E-07	2.89307E-05	0.804120216	9.16214E-07	2.77774E-05	3.815149364	4.34698E-06	0.00013179	3.68127104	4.19444E-06	0.000127165	4.485391256	5.11065E-06	0.000154943
Road 9	9	1400-1500	0.52453703	6.66241E-07	2.01988E-05	0.503918129	6.40051E-07	1.94048E-05	3.160842195	4.01474E-06	0.000121718	3.055655057	3.88114E-06	0.000117667	3.559573186	4.52119E-06	0.000137072
Road 9	9	1500-1600	0.552963456	5.88732E-07	1.7849E-05	0.532511469	5.66957E-07	1.71888E-05	3.268679793	3.48011E-06	0.000105509	3.167751364	3.37266E-06	0.000102251	3.700262833	3.93961E-06	0.00011944
Road 9	9	1600-1700	0.499897278	7.46993E-07	2.26471E-05	0.482009878	7.20264E-07	2.18367E-05	3.075800216	4.59615E-06	0.000139344	2.976259052	4.44741E-06	0.000134835	3.45826893	5.16767E-06	0.000156672
Road 9	9	1700-1800	0.375217637	4.83591E-07	1.46613E-05	0.362392324	4.67062E-07	1.41602E-05	2.240640578	2.8878E-06	8.75513E-05	2.169028202	2.79551E-06	8.47531E-05	2.531420526	3.26257E-06	9.89133E-05
Road 9	9	1800-1900	0.355869167	2.92475E-07	8.86716E-06	0.345234583	2.83735E-07	8.60218E-06	1.991371229	1.63663E-06	4.96188E-05	1.934126316	1.58958E-06	4.81924E-05	2.279360899	1.87332E-06	5.67946E-05
Road 9	9	1900-2000	0.393706734	3.16219E-07	9.587E-06	0.383086956	3.07689E-07	9.3284E-06	2.3019426	1.84888E-06	5.60537E-05	2.245091416	1.80322E-06	5.46693E-05	2.628178372	2.11091E-06	6.39977E-05
Road 9	9	2000-2100	0.512824079	2.77787E-07	8.42186E-06	0.499027153	2.70314E-07	8.19528E-06	2.311637222	1.25217E-06	3.79629E-05	2.256907632	1.22253E-06	3.70641E-05	2.755934785	1.49284E-06	4.52594E-05
Road 9	9	2100-2200	0.019173148	1.00276E-08	3.04013E-07	0.017710645	9.26272E-09	2.80824E-07	0.271577564	1.42036E-07	4.30619E-06	0.248682406	1.30062E-07	3.94316E-06	0.266393051	1.39324E-07	4.22398E-06
Road 9	9	2200-2300	0.546952458	3.37139E-07	1.02213E-05	0.53055836	3.27034E-07	9.9149E-06	3.055085384	1.88314E-06	5.70924E-05	2.976488249	1.8347E-06	5.56237E-05	3.507046609	2.16173E-06	6.55386E-05
Road 9	9	2300-0000	0.38187013	2.13985E-07	6.48751E-06	0.372502781	2.08736E-07	6.32837E-06	2.186459058	1.2252E-06	3.71453E-05	2.137983663	1.19804E-06	3.63218E-05	2.510486445	1.40678E-06	4.26501E-05
Road 10	10	0000-0100	1.161920575	8.94837E-07	1.98633E-05	1.140686353	8.78484E-07	1.95003E-05	7.31967352	5.63714E-06	0.000125131	7.215227832	5.55671E-06	0.000123346	8.355914185	6.43519E-06	0.000142846
Road 10	10	0100-0200	1.106742142	6.43992E-07	1.42951E-05	1.091608319	6.35186E-07	1.40996E-05	6.912731317	4.02238E-06	8.92874E-05	6.839024106	3.97949E-06	8.83354E-05	7.930632425	4.61468E-06	0.000102435
Road 10	10	0200-0300	1.176671726	3.82617E-07	8.49318E-06	1.163014884	3.78176E-07	8.39461E-06	7.257654677	2.35996E-06	5.23855E-05	7.192237939	2.33869E-06	5.19134E-05	8.355252823	2.71686E-06	6.0308E-05
Road 10	10	0300-0400	1.064084918	2.18531E-07	4.85086E-06	1.053800751	2.16419E-07	4.80398E-06	6.915082126	1.42015E-06	3.15239E-05	6.862156755	1.40928E-06	3.12826E-05	7.915957507	1.6257E-06	3.60866E-05
Road 10	10	0400-0500	1.141816293	4.49447E-07	9.97667E-06	1.127149771	4.43674E-07	9.84852E-06	6.986628669	2.75011E-06	6.1046E-05	6.91670919	2.72259E-06	6.0435E-05	8.043858961	3.16626E-06	7.02836E-05
Road 10	10	0500-0600	1.014870436	7.12114E-07	1.58072E-05	1.000597753	7.02099E-07	1.55849E-05	6.134068061	4.30415E-06	9.55419E-05	6.066763847	4.25692E-06	9.44936E-05	7.0673616	4.95902E-06	0.000110079
Road 10	10	0600-0700	1.086346853	1.52453E-06	3.38411E-05	1.064490268	1.49386E-06	3.31602E-05	6.458825004	9.06405E-06	0.0002012	6.356581439	8.92056E-06	0.000198015	7.421071707	1.04144E-05	0.000231176
Road 10	10	0700-0800	1.049832497	2.31774E-06	5.14483E-05	1.018144484	2.24778E-06	4.98954E-05	6.297263445	1.39026E-05	0.000308605	6.147181997	1.35713E-05	0.00030125	7.165326481	1.58191E-05	0.000351146
Road 10	10	0800-0900	1.184494871	5.02736E-06	0.000111595	1.146006073	4.864E-06	0.000107969	7.170348823	3.04331E-05	0.000675544	6.987343558	2.96564E-05	0.000658302	8.133349631	3.45204E-05	0.000766271
Road 10	10	0900-1000	1.214853483	4.11665E-06	9.13799E-05	1.173039128	3.97496E-06	8.82347E-05	7.182700337	2.43393E-05	0.000540274	6.988609669	2.36816E-05	0.000525675	8.161648797	2.76565E-05	0.00061391
Road 10	10	1000-1100	1.21975666	4.48814E-06	9.96261E-05	1.175927388	4.32687E-06	9.60463E-05	7.017244964	2.58202E-05	0.000573148	6.821642631	2.51005E-05	0.000557172	7.997570019	2.94274E-05	0.000653218
Road 10	10	1100-1200	1.249690993	4.59829E-06	0.000102071	1.200699999	4.41802E-06	9.80696E-05	7.359360405	2.7079E-05	0.000601091	7.135523233	2.62554E-05	0.000582808	8.336223232	3.06735E-05	0.000680878
Road 10	10	1200-1300	1.244838819	4.72956E-06	0.000104985	1.196226957	4.54487E-06	0.000100885	7.335503373	2.787E-05	0.000618649	7.113381783	2.70261E-05	0.000599916	8.30960874	3.1571E-05	0.000700802
Road 10	10	1300-1400	1.207739636	3.96853E-06	8.80919E-05	1.162658737	3.8204E-06	8.48037E-05	7.014117145	2.30478E-05	0.000511606	6.809343343	2.23749E-05	0.00049667	7.97200208	2.61953E-05	0.000581474
Road 10	10	1400-1500	1.103161065	3.41722E-06	7.58541E-05	1.06132149	3.28761E-06	7.29772E-05	6.715974377	2.08038E-05	0.000461795	6.515100578	2.01816E-05	0.000447983	7.576422068	2.34692E-05	0.00052096
Road 10	10	1500-1600	1.17304666	3.714E-06	8.2442E-05	1.126151882	3.56553E-06	7.91462E-05	6.968807785	2.2064E-05	0.000489769	6.751502152	2.1376E-05	0.000474497	7.877654035	2.49416E-05	0.000553643
Road 10	10	1600-1700	1.066736912	3.76079E-06	8.34807E-05	1.027923107	3.62395E-06	8.04432E-05	6.439194655	2.27015E-05	0.000503918	6.253818795	2.20479E-05	0.000489411	7.281741902	2.56719E-05	0.000569855
Road 10	10	1700-1800	0.963458865	3.21531E-06	7.13722E-05	0.929810116	3.10301E-06	6.88796E-05	5.819382925	1.94208E-05	0.000431095	5.657480736	1.88805E-05	0.000419101	6.587290852	2.19835E-05	0.000487981
Road 10	10	1800-1900	1.042728552	2.15929E-06	4.79312E-05	1.010484011	2.09252E-06	4.6449E-05	6.33850445	1.31258E-05	0.000291363	6.184318364	1.28065E-05	0.000284275	7.194802375	1.48991E-05	0.000330724
Road 10	10	1900-2000	1.014787507	1.89303E-06	4.20207E-05	0.991508908	1.8496E-06	4.10568E-05	6.368984139	1.1881E-05	0.000263729	6.253528217	1.16656E-05	0.000258948	7.245037125	1.35152E-05	0.000300005
Road 10	10	2000-2100	1.296777989	1.59791E-06	3.54699E-05	1.267274643	1.56156E-06	3.46629E-05	7.913068016	9.75062E-06	0.000216441	7.775209254	9.58075E-06	0.00021267	9.042483897	1.11423E-05	0.000247333
Road 10	10	2100-2200	0.865337175	1.0959E-06	2.43264E-05	0.846499202	1.07205E-06	2.37969E-05	5.433596287	6.88135E-06	0.00015275	5.336709242	6.75865E-06	0.000150026	6.183208444	7.8307E-06	0.000173823
Road 10	10	2200-2300	1.037963007	1.36782E-06	3.03623E-05	1.009613526	1.33046E-06	2.9533E-05	6.281795107	8.27807E-06	0.000183754	6.145834995	8.09891E-06	0.000179777	7.155448521	9.42936E-06	0.00020931
Road 10	10	2300-0000	0.937732321	1.15549E-06	2.56491E-05	0.916327043	1.12911E-06	2.50637E-05	5.794832392	7.14049E-06	0.000158502	5.690083442	7.01142E-06	0.000155637	6.606410485	8.14053E-06	0.000180701
Road 11	11	0000-0100	1.300653914	9.93555E-07	8.24162E-06	1.276652551	9.75221E-07	8.08953E-06	8.172411324	6.24281E-06	5.17847E-05	8.054893956	6.15304E-06	5.104E-05	9.331546506	7.12826E-06	5.91295E-05
Road 11	11	0100-0200	1.266078058	6.81396E-07	5.65224E-06	1.248653542	6.72018E-07	5.57445E-06	7.873288295	4.23736E-06	3.51492E-05	7.789109649	4.19206E-06	3.47734E-05	9.03776319	4.86407E-06	4.03479E-05
Road 11	11	0200-0300	1.173856686	3.05692E-07	2.53574E-06	1.160252686	3.02149E-07	2.50635E-06	7.606235601	1.98079E-06	1.64308E-05	7.536763971	1.9627E-06	1.62807E-05	8.697016657	2.26485E-06	1.87871E-05
Road 11	11	0300-0400	1.254469541	3.04906E-07	2.52922E-06	1.242314541	3.01951E-07	2.50471E-06	8.107226403	1.97051E-06	1.63455E-05	8.046203035	1.95567E-06	1.62225E-05	9.288517576	2.25763E-06	1.87272E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.156944684	4.01717E-07	3.33227E-06	1.141887684	3.96489E-07	3.28891E-06	7.01224727	2.43481E-06	2.01969E-05	6.941278869	2.41017E-06	1.99925E-05	8.083166553	2.80666E-06	2.32814E-05
Road 11	11	0500-0600	0.925591109	4.33871E-07	3.59899E-06	0.912459627	4.27715E-07	3.54793E-06	5.689573148	2.66699E-06	2.21229E-05	5.625493892	2.63695E-06	2.18737E-05	6.537953519	3.06467E-06	2.54217E-05
Road 11	11	0600-0700	0.975485663	8.80647E-07	7.30504E-06	0.95688797	8.63857E-07	7.16577E-06	5.991730901	5.4092E-06	4.48698E-05	5.899733118	5.32615E-06	4.41808E-05	6.856621088	6.19001E-06	5.13466E-05
Road 11	11	0700-0800	1.114591614	2.10921E-06	1.74961E-05	1.081218394	2.04606E-06	1.69722E-05	6.954511628	1.31604E-05	0.000109167	6.790466318	1.285E-05	0.000106592	7.871684713	1.48961E-05	0.000123564
Road 11	11	0800-0900	1.12755586	4.013E-06	3.32882E-05	1.091120326	3.88333E-06	3.22125E-05	6.921736697	2.46347E-05	0.000204346	6.7455586	2.40076E-05	0.000199145	7.836678925	2.7891E-05	0.000231358
Road 11	11	0900-1000	1.114239188	2.84363E-06	2.35882E-05	1.076283658	2.74677E-06	2.27846E-05	6.629684056	1.69195E-05	0.000140349	6.452347009	1.64669E-05	0.000136594	7.528630667	1.92137E-05	0.000159379
Road 11	11	1000-1100	1.209181077	2.54012E-06	2.10705E-05	1.167845605	2.45329E-06	2.03502E-05	7.045414736	1.48003E-05	0.000122769	6.856353397	1.44031E-05	0.000119475	8.024199002	1.68564E-05	0.000139825
Road 11	11	1100-1200	1.137868798	2.68663E-06	2.22859E-05	1.095393189	2.58635E-06	2.14539E-05	6.916388598	1.63304E-05	0.000135462	6.711547285	1.58467E-05	0.00013145	7.806940475	1.84331E-05	0.000152904
Road 11	11	1200-1300	1.255012416	3.5733E-06	2.96408E-05	1.206835209	3.43613E-06	2.8503E-05	7.53831217	2.14632E-05	0.000178039	7.312294458	2.08197E-05	0.000172701	8.519129666	2.42559E-05	0.000201204
Road 11	11	1300-1400	1.269899948	2.66767E-06	2.21286E-05	1.22254713	2.5682E-06	2.13034E-05	7.269826196	1.52717E-05	0.00012668	7.056188909	1.48229E-05	0.000122957	8.27873604	1.73911E-05	0.000144261
Road 11	11	1400-1500	1.014749236	2.04359E-06	1.69518E-05	0.976614128	1.96679E-06	1.63147E-05	6.318728671	1.27252E-05	0.000105557	6.131342706	1.23478E-05	0.000102426	7.107956834	1.43146E-05	0.000118741
Road 11	11	1500-1600	1.110711228	2.25613E-06	1.87148E-05	1.072354707	2.17822E-06	1.80685E-05	6.977394534	1.41728E-05	0.000117565	6.787883176	1.37879E-05	0.000114372	7.860237883	1.59661E-05	0.00013244
Road 11	11	1600-1700	0.986758173	2.39837E-06	1.98947E-05	0.955774436	2.32306E-06	1.927E-05	6.247878922	1.51858E-05	0.000125968	6.088625324	1.47987E-05	0.000122757	7.04439976	1.71218E-05	0.000142027
Road 11	11	1700-1800	1.001385981	2.48608E-06	2.06222E-05	0.971130149	2.41097E-06	1.99992E-05	6.340716152	1.57417E-05	0.000130579	6.187471825	1.53613E-05	0.000127423	7.158601974	1.77722E-05	0.000147422
Road 11	11	1800-1900	1.126610575	2.30799E-06	1.91449E-05	1.096175672	2.24564E-06	1.86277E-05	7.115689269	1.45773E-05	0.00012092	6.96339576	1.42653E-05	0.000118332	8.059571432	1.65109E-05	0.000136959
Road 11	11	1900-2000	1.040796608	1.64431E-06	1.36397E-05	1.016367137	1.60572E-06	1.33196E-05	6.573960384	1.03859E-05	8.61523E-05	6.451358579	1.01923E-05	8.45455E-05	7.467725716	1.1798E-05	9.78651E-05
Road 11	11	2000-2100	1.140647415	1.60404E-06	1.33056E-05	1.114262274	1.56693E-06	1.29978E-05	6.97820688	9.8131E-06	8.14005E-05	6.852668857	9.63657E-06	7.99361E-05	7.966931131	1.12035E-05	9.29339E-05
Road 11	11	2100-2200	0.846704369	8.52584E-07	7.07226E-06	0.828250576	8.34002E-07	6.91812E-06	5.507467637	5.54571E-06	4.60021E-05	5.408995622	5.44656E-06	4.51796E-05	6.237246198	6.28056E-06	5.20978E-05
Road 11	11	2200-2300	1.060841756	1.1603E-06	9.62475E-06	1.031632232	1.12835E-06	9.35974E-06	6.566528598	7.18214E-06	5.95764E-05	6.423715286	7.02594E-06	5.82807E-05	7.455347518	8.15429E-06	6.76405E-05
Road 11	11	2300-0000	0.998269379	1.03986E-06	8.62576E-06	0.976890213	1.01759E-06	8.44102E-06	6.279616056	6.54127E-06	5.42603E-05	6.172943482	6.43015E-06	5.33386E-05	7.149833695	7.44774E-06	6.17796E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.474621612	4.65154E-06	6.99615E-06	2.323221612	4.36696E-06	6.56812E-06	13.96461354	2.62493E-05	3.94802E-05	13.30124354	2.50023E-05	3.76048E-05	15.62446515	2.93693E-05	4.41729E-05
Haul Road 1	HR1	0800-0900	2.500701612	4.70057E-06	7.06989E-06	2.341911612	4.40209E-06	6.62096E-06	14.07864354	2.64636E-05	3.98026E-05	13.38328354	2.51565E-05	3.78367E-05	15.72519515	2.95586E-05	4.44577E-05
Haul Road 1	HR1	0900-1000	2.511101612	4.72012E-06	7.09929E-06	2.340811612	4.40002E-06	6.61785E-06	14.12430354	2.65494E-05	3.99317E-05	13.37809354	2.51468E-05	3.7822E-05	15.71890515	2.95468E-05	4.44399E-05
Haul Road 1	HR1	1000-1100	2.526691612	4.74942E-06	7.14336E-06	2.354001612	4.42482E-06	6.65514E-06	14.19285354	2.66783E-05	4.01255E-05	13.43615354	2.52559E-05	3.79862E-05	15.79015515	2.96807E-05	4.46413E-05
Haul Road 1	HR1	1100-1200	2.526291612	4.74867E-06	7.14223E-06	2.334411612	4.38799E-06	6.59976E-06	14.19105354	2.66749E-05	4.01204E-05	13.35041354	2.50948E-05	3.77438E-05	15.68482515	2.94828E-05	4.43435E-05
Haul Road 1	HR1	1200-1300	2.531881612	4.75918E-06	7.15804E-06	2.341411612	4.40115E-06	6.61955E-06	14.21574354	2.67213E-05	4.01902E-05	13.38109354	2.51524E-05	3.78305E-05	15.72250515	2.95536E-05	4.445E-05
Haul Road 1	HR1	1300-1400	2.531881612	4.75918E-06	7.15804E-06	2.348501612	4.41448E-06	6.63959E-06	14.21525354	2.67204E-05	4.01888E-05	13.41177354	2.52101E-05	3.79172E-05	15.76027515	2.96246E-05	4.45568E-05
Haul Road 1	HR1	1400-1500	2.537081612	4.76895E-06	7.17274E-06	2.348501612	4.41448E-06	6.63959E-06	14.23853354	2.67642E-05	4.02546E-05	13.41177354	2.52101E-05	3.79172E-05	15.76027515	2.96246E-05	4.45568E-05
Haul Road 1	HR1	1500-1600	2.542381612	4.77891E-06	7.18772E-06	2.341411612	4.40115E-06	6.61955E-06	14.26131354	2.6807E-05	4.0319E-05	13.38109354	2.51524E-05	3.78305E-05	15.72250515	2.95536E-05	4.445E-05
Haul Road 1	HR1	1600-1700	2.526691612	4.74942E-06	7.14336E-06	2.347401612	4.41241E-06	6.63648E-06	14.19285354	2.66783E-05	4.01255E-05	13.40718354	2.52015E-05	3.79043E-05	15.75458515	2.96139E-05	4.45407E-05
Haul Road 1	HR1	1700-1800	2.500701612	4.70057E-06	7.06989E-06	2.327521612	4.37504E-06	6.58028E-06	14.07864354	2.64636E-05	3.98026E-05	13.32013354	2.50378E-05	3.76582E-05	15.64765515	2.94129E-05	4.42384E-05
Haul Road 1	HR1	1800-1900	2.498801612	4.697E-06	7.06451E-06	2.341911612	4.40209E-06	6.62096E-06	14.07054354	2.64484E-05	3.97797E-05	13.38328354	2.51565E-05	3.78367E-05	15.72519515	2.95586E-05	4.44577E-05
Haul Road 1	HR1	1900-2000	2.469421612	4.64177E-06	6.98145E-06	2.335711612	4.39044E-06	6.60343E-06	13.94173354	2.62063E-05	3.94155E-05	13.35591354	2.51051E-05	3.77593E-05	15.69162515	2.94955E-05	4.43627E-05
Haul Road 1	HR1	2000-2100	2.448541612	4.60252E-06	6.92242E-06	2.316921612	4.35512E-06	6.55031E-06	13.85048354	2.60347E-05	3.91575E-05	13.27396354	2.49511E-05	3.75276E-05	15.59088515	2.93062E-05	4.40779E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.474621612	3.20547E-06	6.38221E-06	2.323221612	3.00935E-06	5.99174E-06	13.96461354	1.80889E-05	3.60157E-05	13.30124354	1.72296E-05	3.43048E-05	15.62446515	2.02389E-05	4.02965E-05
Haul Road 2	HR2	0800-0900	2.500701612	3.23925E-06	6.44947E-06	2.341911612	3.03356E-06	6.03994E-06	14.07864354	1.82366E-05	3.63097E-05	13.38328354	1.73359E-05	3.45164E-05	15.72519515	2.03694E-05	4.05563E-05
Haul Road 2	HR2	0900-1000	2.511101612	3.25272E-06	6.4763E-06	2.340811612	3.03214E-06	6.03711E-06	14.12430354	1.82957E-05	3.64275E-05	13.37809354	1.73291E-05	3.4503E-05	15.71890515	2.03613E-05	4.05401E-05
Haul Road 2	HR2	1000-1100	2.526691612	3.27292E-06	6.5165E-06	2.354001612	3.04922E-06	6.07112E-06	14.19285354	1.83845E-05	3.66043E-05	13.43615354	1.74043E-05	3.46527E-05	15.79015515	2.04536E-05	4.07238E-05
Haul Road 2	HR2	1100-1200	2.526291612	3.2724E-06	6.51547E-06	2.334411612	3.02385E-06	6.0206E-06	14.19105354	1.83822E-05	3.65997E-05	13.35041354	1.72933E-05	3.44316E-05	15.68482515	2.03171E-05	4.04522E-05
Haul Road 2	HR2	1200-1300	2.531881612	3.27964E-06	6.52989E-06	2.341411612	3.03292E-06	6.03865E-06	14.21574354	1.84142E-05	3.66633E-05	13.38109354	1.7333E-05	3.45107E-05	15.72250515	2.03659E-05	4.05494E-05
Haul Road 2	HR2	1300-1400	2.531881612	3.27964E-06	6.52989E-06	2.348501612	3.0421E-06	6.05694E-06	14.21525354	1.84135E-05	3.66621E-05	13.41177354	1.73728E-05	3.45898E-05	15.76027515	2.04149E-05	4.06468E-05
Haul Road 2	HR2	1400-1500	2.537081612	3.28638E-06	6.5433E-06	2.348501612	3.0421E-06	6.05694E-06	14.23853354	1.84437E-05	3.67221E-05	13.41177354	1.73728E-05	3.45898E-05	15.76027515	2.04149E-05	4.06468E-05
Haul Road 2	HR2	1500-1600	2.542381612	3.29324E-06	6.55697E-06	2.341411612	3.03292E-06	6.03865E-06	14.26131354	1.84732E-05	3.67809E-05	13.38109354	1.7333E-05	3.45107E-05	15.72250515	2.03659E-05	4.05494E-05
Haul Road 2	HR2	1600-1700	2.526691612	3.27292E-06	6.5165E-06	2.347401612	3.04068E-06	6.0541E-06	14.19285354	1.83845E-05	3.66043E-05	13.40718354	1.73668E-05	3.4578E-05	15.75458515	2.04075E-05	4.06321E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.500701612	3.23925E-06	6.44947E-06	2.327521612	3.01492E-06	6.00283E-06	14.07864354	1.82366E-05	3.63097E-05	13.32013354	1.72541E-05	3.43535E-05	15.64765515	2.0269E-05	4.03563E-05
Haul Road 2	HR2	1800-1900	2.498801612	3.23679E-06	6.44457E-06	2.341911612	3.03356E-06	6.03994E-06	14.07054354	1.82261E-05	3.62889E-05	13.38328354	1.73359E-05	3.45164E-05	15.72519515	2.03694E-05	4.05563E-05
Haul Road 2	HR2	1900-2000	2.469421612	3.19873E-06	6.3688E-06	2.335711612	3.02553E-06	6.02395E-06	13.94173354	1.80592E-05	3.59566E-05	13.35591354	1.73004E-05	3.44458E-05	15.69162515	2.03259E-05	4.04697E-05
Haul Road 2	HR2	2000-2100	2.448541612	3.17169E-06	6.31495E-06	2.316921612	3.00119E-06	5.97549E-06	13.85048354	1.7941E-05	3.57213E-05	13.27396354	1.71943E-05	3.42344E-05	15.59088515	2.01954E-05	4.02099E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.474621612	3.20547E-06	5.90349E-06	2.323221612	3.00935E-06	5.5423E-06	13.96461354	1.80889E-05	3.33141E-05	13.30124354	1.72296E-05	3.17316E-05	15.62446515	2.02389E-05	3.72739E-05
Haul Road 3	HR3	0800-0900	2.500701612	3.23925E-06	5.9657E-06	2.341911612	3.03356E-06	5.58689E-06	14.07864354	1.82366E-05	3.35862E-05	13.38328354	1.73359E-05	3.19273E-05	15.72519515	2.03694E-05	3.75142E-05
Haul Road 3	HR3	0900-1000	2.511101612	3.25272E-06	5.99051E-06	2.340811612	3.03214E-06	5.58427E-06	14.12430354	1.82957E-05	3.36951E-05	13.37809354	1.73291E-05	3.19149E-05	15.71890515	2.03613E-05	3.74992E-05
Haul Road 3	HR3	1000-1100	2.526691612	3.27292E-06	6.0277E-06	2.354001612	3.04922E-06	5.61573E-06	14.19285354	1.83845E-05	3.38586E-05	13.43615354	1.74043E-05	3.20534E-05	15.79015515	2.04536E-05	3.76692E-05
Haul Road 3	HR3	1100-1200	2.526291612	3.2724E-06	6.02675E-06	2.334411612	3.02385E-06	5.569E-06	14.19105354	1.83822E-05	3.38543E-05	13.35041354	1.72933E-05	3.18489E-05	15.68482515	2.03171E-05	3.74179E-05
Haul Road 3	HR3	1200-1300	2.531881612	3.27964E-06	6.04009E-06	2.341411612	3.03292E-06	5.5857E-06	14.21574354	1.84142E-05	3.39132E-05	13.38109354	1.7333E-05	3.19221E-05	15.72250515	2.03659E-05	3.75078E-05
Haul Road 3	HR3	1300-1400	2.531881612	3.27964E-06	6.04009E-06	2.348501612	3.0421E-06	5.60261E-06	14.21525354	1.84135E-05	3.39121E-05	13.41177354	1.73728E-05	3.19953E-05	15.76027515	2.04149E-05	3.75979E-05
Haul Road 3	HR3	1400-1500	2.537081612	3.28638E-06	6.05249E-06	2.348501612	3.0421E-06	5.60261E-06	14.23853354	1.84437E-05	3.39676E-05	13.41177354	1.73728E-05	3.19953E-05	15.76027515	2.04149E-05	3.75979E-05
Haul Road 3	HR3	1500-1600	2.542381612	3.29324E-06	6.06513E-06	2.341411612	3.03292E-06	5.5857E-06	14.26131354	1.84732E-05	3.40219E-05	13.38109354	1.7333E-05	3.19221E-05	15.72250515	2.03659E-05	3.75078E-05
Haul Road 3	HR3	1600-1700	2.526691612	3.27292E-06	6.0277E-06	2.347401612	3.04068E-06	5.59999E-06	14.19285354	1.83845E-05	3.38586E-05	13.40718354	1.73668E-05	3.19843E-05	15.75458515	2.04075E-05	3.75843E-05
Haul Road 3	HR3	1700-1800	2.500701612	3.23925E-06	5.9657E-06	2.327521612	3.01492E-06	5.55256E-06	14.07864354	1.82366E-05	3.35862E-05	13.32013354	1.72541E-05	3.17767E-05	15.64765515	2.0269E-05	3.73292E-05
Haul Road 3	HR3	1800-1900	2.498801612	3.23679E-06	5.96117E-06	2.341911612	3.03356E-06	5.58689E-06	14.07054354	1.82261E-05	3.35668E-05	13.38328354	1.73359E-05	3.19273E-05	15.72519515	2.03694E-05	3.75142E-05
Haul Road 3	HR3	1900-2000	2.469421612	3.19873E-06	5.89108E-06	2.335711612	3.02553E-06	5.5721E-06	13.94173354	1.80592E-05	3.32596E-05	13.35591354	1.73004E-05	3.1862E-05	15.69162515	2.03259E-05	3.74341E-05
Haul Road 3	HR3	2000-2100	2.448541612	3.17169E-06	5.84127E-06	2.316921612	3.00119E-06	5.52727E-06	13.85048354	1.7941E-05	3.30419E-05	13.27396354	1.71943E-05	3.16665E-05	15.59088515	2.01954E-05	3.71938E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.080685419	2.71072E-07	2.20521E-06	0.072247374	2.42723E-07	1.97459E-06	0.475399106	1.59716E-06	1.29931E-05	0.423886536	1.42409E-06	1.15852E-05	0.496133911	1.66682E-06	1.35598E-05
Road 1	1	0100-0200	0.062510734	1.27884E-07	1.04036E-06	0.055957248	1.14477E-07	9.31288E-07	0.375335413	7.6786E-07	6.24665E-06	0.334661927	6.8465E-07	5.56973E-06	0.390619174	7.99127E-07	6.50102E-06
Road 1	1	0200-0300	0.059060519	8.5354E-08	6.94367E-07	0.053444156	7.72372E-08	6.28336E-07	0.373672468	5.4003E-07	4.39322E-06	0.336041429	4.85645E-07	3.9508E-06	0.389485584	5.62883E-07	4.57913E-06
Road 1	1	0300-0400	0.050443636	5.20721E-08	4.23614E-07	0.045681091	4.71558E-08	3.83619E-07	0.306608727	3.16507E-07	2.57483E-06	0.276303636	2.85223E-07	2.32033E-06	0.321984727	3.32379E-07	2.70395E-06
Road 1	1	0400-0500	0.063913721	1.03164E-07	8.39255E-07	0.05941186	9.58975E-08	7.80141E-07	0.364003953	5.87544E-07	4.77976E-06	0.337182558	5.44251E-07	4.42756E-06	0.396594419	6.40149E-07	5.2077E-06
Road 1	1	0500-0600	0.052615	1.85654E-07	1.51032E-06	0.049143298	1.73404E-07	1.41066E-06	0.308348936	1.08802E-06	8.85119E-06	0.286707819	1.01166E-06	8.22998E-06	0.335851117	1.18506E-06	9.64064E-06
Road 1	1	0600-0700	0.071233323	4.50556E-07	3.66534E-06	0.064904777	4.10528E-07	3.3397E-06	0.376910801	2.38399E-06	1.93941E-05	0.342087626	2.16373E-06	1.76023E-05	0.406992404	2.57426E-06	2.0942E-05
Road 1	1	0700-0800	0.06073089	6.40592E-07	5.21131E-06	0.054719199	5.77181E-07	4.69545E-06	0.332192705	3.50398E-06	2.85054E-05	0.297425641	3.13726E-06	2.55221E-05	0.35214484	3.71444E-06	3.02175E-05
Road 1	1	0800-0900	0.068938847	8.97965E-07	7.30508E-06	0.060727781	7.91011E-07	6.43499E-06	0.368808285	4.80392E-06	3.90806E-05	0.323338689	4.21166E-06	3.42624E-05	0.38406647	5.00267E-06	4.06974E-05
Road 1	1	0900-1000	0.073693529	9.8756E-07	8.03394E-06	0.065604664	8.79162E-07	7.15211E-06	0.407755966	5.4643E-06	4.44529E-05	0.361625476	4.84611E-06	3.94238E-05	0.42723014	5.72527E-06	4.65759E-05
Road 1	1	1000-1100	0.087947468	1.14721E-06	9.33274E-06	0.074895525	9.76959E-07	7.94771E-06	0.470542676	6.1379E-06	4.99327E-05	0.39908059	5.20572E-06	4.23493E-05	0.473976115	6.18268E-06	5.0297E-05
Road 1	1	1100-1200	0.07933957	1.00366E-06	8.1649E-06	0.067961068	8.59718E-07	6.99393E-06	0.454802062	5.75331E-06	4.68041E-05	0.387854436	4.90642E-06	3.99144E-05	0.455815504	5.76613E-06	4.69084E-05
Road 1	1	1200-1300	0.082695262	1.03524E-06	8.42185E-06	0.069533448	8.70473E-07	7.08143E-06	0.467783043	5.85607E-06	4.764E-05	0.391715592	4.9038E-06	3.98931E-05	0.46124904	5.77427E-06	4.69745E-05
Road 1	1	1300-1400	0.08706086	1.15852E-06	9.42476E-06	0.072563357	9.65605E-07	7.85534E-06	0.482645614	6.42259E-06	5.22487E-05	0.400606192	5.33089E-06	4.33676E-05	0.473169549	6.29649E-06	5.12229E-05
Road 1	1	1400-1500	0.082835748	1.19558E-06	9.72625E-06	0.06893	9.94879E-07	8.09349E-06	0.449424915	6.48663E-06	5.27697E-05	0.3724158	5.37515E-06	4.37276E-05	0.4413458	6.37002E-06	5.18211E-05
Road 1	1	1500-1600	0.089387263	1.20123E-06	9.77215E-06	0.074804804	1.00526E-06	8.17794E-06	0.483069469	6.4917E-06	5.28109E-05	0.402392263	5.40752E-06	4.3991E-05	0.477197067	6.41278E-06	5.21689E-05
Road 1	1	1600-1700	0.083430252	1.18224E-06	9.61771E-06	0.070070265	9.92925E-07	8.07759E-06	0.456382583	6.46713E-06	5.26111E-05	0.38132449	5.40353E-06	4.39585E-05	0.451394755	6.39645E-06	5.20361E-05
Road 1	1	1700-1800	0.065448061	9.31112E-07	7.57473E-06	0.055953562	7.96036E-07	6.47587E-06	0.365715343	5.20293E-06	4.23266E-05	0.310599472	4.41881E-06	3.59477E-05	0.366553034	5.21485E-06	4.24236E-05
Road 1	1	1800-1900	0.056282442	8.17617E-07	6.65143E-06	0.049616705	7.20783E-07	5.86368E-06	0.335655413	4.87608E-06	3.96676E-05	0.293418062	4.26249E-06	3.4676E-05	0.343034767	4.98328E-06	4.05397E-05
Road 1	1	1900-2000	0.069297589	7.71274E-07	6.27443E-06	0.05953914	6.62663E-07	5.39087E-06	0.396251788	4.41023E-06	3.58779E-05	0.337927032	3.76109E-06	3.0597E-05	0.397466172	4.42375E-06	3.59879E-05
Road 1	1	2000-2100	0.060250577	5.68807E-07	4.62733E-06	0.05376674	5.07595E-07	4.12936E-06	0.354554592	3.34724E-06	2.72303E-05	0.314520755	2.96929E-06	2.41556E-05	0.368287495	3.47689E-06	2.8285E-05
Road 1	1	2100-2200	0.064774248	5.58021E-07	4.53959E-06	0.057362549	4.94171E-07	4.02015E-06	0.385052789	3.31718E-06	2.69857E-05	0.338809216	2.9188E-06	2.37448E-05	0.396171765	3.41297E-06	2.7765E-05
Road 1	1	2200-2300	0.064721724	5.28415E-07	4.29873E-06	0.055664851	4.54471E-07	3.69719E-06	0.384759379	3.14134E-06	2.55552E-05	0.328115448	2.67887E-06	2.1793E-05	0.383780299	3.13334E-06	2.54902E-05
Road 1	1	2300-0000	0.05529141	4.04723E-07	3.29248E-06	0.048473051	3.54814E-07	2.88646E-06	0.337003256	2.4668E-06	2.00678E-05	0.292779205	2.14309E-06	1.74344E-05	0.341252256	2.49791E-06	2.03208E-05
Road 2	2	0000-0100	0.133597115	1.60811E-07	1.0385E-06	0.119594615	1.43956E-07	9.29657E-07	0.563453269	6.78231E-07	4.37995E-06	0.502839615	6.0527E-07	3.90877E-06	0.622434231	7.49226E-07	4.83843E-06
Road 2	2	0100-0200	0.094268824	7.41931E-08	4.79132E-07	0.084355	6.63905E-08	4.28743E-07	0.463667647	3.64924E-07	2.35664E-06	0.41352	3.25456E-07	2.10176E-06	0.497875	3.91846E-07	2.5305E-06
Road 2	2	0200-0300	0.096115652	5.11727E-08	3.30468E-07	0.087080435	4.63623E-08	2.99403E-07	0.521201304	2.77491E-07	1.79201E-06	0.470082174	2.50275E-07	1.61625E-06	0.557162609	2.96638E-07	1.91566E-06
Road 2	2	0300-0400	0.084146	2.92174E-08	1.88683E-07	0.076273333	2.64838E-08	1.7103E-07	0.303736	1.05464E-07	6.81075E-07	0.273882667	9.50981E-08	6.14135E-07	0.350156	1.21582E-07	7.85164E-07
Road 2	2	0400-0500	0.111312963	6.95706E-08	4.4928E-07	0.103457407	6.46609E-08	4.17574E-07	0.534086667	3.33804E-07	2.15567E-06	0.495394074	3.09621E-07	1.9995E-06	0.598851481	3.74282E-07	2.41708E-06
Road 2	2	0500-0600	0.088125789	1.16277E-07	7.50906E-07	0.082310877	1.08605E-07	7.01358E-07	0.387097544	5.10754E-07	3.2984E-06	0.360357895	4.75472E-07	3.07055E-06	0.442668772	5.84077E-07	3.77191E-06
Road 2	2	0600-0700	0.124839135	3.00539E-07	1.94085E-06	0.113721346	2.73774E-07	1.768E-06	0.502275769	1.20918E-06	7.80878E-06	0.456388942	1.09871E-06	7.09539E-06	0.570110288	1.37249E-06	8.86339E-06
Road 2	2	0700-0800	0.103867125	3.84693E-07	2.48431E-06	0.093575875	3.46577E-07	2.23816E-06	0.428936	1.58865E-06	1.02594E-05	0.384436375	1.42384E-06	9.19501E-06	0.47801225	1.77042E-06	1.14332E-05
Road 2	2	0800-0900	0.123732171	8.70708E-07	5.62295E-06	0.108928257	7.66532E-07	4.95019E-06	0.518087632	3.6458E-06	2.35442E-05	0.454114638	3.19562E-06	2.0637E-05	0.563042895	3.96215E-06	2.55872E-05
Road 2	2	0900-1000	0.145330079	8.47759E-07	5.47474E-06	0.129267024	7.54058E-07	4.86963E-06	0.617762063	3.60361E-06	2.32718E-05	0.54828504	3.19833E-06	2.06545E-05	0.677552063	3.95239E-06	2.55241E-05
Road 2	2	1000-1100	0.166736257	7.21752E-07	4.661E-06	0.141951872	6.14468E-07	3.96817E-06	0.702466684	3.04077E-06	1.9637E-05	0.596423102	2.58174E-06	1.66726E-05	0.738374973	3.19621E-06	2.06408E-05
Road 2	2	1100-1200	0.196940984	8.34264E-07	5.38759E-06	0.168591967	7.14174E-07	4.61207E-06	0.804015738	3.4059E-06	2.1995E-05	0.687178852	2.91097E-06	1.87987E-05	0.85577082	3.62514E-06	2.34108E-05
Road 2	2	1200-1300	0.153399263	6.74673E-07	4.35697E-06	0.129003211	5.67375E-07	3.66405E-06	0.670979368	2.95107E-06	1.90577E-05	0.562253632	2.47287E-06	1.59696E-05	0.691256842	3.04025E-06	1.96336E-05
Road 2	2	1300-1400	0.170687892	8.81097E-07	5.69004E-06	0.142062691	7.33333E-07	4.73579E-06	0.697281076	3.59939E-06	2.32445E-05	0.578502332	2.98625E-06	1.92849E-05	0.720565022	3.71958E-06	2.40207E-05
Road 2	2	1400-1500	0.147142545	5.62003E-07	3.62936E-06	0.122419515	4.67575E-07	3.01955E-06	0.635503515	2.42727E-06	1.56751E-05	0.527262909	2.01385E-06	1.30053E-05	0.649682424	2.48143E-06	1.60248E-05
Road 2	2	1500-1600	0.184442896	7.81321E-07	5.04569E-06	0.154089836	6.52742E-07	4.21534E-06	0.726067158	3.0757E-06	1.98626E-05	0.605266339	2.56398E-06	1.65579E-05	0.759356175	3.21672E-06	2.07732E-05
Road 2	2	1600-1700	0.15116552	7.73324E-07	4.99405E-06	0.126968597	6.49538E-07	4.19466E-06	0.634781765	3.24738E-06	2.09713E-05	0.531249819	2.71774E-06	1.75509E-05	0.658218416	3.36727E-06	2.17455E-05
Road 2	2	1700-1800	0.114692928	5.89394E-07	3.80625E-06	0.098087207	5.04059E-07	3.25517E-06	0.454248108	2.33433E-06	1.50749E-05	0.386823153	1.98784E-06	1.28373E-05	0.48491036	2.4919E-06	1.60924E-05
Road 2	2	1800-1900	0.12212212	7.06725E-07	4.56396E-06	0.10772156	6.23389E-07	4.02578E-06	0.54803756	3.17151E-06	2.04813E-05	0.48121512	2.78481E-06	1.7984E-05	0.58893668	3.4082E-06	2.20098E-05
Road 2	2	1900-2000	0.106342249	4.16015E-07	2.68658E-06	0.091402485	3.5757E-07	2.30915E-06	0.481009112	1.88173E-06	1.2152E-05	0.410628107	1.60639E-06	1.03739E-05	0.502030592	1.96396E-06	1.26831E-05
Road 2	2	2000-2100	0.096730816	3.29153E-07	2.12564E-06	0.086280884	2.93595E-07	1.89601E-06	0.410449184	1.39667E-06	9.01954E-06	0.363826531	1.23802E-06	7.99502E-06	0.450107415	1.53162E-06	9.89102E-06
Road 2	2	2100-2200	0.076913725	2.72403E-07	1.75915E-06	0.068056078	2.41032E-07	1.55656E-06	0.350969804	1.24302E-06	8.02729E-06	0.307670784	1.08967E-06	7.03697E-06	0.375726863	1.3307E-06	8.59353E-06
Road 2	2	2200-2300	0.11465528	3.31757E-07	2.14246E-06	0.09858224	2.8525E-07	1.84211E-06	0.48729344	1.40999E-06	9.10559E-06	0.41623792	1.20439E-06	7.77785E-06	0.51482016	1.48964E-06	9.61996E-06
Road 2	2	2300-0000	0.09987982	2.56636E-07	1.65733E-06	0.087586036	2.25047E-07	1.45333E-06	0.449119009	1.15399E-06	7.45233E-06	0.390936396	1.00449E-06	6.48689E-06	0.478522432	1.22954E-06	7.94023E-06
Road 3	3	0000-0100	0.083784826	3.0909E-07	1.20136E-05	0.074918	2.7638E-07	1.07422E-05	0.459816522	1.69631E-06	6.59312E-05	0.409582217	1.51099E-06	5.87283E-05	0.484500217	1.78737E-06	6.94705E-05
Road 3	3	0100-0200	0.062661056	1.42718E-07	5.54708E-06	0.057794789	1.31634E-07	5.1163E-06	0.363266127	8.27381E-07	3.21582E-05	0.334010423	7.60748E-07	2.95683E-05	0.391805211	8.92382E-07	3.46846E-05
Road 3	3	0200-0300	0.060716465	9.64126E-08	3.74732E-06	0.056174545	8.92004E-08	3.467E-06	0.375676263	5.96542E-07	2.31861E-05	0.345711313	5.4896E-07	2.13367E-05	0.401885859	6.38161E-07	2.48037E-05
Road 3	3	0300-0400	0.051171857	5.74542E-08	2.2331E-06	0.046571571	5.22891E-08	2.03235E-06	0.279744571	3.14088E-07	1.22078E-05	0.253092143	2.84164E-07	1.10447E-05	0.299663714	3.36453E-07	1.30771E-05
Road 3	3	0400-0500	0.067926372	1.23114E-07	4.78515E-06	0.062173717	1.12688E-07	4.3799E-06	0.373833894	6.77562E-07	2.63352E-05	0.340890885	6.17854E-07	2.40144E-05	0.403064602	7.30542E-07	2.83943E-05
Road 3	3	0500-0600	0.053831463	2.12404E-07	8.25563E-06	0.050251382	1.98278E-07	7.70658E-06	0.296957927	1.17172E-06	4.55416E-05	0.275960122	1.08886E-06	4.23214E-05	0.326211504	1.28714E-06	5.0028E-05
Road 3	3	0600-0700	0.075274122	5.36069E-07	2.08357E-05	0.068505991	4.8787E-07	1.89623E-05	0.373602928	2.66064E-06	0.000103412	0.338801757	2.4128E-06	9.37794E-05	0.407307748	2.90067E-06	0.000112742
Road 3	3	0700-0800	0.062920784	7.33704E-07	2.85172E-05	0.058112325	6.77634E-07	2.63379E-05	0.327527868	3.81922E-06	0.000148444	0.300999464	3.50988E-06	0.00013642	0.359111788	4.18751E-06	0.000162758
Road 3	3	0800-0900	0.073260201	1.17154E-06	4.55346E-05	0.064677442	1.03428E-06	4.02001E-05	0.361040692	5.77356E-06	0.000224404	0.317362187	5.07508E-06	0.000197255	0.382039629	6.10936E-06	0.000237456
Road 3	3	0900-1000	0.079801171	1.23518E-06	4.80082E-05	0.070841461	1.0965E-06	4.2618E-05	0.410414756	6.35247E-06	0.000246904	0.363033285	5.61909E-06	0.0002184	0.433874746	6.71559E-06	0.000261018
Road 3	3	1000-1100	0.093889829	1.32373E-06	5.14501E-05	0.079802605	1.12512E-06	4.37305E-05	0.47330942	6.67308E-06	0.000259366	0.400687782	5.6492E-06	0.00021957	0.480490387	6.77432E-06	0.000263301
Road 3	3	1100-1200	0.092063419	1.26106E-06	4.90144E-05	0.079983302	1.09559E-06	4.2583E-05	0.477431956	6.53976E-06	0.000254184	0.413025925	5.65754E-06	0.000219894	0.493009227	6.75313E-06	0.000262477
Road 3	3	1200-1300	0.088271639	1.20913E-06	4.69957E-05	0.074806183	1.02468E-06	3.98267E-05	0.467960152	6.41001E-06	0.000249141	0.394855293	5.40864E-06	0.00021022	0.469661475	6.43332E-06	0.000250047

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.093343215	1.38789E-06	5.39438E-05	0.079636311	1.18409E-06	4.60224E-05	0.475401424	7.06858E-06	0.000274738	0.403811446	6.00414E-06	0.000233366	0.483447756	7.18822E-06	0.000279388
Road 3	3	1400-1500	0.086597527	1.29731E-06	5.04233E-05	0.07338849	1.09943E-06	4.2732E-05	0.447984208	6.71123E-06	0.000260848	0.378042013	5.66343E-06	0.000220123	0.451430503	6.76285E-06	0.000262855
Road 3	3	1500-1600	0.095948816	1.37738E-06	5.35354E-05	0.080721687	1.15879E-06	4.50393E-05	0.483111732	6.93526E-06	0.000269556	0.404821453	5.81137E-06	0.000225873	0.48554314	6.97017E-06	0.000270913
Road 3	3	1600-1700	0.090261332	1.41301E-06	5.492E-05	0.074753965	1.17024E-06	4.54844E-05	0.461687244	7.22753E-06	0.000280916	0.380271803	5.953E-06	0.000231378	0.455025768	7.12325E-06	0.000276863
Road 3	3	1700-1800	0.070850317	1.11254E-06	4.32417E-05	0.059425485	9.33142E-07	3.62689E-05	0.363970041	5.71532E-06	0.00022214	0.303269673	4.76216E-06	0.000185093	0.362695158	5.6953E-06	0.000221362
Road 3	3	1800-1900	0.06344518	1.04511E-06	4.06207E-05	0.056185813	9.25528E-07	3.59729E-05	0.348143067	5.73483E-06	0.000222898	0.306195794	5.04385E-06	0.000196042	0.362381607	5.96937E-06	0.000232015
Road 3	3	1900-2000	0.069120776	8.42586E-07	3.27492E-05	0.059285855	7.22698E-07	2.80895E-05	0.380003579	4.63227E-06	0.000180045	0.323446461	3.94283E-06	0.000153248	0.382732316	4.66553E-06	0.000181337
Road 3	3	2000-2100	0.062138059	6.46837E-07	2.51409E-05	0.055091618	5.73486E-07	2.22899E-05	0.339507766	3.53416E-06	0.000137364	0.299143883	3.11399E-06	0.000121033	0.354235501	3.68747E-06	0.000143323
Road 3	3	2100-2200	0.063053024	6.21975E-07	2.41746E-05	0.054847919	5.41038E-07	2.10288E-05	0.355128813	3.50311E-06	0.000136157	0.306656244	3.02496E-06	0.000117572	0.361504163	3.56599E-06	0.000138601
Road 3	3	2200-2300	0.069487389	6.2749E-07	2.43889E-05	0.059136732	5.34021E-07	2.0756E-05	0.380218366	3.43347E-06	0.00013345	0.320928739	2.89807E-06	0.000112641	0.380065471	3.43209E-06	0.000133397
Road 3	3	2300-0000	0.05872508	4.72846E-07	1.83783E-05	0.051213625	4.12365E-07	1.60276E-05	0.336354462	2.70828E-06	0.000105264	0.29052012	2.33923E-06	9.09198E-05	0.341733745	2.75159E-06	0.000106947
Road 4	4	0000-0100	0.224435714	1.81834E-07	1.94701E-06	0.200582571	1.62509E-07	1.74008E-06	1.107775143	8.97503E-07	9.61008E-06	0.989476	8.01659E-07	8.58382E-06	1.190058571	9.64168E-07	1.03239E-05
Road 4	4	0100-0200	0.2109375	9.76563E-08	1.04566E-06	0.194514	9.00528E-08	9.64247E-07	1.04368	4.83185E-07	5.17374E-06	0.962235	4.45479E-07	4.77E-06	1.156749	5.35532E-07	5.73425E-06
Road 4	4	0200-0300	0.22558	6.78829E-08	7.26861E-07	0.208773846	6.28255E-08	6.72709E-07	1.079219231	3.24765E-07	3.47745E-06	0.998730769	3.00544E-07	3.2181E-06	1.207504615	3.63369E-07	3.89081E-06
Road 4	4	0300-0400	0.206472857	3.34563E-08	3.58235E-07	0.188075714	3.04752E-08	3.26316E-07	1.060062857	1.71769E-07	1.83923E-06	0.965222857	1.56402E-07	1.67469E-06	1.153298571	1.86877E-07	2.001E-06
Road 4	4	0400-0500	0.210893571	6.83451E-08	7.31811E-07	0.192905714	6.25157E-08	6.69392E-07	1.009246429	3.27071E-07	3.50213E-06	0.922917143	2.99094E-07	3.20257E-06	1.115822857	3.61609E-07	3.87196E-06
Road 4	4	0500-0600	0.190635	1.05908E-07	1.13402E-06	0.177972083	9.88734E-08	1.05869E-06	0.877069167	4.87261E-07	5.21738E-06	0.818334583	4.5463E-07	4.86799E-06	0.996306667	5.53504E-07	5.92668E-06
Road 4	4	0600-0700	0.214168113	2.62753E-07	2.81344E-06	0.194873396	2.39081E-07	2.55998E-06	0.990758113	1.21551E-06	1.30152E-05	0.901206981	1.10565E-06	1.18388E-05	1.096080377	1.34473E-06	1.43988E-05
Road 4	4	0700-0800	0.218168261	4.64618E-07	4.97493E-06	0.2015575	4.29243E-07	4.59615E-06	1.046438478	2.22853E-06	2.38621E-05	0.966069783	2.05737E-06	2.20295E-05	1.167627283	2.48661E-06	2.66256E-05
Road 4	4	0800-0900	0.235254258	8.44084E-07	9.03809E-06	0.207574774	7.44771E-07	7.97469E-06	1.133008516	4.06519E-06	4.35284E-05	0.999475161	3.58608E-06	3.83982E-05	1.207049935	4.33085E-06	4.63729E-05
Road 4	4	0900-1000	0.240528311	8.24032E-07	8.82339E-06	0.213128851	7.30164E-07	7.81828E-06	1.0997075	3.76752E-06	4.0341E-05	0.973794392	3.33615E-06	3.57221E-05	1.186923243	4.06631E-06	4.35403E-05
Road 4	4	1000-1100	0.278089792	9.26966E-07	9.92556E-06	0.236015556	7.86719E-07	8.42385E-06	1.275323264	4.25108E-06	4.55187E-05	1.082061597	3.60687E-06	3.86209E-05	1.318077153	4.39359E-06	4.70447E-05
Road 4	4	1100-1200	0.257035419	9.22234E-07	9.87489E-06	0.222994452	8.00096E-07	8.56709E-06	1.171218065	4.20229E-06	4.49963E-05	1.015842581	3.64481E-06	3.9027E-05	1.238837032	4.4449E-06	4.75941E-05
Road 4	4	1200-1300	0.268003851	9.18161E-07	9.83128E-06	0.226793716	7.76978E-07	8.31956E-06	1.274776149	4.36729E-06	4.67631E-05	1.078207162	3.69386E-06	3.95523E-05	1.305000878	4.47084E-06	4.78718E-05
Road 4	4	1300-1400	0.2733888	9.49267E-07	1.01643E-05	0.232924467	8.08766E-07	8.65992E-06	1.270084	4.41001E-06	4.72206E-05	1.081521933	3.75528E-06	4.021E-05	1.3144464	4.56405E-06	4.88699E-05
Road 4	4	1400-1500	0.250483714	8.11753E-07	8.69191E-06	0.211963571	6.86919E-07	7.35524E-06	1.201052286	3.8923E-06	4.16771E-05	1.015589714	3.29126E-06	3.52415E-05	1.227553286	3.97818E-06	4.25967E-05
Road 4	4	1500-1600	0.28062656	8.11998E-07	8.69453E-06	0.2356416	6.81833E-07	7.30078E-06	1.30392352	3.77293E-06	4.03989E-05	1.09461696	3.16729E-06	3.39141E-05	1.33025856	3.84913E-06	4.12148E-05
Road 4	4	1600-1700	0.261919355	7.51806E-07	8.05002E-06	0.216538548	6.21546E-07	6.65525E-06	1.228936532	3.5275E-06	3.7771E-05	1.015514274	2.9149E-06	3.12115E-05	1.232052823	3.53645E-06	3.78668E-05
Road 4	4	1700-1800	0.24885874	7.31599E-07	7.83365E-06	0.208695276	6.13525E-07	6.56937E-06	1.186787087	3.48893E-06	3.7358E-05	0.994549134	2.92379E-06	3.13067E-05	1.203244409	3.53732E-06	3.78761E-05
Road 4	4	1800-1900	0.260242075	6.38557E-07	6.8374E-06	0.230552925	5.65709E-07	6.05737E-06	1.252696038	3.07374E-06	3.29124E-05	1.109571132	2.72256E-06	2.9152E-05	1.340124057	3.28827E-06	3.52094E-05
Road 4	4	1900-2000	0.239657838	4.10525E-07	4.39573E-06	0.205597297	3.52181E-07	3.771E-06	1.156048919	1.98027E-06	2.12039E-05	0.991366486	1.69817E-06	1.81833E-05	1.196963784	2.05035E-06	2.19543E-05
Road 4	4	2000-2100	0.201395306	2.28434E-07	2.44598E-06	0.178533265	2.02503E-07	2.16832E-06	0.974859388	1.10574E-06	1.18398E-05	0.86329	9.79195E-07	1.04848E-05	1.041823265	1.1817E-06	1.26531E-05
Road 4	4	2100-2200	0.174155405	1.49161E-07	1.59715E-06	0.15170973	1.29937E-07	1.39131E-06	0.861001351	7.37432E-07	7.89611E-06	0.748896486	6.41416E-07	6.86801E-06	0.900606216	7.71353E-07	8.25932E-06
Road 4	4	2200-2300	0.239822381	3.49741E-07	3.74488E-06	0.204083651	2.97622E-07	3.18681E-06	1.139844444	1.66227E-06	1.77989E-05	0.969465238	1.4138E-06	1.51384E-05	1.173548889	1.71143E-06	1.83252E-05
Road 4	4	2300-0000	0.215890408	2.44876E-07	2.62203E-06	0.188145714	2.13406E-07	2.28506E-06	1.053881633	1.19538E-06	1.27996E-05	0.91787898	1.04111E-06	1.11478E-05	1.106024694	1.25452E-06	1.34329E-05
Road 5	5	0000-0100	0.07094772	2.56999E-07	3.47545E-06	0.063446995	2.29829E-07	3.10802E-06	0.394150207	1.42776E-06	1.93079E-05	0.350702435	1.27037E-06	1.71795E-05	0.41414943	1.5002E-06	2.02875E-05
Road 5	5	0100-0200	0.04756582	1.08916E-07	1.47289E-06	0.043879918	1.00476E-07	1.35875E-06	0.28985623	6.6371E-07	8.97547E-06	0.266167377	6.09467E-07	8.24194E-06	0.310047295	7.09943E-07	9.60069E-06
Road 5	5	0200-0300	0.044787442	7.2292E-08	9.77619E-07	0.041429302	6.68716E-08	9.04317E-07	0.305404651	4.92958E-07	6.66636E-06	0.280386512	4.52576E-07	6.12027E-06	0.321815814	5.19447E-07	7.02459E-06
Road 5	5	0300-0400	0.040176984	4.75066E-08	6.4244E-07	0.036559841	4.32295E-08	5.84601E-07	0.219242381	2.59239E-07	3.50574E-06	0.197822381	2.33912E-07	3.16323E-06	0.234382222	2.77141E-07	3.74783E-06
Road 5	5	0400-0500	0.055581616	1.03277E-07	1.39663E-06	0.05088697	9.45535E-08	1.27866E-06	0.315532929	5.86294E-07	7.92857E-06	0.287436465	5.34088E-07	7.22257E-06	0.338323434	6.28642E-07	8.50124E-06
Road 5	5	0500-0600	0.044032227	1.81815E-07	2.45872E-06	0.0411045	1.69726E-07	2.29523E-06	0.253419773	1.0464E-06	1.41507E-05	0.235203818	9.71187E-07	1.31335E-05	0.276308318	1.14091E-06	1.54288E-05
Road 5	5	0600-0700	0.06521116	4.74886E-07	6.42197E-06	0.059350155	4.32205E-07	5.84478E-06	0.325352835	2.36931E-06	3.20406E-05	0.294768505	2.14659E-06	2.90287E-05	0.35411866	2.57879E-06	3.48735E-05
Road 5	5	0700-0800	0.05143207	6.11045E-07	8.26328E-06	0.047498831	5.64316E-07	7.63135E-06	0.269164992	3.19785E-06	4.32451E-05	0.246936114	2.93376E-06	3.96737E-05	0.294434945	3.49807E-06	4.73051E-05
Road 5	5	0800-0900	0.057963879	9.17109E-07	1.24022E-05	0.051176785	8.09723E-07	1.095E-05	0.282009917	4.46198E-06	6.03402E-05	0.247499051	3.91595E-06	5.29561E-05	0.298675836	4.72567E-06	6.39061E-05
Road 5	5	0900-1000	0.064444926	9.86994E-07	1.33473E-05	0.057260748	8.76966E-07	1.18594E-05	0.342335821	5.24298E-06	7.09018E-05	0.302724902	4.63633E-06	6.26979E-05	0.35998565	5.51329E-06	7.45573E-05
Road 5	5	1000-1100	0.076082807	1.04814E-06	1.41742E-05	0.064707139	8.91423E-07	1.20549E-05	0.393540845	5.42153E-06	7.33163E-05	0.332861785	4.5856E-06	6.20119E-05	0.397568924	5.47702E-06	7.40668E-05
Road 5	5	1100-1200	0.074670644	9.79632E-07	1.32477E-05	0.064917711	8.51679E-07	1.15174E-05	0.403704564	5.29635E-06	7.16235E-05	0.348858283	4.5768E-06	6.18929E-05	0.413775994	5.42848E-06	7.34104E-05
Road 5	5	1200-1300	0.070575842	9.36508E-07	1.26646E-05	0.059829717	7.93912E-07	1.07362E-05	0.384202461	5.09818E-06	6.89437E-05	0.323854045	4.29739E-06	5.81144E-05	0.383683762	5.0913E-06	6.88506E-05
Road 5	5	1300-1400	0.076730695	1.11899E-06	1.51323E-05	0.065471338	9.5479E-07	1.29118E-05	0.399174183	5.82129E-06	7.87224E-05	0.338754543	4.94017E-06	6.68069E-05	0.404225882	5.89496E-06	7.97187E-05
Road 5	5	1400-1500	0.07279631	1.08484E-06	1.46705E-05	0.061700403	9.19484E-07	1.24344E-05	0.38057806	5.67153E-06	7.66971E-05	0.320976398	4.78332E-06	6.46857E-05	0.382676801	5.7028E-06	7.71201E-05
Road 5	5	1500-1600	0.081141545	1.17265E-06	1.5858E-05	0.068304091	9.87127E-07	1.33491E-05	0.413437506	5.97498E-06	8.08008E-05	0.34622939	5.00369E-06	6.76658E-05	0.414533481	5.99082E-06	8.1015E-05
Road 5	5	1600-1700	0.076862122	1.23054E-06	1.66409E-05	0.063674959	1.01942E-06	1.37858E-05	0.399268441	6.39219E-06	8.64428E-05	0.328562415	5.26021E-06	7.11347E-05	0.392237374	6.27963E-06	8.49206E-05
Road 5	5	1700-1800	0.056017838	8.94729E-07	1.20996E-05	0.046998942	7.50678E-07	1.01516E-05	0.291293184	4.6526E-06	6.2918E-05	0.242127203	3.86731E-06	5.22984E-05	0.289126146	4.61799E-06	6.24499E-05
Road 5	5	1800-1900	0.049593711	8.55417E-07	1.1568E-05	0.043931153	7.57746E-07	1.02471E-05	0.280986572	4.8466E-06	6.55414E-05	0.246470261	4.25124E-06	5.74903E-05	0.290401415	5.00899E-06	6.77375E-05
Road 5	5	1900-2000	0.058835539	7.5753E-07	1.02442E-05	0.050481472	6.49968E-07	8.78964E-06	0.33087395	4.26013E-06	5.76105E-05	0.281079942	3.61901E-06	4.89405E-05	0.331561414	4.26898E-06	5.77302E-05
Road 5	5	2000-2100	0.055003817	6.19412E-07	8.37643E-06	0.04877375	5.49254E-07	7.42766E-06	0.304696533	3.43127E-06	4.64017E-05	0.26820825	3.02036E-06	4.08449E-05	0.316982	3.56962E-06	4.82726E-05
Road 5	5	2100-2200	0.058783478	6.37704E-07	8.62379E-06	0.051128651	5.54661E-07	7.50079E-06	0.334607907	3.62994E-06	4.90884E-05	0.288670484	3.1316E-06	4.23492E-05	0.339799135	3.68626E-06	4.985E-05
Road 5	5	2200-2300	0.058103046	5.44171E-07	7.35892E-06	0.049450962	4.63139E-07	6.26311E-06	0.326465531	3.05755E-06	4.13478E-05	0.2748899	2.57451E-06	3.48156E-05	0.324340862	3.03765E-06	4.10787E-05
Road 5	5	2300-0000	0.049317815	4.19313E-07	5.67044E-06	0.043008587	3.6567E-07	4.94502E-06	0.290033002	2.46593E-06	3.33473E-05	0.249929161	2.12496E-06	2.87362E-05	0.292937748	2.49063E-06	3.36813E-05
Road 6	6	0000-0100	0.042386267	1.19331E-07	4.26559E-06	0.0378254	1.0649E-07	3.8066E-06	0.271255933	7.63671E-07	2.72981E-05	0.239904133	6.75406E-07	2.4143E-05	0.277729533	7.81896E-07	2.79496E-05
Road 6	6	0100-0200	0.056069825	1.19969E-07	4.28841E-06	0.051719035	1.1066E-07	3.95565E-06	0.314187719	6.72248E-07	2.40302E-05	0.28820386	6.16652E-07	2.20428E-05	0.339922895	7.27313E-07	2.59985E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.0505	7.4878E-08	2.67659E-06	0.046775823	6.9356E-08	2.4792E-06	0.287008861	4.25557E-07	1.5212E-05	0.264131266	3.91636E-07	1.39994E-05	0.310907089	4.60992E-07	1.64786E-05
Road 6	6	0300-0400	0.052337742	6.09035E-08	2.17705E-06	0.047777581	5.5597E-08	1.98737E-06	0.33252629	3.86949E-07	1.38318E-05	0.301741129	3.51125E-07	1.25513E-05	0.34951871	4.06722E-07	1.45387E-05
Road 6	6	0400-0500	0.056223556	9.49722E-08	3.39487E-06	0.051481333	8.69617E-08	3.10853E-06	0.328127333	5.54269E-07	1.98129E-05	0.298619111	5.04424E-07	1.80311E-05	0.350100444	5.91386E-07	2.11396E-05
Road 6	6	0500-0600	0.049301852	1.49904E-07	5.35847E-06	0.046050741	1.40019E-07	5.00512E-06	0.294840062	8.96473E-07	3.20453E-05	0.273784568	8.32453E-07	2.97568E-05	0.319835309	9.72472E-07	3.47619E-05
Road 6	6	0600-0700	0.053246	2.89815E-07	1.03597E-05	0.048470448	2.63822E-07	9.43056E-06	0.333180103	1.81348E-06	6.48246E-05	0.301302414	1.63997E-06	5.86223E-05	0.349772862	1.90379E-06	6.80529E-05
Road 6	6	0700-0800	0.050561061	4.38424E-07	1.56719E-05	0.046710996	4.05039E-07	1.44785E-05	0.288587143	2.50239E-06	8.94502E-05	0.264764913	2.29582E-06	8.20663E-05	0.311475909	2.70086E-06	9.65448E-05
Road 6	6	0800-0900	0.044933429	5.58294E-07	1.99568E-05	0.039665121	4.92836E-07	1.76169E-05	0.263766148	3.27727E-06	0.000117149	0.230209079	2.86033E-06	0.000102245	0.269874199	3.35317E-06	0.000119862
Road 6	6	0900-1000	0.047732354	5.6709E-07	2.02712E-05	0.042319368	5.02781E-07	1.79724E-05	0.269606461	3.20309E-06	0.000114498	0.236729605	2.8125E-06	0.000100535	0.279048973	3.31528E-06	0.000118508
Road 6	6	1000-1100	0.066389421	6.66636E-07	2.38295E-05	0.056397682	5.66306E-07	2.02431E-05	0.363911103	3.65414E-06	0.000130621	0.306623234	3.07889E-06	0.000110058	0.363020916	3.6452E-06	0.000130301
Road 6	6	1100-1200	0.076225113	7.61107E-07	2.72065E-05	0.066265658	6.61662E-07	2.36517E-05	0.399158609	3.98559E-06	0.000142469	0.344938647	3.44421E-06	0.000123116	0.411204305	4.10587E-06	0.000146768
Road 6	6	1200-1300	0.074483499	7.31135E-07	2.61351E-05	0.063174742	6.20127E-07	2.2167E-05	0.373999713	3.67121E-06	0.000131231	0.31571805	3.09911E-06	0.000110781	0.378892792	3.71924E-06	0.000132948
Road 6	6	1300-1400	0.085844319	8.39431E-07	3.00063E-05	0.073244914	7.16227E-07	2.56022E-05	0.43858382	4.2887E-06	0.000153304	0.372271785	3.64027E-06	0.000130125	0.445516699	4.3565E-06	0.000155727
Road 6	6	1400-1500	0.082177352	8.85319E-07	3.16466E-05	0.069658589	7.50451E-07	2.68256E-05	0.413461847	4.45434E-06	0.000159225	0.348566899	3.75521E-06	0.000134233	0.418225488	4.50566E-06	0.000161059
Road 6	6	1500-1600	0.072056993	7.60061E-07	2.71691E-05	0.060610036	6.39318E-07	2.2853E-05	0.375074982	3.95631E-06	0.000141422	0.313495783	3.30677E-06	0.000118204	0.374105819	3.94609E-06	0.000141057
Road 6	6	1600-1700	0.075230747	8.13305E-07	2.90724E-05	0.062308993	6.73611E-07	2.40789E-05	0.374025972	4.04352E-06	0.00014454	0.30782066	3.32779E-06	0.000118955	0.370129653	4.0014E-06	0.000143034
Road 6	6	1700-1800	0.055808033	6.38943E-07	2.28396E-05	0.046856902	5.36462E-07	1.91764E-05	0.287484967	3.2914E-06	0.000117654	0.239177852	2.73834E-06	9.78844E-05	0.286034754	3.2748E-06	0.000117061
Road 6	6	1800-1900	0.051586807	6.67104E-07	2.38463E-05	0.045697576	5.90947E-07	2.11239E-05	0.270326226	3.49577E-06	0.00012496	0.237402235	3.07001E-06	0.00010974	0.283099811	3.66096E-06	0.000130864
Road 6	6	1900-2000	0.062633817	6.15993E-07	2.20193E-05	0.053719771	5.28325E-07	1.88855E-05	0.328890477	3.23458E-06	0.000115623	0.279094924	2.74485E-06	9.81173E-05	0.332814695	3.27318E-06	0.000117003
Road 6	6	2000-2100	0.047752679	3.74636E-07	1.33917E-05	0.042331172	3.32103E-07	1.18713E-05	0.278553493	2.18535E-06	7.81173E-05	0.244602656	1.91899E-06	6.85962E-05	0.286933828	2.25109E-06	8.04675E-05
Road 6	6	2100-2200	0.069052944	4.66574E-07	1.66781E-05	0.060074222	4.05907E-07	1.45095E-05	0.367980667	2.48636E-06	8.88771E-05	0.31775975	2.14703E-06	7.67475E-05	0.377833972	2.55293E-06	9.1257E-05
Road 6	6	2200-2300	0.053018084	3.79127E-07	1.35523E-05	0.045079239	3.22357E-07	1.1523E-05	0.299532782	2.14193E-06	7.65653E-05	0.250518451	1.79143E-06	6.40365E-05	0.29559769	2.11379E-06	7.55594E-05
Road 6	6	2300-0000	0.034513866	2.31258E-07	8.26655E-06	0.030113361	2.01773E-07	7.21257E-06	0.215783585	1.44585E-06	5.16832E-05	0.185476303	1.24277E-06	4.44242E-05	0.215589664	1.44455E-06	5.16367E-05
Road 7	7	0000-0100	0.062143345	1.67815E-07	4.18922E-06	0.055516205	1.49919E-07	3.74247E-06	0.365925205	9.88165E-07	2.46678E-05	0.325030598	8.77731E-07	2.1911E-05	0.380546803	1.02765E-06	2.56535E-05
Road 7	7	0100-0200	0.076258025	1.60538E-07	4.00755E-06	0.06959123	1.46503E-07	3.6572E-06	0.415699078	8.75128E-07	2.1846E-05	0.377963611	7.95687E-07	1.98629E-05	0.447554841	9.4219E-07	2.35201E-05
Road 7	7	0200-0300	0.064418298	8.79147E-08	2.19464E-06	0.059204232	8.07988E-08	2.017E-06	0.363212128	4.95693E-07	1.23741E-05	0.332325885	4.53541E-07	1.13219E-05	0.391530117	5.3434E-07	1.33389E-05
Road 7	7	0300-0400	0.066414295	7.32824E-08	1.82937E-06	0.060504342	6.67613E-08	1.66658E-06	0.398869233	4.40117E-07	1.09868E-05	0.361888553	3.99312E-07	9.96814E-06	0.422392895	4.66074E-07	1.16347E-05
Road 7	7	0400-0500	0.072578157	1.16964E-07	2.91981E-06	0.066803604	1.07658E-07	2.6875E-06	0.402484687	6.48629E-07	1.61919E-05	0.36901955	5.94698E-07	1.48456E-05	0.435823153	7.02356E-07	1.75331E-05
Road 7	7	0500-0600	0.064537954	1.85526E-07	4.63133E-06	0.060288525	1.7331E-07	4.32639E-06	0.361665942	1.03967E-06	2.59537E-05	0.336488801	9.67298E-07	2.41469E-05	0.396777326	1.14061E-06	2.84733E-05
Road 7	7	0600-0700	0.068905113	3.54143E-07	8.84057E-06	0.062760357	3.22562E-07	8.0522E-06	0.397260717	2.04175E-06	5.09688E-05	0.360107357	1.8508E-06	4.6202E-05	0.422867714	2.17336E-06	5.42542E-05
Road 7	7	0700-0800	0.066778748	5.47786E-07	1.36745E-05	0.061163687	5.01726E-07	1.25247E-05	0.362545707	2.97396E-06	7.42398E-05	0.330338294	2.70977E-06	6.76446E-05	0.391501981	3.21149E-06	8.01693E-05
Road 7	7	0800-0900	0.069620893	8.64231E-07	2.1574E-05	0.061385598	7.62003E-07	1.90221E-05	0.377057215	4.68056E-06	0.000116842	0.330456314	4.10208E-06	0.000102401	0.391841912	4.86409E-06	0.000121423
Road 7	7	0900-1000	0.07121162	8.18842E-07	2.0441E-05	0.063178314	7.2647E-07	1.81351E-05	0.37251706	4.28347E-06	0.000106929	0.328711963	3.77977E-06	9.43553E-05	0.391890278	4.50624E-06	0.00011249
Road 7	7	1000-1100	0.087545821	8.83374E-07	2.20519E-05	0.074406251	7.5079E-07	1.87422E-05	0.460718825	4.64885E-06	0.00011605	0.389498461	3.9302E-06	9.81107E-05	0.463904711	4.68099E-06	0.000116853
Road 7	7	1100-1200	0.096801713	9.75364E-07	2.43483E-05	0.083658429	8.42934E-07	2.10424E-05	0.496105199	4.99871E-06	0.000124784	0.42725051	4.30493E-06	0.000107465	0.510908939	5.14787E-06	0.000128508
Road 7	7	1200-1300	0.095884478	9.6473E-07	2.40828E-05	0.081038915	8.15363E-07	2.03541E-05	0.48436114	4.87334E-06	0.000121654	0.408129427	4.10635E-06	0.000102508	0.489168342	4.92171E-06	0.000122862
Road 7	7	1300-1400	0.102167593	1.01163E-06	2.52536E-05	0.086421077	8.55713E-07	2.13614E-05	0.517128314	5.12044E-06	0.000127823	0.435804703	4.3152E-06	0.000107721	0.522225779	5.17091E-06	0.000129083
Road 7	7	1400-1500	0.095699226	9.92044E-07	2.47647E-05	0.080557209	8.35078E-07	2.08463E-05	0.487066853	5.04907E-06	0.000126041	0.408440183	4.234E-06	0.000105694	0.488997392	5.06908E-06	0.000126541
Road 7	7	1500-1600	0.088769774	9.03457E-07	2.25532E-05	0.074469549	7.57916E-07	1.89201E-05	0.458103929	4.66237E-06	0.000116388	0.382558185	3.8935E-06	9.71944E-05	0.457027733	4.65141E-06	0.000116114
Road 7	7	1600-1700	0.091352337	9.61572E-07	2.4004E-05	0.076018482	8.00169E-07	1.99748E-05	0.455058705	4.78994E-06	0.000119572	0.376920788	3.96746E-06	9.90407E-05	0.45293927	4.76763E-06	0.000119016
Road 7	7	1700-1800	0.069607061	7.75127E-07	1.93497E-05	0.058816313	6.54964E-07	1.635E-05	0.360096349	4.00994E-06	0.000100101	0.302272073	3.36603E-06	8.4027E-05	0.361088386	4.02099E-06	0.000100377
Road 7	7	1800-1900	0.061372949	7.10166E-07	1.7728E-05	0.054281292	6.28106E-07	1.56796E-05	0.322341398	3.72991E-06	9.31108E-05	0.283248181	3.27755E-06	8.18184E-05	0.337529473	3.90566E-06	9.7498E-05
Road 7	7	1900-2000	0.072757179	6.35911E-07	1.58744E-05	0.06244677	5.45797E-07	1.36249E-05	0.385306653	3.36765E-06	8.40676E-05	0.328112587	2.86777E-06	7.15888E-05	0.390559356	3.41356E-06	8.52137E-05
Road 7	7	2000-2100	0.064660403	4.65634E-07	1.16237E-05	0.057436716	4.13614E-07	1.03252E-05	0.352714052	2.53997E-06	6.3406E-05	0.311334477	2.24199E-06	5.59673E-05	0.368771193	2.6556E-06	6.62925E-05
Road 7	7	2100-2200	0.076537352	4.60043E-07	1.14842E-05	0.0670056	4.0275E-07	1.0054E-05	0.408902269	2.45779E-06	6.13544E-05	0.355840487	2.13885E-06	5.33926E-05	0.422846087	2.5416E-06	6.34466E-05
Road 7	7	2200-2300	0.065841474	4.27299E-07	1.06668E-05	0.056206689	3.64771E-07	9.10586E-06	0.362009674	2.34937E-06	5.8648E-05	0.305360268	1.98173E-06	4.94704E-05	0.361566957	2.3465E-06	5.85763E-05
Road 7	7	2300-0000	0.045103139	2.69137E-07	6.71853E-06	0.039424213	2.3525E-07	5.8726E-06	0.267079781	1.5937E-06	3.9784E-05	0.231014576	1.3785E-06	3.44118E-05	0.270438789	1.61375E-06	4.02844E-05
Road 8	8	0000-0100	0.196832778	1.43151E-07	2.35979E-06	0.175831389	1.27877E-07	2.10801E-06	0.974224444	7.08527E-07	1.16798E-05	0.870061111	6.32772E-07	1.0431E-05	1.0458925	7.60649E-07	1.2539E-05
Road 8	8	0100-0200	0.203279333	1.232E-07	2.0309E-06	0.187471667	1.13619E-07	1.87297E-06	1.004028	6.08502E-07	1.00309E-05	0.925759	5.61066E-07	9.24896E-06	1.113230667	6.74685E-07	1.11219E-05
Road 8	8	0200-0300	0.190224	5.76436E-08	9.50234E-07	0.176116667	5.33687E-08	8.79763E-07	0.987836	2.99344E-07	4.93458E-06	0.914384667	2.77086E-07	4.56766E-06	1.090501333	3.30455E-07	5.44743E-06
Road 8	8	0300-0400	0.174715714	4.94145E-08	8.1458E-07	0.159302857	4.50554E-08	7.42721E-07	0.888481429	2.51288E-07	4.14238E-06	0.809633571	2.28987E-07	3.77477E-06	0.968936429	2.74043E-07	4.51749E-06
Road 8	8	0400-0500	0.196782381	8.34834E-08	1.37619E-06	0.180047143	7.63836E-08	1.25916E-06	0.943761905	4.00384E-07	6.60018E-06	0.863233333	3.6622E-07	6.037E-06	1.043280476	4.42604E-07	7.29616E-06
Road 8	8	0500-0600	0.183374706	1.25954E-07	2.07631E-06	0.171235294	1.17616E-07	1.93886E-06	0.863835882	5.93342E-07	9.78102E-06	0.806258235	5.53794E-07	9.12908E-06	0.977493529	6.7141E-07	1.10679E-05
Road 8	8	0600-0700	0.20714	2.59448E-07	4.2769E-06	0.188602097	2.36229E-07	3.89414E-06	0.964016935	1.20746E-06	1.99045E-05	0.877189516	1.0987E-06	1.81117E-05	1.065791613	1.33493E-06	2.20058E-05
Road 8	8	0700-0800	0.20860098	4.29844E-07	7.08582E-06	0.192750196	3.97182E-07	6.5474E-06	0.980694118	2.02082E-06	3.33125E-05	0.905681176	1.86625E-06	3.07645E-05	1.098431373	2.26343E-06	3.73119E-05
Road 8	8	0800-0900	0.243140833	9.43092E-07	1.55465E-05	0.214713177	8.32827E-07	1.37288E-05	1.147658073	4.45152E-06	7.33817E-05	1.012916927	3.92889E-06	6.47663E-05	1.227630104	4.76172E-06	7.84951E-05
Road 8	8	0900-1000	0.260072532	8.30131E-07	1.36844E-05	0.230500443	7.35739E-07	1.21284E-05	1.167715633	3.72725E-06	6.14424E-05	1.034735253	3.30279E-06	5.44453E-05	1.265235696	4.03853E-06	6.65737E-05
Road 8	8	1000-1100	0.255432063	8.25639E-07	1.36103E-05	0.216834813	7.0088E-07	1.15537E-05	1.180927438	3.81714E-06	6.29241E-05	1.001702125	3.23783E-06	5.33743E-05	1.218536938	3.93871E-06	6.49281E-05
Road 8	8	1100-1200	0.263866855	8.47572E-07	1.39719E-05	0.228900252	7.35255E-07	1.21204E-05	1.23185478	3.95687E-06	6.52275E-05	1.068465723	3.43204E-06	5.65759E-05	1.297365975	4.1673E-06	6.86963E-05
Road 8	8	1200-1300	0.270706588	9.29699E-07	1.53257E-05	0.229059059	7.86667E-07	1.29679E-05	1.274598059	4.37741E-06	7.21599E-05	1.078076706	3.70249E-06	6.10341E-05	1.307135765	4.48915E-06	7.4002E-05
Road 8	8	1300-1400	0.246360556	8.06271E-07	1.32911E-05	0.209958827	6.87138E-07	1.13272E-05	1.144340556	3.74511E-06	6.17368E-05	0.974689198	3.18989E-06	5.25842E-05	1.184648025	3.87703E-06	6.39114E-05
Road 8	8	1400-1500	0.242383597	6.80633E-07	1.122E-05	0.205150072	5.76078E-07	9.49643E-06	1.172289856	3.29188E-06	5.42655E-05	0.991688849	2.78474E-06	4.59054E-05	1.196838921	3.36082E-06	5.54019E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.249475036	7.00546E-07	1.15482E-05	0.209445683	5.8814E-07	9.69527E-06	1.176146331	3.30271E-06	5.4444E-05	0.986728993	2.77081E-06	4.56758E-05	1.196174676	3.35896E-06	5.53711E-05
Road 8	8	1600-1700	0.248502282	7.48017E-07	1.23308E-05	0.205444228	6.18408E-07	1.01942E-05	1.161224497	3.4954E-06	5.76204E-05	0.959314295	2.88763E-06	4.76015E-05	1.164758523	3.50604E-06	5.77958E-05
Road 8	8	1700-1800	0.2014725	6.34944E-07	1.04668E-05	0.168913526	5.32334E-07	8.77532E-06	0.977970192	3.08209E-06	5.08071E-05	0.818503462	2.57953E-06	4.25225E-05	0.987416987	3.11186E-06	5.12978E-05
Road 8	8	1800-1900	0.191749439	4.14489E-07	6.83269E-06	0.169974673	3.6742E-07	6.05678E-06	0.954086916	2.06237E-06	3.39974E-05	0.844973458	1.82651E-06	3.01093E-05	1.014948131	2.19393E-06	3.61661E-05
Road 8	8	1900-2000	0.19456026	3.02649E-07	4.98906E-06	0.166971169	2.59733E-07	4.2816E-06	0.992280909	1.54355E-06	2.54448E-05	0.851214026	1.32411E-06	2.18275E-05	1.018185195	1.58384E-06	2.61091E-05
Road 8	8	2000-2100	0.205915195	3.20313E-07	5.28023E-06	0.182537273	2.83947E-07	4.68076E-06	0.957686104	1.48973E-06	2.45577E-05	0.848224156	1.31946E-06	2.17508E-05	1.030761429	1.60341E-06	2.64316E-05
Road 8	8	2100-2200	0.17626	1.92284E-07	3.16972E-06	0.153450926	1.67401E-07	2.75954E-06	0.894588704	9.75915E-07	1.60876E-05	0.777367222	8.48037E-07	1.39796E-05	0.930818148	1.01544E-06	1.67391E-05
Road 8	8	2200-2300	0.217209844	2.80837E-07	4.62949E-06	0.184844531	2.38991E-07	3.93968E-06	1.043631719	1.34934E-06	2.22434E-05	0.887165156	1.14704E-06	1.89086E-05	1.072009688	1.38603E-06	2.28482E-05
Road 8	8	2300-0000	0.164774528	1.76425E-07	2.9083E-06	0.143693585	1.53854E-07	2.53622E-06	0.824057547	8.82324E-07	1.45448E-05	0.717944717	7.68708E-07	1.26719E-05	0.861638302	9.22562E-07	1.52081E-05
Road 9	9	0000-0100	0.638204165	1.66891E-07	5.05975E-06	0.623078604	1.62936E-07	4.93983E-06	3.508429777	9.17459E-07	2.78152E-05	3.437401606	8.98885E-07	2.72521E-05	4.06048021	1.06182E-06	3.21919E-05
Road 9	9	0100-0200	0.662297745	1.36079E-07	4.1256E-06	0.649412445	1.33432E-07	4.04534E-06	3.4748427	7.1396E-07	2.16456E-05	3.41725638	7.02128E-07	2.12869E-05	4.066668826	8.3556E-07	2.53322E-05
Road 9	9	0200-0300	0.331068833	3.09196E-08	9.3741E-07	0.325649546	3.04135E-08	9.22066E-07	2.26976368	2.11981E-07	6.42676E-06	2.233646187	2.08608E-07	6.32449E-06	2.559295732	2.39021E-07	7.24656E-06
Road 9	9	0300-0400	0.411793721	3.0767E-08	9.32784E-07	0.404244365	3.0203E-08	9.15683E-07	2.734637487	2.04318E-07	6.19443E-06	2.689908564	2.00976E-07	6.09311E-06	3.094152929	2.31179E-07	7.00879E-06
Road 9	9	0400-0500	0.72179263	1.34821E-07	4.08746E-06	0.708765755	1.32388E-07	4.01369E-06	3.758980814	7.02128E-07	2.12869E-05	3.703368002	6.9174E-07	2.09719E-05	4.412133758	8.24128E-07	2.49856E-05
Road 9	9	0500-0600	0.524857191	1.66662E-07	5.05279E-06	0.51735634	1.6428E-07	4.98058E-06	2.957484058	9.39112E-07	2.84717E-05	2.921606669	9.2772E-07	2.81263E-05	3.438963009	1.092E-06	3.31068E-05
Road 9	9	0600-0700	0.577599168	3.45241E-07	1.04669E-05	0.566068471	3.38349E-07	1.02579E-05	3.261332829	1.94936E-06	5.90999E-05	3.20430429	1.91527E-06	5.80664E-05	3.770372761	2.25362E-06	6.83244E-05
Road 9	9	0700-0800	0.413843728	3.78773E-07	1.14835E-05	0.405411835	3.71055E-07	1.12495E-05	2.386416335	2.18418E-06	6.62192E-05	2.34148457	2.14306E-06	6.49724E-05	2.746896405	2.51411E-06	7.62219E-05
Road 9	9	0800-0900	0.733877514	1.5764E-06	4.77928E-05	0.711689492	1.52874E-06	4.63479E-05	4.287532281	9.20982E-06	0.00027922	4.178693836	8.97603E-06	0.000272132	4.890383328	1.05048E-05	0.00031848
Road 9	9	0900-1000	0.710427186	1.15448E-06	3.5001E-05	0.689972978	1.12124E-06	3.39933E-05	3.795753852	6.16827E-06	0.000187007	3.704204302	6.0195E-06	0.000182497	4.394177279	7.14073E-06	0.00021649
Road 9	9	1000-1100	0.880357807	1.20041E-06	3.63935E-05	0.847492558	1.15559E-06	3.50348E-05	4.592130973	6.26157E-06	0.000189836	4.450435594	6.06836E-06	0.000183978	5.297928152	7.22395E-06	0.000219013
Road 9	9	1100-1200	0.690878134	9.80756E-07	2.97342E-05	0.668176276	9.48529E-07	2.87572E-05	3.879626997	5.50744E-06	0.000166973	3.769860692	5.35162E-06	0.000162248	4.438036968	6.30014E-06	0.000191006
Road 9	9	1200-1300	0.781643021	1.0804E-06	3.27553E-05	0.750213758	1.03696E-06	3.14382E-05	4.119418379	5.69395E-06	0.000172627	3.978640756	5.49936E-06	0.000166728	4.728854514	6.53633E-06	0.000198166
Road 9	9	1300-1400	0.842672068	9.6014E-07	2.91092E-05	0.806760241	9.19222E-07	2.78686E-05	3.835998307	4.37073E-06	0.00013251	3.691890187	4.20654E-06	0.000127532	4.498650428	5.12576E-06	0.000155401
Road 9	9	1400-1500	0.527840634	6.70437E-07	2.03261E-05	0.505517044	6.42082E-07	1.94664E-05	3.178141837	4.03672E-06	0.000122384	3.064264907	3.89208E-06	0.000117999	3.569781951	4.53416E-06	0.000137465
Road 9	9	1500-1600	0.55501131	5.90912E-07	1.79151E-05	0.533979302	5.68519E-07	1.72362E-05	3.279012104	3.49111E-06	0.000105842	3.175036689	3.38041E-06	0.000102486	3.709015991	3.94893E-06	0.000119722
Road 9	9	1600-1700	0.501851066	7.49913E-07	2.27356E-05	0.481297339	7.192E-07	2.18044E-05	3.086929881	4.61278E-06	0.000139849	2.972626416	4.44198E-06	0.00013467	3.453923755	5.16118E-06	0.000156475
Road 9	9	1700-1800	0.378024636	4.87209E-07	1.4771E-05	0.363388206	4.68345E-07	1.41991E-05	2.256472423	2.90821E-06	8.81699E-05	2.174655036	2.80276E-06	8.4973E-05	2.538043242	3.2711E-06	9.91721E-05
Road 9	9	1800-1900	0.354761135	2.91565E-07	8.83955E-06	0.345113431	2.83635E-07	8.59916E-06	1.985406241	1.63173E-06	4.94702E-05	1.933448429	1.58903E-06	4.81755E-05	2.27856186	1.87266E-06	5.67747E-05
Road 9	9	1900-2000	0.396190681	3.18214E-07	9.64748E-06	0.382587174	3.07287E-07	9.31623E-06	2.315626797	1.85987E-06	5.63869E-05	2.242330668	1.801E-06	5.46021E-05	2.624917843	2.10829E-06	6.39184E-05
Road 9	9	2000-2100	0.513290299	2.7804E-07	8.42951E-06	0.499677774	2.70666E-07	8.20596E-06	2.313876772	1.25338E-06	3.79997E-05	2.259628544	1.224E-06	3.71088E-05	2.759306319	1.49467E-06	4.53147E-05
Road 9	9	2100-2200	0.019458635	1.01769E-08	3.0854E-07	0.017786708	9.3025E-09	2.8203E-07	0.276131197	1.44417E-07	4.37839E-06	0.249849752	1.30672E-07	3.96167E-06	0.26763646	1.39975E-07	4.2437E-06
Road 9	9	2200-2300	0.549704514	3.38836E-07	1.02727E-05	0.531004917	3.27309E-07	9.92325E-06	3.068664697	1.89151E-06	5.73462E-05	2.978621118	1.83601E-06	5.56635E-05	3.509626034	2.16332E-06	6.55868E-05
Road 9	9	2300-0000	0.384177629	2.15278E-07	6.52672E-06	0.372502781	2.08736E-07	6.32837E-06	2.198459104	1.23193E-06	3.73492E-05	2.137983663	1.19804E-06	3.63218E-05	2.510486445	1.40678E-06	4.26501E-05
Road 10	10	0000-0100	1.164034131	8.96464E-07	1.98994E-05	1.139494353	8.77566E-07	1.94799E-05	7.329961298	5.64507E-06	0.000125307	7.209439165	5.55225E-06	0.000123247	8.348933518	6.42981E-06	0.000142727
Road 10	10	0100-0200	1.114364789	6.48427E-07	1.43935E-05	1.09703626	6.38344E-07	1.41697E-05	6.949889158	4.044E-06	8.97673E-05	6.865374553	3.99483E-06	8.86757E-05	7.962410812	4.63317E-06	0.000102845
Road 10	10	0200-0300	1.185923305	3.85625E-07	8.55996E-06	1.168784358	3.80052E-07	8.43625E-06	7.301993424	2.37438E-06	5.27056E-05	7.219668362	2.34761E-06	5.21114E-05	8.388452719	2.72766E-06	6.05476E-05
Road 10	10	0300-0400	1.076723355	2.21126E-07	4.90848E-06	1.057951585	2.17271E-07	4.8229E-06	6.980422572	1.43357E-06	3.18218E-05	6.883497959	1.41366E-06	3.13799E-05	7.941449544	1.63093E-06	3.62028E-05
Road 10	10	0400-0500	1.151404602	4.53222E-07	1.00604E-05	1.131742815	4.45482E-07	9.88865E-06	7.032240742	2.76807E-06	6.14445E-05	6.938465191	2.73115E-06	6.06251E-05	8.070208006	3.17664E-06	7.05138E-05
Road 10	10	0500-0600	1.013949948	7.11468E-07	1.57929E-05	1.000597753	7.02099E-07	1.55849E-05	6.129606841	4.30102E-06	9.54724E-05	6.066763847	4.25692E-06	9.44936E-05	7.0673616	4.95902E-06	0.000110079
Road 10	10	0600-0700	1.084194049	1.52151E-06	3.3774E-05	1.063263195	1.49214E-06	3.3122E-05	6.448750125	9.04991E-06	0.000200887	6.350889	8.91258E-06	0.000197838	7.414152195	1.04047E-05	0.00023096
Road 10	10	0700-0800	1.042065908	2.30059E-06	5.10677E-05	1.023885288	2.26045E-06	5.01767E-05	6.260706929	1.38219E-05	0.000306814	6.174216865	1.3631E-05	0.000302575	7.198102153	1.58914E-05	0.000352752
Road 10	10	0800-0900	1.183252855	5.02209E-06	0.000111478	1.14901575	4.87677E-06	0.000108253	7.164312694	3.04075E-05	0.000674975	7.001804687	2.97178E-05	0.000659665	8.150820437	3.45946E-05	0.000767917
Road 10	10	0900-1000	1.211539594	4.10542E-06	9.11306E-05	1.17794832	3.99159E-06	8.86039E-05	7.167632107	2.42882E-05	0.000539141	7.011322042	2.37586E-05	0.000527384	8.189270362	2.77501E-05	0.000615988
Road 10	10	1000-1100	1.224322195	4.50494E-06	9.9999E-05	1.176311342	4.32828E-06	9.60776E-05	7.037899757	2.58962E-05	0.000574835	6.823581328	2.51076E-05	0.00055733	7.99989267	2.94359E-05	0.000653408
Road 10	10	1100-1200	1.253639107	4.61281E-06	0.000102394	1.211484697	4.4577E-06	9.89505E-05	7.377539549	2.71459E-05	0.000602576	7.184759094	2.64366E-05	0.00058683	8.39624379	3.08943E-05	0.00068578
Road 10	10	1200-1300	1.253296161	4.76169E-06	0.000105698	1.203403534	4.57214E-06	0.000101491	7.374376208	2.80177E-05	0.000621928	7.146316828	2.71513E-05	0.000602694	8.349720362	3.17234E-05	0.000704184
Road 10	10	1300-1400	1.213818855	3.9885E-06	8.85353E-05	1.167820924	3.83736E-06	8.51803E-05	7.04175262	2.31386E-05	0.000513622	6.832912823	2.24524E-05	0.000498389	8.000733747	2.62897E-05	0.000583569
Road 10	10	1400-1500	1.109364546	3.43643E-06	7.62806E-05	1.065983921	3.30205E-06	7.32978E-05	6.745993785	2.08968E-05	0.000463859	6.537676048	2.02515E-05	0.000449535	7.603659968	2.35535E-05	0.000522833
Road 10	10	1500-1600	1.176703092	3.72558E-06	8.2699E-05	1.129425018	3.57589E-06	7.93763E-05	6.985767136	2.21177E-05	0.000490961	6.766777936	2.14244E-05	0.000475571	7.896202954	2.50003E-05	0.000554947
Road 10	10	1600-1700	1.072350213	3.78058E-06	8.392E-05	1.025140486	3.61414E-06	8.02254E-05	6.466202519	2.27967E-05	0.000506032	6.240622964	2.20014E-05	0.000488379	7.265763449	2.56155E-05	0.000568604
Road 10	10	1700-1800	0.971562404	3.24235E-06	7.19725E-05	0.932378014	3.11158E-06	6.90698E-05	5.858462309	1.95512E-05	0.00043399	5.669918326	1.8922E-05	0.000420023	6.602296339	2.20336E-05	0.000489093
Road 10	10	1800-1900	1.038135318	2.14978E-06	4.772E-05	1.010484011	2.09252E-06	4.6449E-05	6.316481936	1.30802E-05	0.00029035	6.184318364	1.28065E-05	0.000284275	7.194802375	1.48991E-05	0.000330724
Road 10	10	1900-2000	1.020236956	1.90319E-06	4.22463E-05	0.990423862	1.84758E-06	4.10118E-05	6.396160103	1.19317E-05	0.000264854	6.248083263	1.16554E-05	0.000258723	7.238507125	1.3503E-05	0.000299735
Road 10	10	2000-2100	1.298080767	1.59952E-06	3.55055E-05	1.268704921	1.56332E-06	3.4702E-05	7.919223063	9.7582E-06	0.000216609	7.781761338	9.58882E-06	0.000212849	9.050466258	1.11521E-05	0.000247551
Road 10	10	2100-2200	0.869811769	1.10157E-06	2.44522E-05	0.846499202	1.07205E-06	2.37969E-05	5.45678635	6.91072E-06	0.000153402	5.336709242	6.75865E-06	0.000150026	6.183208444	7.8307E-06	0.000173823
Road 10	10	2200-2300	1.043591436	1.37523E-06	3.05269E-05	1.010698851	1.33189E-06	2.95647E-05	6.309057048	8.314E-06	0.000184551	6.150893436	8.10557E-06	0.000179925	7.161592287	9.43746E-06	0.000209489
Road 10	10	2300-0000	0.943160985	1.16218E-06	2.57976E-05	0.916327043	1.12911E-06	2.50637E-05	5.821452606	7.1733E-06	0.00015923	5.690083442	7.01142E-06	0.000155637	6.606410485	8.14053E-06	0.000180701
Road 11	11	0000-0100	1.303040732	9.95378E-07	8.25674E-06	1.275330732	9.74211E-07	8.08116E-06	8.18396587	6.25164E-06	5.18579E-05	8.048354865	6.14805E-06	5.09986E-05	9.323685597	7.12226E-06	5.90797E-05
Road 11	11	0100-0200	1.274862574	6.86124E-07	5.69145E-06	1.254913542	6.75387E-07	5.60239E-06	7.915744301	4.26021E-06	3.53388E-05	7.819212488	4.20826E-06	3.49078E-05	9.07412603	4.88364E-06	4.05102E-05
Road 11	11	0200-0300	1.183084019	3.08095E-07	2.55567E-06	1.166008686	3.03648E-07	2.51879E-06	7.653303586	1.99305E-06	1.65325E-05	7.565898934	1.97029E-06	1.63437E-05	8.73190762	2.27393E-06	1.88625E-05
Road 11	11	0300-0400	1.269400237	3.08535E-07	2.55932E-06	1.247213827	3.03142E-07	2.51459E-06	8.182352449	1.98877E-06	1.6497E-05	8.070947832	1.96169E-06	1.62724E-05	9.318161659	2.26483E-06	1.8787E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.166794239	4.05137E-07	3.36064E-06	1.146583684	3.98119E-07	3.30243E-06	7.058537654	2.45088E-06	2.03303E-05	6.96336577	2.41784E-06	2.00561E-05	8.109949454	2.81595E-06	2.33586E-05
Road 11	11	0500-0600	0.924741109	4.33472E-07	3.59569E-06	0.912459627	4.27715E-07	3.54793E-06	5.685301296	2.66498E-06	2.21063E-05	5.625493892	2.63695E-06	2.18737E-05	6.537953519	3.06467E-06	2.54217E-05
Road 11	11	0600-0700	0.97368547	8.79022E-07	7.29156E-06	0.955852201	8.62922E-07	7.15801E-06	5.982618209	5.40097E-06	4.48015E-05	5.894610618	5.32152E-06	4.41425E-05	6.850462819	6.18445E-06	5.13005E-05
Road 11	11	0700-0800	1.106415375	2.09374E-06	1.73677E-05	1.087262807	2.05749E-06	1.70671E-05	6.914536638	1.30848E-05	0.000108539	6.820050738	1.2906E-05	0.000107056	7.907313544	1.49635E-05	0.000124123
Road 11	11	0800-0900	1.126362299	4.00875E-06	3.32529E-05	1.093965057	3.89345E-06	3.22965E-05	6.915931868	2.4614E-05	0.000204175	6.759514209	2.40573E-05	0.000199557	7.853479267	2.79508E-05	0.000231854
Road 11	11	0900-1000	1.111248984	2.836E-06	2.35249E-05	1.080727672	2.75811E-06	2.28787E-05	6.615954071	1.68845E-05	0.000140058	6.473110818	1.65199E-05	0.000137034	7.55383849	1.9278E-05	0.000159913
Road 11	11	1000-1100	1.213492565	2.54918E-06	2.11456E-05	1.168217671	2.45407E-06	2.03567E-05	7.065474889	1.48424E-05	0.000123119	6.858341318	1.44073E-05	0.00011951	8.026558988	1.68613E-05	0.000139866
Road 11	11	1100-1200	1.14124942	2.69462E-06	2.23521E-05	1.104709586	2.60834E-06	2.16364E-05	6.933180164	1.637E-05	0.000135791	6.756700521	1.59533E-05	0.000132334	7.861410107	1.85617E-05	0.000153971
Road 11	11	1200-1300	1.263404124	3.59719E-06	2.9839E-05	1.213928745	3.45632E-06	2.86705E-05	7.577940309	2.15761E-05	0.000178975	7.345799701	2.09151E-05	0.000173493	8.559728447	2.43714E-05	0.000202163
Road 11	11	1300-1400	1.276262179	2.68104E-06	2.22394E-05	1.227963825	2.57958E-06	2.13978E-05	7.298650533	1.53322E-05	0.000127182	7.080733372	1.48745E-05	0.000123385	8.308697197	1.7454E-05	0.000144783
Road 11	11	1400-1500	1.020359064	2.05489E-06	1.70455E-05	0.980856541	1.97534E-06	1.63856E-05	6.346876886	1.27819E-05	0.000106027	6.152461154	1.23904E-05	0.000102779	7.133317696	1.43657E-05	0.000119165
Road 11	11	1500-1600	1.113691057	2.26218E-06	1.8765E-05	1.075022571	2.18364E-06	1.81135E-05	6.992201201	1.42029E-05	0.000117814	6.801214543	1.3815E-05	0.000114596	7.876237114	1.59986E-05	0.00013271
Road 11	11	1600-1700	0.99126003	2.40931E-06	1.99854E-05	0.953521365	2.31759E-06	1.92246E-05	6.27112585	1.52423E-05	0.000126436	6.077382507	1.47714E-05	0.00012253	7.030903872	1.7089E-05	0.000141755
Road 11	11	1700-1800	1.008640457	2.50409E-06	2.07716E-05	0.973474275	2.41679E-06	2.00474E-05	6.377781467	1.58337E-05	0.000131342	6.199246161	1.53905E-05	0.000127665	7.172720436	1.78073E-05	0.000147713
Road 11	11	1800-1900	1.122297228	2.29915E-06	1.90716E-05	1.096175672	2.24564E-06	1.86277E-05	7.093966652	1.45328E-05	0.000120551	6.96339576	1.42653E-05	0.000118332	8.059571432	1.65109E-05	0.000136959
Road 11	11	1900-2000	1.046498256	1.65332E-06	1.37144E-05	1.015232082	1.60393E-06	1.33047E-05	6.602833241	1.04316E-05	8.65306E-05	6.445580008	1.01831E-05	8.44698E-05	7.46081209	1.1787E-05	9.77745E-05
Road 11	11	2000-2100	1.141819513	1.60568E-06	1.33193E-05	1.115558324	1.56875E-06	1.30129E-05	6.983857293	9.82105E-06	8.14664E-05	6.858632067	9.64495E-06	8.00057E-05	7.97419039	1.12137E-05	9.30186E-05
Road 11	11	2100-2200	0.851113747	8.57024E-07	7.10909E-06	0.828250576	8.34002E-07	6.91812E-06	5.530997112	5.56941E-06	4.61987E-05	5.408995622	5.44656E-06	4.51796E-05	6.237246198	6.28056E-06	5.20978E-05
Road 11	11	2200-2300	1.066645402	1.16664E-06	9.6774E-06	1.032765248	1.12959E-06	9.37002E-06	6.595132268	7.21343E-06	5.9836E-05	6.42902227	7.03174E-06	5.83289E-05	7.461787518	8.16133E-06	6.76989E-05
Road 11	11	2300-0000	1.00372962	1.04555E-06	8.67294E-06	0.976890213	1.01759E-06	8.44102E-06	6.306646322	6.56942E-06	5.44939E-05	6.172943482	6.43015E-06	5.33386E-05	7.149833695	7.44774E-06	6.17796E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.437741612	4.58222E-06	6.89189E-06	2.350601612	4.41842E-06	6.64553E-06	13.80282354	2.59452E-05	3.90228E-05	13.42156354	2.52285E-05	3.79449E-05	15.77216515	2.96469E-05	4.45904E-05
Haul Road 1	HR1	0800-0900	2.495411612	4.69062E-06	7.05493E-06	2.354401612	4.42557E-06	6.65627E-06	14.05594354	2.64209E-05	3.97384E-05	13.43795354	2.52593E-05	3.79913E-05	15.79235515	2.96849E-05	4.46475E-05
Haul Road 1	HR1	0900-1000	2.497701612	4.69493E-06	7.0614E-06	2.360591612	4.4372E-06	6.67377E-06	14.06565354	2.64392E-05	3.97659E-05	13.46524354	2.53106E-05	3.80684E-05	15.82583515	2.97478E-05	4.47422E-05
Haul Road 1	HR1	1000-1100	2.544771612	4.78341E-06	7.19448E-06	2.355501612	4.42763E-06	6.65938E-06	14.27181354	2.68267E-05	4.03487E-05	13.44255354	2.5268E-05	3.80043E-05	15.79805515	2.96956E-05	4.46636E-05
Haul Road 1	HR1	1100-1200	2.541681612	4.7776E-06	7.18574E-06	2.376481612	4.46707E-06	6.7187E-06	14.25851354	2.68017E-05	4.03111E-05	13.53489354	2.54415E-05	3.82653E-05	15.91137515	2.99086E-05	4.4984E-05
Haul Road 1	HR1	1200-1300	2.565061612	4.82154E-06	7.25184E-06	2.369491612	4.45393E-06	6.69893E-06	14.36085354	2.69941E-05	4.06004E-05	13.50411354	2.53837E-05	3.81783E-05	15.87360515	2.98376E-05	4.48772E-05
Haul Road 1	HR1	1300-1400	2.556471612	4.8054E-06	7.22756E-06	2.369491612	4.45393E-06	6.69893E-06	14.32337354	2.69236E-05	4.04945E-05	13.50411354	2.53837E-05	3.81783E-05	15.87360515	2.98376E-05	4.48772E-05
Haul Road 1	HR1	1400-1500	2.565061612	4.82154E-06	7.25184E-06	2.369491612	4.45393E-06	6.69893E-06	14.36085354	2.69941E-05	4.06004E-05	13.50411354	2.53837E-05	3.81783E-05	15.87360515	2.98376E-05	4.48772E-05
Haul Road 1	HR1	1500-1600	2.557971612	4.80822E-06	7.2318E-06	2.355501612	4.42763E-06	6.65938E-06	14.32976354	2.69356E-05	4.05125E-05	13.44255354	2.5268E-05	3.80043E-05	15.79805515	2.96956E-05	4.46636E-05
Haul Road 1	HR1	1600-1700	2.552771612	4.79844E-06	7.2171E-06	2.334411612	4.38799E-06	6.59976E-06	14.30698354	2.68928E-05	4.04481E-05	13.35041354	2.50948E-05	3.77438E-05	15.68482515	2.94828E-05	4.43435E-05
Haul Road 1	HR1	1700-1800	2.542381612	4.77891E-06	7.18772E-06	2.340811612	4.40002E-06	6.61785E-06	14.26131354	2.6807E-05	4.0319E-05	13.37809354	2.51468E-05	3.7822E-05	15.71890515	2.95468E-05	4.44399E-05
Haul Road 1	HR1	1800-1900	2.476421612	4.65493E-06	7.00124E-06	2.341911612	4.40209E-06	6.62096E-06	13.97280354	2.62647E-05	3.95034E-05	13.38328354	2.51565E-05	3.78367E-05	15.72519515	2.95586E-05	4.44577E-05
Haul Road 1	HR1	1900-2000	2.500701612	4.70057E-06	7.06989E-06	2.329421612	4.37861E-06	6.58565E-06	14.07864354	2.64636E-05	3.98026E-05	13.32862354	2.50538E-05	3.76822E-05	15.65804515	2.94324E-05	4.42678E-05
Haul Road 1	HR1	2000-2100	2.454331612	4.61341E-06	6.93879E-06	2.323221612	4.36696E-06	6.56812E-06	13.87567354	2.60821E-05	3.92288E-05	13.30124354	2.50023E-05	3.76048E-05	15.62446515	2.93693E-05	4.41729E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.437741612	3.1577E-06	6.2871E-06	2.350601612	3.04482E-06	6.06236E-06	13.80282354	1.78793E-05	3.55984E-05	13.42156354	1.73854E-05	3.46151E-05	15.77216515	2.04303E-05	4.06774E-05
Haul Road 2	HR2	0800-0900	2.495411612	3.2324E-06	6.43583E-06	2.354401612	3.04974E-06	6.07216E-06	14.05594354	1.82072E-05	3.62512E-05	13.43795354	1.74067E-05	3.46574E-05	15.79235515	2.04564E-05	4.07295E-05
Haul Road 2	HR2	0900-1000	2.497701612	3.23536E-06	6.44174E-06	2.360591612	3.05776E-06	6.08812E-06	14.06565354	1.82198E-05	3.62762E-05	13.46524354	1.7442E-05	3.47277E-05	15.82583515	2.04998E-05	4.08159E-05
Haul Road 2	HR2	1000-1100	2.544771612	3.29634E-06	6.56313E-06	2.355501612	3.05117E-06	6.07499E-06	14.27181354	1.84868E-05	3.68079E-05	13.44255354	1.74126E-05	3.46692E-05	15.79805515	2.04638E-05	4.07442E-05
Haul Road 2	HR2	1100-1200	2.541681612	3.29233E-06	6.55516E-06	2.376481612	3.07834E-06	6.1291E-06	14.25851354	1.84696E-05	3.67736E-05	13.53489354	1.75322E-05	3.49074E-05	15.91137515	2.06106E-05	4.10365E-05
Haul Road 2	HR2	1200-1300	2.565061612	3.32262E-06	6.61546E-06	2.369491612	3.06929E-06	6.11107E-06	14.36085354	1.86021E-05	3.70376E-05	13.50411354	1.74924E-05	3.4828E-05	15.87360515	2.05617E-05	4.09391E-05
Haul Road 2	HR2	1300-1400	2.556471612	3.31149E-06	6.59331E-06	2.369491612	3.06929E-06	6.11107E-06	14.32337354	1.85536E-05	3.69409E-05	13.50411354	1.74924E-05	3.4828E-05	15.87360515	2.05617E-05	4.09391E-05
Haul Road 2	HR2	1400-1500	2.565061612	3.32262E-06	6.61546E-06	2.369491612	3.06929E-06	6.11107E-06	14.36085354	1.86021E-05	3.70376E-05	13.50411354	1.74924E-05	3.4828E-05	15.87360515	2.05617E-05	4.09391E-05
Haul Road 2	HR2	1500-1600	2.557971612	3.31343E-06	6.59718E-06	2.355501612	3.05117E-06	6.07499E-06	14.32976354	1.85619E-05	3.69574E-05	13.44255354	1.74126E-05	3.46692E-05	15.79805515	2.04638E-05	4.07442E-05
Haul Road 2	HR2	1600-1700	2.552771612	3.3067E-06	6.58376E-06	2.334411612	3.02385E-06	6.0206E-06	14.30698354	1.85324E-05	3.68986E-05	13.35041354	1.72933E-05	3.44316E-05	15.68482515	2.03171E-05	4.04522E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.542381612	3.29324E-06	6.55697E-06	2.340811612	3.03214E-06	6.03711E-06	14.26131354	1.84732E-05	3.67809E-05	13.37809354	1.73291E-05	3.4503E-05	15.71890515	2.03613E-05	4.05401E-05
Haul Road 2	HR2	1800-1900	2.476421612	3.2078E-06	6.38685E-06	2.341911612	3.03356E-06	6.03994E-06	13.97280354	1.80995E-05	3.60368E-05	13.38328354	1.73359E-05	3.45164E-05	15.72519515	2.03694E-05	4.05563E-05
Haul Road 2	HR2	1900-2000	2.500701612	3.23925E-06	6.44947E-06	2.329421612	3.01739E-06	6.00773E-06	14.07864354	1.82366E-05	3.63097E-05	13.32862354	1.72651E-05	3.43754E-05	15.65804515	2.02824E-05	4.03831E-05
Haul Road 2	HR2	2000-2100	2.454331612	3.17919E-06	6.32988E-06	2.323221612	3.00935E-06	5.99174E-06	13.87567354	1.79737E-05	3.57863E-05	13.30124354	1.72296E-05	3.43048E-05	15.62446515	2.02389E-05	4.02965E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.437741612	3.1577E-06	5.8155E-06	2.350601612	3.04482E-06	5.60762E-06	13.80282354	1.78793E-05	3.29282E-05	13.42156354	1.73854E-05	3.20186E-05	15.77216515	2.04303E-05	3.76263E-05
Haul Road 3	HR3	0800-0900	2.495411612	3.2324E-06	5.95308E-06	2.354401612	3.04974E-06	5.61669E-06	14.05594354	1.82072E-05	3.3532E-05	13.43795354	1.74067E-05	3.20577E-05	15.79235515	2.04564E-05	3.76744E-05
Haul Road 3	HR3	0900-1000	2.497701612	3.23536E-06	5.95855E-06	2.360591612	3.05776E-06	5.63145E-06	14.06565354	1.82198E-05	3.35552E-05	13.46524354	1.7442E-05	3.21228E-05	15.82583515	2.04998E-05	3.77543E-05
Haul Road 3	HR3	1000-1100	2.544771612	3.29634E-06	6.07084E-06	2.355501612	3.05117E-06	5.61931E-06	14.27181354	1.84868E-05	3.4047E-05	13.44255354	1.74126E-05	3.20687E-05	15.79805515	2.04638E-05	3.7688E-05
Haul Road 3	HR3	1100-1200	2.541681612	3.29233E-06	6.06346E-06	2.376481612	3.07834E-06	5.66936E-06	14.25851354	1.84696E-05	3.40153E-05	13.53489354	1.75322E-05	3.2289E-05	15.91137515	2.06106E-05	3.79584E-05
Haul Road 3	HR3	1200-1300	2.565061612	3.32262E-06	6.11924E-06	2.369491612	3.06929E-06	5.65269E-06	14.36085354	1.86021E-05	3.42594E-05	13.50411354	1.74924E-05	3.22156E-05	15.87360515	2.05617E-05	3.78683E-05
Haul Road 3	HR3	1300-1400	2.556471612	3.31149E-06	6.09875E-06	2.369491612	3.06929E-06	5.65269E-06	14.32337354	1.85536E-05	3.417E-05	13.50411354	1.74924E-05	3.22156E-05	15.87360515	2.05617E-05	3.78683E-05
Haul Road 3	HR3	1400-1500	2.565061612	3.32262E-06	6.11924E-06	2.369491612	3.06929E-06	5.65269E-06	14.36085354	1.86021E-05	3.42594E-05	13.50411354	1.74924E-05	3.22156E-05	15.87360515	2.05617E-05	3.78683E-05
Haul Road 3	HR3	1500-1600	2.557971612	3.31343E-06	6.10233E-06	2.355501612	3.05117E-06	5.61931E-06	14.32976354	1.85619E-05	3.41852E-05	13.44255354	1.74126E-05	3.20687E-05	15.79805515	2.04638E-05	3.7688E-05
Haul Road 3	HR3	1600-1700	2.552771612	3.3067E-06	6.08992E-06	2.334411612	3.02385E-06	5.569E-06	14.30698354	1.85324E-05	3.41309E-05	13.35041354	1.72933E-05	3.18489E-05	15.68482515	2.03171E-05	3.74179E-05
Haul Road 3	HR3	1700-1800	2.542381612	3.29324E-06	6.06513E-06	2.340811612	3.03214E-06	5.58427E-06	14.26131354	1.84732E-05	3.40219E-05	13.37809354	1.73291E-05	3.19149E-05	15.71890515	2.03613E-05	3.74992E-05
Haul Road 3	HR3	1800-1900	2.476421612	3.2078E-06	5.90778E-06	2.341911612	3.03356E-06	5.58689E-06	13.97280354	1.80995E-05	3.33337E-05	13.38328354	1.73359E-05	3.19273E-05	15.72519515	2.03694E-05	3.75142E-05
Haul Road 3	HR3	1900-2000	2.500701612	3.23925E-06	5.9657E-06	2.329421612	3.01739E-06	5.55709E-06	14.07864354	1.82366E-05	3.35862E-05	13.32862354	1.72651E-05	3.17969E-05	15.65804515	2.02824E-05	3.7354E-05
Haul Road 3	HR3	2000-2100	2.454331612	3.17919E-06	5.85508E-06	2.323221612	3.00935E-06	5.5423E-06	13.87567354	1.79737E-05	3.3102E-05	13.30124354	1.72296E-05	3.17316E-05	15.62446515	2.02389E-05	3.72739E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.094082123	3.16079E-07	2.57135E-06	0.078376536	2.63315E-07	2.1421E-06	0.557257263	1.87217E-06	1.52304E-05	0.461557654	1.55065E-06	1.26148E-05	0.53993419	1.81397E-06	1.47569E-05
Road 1	1	0100-0200	0.072384404	1.48084E-07	1.20468E-06	0.061957706	1.26753E-07	1.03115E-06	0.436882752	8.93773E-07	7.27097E-06	0.371813303	7.60654E-07	6.18803E-06	0.433771009	8.87407E-07	7.21919E-06
Road 1	1	0200-0300	0.069354156	1.0023E-07	8.15388E-07	0.059326104	8.57378E-08	6.9749E-07	0.44314	6.40424E-07	5.20994E-06	0.375562078	5.42761E-07	4.41544E-06	0.434888182	6.28498E-07	5.11293E-06
Road 1	1	0300-0400	0.059367273	6.12838E-08	4.98553E-07	0.049660545	5.12637E-08	4.17038E-07	0.364305091	3.76066E-07	3.05935E-06	0.301934545	3.11682E-07	2.53558E-06	0.351595091	3.62945E-07	2.95261E-06
Road 1	1	0400-0500	0.077206977	1.24621E-07	1.01381E-06	0.064503023	1.04115E-07	8.46993E-07	0.44295	7.14972E-07	5.8164E-06	0.36756314	5.93289E-07	4.82649E-06	0.432066163	6.97404E-07	5.67349E-06
Road 1	1	0500-0600	0.063467287	2.23946E-07	1.82183E-06	0.053106489	1.87388E-07	1.52443E-06	0.375581596	1.32525E-06	1.07811E-05	0.31144484	1.09894E-06	8.94006E-06	0.36455133	1.28633E-06	1.04645E-05
Road 1	1	0600-0700	0.084456914	5.34196E-07	4.34577E-06	0.071551988	4.52572E-07	3.68174E-06	0.449842433	2.84529E-06	2.31468E-05	0.378742789	2.39558E-06	1.94884E-05	0.450294777	2.84815E-06	2.31701E-05
Road 1	1	0700-0800	0.070714413	7.45899E-07	6.068E-06	0.060432153	6.37441E-07	5.18568E-06	0.389990658	4.11364E-06	3.34651E-05	0.330494662	3.48607E-06	2.83597E-05	0.390926815	4.12351E-06	3.35454E-05
Road 1	1	0800-0900	0.076883588	1.00145E-06	8.14694E-06	0.065841383	8.57619E-07	6.97685E-06	0.413062695	5.38036E-06	4.377E-05	0.351686744	4.5809E-06	3.72663E-05	0.417528127	5.43852E-06	4.42432E-05
Road 1	1	0900-1000	0.082493796	1.10549E-06	8.99333E-06	0.070773529	9.48429E-07	7.71561E-06	0.458075896	6.13863E-06	4.99387E-05	0.391215154	5.24264E-06	4.26496E-05	0.461988683	6.19106E-06	5.03652E-05
Road 1	1	1000-1100	0.096249439	1.25551E-06	1.02137E-05	0.081675683	1.0654E-06	8.6672E-06	0.515893453	6.72947E-06	5.47452E-05	0.436286072	5.69104E-06	4.62975E-05	0.517961755	6.75645E-06	5.49647E-05
Road 1	1	1100-1200	0.086798309	1.09801E-06	8.93249E-06	0.073871944	9.34491E-07	7.60222E-06	0.498769362	6.30951E-06	5.13288E-05	0.422948783	5.35037E-06	4.3526E-05	0.496820727	6.28486E-06	5.11282E-05
Road 1	1	1200-1300	0.087818516	1.09938E-06	8.94362E-06	0.076581439	9.58705E-07	7.79921E-06	0.498262024	6.23763E-06	5.0744E-05	0.432854738	5.41881E-06	4.40828E-05	0.509436177	6.37751E-06	5.1882E-05
Road 1	1	1300-1400	0.09162598	1.21927E-06	9.91896E-06	0.079917362	1.06346E-06	8.65144E-06	0.509158829	6.77541E-06	5.51189E-05	0.442520155	5.88864E-06	4.7905E-05	0.522437518	6.95211E-06	5.65564E-05
Road 1	1	1400-1500	0.087253875	1.25935E-06	1.0245E-05	0.075480988	1.08943E-06	8.86268E-06	0.474580286	6.8497E-06	5.57234E-05	0.409006047	5.90326E-06	4.80239E-05	0.484487035	6.99269E-06	5.68866E-05
Road 1	1	1500-1600	0.095543631	1.28396E-06	1.04452E-05	0.079666844	1.0706E-06	8.70947E-06	0.518095196	6.96239E-06	5.66401E-05	0.429809316	5.77597E-06	4.69883E-05	0.509476159	6.84656E-06	5.56978E-05
Road 1	1	1600-1700	0.090983285	1.28927E-06	1.04884E-05	0.076183656	1.07955E-06	8.78234E-06	0.499823219	7.08271E-06	5.76189E-05	0.415977126	5.89457E-06	4.79532E-05	0.492160781	6.97413E-06	5.67355E-05
Road 1	1	1700-1800	0.073398232	1.04422E-06	8.49486E-06	0.060641372	8.62728E-07	7.01842E-06	0.41253314	5.869E-06	4.77452E-05	0.337933549	4.80769E-06	3.91113E-05	0.398574921	5.67042E-06	4.61297E-05
Road 1	1	1800-1900	0.064758282	9.40745E-07	7.6531E-06	0.053205388	7.72916E-07	6.28779E-06	0.389943928	5.66473E-06	4.60834E-05	0.316471111	4.59738E-06	3.74004E-05	0.369676499	5.3703E-06	4.36882E-05
Road 1	1	1900-2000	0.077973272	8.67833E-07	7.05995E-06	0.065139528	7.24995E-07	5.89794E-06	0.448951535	4.99678E-06	4.06495E-05	0.371506863	4.13483E-06	3.36374E-05	0.436646391	4.85982E-06	3.95354E-05
Road 1	1	2000-2100	0.070526024	6.65814E-07	5.4165E-06	0.058843559	5.55524E-07	4.51927E-06	0.418528708	3.9512E-06	3.21436E-05	0.346027078	3.26673E-06	2.65754E-05	0.404870636	3.82226E-06	3.10946E-05
Road 1	1	2100-2200	0.07471342	6.43646E-07	5.23616E-06	0.060921656	5.24832E-07	4.26958E-06	0.4472378	3.85289E-06	3.13439E-05	0.361273181	3.11232E-06	2.53192E-05	0.422194837	3.63715E-06	2.95888E-05
Road 1	1	2200-2300	0.071839057	5.86524E-07	4.77146E-06	0.060047471	4.90252E-07	3.98828E-06	0.429471908	3.50639E-06	2.8525E-05	0.355751103	2.9045E-06	2.36285E-05	0.415798575	3.39475E-06	2.76168E-05
Road 1	1	2300-0000	0.062878641	4.6026E-07	3.74429E-06	0.052582256	3.84893E-07	3.13116E-06	0.386854487	2.83171E-06	2.30363E-05	0.319764615	2.34062E-06	1.90413E-05	0.372346872	2.72551E-06	2.21724E-05
Road 2	2	0000-0100	0.155797692	1.87534E-07	1.21108E-06	0.129785962	1.56224E-07	1.00888E-06	0.659751923	7.94146E-07	5.12852E-06	0.547104231	6.58551E-07	4.25286E-06	0.676890192	8.14775E-07	5.26174E-06
Road 2	2	0100-0200	0.109231176	8.5969E-08	5.55179E-07	0.093394412	7.35049E-08	4.74687E-07	0.539548824	4.24645E-07	2.74232E-06	0.459355588	3.6153E-07	2.33472E-06	0.55275	4.35035E-07	2.80941E-06
Road 2	2	0200-0300	0.112727826	6.00171E-08	3.87585E-07	0.096573913	5.14167E-08	3.32044E-07	0.61526913	3.27574E-07	2.11544E-06	0.523745652	2.78846E-07	1.80076E-06	0.620319565	3.30263E-07	2.1328E-06
Road 2	2	0300-0400	0.099046667	3.43912E-08	2.22095E-07	0.08288	2.87778E-08	1.85844E-07	0.360391333	1.25136E-07	8.08115E-07	0.299074	1.03845E-07	6.70622E-07	0.381954	1.32623E-07	8.56466E-07
Road 2	2	0400-0500	0.134462593	8.40391E-08	5.42716E-07	0.112342222	7.02139E-08	4.53434E-07	0.647945556	4.04966E-07	2.61523E-06	0.539184074	3.3699E-07	2.17625E-06	0.651526296	4.07204E-07	2.62968E-06
Road 2	2	0500-0600	0.106187193	1.40108E-07	9.04804E-07	0.088972281	1.17394E-07	7.58119E-07	0.470265789	6.2049E-07	4.00706E-06	0.390906667	5.1578E-07	3.33085E-06	0.479878947	6.33174E-07	4.08897E-06
Road 2	2	0600-0700	0.147971346	3.56227E-07	2.30048E-06	0.125398077	3.01884E-07	1.94954E-06	0.598357019	1.44049E-06	9.30254E-06	0.504689519	1.21499E-06	7.84631E-06	0.630087596	1.51688E-06	9.79585E-06
Road 2	2	0700-0800	0.12095825	4.47994E-07	2.8931E-06	0.103360438	3.82816E-07	2.47219E-06	0.50287075	1.86248E-06	1.20277E-05	0.426763813	1.58061E-06	1.02074E-05	0.53012425	1.96342E-06	1.26796E-05
Road 2	2	0800-0900	0.138001316	9.7112E-07	6.2714E-06	0.118099868	8.31073E-07	5.36699E-06	0.580248289	4.08323E-06	2.63691E-05	0.493961645	3.47603E-06	2.24478E-05	0.612061513	4.3071E-06	2.78148E-05
Road 2	2	0900-1000	0.162779008	9.49544E-07	6.13206E-06	0.139532262	8.13938E-07	5.25633E-06	0.693559802	4.04577E-06	2.61272E-05	0.592811746	3.45807E-06	2.23319E-05	0.732344008	4.27201E-06	2.75882E-05
Road 2	2	1000-1100	0.182515615	7.90056E-07	5.1021E-06	0.154793262	6.70054E-07	4.32714E-06	0.769736471	3.33196E-06	2.15175E-05	0.651605615	2.82061E-06	1.82152E-05	0.806398877	3.49066E-06	2.25424E-05
Road 2	2	1100-1200	0.215599508	9.13303E-07	5.89802E-06	0.183335246	7.76628E-07	5.01539E-06	0.880766066	3.73102E-06	2.40946E-05	0.748085191	3.16897E-06	2.04649E-05	0.931420437	3.9456E-06	2.54803E-05
Road 2	2	1200-1300	0.162955947	7.16704E-07	4.62841E-06	0.142054579	6.24777E-07	4.03475E-06	0.714417	3.14211E-06	2.02915E-05	0.621039316	2.73142E-06	1.76393E-05	0.763093895	3.3562E-06	2.1674E-05
Road 2	2	1300-1400	0.17966278	9.27426E-07	5.98923E-06	0.156534126	8.08035E-07	5.21821E-06	0.735359776	3.79595E-06	2.45139E-05	0.639038969	3.29874E-06	2.1303E-05	0.795573094	4.10678E-06	2.65212E-05
Road 2	2	1400-1500	0.154970788	5.91902E-07	3.82245E-06	0.134004545	5.11823E-07	3.3053E-06	0.670448788	2.56074E-06	1.6537E-05	0.578465818	2.20942E-06	1.42682E-05	0.712470364	2.72124E-06	1.75735E-05
Road 2	2	1500-1600	0.197251257	8.35578E-07	5.39608E-06	0.164208852	6.95607E-07	4.49216E-06	0.777849672	3.29506E-06	2.12792E-05	0.645958142	2.73635E-06	1.76711E-05	0.810166995	3.43196E-06	2.21632E-05
Road 2	2	1600-1700	0.164834344	8.4325E-07	5.44562E-06	0.138053394	7.06245E-07	4.56086E-06	0.694171403	3.5512E-06	2.29333E-05	0.578863167	2.96131E-06	1.91239E-05	0.716916561	3.66756E-06	2.36847E-05
Road 2	2	1700-1800	0.128574144	6.60728E-07	4.26692E-06	0.106294144	5.46234E-07	3.52752E-06	0.511240315	2.62721E-06	1.69662E-05	0.420196441	2.15934E-06	1.39448E-05	0.526490586	2.70558E-06	1.74723E-05
Road 2	2	1800-1900	0.140371	8.12332E-07	5.24596E-06	0.11542804	6.67986E-07	4.31379E-06	0.63339216	3.66546E-06	2.36712E-05	0.51741456	2.9943E-06	1.93369E-05	0.6328426	3.66228E-06	2.36507E-05
Road 2	2	1900-2000	0.119661361	4.6812E-07	3.02307E-06	0.099946982	3.90996E-07	2.52502E-06	0.544467692	2.12998E-06	1.37552E-05	0.451152485	1.76493E-06	1.13977E-05	0.551099467	2.15592E-06	1.39227E-05
Road 2	2	2000-2100	0.113316259	3.8559E-07	2.4901E-06	0.094459048	3.21423E-07	2.07572E-06	0.484933061	1.65012E-06	1.06563E-05	0.400494694	1.36279E-06	8.80079E-06	0.494953741	1.68422E-06	1.08765E-05
Road 2	2	2100-2200	0.088749935	3.14323E-07	2.02987E-06	0.072300784	2.56065E-07	1.65364E-06	0.40940366	1.44997E-06	9.36377E-06	0.328845359	1.16466E-06	7.52126E-06	0.401146144	1.42073E-06	9.17491E-06
Road 2	2	2200-2300	0.12721528	3.681E-07	2.37715E-06	0.10638976	3.07841E-07	1.98801E-06	0.54327528	1.57198E-06	1.01517E-05	0.45081296	1.30444E-06	8.42392E-06	0.55720272	1.61228E-06	1.04119E-05
Road 2	2	2300-0000	0.113571892	2.91817E-07	1.88452E-06	0.095014414	2.44134E-07	1.5766E-06	0.514373243	1.32165E-06	8.53511E-06	0.42631036	1.09538E-06	7.07386E-06	0.521324775	1.33952E-06	8.65046E-06
Road 3	3	0000-0100	0.097783609	3.60733E-07	1.40208E-05	0.083028304	3.06299E-07	1.19051E-05	0.539515043	1.99032E-06	7.73589E-05	0.455492565	1.68036E-06	6.53112E-05	0.53852087	1.98666E-06	7.72163E-05
Road 3	3	0100-0200	0.072950986	1.66154E-07	6.458E-06	0.062343944	1.41996E-07	5.51901E-06	0.425444085	9.68998E-07	3.76625E-05	0.361569648	8.23517E-07	3.2008E-05	0.423913592	9.65513E-07	3.7527E-05
Road 3	3	0200-0300	0.071849697	1.14091E-07	4.43444E-06	0.060716465	9.64126E-08	3.74732E-06	0.448786667	7.12635E-07	2.76983E-05	0.375676263	5.96542E-07	2.31861E-05	0.436392727	6.92955E-07	2.69334E-05
Road 3	3	0300-0400	0.060316143	6.77211E-08	2.63215E-06	0.050604143	5.68167E-08	2.20832E-06	0.333081429	3.73973E-07	1.45354E-05	0.276735571	3.1071E-07	1.20765E-05	0.327339714	3.67527E-07	1.42848E-05
Road 3	3	0400-0500	0.080292743	1.45528E-07	5.65631E-06	0.067500885	1.22343E-07	4.75518E-06	0.444444336	8.05542E-07	3.13094E-05	0.371480973	6.73298E-07	2.61694E-05	0.438981858	7.95641E-07	3.09246E-05
Road 3	3	0500-0600	0.065020122	2.56552E-07	9.97153E-06	0.05459122	2.15402E-07	8.37214E-06	0.362294837	1.42952E-06	5.55618E-05	0.301492602	1.18961E-06	4.62371E-05	0.356083821	1.40501E-06	5.46092E-05
Road 3	3	0600-0700	0.089791419	6.39455E-07	2.4854E-05	0.075985	5.41132E-07	2.10324E-05	0.448423986	3.19348E-06	0.000124122	0.377227635	2.68645E-06	0.000104416	0.453212635	3.22758E-06	0.000125448
Road 3	3	0700-0800	0.073696506	8.59357E-07	3.3401E-05	0.062613521	7.30121E-07	2.8378E-05	0.386756135	4.50987E-06	0.000175287	0.325818047	3.79928E-06	0.000147669	0.388431568	4.5294E-06	0.000176047
Road 3	3	0800-0900	0.082387763	1.3175E-06	5.12079E-05	0.070164092	1.12202E-06	4.36103E-05	0.407875356	6.52251E-06	0.000253514	0.345527222	5.52548E-06	0.000214761	0.415691314	6.6475E-06	0.000258372
Road 3	3	0900-1000	0.090101523	1.39461E-06	5.42049E-05	0.076955772	1.19113E-06	4.62964E-05	0.464976052	7.19698E-06	0.000279728	0.39552656	6.12203E-06	0.000237948	0.472482332	7.31316E-06	0.000284244
Road 3	3	1000-1100	0.102499716	1.44512E-06	5.61682E-05	0.08709041	1.22787E-06	4.77241E-05	0.517561786	7.29698E-06	0.000283615	0.438435654	6.1814E-06	0.000240256	0.525526064	7.40927E-06	0.00028798
Road 3	3	1100-1200	0.100500925	1.37664E-06	5.35065E-05	0.086575984	1.1859E-06	4.60929E-05	0.52197103	7.14984E-06	0.000277896	0.448184742	6.13913E-06	0.000238613	0.534760726	7.32503E-06	0.000284706
Road 3	3	1200-1300	0.093148244	1.27592E-06	4.9592E-05	0.081121628	1.11119E-06	4.3189E-05	0.495269251	6.78409E-06	0.00026368	0.429638782	5.8851E-06	0.000228739	0.51076041	6.99628E-06	0.000271928

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.099157745	1.47434E-06	5.7304E-05	0.086347335	1.28387E-06	4.99008E-05	0.506300205	7.52801E-06	0.000292595	0.439322621	6.53214E-06	0.000253888	0.525669957	7.81601E-06	0.000303789
Road 3	3	1400-1500	0.091601478	1.37228E-06	5.33369E-05	0.078622666	1.17784E-06	4.57797E-05	0.475110021	7.1176E-06	0.000276643	0.406252527	6.08605E-06	0.000236549	0.484875193	7.26389E-06	0.000282329
Road 3	3	1500-1600	0.103400212	1.48435E-06	5.7693E-05	0.087588268	1.25736E-06	4.88706E-05	0.522313598	7.49802E-06	0.000291429	0.440492067	6.32344E-06	0.000245776	0.528080335	7.5808E-06	0.000294647
Road 3	3	1600-1700	0.09827166	1.5384E-06	5.97939E-05	0.081318555	1.27301E-06	4.94787E-05	0.504520502	7.89807E-06	0.000306978	0.415199672	6.49979E-06	0.00025263	0.496518227	7.7728E-06	0.000302109
Road 3	3	1700-1800	0.078138131	1.22698E-06	4.76897E-05	0.064456721	1.01215E-06	3.93396E-05	0.403471032	6.33559E-06	0.000246249	0.330176956	5.18468E-06	0.000201515	0.394633677	6.19682E-06	0.000240855
Road 3	3	1800-1900	0.073457595	1.21004E-06	4.70312E-05	0.061109825	1.00664E-06	3.91255E-05	0.406678773	6.69906E-06	0.000260376	0.334707926	5.51352E-06	0.000214297	0.395817751	6.52016E-06	0.000253422
Road 3	3	1900-2000	0.077809987	9.48508E-07	3.68661E-05	0.06491175	7.91278E-07	3.0755E-05	0.430737447	5.25071E-06	0.000204082	0.35593225	4.33884E-06	0.00016864	0.420844	5.13011E-06	0.000199395
Road 3	3	2000-2100	0.072741772	7.57218E-07	2.94312E-05	0.060369122	6.28423E-07	2.44252E-05	0.400928398	4.17353E-06	0.000162215	0.32949923	3.42998E-06	0.000133315	0.389868351	4.0584E-06	0.00015774
Road 3	3	2100-2200	0.071610992	7.06394E-07	2.74558E-05	0.059789512	5.89783E-07	2.29234E-05	0.406436211	4.00922E-06	0.000155828	0.336069837	3.3151E-06	0.00012885	0.39585935	3.90488E-06	0.000151773
Road 3	3	2200-2300	0.076307034	6.89073E-07	2.67825E-05	0.063813801	5.76256E-07	2.23976E-05	0.41985929	3.79144E-06	0.000147364	0.347845009	3.14113E-06	0.000122088	0.41165881	3.71739E-06	0.000144486
Road 3	3	2300-0000	0.067011394	5.39566E-07	2.09716E-05	0.055574203	4.47475E-07	1.73922E-05	0.387104741	3.11691E-06	0.000121147	0.317463805	2.55617E-06	9.9352E-05	0.373038008	3.00365E-06	0.000116744
Road 4	4	0000-0100	0.262188	2.12421E-07	2.27451E-06	0.222369429	1.8016E-07	1.92908E-06	1.294973143	1.04917E-06	1.1234E-05	1.097667143	8.89314E-07	9.5224E-06	1.320036571	1.06947E-06	1.14515E-05
Road 4	4	0100-0200	0.245862	1.13825E-07	1.21879E-06	0.2099875	9.72164E-08	1.04095E-06	1.216629	5.63254E-07	6.03109E-06	1.038889	4.80967E-07	5.14999E-06	1.2488765	5.78184E-07	6.19095E-06
Road 4	4	0200-0300	0.26669	8.02539E-08	8.59325E-07	0.22558	6.78829E-08	7.26861E-07	1.275833077	3.83931E-07	4.11097E-06	1.079219231	3.24765E-07	3.47745E-06	1.304799231	3.92648E-07	4.20431E-06
Road 4	4	0300-0400	0.24307	3.93863E-08	4.21732E-07	0.204258571	3.30975E-08	3.54394E-07	1.247755714	2.02183E-07	2.16489E-06	1.048655714	1.69921E-07	1.81944E-06	1.252914286	2.03019E-07	2.17384E-06
Road 4	4	0400-0500	0.249306429	8.07938E-08	8.65105E-07	0.209500714	6.78938E-08	7.26978E-07	1.193101429	3.86653E-07	4.14012E-06	1.002712143	3.24953E-07	3.47946E-06	1.212212857	3.92847E-07	4.20644E-06
Road 4	4	0500-0600	0.230044583	1.27803E-07	1.36846E-06	0.193295	1.07386E-07	1.14985E-06	1.05931125	5.88506E-07	6.30148E-06	0.88950875	4.94172E-07	5.29138E-06	1.08280375	6.01558E-07	6.44123E-06
Road 4	4	0600-0700	0.255430566	3.13375E-07	3.35549E-06	0.216135472	2.65166E-07	2.83929E-06	1.182654906	1.45094E-06	1.55361E-05	1.000007358	1.22686E-06	1.31367E-05	1.21614283	1.49203E-06	1.5976E-05
Road 4	4	0700-0800	0.255562174	5.44253E-07	5.82763E-06	0.217136957	4.62421E-07	4.95141E-06	1.227002174	2.61306E-06	2.79795E-05	1.041320652	2.21763E-06	2.37454E-05	1.258457609	2.68005E-06	2.86968E-05
Road 4	4	0800-0900	0.264726129	9.49828E-07	1.01704E-05	0.225294065	8.08347E-07	8.65544E-06	1.275386129	4.57604E-06	4.89983E-05	1.085064516	3.89317E-06	4.16864E-05	1.310358581	4.70152E-06	5.03419E-05
Road 4	4	0900-1000	0.272107703	9.32221E-07	9.98183E-06	0.231859257	7.94333E-07	8.50538E-06	1.244706149	4.26427E-06	4.566E-05	1.059860811	3.631E-06	3.88793E-05	1.291720068	4.42534E-06	4.73846E-05
Road 4	4	1000-1100	0.303785069	1.01262E-06	1.08427E-05	0.25778625	8.59288E-07	9.20089E-06	1.393476667	4.64492E-06	4.97359E-05	1.181989861	3.93997E-06	4.21875E-05	1.439776111	4.79925E-06	5.13884E-05
Road 4	4	1100-1200	0.280785935	1.00745E-06	1.07873E-05	0.241531097	8.66605E-07	9.27924E-06	1.279662323	4.59138E-06	4.91626E-05	1.100597419	3.9489E-06	4.22832E-05	1.342128516	4.81551E-06	5.15624E-05
Road 4	4	1200-1300	0.282831554	9.6896E-07	1.03752E-05	0.246016757	8.42835E-07	9.02472E-06	1.345526351	4.60967E-06	4.93584E-05	1.169996149	4.00832E-06	4.29194E-05	1.416012905	4.85116E-06	5.19441E-05
Road 4	4	1300-1400	0.290462333	1.00855E-06	1.07991E-05	0.2526624	8.773E-07	9.39376E-06	1.3496156	4.68617E-06	5.01775E-05	1.173575733	4.07492E-06	4.36325E-05	1.426238133	4.95222E-06	5.30262E-05
Road 4	4	1400-1500	0.265039857	8.58925E-07	9.19701E-06	0.227183143	7.36242E-07	7.88337E-06	1.271272929	4.11987E-06	4.41138E-05	1.089000071	3.52917E-06	3.77888E-05	1.316183214	4.26541E-06	4.56722E-05
Road 4	4	1500-1600	0.302568	8.75486E-07	9.37434E-06	0.25591144	7.40484E-07	7.9288E-06	1.40585152	4.06786E-06	4.35569E-05	1.18895968	3.44028E-06	3.6837E-05	1.44487112	4.18076E-06	4.47658E-05
Road 4	4	1600-1700	0.285162742	8.18523E-07	8.7644E-06	0.235749516	6.76688E-07	7.24569E-06	1.338474194	3.84192E-06	4.11376E-05	1.10586379	3.17424E-06	3.39884E-05	1.341613306	3.85093E-06	4.12341E-05
Road 4	4	1700-1800	0.27434126	8.06513E-07	8.6358E-06	0.226335197	6.65384E-07	7.12465E-06	1.308874646	3.84785E-06	4.12011E-05	1.079046457	3.1722E-06	3.39665E-05	1.305381654	3.83758E-06	4.10912E-05
Road 4	4	1800-1900	0.301238208	7.39149E-07	7.9145E-06	0.250647547	6.15015E-07	6.58532E-06	1.450289434	3.55858E-06	3.81038E-05	1.206454906	2.96028E-06	3.16975E-05	1.457102453	3.5753E-06	3.82828E-05
Road 4	4	1900-2000	0.269673919	4.61941E-07	4.94627E-06	0.225040541	3.85486E-07	4.12762E-06	1.301560946	2.22953E-06	2.38728E-05	1.085367162	1.85919E-06	1.99075E-05	1.310407703	2.24468E-06	2.40351E-05
Road 4	4	2000-2100	0.235856939	2.67523E-07	2.86452E-06	0.195618571	2.21882E-07	2.37582E-06	1.142921633	1.29637E-06	1.3881E-05	0.946773061	1.07389E-06	1.14987E-05	1.142391633	1.29577E-06	1.38745E-05
Road 4	4	2100-2200	0.197604865	1.69245E-07	1.8122E-06	0.165248378	1.41532E-07	1.51547E-06	0.978216757	8.37825E-07	8.97107E-06	0.816434865	6.99261E-07	7.4874E-06	0.981683243	8.40794E-07	9.00286E-06
Road 4	4	2200-2300	0.26321619	3.83857E-07	4.11018E-06	0.220203968	3.21131E-07	3.43853E-06	1.2515	1.8251E-06	1.95424E-05	1.046219683	1.52574E-06	1.63369E-05	1.266423651	1.84687E-06	1.97755E-05
Road 4	4	2300-0000	0.246251633	2.79313E-07	2.99077E-06	0.204266327	2.31691E-07	2.48085E-06	1.202991224	1.3645E-06	1.46105E-05	0.997049796	1.13091E-06	1.21093E-05	1.201316122	1.3626E-06	1.45902E-05
Road 5	5	0000-0100	0.082780829	2.99863E-07	4.0551E-06	0.070287306	2.54607E-07	3.4431E-06	0.463160933	1.67774E-06	2.26884E-05	0.390425855	1.41427E-06	1.91254E-05	0.460713161	1.66887E-06	2.25685E-05
Road 5	5	0100-0200	0.055346311	1.26731E-07	1.71381E-06	0.047313934	1.08339E-07	1.46509E-06	0.340207869	7.79005E-07	1.05346E-05	0.288492131	6.60586E-07	8.93323E-06	0.335806066	7.68925E-07	1.03983E-05
Road 5	5	0200-0300	0.053029767	8.55961E-08	1.15753E-06	0.044787442	7.2292E-08	9.77619E-07	0.366421395	5.91446E-07	7.99823E-06	0.305404651	4.92958E-07	6.66636E-06	0.350192093	5.6525E-07	7.64398E-06
Road 5	5	0300-0400	0.047420476	5.60715E-08	7.58266E-07	0.039759048	4.70124E-08	6.35757E-07	0.262241111	3.10082E-07	4.1933E-06	0.21686746	2.56431E-07	3.46777E-06	0.256626508	3.03444E-07	4.10352E-06
Road 5	5	0400-0500	0.06569202	1.22063E-07	1.65068E-06	0.055232626	1.02628E-07	1.38786E-06	0.375880202	6.98426E-07	9.44495E-06	0.313571515	5.8265E-07	7.87928E-06	0.368804141	6.85278E-07	9.26714E-06
Road 5	5	0500-0600	0.053199773	2.19669E-07	2.97062E-06	0.044652864	1.84377E-07	2.49337E-06	0.310137773	1.2806E-06	1.73178E-05	0.257376682	1.06274E-06	1.43717E-05	0.302029545	1.24712E-06	1.6865E-05
Road 5	5	0600-0700	0.077788582	5.66478E-07	7.66059E-06	0.065830851	4.79399E-07	6.483E-06	0.391175438	2.84865E-06	3.85228E-05	0.328549665	2.39259E-06	3.23555E-05	0.394380515	2.87199E-06	3.88385E-05
Road 5	5	0700-0800	0.060239415	7.15682E-07	9.67831E-06	0.051169242	6.07923E-07	8.22105E-06	0.318727409	3.78668E-06	5.1208E-05	0.267746793	3.181E-06	4.30173E-05	0.318916035	3.78892E-06	5.12383E-05
Road 5	5	0800-0900	0.065171898	1.03115E-06	1.39445E-05	0.055529786	8.78596E-07	1.18814E-05	0.319183333	5.05014E-06	6.8294E-05	0.269818849	4.26909E-06	5.77317E-05	0.325348636	5.14769E-06	6.96132E-05
Road 5	5	0900-1000	0.07270614	1.11352E-06	1.50583E-05	0.062166789	9.52104E-07	1.28755E-05	0.387936691	5.94137E-06	8.03463E-05	0.329933358	5.05303E-06	6.83331E-05	0.392100147	6.00514E-06	8.12086E-05
Road 5	5	1000-1100	0.083042929	1.14402E-06	1.54708E-05	0.070595695	9.72546E-07	1.31519E-05	0.430496621	5.93064E-06	8.02012E-05	0.364470436	5.02105E-06	6.79005E-05	0.435066131	5.99359E-06	8.10525E-05
Road 5	5	1100-1200	0.081478612	1.06895E-06	1.44556E-05	0.070230458	9.21379E-07	1.246E-05	0.441534421	5.79265E-06	7.83351E-05	0.378838999	4.97013E-06	6.7212E-05	0.449069456	5.89151E-06	7.9672E-05
Road 5	5	1200-1300	0.074455728	9.87992E-07	1.33608E-05	0.064869745	8.6079E-07	1.16406E-05	0.407077355	5.40172E-06	7.30485E-05	0.352810736	4.68163E-06	6.33105E-05	0.417680481	5.54242E-06	7.49512E-05
Road 5	5	1300-1400	0.081493037	1.18844E-06	1.60715E-05	0.071011892	1.03559E-06	1.40045E-05	0.425497375	6.20517E-06	8.39137E-05	0.368913707	5.37999E-06	7.27546E-05	0.439925598	6.41558E-06	8.67591E-05
Road 5	5	1400-1500	0.076990756	1.14735E-06	1.55158E-05	0.066109723	9.85194E-07	1.3323E-05	0.403903098	6.01913E-06	8.13978E-05	0.345159899	5.14371E-06	6.95594E-05	0.411269622	6.12891E-06	8.28823E-05
Road 5	5	1500-1600	0.087414974	1.26332E-06	1.70841E-05	0.074104156	1.07095E-06	1.44827E-05	0.447415065	6.46602E-06	8.74412E-05	0.376936571	5.44747E-06	7.36671E-05	0.451040727	6.51842E-06	8.81498E-05
Road 5	5	1600-1700	0.083678898	1.33968E-06	1.81167E-05	0.069264267	1.1089E-06	1.49959E-05	0.436772145	6.99262E-06	9.45625E-05	0.358997948	5.74747E-06	7.77241E-05	0.428262216	6.85638E-06	9.272E-05
Road 5	5	1700-1800	0.061788425	9.86898E-07	1.3346E-05	0.050981081	8.14281E-07	1.10117E-05	0.323573114	5.16818E-06	6.98903E-05	0.263968707	4.21617E-06	5.7016E-05	0.314949788	5.03045E-06	6.80277E-05
Road 5	5	1800-1900	0.057448411	9.90899E-07	1.34001E-05	0.047789782	8.24302E-07	1.11472E-05	0.329246159	5.679E-06	7.67982E-05	0.269952905	4.65628E-06	6.29678E-05	0.317742688	5.48058E-06	7.4115E-05
Road 5	5	1900-2000	0.066244738	8.52926E-07	1.15343E-05	0.055252653	7.11399E-07	9.62038E-06	0.375727157	4.83763E-06	6.54202E-05	0.309728061	3.98787E-06	5.39286E-05	0.364980714	4.69926E-06	6.3549E-05
Road 5	5	2000-2100	0.064388767	7.25099E-07	9.80565E-06	0.053441033	6.01813E-07	8.13844E-06	0.36028995	4.05732E-06	5.48679E-05	0.295676283	3.32969E-06	4.5028E-05	0.349117317	3.9315E-06	5.31664E-05
Road 5	5	2100-2200	0.066777249	7.24423E-07	9.79651E-06	0.055742439	6.04713E-07	8.17765E-06	0.383303529	4.15821E-06	5.62323E-05	0.316566869	3.43423E-06	4.64417E-05	0.372309308	4.03894E-06	5.46194E-05
Road 5	5	2200-2300	0.063819699	5.97711E-07	8.08295E-06	0.053361844	4.99767E-07	6.75844E-06	0.361142024	3.38232E-06	4.57397E-05	0.298356854	2.7943E-06	3.77878E-05	0.351718697	3.29406E-06	4.45462E-05
Road 5	5	2300-0000	0.056278543	4.78494E-07	6.47077E-06	0.0466783	3.96871E-07	5.36696E-06	0.334554967	2.84447E-06	3.84663E-05	0.273546424	2.32576E-06	3.14517E-05	0.320224724	2.72263E-06	3.68187E-05
Road 6	6	0000-0100	0.049570333	1.39556E-07	4.98857E-06	0.0419684	1.18154E-07	4.22354E-06	0.321231533	9.04368E-07	3.23275E-05	0.2685548	7.56066E-07	2.70263E-05	0.3105232	8.74221E-07	3.12498E-05
Road 6	6	0100-0200	0.065267281	1.39648E-07	4.99187E-06	0.05578	1.19349E-07	4.26625E-06	0.369394474	7.90371E-07	2.82526E-05	0.312676491	6.69015E-07	2.39146E-05	0.368456491	7.88364E-07	2.81808E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.059658481	8.84576E-08	3.162E-06	0.0505	7.4878E-08	2.67659E-06	0.342787722	5.08263E-07	1.81683E-05	0.287008861	4.25557E-07	1.5212E-05	0.337508861	5.00435E-07	1.78885E-05
Road 6	6	0300-0400	0.061427903	7.14814E-08	2.55517E-06	0.051802258	6.02804E-08	2.15478E-06	0.393989355	4.58471E-07	1.63885E-05	0.328997903	3.82843E-07	1.36851E-05	0.380800161	4.43123E-07	1.58399E-05
Road 6	6	0400-0500	0.066428889	1.12211E-07	4.01109E-06	0.055870556	9.43759E-08	3.37356E-06	0.391551889	6.61405E-07	2.36426E-05	0.326081556	5.50813E-07	1.96893E-05	0.381952111	6.45189E-07	2.30629E-05
Road 6	6	0500-0600	0.059450062	1.8076E-07	6.46145E-06	0.049984074	1.51979E-07	5.43262E-06	0.360327963	1.09559E-06	3.9163E-05	0.299363519	9.10227E-07	3.25369E-05	0.349347593	1.06221E-06	3.79695E-05
Road 6	6	0600-0700	0.063472828	3.45479E-07	1.23495E-05	0.053746103	2.92537E-07	1.0457E-05	0.401879483	2.18741E-06	7.81909E-05	0.336534552	1.83174E-06	6.54772E-05	0.390280655	2.12428E-06	7.59342E-05
Road 6	6	0700-0800	0.059204242	5.1337E-07	1.83509E-05	0.050325779	4.36383E-07	1.55989E-05	0.341587727	2.96197E-06	0.000105878	0.287057273	2.48912E-06	8.8976E-05	0.337383052	2.92551E-06	0.000104575
Road 6	6	0800-0900	0.050601103	6.28715E-07	2.2474E-05	0.04304852	5.34875E-07	1.91196E-05	0.300080559	3.72848E-06	0.000133278	0.252083822	3.13212E-06	0.000111961	0.295132341	3.667E-06	0.00013108
Road 6	6	0900-1000	0.053942686	6.40873E-07	2.29086E-05	0.046021438	5.46764E-07	1.95446E-05	0.307424092	3.65239E-06	0.000130558	0.259442291	3.08234E-06	0.000110181	0.305463728	3.6291E-06	0.000129726
Road 6	6	1000-1100	0.072498972	7.27983E-07	2.60225E-05	0.061581346	6.18356E-07	2.21037E-05	0.398713009	4.00359E-06	0.000143112	0.336630168	3.3802E-06	0.000120829	0.398211514	3.99856E-06	0.000142932
Road 6	6	1100-1200	0.083139154	8.30143E-07	2.96743E-05	0.071681805	7.15742E-07	2.55849E-05	0.436528703	4.35873E-06	0.000155807	0.374605526	3.74043E-06	0.000133705	0.446287331	4.45617E-06	0.00015929
Road 6	6	1200-1300	0.078588222	7.71427E-07	2.75754E-05	0.068486272	6.72266E-07	2.40308E-05	0.396051644	3.88767E-06	0.000138968	0.34363088	3.3731E-06	0.000120575	0.412117151	4.04537E-06	0.000144606
Road 6	6	1300-1400	0.091184683	8.91652E-07	3.18729E-05	0.079425086	7.7666E-07	2.77625E-05	0.467469117	4.57116E-06	0.0001634	0.405356603	3.96379E-06	0.000141689	0.484781689	4.74045E-06	0.000169452
Road 6	6	1400-1500	0.086925627	9.36474E-07	3.34751E-05	0.074634111	8.04054E-07	2.87417E-05	0.438954286	4.72897E-06	0.000169042	0.374945592	4.03939E-06	0.000144392	0.449579704	4.84345E-06	0.000173134
Road 6	6	1500-1600	0.077663256	8.19196E-07	2.92829E-05	0.065792046	6.93978E-07	2.48069E-05	0.406562811	4.28844E-06	0.000153294	0.341743505	3.60473E-06	0.000128854	0.407535552	4.2987E-06	0.000153661
Road 6	6	1600-1700	0.081861684	8.84991E-07	3.16348E-05	0.067796354	7.32934E-07	2.61994E-05	0.40905092	4.42217E-06	0.000158075	0.33625599	3.6352E-06	0.000129944	0.404052344	4.36813E-06	0.000156143
Road 6	6	1700-1800	0.061504344	7.0416E-07	2.51709E-05	0.050807246	5.8169E-07	2.0793E-05	0.319265213	3.65525E-06	0.00013066	0.260656803	2.98425E-06	0.000106675	0.311464049	3.56594E-06	0.000127468
Road 6	6	1800-1900	0.059738113	7.72514E-07	2.76143E-05	0.049699231	6.42695E-07	2.29737E-05	0.316233643	4.08943E-06	0.000146181	0.25976103	3.35915E-06	0.000120076	0.309460261	4.00184E-06	0.00014305
Road 6	6	1900-2000	0.070556317	6.9391E-07	2.48045E-05	0.058822538	5.7851E-07	2.06794E-05	0.373619179	3.67448E-06	0.000131348	0.307723225	3.02641E-06	0.000108182	0.366545763	3.60492E-06	0.000128861
Road 6	6	2000-2100	0.055959139	4.39019E-07	1.56931E-05	0.046411507	3.64114E-07	1.30156E-05	0.33033323	2.59158E-06	9.26384E-05	0.270157751	2.11948E-06	7.57628E-05	0.316569258	2.4836E-06	8.87785E-05
Road 6	6	2100-2200	0.078454278	5.30096E-07	1.89488E-05	0.065491333	4.42509E-07	1.58179E-05	0.421085972	2.84518E-06	0.000101703	0.348224972	2.35287E-06	8.41056E-05	0.413716306	2.79538E-06	9.99235E-05
Road 6	6	2200-2300	0.058280525	4.16758E-07	1.48974E-05	0.048645696	3.47861E-07	1.24346E-05	0.332852572	2.3802E-06	8.50824E-05	0.272982887	1.95207E-06	6.97787E-05	0.321628583	2.29993E-06	8.22133E-05
Road 6	6	2300-0000	0.039378095	2.63851E-07	9.4316E-06	0.032667759	2.18889E-07	7.82438E-06	0.249504706	1.67179E-06	5.97599E-05	0.203365098	1.36264E-06	4.87088E-05	0.236032857	1.58153E-06	5.65332E-05
Road 7	7	0000-0100	0.072625083	1.96121E-07	4.89582E-06	0.061121033	1.65055E-07	4.1203E-06	0.430953779	1.16377E-06	2.90515E-05	0.359790521	9.71599E-07	2.42543E-05	0.420911554	1.13665E-06	2.83746E-05
Road 7	7	0100-0200	0.08863221	1.86588E-07	4.65785E-06	0.075773977	1.59519E-07	3.98211E-06	0.48599942	1.02312E-06	2.55405E-05	0.413038861	8.69527E-07	2.17062E-05	0.488812838	1.02905E-06	2.56884E-05
Road 7	7	0200-0300	0.075881474	1.03559E-07	2.58517E-06	0.064521332	8.80553E-08	2.19815E-06	0.431010708	5.88221E-07	1.46839E-05	0.363841784	4.96552E-07	1.23956E-05	0.428363116	5.84607E-07	1.45937E-05
Road 7	7	0300-0400	0.077935813	8.59954E-08	2.14672E-06	0.065602763	7.23869E-08	1.80701E-06	0.471239039	5.19971E-07	1.29802E-05	0.394031184	4.34779E-07	1.08535E-05	0.459633947	5.07166E-07	1.26605E-05
Road 7	7	0400-0500	0.086419387	1.3927E-07	3.47664E-06	0.072519009	1.16869E-07	2.91743E-06	0.482533228	7.77633E-07	1.94122E-05	0.402213604	6.48193E-07	1.6181E-05	0.474732613	7.65062E-07	1.90984E-05
Road 7	7	0500-0600	0.077785942	2.2361E-07	5.58203E-06	0.065329091	1.878E-07	4.68811E-06	0.439907457	1.26459E-06	3.15684E-05	0.366412828	1.05332E-06	2.62943E-05	0.431741919	1.24112E-06	3.09824E-05
Road 7	7	0600-0700	0.081961335	4.21247E-07	1.05157E-05	0.069424237	3.56811E-07	8.90718E-06	0.476527126	2.44915E-06	6.11387E-05	0.400482203	2.05831E-06	5.13821E-05	0.469906441	2.41512E-06	6.02893E-05
Road 7	7	0700-0800	0.078022016	6.40015E-07	1.59769E-05	0.066457335	5.4515E-07	1.36087E-05	0.42676684	3.50077E-06	8.73906E-05	0.360675962	2.95863E-06	7.38569E-05	0.427133297	3.50377E-06	8.74656E-05
Road 7	7	0800-0900	0.078071003	9.69126E-07	2.41925E-05	0.066603226	8.26772E-07	2.06389E-05	0.425585754	5.28296E-06	0.00013188	0.360251352	4.47194E-06	0.000111634	0.426854578	5.29871E-06	0.000132273
Road 7	7	0900-1000	0.08026299	9.22922E-07	2.30391E-05	0.068545082	7.88181E-07	1.96756E-05	0.422054754	4.85309E-06	0.000121149	0.358152446	4.11829E-06	0.000102806	0.426697528	4.90648E-06	0.000122482
Road 7	7	1000-1100	0.095687541	9.65527E-07	2.41027E-05	0.081226998	8.19614E-07	2.04602E-05	0.50474046	5.09304E-06	0.000127139	0.426662002	4.3052E-06	0.000107472	0.507889001	5.12481E-06	0.000127932
Road 7	7	1100-1200	0.105741432	1.06544E-06	2.65969E-05	0.090690353	9.13787E-07	2.28111E-05	0.542882868	5.47003E-06	0.00013655	0.464287869	4.67812E-06	0.000116781	0.554978222	5.5919E-06	0.000139592
Road 7	7	1200-1300	0.101407869	1.0203E-06	2.54701E-05	0.088347378	8.88897E-07	2.21898E-05	0.513399508	5.16551E-06	0.000128948	0.446113942	4.48852E-06	0.000112048	0.534461321	5.37742E-06	0.000134238
Road 7	7	1300-1400	0.108162858	1.07099E-06	2.67355E-05	0.094223769	9.32973E-07	2.32901E-05	0.548741339	5.43346E-06	0.000135637	0.476581373	4.71895E-06	0.0001178	0.570805142	5.65193E-06	0.000141091
Road 7	7	1400-1500	0.101077106	1.04779E-06	2.61563E-05	0.086981623	9.01675E-07	2.25087E-05	0.515723557	5.34613E-06	0.000133457	0.442271692	4.58471E-06	0.000114449	0.529253315	5.48638E-06	0.000136958
Road 7	7	1500-1600	0.095399307	9.70929E-07	2.42376E-05	0.080310154	8.17359E-07	2.04039E-05	0.494269197	5.03044E-06	0.000125576	0.413839245	4.21186E-06	0.000105142	0.4941494	5.02922E-06	0.000125546
Road 7	7	1600-1700	0.099484804	1.04717E-06	2.61409E-05	0.082694129	8.70436E-07	2.17289E-05	0.497302949	5.2346E-06	0.000130673	0.411180881	4.32808E-06	0.000108043	0.49387501	5.19852E-06	0.000129772
Road 7	7	1700-1800	0.077179446	8.59451E-07	2.14547E-05	0.063745405	7.09853E-07	1.77203E-05	0.401427347	4.4702E-06	0.000111591	0.328884098	3.66237E-06	9.14248E-05	0.392629503	4.37223E-06	0.000109145
Road 7	7	1800-1900	0.070879999	8.20175E-07	2.04742E-05	0.058725361	6.7953E-07	1.69633E-05	0.375172951	4.34124E-06	0.000108372	0.307868348	3.56244E-06	8.89301E-05	0.366593709	4.24197E-06	0.000105893
Road 7	7	1900-2000	0.081916463	7.15965E-07	1.78728E-05	0.068351848	5.97408E-07	1.49133E-05	0.436600244	3.81597E-06	9.5259E-05	0.360959704	3.15486E-06	7.87555E-05	0.429311553	3.75226E-06	9.36687E-05
Road 7	7	2000-2100	0.075736754	5.45397E-07	1.36149E-05	0.06293271	4.53192E-07	1.13132E-05	0.416693004	3.0007E-06	7.49072E-05	0.342933206	2.46954E-06	6.16477E-05	0.405865917	2.92273E-06	7.29609E-05
Road 7	7	2100-2200	0.087411775	5.25405E-07	1.31158E-05	0.072373504	4.35015E-07	1.08594E-05	0.469871475	2.82425E-06	7.05026E-05	0.385901282	2.31953E-06	5.79032E-05	0.458274786	2.75455E-06	6.87625E-05
Road 7	7	2200-2300	0.072614251	4.71253E-07	1.1764E-05	0.060653221	3.93628E-07	9.82623E-06	0.402436644	2.61174E-06	6.51975E-05	0.33182877	2.15351E-06	5.37585E-05	0.392481991	2.54713E-06	6.35847E-05
Road 7	7	2300-0000	0.051382959	3.06609E-07	7.65397E-06	0.042761499	2.55164E-07	6.36972E-06	0.307280096	1.83358E-06	4.57722E-05	0.252503107	1.50672E-06	3.76127E-05	0.295264606	1.76188E-06	4.39824E-05
Road 8	8	0000-0100	0.229983333	1.67261E-07	2.75723E-06	0.194997222	1.41816E-07	2.33779E-06	1.139095	8.28433E-07	1.36564E-05	0.965381667	7.02096E-07	1.15738E-05	1.160378889	8.43912E-07	1.39116E-05
Road 8	8	0100-0200	0.236900333	1.43576E-07	2.3668E-06	0.202366333	1.22646E-07	2.02178E-06	1.170255	7.09245E-07	1.16916E-05	0.999436	6.05719E-07	9.98505E-06	1.201802333	7.28365E-07	1.20068E-05
Road 8	8	0200-0300	0.224740667	6.81032E-08	1.12266E-06	0.190224	5.76436E-08	9.50234E-07	1.167248667	3.53712E-07	5.8308E-06	0.987836	2.99344E-07	4.93458E-06	1.17806	3.56988E-07	5.88481E-06
Road 8	8	0300-0400	0.205355	5.80802E-08	9.5743E-07	0.17286	4.88897E-08	8.05928E-07	1.04455	2.95428E-07	4.87002E-06	0.878995714	2.48605E-07	4.09816E-06	1.051855714	2.97495E-07	4.90409E-06
Road 8	8	0400-0500	0.23251381	9.86422E-08	1.62608E-06	0.195487619	8.29341E-08	1.36714E-06	1.115255238	4.73139E-07	7.79951E-06	0.937660476	3.97795E-07	6.55751E-06	1.133148095	4.80729E-07	7.92465E-06
Road 8	8	0500-0600	0.221135	1.51891E-07	2.50386E-06	0.185921765	1.27704E-07	2.10515E-06	1.042458529	7.16032E-07	1.18035E-05	0.876013824	6.01706E-07	9.9189E-06	1.061935588	7.2941E-07	1.20241E-05
Road 8	8	0600-0700	0.24692871	3.09284E-07	5.09844E-06	0.209073548	2.6187E-07	4.31683E-06	1.149955	1.44035E-06	2.37436E-05	0.972940323	1.21863E-06	2.00887E-05	1.182013871	1.4805E-06	2.44055E-05
Road 8	8	0700-0800	0.244293922	5.03394E-07	8.29825E-06	0.207618529	4.2782E-07	7.05245E-06	1.149252549	2.36816E-06	3.90382E-05	0.975917647	2.01098E-06	3.31503E-05	1.183536176	2.4388E-06	4.02027E-05
Road 8	8	0800-0900	0.273438177	1.06061E-06	1.74837E-05	0.232939219	9.03522E-07	1.48942E-05	1.29129724	5.00867E-06	8.2566E-05	1.09925276	4.26377E-06	7.02866E-05	1.332191979	5.16729E-06	8.51808E-05
Road 8	8	0900-1000	0.294150506	9.38905E-07	1.54775E-05	0.250715063	8.00262E-07	1.3192E-05	1.320871772	4.21612E-06	6.95011E-05	1.12560462	3.59284E-06	5.92266E-05	1.376319684	4.3931E-06	7.24186E-05
Road 8	8	1000-1100	0.278997375	9.0181E-07	1.4866E-05	0.236802125	7.65421E-07	1.26177E-05	1.29050775	4.17134E-06	6.87629E-05	1.094365813	3.53734E-06	5.83118E-05	1.331167938	4.30277E-06	7.09295E-05
Road 8	8	1100-1200	0.288246792	9.25884E-07	1.52628E-05	0.247937547	7.96405E-07	1.31284E-05	1.345962138	4.32339E-06	7.12695E-05	1.157589371	3.71832E-06	6.12951E-05	1.405526918	4.51472E-06	7.44235E-05
Road 8	8	1200-1300	0.285688294	9.81152E-07	1.61739E-05	0.248525294	8.53521E-07	1.407E-05	1.345338706	4.62036E-06	7.61648E-05	1.169823706	4.01758E-06	6.62282E-05	1.418349	4.8711E-06	8.02982E-05
Road 8	8	1300-1400	0.261723827	8.56551E-07	1.41199E-05	0.227717654	7.45258E-07	1.22853E-05	1.215913765	3.97935E-06	6.55982E-05	1.057524383	3.46099E-06	5.70531E-05	1.285242037	4.20625E-06	6.93384E-05
Road 8	8	1400-1500	0.256452158	7.20138E-07	1.18712E-05	0.219860144	6.17385E-07	1.01774E-05	1.24054295	3.48354E-06	5.74249E-05	1.063073094	2.9852E-06	4.92098E-05	1.282933237	3.60258E-06	5.93872E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.268937986	7.552E-07	1.24492E-05	0.227461583	6.38731E-07	1.05292E-05	1.268503813	3.56206E-06	5.87192E-05	1.072197482	3.01082E-06	4.96322E-05	1.299659065	3.64955E-06	6.01614E-05
Road 8	8	1600-1700	0.270635101	8.14639E-07	1.3429E-05	0.223695638	6.73346E-07	1.10999E-05	1.264771879	3.80709E-06	6.27585E-05	1.044779396	3.14489E-06	5.18424E-05	1.268475034	3.81824E-06	6.29422E-05
Road 8	8	1700-1800	0.222136603	7.00067E-07	1.15403E-05	0.183214103	5.77402E-07	9.51826E-06	1.079297564	3.40142E-06	5.60712E-05	0.888605321	2.80045E-06	4.61644E-05	1.071819423	3.37786E-06	5.56827E-05
Road 8	8	1800-1900	0.221811869	4.79472E-07	7.90392E-06	0.184715794	3.99285E-07	6.58206E-06	1.10477271	2.38809E-06	3.93668E-05	0.918841589	1.98618E-06	3.27415E-05	1.103557383	2.38547E-06	3.93235E-05
Road 8	8	1900-2000	0.218917792	3.40539E-07	5.61365E-06	0.182697143	2.84196E-07	4.68486E-06	1.11682	1.73728E-06	2.86383E-05	0.931710779	1.44933E-06	2.38916E-05	1.114407922	1.73352E-06	2.85765E-05
Road 8	8	2000-2100	0.24116013	3.75138E-07	6.18401E-06	0.200020779	3.11143E-07	5.12908E-06	1.122555844	1.7462E-06	2.87854E-05	0.930100779	1.44682E-06	2.38503E-05	1.130121558	1.75797E-06	2.89794E-05
Road 8	8	2100-2200	0.200093889	2.18284E-07	3.59833E-06	0.167190741	1.8239E-07	3.00663E-06	1.017180185	1.10965E-06	1.82922E-05	0.848007963	9.251E-07	1.52499E-05	1.015198704	1.10749E-06	1.82565E-05
Road 8	8	2200-2300	0.23838875	3.0822E-07	5.08089E-06	0.199442344	2.57865E-07	4.25081E-06	1.146203438	1.48196E-06	2.44296E-05	0.957663594	1.23819E-06	2.04111E-05	1.157105938	1.49606E-06	2.46619E-05
Road 8	8	2300-0000	0.187841321	2.01123E-07	3.31544E-06	0.155938679	1.66965E-07	2.75235E-06	0.940401887	1.00689E-06	1.65983E-05	0.779718491	8.3485E-07	1.37622E-05	0.93565717	1.00181E-06	1.65145E-05
Road 9	9	0000-0100	0.662191111	1.73164E-07	5.24992E-06	0.636125955	1.66348E-07	5.04327E-06	3.62156864	9.47045E-07	2.87122E-05	3.498700498	9.14915E-07	2.77381E-05	4.134826453	1.08126E-06	3.27813E-05
Road 9	9	0100-0200	0.686990404	1.41153E-07	4.27942E-06	0.661408768	1.35897E-07	4.12006E-06	3.585608889	7.36719E-07	2.23356E-05	3.470931746	7.13156E-07	2.16212E-05	4.132340514	8.49053E-07	2.57413E-05
Road 9	9	0200-0300	0.343276461	3.20597E-08	9.71976E-07	0.331146371	3.09269E-08	9.3763E-07	2.352511477	2.19709E-07	6.66106E-06	2.270356841	2.12036E-07	6.42844E-06	2.601503212	2.42963E-07	7.36607E-06
Road 9	9	0300-0400	0.426544298	3.18691E-08	9.66197E-07	0.410784365	3.06916E-08	9.30498E-07	2.822058081	2.10849E-07	6.39245E-06	2.728554276	2.03863E-07	6.18065E-06	3.139338641	2.34555E-07	7.11115E-06
Road 9	9	0400-0500	0.752084217	1.40479E-07	4.259E-06	0.721438755	1.34755E-07	4.08546E-06	3.888762215	7.26369E-07	2.20218E-05	3.757380622	7.01829E-07	2.12778E-05	4.478819377	8.36584E-07	2.53633E-05
Road 9	9	0500-0600	0.548208654	1.74077E-07	5.2776E-06	0.526303754	1.67121E-07	5.06672E-06	3.070216064	9.74909E-07	2.95569E-05	2.964421741	9.41315E-07	2.85384E-05	3.490725495	1.10844E-06	3.36052E-05
Road 9	9	0600-0700	0.602198518	3.59945E-07	1.09127E-05	0.578606945	3.45844E-07	1.04852E-05	3.385496024	2.02357E-06	6.13499E-05	3.266454253	1.95242E-06	5.91927E-05	3.845061198	2.29826E-06	6.96778E-05
Road 9	9	0700-0800	0.431143681	3.94606E-07	1.19635E-05	0.41334056	3.78312E-07	1.14695E-05	2.47954254	2.26941E-06	6.88033E-05	2.383767321	2.18175E-06	6.61457E-05	2.797107881	2.56007E-06	7.76152E-05
Road 9	9	0800-0900	0.756930625	1.62592E-06	4.92941E-05	0.72579158	1.55903E-06	4.72663E-05	4.401266521	9.45413E-06	0.000286627	4.247894453	9.12468E-06	0.000276639	4.973686034	1.06837E-05	0.000323905
Road 9	9	0900-1000	0.733687474	1.19227E-06	3.6147E-05	0.70371648	1.14357E-06	3.46704E-05	3.900231312	6.33805E-06	0.000192155	3.765764311	6.11953E-06	0.00018553	4.469480791	7.26311E-06	0.0002202
Road 9	9	1000-1100	0.900700303	1.22814E-06	3.72344E-05	0.864509923	1.1788E-06	3.57383E-05	4.680288703	6.38178E-06	0.00019348	4.523930165	6.16857E-06	0.000187017	5.388440088	7.34737E-06	0.000222755
Road 9	9	1100-1200	0.706434327	1.00284E-06	3.04037E-05	0.680407954	9.65893E-07	2.92836E-05	3.955064587	5.61453E-06	0.000170219	3.82889848	5.43542E-06	0.000164789	4.509306434	6.40132E-06	0.000194073
Road 9	9	1200-1300	0.793253047	1.09645E-06	3.32418E-05	0.765507724	1.0581E-06	3.20791E-05	4.172948239	5.76794E-06	0.00017487	4.048155641	5.59545E-06	0.000169641	4.813663365	6.65355E-06	0.00020172
Road 9	9	1300-1400	0.856631011	9.76045E-07	2.95914E-05	0.824471492	9.39402E-07	2.84805E-05	3.892264976	4.43484E-06	0.000134454	3.763168894	4.28775E-06	0.000129994	4.587640386	5.22715E-06	0.000158475
Road 9	9	1400-1500	0.535890616	6.80661E-07	2.0636E-05	0.514852151	6.53939E-07	1.98259E-05	3.22049725	4.09051E-06	0.000124015	3.112755062	3.95367E-06	0.000119866	3.627607213	4.6076E-06	0.000139692
Road 9	9	1500-1600	0.564919937	6.01461E-07	1.82349E-05	0.542770759	5.7788E-07	1.75199E-05	3.329204841	3.54455E-06	0.000107462	3.218847704	3.42706E-06	0.0001039	3.761618463	4.00494E-06	0.00012142
Road 9	9	1600-1700	0.512706354	7.66134E-07	2.32274E-05	0.490206301	7.32512E-07	2.2208E-05	3.148034439	4.70409E-06	0.000142617	3.022184575	4.51603E-06	0.000136915	3.512390876	5.24854E-06	0.000159123
Road 9	9	1700-1800	0.388096198	5.00189E-07	1.51646E-05	0.370009299	4.76879E-07	1.44578E-05	2.313397344	2.98157E-06	9.03942E-05	2.211806015	2.85064E-06	8.64246E-05	2.581815315	3.32752E-06	0.000100882
Road 9	9	1800-1900	0.367796462	3.02278E-07	9.16435E-06	0.351241789	2.88672E-07	8.75186E-06	2.056660678	1.69029E-06	5.12456E-05	1.96674087	1.61639E-06	4.90051E-05	2.317982659	1.90506E-06	5.77569E-05
Road 9	9	1900-2000	0.408262942	3.2791E-07	9.94145E-06	0.390352562	3.13525E-07	9.50532E-06	2.381959276	1.91315E-06	5.80022E-05	2.284345583	1.83475E-06	5.56252E-05	2.674698145	2.14827E-06	6.51305E-05
Road 9	9	2000-2100	0.534103747	2.89314E-07	8.77132E-06	0.509988976	2.76252E-07	8.3753E-06	2.398449214	1.2992E-06	3.93885E-05	2.300900168	1.24636E-06	3.77865E-05	2.810889144	1.52261E-06	4.61618E-05
Road 9	9	2100-2200	0.02133775	1.11597E-08	3.38336E-07	0.018719896	9.79056E-09	2.96827E-07	0.30588363	1.59978E-07	4.85016E-06	0.264812329	1.38498E-07	4.19892E-06	0.283532225	1.48288E-07	4.49575E-06
Road 9	9	2200-2300	0.56257298	3.46768E-07	1.05132E-05	0.539589462	3.32601E-07	1.00837E-05	3.130365132	1.92955E-06	5.84993E-05	3.019711597	1.86134E-06	5.64314E-05	3.55930106	2.19394E-06	6.65151E-05
Road 9	9	2300-0000	0.39696539	2.22444E-07	6.74396E-06	0.379330961	2.12562E-07	6.44438E-06	2.265295687	1.26938E-06	3.84846E-05	2.173364022	1.21787E-06	3.69228E-05	2.552694982	1.43043E-06	4.33672E-05
Road 10	10	0000-0100	1.202854746	9.26362E-07	2.0563E-05	1.161920575	8.94837E-07	1.98633E-05	7.52104696	5.79223E-06	0.000128574	7.31967352	5.63714E-06	0.000125131	8.481594095	6.53198E-06	0.000144994
Road 10	10	0100-0200	1.151140777	6.69826E-07	1.48686E-05	1.113310966	6.47814E-07	1.43799E-05	7.129715249	4.14864E-06	9.209E-05	6.944972393	4.04114E-06	8.97038E-05	8.058283359	4.68896E-06	0.000104084
Road 10	10	0200-0300	1.227826968	3.99251E-07	8.86242E-06	1.185923305	3.85625E-07	8.55996E-06	7.503610476	2.43994E-06	5.41608E-05	7.301993424	2.37438E-06	5.27056E-05	8.487916729	2.76E-06	6.12655E-05
Road 10	10	0300-0400	1.113865728	2.28754E-07	5.0778E-06	1.074461585	2.20662E-07	4.89817E-06	7.172798508	1.47307E-06	3.26988E-05	6.96866544	1.43115E-06	3.17682E-05	8.043127025	1.65181E-06	3.66664E-05
Road 10	10	0400-0500	1.193301927	4.69713E-07	1.04265E-05	1.149914119	4.52635E-07	1.00474E-05	7.232259546	2.8468E-06	6.31922E-05	7.025043721	2.76523E-06	6.13816E-05	8.17495784	3.21787E-06	7.1429E-05
Road 10	10	0500-0600	1.055385775	7.40542E-07	1.64383E-05	1.016765314	7.13443E-07	1.58368E-05	6.325363793	4.43838E-06	9.85215E-05	6.142915866	4.31036E-06	9.56797E-05	7.15968118	5.0238E-06	0.000111516
Road 10	10	0600-0700	1.129083656	1.58451E-06	3.51724E-05	1.086346853	1.52453E-06	3.38411E-05	6.659980704	9.34634E-06	0.000207467	6.458825004	9.06405E-06	0.0002012	7.545171857	1.05886E-05	0.000235041
Road 10	10	0700-0800	1.083028057	2.39103E-06	5.30751E-05	1.040919086	2.29806E-06	5.10115E-05	6.455404591	1.42517E-05	0.000316355	6.255189332	1.38097E-05	0.000306543	7.296108419	1.61078E-05	0.000357555
Road 10	10	0800-0900	1.219722855	5.17688E-06	0.000114914	1.170969548	4.96995E-06	0.000110321	7.337969855	3.11446E-05	0.000691336	7.10592439	3.01597E-05	0.000669474	8.276893938	3.51297E-05	0.000779795
Road 10	10	0900-1000	1.250334124	4.23688E-06	9.40487E-05	1.200914158	4.06942E-06	9.03314E-05	7.347888597	2.4899E-05	0.0005527	7.118217092	2.41208E-05	0.000535424	8.31913125	2.81902E-05	0.000625755
Road 10	10	1000-1100	1.253704905	4.61306E-06	0.000102399	1.201119946	4.41957E-06	9.81039E-05	7.169172359	2.63792E-05	0.000585557	6.9344737	2.55157E-05	0.000566387	8.135593647	2.99352E-05	0.000664491
Road 10	10	1100-1200	1.283075876	4.72113E-06	0.000104798	1.234469301	4.54228E-06	0.000100828	7.512045374	2.76409E-05	0.000613562	7.289837873	2.68232E-05	0.000595412	8.524307175	3.13655E-05	0.00069624
Road 10	10	1200-1300	1.271197516	4.82971E-06	0.000107208	1.226694435	4.66063E-06	0.000103455	7.457102882	2.8332E-05	0.000628904	7.253245657	2.75575E-05	0.000611712	8.479940092	3.22182E-05	0.000715167
Road 10	10	1300-1400	1.233164153	4.05207E-06	8.99464E-05	1.190260143	3.91109E-06	8.6817E-05	7.130078778	2.34288E-05	0.000520064	6.935025791	2.27879E-05	0.000505837	8.125285934	2.6699E-05	0.000592654
Road 10	10	1400-1500	1.125738082	3.48715E-06	7.74065E-05	1.083132097	3.35517E-06	7.44769E-05	6.825243268	2.11423E-05	0.000469308	6.62044323	2.05079E-05	0.000455226	7.703575327	2.3863E-05	0.000529703
Road 10	10	1500-1600	1.199726335	3.79847E-06	8.43171E-05	1.150736802	3.64336E-06	8.08741E-05	7.093024903	2.24573E-05	0.000498499	6.865606762	2.17373E-05	0.000482516	8.016343563	2.53807E-05	0.000563391
Road 10	10	1600-1700	1.096604776	3.86609E-06	8.58181E-05	1.045123835	3.6846E-06	8.17893E-05	6.582218109	2.32057E-05	0.000515111	6.336166659	2.23382E-05	0.000495856	7.381290494	2.60228E-05	0.000577645
Road 10	10	1700-1800	0.996433327	3.32535E-06	7.3815E-05	0.949578837	3.16899E-06	7.0344E-05	5.978585364	1.99521E-05	0.000442889	5.752808953	1.91986E-05	0.000426163	6.702387791	2.23676E-05	0.000496507
Road 10	10	1800-1900	1.076294244	2.2288E-06	4.94741E-05	1.029184161	2.13124E-06	4.73086E-05	6.499373675	1.3459E-05	0.000298757	6.273799061	1.29918E-05	0.000288388	7.302983222	1.51231E-05	0.000335697
Road 10	10	1900-2000	1.046552736	1.95228E-06	4.3336E-05	1.007402461	1.87925E-06	4.17149E-05	6.52763258	1.21769E-05	0.000270299	6.33268431	1.18132E-05	0.000262226	7.340086771	1.36925E-05	0.000303941
Road 10	10	2000-2100	1.342378684	1.6541E-06	3.67172E-05	1.2906741	1.59039E-06	3.53029E-05	8.126654961	1.00138E-05	0.000222283	7.884592816	9.71553E-06	0.000215662	9.175266916	1.13059E-05	0.000250965
Road 10	10	2100-2200	0.894163526	1.13241E-06	2.51368E-05	0.860504337	1.08978E-06	2.41906E-05	5.582239593	7.0696E-06	0.000156928	5.408900129	6.85008E-06	0.000152056	6.269404466	7.93986E-06	0.000176246
Road 10	10	2200-2300	1.065113207	1.40359E-06	3.11565E-05	1.025511059	1.35141E-06	2.9998E-05	6.412337358	8.4501E-06	0.000187572	6.221968809	8.19924E-06	0.000182004	7.247479868	9.55064E-06	0.000212002
Road 10	10	2300-0000	0.972550025	1.19839E-06	2.66015E-05	0.931933849	1.14835E-06	2.54905E-05	5.965472551	7.35076E-06	0.000163169	5.766399136	7.10546E-06	0.000157724	6.698332985	8.2538E-06	0.000183215
Road 11	11	0000-0100	1.346862635	1.02885E-06	8.53442E-06	1.300653914	9.93555E-07	8.24162E-06	8.398713431	6.41568E-06	5.32186E-05	8.172411324	6.24281E-06	5.17847E-05	9.473065239	7.23637E-06	6.00263E-05
Road 11	11	0100-0200	1.317227214	7.08924E-07	5.88059E-06	1.273650961	6.85472E-07	5.68604E-06	8.12102014	4.37069E-06	3.62552E-05	7.91014172	4.25719E-06	3.53138E-05	9.183792681	4.94267E-06	4.09998E-05
Road 11	11	0200-0300	1.224853334	3.18972E-07	2.6459E-06	1.183084019	3.08095E-07	2.55567E-06	7.86741604	2.04881E-06	1.6995E-05	7.653303586	1.99305E-06	1.65325E-05	8.836387605	2.30114E-06	1.90882E-05
Road 11	11	0300-0400	1.313238094	3.1919E-07	2.64771E-06	1.266718113	3.07883E-07	2.55391E-06	8.403216201	2.04245E-06	1.69423E-05	8.168925178	1.9855E-06	1.64699E-05	9.435643291	2.29339E-06	1.90238E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.209848163	4.20086E-07	3.48465E-06	1.165265184	4.04606E-07	3.35624E-06	7.261601779	2.52139E-06	2.09151E-05	7.05122708	2.44834E-06	2.03092E-05	8.216492264	2.85295E-06	2.36654E-05
Road 11	11	0500-0600	0.962851449	4.51337E-07	3.74387E-06	0.927336294	4.34689E-07	3.60578E-06	5.871950211	2.75248E-06	2.2832E-05	5.697996481	2.67094E-06	2.21556E-05	6.625332775	3.10562E-06	2.57614E-05
Road 11	11	0600-0700	1.011876166	9.13499E-07	7.57755E-06	0.975485663	8.80647E-07	7.30504E-06	6.173238418	5.57306E-06	4.6229E-05	5.991730901	5.4092E-06	4.48698E-05	6.967216564	6.28985E-06	5.21748E-05
Road 11	11	0700-0800	1.149561136	2.17538E-06	1.8045E-05	1.105187852	2.09141E-06	1.73485E-05	7.127214442	1.34873E-05	0.000111878	6.90854572	1.30735E-05	0.000108445	8.013733573	1.51649E-05	0.000125794
Road 11	11	0800-0900	1.160895104	4.13166E-06	3.42724E-05	1.114708982	3.96728E-06	3.29089E-05	7.083191625	2.52093E-05	0.000209113	6.859786499	2.44142E-05	0.000202518	7.974495481	2.83815E-05	0.000235426
Road 11	11	0900-1000	1.146464662	2.92587E-06	2.42704E-05	1.101603858	2.81138E-06	2.33207E-05	6.780859643	1.73053E-05	0.000143549	6.570801678	1.67692E-05	0.000139102	7.672405535	1.95806E-05	0.000162423
Road 11	11	1000-1100	1.241214829	2.60741E-06	2.16287E-05	1.191617175	2.50322E-06	2.07644E-05	7.192424949	1.51091E-05	0.000125331	6.965564554	1.46325E-05	0.000121378	8.157181729	1.71357E-05	0.000142142
Road 11	11	1100-1200	1.166778357	2.75489E-06	2.28521E-05	1.124635322	2.65539E-06	2.20267E-05	7.056316813	1.66607E-05	0.000138202	6.852887775	1.61804E-05	0.000134218	7.977523097	1.88358E-05	0.000156245
Road 11	11	1200-1300	1.281178702	3.6478E-06	3.02588E-05	1.237022526	3.52208E-06	2.92159E-05	7.662194674	2.1816E-05	0.000180965	7.454708055	2.12252E-05	0.000176065	8.691730581	2.47473E-05	0.000205281
Road 11	11	1300-1400	1.296605816	2.72377E-06	2.25939E-05	1.251514568	2.62905E-06	2.18082E-05	7.390657396	1.55255E-05	0.000128785	7.187186926	1.50981E-05	0.00012524	8.438701494	1.77271E-05	0.000147048
Road 11	11	1400-1500	1.035315012	2.08501E-06	1.72953E-05	0.996465421	2.00677E-06	1.66463E-05	6.421014456	1.29312E-05	0.000107265	6.229932361	1.25464E-05	0.000104073	7.226397782	1.45532E-05	0.00012072
Road 11	11	1500-1600	1.132547211	2.30049E-06	1.90827E-05	1.092455904	2.21905E-06	1.84072E-05	7.085904809	1.43932E-05	0.000119393	6.887419343	1.39901E-05	0.000116049	7.979875247	1.62091E-05	0.000134456
Road 11	11	1600-1700	1.01063203	2.4564E-06	2.0376E-05	0.969538365	2.35652E-06	1.95475E-05	6.370984051	1.5485E-05	0.00012845	6.159444253	1.49709E-05	0.000124185	7.128982618	1.73274E-05	0.000143732
Road 11	11	1700-1800	1.030999058	2.5596E-06	2.12321E-05	0.988900577	2.45508E-06	2.03651E-05	6.491461826	1.6116E-05	0.000133683	6.277728828	1.55853E-05	0.000129282	7.266629405	1.80404E-05	0.000149647
Road 11	11	1800-1900	1.158377991	2.37307E-06	1.96848E-05	1.113825533	2.2818E-06	1.89277E-05	7.274629458	1.49029E-05	0.000123621	7.05182582	1.44464E-05	0.000119834	8.165651354	1.67282E-05	0.000138762
Road 11	11	1900-2000	1.074082322	1.6969E-06	1.40759E-05	1.033039795	1.63206E-06	1.35381E-05	6.742337197	1.0652E-05	8.83588E-05	6.535398281	1.0325E-05	8.56469E-05	7.568438075	1.19571E-05	9.9185E-05
Road 11	11	2000-2100	1.181439143	1.6614E-06	1.37814E-05	1.135188526	1.59636E-06	1.32419E-05	7.173038855	1.00871E-05	8.36732E-05	6.95235132	9.77674E-06	8.10989E-05	8.087539846	1.13731E-05	9.43408E-05
Road 11	11	2100-2200	0.874995127	8.81071E-07	7.30856E-06	0.841976438	8.47823E-07	7.03276E-06	5.658334698	5.69763E-06	4.72623E-05	5.482317457	5.52039E-06	4.57921E-05	6.324293895	6.36821E-06	5.28248E-05
Road 11	11	2200-2300	1.0888009	1.19088E-06	9.87841E-06	1.048019057	1.14627E-06	9.50841E-06	6.703664373	7.33213E-06	6.08206E-05	6.503698236	7.11342E-06	5.90064E-05	7.551717293	8.25969E-06	6.85148E-05
Road 11	11	2300-0000	1.033059135	1.0761E-06	8.92636E-06	0.992501379	1.03386E-06	8.57592E-06	6.453398336	6.72229E-06	5.57619E-05	6.250619184	6.51106E-06	5.40098E-05	7.243120563	7.54492E-06	6.25857E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.633321612	4.94985E-06	7.44482E-06	2.432151612	4.57171E-06	6.87608E-06	14.66005354	2.75565E-05	4.14463E-05	13.77863354	2.58997E-05	3.89544E-05	16.21078515	3.04714E-05	4.58305E-05
Haul Road 1	HR1	0800-0900	2.645711612	4.97314E-06	7.47985E-06	2.444741612	4.59538E-06	6.91168E-06	14.71421354	2.76583E-05	4.15994E-05	13.83379354	2.60034E-05	3.91104E-05	16.27853515	3.05988E-05	4.6022E-05
Haul Road 1	HR1	0900-1000	2.655601612	4.99173E-06	7.50781E-06	2.454331612	4.61341E-06	6.93879E-06	14.75739354	2.77395E-05	4.17215E-05	13.87557354	2.60819E-05	3.92285E-05	16.32990515	3.06953E-05	4.61673E-05
Haul Road 1	HR1	1000-1100	2.660501612	5.00094E-06	7.52167E-06	2.453331612	4.61153E-06	6.93596E-06	14.77877354	2.77796E-05	4.1782E-05	13.87127354	2.60738E-05	3.92163E-05	16.32460515	3.06853E-05	4.61523E-05
Haul Road 1	HR1	1100-1200	2.657001612	4.99436E-06	7.51177E-06	2.466531612	4.63634E-06	6.97328E-06	14.76348354	2.77509E-05	4.17387E-05	13.92933354	2.6183E-05	3.93805E-05	16.39586515	3.08193E-05	4.63537E-05
Haul Road 1	HR1	1200-1300	2.635311612	4.95359E-06	7.45045E-06	2.460731612	4.62544E-06	6.95688E-06	14.66875354	2.75728E-05	4.14709E-05	13.90385354	2.61351E-05	3.93084E-05	16.36458515	3.07605E-05	4.62653E-05
Haul Road 1	HR1	1300-1400	2.635311612	4.95359E-06	7.45045E-06	2.460731612	4.62544E-06	6.95688E-06	14.66875354	2.75728E-05	4.14709E-05	13.90385354	2.61351E-05	3.93084E-05	16.36458515	3.07605E-05	4.62653E-05
Haul Road 1	HR1	1400-1500	2.638811612	4.96017E-06	7.46034E-06	2.446741612	4.59914E-06	6.91733E-06	14.68414354	2.76018E-05	4.15144E-05	13.84229354	2.60193E-05	3.91344E-05	16.28903515	3.06185E-05	4.60517E-05
Haul Road 1	HR1	1500-1600	2.656501612	4.99342E-06	7.51036E-06	2.446741612	4.59914E-06	6.91733E-06	14.76139354	2.7747E-05	4.17328E-05	13.84229354	2.60193E-05	3.91344E-05	16.28903515	3.06185E-05	4.60517E-05
Haul Road 1	HR1	1600-1700	2.664701612	5.00884E-06	7.53354E-06	2.426851612	4.56175E-06	6.8611E-06	14.79766354	2.78152E-05	4.18354E-05	13.75525354	2.58557E-05	3.88883E-05	16.18210515	3.04175E-05	4.57494E-05
Haul Road 1	HR1	1700-1800	2.670291612	5.01935E-06	7.54934E-06	2.429351612	4.56645E-06	6.86817E-06	14.82185354	2.78606E-05	4.19038E-05	13.76614354	2.58762E-05	3.89191E-05	16.19549515	3.04427E-05	4.57873E-05
Haul Road 1	HR1	1800-1900	2.662201612	5.00414E-06	7.52647E-06	2.432951612	4.57322E-06	6.87834E-06	14.78637354	2.77939E-05	4.18035E-05	13.78232354	2.59066E-05	3.89648E-05	16.21527515	3.04798E-05	4.58432E-05
Haul Road 1	HR1	1900-2000	2.651701612	4.9844E-06	7.49679E-06	2.427151612	4.56232E-06	6.86195E-06	14.74070354	2.77081E-05	4.16743E-05	13.75644354	2.5858E-05	3.88917E-05	16.18359515	3.04203E-05	4.57536E-05
Haul Road 1	HR1	2000-2100	2.651701612	4.9844E-06	7.49679E-06	2.421261612	4.55124E-06	6.8453E-06	14.74070354	2.77081E-05	4.16743E-05	13.73065354	2.58095E-05	3.88188E-05	16.15191515	3.03607E-05	4.56641E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.633321612	3.41104E-06	6.79151E-06	2.432151612	3.15046E-06	6.27268E-06	14.66005354	1.89897E-05	3.78092E-05	13.77863354	1.7848E-05	3.5536E-05	16.21078515	2.09984E-05	4.18087E-05
Haul Road 2	HR2	0800-0900	2.645711612	3.42709E-06	6.82346E-06	2.444741612	3.16676E-06	6.30515E-06	14.71421354	1.90599E-05	3.79489E-05	13.83379354	1.79194E-05	3.56783E-05	16.27853515	2.10862E-05	4.19834E-05
Haul Road 2	HR2	0900-1000	2.655601612	3.4399E-06	6.84897E-06	2.454331612	3.17919E-06	6.32988E-06	14.75739354	1.91158E-05	3.80603E-05	13.87557354	1.79735E-05	3.5786E-05	16.32990515	2.11527E-05	4.21159E-05
Haul Road 2	HR2	1000-1100	2.660501612	3.44625E-06	6.86161E-06	2.453331612	3.17789E-06	6.3273E-06	14.77877354	1.91435E-05	3.81154E-05	13.87127354	1.7968E-05	3.57749E-05	16.32460515	2.11459E-05	4.21022E-05
Haul Road 2	HR2	1100-1200	2.657001612	3.44171E-06	6.85258E-06	2.466531612	3.19499E-06	6.36135E-06	14.76348354	1.91237E-05	3.8076E-05	13.92933354	1.80432E-05	3.59247E-05	16.39586515	2.12382E-05	4.2286E-05
Haul Road 2	HR2	1200-1300	2.635311612	3.41362E-06	6.79664E-06	2.460731612	3.18748E-06	6.34639E-06	14.66875354	1.9001E-05	3.78317E-05	13.90385354	1.80102E-05	3.58589E-05	16.36458515	2.11976E-05	4.22053E-05
Haul Road 2	HR2	1300-1400	2.635311612	3.41362E-06	6.79664E-06	2.460731612	3.18748E-06	6.34639E-06	14.66875354	1.9001E-05	3.78317E-05	13.90385354	1.80102E-05	3.58589E-05	16.36458515	2.11976E-05	4.22053E-05
Haul Road 2	HR2	1400-1500	2.638811612	3.41815E-06	6.80567E-06	2.446741612	3.16935E-06	6.31031E-06	14.68414354	1.90209E-05	3.78714E-05	13.84229354	1.79304E-05	3.57002E-05	16.28903515	2.10998E-05	4.20105E-05
Haul Road 2	HR2	1500-1600	2.656501612	3.44106E-06	6.85129E-06	2.446741612	3.16935E-06	6.31031E-06	14.76139354	1.9121E-05	3.80706E-05	13.84229354	1.79304E-05	3.57002E-05	16.28903515	2.10998E-05	4.20105E-05
Haul Road 2	HR2	1600-1700	2.664701612	3.45169E-06	6.87244E-06	2.426851612	3.14359E-06	6.25901E-06	14.79766354	1.9168E-05	3.81641E-05	13.75525354	1.78177E-05	3.54757E-05	16.18210515	2.09613E-05	4.17347E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.670291612	3.45893E-06	6.88686E-06	2.429351612	3.14683E-06	6.26546E-06	14.82185354	1.91993E-05	3.82265E-05	13.76614354	1.78318E-05	3.55038E-05	16.19549515	2.09786E-05	4.17692E-05
Haul Road 2	HR2	1800-1900	2.662201612	3.44845E-06	6.86599E-06	2.432951612	3.15149E-06	6.27474E-06	14.78637354	1.91533E-05	3.8135E-05	13.78232354	1.78528E-05	3.55455E-05	16.21527515	2.10042E-05	4.18203E-05
Haul Road 2	HR2	1900-2000	2.651701612	3.43485E-06	6.83891E-06	2.427151612	3.14398E-06	6.25978E-06	14.74070354	1.90942E-05	3.80172E-05	13.75644354	1.78192E-05	3.54788E-05	16.18359515	2.09632E-05	4.17386E-05
Haul Road 2	HR2	2000-2100	2.651701612	3.43485E-06	6.83891E-06	2.421261612	3.13635E-06	6.24459E-06	14.74070354	1.90942E-05	3.80172E-05	13.73065354	1.77858E-05	3.54123E-05	16.15191515	2.09222E-05	4.16568E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.633321612	3.41104E-06	6.28208E-06	2.432151612	3.15046E-06	5.80217E-06	14.66005354	1.89897E-05	3.49732E-05	13.77863354	1.7848E-05	3.28705E-05	16.21078515	2.09984E-05	3.86726E-05
Haul Road 3	HR3	0800-0900	2.645711612	3.42709E-06	6.31164E-06	2.444741612	3.16676E-06	5.8322E-06	14.71421354	1.90599E-05	3.51024E-05	13.83379354	1.79194E-05	3.30021E-05	16.27853515	2.10862E-05	3.88343E-05
Haul Road 3	HR3	0900-1000	2.655601612	3.4399E-06	6.33523E-06	2.454331612	3.17919E-06	5.85508E-06	14.75739354	1.91158E-05	3.52054E-05	13.87557354	1.79735E-05	3.31017E-05	16.32990515	2.11527E-05	3.89568E-05
Haul Road 3	HR3	1000-1100	2.660501612	3.44625E-06	6.34692E-06	2.453331612	3.17789E-06	5.8527E-06	14.77877354	1.91435E-05	3.52564E-05	13.87127354	1.7968E-05	3.30915E-05	16.32460515	2.11459E-05	3.89442E-05
Haul Road 3	HR3	1100-1200	2.657001612	3.44171E-06	6.33857E-06	2.466531612	3.19499E-06	5.88419E-06	14.76348354	1.91237E-05	3.52199E-05	13.92933354	1.80432E-05	3.323E-05	16.39586515	2.12382E-05	3.91142E-05
Haul Road 3	HR3	1200-1300	2.635311612	3.41362E-06	6.28683E-06	2.460731612	3.18748E-06	5.87035E-06	14.66875354	1.9001E-05	3.49939E-05	13.90385354	1.80102E-05	3.31692E-05	16.36458515	2.11976E-05	3.90395E-05
Haul Road 3	HR3	1300-1400	2.635311612	3.41362E-06	6.28683E-06	2.460731612	3.18748E-06	5.87035E-06	14.66875354	1.9001E-05	3.49939E-05	13.90385354	1.80102E-05	3.31692E-05	16.36458515	2.11976E-05	3.90395E-05
Haul Road 3	HR3	1400-1500	2.638811612	3.41815E-06	6.29518E-06	2.446741612	3.16935E-06	5.83697E-06	14.68414354	1.90209E-05	3.50307E-05	13.84229354	1.79304E-05	3.30223E-05	16.28903515	2.10998E-05	3.88593E-05
Haul Road 3	HR3	1500-1600	2.656501612	3.44106E-06	6.33738E-06	2.446741612	3.16935E-06	5.83697E-06	14.76139354	1.9121E-05	3.52149E-05	13.84229354	1.79304E-05	3.30223E-05	16.28903515	2.10998E-05	3.88593E-05
Haul Road 3	HR3	1600-1700	2.664701612	3.45169E-06	6.35694E-06	2.426851612	3.14359E-06	5.78952E-06	14.79766354	1.9168E-05	3.53015E-05	13.75525354	1.78177E-05	3.28147E-05	16.18210515	2.09613E-05	3.86042E-05
Haul Road 3	HR3	1700-1800	2.670291612	3.45893E-06	6.37028E-06	2.429351612	3.14683E-06	5.79549E-06	14.82185354	1.91993E-05	3.53592E-05	13.76614354	1.78318E-05	3.28407E-05	16.19549515	2.09786E-05	3.86362E-05
Haul Road 3	HR3	1800-1900	2.662201612	3.44845E-06	6.35098E-06	2.432951612	3.15149E-06	5.80408E-06	14.78637354	1.91533E-05	3.52745E-05	13.78232354	1.78528E-05	3.28793E-05	16.21527515	2.10042E-05	3.86833E-05
Haul Road 3	HR3	1900-2000	2.651701612	3.43485E-06	6.32593E-06	2.427151612	3.14398E-06	5.79024E-06	14.74070354	1.90942E-05	3.51656E-05	13.75644354	1.78192E-05	3.28175E-05	16.18359515	2.09632E-05	3.86078E-05
Haul Road 3	HR3	2000-2100	2.651701612	3.43485E-06	6.32593E-06	2.421261612	3.13635E-06	5.77619E-06	14.74070354	1.90942E-05	3.51656E-05	13.73065354	1.77858E-05	3.2756E-05	16.15191515	2.09222E-05	3.85322E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.093660279	3.14662E-07	2.55982E-06	0.08144419	2.73621E-07	2.22594E-06	0.554607207	1.86326E-06	1.51579E-05	0.479922905	1.61235E-06	1.31167E-05	0.561367095	1.88597E-06	1.53427E-05
Road 1	1	0100-0200	0.070372294	1.43967E-07	1.1712E-06	0.063953119	1.30835E-07	1.06436E-06	0.424183578	8.67793E-07	7.05962E-06	0.384120459	7.85832E-07	6.39286E-06	0.448073578	9.16667E-07	7.45722E-06
Road 1	1	0200-0300	0.068328831	9.87485E-08	8.03334E-07	0.061586364	8.90043E-08	7.24063E-07	0.435905195	6.29968E-07	5.12488E-06	0.39024987	5.63987E-07	4.58812E-06	0.451836234	6.52992E-07	5.31218E-06
Road 1	1	0300-0400	0.057450545	5.93052E-08	4.82456E-07	0.051771818	5.34431E-08	4.34768E-07	0.351859273	3.63218E-07	2.95483E-06	0.315269091	3.25447E-07	2.64756E-06	0.367040909	3.7889E-07	3.08232E-06
Road 1	1	0400-0500	0.074515349	1.20276E-07	9.78465E-07	0.067490465	1.08937E-07	8.86221E-07	0.42681186	6.88923E-07	5.60449E-06	0.385019186	6.21465E-07	5.05571E-06	0.452509651	7.30402E-07	5.94193E-06
Road 1	1	0500-0600	0.062665904	2.21118E-07	1.79883E-06	0.055589468	1.96149E-07	1.5957E-06	0.370618564	1.30774E-06	1.06386E-05	0.326522819	1.15215E-06	9.37287E-06	0.382112287	1.34829E-06	1.09686E-05
Road 1	1	0600-0700	0.085086647	5.38179E-07	4.37817E-06	0.074796795	4.73095E-07	3.8487E-06	0.453339941	2.86741E-06	2.33268E-05	0.396527389	2.50807E-06	2.04035E-05	0.471324184	2.98116E-06	2.42522E-05
Road 1	1	0700-0800	0.071428238	7.53428E-07	6.12925E-06	0.062611566	6.6043E-07	5.37269E-06	0.393934253	4.15524E-06	3.38035E-05	0.342886815	3.61679E-06	2.94231E-05	0.405498381	4.27722E-06	3.47958E-05
Road 1	1	0800-0900	0.076181225	9.923E-07	8.07251E-06	0.068058401	8.86496E-07	7.21178E-06	0.408815303	5.32503E-06	4.33199E-05	0.363868862	4.73958E-06	3.85572E-05	0.431927262	5.62608E-06	4.5769E-05
Road 1	1	0900-1000	0.080992955	1.08538E-06	8.82972E-06	0.073041639	9.78824E-07	7.96288E-06	0.449093039	6.01825E-06	4.89594E-05	0.403810826	5.41143E-06	4.40228E-05	0.476852465	6.39025E-06	5.19857E-05
Road 1	1	1000-1100	0.093899094	1.22485E-06	9.96432E-06	0.085501525	1.11531E-06	9.07319E-06	0.50281564	6.55888E-06	5.33574E-05	0.456739827	5.95785E-06	4.8468E-05	0.542241353	7.07316E-06	5.75412E-05
Road 1	1	1100-1200	0.084216068	1.06535E-06	8.66675E-06	0.076915104	9.72988E-07	7.9154E-06	0.483055801	6.11073E-06	4.97117E-05	0.440041602	5.56659E-06	4.52851E-05	0.516956706	6.53958E-06	5.32005E-05
Road 1	1	1200-1300	0.086455592	1.08232E-06	8.80481E-06	0.079641574	9.97014E-07	8.11086E-06	0.489452354	6.12734E-06	4.98468E-05	0.44993907	5.63268E-06	4.58227E-05	0.529580645	6.6297E-06	5.39336E-05
Road 1	1	1300-1400	0.0901711	1.19991E-06	9.76146E-06	0.082369154	1.09609E-06	8.91686E-06	0.500140155	6.65539E-06	5.41426E-05	0.455872285	6.06632E-06	4.93504E-05	0.538241439	7.16241E-06	5.82673E-05
Road 1	1	1400-1500	0.085685657	1.23672E-06	1.00609E-05	0.077840182	1.12348E-06	9.13969E-06	0.465290403	6.71562E-06	5.46326E-05	0.421748856	6.08718E-06	4.95201E-05	0.499589038	7.21066E-06	5.86598E-05
Road 1	1	1500-1600	0.09155257	1.23032E-06	1.00089E-05	0.08456683	1.13645E-06	9.24516E-06	0.495242402	6.65528E-06	5.41417E-05	0.456345964	6.13258E-06	4.98894E-05	0.540912793	7.26902E-06	5.91346E-05
Road 1	1	1600-1700	0.08764547	1.24197E-06	1.01036E-05	0.080042755	1.13424E-06	9.22721E-06	0.479969815	6.80137E-06	5.53302E-05	0.437330795	6.19716E-06	5.04148E-05	0.51737355	7.3314E-06	5.9642E-05
Road 1	1	1700-1800	0.069328047	9.86311E-07	8.02379E-06	0.063077533	8.97387E-07	7.30037E-06	0.388031412	5.52042E-06	4.49094E-05	0.351872216	5.00599E-06	4.07245E-05	0.414949749	5.90338E-06	4.80248E-05
Road 1	1	1800-1900	0.060773398	8.82857E-07	7.18217E-06	0.056172532	8.1602E-07	6.63844E-06	0.36373646	5.28401E-06	4.29862E-05	0.334699819	4.86219E-06	3.95547E-05	0.390872351	5.67821E-06	4.61931E-05
Road 1	1	1900-2000	0.073381282	8.16725E-07	6.64418E-06	0.066908786	7.44687E-07	6.05814E-06	0.420307723	4.67797E-06	3.8056E-05	0.381744233	4.24877E-06	3.45644E-05	0.448653019	4.99345E-06	4.06225E-05
Road 1	1	2000-2100	0.066620537	6.28944E-07	5.11655E-06	0.061256998	5.78308E-07	4.70462E-06	0.393463201	3.71456E-06	3.02185E-05	0.360524751	3.4036E-06	2.76888E-05	0.42178175	3.98191E-06	3.23934E-05
Road 1	1	2100-2200	0.069874052	6.01956E-07	4.897E-06	0.063912745	5.506E-07	4.47921E-06	0.41644146	3.58759E-06	2.91856E-05	0.379452113	3.26893E-06	2.65932E-05	0.443364858	3.81953E-06	3.10724E-05
Road 1	1	2200-2300	0.069767057	5.69607E-07	4.63384E-06	0.062110621	5.07097E-07	4.12531E-06	0.416042046	3.39674E-06	2.7633E-05	0.368140322	3.00565E-06	2.44514E-05	0.430250943	3.51275E-06	2.85767E-05
Road 1	1	2300-0000	0.062606103	4.58265E-07	3.72806E-06	0.054381359	3.98062E-07	3.23829E-06	0.384487256	2.81438E-06	2.28954E-05	0.330916872	2.42225E-06	1.97054E-05	0.385298231	2.82031E-06	2.29437E-05
Road 2	2	0000-0100	0.155135769	1.86738E-07	1.20593E-06	0.134864615	1.62337E-07	1.04836E-06	0.656649615	7.90412E-07	5.1044E-06	0.568813654	6.84683E-07	4.42162E-06	0.703678269	8.4702E-07	5.46997E-06
Road 2	2	0100-0200	0.106174118	8.3563E-08	5.39641E-07	0.096453824	7.59127E-08	4.90237E-07	0.52395	4.12368E-07	2.66303E-06	0.474545588	3.73485E-07	2.41193E-06	0.570999412	4.49398E-07	2.90217E-06
Road 2	2	0200-0300	0.111055217	5.91266E-08	3.81834E-07	0.10018	5.33366E-08	3.44442E-07	0.605757826	3.2251E-07	2.08274E-06	0.54389	2.89571E-07	1.87002E-06	0.64407	3.42908E-07	2.21446E-06
Road 2	2	0300-0400	0.095866	3.32868E-08	2.14963E-07	0.086410667	3.00037E-08	1.93761E-07	0.348166667	1.20891E-07	7.80704E-07	0.312198	1.08402E-07	7.0005E-07	0.398608667	1.38406E-07	8.93811E-07
Road 2	2	0400-0500	0.129761481	8.11009E-08	5.23742E-07	0.117545185	7.34657E-08	4.74435E-07	0.624765926	3.90479E-07	2.52167E-06	0.564481852	3.52801E-07	2.27836E-06	0.682027037	4.26267E-07	2.75279E-06
Road 2	2	0500-0600	0.104890702	1.38397E-07	8.93757E-07	0.093070702	1.22802E-07	7.93041E-07	0.464140877	6.12408E-07	3.95487E-06	0.409660877	5.40525E-07	3.49066E-06	0.502731579	6.63326E-07	4.2837E-06
Road 2	2	0600-0700	0.149108462	3.58965E-07	2.31816E-06	0.131093942	3.15597E-07	2.03809E-06	0.60292625	1.45149E-06	9.37358E-06	0.528143365	1.27146E-06	8.21094E-06	0.659237308	1.58705E-06	1.0249E-05
Road 2	2	0700-0800	0.122187125	4.52545E-07	2.92249E-06	0.107118125	3.96734E-07	2.56207E-06	0.50796875	1.88137E-06	1.21497E-05	0.442663	1.63949E-06	1.05877E-05	0.549781125	2.03623E-06	1.31498E-05
Road 2	2	0800-0900	0.136739507	9.62241E-07	6.21406E-06	0.122134868	8.59468E-07	5.55036E-06	0.574375987	4.04191E-06	2.61022E-05	0.51115352	3.59701E-06	2.32291E-05	0.633288388	4.45647E-06	2.87795E-05
Road 2	2	0900-1000	0.159807183	9.32209E-07	6.02011E-06	0.144029643	8.40173E-07	5.42575E-06	0.680197817	3.96782E-06	2.56238E-05	0.611922619	3.56955E-06	2.30518E-05	0.755952262	4.40972E-06	2.84776E-05
Road 2	2	1000-1100	0.178040107	7.70683E-07	4.97699E-06	0.162059893	7.01509E-07	4.53028E-06	0.750405401	3.24828E-06	2.09771E-05	0.682047326	2.95238E-06	1.90662E-05	0.844107219	3.65389E-06	2.35965E-05
Road 2	2	1100-1200	0.209159891	8.86025E-07	5.72186E-06	0.190913552	8.08731E-07	5.22271E-06	0.853883607	3.61715E-06	2.33592E-05	0.778788087	3.29903E-06	2.13048E-05	0.969701639	4.10776E-06	2.65275E-05
Road 2	2	1200-1300	0.160401842	7.05471E-07	4.55586E-06	0.147758316	6.49863E-07	4.19675E-06	0.701898368	3.08705E-06	1.99359E-05	0.645434526	2.83872E-06	1.83322E-05	0.793192842	3.48858E-06	2.25289E-05
Road 2	2	1300-1400	0.17681852	9.12744E-07	5.89441E-06	0.161368565	8.32991E-07	5.37937E-06	0.72267574	3.73048E-06	2.40911E-05	0.658569058	3.39956E-06	2.1954E-05	0.819937623	4.23255E-06	2.73334E-05
Road 2	2	1400-1500	0.152198485	5.81314E-07	3.75407E-06	0.138248061	5.28031E-07	3.40997E-06	0.657724	2.51214E-06	1.62232E-05	0.596588667	2.27864E-06	1.47152E-05	0.734836727	2.80667E-06	1.81252E-05
Road 2	2	1500-1600	0.18897459	8.00517E-07	5.16966E-06	0.174374317	7.38669E-07	4.77025E-06	0.744134863	3.15224E-06	2.03568E-05	0.686049945	2.90618E-06	1.87679E-05	0.860424262	3.64485E-06	2.35381E-05
Road 2	2	1600-1700	0.158806652	8.12414E-07	5.24649E-06	0.145020407	7.41887E-07	4.79103E-06	0.667402443	3.41426E-06	2.20489E-05	0.608532081	3.11309E-06	2.0104E-05	0.753552489	3.85498E-06	2.48951E-05
Road 2	2	1700-1800	0.121509505	6.24424E-07	4.03247E-06	0.110582207	5.6827E-07	3.66983E-06	0.481672523	2.47526E-06	1.5985E-05	0.437407432	2.24779E-06	1.4516E-05	0.54798964	2.81606E-06	1.81858E-05
Road 2	2	1800-1900	0.1318444	7.62988E-07	4.9273E-06	0.12188852	7.05373E-07	4.55523E-06	0.5926804	3.42986E-06	2.21497E-05	0.54666464	3.16357E-06	2.043E-05	0.66855316	3.86894E-06	2.49852E-05
Road 2	2	1900-2000	0.112611006	4.40538E-07	2.84495E-06	0.102688462	4.01721E-07	2.59428E-06	0.51007503	1.99543E-06	1.28863E-05	0.463528935	1.81334E-06	1.17104E-05	0.566217396	2.21506E-06	1.43047E-05
Road 2	2	2000-2100	0.107026395	3.64187E-07	2.35188E-06	0.098406259	3.34855E-07	2.16246E-06	0.45576483	1.55087E-06	1.00153E-05	0.41739	1.42029E-06	9.17206E-06	0.515796259	1.75514E-06	1.13345E-05
Road 2	2	2100-2200	0.082972026	2.93859E-07	1.89771E-06	0.07587719	2.68732E-07	1.73544E-06	0.380277386	1.34682E-06	8.6976E-06	0.345636471	1.22413E-06	7.90531E-06	0.42151366	1.49286E-06	9.64075E-06
Road 2	2	2200-2300	0.12357976	3.5758E-07	2.30922E-06	0.1100068	3.18307E-07	2.05559E-06	0.52659608	1.52372E-06	9.84001E-06	0.46650992	1.34986E-06	8.71723E-06	0.57651672	1.66816E-06	1.07728E-05
Road 2	2	2300-0000	0.113078919	2.9055E-07	1.87634E-06	0.098232072	2.52402E-07	1.62999E-06	0.51147018	1.31419E-06	8.48694E-06	0.441154775	1.13352E-06	7.32018E-06	0.539386847	1.38592E-06	8.95017E-06
Road 3	3	0000-0100	0.097696174	3.60411E-07	1.40083E-05	0.086431826	3.18855E-07	1.23931E-05	0.538841304	1.98784E-06	7.72623E-05	0.474680609	1.75114E-06	6.80625E-05	0.561112435	2.07E-06	8.04556E-05
Road 3	3	0100-0200	0.071655352	1.63203E-07	6.34331E-06	0.064680423	1.47317E-07	5.72585E-06	0.417439859	9.50768E-07	3.6954E-05	0.375306408	8.54804E-07	3.32241E-05	0.439986831	1.00212E-06	3.89499E-05
Road 3	3	0200-0300	0.070020606	1.11187E-07	4.32155E-06	0.063041313	1.00104E-07	3.8908E-06	0.436575455	6.93245E-07	2.69447E-05	0.390667475	6.20347E-07	2.41113E-05	0.453708788	7.20451E-07	2.80021E-05
Road 3	3	0300-0400	0.058551714	6.574E-08	2.55515E-06	0.052558	5.90105E-08	2.29359E-06	0.322722857	3.62343E-07	1.40834E-05	0.287782143	3.23113E-07	1.25586E-05	0.340340143	3.82123E-07	1.48522E-05
Road 3	3	0400-0500	0.078193894	1.41724E-07	5.50846E-06	0.071510973	1.29611E-07	5.03767E-06	0.432489823	7.83875E-07	3.04672E-05	0.394095752	7.14286E-07	2.77625E-05	0.465606726	8.43898E-07	3.28002E-05
Road 3	3	0500-0600	0.064240366	2.53475E-07	9.85194E-06	0.058061829	2.29096E-07	8.9044E-06	0.357703496	1.4114E-06	5.48576E-05	0.321472805	1.26844E-06	4.93013E-05	0.379534634	1.49754E-06	5.82057E-05
Road 3	3	0600-0700	0.090117748	6.41779E-07	2.49443E-05	0.080411599	5.72656E-07	2.22577E-05	0.450090991	3.20535E-06	0.000124584	0.39989464	2.84787E-06	0.00011069	0.480306239	3.42053E-06	0.000132947
Road 3	3	0700-0800	0.074152902	8.64679E-07	3.36079E-05	0.065997593	7.69582E-07	2.99117E-05	0.389226011	4.53867E-06	0.000176407	0.34410696	4.01255E-06	0.000155958	0.410104553	4.78213E-06	0.000185869
Road 3	3	0800-0900	0.081993982	1.3112E-06	5.09631E-05	0.073749328	1.17936E-06	4.58387E-05	0.405753039	6.48857E-06	0.000252195	0.363479719	5.81256E-06	0.00022592	0.437229047	6.99192E-06	0.000271758
Road 3	3	0900-1000	0.088924642	1.37639E-06	5.34968E-05	0.080314694	1.24312E-06	4.83171E-05	0.45846144	7.09614E-06	0.000275809	0.412888031	6.39075E-06	0.000248392	0.493202725	7.63387E-06	0.00029671
Road 3	3	1000-1100	0.100366928	1.41505E-06	5.49994E-05	0.090866906	1.28111E-06	4.97936E-05	0.506369204	7.13918E-06	0.000277482	0.457356701	6.44817E-06	0.000250624	0.548223606	7.72928E-06	0.000300418
Road 3	3	1100-1200	0.098650831	1.3513E-06	5.25215E-05	0.088834614	1.21684E-06	4.72954E-05	0.511753536	7.00989E-06	0.000272457	0.459790843	6.29811E-06	0.000244792	0.548625457	7.51495E-06	0.000292087
Road 3	3	1200-1300	0.092104391	1.26163E-06	4.90362E-05	0.08445103	1.15679E-06	4.49616E-05	0.488806265	6.69556E-06	0.00026024	0.447135609	6.12476E-06	0.000238054	0.531586639	7.28156E-06	0.000283016

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.097651802	1.45195E-06	5.64337E-05	0.089890108	1.33655E-06	5.19482E-05	0.497704099	7.4002E-06	0.000287627	0.457170431	6.79751E-06	0.000264202	0.547060539	8.13406E-06	0.00031615
Road 3	3	1400-1500	0.089989968	1.34813E-06	5.23986E-05	0.082837495	1.24098E-06	4.82339E-05	0.466047516	6.98183E-06	0.000271366	0.428048448	6.41257E-06	0.00024924	0.510885942	7.65355E-06	0.000297474
Road 3	3	1500-1600	0.100358179	1.44068E-06	5.59957E-05	0.091419598	1.31236E-06	5.10083E-05	0.505886637	7.2622E-06	0.000282264	0.459916648	6.60229E-06	0.000256614	0.551336246	7.91465E-06	0.000307623
Road 3	3	1600-1700	0.093757541	1.46774E-06	5.70473E-05	0.086818893	1.35912E-06	5.28254E-05	0.480037961	7.5148E-06	0.000292082	0.443538074	6.94341E-06	0.000269873	0.530356967	8.30253E-06	0.000322698
Road 3	3	1700-1800	0.07409474	1.16349E-06	4.52219E-05	0.067446384	1.05909E-06	4.11642E-05	0.381189928	5.98572E-06	0.00023265	0.345753984	5.42928E-06	0.000211022	0.413200368	6.48837E-06	0.000252187
Road 3	3	1800-1900	0.069543661	1.14557E-06	4.45253E-05	0.063622863	1.04804E-06	4.07345E-05	0.383083866	6.31039E-06	0.000245269	0.348933496	5.74785E-06	0.000223404	0.412556358	6.79588E-06	0.000264139
Road 3	3	1900-2000	0.073241079	8.92813E-07	3.47014E-05	0.067003645	8.16778E-07	3.17461E-05	0.403486263	4.91852E-06	0.000191171	0.367795237	4.48345E-06	0.00017426	0.434798882	5.30022E-06	0.000206006
Road 3	3	2000-2100	0.068482589	7.12881E-07	2.77079E-05	0.062931448	6.55096E-07	2.54619E-05	0.375504145	3.90887E-06	0.000151928	0.343691926	3.57772E-06	0.000139057	0.406623374	4.23281E-06	0.000164519
Road 3	3	2100-2200	0.067222309	6.63103E-07	2.57731E-05	0.061489593	6.06553E-07	2.35752E-05	0.37967774	3.74526E-06	0.000145569	0.345782211	3.41091E-06	0.000132573	0.407271805	4.01746E-06	0.000156149
Road 3	3	2200-2300	0.074112611	6.69257E-07	2.60123E-05	0.065979787	5.95815E-07	2.31578E-05	0.406758277	3.67314E-06	0.000142766	0.360011226	3.251E-06	0.000126358	0.425991012	3.84681E-06	0.000149516
Road 3	3	2300-0000	0.066087331	5.32126E-07	2.06824E-05	0.058540896	4.71363E-07	1.83207E-05	0.381089502	3.06848E-06	0.000119264	0.334941454	2.6969E-06	0.000104822	0.393482351	3.16826E-06	0.000123142
Road 4	4	0000-0100	0.262005429	2.12273E-07	2.27293E-06	0.231598	1.87637E-07	2.00914E-06	1.293699143	1.04814E-06	1.1223E-05	1.143202	9.26205E-07	9.91742E-06	1.3748	1.11384E-06	1.19266E-05
Road 4	4	0100-0200	0.241509	1.1181E-07	1.19721E-06	0.217842	1.00853E-07	1.07989E-06	1.1947745	5.53136E-07	5.92275E-06	1.0776505	4.98912E-07	5.34214E-06	1.2954925	5.99765E-07	6.42203E-06
Road 4	4	0200-0300	0.259953846	7.82269E-08	8.3762E-07	0.234203077	7.04778E-08	7.54646E-07	1.243629231	3.7424E-07	4.00721E-06	1.120369231	3.37148E-07	3.61004E-06	1.354572308	4.07626E-07	4.36469E-06
Road 4	4	0300-0400	0.236112857	3.8259E-08	4.09662E-07	0.212058571	3.43613E-08	3.67927E-07	1.211964286	1.96383E-07	2.10279E-06	1.088661429	1.76403E-07	1.88885E-06	1.30072	2.10765E-07	2.25678E-06
Road 4	4	0400-0500	0.242876429	7.871E-08	8.42793E-07	0.222009286	7.19475E-08	7.70383E-07	1.162267857	3.76661E-07	4.03313E-06	1.062482143	3.44323E-07	3.68686E-06	1.284491429	4.1627E-07	4.45725E-06
Road 4	4	0500-0600	0.227338333	1.26299E-07	1.35236E-06	0.205590417	1.14217E-07	1.22299E-06	1.046860833	5.81589E-07	6.22741E-06	0.946118333	5.25621E-07	5.62813E-06	1.15170875	6.39838E-07	6.85112E-06
Road 4	4	0600-0700	0.25638566	3.14547E-07	3.36804E-06	0.228779434	2.80678E-07	3.00539E-06	1.186880943	1.45613E-06	1.55916E-05	1.058677547	1.29884E-06	1.39074E-05	1.287456981	1.57952E-06	1.69128E-05
Road 4	4	0700-0800	0.257120543	5.47572E-07	5.86316E-06	0.228893913	4.87459E-07	5.21951E-06	1.234662826	2.62937E-06	2.81542E-05	1.098157283	2.33867E-06	2.50415E-05	1.327051196	2.82613E-06	3.0261E-05
Road 4	4	0800-0900	0.263484452	9.45372E-07	1.01226E-05	0.236884839	8.49934E-07	9.10073E-06	1.269316194	4.55426E-06	4.87651E-05	1.140755355	4.09299E-06	4.3826E-05	1.377640194	4.94292E-06	5.29267E-05
Road 4	4	0900-1000	0.268527905	9.19957E-07	9.85051E-06	0.242145	8.29571E-07	8.88269E-06	1.228195473	4.20771E-06	4.50543E-05	1.107112365	3.79288E-06	4.06126E-05	1.349257365	4.62246E-06	4.94953E-05
Road 4	4	1000-1100	0.297463333	9.91544E-07	1.0617E-05	0.269080417	8.96935E-07	9.604E-06	1.364284583	4.54762E-06	4.86939E-05	1.233830347	4.11277E-06	4.40378E-05	1.502910764	5.0097E-06	5.36418E-05
Road 4	4	1100-1200	0.275626968	9.88939E-07	1.05891E-05	0.247963484	8.89684E-07	9.52636E-06	1.255986	4.50643E-06	4.8253E-05	1.129768645	4.05357E-06	4.34039E-05	1.377732129	4.94325E-06	5.29303E-05
Road 4	4	1200-1300	0.279691486	9.58202E-07	1.026E-05	0.256304459	8.7808E-07	9.40211E-06	1.330486757	4.55815E-06	4.88067E-05	1.218868514	4.17575E-06	4.47122E-05	1.475172973	5.05383E-06	5.41143E-05
Road 4	4	1300-1400	0.286122267	9.9348E-07	1.06378E-05	0.263224133	9.13973E-07	9.78643E-06	1.329299533	4.61562E-06	4.94221E-05	1.222592133	4.24511E-06	4.54549E-05	1.485816267	5.15908E-06	5.52413E-05
Road 4	4	1400-1500	0.260390429	8.43858E-07	9.03567E-06	0.239545143	7.76304E-07	8.31233E-06	1.248720857	4.04678E-06	4.33312E-05	1.148298714	3.72134E-06	3.98465E-05	1.387843857	4.49764E-06	4.81589E-05
Road 4	4	1500-1600	0.29362296	8.49603E-07	9.0972E-06	0.26728224	7.73386E-07	8.28109E-06	1.36426032	3.94751E-06	4.22683E-05	1.24154976	3.59245E-06	3.84664E-05	1.508832	4.36583E-06	4.67475E-05
Road 4	4	1600-1700	0.272087097	7.80991E-07	8.36252E-06	0.251822823	7.22825E-07	7.7397E-06	1.276753306	3.66475E-06	3.92406E-05	1.181452177	3.39121E-06	3.63116E-05	1.433275	4.11403E-06	4.40513E-05
Road 4	4	1700-1800	0.260270157	7.65146E-07	8.19286E-06	0.236827638	6.96229E-07	7.45493E-06	1.24148189	3.64973E-06	3.90797E-05	1.129267008	3.31984E-06	3.55474E-05	1.366094646	4.01607E-06	4.30023E-05
Road 4	4	1800-1900	0.285340566	7.00141E-07	7.49682E-06	0.260961981	6.40323E-07	6.85631E-06	1.373513396	3.37019E-06	3.60866E-05	1.256263491	3.0825E-06	3.30061E-05	1.517225472	3.72282E-06	3.98624E-05
Road 4	4	1900-2000	0.253971351	4.35044E-07	4.65826E-06	0.232390135	3.98076E-07	4.26243E-06	1.225414189	2.09909E-06	2.24762E-05	1.120982297	1.9202E-06	2.05607E-05	1.353372432	2.31828E-06	2.48231E-05
Road 4	4	2000-2100	0.222056939	2.5187E-07	2.69692E-06	0.20401102	2.31401E-07	2.47775E-06	1.075550408	1.21995E-06	1.30627E-05	0.987579592	1.12017E-06	1.19943E-05	1.191590612	1.35157E-06	1.44721E-05
Road 4	4	2100-2200	0.185601892	1.58965E-07	1.70213E-06	0.169939189	1.4555E-07	1.55849E-06	0.918004595	7.86254E-07	8.41888E-06	0.839605405	7.19106E-07	7.69989E-06	1.009544595	8.64656E-07	9.25837E-06
Road 4	4	2200-2300	0.255767937	3.72995E-07	3.99387E-06	0.227730952	3.32108E-07	3.55607E-06	1.215891111	1.77317E-06	1.89864E-05	1.082074603	1.57803E-06	1.68968E-05	1.309805556	1.91013E-06	2.04529E-05
Road 4	4	2300-0000	0.242905102	2.75517E-07	2.95012E-06	0.215205102	2.44098E-07	2.6137E-06	1.186323469	1.3456E-06	1.44081E-05	1.050406327	1.19143E-06	1.27574E-05	1.265611429	1.43553E-06	1.53711E-05
Road 5	5	0000-0100	0.082690622	2.99536E-07	4.05068E-06	0.07317772	2.65077E-07	3.58469E-06	0.462547668	1.67552E-06	2.26584E-05	0.406952073	1.47413E-06	1.9935E-05	0.480129793	1.73921E-06	2.35196E-05
Road 5	5	0100-0200	0.054367787	1.24491E-07	1.68351E-06	0.049088689	1.12403E-07	1.52004E-06	0.333662705	7.64017E-07	1.0332E-05	0.299540902	6.85886E-07	9.27536E-06	0.34862959	7.98288E-07	1.07954E-05
Road 5	5	0200-0300	0.051678605	8.34152E-08	1.12804E-06	0.046507326	7.50681E-08	1.01516E-06	0.356145698	5.7486E-07	7.77394E-06	0.317812442	5.12986E-07	6.9372E-06	0.364319767	5.88054E-07	7.95236E-06
Road 5	5	0300-0400	0.046026349	5.4423E-08	7.35973E-07	0.041298254	4.88324E-08	6.6037E-07	0.253844921	3.00154E-07	4.05905E-06	0.225674921	2.66845E-07	3.6086E-06	0.266973175	3.15678E-07	4.26897E-06
Road 5	5	0400-0500	0.063970303	1.18864E-07	1.60742E-06	0.058512828	1.08723E-07	1.47028E-06	0.365625051	6.79371E-07	9.18726E-06	0.332797475	6.18374E-07	8.36238E-06	0.391310303	7.27097E-07	9.83267E-06
Road 5	5	0500-0600	0.052557455	2.17017E-07	2.93476E-06	0.047495682	1.96116E-07	2.65211E-06	0.306124182	1.26403E-06	1.70937E-05	0.274637591	1.13401E-06	1.53355E-05	0.322133273	1.33013E-06	1.79876E-05
Road 5	5	0600-0700	0.078072088	5.68543E-07	7.68851E-06	0.069662139	5.07299E-07	6.8603E-06	0.392645825	2.85936E-06	3.86676E-05	0.348432912	2.53739E-06	3.43136E-05	0.418095052	3.04469E-06	4.11739E-05
Road 5	5	0700-0800	0.060604344	7.20018E-07	9.73694E-06	0.053921264	6.40619E-07	8.66321E-06	0.320771359	3.81097E-06	5.15364E-05	0.282977678	3.36195E-06	4.54643E-05	0.336898942	4.00257E-06	5.41275E-05
Road 5	5	0800-0900	0.064860403	1.02623E-06	1.38778E-05	0.058353155	9.23268E-07	1.24855E-05	0.317406192	5.02202E-06	6.79138E-05	0.283906856	4.49199E-06	6.07461E-05	0.342260012	5.41526E-06	7.32316E-05
Road 5	5	0900-1000	0.071755184	1.09895E-06	1.48614E-05	0.064862855	9.93395E-07	1.34339E-05	0.382435907	5.85713E-06	7.9207E-05	0.344280833	5.27277E-06	7.13047E-05	0.409143689	6.26616E-06	8.47385E-05
Road 5	5	1000-1100	0.081314441	1.12021E-06	1.51488E-05	0.073648351	1.0146E-06	1.37206E-05	0.421054142	5.80056E-06	7.8442E-05	0.380105518	5.23644E-06	7.08133E-05	0.453753869	6.25104E-06	8.4534E-05
Road 5	5	1100-1200	0.079984921	1.04935E-06	1.41906E-05	0.072057396	9.45348E-07	1.27841E-05	0.432653605	5.67614E-06	7.67595E-05	0.388531144	5.09728E-06	6.89315E-05	0.460588541	6.04263E-06	8.17156E-05
Road 5	5	1200-1300	0.07361802	9.76876E-07	1.32105E-05	0.067520622	8.95966E-07	1.21163E-05	0.401462405	5.32721E-06	7.20409E-05	0.366982744	4.86968E-06	6.58537E-05	0.434503366	5.76565E-06	7.797E-05
Road 5	5	1300-1400	0.080257722	1.17043E-06	1.58279E-05	0.073898005	1.07768E-06	1.45737E-05	0.417926036	6.09475E-06	8.24205E-05	0.383708327	5.59575E-06	7.56723E-05	0.457606332	6.67343E-06	9.0246E-05
Road 5	5	1400-1500	0.07564301	1.12726E-06	1.52442E-05	0.069646108	1.03789E-06	1.40356E-05	0.395988791	5.90118E-06	7.98028E-05	0.363571675	5.41809E-06	7.32699E-05	0.433217783	6.45599E-06	8.73055E-05
Road 5	5	1500-1600	0.084866481	1.22649E-06	1.6586E-05	0.077330909	1.11758E-06	1.51133E-05	0.433041675	6.2583E-06	8.46321E-05	0.393539844	5.68742E-06	7.6912E-05	0.470870753	6.805E-06	9.20253E-05
Road 5	5	1600-1700	0.079838453	1.27819E-06	1.72853E-05	0.073932286	1.18364E-06	1.60066E-05	0.4152332	6.64778E-06	8.98992E-05	0.383488699	6.13956E-06	8.30264E-05	0.457420985	7.3232E-06	9.9033E-05
Road 5	5	1700-1800	0.058601351	9.35994E-07	1.26576E-05	0.053305734	8.51411E-07	1.15138E-05	0.305223525	4.8751E-06	6.59269E-05	0.27657141	4.41746E-06	5.97381E-05	0.329877145	5.26887E-06	7.12519E-05
Road 5	5	1800-1900	0.054388292	9.38116E-07	1.26863E-05	0.049730098	8.5777E-07	1.15998E-05	0.309533776	5.33899E-06	7.22002E-05	0.28153864	4.85612E-06	6.56702E-05	0.331268738	5.71389E-06	7.727E-05
Road 5	5	1900-2000	0.062358411	8.02888E-07	1.08576E-05	0.057052478	7.34572E-07	9.93376E-06	0.351449898	4.52505E-06	6.11931E-05	0.320061297	4.12091E-06	5.57278E-05	0.377113776	4.85548E-06	6.56616E-05
Road 5	5	2000-2100	0.060601533	6.8245E-07	9.2289E-06	0.05569725	6.27221E-07	8.48203E-06	0.337175967	3.79703E-06	5.13479E-05	0.308411767	3.47311E-06	4.69675E-05	0.364109017	4.10033E-06	5.54495E-05
Road 5	5	2100-2200	0.062664083	6.79802E-07	9.19309E-06	0.057305952	6.21675E-07	8.40703E-06	0.35788218	3.88243E-06	5.25028E-05	0.325753201	3.53388E-06	4.77894E-05	0.383059152	4.15556E-06	5.61964E-05
Road 5	5	2200-2300	0.061972725	5.80413E-07	7.84903E-06	0.055172365	5.16723E-07	6.98774E-06	0.349567154	3.27391E-06	4.42737E-05	0.308854208	2.89261E-06	3.91173E-05	0.364026573	3.40933E-06	4.6105E-05
Road 5	5	2300-0000	0.055500309	4.71878E-07	6.38129E-06	0.049163466	4.18E-07	5.65269E-06	0.329225276	2.79916E-06	3.78535E-05	0.288742804	2.45496E-06	3.31989E-05	0.337906269	2.87296E-06	3.88516E-05
Road 6	6	0000-0100	0.049507067	1.39378E-07	4.9822E-06	0.04373	1.23114E-07	4.40082E-06	0.320642067	9.02709E-07	3.22682E-05	0.280337267	7.89238E-07	2.82121E-05	0.324067267	9.12352E-07	3.26129E-05
Road 6	6	0100-0200	0.064104825	1.37161E-07	4.90296E-06	0.057870965	1.23823E-07	4.42617E-06	0.362110351	7.74786E-07	2.76954E-05	0.324723509	6.94791E-07	2.4836E-05	0.382594474	8.18614E-07	2.92621E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.058150886	8.62222E-08	3.08209E-06	0.052416835	7.77202E-08	2.77818E-06	0.333367595	4.94295E-07	1.7669E-05	0.298380886	4.42419E-07	1.58147E-05	0.350797722	5.20139E-07	1.85929E-05
Road 6	6	0300-0400	0.059690161	6.94593E-08	2.48289E-06	0.053735323	6.25298E-08	2.23519E-06	0.382094355	4.44629E-07	1.58937E-05	0.341788548	3.97727E-07	1.42171E-05	0.395523871	4.60257E-07	1.64523E-05
Road 6	6	0400-0500	0.064692778	1.09278E-07	3.90626E-06	0.059181222	9.99683E-08	3.57346E-06	0.380822	6.4328E-07	2.29947E-05	0.346257556	5.84895E-07	2.09076E-05	0.405438778	6.84863E-07	2.44811E-05
Road 6	6	0500-0600	0.058729198	1.78569E-07	6.3831E-06	0.053138025	1.61568E-07	5.77541E-06	0.355725432	1.0816E-06	3.86627E-05	0.319315	9.7089E-07	3.47054E-05	0.372453025	1.13246E-06	4.04808E-05
Road 6	6	0600-0700	0.063698276	3.46706E-07	1.23933E-05	0.056844655	3.09402E-07	1.10599E-05	0.403268069	2.19497E-06	7.84611E-05	0.357124448	1.94381E-06	6.94833E-05	0.413969103	2.25321E-06	8.05431E-05
Road 6	6	0700-0800	0.059559697	5.16452E-07	1.84611E-05	0.05301513	4.59703E-07	1.64325E-05	0.343681472	2.98012E-06	0.000106527	0.303230281	2.62936E-06	9.3989E-05	0.356245411	3.08906E-06	0.000110422
Road 6	6	0800-0900	0.050348112	6.25572E-07	2.23616E-05	0.045234502	5.62035E-07	2.00905E-05	0.298155227	3.70456E-06	0.000132423	0.265476148	3.29852E-06	0.000117909	0.31071065	3.86056E-06	0.000137999
Road 6	6	0900-1000	0.053223728	6.32331E-07	2.26033E-05	0.048012101	5.70414E-07	2.039E-05	0.30248545	3.59372E-06	0.000128461	0.270811438	3.21741E-06	0.000115009	0.318823539	3.78782E-06	0.000135399
Road 6	6	1000-1100	0.070992093	7.12852E-07	2.54816E-05	0.064224093	6.44893E-07	2.30523E-05	0.389566112	3.91175E-06	0.000139829	0.350915832	3.52365E-06	0.000125956	0.415139925	4.16854E-06	0.000149008
Road 6	6	1100-1200	0.081625038	8.15025E-07	2.91338E-05	0.073537218	7.34268E-07	2.62471E-05	0.427672312	4.2703E-06	0.000152646	0.384112989	3.83536E-06	0.000137099	0.457650207	4.56963E-06	0.000163346
Road 6	6	1200-1300	0.077702294	7.62731E-07	2.72645E-05	0.071277113	6.99661E-07	2.501E-05	0.390680268	3.83494E-06	0.000137084	0.357371625	3.50798E-06	0.000125396	0.428648738	4.20764E-06	0.000150406
Road 6	6	1300-1400	0.089793186	8.78045E-07	3.13866E-05	0.082671478	8.08405E-07	2.88972E-05	0.459197044	4.49027E-06	0.000160509	0.421629789	4.12292E-06	0.000147378	0.504301267	4.93132E-06	0.000176275
Road 6	6	1400-1500	0.085399826	9.20036E-07	3.28875E-05	0.07862547	8.47054E-07	3.02787E-05	0.430258728	4.63529E-06	0.000165693	0.39494169	4.25481E-06	0.000152092	0.47356716	5.10187E-06	0.000182371
Road 6	6	1500-1600	0.075383007	7.95144E-07	2.84232E-05	0.068650605	7.2413E-07	2.58847E-05	0.393093683	4.14637E-06	0.000148216	0.356905285	3.76465E-06	0.000134571	0.42555589	4.48878E-06	0.000160456
Road 6	6	1600-1700	0.078113056	8.44465E-07	3.01862E-05	0.07233316	7.8198E-07	2.79526E-05	0.389003594	4.20544E-06	0.000150328	0.359295903	3.88428E-06	0.000138847	0.431629063	4.66626E-06	0.0001668
Road 6	6	1700-1800	0.058334443	6.67868E-07	2.38736E-05	0.053119148	6.08158E-07	2.17392E-05	0.301220902	3.44866E-06	0.000123276	0.273000098	3.12556E-06	0.000111726	0.326119246	3.73372E-06	0.000133465
Road 6	6	1800-1900	0.056549376	7.31279E-07	2.61402E-05	0.051723237	6.68868E-07	2.39093E-05	0.297657112	3.84921E-06	0.000137594	0.270931553	3.5036E-06	0.00012524	0.32265479	4.17247E-06	0.000149149
Road 6	6	1900-2000	0.06639437	6.52978E-07	2.33413E-05	0.06073584	5.97327E-07	2.1352E-05	0.349504542	3.43732E-06	0.00012287	0.318086927	3.12833E-06	0.000111825	0.378822767	3.72566E-06	0.000133177
Road 6	6	2000-2100	0.052646364	4.13029E-07	1.47641E-05	0.048377153	3.79535E-07	1.35669E-05	0.308700383	2.42186E-06	8.65717E-05	0.281924163	2.21179E-06	7.90626E-05	0.330301316	2.59133E-06	9.26295E-05
Road 6	6	2100-2200	0.073626944	4.97479E-07	1.77829E-05	0.067336889	4.54979E-07	1.62637E-05	0.393431139	2.65832E-06	9.50241E-05	0.358301111	2.42095E-06	8.65393E-05	0.425638	2.87593E-06	0.000102803
Road 6	6	2200-2300	0.056569344	4.04522E-07	1.446E-05	0.050329606	3.59902E-07	1.2865E-05	0.321535958	2.29927E-06	8.21896E-05	0.282721339	2.02171E-06	7.2268E-05	0.333050945	2.38161E-06	8.51331E-05
Road 6	6	2300-0000	0.038835546	2.60216E-07	9.30165E-06	0.034405266	2.30531E-07	8.24054E-06	0.245432605	1.64451E-06	5.87845E-05	0.214778992	1.43912E-06	5.14426E-05	0.249184258	1.66965E-06	5.96831E-05
Road 7	7	0000-0100	0.072461398	1.95679E-07	4.88478E-06	0.06363087	1.71832E-07	4.2895E-06	0.429767957	1.16057E-06	2.89716E-05	0.374922773	1.01246E-06	2.52744E-05	0.438553643	1.1843E-06	2.95639E-05
Road 7	7	0100-0200	0.086737736	1.826E-07	4.55829E-06	0.078471448	1.65198E-07	4.12387E-06	0.47499194	9.99951E-07	2.4962E-05	0.428025172	9.01076E-07	2.24938E-05	0.506496621	1.06627E-06	2.66177E-05
Road 7	7	0200-0300	0.074250368	1.01333E-07	2.5296E-06	0.066960319	9.13839E-08	2.28124E-06	0.421159061	5.74776E-07	1.43483E-05	0.377951568	5.15808E-07	1.28763E-05	0.444911887	6.07192E-07	1.51575E-05
Road 7	7	0300-0400	0.075629211	8.34502E-08	2.08319E-06	0.0681614	7.52101E-08	1.87749E-06	0.456741316	5.03974E-07	1.25808E-05	0.409795762	4.52174E-07	1.12877E-05	0.477957162	5.27384E-07	1.31652E-05
Road 7	7	0400-0500	0.083900968	1.35212E-07	3.37532E-06	0.076479357	1.23251E-07	3.07675E-06	0.467962092	7.5415E-07	1.88261E-05	0.424830142	6.84641E-07	1.70909E-05	0.501309499	8.07892E-07	2.01676E-05
Road 7	7	0500-0600	0.076842246	2.20897E-07	5.51431E-06	0.069060604	1.98527E-07	4.95588E-06	0.434374983	1.24869E-06	3.11714E-05	0.388145136	1.11579E-06	2.78538E-05	0.45720574	1.31432E-06	3.28097E-05
Road 7	7	0600-0700	0.082364556	4.23319E-07	1.05674E-05	0.073134921	3.75883E-07	9.38326E-06	0.478864285	2.46116E-06	6.14386E-05	0.422749426	2.17275E-06	5.4239E-05	0.495884346	2.54864E-06	6.36223E-05
Road 7	7	0700-0800	0.078600278	6.44758E-07	1.60953E-05	0.069598053	5.70913E-07	1.42518E-05	0.429947729	3.52686E-06	8.8042E-05	0.378396996	3.10399E-06	7.74857E-05	0.447995049	3.6749E-06	9.17376E-05
Road 7	7	0800-0900	0.077577578	9.63001E-07	2.40396E-05	0.069595864	8.63921E-07	2.15663E-05	0.422396144	5.24337E-06	0.000130892	0.376828947	4.67773E-06	0.000116771	0.446424811	5.54165E-06	0.000138338
Road 7	7	0900-1000	0.07904062	9.08866E-07	2.26883E-05	0.071282537	8.19658E-07	2.04613E-05	0.414899105	4.77081E-06	0.000119095	0.372402657	4.28215E-06	0.000106897	0.443685194	5.10181E-06	0.000127358
Road 7	7	1000-1100	0.093561433	9.44074E-07	2.35672E-05	0.084843196	8.56103E-07	2.13711E-05	0.492871935	4.97328E-06	0.000124149	0.445559355	4.49588E-06	0.000112232	0.530402552	5.35198E-06	0.000133603
Road 7	7	1100-1200	0.103365997	1.04151E-06	2.59994E-05	0.093556453	9.42665E-07	2.3532E-05	0.530000409	5.34023E-06	0.00013331	0.47867402	4.82307E-06	0.0001204	0.572230473	5.76574E-06	0.000143932
Road 7	7	1200-1300	0.100121198	1.00736E-06	2.51469E-05	0.091956577	9.2521E-07	2.30963E-05	0.506082684	5.09189E-06	0.00012711	0.464052072	4.669E-06	0.000116554	0.55600865	5.59421E-06	0.00013965
Road 7	7	1300-1400	0.106515925	1.05469E-06	2.63284E-05	0.097757119	9.67959E-07	2.41634E-05	0.539387024	5.34084E-06	0.000133325	0.49418943	4.8933E-06	0.000122153	0.591946549	5.86126E-06	0.000146316
Road 7	7	1400-1500	0.099287469	1.02924E-06	2.56932E-05	0.090961313	9.4293E-07	2.35386E-05	0.505804444	5.24331E-06	0.00013089	0.462436557	4.79374E-06	0.000119667	0.55339787	5.73667E-06	0.000143206
Road 7	7	1500-1600	0.092167691	9.38039E-07	2.34165E-05	0.084340669	8.5838E-07	2.1428E-05	0.476256327	4.84711E-06	0.000121	0.434765927	4.42484E-06	0.000110459	0.519106595	5.28322E-06	0.000131886
Road 7	7	1600-1700	0.095263185	1.00274E-06	2.50316E-05	0.087777749	9.23946E-07	2.30647E-05	0.475028295	5.00014E-06	0.00012482	0.436830463	4.59807E-06	0.000114783	0.524608212	5.52201E-06	0.000137847
Road 7	7	1700-1800	0.07311704	8.14213E-07	2.03254E-05	0.066543012	7.41007E-07	1.84979E-05	0.378829231	4.21855E-06	0.000105309	0.343697562	3.82733E-06	9.55427E-05	0.410240574	4.56834E-06	0.000114041
Road 7	7	1800-1900	0.066906994	7.74202E-07	1.93266E-05	0.061439235	7.10933E-07	1.77472E-05	0.352594554	4.07998E-06	0.00010185	0.322540866	3.73222E-06	9.31684E-05	0.3839801	4.44315E-06	0.000110916
Road 7	7	1900-2000	0.077098662	6.73857E-07	1.68217E-05	0.070447375	6.15723E-07	1.53705E-05	0.409027247	3.57498E-06	8.9243E-05	0.372296728	3.25394E-06	8.1229E-05	0.442744103	3.86967E-06	9.65995E-05
Road 7	7	2000-2100	0.071367537	5.13933E-07	1.28294E-05	0.06558232	4.72273E-07	1.17895E-05	0.390788503	2.81415E-06	7.02504E-05	0.357679099	2.57573E-06	6.42985E-05	0.423261418	3.048E-06	7.6088E-05
Road 7	7	2100-2200	0.081941039	4.92523E-07	1.2295E-05	0.074947585	4.50487E-07	1.12456E-05	0.438797005	2.63747E-06	6.584E-05	0.399947101	2.40396E-06	6.00107E-05	0.474894686	2.85445E-06	7.12563E-05
Road 7	7	2200-2300	0.070507808	4.57582E-07	1.14227E-05	0.062742394	4.07186E-07	1.01647E-05	0.389396376	2.52711E-06	6.30848E-05	0.343548881	2.22957E-06	5.56572E-05	0.406291275	2.63675E-06	6.58219E-05
Road 7	7	2300-0000	0.050849244	3.03425E-07	7.57447E-06	0.044748814	2.67022E-07	6.66575E-06	0.303525035	1.81118E-06	4.52129E-05	0.26462989	1.57908E-06	3.94191E-05	0.309378704	1.84611E-06	4.60848E-05
Road 8	8	0000-0100	0.229813889	1.67137E-07	2.7552E-06	0.203115556	1.4772E-07	2.43512E-06	1.138101667	8.2771E-07	1.36445E-05	1.005514444	7.31283E-07	1.20549E-05	1.20863	8.79004E-07	1.449E-05
Road 8	8	0100-0200	0.232692333	1.41026E-07	2.32475E-06	0.209918333	1.27223E-07	2.09723E-06	1.149273	6.96529E-07	1.1482E-05	1.036689333	6.28297E-07	1.03572E-05	1.246607667	7.5552E-07	1.24545E-05
Road 8	8	0200-0300	0.219086	6.63897E-08	1.09441E-06	0.197463333	5.98374E-08	9.86397E-07	1.137859333	3.44806E-07	5.68399E-06	1.025388	3.10724E-07	5.12216E-06	1.222851333	3.70561E-07	6.10856E-06
Road 8	8	0300-0400	0.199522143	5.64305E-08	9.30236E-07	0.179396429	5.07384E-08	8.36403E-07	1.014797143	2.87013E-07	4.73131E-06	0.912265	2.58014E-07	4.25327E-06	1.091661429	3.08753E-07	5.08967E-06
Road 8	8	0400-0500	0.226532381	9.61046E-08	1.58425E-06	0.207122857	8.78703E-08	1.44851E-06	1.086497619	4.60938E-07	7.5984E-06	0.993411429	4.21447E-07	6.9474E-06	1.200534286	5.09318E-07	8.39591E-06
Road 8	8	0500-0600	0.218555294	1.50119E-07	2.47465E-06	0.197705882	1.35798E-07	2.23858E-06	1.030410588	7.07757E-07	1.16671E-05	0.931584706	6.39876E-07	1.05481E-05	1.129290588	7.75674E-07	1.27867E-05
Road 8	8	0600-0700	0.247788871	3.10362E-07	5.1162E-06	0.221241774	2.77111E-07	4.56807E-06	1.154152097	1.4456E-06	2.38302E-05	1.029832581	1.28989E-06	2.12634E-05	1.251074355	1.567E-06	2.58314E-05
Road 8	8	0700-0800	0.245778922	5.06454E-07	8.3487E-06	0.218838431	4.5094E-07	7.43357E-06	1.156392647	2.38287E-06	3.92807E-05	1.02900402	2.12037E-06	3.49535E-05	1.247842451	2.57131E-06	4.23871E-05
Road 8	8	0800-0900	0.272159479	1.05565E-06	1.7402E-05	0.244789375	9.49486E-07	1.56519E-05	1.285231667	4.98514E-06	8.21782E-05	1.155561146	4.48218E-06	7.3887E-05	1.400350521	5.43166E-06	8.95389E-05
Road 8	8	0900-1000	0.290290506	9.26584E-07	1.52744E-05	0.261821646	8.35714E-07	1.37764E-05	1.303511203	4.1607E-06	6.85876E-05	1.175632911	3.75253E-06	6.1859E-05	1.437454557	4.58824E-06	7.56354E-05
Road 8	8	1000-1100	0.2731995	8.83069E-07	1.45571E-05	0.247164438	7.98915E-07	1.31698E-05	1.263445875	4.08387E-06	6.7321E-05	1.142469375	3.69283E-06	6.08749E-05	1.389633813	4.49175E-06	7.40447E-05
Road 8	8	1100-1200	0.282951321	9.08874E-07	1.49824E-05	0.25454283	8.17622E-07	1.34782E-05	1.321121006	4.2436E-06	6.99542E-05	1.188338239	3.81709E-06	6.29232E-05	1.442881069	4.63471E-06	7.64014E-05
Road 8	8	1200-1300	0.282557118	9.70398E-07	1.59966E-05	0.258887176	8.89107E-07	1.46566E-05	1.330287118	4.56866E-06	7.53127E-05	1.218649647	4.18526E-06	6.89925E-05	1.477536824	5.07437E-06	8.36491E-05
Road 8	8	1300-1400	0.25782179	8.4378E-07	1.39094E-05	0.237214074	7.76337E-07	1.27976E-05	1.197615309	3.91947E-06	6.4611E-05	1.101611543	3.60527E-06	5.94316E-05	1.338825617	4.38161E-06	7.22292E-05
Road 8	8	1400-1500	0.251967194	7.07544E-07	1.16636E-05	0.231810863	6.50944E-07	1.07306E-05	1.218679928	3.42215E-06	5.64129E-05	1.120925971	3.14765E-06	5.18878E-05	1.352736835	3.79859E-06	6.26184E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.261015971	7.32954E-07	1.20825E-05	0.237553237	6.67069E-07	1.09964E-05	1.230769856	3.4561E-06	5.69725E-05	1.119788849	3.14446E-06	5.18352E-05	1.357342086	3.81153E-06	6.28316E-05
Road 8	8	1600-1700	0.25817255	7.77125E-07	1.28106E-05	0.238941678	7.19239E-07	1.18564E-05	1.206443893	3.63152E-06	5.98642E-05	1.116238389	3.35999E-06	5.53882E-05	1.355180067	4.07923E-06	6.72446E-05
Road 8	8	1700-1800	0.210706987	6.64046E-07	1.09466E-05	0.191717628	6.04201E-07	9.96003E-06	1.023315321	3.22499E-06	5.31628E-05	0.930227628	2.93163E-06	4.83268E-05	1.121945256	3.53583E-06	5.82868E-05
Road 8	8	1800-1900	0.210151682	4.54267E-07	7.48843E-06	0.192272336	4.15619E-07	6.85132E-06	1.046128224	2.26133E-06	3.72771E-05	0.956772617	2.06818E-06	3.40931E-05	1.149044953	2.48379E-06	4.09444E-05
Road 8	8	1900-2000	0.206157922	3.2069E-07	5.28646E-06	0.18866961	2.93486E-07	4.83801E-06	1.051721558	1.63601E-06	2.6969E-05	0.962195584	1.49675E-06	2.46733E-05	1.150865195	1.79023E-06	2.95113E-05
Road 8	8	2000-2100	0.227049221	3.53188E-07	5.82217E-06	0.208595844	3.24482E-07	5.34897E-06	1.056523506	1.64348E-06	2.70922E-05	0.970202338	1.5092E-06	2.48787E-05	1.178798182	1.83369E-06	3.02276E-05
Road 8	8	2100-2200	0.187886667	2.04967E-07	3.37881E-06	0.171966296	1.876E-07	3.09251E-06	0.954181481	1.04093E-06	1.71593E-05	0.872218889	9.51512E-07	1.56853E-05	1.044185185	1.13911E-06	1.87778E-05
Road 8	8	2200-2300	0.231651406	2.99509E-07	4.93729E-06	0.206258438	2.66678E-07	4.39608E-06	1.113507188	1.43969E-06	2.37327E-05	0.990578906	1.28075E-06	2.11127E-05	1.196837344	1.54743E-06	2.55087E-05
Road 8	8	2300-0000	0.185297736	1.984E-07	3.27054E-06	0.164252264	1.75866E-07	2.89909E-06	0.927430566	9.93006E-07	1.63693E-05	0.821358679	8.79435E-07	1.44971E-05	0.985610943	1.0553E-06	1.73962E-05
Road 9	9	0000-0100	0.661920611	1.73093E-07	5.24778E-06	0.641895507	1.67857E-07	5.08902E-06	3.620779175	9.46839E-07	2.87059E-05	3.525997127	9.22053E-07	2.79545E-05	4.167892634	1.08991E-06	3.30435E-05
Road 9	9	0100-0200	0.68342068	1.40419E-07	4.25718E-06	0.666858308	1.37016E-07	4.15401E-06	3.570516425	7.33618E-07	2.22416E-05	3.49543578	7.18191E-07	2.17739E-05	4.162294088	8.55207E-07	2.59279E-05
Road 9	9	0200-0300	0.341601173	3.19033E-08	9.67232E-07	0.333773041	3.11722E-08	9.45067E-07	2.342418787	2.18766E-07	6.63248E-06	2.288311636	2.13713E-07	6.47928E-06	2.622084678	2.44885E-07	7.42434E-06
Road 9	9	0300-0400	0.423739167	3.16595E-08	9.59843E-07	0.414065529	3.09368E-08	9.3793E-07	2.805769848	2.09632E-07	6.35555E-06	2.74806633	2.05321E-07	6.22485E-06	3.162131858	2.36258E-07	7.16278E-06
Road 9	9	0400-0500	0.746759996	1.39485E-07	4.22885E-06	0.730378716	1.36425E-07	4.13609E-06	3.866791131	7.22265E-07	2.18974E-05	3.796123047	7.09065E-07	2.14972E-05	4.526501764	8.4549E-07	2.56333E-05
Road 9	9	0500-0600	0.546811517	1.73633E-07	5.26415E-06	0.533053544	1.69264E-07	5.1317E-06	3.067526994	9.74055E-07	2.9531E-05	2.997442002	9.518E-07	2.88563E-05	3.530495545	1.12106E-06	3.3988E-05
Road 9	9	0600-0700	0.603022403	3.60437E-07	1.09276E-05	0.585760084	3.50119E-07	1.06148E-05	3.394642313	2.02904E-06	6.15156E-05	3.30224496	1.97381E-06	5.98412E-05	3.888005044	2.32393E-06	7.0456E-05
Road 9	9	0700-0800	0.432222638	3.95594E-07	1.19935E-05	0.418362565	3.82908E-07	1.16089E-05	2.489905329	2.2789E-06	6.90908E-05	2.410584201	2.2063E-06	6.68898E-05	2.828946766	2.58921E-06	7.84987E-05
Road 9	9	0800-0900	0.755701256	1.62328E-06	4.92141E-05	0.734150845	1.57699E-06	4.78106E-05	4.396070864	9.44297E-06	0.000286289	4.288823214	9.2126E-06	0.000279304	5.022974059	1.07896E-05	0.000327115
Road 9	9	0900-1000	0.730711651	1.18744E-06	3.60003E-05	0.710861843	1.15518E-06	3.50224E-05	3.887008541	6.31656E-06	0.000191503	3.797315282	6.17081E-06	0.000187084	4.508177125	7.32599E-06	0.000222107
Road 9	9	1000-1100	0.895490413	1.22104E-06	3.7019E-05	0.873534776	1.1911E-06	3.61114E-05	4.657675747	6.35094E-06	0.000192546	4.562230018	6.2208E-06	0.0001886	5.435764794	7.4119E-06	0.000224711
Road 9	9	1100-1200	0.70251425	9.97275E-07	3.0235E-05	0.685182576	9.72671E-07	2.94891E-05	3.935861132	5.58727E-06	0.000169393	3.8515343	5.46756E-06	0.000165763	4.536716875	6.44023E-06	0.000195253
Road 9	9	1200-1300	0.79058315	1.09276E-06	3.31299E-05	0.773163037	1.06868E-06	3.23999E-05	4.159858667	5.74985E-06	0.000174322	4.081128702	5.64103E-06	0.000171023	4.854291739	6.70971E-06	0.000203422
Road 9	9	1300-1400	0.852877317	9.71768E-07	2.94617E-05	0.832819472	9.48914E-07	2.87688E-05	3.876958619	4.4174E-06	0.000133925	3.796427156	4.32565E-06	0.000131143	4.629246628	5.27456E-06	0.000159912
Road 9	9	1400-1500	0.533234388	6.77288E-07	2.05338E-05	0.520969606	6.61709E-07	2.00615E-05	3.206126314	4.07226E-06	0.000123461	3.142884221	3.99193E-06	0.000121026	3.663853827	4.65364E-06	0.000141087
Road 9	9	1500-1600	0.560302658	5.96545E-07	1.80859E-05	0.548532814	5.84014E-07	1.77059E-05	3.305467147	3.51928E-06	0.000106696	3.246839796	3.45686E-06	0.000104804	3.795372611	4.04087E-06	0.00012251
Road 9	9	1600-1700	0.507000577	7.57608E-07	2.29689E-05	0.497100867	7.42815E-07	2.25204E-05	3.115699401	4.65577E-06	0.000141152	3.060347649	4.57306E-06	0.000138644	3.557448515	5.31587E-06	0.000161165
Road 9	9	1700-1800	0.382705471	4.93242E-07	1.49539E-05	0.373827637	4.818E-07	1.4607E-05	2.282808487	2.94215E-06	8.9199E-05	2.232861799	2.87778E-06	8.72474E-05	2.606689436	3.35958E-06	0.000101854
Road 9	9	1800-1900	0.362489001	2.97916E-07	9.0321E-06	0.354880105	2.91662E-07	8.84251E-06	2.027981389	1.66672E-06	5.0531E-05	1.985908093	1.63214E-06	4.94827E-05	2.340788198	1.9238E-06	5.83252E-05
Road 9	9	1900-2000	0.401974805	3.22859E-07	9.78833E-06	0.393179394	3.15795E-07	9.57416E-06	2.347805818	1.88572E-06	5.71705E-05	2.299011746	1.84653E-06	5.59823E-05	2.69219114	2.16232E-06	6.55565E-05
Road 9	9	2000-2100	0.525943824	2.84894E-07	8.63731E-06	0.515062097	2.79E-07	8.45861E-06	2.36583723	1.28153E-06	3.8853E-05	2.3207556	1.25711E-06	3.81126E-05	2.835817697	1.53611E-06	4.65712E-05
Road 9	9	2100-2200	0.020385817	1.06618E-08	3.23242E-07	0.019198893	1.00411E-08	3.04422E-07	0.291829333	1.52628E-07	4.62731E-06	0.271638798	1.42068E-07	4.30716E-06	0.29083769	1.52109E-07	4.61158E-06
Road 9	9	2200-2300	0.558684257	3.44371E-07	1.04405E-05	0.543636314	3.35095E-07	1.01593E-05	3.112890381	1.91877E-06	5.81727E-05	3.039070586	1.87327E-06	5.67932E-05	3.5827069	2.20837E-06	6.69525E-05
Road 9	9	2300-0000	0.395894603	2.21844E-07	6.72577E-06	0.383552449	2.14928E-07	6.51609E-06	2.260862287	1.2669E-06	3.84093E-05	2.195347554	1.23019E-06	3.72963E-05	2.578900004	1.44511E-06	4.38124E-05
Road 10	10	0000-0100	1.202669294	9.26219E-07	2.05599E-05	1.171412301	9.02147E-07	2.00255E-05	7.520544042	5.79184E-06	0.000128565	7.366313848	5.67306E-06	0.000125929	8.53772615	6.57521E-06	0.000145954
Road 10	10	0100-0200	1.146600044	6.67184E-07	1.48099E-05	1.121612247	6.52644E-07	1.44872E-05	7.108572043	4.13634E-06	9.18169E-05	6.985403484	4.06467E-06	9.0226E-05	8.107015731	4.71731E-06	0.000104713
Road 10	10	0200-0300	1.221020386	3.97037E-07	8.81329E-06	1.194692981	3.88477E-07	8.62326E-06	7.471188684	2.4294E-06	5.39268E-05	7.344369267	2.38816E-06	5.30114E-05	8.539062248	2.77663E-06	6.16347E-05
Road 10	10	0300-0400	1.106828663	2.27309E-07	5.04572E-06	1.082373582	2.22287E-07	4.93424E-06	7.13693034	1.46571E-06	3.25353E-05	7.009887886	1.43962E-06	3.19561E-05	8.092261469	1.6619E-06	3.68903E-05
Road 10	10	0400-0500	1.186305186	4.66959E-07	1.03654E-05	1.163535405	4.57997E-07	1.01664E-05	7.199191979	2.83378E-06	6.29033E-05	7.09032259	2.79093E-06	6.1952E-05	8.253857995	3.24892E-06	7.21184E-05
Road 10	10	0500-0600	1.05264194	7.38617E-07	1.63956E-05	1.029671385	7.22499E-07	1.60378E-05	6.314285787	4.4306E-06	9.83489E-05	6.204168183	4.35334E-06	9.66338E-05	7.233839568	5.07584E-06	0.000112672
Road 10	10	0600-0700	1.130099975	1.58594E-06	3.5204E-05	1.100071469	1.54379E-06	3.42686E-05	6.667107914	9.35634E-06	0.000207689	6.523359746	9.15461E-06	0.000203211	7.623431216	1.06984E-05	0.000237479
Road 10	10	0700-0800	1.084871973	2.3951E-06	5.31655E-05	1.053813726	2.32653E-06	5.16434E-05	6.466047634	1.42752E-05	0.000316877	6.316456449	1.3945E-05	0.000309546	7.370270175	1.62715E-05	0.000361189
Road 10	10	0800-0900	1.218192277	5.17038E-06	0.00011477	1.185222405	5.03044E-06	0.000111664	7.331385513	3.11166E-05	0.000690716	7.173900531	3.04482E-05	0.000675878	8.359122935	3.54787E-05	0.000787542
Road 10	10	0900-1000	1.24594135	4.22199E-06	9.37183E-05	1.213549039	4.11223E-06	9.12818E-05	7.327502234	2.483E-05	0.000551166	7.176767206	2.43192E-05	0.000539828	8.390316244	2.84314E-05	0.00063111
Road 10	10	1000-1100	1.246443746	4.58634E-06	0.000101806	1.214015776	4.46702E-06	9.91572E-05	7.136763741	2.626E-05	0.00058291	6.991688961	2.57262E-05	0.00057106	8.205704737	3.01932E-05	0.000670218
Road 10	10	1100-1200	1.276698364	4.69766E-06	0.000104277	1.242425969	4.57155E-06	0.000101478	7.48279455	2.75332E-05	0.000611172	7.32593426	2.69561E-05	0.000598361	8.568360229	3.15276E-05	0.000699838
Road 10	10	1200-1300	1.267398413	4.81527E-06	0.000106888	1.239090485	4.70772E-06	0.0001045	7.439303689	2.82644E-05	0.000627403	7.309422348	2.7771E-05	0.00061645	8.548512833	3.24787E-05	0.00072095
Road 10	10	1300-1400	1.228267865	4.03598E-06	8.95892E-05	1.202217969	3.95038E-06	8.76892E-05	7.107434827	2.33544E-05	0.000518413	6.989167099	2.29658E-05	0.000509786	8.191385068	2.69162E-05	0.000597475
Road 10	10	1400-1500	1.120526535	3.47101E-06	7.70482E-05	1.097013607	3.39817E-06	7.54314E-05	6.799678907	2.10631E-05	0.00046755	6.686649567	2.0713E-05	0.000459778	7.783663173	2.41111E-05	0.00053521
Road 10	10	1500-1600	1.190351383	3.76879E-06	8.36582E-05	1.162599525	3.68092E-06	8.17078E-05	7.049266598	2.23188E-05	0.000495424	6.920527281	2.19112E-05	0.000486376	8.083126806	2.55921E-05	0.000568084
Road 10	10	1600-1700	1.082965986	3.81801E-06	8.47507E-05	1.061870019	3.74363E-06	8.30998E-05	6.516881307	2.29753E-05	0.000509998	6.415863982	2.26192E-05	0.000502093	7.477734001	2.63628E-05	0.000585192
Road 10	10	1700-1800	0.982748211	3.27968E-06	7.28012E-05	0.959839122	3.20323E-06	7.11041E-05	5.912389465	1.97312E-05	0.000437985	5.801911107	1.93625E-05	0.000429801	6.761750229	2.25657E-05	0.000500905
Road 10	10	1800-1900	1.061504961	2.19817E-06	4.87943E-05	1.038831847	2.15122E-06	4.77521E-05	6.428631591	1.33125E-05	0.000295505	6.319717312	1.30869E-05	0.000290499	7.358549158	1.52382E-05	0.000338251
Road 10	10	1900-2000	1.032826016	1.92668E-06	4.27676E-05	1.013870626	1.89132E-06	4.19827E-05	6.459298126	1.20494E-05	0.000267469	6.364469369	1.18725E-05	0.000263542	7.378339995	1.37639E-05	0.000305525
Road 10	10	2000-2100	1.324696446	1.63231E-06	3.62335E-05	1.301507225	1.60374E-06	3.55992E-05	8.043921349	9.91186E-06	0.00022002	7.934991938	9.77764E-06	0.00021704	9.236499163	1.13814E-05	0.00025264
Road 10	10	2100-2200	0.881704577	1.11663E-06	2.47866E-05	0.865406769	1.09599E-06	2.43284E-05	5.518429493	6.98879E-06	0.000155135	5.433928512	6.88178E-06	0.000152759	6.299335282	7.97777E-06	0.000177088
Road 10	10	2200-2300	1.058322577	1.39464E-06	3.09578E-05	1.032464506	1.36057E-06	3.02014E-05	6.380249312	8.40782E-06	0.000186634	6.255320604	8.24319E-06	0.000182979	7.28778511	9.60376E-06	0.000213181
Road 10	10	2300-0000	0.969314556	1.19441E-06	2.6513E-05	0.94249183	1.16135E-06	2.57793E-05	5.95019577	7.33193E-06	0.000162752	5.818265884	7.16937E-06	0.000159143	6.760757715	8.33072E-06	0.000184922
Road 11	11	0000-0100	1.346623566	1.02867E-06	8.53291E-06	1.311380817	1.00175E-06	8.30959E-06	8.39760715	6.41484E-06	5.32116E-05	8.224750931	6.2828E-06	5.21163E-05	9.536131747	7.28455E-06	6.04259E-05
Road 11	11	0100-0200	1.311888204	7.06051E-07	5.85675E-06	1.283195923	6.90609E-07	5.72866E-06	8.095663654	4.35704E-06	3.6142E-05	7.956273043	4.28202E-06	3.55197E-05	9.239468967	4.97263E-06	4.12484E-05
Road 11	11	0200-0300	1.218086348	3.1721E-07	2.63128E-06	1.191818284	3.10369E-07	2.57454E-06	7.832946839	2.03983E-06	1.69206E-05	7.698296209	2.00476E-06	1.66297E-05	8.890114493	2.31513E-06	1.92042E-05
Road 11	11	0300-0400	1.304898056	3.17163E-07	2.63089E-06	1.276049522	3.10151E-07	2.57273E-06	8.361379627	2.03228E-06	1.68579E-05	8.216108272	1.99697E-06	1.6565E-05	9.492157795	2.30712E-06	1.91378E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.202678911	4.17597E-07	3.464E-06	1.179270163	4.09469E-07	3.39658E-06	7.228073577	2.50975E-06	2.08186E-05	7.117522779	2.47136E-06	2.05001E-05	8.296792942	2.88083E-06	2.38967E-05
Road 11	11	0500-0600	0.960390459	4.50183E-07	3.7343E-06	0.939218856	4.40259E-07	3.65198E-06	5.862439507	2.74802E-06	2.2795E-05	5.756479099	2.69835E-06	2.2383E-05	6.695697956	3.13861E-06	2.6035E-05
Road 11	11	0600-0700	1.012770129	9.14306E-07	7.58425E-06	0.987206026	8.91228E-07	7.39281E-06	6.180507256	5.57962E-06	4.62834E-05	6.049854716	5.46167E-06	4.5305E-05	7.037060742	6.3529E-06	5.26978E-05
Road 11	11	0700-0800	1.151500181	2.17905E-06	1.80754E-05	1.118789824	2.11715E-06	1.7562E-05	7.138631007	1.35089E-05	0.000112057	6.975429798	1.32E-05	0.000109495	8.094219622	1.53172E-05	0.000127057
Road 11	11	0800-0900	1.159454892	4.12653E-06	3.42299E-05	1.128248107	4.01547E-06	3.33086E-05	7.076886291	2.51868E-05	0.000208927	6.925178633	2.46469E-05	0.000204448	8.05342674	2.86624E-05	0.000237757
Road 11	11	0900-1000	1.14244876	2.91562E-06	2.41853E-05	1.11305742	2.84062E-06	2.35631E-05	6.762308884	1.7258E-05	0.000143156	6.624275213	1.69057E-05	0.000140234	7.737332632	1.97463E-05	0.000163797
Road 11	11	1000-1100	1.234357481	2.59301E-06	2.15092E-05	1.203799424	2.52881E-06	2.09767E-05	7.161138811	1.50434E-05	0.000124786	7.020716596	1.47484E-05	0.000122339	8.22451602	1.72772E-05	0.000143316
Road 11	11	1100-1200	1.161242075	2.74182E-06	2.27436E-05	1.131508651	2.67162E-06	2.21613E-05	7.029534997	1.65975E-05	0.000137678	6.885833452	1.62582E-05	0.000134863	8.017342103	1.89298E-05	0.000157025
Road 11	11	1200-1300	1.27742266	3.63711E-06	3.01701E-05	1.24932138	3.5571E-06	2.95064E-05	7.643997841	2.17642E-05	0.000180535	7.511828267	2.13878E-05	0.000177414	8.761149647	2.49449E-05	0.00020692
Road 11	11	1300-1400	1.291448791	2.71294E-06	2.25041E-05	1.264121105	2.65553E-06	2.20279E-05	7.367122306	1.54761E-05	0.000128375	7.24375607	1.52169E-05	0.000126226	8.507877175	1.78725E-05	0.000148253
Road 11	11	1400-1500	1.030567598	2.07545E-06	1.7216E-05	1.009156823	2.03233E-06	1.68583E-05	6.397017636	1.28829E-05	0.000106865	6.291367387	1.26701E-05	0.0001051	7.30052421	1.47024E-05	0.000121958
Road 11	11	1500-1600	1.124903464	2.28496E-06	1.89539E-05	1.102159433	2.23876E-06	1.85707E-05	7.047587767	1.43154E-05	0.000118748	6.935246604	1.40872E-05	0.000116855	8.037406038	1.6326E-05	0.000135425
Road 11	11	1600-1700	0.999725255	2.42989E-06	2.01561E-05	0.982847173	2.38886E-06	1.98158E-05	6.314750698	1.53484E-05	0.000127316	6.227859836	1.51372E-05	0.000125564	7.210707009	1.7526E-05	0.00014538
Road 11	11	1700-1800	1.018691717	2.52904E-06	2.09786E-05	0.998102135	2.47793E-06	2.05546E-05	6.428764467	1.59603E-05	0.000132392	6.324225183	1.57008E-05	0.000130239	7.322327318	1.81787E-05	0.000150794
Road 11	11	1800-1900	1.144408053	2.34445E-06	1.94474E-05	1.122932398	2.30045E-06	1.90824E-05	7.204791195	1.47598E-05	0.000122434	7.097185305	1.45394E-05	0.000120605	8.220117703	1.68398E-05	0.000139688
Road 11	11	1900-2000	1.059682085	1.67415E-06	1.38872E-05	1.039809135	1.64275E-06	1.36268E-05	6.669746895	1.05373E-05	8.74075E-05	6.569182362	1.03784E-05	8.60896E-05	7.608991497	1.20211E-05	9.97164E-05
Road 11	11	2000-2100	1.16561986	1.63915E-06	1.35969E-05	1.144897874	1.61001E-06	1.33552E-05	7.097720839	9.98117E-06	8.27946E-05	6.998217933	9.84124E-06	8.16339E-05	8.143115807	1.14513E-05	9.49891E-05
Road 11	11	2100-2200	0.862752608	8.68744E-07	7.2063E-06	0.846776161	8.52657E-07	7.07286E-06	5.593617715	5.63246E-06	4.67217E-05	5.507830905	5.54608E-06	4.60052E-05	6.354607066	6.39874E-06	5.3078E-05
Road 11	11	2200-2300	1.081816331	1.18324E-06	9.81504E-06	1.055181694	1.1541E-06	9.57339E-06	6.669953789	7.29526E-06	6.05148E-05	6.538681516	7.15168E-06	5.93238E-05	7.59386321	8.30579E-06	6.88972E-05
Road 11	11	2300-0000	1.029835416	1.07275E-06	8.89851E-06	1.003037802	1.04483E-06	8.66696E-06	6.43782618	6.70607E-06	5.56274E-05	6.303464169	6.56611E-06	5.44664E-05	7.306501971	7.61094E-06	6.31334E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.641511612	4.96525E-06	7.46798E-06	2.493811612	4.68762E-06	7.05041E-06	14.69603354	2.76241E-05	4.1548E-05	14.04865354	2.64072E-05	3.97178E-05	16.54246515	3.10949E-05	4.67682E-05
Haul Road 1	HR1	0800-0900	2.639411612	4.9613E-06	7.46204E-06	2.503701612	4.70621E-06	7.07837E-06	14.68644354	2.76061E-05	4.15209E-05	14.09202354	2.64888E-05	3.98404E-05	16.59572515	3.1195E-05	4.69188E-05
Haul Road 1	HR1	0900-1000	2.637611612	4.95792E-06	7.45695E-06	2.505901612	4.71034E-06	7.08459E-06	14.67904354	2.75922E-05	4.15E-05	14.10152354	2.65066E-05	3.98673E-05	16.60742515	3.1217E-05	4.69519E-05
Haul Road 1	HR1	1000-1100	2.631921612	4.94722E-06	7.44087E-06	2.504201612	4.70715E-06	7.07978E-06	14.65375354	2.75446E-05	4.14285E-05	14.09402354	2.64925E-05	3.98461E-05	16.59822515	3.11997E-05	4.69258E-05
Haul Road 1	HR1	1100-1200	2.631921612	4.94722E-06	7.44087E-06	2.497701612	4.69493E-06	7.0614E-06	14.65375354	2.75446E-05	4.14285E-05	14.06565354	2.64392E-05	3.97659E-05	16.56335515	3.11341E-05	4.68273E-05
Haul Road 1	HR1	1200-1300	2.620521612	4.92579E-06	7.40864E-06	2.509401612	4.71692E-06	7.09448E-06	14.60369354	2.74506E-05	4.1287E-05	14.11730354	2.65363E-05	3.99119E-05	16.62670515	3.12532E-05	4.70064E-05
Haul Road 1	HR1	1300-1400	2.615331612	4.91604E-06	7.39396E-06	2.509401612	4.71692E-06	7.09448E-06	14.58090354	2.74077E-05	4.12226E-05	14.11730354	2.65363E-05	3.99119E-05	16.62670515	3.12532E-05	4.70064E-05
Haul Road 1	HR1	1400-1500	2.615331612	4.91604E-06	7.39396E-06	2.509401612	4.71692E-06	7.09448E-06	14.58090354	2.74077E-05	4.12226E-05	14.11730354	2.65363E-05	3.99119E-05	16.62670515	3.12532E-05	4.70064E-05
Haul Road 1	HR1	1500-1600	2.616331612	4.91792E-06	7.39679E-06	2.497701612	4.69493E-06	7.0614E-06	14.58570354	2.74167E-05	4.12361E-05	14.06565354	2.64392E-05	3.97659E-05	16.56335515	3.11341E-05	4.68273E-05
Haul Road 1	HR1	1600-1700	2.601641612	4.8903E-06	7.35526E-06	2.504201612	4.70715E-06	7.07978E-06	14.52134354	2.72958E-05	4.10542E-05	14.09402354	2.64925E-05	3.98461E-05	16.59822515	3.11997E-05	4.69258E-05
Haul Road 1	HR1	1700-1800	2.599641612	4.88654E-06	7.3496E-06	2.482021612	4.66545E-06	7.01707E-06	14.51255354	2.72792E-05	4.10293E-05	13.99698354	2.63101E-05	3.95717E-05	16.47900515	3.09756E-05	4.65888E-05
Haul Road 1	HR1	1800-1900	2.590141612	4.86869E-06	7.32275E-06	2.479821612	4.66132E-06	7.01085E-06	14.47058354	2.72003E-05	4.09107E-05	13.98739354	2.62921E-05	3.95446E-05	16.46721515	3.09534E-05	4.65555E-05
Haul Road 1	HR1	1900-2000	2.572861612	4.83621E-06	7.27389E-06	2.464231612	4.63201E-06	6.96678E-06	14.39482354	2.70579E-05	4.06965E-05	13.91883354	2.61632E-05	3.93508E-05	16.38306515	3.07952E-05	4.63176E-05
Haul Road 1	HR1	2000-2100	2.572861612	4.83621E-06	7.27389E-06	2.469421612	4.64177E-06	6.98145E-06	14.39482354	2.70579E-05	4.06965E-05	13.94173354	2.62063E-05	3.94155E-05	16.41115515	3.0848E-05	4.6397E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.641511612	3.42165E-06	6.81263E-06	2.493811612	3.23033E-06	6.4317E-06	14.69603354	1.90363E-05	3.7902E-05	14.04865354	1.81977E-05	3.62324E-05	16.54246515	2.14281E-05	4.26641E-05
Haul Road 2	HR2	0800-0900	2.639411612	3.41893E-06	6.80722E-06	2.503701612	3.24314E-06	6.45721E-06	14.68644354	1.90239E-05	3.78773E-05	14.09202354	1.82539E-05	3.63443E-05	16.59572515	2.14971E-05	4.28015E-05
Haul Road 2	HR2	0900-1000	2.637611612	3.4166E-06	6.80257E-06	2.505901612	3.24599E-06	6.46288E-06	14.67904354	1.90143E-05	3.78582E-05	14.10152354	1.82662E-05	3.63688E-05	16.60742515	2.15122E-05	4.28316E-05
Haul Road 2	HR2	1000-1100	2.631921612	3.40922E-06	6.7879E-06	2.504201612	3.24378E-06	6.4585E-06	14.65375354	1.89815E-05	3.7793E-05	14.09402354	1.82565E-05	3.63494E-05	16.59822515	2.15003E-05	4.28079E-05
Haul Road 2	HR2	1100-1200	2.631921612	3.40922E-06	6.7879E-06	2.497701612	3.23536E-06	6.44174E-06	14.65375354	1.89815E-05	3.7793E-05	14.06565354	1.82198E-05	3.62762E-05	16.56335515	2.14551E-05	4.2718E-05
Haul Road 2	HR2	1200-1300	2.620521612	3.39446E-06	6.7585E-06	2.509401612	3.25052E-06	6.47191E-06	14.60369354	1.89167E-05	3.76639E-05	14.11730354	1.82867E-05	3.64094E-05	16.62670515	2.15372E-05	4.28814E-05
Haul Road 2	HR2	1300-1400	2.615331612	3.38774E-06	6.74511E-06	2.509401612	3.25052E-06	6.47191E-06	14.58090354	1.88872E-05	3.76051E-05	14.11730354	1.82867E-05	3.64094E-05	16.62670515	2.15372E-05	4.28814E-05
Haul Road 2	HR2	1400-1500	2.615331612	3.38774E-06	6.74511E-06	2.509401612	3.25052E-06	6.47191E-06	14.58090354	1.88872E-05	3.76051E-05	14.11730354	1.82867E-05	3.64094E-05	16.62670515	2.15372E-05	4.28814E-05
Haul Road 2	HR2	1500-1600	2.616331612	3.38903E-06	6.74769E-06	2.497701612	3.23536E-06	6.44174E-06	14.58570354	1.88934E-05	3.76175E-05	14.06565354	1.82198E-05	3.62762E-05	16.56335515	2.14551E-05	4.2718E-05
Haul Road 2	HR2	1600-1700	2.601641612	3.37E-06	6.7098E-06	2.504201612	3.24378E-06	6.4585E-06	14.52134354	1.881E-05	3.74515E-05	14.09402354	1.82565E-05	3.63494E-05	16.59822515	2.15003E-05	4.28079E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.599641612	3.36741E-06	6.70465E-06	2.482021612	3.21505E-06	6.4013E-06	14.51255354	1.87986E-05	3.74288E-05	13.99698354	1.81308E-05	3.60991E-05	16.47900515	2.13459E-05	4.25004E-05
Haul Road 2	HR2	1800-1900	2.590141612	3.35511E-06	6.68014E-06	2.479821612	3.2122E-06	6.39562E-06	14.47058354	1.87443E-05	3.73206E-05	13.98739354	1.81184E-05	3.60744E-05	16.46721515	2.13306E-05	4.247E-05
Haul Road 2	HR2	1900-2000	2.572861612	3.33272E-06	6.63558E-06	2.464231612	3.19201E-06	6.35541E-06	14.39482354	1.86461E-05	3.71252E-05	13.91883354	1.80296E-05	3.58976E-05	16.38306515	2.12216E-05	4.2253E-05
Haul Road 2	HR2	2000-2100	2.572861612	3.33272E-06	6.63558E-06	2.469421612	3.19873E-06	6.3688E-06	14.39482354	1.86461E-05	3.71252E-05	13.94173354	1.80592E-05	3.59566E-05	16.41115515	2.1258E-05	4.23254E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.641511612	3.42165E-06	6.30162E-06	2.493811612	3.23033E-06	5.94927E-06	14.69603354	1.90363E-05	3.5059E-05	14.04865354	1.81977E-05	3.35146E-05	16.54246515	2.14281E-05	3.94639E-05
Haul Road 3	HR3	0800-0900	2.639411612	3.41893E-06	6.29661E-06	2.503701612	3.24314E-06	5.97286E-06	14.68644354	1.90239E-05	3.50361E-05	14.09202354	1.82539E-05	3.36181E-05	16.59572515	2.14971E-05	3.95909E-05
Haul Road 3	HR3	0900-1000	2.637611612	3.4166E-06	6.29232E-06	2.505901612	3.24599E-06	5.97811E-06	14.67904354	1.90143E-05	3.50185E-05	14.10152354	1.82662E-05	3.36408E-05	16.60742515	2.15122E-05	3.96189E-05
Haul Road 3	HR3	1000-1100	2.631921612	3.40922E-06	6.27874E-06	2.504201612	3.24378E-06	5.97405E-06	14.65375354	1.89815E-05	3.49582E-05	14.09402354	1.82565E-05	3.36229E-05	16.59822515	2.15003E-05	3.95969E-05
Haul Road 3	HR3	1100-1200	2.631921612	3.40922E-06	6.27874E-06	2.497701612	3.23536E-06	5.95855E-06	14.65375354	1.89815E-05	3.49582E-05	14.06565354	1.82198E-05	3.35552E-05	16.56335515	2.14551E-05	3.95137E-05
Haul Road 3	HR3	1200-1300	2.620521612	3.39446E-06	6.25155E-06	2.509401612	3.25052E-06	5.98646E-06	14.60369354	1.89167E-05	3.48387E-05	14.11730354	1.82867E-05	3.36784E-05	16.62670515	2.15372E-05	3.96649E-05
Haul Road 3	HR3	1300-1400	2.615331612	3.38774E-06	6.23916E-06	2.509401612	3.25052E-06	5.98646E-06	14.58090354	1.88872E-05	3.47844E-05	14.11730354	1.82867E-05	3.36784E-05	16.62670515	2.15372E-05	3.96649E-05
Haul Road 3	HR3	1400-1500	2.615331612	3.38774E-06	6.23916E-06	2.509401612	3.25052E-06	5.98646E-06	14.58090354	1.88872E-05	3.47844E-05	14.11730354	1.82867E-05	3.36784E-05	16.62670515	2.15372E-05	3.96649E-05
Haul Road 3	HR3	1500-1600	2.616331612	3.38903E-06	6.24155E-06	2.497701612	3.23536E-06	5.95855E-06	14.58570354	1.88934E-05	3.47958E-05	14.06565354	1.82198E-05	3.35552E-05	16.56335515	2.14551E-05	3.95137E-05
Haul Road 3	HR3	1600-1700	2.601641612	3.37E-06	6.20651E-06	2.504201612	3.24378E-06	5.97405E-06	14.52134354	1.881E-05	3.46423E-05	14.09402354	1.82565E-05	3.36229E-05	16.59822515	2.15003E-05	3.95969E-05
Haul Road 3	HR3	1700-1800	2.599641612	3.36741E-06	6.20173E-06	2.482021612	3.21505E-06	5.92114E-06	14.51255354	1.87986E-05	3.46213E-05	13.99698354	1.81308E-05	3.33914E-05	16.47900515	2.13459E-05	3.93125E-05
Haul Road 3	HR3	1800-1900	2.590141612	3.35511E-06	6.17907E-06	2.479821612	3.2122E-06	5.91589E-06	14.47058354	1.87443E-05	3.45212E-05	13.98739354	1.81184E-05	3.33685E-05	16.46721515	2.13306E-05	3.92844E-05
Haul Road 3	HR3	1900-2000	2.572861612	3.33272E-06	6.13785E-06	2.464231612	3.19201E-06	5.8787E-06	14.39482354	1.86461E-05	3.43405E-05	13.91883354	1.80296E-05	3.32049E-05	16.38306515	2.12216E-05	3.90836E-05
Haul Road 3	HR3	2000-2100	2.572861612	3.33272E-06	6.13785E-06	2.469421612	3.19873E-06	5.89108E-06	14.39482354	1.86461E-05	3.43405E-05	13.94173354	1.80592E-05	3.32596E-05	16.41115515	2.1258E-05	3.91506E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.096615698	3.24591E-07	2.6406E-06	0.088273687	2.96565E-07	2.4126E-06	0.573864693	1.92796E-06	1.56843E-05	0.521479665	1.75197E-06	1.42525E-05	0.609753352	2.04853E-06	1.66651E-05
Road 1	1	0100-0200	0.074391193	1.52189E-07	1.23808E-06	0.069198991	1.41567E-07	1.15167E-06	0.450089541	9.20791E-07	7.49077E-06	0.416813945	8.52716E-07	6.93697E-06	0.486012936	9.94283E-07	8.08864E-06
Road 1	1	0200-0300	0.072150519	1.04272E-07	8.48265E-07	0.066719481	9.64227E-08	7.84413E-07	0.464167922	6.70813E-07	5.45717E-06	0.424853247	6.13996E-07	4.99495E-06	0.491572727	7.10419E-07	5.77936E-06
Road 1	1	0300-0400	0.060883455	6.28489E-08	5.11285E-07	0.056101818	5.79129E-08	4.7113E-07	0.376002909	3.88141E-07	3.15759E-06	0.342978	3.5405E-07	2.88025E-06	0.399079818	4.11963E-07	3.35138E-06
Road 1	1	0400-0500	0.078748605	1.27109E-07	1.03405E-06	0.07297407	1.17788E-07	9.58227E-07	0.453565814	7.32107E-07	5.9558E-06	0.41752407	6.73931E-07	5.48253E-06	0.49049814	7.9172E-07	6.44076E-06
Road 1	1	0500-0600	0.065346543	2.30577E-07	1.87578E-06	0.060805266	2.14553E-07	1.74542E-06	0.389191489	1.37327E-06	1.11718E-05	0.358998617	1.26674E-06	1.03051E-05	0.419803883	1.48129E-06	1.20505E-05
Road 1	1	0600-0700	0.087813798	5.55429E-07	4.5185E-06	0.081669407	5.16565E-07	4.20233E-06	0.470320119	2.97481E-06	2.42005E-05	0.434619228	2.749E-06	2.23635E-05	0.516288635	3.26556E-06	2.65658E-05
Road 1	1	0700-0800	0.074042082	7.80999E-07	6.35355E-06	0.068509911	7.22646E-07	5.87883E-06	0.411125374	4.33657E-06	3.52786E-05	0.377050534	3.97715E-06	3.23547E-05	0.445560445	4.69979E-06	3.82335E-05
Road 1	1	0800-0900	0.079539222	1.03604E-06	8.42834E-06	0.073826614	9.6163E-07	7.82301E-06	0.428540245	5.58196E-06	4.54101E-05	0.395629712	5.15328E-06	4.19227E-05	0.469456326	6.11492E-06	4.97457E-05
Road 1	1	0900-1000	0.084356919	1.13046E-06	9.19645E-06	0.078751751	1.05534E-06	8.58538E-06	0.468819314	6.2826E-06	5.11099E-05	0.43616084	5.84495E-06	4.75495E-05	0.514912591	6.90029E-06	5.61349E-05
Road 1	1	1000-1100	0.097723755	1.27474E-06	1.03702E-05	0.090970072	1.18664E-06	9.6535E-06	0.524216835	6.83804E-06	5.56285E-05	0.486553209	6.34674E-06	5.16317E-05	0.577523281	7.53338E-06	6.12852E-05
Road 1	1	1100-1200	0.087585401	1.10797E-06	9.01349E-06	0.082246499	1.04043E-06	8.46406E-06	0.502677611	6.35895E-06	5.1731E-05	0.471232003	5.96116E-06	4.84949E-05	0.553478501	7.00159E-06	5.69589E-05
Road 1	1	1200-1300	0.090284723	1.13025E-06	9.19478E-06	0.084563208	1.05863E-06	8.61209E-06	0.511413493	6.40227E-06	5.20834E-05	0.478368486	5.98858E-06	4.8718E-05	0.562931694	7.04721E-06	5.73301E-05
Road 1	1	1300-1400	0.094141594	1.25275E-06	1.01913E-05	0.088554076	1.17839E-06	9.58641E-06	0.522188759	6.9488E-06	5.65295E-05	0.490716573	6.52999E-06	5.31225E-05	0.579270649	7.70839E-06	6.27089E-05
Road 1	1	1400-1500	0.088686424	1.28003E-06	1.04132E-05	0.083835956	1.21002E-06	9.84369E-06	0.481732653	6.95294E-06	5.65632E-05	0.454684278	6.56254E-06	5.33872E-05	0.538520234	7.77256E-06	6.32309E-05
Road 1	1	1500-1600	0.096425363	1.29581E-06	1.05416E-05	0.089953799	1.20884E-06	9.83408E-06	0.522102542	7.01624E-06	5.70782E-05	0.486191313	6.53365E-06	5.31522E-05	0.576145112	7.74249E-06	6.29863E-05
Road 1	1	1600-1700	0.091957417	1.30308E-06	1.06007E-05	0.085638172	1.21353E-06	9.87224E-06	0.50411457	7.14352E-06	5.81136E-05	0.468464821	6.63834E-06	5.40039E-05	0.554102993	7.85187E-06	6.38761E-05
Road 1	1	1700-1800	0.073800277	1.04994E-06	8.54139E-06	0.067428417	9.59286E-07	7.80393E-06	0.414569182	5.89796E-06	4.79808E-05	0.376756082	5.36001E-06	4.36044E-05	0.444184499	6.31929E-06	5.14084E-05
Road 1	1	1800-1900	0.065762687	9.55336E-07	7.7718E-06	0.059560556	8.65238E-07	7.03884E-06	0.395790181	5.74965E-06	4.67743E-05	0.355809341	5.16885E-06	4.20494E-05	0.415369897	6.03409E-06	4.90882E-05
Road 1	1	1900-2000	0.07977425	8.87878E-07	7.22302E-06	0.072285447	8.04528E-07	6.54496E-06	0.459910776	5.11875E-06	4.16418E-05	0.413703693	4.60447E-06	3.74581E-05	0.48598914	5.409E-06	4.4003E-05
Road 1	1	2000-2100	0.072235209	6.8195E-07	5.54777E-06	0.065220755	6.15729E-07	5.00905E-06	0.429350179	4.05336E-06	3.29747E-05	0.384646461	3.63133E-06	2.95414E-05	0.449867217	4.24706E-06	3.45504E-05
Road 1	1	2100-2200	0.075728061	6.52387E-07	5.30726E-06	0.069258824	5.96655E-07	4.85388E-06	0.453858802	3.90993E-06	3.18079E-05	0.412479216	3.55345E-06	2.89079E-05	0.481738039	4.15011E-06	3.37617E-05
Road 1	1	2200-2300	0.07370554	6.01763E-07	4.89543E-06	0.06736577	5.50002E-07	4.47435E-06	0.441553218	3.60502E-06	2.93274E-05	0.400788092	3.2722E-06	2.66198E-05	0.468153862	3.8222E-06	3.10942E-05
Road 1	1	2300-0000	0.064509	4.72194E-07	3.84137E-06	0.058964128	4.31607E-07	3.51119E-06	0.397942205	2.91287E-06	2.36966E-05	0.360549795	2.63916E-06	2.147E-05	0.419513923	3.07077E-06	2.49811E-05
Road 2	2	0000-0100	0.160020192	1.92617E-07	1.2439E-06	0.146192692	1.75973E-07	1.13641E-06	0.678975769	8.17286E-07	5.27795E-06	0.617735769	7.43571E-07	4.80191E-06	0.763928462	9.19544E-07	5.93832E-06
Road 2	2	0100-0200	0.112254118	8.83481E-08	5.70544E-07	0.104396765	8.21641E-08	5.30608E-07	0.555701176	4.37357E-07	2.82441E-06	0.514847353	4.05204E-07	2.61677E-06	0.619244118	4.87368E-07	3.14738E-06
Road 2	2	0200-0300	0.117185652	6.23905E-08	4.02912E-07	0.10846087	5.77454E-08	3.72914E-07	0.64248087	3.42062E-07	2.209E-06	0.590823913	3.14559E-07	2.03139E-06	0.699284783	3.72304E-07	2.40431E-06
Road 2	2	0300-0400	0.101571333	3.52678E-08	2.27756E-07	0.093606	3.25021E-08	2.09895E-07	0.371504	1.28994E-07	8.33034E-07	0.339415333	1.17853E-07	7.6108E-07	0.433021333	1.50355E-07	9.70976E-07
Road 2	2	0400-0500	0.137117407	8.56984E-08	5.53432E-07	0.127080741	7.94255E-08	5.12922E-07	0.662173333	4.13858E-07	2.67266E-06	0.611373333	3.82108E-07	2.46762E-06	0.738454074	4.61534E-07	2.98054E-06
Road 2	2	0500-0600	0.109334035	1.4426E-07	9.31618E-07	0.101771579	1.34282E-07	8.6718E-07	0.486469474	6.41869E-07	4.14513E-06	0.449771754	5.93449E-07	3.83243E-06	0.551543333	7.27731E-07	4.69961E-06
Road 2	2	0600-0700	0.153811346	3.70287E-07	2.39127E-06	0.143136442	3.44588E-07	2.22531E-06	0.624440192	1.50328E-06	9.70805E-06	0.578232308	1.39204E-06	8.98966E-06	0.72136875	1.73663E-06	1.1215E-05
Road 2	2	0700-0800	0.126605375	4.68909E-07	3.02817E-06	0.11721825	4.34142E-07	2.80364E-06	0.529459438	1.96096E-06	1.26637E-05	0.486368375	1.80136E-06	1.1633E-05	0.603586625	2.23551E-06	1.44367E-05
Road 2	2	0800-0900	0.14276898	1.00467E-06	6.48806E-06	0.132507632	9.32461E-07	6.02174E-06	0.602059507	4.23672E-06	2.73603E-05	0.556019276	3.91273E-06	2.5268E-05	0.688526908	4.84519E-06	3.12898E-05
Road 2	2	0900-1000	0.166457937	9.71005E-07	6.27065E-06	0.155401627	9.06509E-07	5.85415E-06	0.70965246	4.13964E-06	2.67334E-05	0.660800952	3.85467E-06	2.48931E-05	0.816202579	4.76118E-06	3.07472E-05
Road 2	2	1000-1100	0.185253797	8.01909E-07	5.17865E-06	0.172482834	7.46627E-07	4.82164E-06	0.781894011	3.38459E-06	2.18573E-05	0.726335294	3.14409E-06	2.03042E-05	0.898818128	3.89072E-06	2.51259E-05
Road 2	2	1100-1200	0.217538743	9.21518E-07	5.95108E-06	0.204280492	8.65355E-07	5.58838E-06	0.888284044	3.76287E-06	2.43002E-05	0.833590492	3.53118E-06	2.2804E-05	1.037870984	4.39654E-06	2.83924E-05
Road 2	2	1200-1300	0.167506737	7.36719E-07	4.75766E-06	0.156926053	6.90184E-07	4.45714E-06	0.733273158	3.22504E-06	2.0827E-05	0.686077211	3.01747E-06	1.94865E-05	0.843003263	3.70765E-06	2.39437E-05
Road 2	2	1300-1400	0.184678117	9.53315E-07	6.15642E-06	0.173661614	8.96448E-07	5.78917E-06	0.754829865	3.89646E-06	2.5163E-05	0.709146682	3.66064E-06	2.36401E-05	0.882808296	4.55709E-06	2.94292E-05
Road 2	2	1400-1500	0.157567515	6.0182E-07	3.8865E-06	0.148915576	5.68775E-07	3.67309E-06	0.681030667	2.60116E-06	1.6798E-05	0.643075818	2.45619E-06	1.58619E-05	0.791991394	3.02497E-06	1.95349E-05
Road 2	2	1500-1600	0.199141639	8.43586E-07	5.4478E-06	0.185658907	7.86472E-07	5.07896E-06	0.784477486	3.32313E-06	2.14605E-05	0.730815137	3.09581E-06	1.99925E-05	0.916474044	3.88229E-06	2.50714E-05
Road 2	2	1600-1700	0.166661131	8.52595E-07	5.50598E-06	0.155197692	7.93951E-07	5.12726E-06	0.70083543	3.58529E-06	2.31535E-05	0.651694208	3.3339E-06	2.153E-05	0.8068919	4.12785E-06	2.66573E-05
Road 2	2	1700-1800	0.129320991	6.64566E-07	4.2917E-06	0.118182658	6.07328E-07	3.92206E-06	0.513907568	2.64091E-06	1.70548E-05	0.46805009	2.40526E-06	1.55329E-05	0.586232748	3.01258E-06	1.9455E-05
Road 2	2	1800-1900	0.14255556	8.24974E-07	5.3276E-06	0.12921724	7.47785E-07	4.82912E-06	0.64280236	3.71992E-06	2.40229E-05	0.58028536	3.35813E-06	2.16865E-05	0.7095026	4.10592E-06	2.65156E-05
Road 2	2	1900-2000	0.122417219	4.78901E-07	3.09269E-06	0.110944142	4.34018E-07	2.80284E-06	0.557580947	2.18128E-06	1.40865E-05	0.502096213	1.96422E-06	1.26847E-05	0.613040355	2.39824E-06	1.54876E-05
Road 2	2	2000-2100	0.116117687	3.95123E-07	2.55166E-06	0.104734626	3.56389E-07	2.30152E-06	0.497636395	1.69335E-06	1.09355E-05	0.445536939	1.51606E-06	9.79059E-06	0.550271565	1.87245E-06	1.20921E-05
Road 2	2	2100-2200	0.089977059	3.18669E-07	2.05793E-06	0.082246536	2.9129E-07	1.88112E-06	0.41593281	1.4731E-06	9.51311E-06	0.376561046	1.33365E-06	8.61261E-06	0.458807582	1.62494E-06	1.04937E-05
Road 2	2	2200-2300	0.13049192	3.77581E-07	2.43838E-06	0.11928848	3.45163E-07	2.22903E-06	0.5583352	1.61555E-06	1.04331E-05	0.50750872	1.46849E-06	9.48334E-06	0.6267972	1.81365E-06	1.17124E-05
Road 2	2	2300-0000	0.116491622	2.99319E-07	1.93297E-06	0.106496757	2.73638E-07	1.76712E-06	0.528786036	1.35869E-06	8.77426E-06	0.480127027	1.23366E-06	7.96685E-06	0.586623784	1.5073E-06	9.73398E-06
Road 3	3	0000-0100	0.10055913	3.70972E-07	1.44188E-05	0.091805609	3.3868E-07	1.31636E-05	0.556264609	2.05211E-06	7.97605E-05	0.505120696	1.86344E-06	7.24272E-05	0.596926304	2.20212E-06	8.55908E-05
Road 3	3	0100-0200	0.075084859	1.71015E-07	6.6469E-06	0.06998993	1.5941E-07	6.19587E-06	0.43893	9.99714E-07	3.88564E-05	0.407307394	9.2769E-07	3.6057E-05	0.477297324	1.0871E-06	4.22529E-05
Road 3	3	0200-0300	0.073985051	1.17482E-07	4.56623E-06	0.068573939	1.0889E-07	4.23227E-06	0.46503101	7.3843E-07	2.87009E-05	0.426908687	6.77895E-07	2.63481E-05	0.495482626	7.86785E-07	3.05803E-05
Road 3	3	0300-0400	0.061933857	6.95374E-08	2.70274E-06	0.057173714	6.41929E-08	2.49501E-06	0.344390714	3.86671E-07	1.50289E-05	0.314527714	3.53142E-07	1.37257E-05	0.371701429	4.17335E-07	1.62208E-05
Road 3	3	0400-0500	0.082236283	1.49051E-07	5.79323E-06	0.077000973	1.39562E-07	5.42442E-06	0.456985664	8.28272E-07	3.21929E-05	0.425516195	7.71235E-07	2.9976E-05	0.502517168	9.10797E-07	3.54004E-05
Road 3	3	0500-0600	0.067177886	2.65066E-07	1.03024E-05	0.062489878	2.46568E-07	9.58349E-06	0.376634959	1.4861E-06	5.7761E-05	0.347482195	1.37107E-06	5.32901E-05	0.409972073	1.61764E-06	6.28736E-05
Road 3	3	0600-0700	0.092897883	6.61578E-07	2.57139E-05	0.086503198	6.16038E-07	2.39438E-05	0.466218851	3.32021E-06	0.000129048	0.431558559	3.07337E-06	0.000119454	0.518061757	3.68941E-06	0.000143398
Road 3	3	0700-0800	0.077084017	8.98858E-07	3.49363E-05	0.071132407	8.29457E-07	3.22389E-05	0.40735542	4.75007E-06	0.000184623	0.372548074	4.34419E-06	0.000168848	0.443680481	5.17365E-06	0.000201087
Road 3	3	0800-0900	0.085065567	1.36032E-06	5.28722E-05	0.078899749	1.26172E-06	4.90399E-05	0.422526951	6.75681E-06	0.00026262	0.389667763	6.23135E-06	0.000242197	0.468567513	7.49307E-06	0.000291237
Road 3	3	0900-1000	0.092509295	1.43187E-06	5.56534E-05	0.085852518	1.32884E-06	5.16487E-05	0.47835401	7.40404E-06	0.000287777	0.441989617	6.84119E-06	0.0002659	0.527842135	8.17003E-06	0.000317549
Road 3	3	1000-1100	0.104574573	1.47437E-06	5.73052E-05	0.097234539	1.37089E-06	5.32829E-05	0.528508441	7.45132E-06	0.000289614	0.490083163	6.90957E-06	0.000268558	0.587317702	8.28045E-06	0.00032184
Road 3	3	1100-1200	0.102483735	1.4038E-06	5.45622E-05	0.095617459	1.30975E-06	5.09066E-05	0.532267131	7.29088E-06	0.000283378	0.495441276	6.78644E-06	0.000263772	0.591058735	8.09619E-06	0.000314679
Road 3	3	1200-1300	0.096182506	1.31749E-06	5.12074E-05	0.089792283	1.22995E-06	4.78053E-05	0.510726241	6.99581E-06	0.00027191	0.475886452	6.51859E-06	0.000253361	0.565678735	7.74854E-06	0.000301166

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.102081726	1.51782E-06	5.89938E-05	0.095570151	1.421E-06	5.52307E-05	0.52035534	7.73699E-06	0.000300717	0.486501694	7.23363E-06	0.000281153	0.582071845	8.65463E-06	0.000336384
Road 3	3	1400-1500	0.094069807	1.40925E-06	5.47742E-05	0.088072034	1.3194E-06	5.12818E-05	0.487255535	7.29955E-06	0.000283715	0.455529861	6.82427E-06	0.000265242	0.543601895	8.14367E-06	0.000316524
Road 3	3	1500-1600	0.104521754	1.50045E-06	5.83188E-05	0.097386793	1.39803E-06	5.43378E-05	0.527255251	7.56896E-06	0.000294186	0.490486927	7.04114E-06	0.000273671	0.587873721	8.43916E-06	0.000328009
Road 3	3	1600-1700	0.098749631	1.54589E-06	6.00847E-05	0.091624365	1.43434E-06	5.57493E-05	0.506114334	7.92302E-06	0.000307948	0.468613217	7.33595E-06	0.00028513	0.560237582	8.7703E-06	0.000340879
Road 3	3	1700-1800	0.078691011	1.23566E-06	4.80271E-05	0.072086701	1.13196E-06	4.39963E-05	0.406137773	6.37747E-06	0.000247876	0.370182165	5.81287E-06	0.000225932	0.442268866	6.94482E-06	0.000269928
Road 3	3	1800-1900	0.074274606	1.2235E-06	4.75543E-05	0.067428802	1.11073E-06	4.31712E-05	0.411038335	6.77088E-06	0.000263167	0.370828364	6.10851E-06	0.000237423	0.438257167	7.21924E-06	0.000280594
Road 3	3	1900-2000	0.079723026	9.71828E-07	3.77725E-05	0.072172408	8.79786E-07	3.41951E-05	0.441975737	5.38771E-06	0.000209407	0.397201447	4.84191E-06	0.000188193	0.469373855	5.7217E-06	0.000222388
Road 3	3	2000-2100	0.074524114	7.75771E-07	3.01523E-05	0.067264145	7.00197E-07	2.72149E-05	0.411299014	4.28149E-06	0.000166411	0.368388629	3.8348E-06	0.000149049	0.435652773	4.535E-06	0.000176264
Road 3	3	2100-2200	0.072689496	7.17033E-07	2.78693E-05	0.06641974	6.55186E-07	2.54654E-05	0.413130358	4.07525E-06	0.000158395	0.374868699	3.69783E-06	0.000143725	0.441288439	4.35301E-06	0.000169191
Road 3	3	2200-2300	0.078089716	7.05171E-07	2.74082E-05	0.071564298	6.46245E-07	2.51179E-05	0.430589734	3.88834E-06	0.00015113	0.391864458	3.53864E-06	0.000137538	0.463428757	4.18489E-06	0.000162656
Road 3	3	2300-0000	0.068333406	5.50211E-07	2.13853E-05	0.062629841	5.04286E-07	1.96003E-05	0.395963446	3.18824E-06	0.000123919	0.359782649	2.89692E-06	0.000112596	0.42241249	3.4012E-06	0.000132196
Road 4	4	0000-0100	0.269643714	2.18461E-07	2.33919E-06	0.246100571	1.99387E-07	2.13495E-06	1.331900571	1.07909E-06	1.15544E-05	1.214852857	9.84256E-07	1.0539E-05	1.460953429	1.18364E-06	1.26739E-05
Road 4	4	0100-0200	0.2529445	1.17104E-07	1.2539E-06	0.235819	1.09175E-07	1.169E-06	1.2516375	5.79462E-07	6.20463E-06	1.1667225	5.40149E-07	5.78369E-06	1.4025415	6.49325E-07	6.9527E-06
Road 4	4	0200-0300	0.274291538	8.25414E-08	8.83819E-07	0.254592308	7.66134E-08	8.20344E-07	1.312173077	3.94867E-07	4.22807E-06	1.217901538	3.66498E-07	3.92431E-06	1.472493846	4.43112E-07	4.74465E-06
Road 4	4	0300-0400	0.249362857	4.0406E-08	4.32651E-07	0.230527143	3.73539E-08	3.9997E-07	1.280221429	2.07443E-07	2.22122E-06	1.183444286	1.91762E-07	2.0533E-06	1.413971429	2.29116E-07	2.45327E-06
Road 4	4	0400-0500	0.255247857	8.27192E-08	8.85722E-07	0.239055	7.74715E-08	8.29532E-07	1.221715714	3.95926E-07	4.23941E-06	1.144199286	3.70805E-07	3.97043E-06	1.383254286	4.48277E-07	4.79996E-06
Road 4	4	0500-0600	0.237455833	1.3192E-07	1.41254E-06	0.221155833	1.22864E-07	1.31558E-06	1.09398125	6.07767E-07	6.50772E-06	1.01824125	5.6569E-07	6.05717E-06	1.239397083	6.88554E-07	7.37275E-06
Road 4	4	0600-0700	0.264061698	3.23965E-07	3.46888E-06	0.246101321	3.0193E-07	3.23294E-06	1.223275849	1.50078E-06	1.60697E-05	1.139208113	1.39764E-06	1.49653E-05	1.385309434	1.69957E-06	1.81983E-05
Road 4	4	0700-0800	0.267039674	5.68696E-07	6.08935E-06	0.246726304	5.25436E-07	5.62614E-06	1.28314587	2.73263E-06	2.92598E-05	1.18433087	2.52219E-06	2.70065E-05	1.431057174	3.04762E-06	3.26326E-05
Road 4	4	0800-0900	0.273229161	9.80336E-07	1.0497E-05	0.25346929	9.09438E-07	9.73788E-06	1.316733355	4.72439E-06	5.05868E-05	1.220864645	4.38042E-06	4.69037E-05	1.474333935	5.28986E-06	5.66415E-05
Road 4	4	0900-1000	0.279429257	9.57304E-07	1.02504E-05	0.259140608	8.87797E-07	9.50615E-06	1.278523378	4.38013E-06	4.69005E-05	1.184957635	4.05958E-06	4.34682E-05	1.444098243	4.94737E-06	5.29744E-05
Road 4	4	1000-1100	0.309926944	1.03309E-06	1.10619E-05	0.288159167	9.60531E-07	1.0285E-05	1.421622639	4.73874E-06	5.07405E-05	1.321589722	4.4053E-06	4.71701E-05	1.609748889	5.36583E-06	5.7455E-05
Road 4	4	1100-1200	0.286320645	1.02731E-06	1.1E-05	0.267069677	9.58236E-07	1.02604E-05	1.304965935	4.68217E-06	5.01347E-05	1.216959871	4.36641E-06	4.67536E-05	1.484029548	5.32464E-06	5.7014E-05
Road 4	4	1200-1300	0.292241892	1.0012E-06	1.07204E-05	0.272640608	9.34047E-07	1.00014E-05	1.390180405	4.76266E-06	5.09965E-05	1.296763446	4.44262E-06	4.75697E-05	1.569404054	5.37666E-06	5.7571E-05
Road 4	4	1300-1400	0.2992334	1.039E-06	1.11252E-05	0.280003267	9.72234E-07	1.04103E-05	1.390292533	4.8274E-06	5.16898E-05	1.300705667	4.51634E-06	4.83591E-05	1.580708933	5.48857E-06	5.87693E-05
Road 4	4	1400-1500	0.272322571	8.82527E-07	9.44973E-06	0.254816929	8.25796E-07	8.84227E-06	1.306017786	4.23247E-06	4.53195E-05	1.221737429	3.95933E-06	4.23949E-05	1.476554357	4.78513E-06	5.12372E-05
Road 4	4	1500-1600	0.3059712	8.85333E-07	9.47978E-06	0.2849216	8.24426E-07	8.8276E-06	1.42177328	4.11393E-06	4.40502E-05	1.32374888	3.83029E-06	4.10131E-05	1.60867048	4.65472E-06	4.98408E-05
Road 4	4	1600-1700	0.286687984	8.22901E-07	8.81127E-06	0.265938871	7.63343E-07	8.17356E-06	1.345568629	3.86228E-06	4.13557E-05	1.247797742	3.58164E-06	3.83507E-05	1.513736613	4.34498E-06	4.65243E-05
Road 4	4	1700-1800	0.276412677	8.12602E-07	8.701E-06	0.253199921	7.44361E-07	7.9703E-06	1.318778976	3.87697E-06	4.15129E-05	1.207578346	3.55006E-06	3.80125E-05	1.460778268	4.29442E-06	4.59828E-05
Road 4	4	1800-1900	0.304561698	7.47304E-07	8.00182E-06	0.276727358	6.79007E-07	7.27052E-06	1.466247642	3.59774E-06	3.85231E-05	1.332162642	3.26873E-06	3.50002E-05	1.60889	3.94774E-06	4.22707E-05
Road 4	4	1900-2000	0.276286892	4.73269E-07	5.06757E-06	0.250297027	4.2875E-07	4.59087E-06	1.333393243	2.28405E-06	2.44567E-05	1.207435405	2.06829E-06	2.21464E-05	1.457732432	2.49704E-06	2.67373E-05
Road 4	4	2000-2100	0.241612653	2.74051E-07	2.93443E-06	0.218129184	2.47415E-07	2.64922E-06	1.171461837	1.32874E-06	1.42276E-05	1.05619898	1.198E-06	1.28277E-05	1.274328163	1.44542E-06	1.54769E-05
Road 4	4	2100-2200	0.200466216	1.71696E-07	1.83844E-06	0.183443514	1.57116E-07	1.68233E-06	0.992780541	8.50298E-07	9.10463E-06	0.907054054	7.76875E-07	8.31845E-06	1.090497568	9.33991E-07	1.00008E-05
Road 4	4	2200-2300	0.269407619	3.92886E-07	4.20686E-06	0.246923175	3.60096E-07	3.85576E-06	1.280927778	1.86802E-06	2.0002E-05	1.173812857	1.71181E-06	1.83293E-05	1.420736032	2.07191E-06	2.21851E-05
Road 4	4	2300-0000	0.251122653	2.84838E-07	3.04993E-06	0.230234694	2.61146E-07	2.79624E-06	1.226969592	1.3917E-06	1.49018E-05	1.12417898	1.27511E-06	1.36533E-05	1.354413673	1.53626E-06	1.64496E-05
Road 5	5	0000-0100	0.085121295	3.08341E-07	4.16975E-06	0.077716218	2.81517E-07	3.80701E-06	0.478001554	1.7315E-06	2.34154E-05	0.433285337	1.56952E-06	2.12249E-05	0.511001554	1.85104E-06	2.50319E-05
Road 5	5	0100-0200	0.056974098	1.30459E-07	1.76422E-06	0.053105492	1.216E-07	1.64443E-06	0.351446721	8.04739E-07	1.08826E-05	0.325444836	7.452E-07	1.00775E-05	0.378550328	8.66801E-07	1.17219E-05
Road 5	5	0200-0300	0.054647791	8.82078E-08	1.19285E-06	0.050603953	8.16806E-08	1.10458E-06	0.380833721	6.14709E-07	8.31283E-06	0.348052907	5.61797E-07	7.59729E-06	0.39865686	6.43478E-07	8.70187E-06
Road 5	5	0300-0400	0.048711587	5.75982E-08	7.78911E-07	0.044939683	5.31381E-08	7.18597E-07	0.272010476	3.21634E-07	4.34952E-06	0.247204127	2.92302E-07	3.95286E-06	0.29214381	3.4544E-07	4.67145E-06
Road 5	5	0400-0500	0.067288586	1.25029E-07	1.6908E-06	0.062997576	1.17056E-07	1.58297E-06	0.387052929	7.19186E-07	9.72569E-06	0.359671313	6.68308E-07	9.03766E-06	0.422668889	7.85364E-07	1.06206E-05
Road 5	5	0500-0600	0.054987091	2.27049E-07	3.07042E-06	0.051121909	2.11089E-07	2.8546E-06	0.323059136	1.33395E-06	1.80393E-05	0.297257136	1.22741E-06	1.65985E-05	0.348379045	1.4385E-06	1.94531E-05
Road 5	5	0600-0700	0.080498067	5.8621E-07	7.92742E-06	0.07493683	5.45711E-07	7.37975E-06	0.407350593	2.96644E-06	4.01158E-05	0.376355979	2.74073E-06	3.70634E-05	0.451292809	3.28644E-06	4.44432E-05
Road 5	5	0700-0800	0.063026619	7.48796E-07	1.01261E-05	0.058140774	6.90749E-07	9.34113E-06	0.336600932	3.99903E-06	5.40797E-05	0.306781295	3.64476E-06	4.92887E-05	0.36492207	4.3355E-06	5.86298E-05
Road 5	5	0800-0900	0.067306868	1.06493E-06	1.44013E-05	0.062394259	9.87206E-07	1.33502E-05	0.33115796	5.23961E-06	7.08562E-05	0.30465866	4.82033E-06	6.51862E-05	0.367052918	5.80754E-06	7.85364E-05
Road 5	5	0900-1000	0.074651422	1.14331E-06	1.54612E-05	0.069272071	1.06092E-06	1.43471E-05	0.399352194	6.1162E-06	8.27106E-05	0.368596728	5.64518E-06	7.63408E-05	0.437868799	6.7061E-06	9.06878E-05
Road 5	5	1000-1100	0.084710763	1.167E-06	1.57815E-05	0.078786567	1.08539E-06	1.46779E-05	0.439792452	6.0587E-06	8.1933E-05	0.407372643	5.61208E-06	7.58932E-05	0.48615921	6.69746E-06	9.05711E-05
Road 5	5	1100-1200	0.083059041	1.08968E-06	1.4736E-05	0.077510844	1.01689E-06	1.37516E-05	0.450246152	5.90695E-06	7.98807E-05	0.418762976	5.49391E-06	7.42951E-05	0.49627382	6.5108E-06	8.80468E-05
Road 5	5	1200-1300	0.076868953	1.02001E-06	1.37938E-05	0.071760849	9.52232E-07	1.28772E-05	0.419452306	5.56593E-06	7.52691E-05	0.390644484	5.18366E-06	7.00997E-05	0.462405332	6.1359E-06	8.29769E-05
Road 5	5	1300-1400	0.083889447	1.22339E-06	1.65441E-05	0.078540386	1.14538E-06	1.54892E-05	0.436898211	6.37143E-06	8.61621E-05	0.408380837	5.95555E-06	8.05381E-05	0.486921223	7.10093E-06	9.60273E-05
Road 5	5	1400-1500	0.079062872	1.17823E-06	1.59334E-05	0.074021033	1.10309E-06	1.49173E-05	0.413971952	6.16918E-06	8.34269E-05	0.386952003	5.76651E-06	7.79817E-05	0.460973035	6.86961E-06	9.2899E-05
Road 5	5	1500-1600	0.088359571	1.27697E-06	1.72687E-05	0.082359714	1.19026E-06	1.60961E-05	0.451374662	6.52324E-06	8.82151E-05	0.419754506	6.06627E-06	8.20353E-05	0.502114221	7.25653E-06	9.81314E-05
Road 5	5	1600-1700	0.08406129	1.3458E-06	1.81995E-05	0.078031102	1.24926E-06	1.6894E-05	0.437855334	7.00996E-06	9.4797E-05	0.405226506	6.48758E-06	8.77327E-05	0.483257608	7.73684E-06	0.000104627
Road 5	5	1700-1800	0.062238731	9.94091E-07	1.34433E-05	0.056986475	9.10201E-07	1.23088E-05	0.32560832	5.20069E-06	7.03299E-05	0.296234407	4.73152E-06	6.39853E-05	0.353220881	5.64172E-06	7.62941E-05
Road 5	5	1800-1900	0.058076855	1.00174E-06	1.35467E-05	0.052719347	9.0933E-07	1.2297E-05	0.332763471	5.73967E-06	7.76186E-05	0.299434168	5.16479E-06	6.98444E-05	0.352153515	6.07412E-06	8.21415E-05
Road 5	5	1900-2000	0.067876224	8.73932E-07	1.18183E-05	0.061438382	7.91042E-07	1.06974E-05	0.385652915	4.96543E-06	6.71484E-05	0.345895379	4.45353E-06	6.0226E-05	0.407333761	5.24458E-06	7.09234E-05
Road 5	5	2000-2100	0.065949283	7.42672E-07	1.00433E-05	0.05953925	6.70487E-07	9.06712E-06	0.3697189	4.1635E-06	5.63038E-05	0.3307029	3.72413E-06	5.03621E-05	0.39024215	4.39462E-06	5.94293E-05
Road 5	5	2100-2200	0.067781557	7.35318E-07	9.94384E-06	0.061929619	6.71834E-07	9.08534E-06	0.389703547	4.22764E-06	5.71712E-05	0.353300727	3.83273E-06	5.18307E-05	0.415230346	4.50456E-06	6.09161E-05
Road 5	5	2200-2300	0.065309259	6.11661E-07	8.27161E-06	0.059841082	5.60449E-07	7.57905E-06	0.370599359	3.47089E-06	4.69375E-05	0.336553246	3.15203E-06	4.26255E-05	0.396394329	3.71248E-06	5.02045E-05
Road 5	5	2300-0000	0.057393267	4.87972E-07	6.59894E-06	0.052591589	4.47147E-07	6.04685E-06	0.342485143	2.9119E-06	3.93781E-05	0.310496777	2.63992E-06	3.57002E-05	0.363088366	3.08707E-06	4.1747E-05
Road 6	6	0000-0100	0.0510068	1.436E-07	5.13313E-06	0.046490267	1.30885E-07	4.6786E-06	0.3327342	9.36752E-07	3.34851E-05	0.2992866	8.42586E-07	3.0119E-05	0.345776867	9.73471E-07	3.47976E-05
Road 6	6	0100-0200	0.06718614	1.43754E-07	5.13863E-06	0.062612105	1.33967E-07	4.78879E-06	0.381920351	8.17172E-07	2.92106E-05	0.353061491	7.55424E-07	2.70034E-05	0.415673596	8.89392E-07	3.17921E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.061411266	9.10565E-08	3.2549E-06	0.05695557	8.44499E-08	3.01874E-06	0.355418861	5.26991E-07	1.88378E-05	0.325954937	4.83304E-07	1.72762E-05	0.382910506	5.67754E-07	2.02949E-05
Road 6	6	0300-0400	0.06304629	7.33647E-08	2.62249E-06	0.058318871	6.78636E-08	2.42585E-06	0.406647581	4.73201E-07	1.6915E-05	0.372661774	4.33653E-07	1.55013E-05	0.430980645	5.01517E-07	1.79272E-05
Road 6	6	0400-0500	0.068059667	1.14966E-07	4.10956E-06	0.063714333	1.07626E-07	3.84718E-06	0.403685778	6.81902E-07	2.43752E-05	0.374626444	6.32815E-07	2.26206E-05	0.438340778	7.40441E-07	2.64677E-05
Road 6	6	0500-0600	0.061407716	1.86713E-07	6.67422E-06	0.057156728	1.73787E-07	6.21219E-06	0.375305864	1.14113E-06	4.07909E-05	0.345465432	1.0504E-06	3.75476E-05	0.40262216	1.22419E-06	4.37598E-05
Road 6	6	0600-0700	0.065724897	3.57737E-07	1.27876E-05	0.06113731	3.32767E-07	1.18951E-05	0.420108862	2.28663E-06	8.17377E-05	0.386249828	2.10234E-06	7.515E-05	0.447387138	2.4351E-06	8.7045E-05
Road 6	6	0700-0800	0.061941039	5.37101E-07	1.91992E-05	0.057141883	4.95487E-07	1.77117E-05	0.360855887	3.12904E-06	0.000111851	0.32860671	2.84941E-06	0.000101855	0.385748593	3.34489E-06	0.000119566
Road 6	6	0800-0900	0.052302553	6.49855E-07	2.32297E-05	0.048405453	6.01434E-07	2.14988E-05	0.312547931	3.88338E-06	0.000138815	0.285552492	3.54797E-06	0.000126825	0.333957946	4.1494E-06	0.000148324
Road 6	6	0900-1000	0.055438799	6.58648E-07	2.3544E-05	0.051351675	6.1009E-07	2.18083E-05	0.31769346	3.7744E-06	0.000134919	0.290723428	3.45398E-06	0.000123466	0.342075103	4.06407E-06	0.000145274
Road 6	6	1000-1100	0.073975794	7.42813E-07	2.65525E-05	0.068762262	6.90462E-07	2.46812E-05	0.40761957	4.09303E-06	0.000146309	0.376363551	3.77918E-06	0.00013509	0.445125813	4.46964E-06	0.000159771
Road 6	6	1100-1200	0.08476015	8.46329E-07	3.02528E-05	0.079114605	7.89958E-07	2.82378E-05	0.444999117	4.44331E-06	0.00015883	0.413865263	4.13244E-06	0.000147718	0.492979868	4.9224E-06	0.000175956
Road 6	6	1200-1300	0.081114245	7.96223E-07	2.84617E-05	0.075745354	7.43521E-07	2.65779E-05	0.407990497	4.00486E-06	0.000143158	0.380229598	3.73236E-06	0.000133417	0.455974952	4.47588E-06	0.000159995
Road 6	6	1300-1400	0.093849098	9.17706E-07	3.28043E-05	0.087876065	8.59299E-07	3.07164E-05	0.480051631	4.6942E-06	0.000167799	0.448710441	4.38773E-06	0.000156843	0.536586507	5.24703E-06	0.00018756
Road 6	6	1400-1500	0.089258833	9.6161E-07	3.43737E-05	0.08357453	9.00371E-07	3.21846E-05	0.449815209	4.84598E-06	0.000173224	0.420360836	4.52866E-06	0.000161881	0.503935366	5.42903E-06	0.000194066
Road 6	6	1500-1600	0.078505534	8.2808E-07	2.96005E-05	0.073143434	7.7152E-07	2.75787E-05	0.409849893	4.32312E-06	0.000154534	0.380839413	4.01711E-06	0.000143595	0.453982847	4.78863E-06	0.000171174
Road 6	6	1600-1700	0.082265833	8.8936E-07	3.1791E-05	0.076365451	8.25572E-07	2.95109E-05	0.410242778	4.43506E-06	0.000158535	0.379646372	4.10429E-06	0.000146712	0.456011823	4.92986E-06	0.000176222
Road 6	6	1700-1800	0.06194382	7.09192E-07	2.53507E-05	0.05675759	6.49815E-07	2.32282E-05	0.321208066	3.67749E-06	0.000131456	0.292339525	3.34698E-06	0.000119641	0.349097115	3.9968E-06	0.000142869
Road 6	6	1800-1900	0.060391887	7.80969E-07	2.79165E-05	0.054849071	7.09291E-07	2.53543E-05	0.319693948	4.13418E-06	0.00014778	0.288024267	3.72464E-06	0.000133141	0.342873338	4.43393E-06	0.000158495
Road 6	6	1900-2000	0.072292786	7.10988E-07	2.54149E-05	0.065429408	6.43487E-07	2.30021E-05	0.383765687	3.77427E-06	0.000134915	0.343988378	3.38307E-06	0.000120931	0.409417786	4.02656E-06	0.000143933
Road 6	6	2000-2100	0.057328254	4.4976E-07	1.60771E-05	0.051724761	4.05799E-07	1.45057E-05	0.339262464	2.66163E-06	9.51425E-05	0.302669354	2.37455E-06	8.48804E-05	0.354394115	2.78034E-06	9.9386E-05
Road 6	6	2100-2200	0.079629528	5.38037E-07	1.92327E-05	0.072765278	4.91657E-07	1.75748E-05	0.428031361	2.8921E-06	0.000103381	0.388438722	2.62459E-06	9.38183E-05	0.461204	3.11624E-06	0.000111393
Road 6	6	2200-2300	0.059652861	4.26572E-07	1.52482E-05	0.054610184	3.90512E-07	1.39592E-05	0.342186509	2.44694E-06	8.74683E-05	0.309084331	2.21023E-06	7.90068E-05	0.363694514	2.60074E-06	9.2966E-05
Road 6	6	2300-0000	0.04016028	2.69092E-07	9.61895E-06	0.036801765	2.46588E-07	8.81454E-06	0.255694678	1.71327E-06	6.12424E-05	0.231238711	1.5494E-06	5.53849E-05	0.268040476	1.79599E-06	6.41994E-05
Road 7	7	0000-0100	0.074674768	2.01656E-07	5.03399E-06	0.06812405	1.83966E-07	4.59239E-06	0.444954509	1.20158E-06	2.99954E-05	0.40257014	1.08712E-06	2.71381E-05	0.47069419	1.27109E-06	3.17305E-05
Road 7	7	0100-0200	0.091176232	1.91944E-07	4.79154E-06	0.084919172	1.78771E-07	4.46272E-06	0.501235559	1.0552E-06	2.63412E-05	0.464561448	9.77992E-07	2.44139E-05	0.549480621	1.15676E-06	2.88766E-05
Road 7	7	0200-0300	0.078359845	1.06941E-07	2.66961E-06	0.072656064	9.91572E-08	2.47529E-06	0.447292247	6.10441E-07	1.52386E-05	0.411565426	5.61683E-07	1.40214E-05	0.484221489	6.6084E-07	1.64967E-05
Road 7	7	0300-0400	0.079923714	8.81888E-08	2.20148E-06	0.073885	8.15256E-08	2.03515E-06	0.485249808	5.35431E-07	1.33661E-05	0.445659211	4.91746E-07	1.22756E-05	0.519544211	5.73272E-07	1.43107E-05
Road 7	7	0400-0500	0.088386057	1.4244E-07	3.55576E-06	0.082463269	1.32895E-07	3.31749E-06	0.495514144	7.98552E-07	1.99345E-05	0.459520856	7.40547E-07	1.84865E-05	0.541984125	8.73442E-07	2.1804E-05
Road 7	7	0500-0600	0.08022697	2.30627E-07	5.7572E-06	0.074709192	2.14765E-07	5.36124E-06	0.456344697	1.31185E-06	3.27479E-05	0.421668535	1.21216E-06	3.02595E-05	0.496377727	1.42693E-06	3.56208E-05
Road 7	7	0600-0700	0.084964426	4.36681E-07	1.0901E-05	0.079068423	4.06378E-07	1.01445E-05	0.497408609	2.55647E-06	6.38179E-05	0.458960911	2.35887E-06	5.8885E-05	0.538029334	2.76524E-06	6.90295E-05
Road 7	7	0700-0800	0.081612938	6.69471E-07	1.67122E-05	0.075411051	6.18597E-07	1.54422E-05	0.44935531	3.68606E-06	9.20161E-05	0.411589465	3.37627E-06	8.42827E-05	0.487000516	3.99487E-06	9.97249E-05
Road 7	7	0800-0900	0.080698482	1.00174E-06	2.50067E-05	0.07481619	9.28723E-07	2.31839E-05	0.441760477	5.48375E-06	0.000136892	0.406434473	5.04523E-06	0.000125945	0.481250663	5.97395E-06	0.000149129
Road 7	7	0900-1000	0.082322767	9.46606E-07	2.36304E-05	0.07646385	8.79236E-07	2.19486E-05	0.434035624	4.99085E-06	0.000124588	0.400532248	4.60561E-06	0.000114971	0.476996097	5.48484E-06	0.00013692
Road 7	7	1000-1100	0.097456087	9.83373E-07	2.45482E-05	0.090632591	9.14521E-07	2.28294E-05	0.514708405	5.19362E-06	0.00012965	0.476644649	4.80954E-06	0.000120062	0.56727724	5.72406E-06	0.000142891
Road 7	7	1100-1200	0.107413078	1.08228E-06	2.70173E-05	0.100453258	1.01216E-06	2.52667E-05	0.551255819	5.5544E-06	0.000138656	0.514557527	5.18463E-06	0.000129425	0.615010785	6.19679E-06	0.000154692
Road 7	7	1200-1300	0.104551602	1.05193E-06	2.62597E-05	0.097711355	9.83111E-07	2.45417E-05	0.528618817	5.31863E-06	0.00013277	0.493532977	4.96562E-06	0.000123958	0.591244331	5.94873E-06	0.0001485
Road 7	7	1300-1400	0.111279428	1.10185E-06	2.75058E-05	0.104358916	1.03333E-06	2.57952E-05	0.563699474	5.58157E-06	0.000139334	0.528024564	5.22833E-06	0.000130516	0.63238348	6.26166E-06	0.000156311
Road 7	7	1400-1500	0.103422752	1.07211E-06	2.67633E-05	0.09715465	1.00713E-06	2.51413E-05	0.527024642	5.46328E-06	0.000136381	0.49439475	5.12503E-06	0.000127937	0.5915494	6.13216E-06	0.000153079
Road 7	7	1500-1600	0.096399848	9.81112E-07	2.44918E-05	0.089829925	9.14247E-07	2.28226E-05	0.498506482	5.07356E-06	0.000126653	0.463681864	4.71914E-06	0.000117805	0.553511789	5.63338E-06	0.000140628
Road 7	7	1600-1700	0.100212717	1.05484E-06	2.63322E-05	0.093105013	9.80021E-07	2.44645E-05	0.500161352	5.26469E-06	0.000131424	0.463800191	4.88195E-06	0.000121869	0.556905204	5.86197E-06	0.000146334
Road 7	7	1700-1800	0.07770443	8.65298E-07	2.16006E-05	0.071122399	7.92002E-07	1.97709E-05	0.403909503	4.49784E-06	0.000112281	0.36791352	4.097E-06	0.000102274	0.439035919	4.889E-06	0.000122045
Road 7	7	1800-1900	0.071779602	8.30584E-07	2.07341E-05	0.065140427	7.5376E-07	1.88163E-05	0.379871944	4.39562E-06	0.000109729	0.342688469	3.96536E-06	9.89882E-05	0.407828896	4.71912E-06	0.000117805
Road 7	7	1900-2000	0.083884128	7.33163E-07	1.83021E-05	0.075966696	6.63963E-07	1.65747E-05	0.447890949	3.91465E-06	9.77225E-05	0.402673888	3.51945E-06	8.78568E-05	0.478640584	4.18341E-06	0.000104432
Road 7	7	2000-2100	0.077588992	5.58735E-07	1.39479E-05	0.070021573	5.04241E-07	1.25875E-05	0.42766127	3.07968E-06	7.68789E-05	0.382886714	2.75725E-06	6.883E-05	0.452908286	3.26149E-06	8.14175E-05
Road 7	7	2100-2200	0.088675957	5.33004E-07	1.33055E-05	0.081066646	4.87267E-07	1.21638E-05	0.477237203	2.86853E-06	7.16078E-05	0.433789247	2.60737E-06	6.50886E-05	0.514855893	3.09464E-06	7.72523E-05
Road 7	7	2200-2300	0.0743919	4.82789E-07	1.2052E-05	0.068072506	4.41777E-07	1.10282E-05	0.413610185	2.68425E-06	6.70077E-05	0.374771029	2.43219E-06	6.07154E-05	0.442843535	2.87397E-06	7.17437E-05
Road 7	7	2300-0000	0.052508919	3.13328E-07	7.82169E-06	0.048090681	2.86964E-07	7.16355E-06	0.31508627	1.88016E-06	4.6935E-05	0.285806813	1.70545E-06	4.25736E-05	0.333897494	1.99241E-06	4.97371E-05
Road 8	8	0000-0100	0.236515	1.72011E-07	2.83554E-06	0.215820556	1.5696E-07	2.58743E-06	1.171743611	8.52177E-07	1.40478E-05	1.06873	7.77258E-07	1.28128E-05	1.284550556	9.34219E-07	1.54002E-05
Road 8	8	0100-0200	0.243711333	1.47704E-07	2.43484E-06	0.227224	1.37712E-07	2.27012E-06	1.203919333	7.29648E-07	1.2028E-05	1.122305667	6.80185E-07	1.12126E-05	1.349529667	8.17897E-07	1.34827E-05
Road 8	8	0200-0300	0.231124667	7.00378E-08	1.15455E-06	0.214579333	6.5024E-08	1.0719E-06	1.200438	3.63769E-07	5.9966E-06	1.114383333	3.37692E-07	5.56672E-06	1.328962667	4.02716E-07	6.63862E-06
Road 8	8	0300-0400	0.210648571	5.95774E-08	9.82111E-07	0.194861429	5.51123E-08	9.08506E-07	1.071534286	3.0306E-07	4.99583E-06	0.991072857	2.80303E-07	4.6207E-06	1.185934286	3.35416E-07	5.5292E-06
Road 8	8	0400-0500	0.238044762	1.00989E-07	1.66476E-06	0.222982381	9.45986E-08	1.55942E-06	1.141950476	4.84464E-07	7.9862E-06	1.069634286	4.53784E-07	7.48046E-06	1.292616667	5.48383E-07	9.03988E-06
Road 8	8	0500-0600	0.228241176	1.56772E-07	2.58432E-06	0.212633529	1.46051E-07	2.4076E-06	1.076264412	7.39252E-07	1.21863E-05	1.002393824	6.88513E-07	1.13499E-05	1.215027353	8.34564E-07	1.37575E-05
Road 8	8	0600-0700	0.255222903	3.19673E-07	5.26969E-06	0.23789871	2.97974E-07	4.91199E-06	1.18929129	1.48962E-06	2.45558E-05	1.107934032	1.38772E-06	2.2876E-05	1.345832742	1.68569E-06	2.7788E-05
Road 8	8	0700-0800	0.255245196	5.2596E-07	8.67025E-06	0.235859412	4.86013E-07	8.01175E-06	1.201445196	2.47571E-06	4.08111E-05	1.109413333	2.28606E-06	3.76849E-05	1.345272745	2.77208E-06	4.56967E-05
Road 8	8	0800-0900	0.282173906	1.09449E-06	1.80423E-05	0.261834323	1.0156E-06	1.67418E-05	1.332991302	5.17039E-06	8.52319E-05	1.236373385	4.79563E-06	7.90542E-05	1.498207708	5.81123E-06	9.57959E-05
Road 8	8	0900-1000	0.302032152	9.64062E-07	1.58922E-05	0.280161962	8.94254E-07	1.47414E-05	1.356243924	4.32902E-06	7.13623E-05	1.257874367	4.01503E-06	6.61863E-05	1.538036329	4.90929E-06	8.09278E-05
Road 8	8	1000-1100	0.284633938	9.20029E-07	1.51663E-05	0.264664688	8.55482E-07	1.41023E-05	1.316802438	4.25633E-06	7.0164E-05	1.223859438	3.95591E-06	6.52117E-05	1.488524125	4.81139E-06	7.9314E-05
Road 8	8	1100-1200	0.293935975	9.44158E-07	1.55641E-05	0.274163962	8.80648E-07	1.45171E-05	1.372643396	4.4091E-06	7.26823E-05	1.280100126	4.11184E-06	6.77821E-05	1.554264088	4.99248E-06	8.22992E-05
Road 8	8	1200-1300	0.295158059	1.01367E-06	1.671E-05	0.275389059	9.45781E-07	1.55908E-05	1.389908	4.77342E-06	7.86881E-05	1.296561941	4.45284E-06	7.34034E-05	1.571951	5.39862E-06	8.89942E-05
Road 8	8	1300-1400	0.269615679	8.82379E-07	1.45457E-05	0.252312654	8.25751E-07	1.36122E-05	1.252489198	4.09906E-06	6.75714E-05	1.171885617	3.83526E-06	6.32229E-05	1.424198272	4.66101E-06	7.6835E-05
Road 8	8	1400-1500	0.263496763	7.3992E-07	1.21973E-05	0.246572878	6.92397E-07	1.14139E-05	1.274538273	3.57901E-06	5.89986E-05	1.192482086	3.34859E-06	5.52002E-05	1.439054964	4.04098E-06	6.66141E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.271996978	7.63789E-07	1.25908E-05	0.253281439	7.11235E-07	1.17244E-05	1.282883165	3.60244E-06	5.93849E-05	1.194085252	3.35309E-06	5.52744E-05	1.447366691	4.06432E-06	6.69988E-05
Road 8	8	1600-1700	0.272049933	8.18898E-07	1.34992E-05	0.252335034	7.59554E-07	1.2521E-05	1.271543758	3.82748E-06	6.30945E-05	1.179029329	3.549E-06	5.85039E-05	1.431364362	4.30855E-06	7.10248E-05
Road 8	8	1700-1800	0.223815	7.05356E-07	1.16275E-05	0.204994615	6.46044E-07	1.06498E-05	1.087725641	3.42798E-06	5.6509E-05	0.995132051	3.13617E-06	5.16986E-05	1.200126667	3.78222E-06	6.23484E-05
Road 8	8	1800-1900	0.224248692	4.8474E-07	7.99075E-06	0.20382486	4.40591E-07	7.26298E-06	1.11705486	2.41464E-06	3.98045E-05	1.014594579	2.19316E-06	3.61535E-05	1.218419439	2.63376E-06	4.34165E-05
Road 8	8	1900-2000	0.224226753	3.48797E-07	5.74979E-06	0.203145974	3.16005E-07	5.20922E-06	1.144166234	1.77981E-06	2.93396E-05	1.036332338	1.61207E-06	2.65744E-05	1.239478312	1.92808E-06	3.17836E-05
Road 8	8	2000-2100	0.247053247	3.84305E-07	6.33512E-06	0.223026104	3.46929E-07	5.719E-06	1.150528961	1.78971E-06	2.95027E-05	1.037549221	1.61397E-06	2.66056E-05	1.260575325	1.96089E-06	3.23246E-05
Road 8	8	2100-2200	0.20302463	2.21481E-07	3.65104E-06	0.185708519	2.02591E-07	3.33964E-06	1.032515	1.12638E-06	1.8568E-05	0.942752037	1.02846E-06	1.69537E-05	1.128460556	1.23105E-06	2.02934E-05
Road 8	8	2200-2300	0.244010938	3.15489E-07	5.20072E-06	0.223639688	2.8915E-07	4.76653E-06	1.173448906	1.51719E-06	2.50102E-05	1.074895781	1.38976E-06	2.29097E-05	1.298535469	1.67891E-06	2.76763E-05
Road 8	8	2300-0000	0.191554151	2.05098E-07	3.38097E-06	0.175671887	1.88093E-07	3.10064E-06	0.959224151	1.02705E-06	1.69305E-05	0.878969434	9.41119E-07	1.5514E-05	1.054641321	1.12921E-06	1.86146E-05
Road 9	9	0000-0100	0.667021605	1.74427E-07	5.28822E-06	0.65198112	1.70494E-07	5.16898E-06	3.648326282	9.54043E-07	2.89243E-05	3.574357484	9.347E-07	2.83379E-05	4.226338604	1.10519E-06	3.35069E-05
Road 9	9	0100-0200	0.692167393	1.42216E-07	4.31167E-06	0.67973512	1.39662E-07	4.23422E-06	3.613357621	7.4242E-07	2.25084E-05	3.554688041	7.30365E-07	2.2143E-05	4.234423161	8.70027E-07	2.63772E-05
Road 9	9	0200-0300	0.346222361	3.23349E-08	9.80317E-07	0.339944667	3.17486E-08	9.62542E-07	2.38194408	2.22458E-07	6.74439E-06	2.33244635	2.17835E-07	6.60424E-06	2.672391016	2.49584E-07	7.56679E-06
Road 9	9	0300-0400	0.429314439	3.20761E-08	9.72471E-07	0.421486667	3.14912E-08	9.5474E-07	2.841296502	2.12287E-07	6.43603E-06	2.793135545	2.08688E-07	6.32694E-06	3.214622212	2.4018E-07	7.28168E-06
Road 9	9	0400-0500	0.75666711	1.41335E-07	4.28495E-06	0.743651946	1.38904E-07	4.21125E-06	3.914259089	7.31132E-07	2.21662E-05	3.854803561	7.20026E-07	2.18295E-05	4.598455507	8.5893E-07	2.60407E-05
Road 9	9	0500-0600	0.55318923	1.75658E-07	5.32554E-06	0.543176847	1.72479E-07	5.22916E-06	3.106306018	9.86368E-07	2.99044E-05	3.051630794	9.69007E-07	2.9378E-05	3.594807641	1.14149E-06	3.46072E-05
Road 9	9	0600-0700	0.608134165	3.63492E-07	1.10202E-05	0.596943186	3.56803E-07	1.08174E-05	3.434399976	2.0528E-06	6.22361E-05	3.366712122	2.01234E-06	6.10095E-05	3.963655307	2.36915E-06	7.18269E-05
Road 9	9	0700-0800	0.437264631	4.00209E-07	1.21334E-05	0.427382893	3.91164E-07	1.18592E-05	2.533372522	2.31868E-06	7.0297E-05	2.466947244	2.25789E-06	6.84538E-05	2.894330137	2.64905E-06	8.03129E-05
Road 9	9	0800-0900	0.764101611	1.64133E-06	4.97611E-05	0.748192525	1.60715E-06	4.87251E-05	4.445394083	9.54892E-06	0.000289501	4.360393603	9.36633E-06	0.000283965	5.108586128	1.09735E-05	0.00033269
Road 9	9	0900-1000	0.739179011	1.2012E-06	3.64175E-05	0.724106927	1.17671E-06	3.56749E-05	3.934891834	6.39437E-06	0.000193862	3.858436021	6.27013E-06	0.000190096	4.582542949	7.44684E-06	0.00022577
Road 9	9	1000-1100	0.905309802	1.23443E-06	3.7425E-05	0.888193844	1.21109E-06	3.67174E-05	4.705716339	6.41645E-06	0.000194532	4.626136127	6.30794E-06	0.000191242	5.51432997	7.51903E-06	0.000227959
Road 9	9	1100-1200	0.709746974	1.00754E-06	3.05463E-05	0.69735167	9.89946E-07	3.00128E-05	3.977091331	5.6458E-06	0.000171167	3.910673075	5.55151E-06	0.000168309	4.608024745	6.54146E-06	0.000198321
Road 9	9	1200-1300	0.800150592	1.10599E-06	3.35309E-05	0.785485325	1.08571E-06	3.29163E-05	4.206217406	5.81393E-06	0.000176264	4.13653846	5.71761E-06	0.000173345	4.922023785	6.80333E-06	0.000206261
Road 9	9	1300-1400	0.864002708	9.84444E-07	2.9846E-05	0.847895004	9.66091E-07	2.92896E-05	3.92317136	4.47006E-06	0.000135522	3.856886291	4.39453E-06	0.000133232	4.704781295	5.36062E-06	0.000162521
Road 9	9	1400-1500	0.539651764	6.85439E-07	2.07809E-05	0.53010348	6.73311E-07	2.04132E-05	3.241870709	4.11766E-06	0.000124838	3.189691225	4.05139E-06	0.000122828	3.719794705	4.7247E-06	0.000143242
Road 9	9	1500-1600	0.566601219	6.03251E-07	1.82892E-05	0.556723799	5.92735E-07	1.79703E-05	3.340667941	3.55676E-06	0.000107832	3.287511963	3.50016E-06	0.000106117	3.844235762	4.0929E-06	0.000124087
Road 9	9	1600-1700	0.513726001	7.67658E-07	2.32736E-05	0.50412912	7.53317E-07	2.28388E-05	3.155761639	4.71564E-06	0.000142967	3.099713471	4.63188E-06	0.000140428	3.603842591	5.3852E-06	0.000163267
Road 9	9	1700-1800	0.389173479	5.01578E-07	1.52067E-05	0.380012801	4.89771E-07	1.48487E-05	2.328612289	3.00118E-06	9.09887E-05	2.267974428	2.92303E-06	8.86194E-05	2.647987229	3.4128E-06	0.000103468
Road 9	9	1800-1900	0.369349575	3.03554E-07	9.20305E-06	0.360004594	2.95874E-07	8.9702E-06	2.073116633	1.70381E-06	5.16556E-05	2.014419474	1.65557E-06	5.01931E-05	2.374424068	1.95145E-06	5.91633E-05
Road 9	9	1900-2000	0.41165697	3.30636E-07	1.00241E-05	0.40064173	3.21789E-07	9.75587E-06	2.413179712	1.93822E-06	5.87624E-05	2.341964788	1.88103E-06	5.70283E-05	2.742606518	2.20281E-06	6.67841E-05
Road 9	9	2000-2100	0.538214058	2.91541E-07	8.83882E-06	0.523554667	2.836E-07	8.59808E-06	2.426765648	1.31453E-06	3.98536E-05	2.357338737	1.27693E-06	3.87134E-05	2.880893404	1.56053E-06	4.73115E-05
Road 9	9	2100-2200	0.021825239	1.14147E-08	3.46066E-07	0.020347564	1.06418E-08	3.22635E-07	0.317152672	1.65872E-07	5.02884E-06	0.29112218	1.52258E-07	4.61609E-06	0.311469744	1.629E-07	4.93873E-06
Road 9	9	2200-2300	0.566309798	3.49071E-07	1.0583E-05	0.554039437	3.41508E-07	1.03537E-05	3.155695531	1.94516E-06	5.89726E-05	3.091576561	1.90564E-06	5.77744E-05	3.645615998	2.24714E-06	6.81281E-05
Road 9	9	2300-0000	0.399586283	2.23912E-07	6.78849E-06	0.390422582	2.18777E-07	6.63281E-06	2.285996878	1.28098E-06	3.88363E-05	2.233341094	1.25148E-06	3.79418E-05	2.623763677	1.47025E-06	4.45746E-05
Road 10	10	0000-0100	1.210672453	9.32382E-07	2.06967E-05	1.186345331	9.13647E-07	2.02808E-05	7.563531333	5.82495E-06	0.0001293	7.44081787	5.73044E-06	0.000127202	8.627163201	6.64409E-06	0.000147483
Road 10	10	0100-0200	1.158843912	6.74309E-07	1.49681E-05	1.140652227	6.63723E-07	1.47331E-05	7.171443502	4.17292E-06	9.2629E-05	7.080179478	4.11982E-06	9.14502E-05	8.220831705	4.78354E-06	0.000106183
Road 10	10	0200-0300	1.235701419	4.01811E-07	8.91926E-06	1.215546398	3.95257E-07	8.77378E-06	7.544527155	2.45324E-06	5.44562E-05	7.445233208	2.42096E-06	5.37395E-05	8.660779606	2.81621E-06	6.25133E-05
Road 10	10	0300-0400	1.120474786	2.30111E-07	5.10793E-06	1.101209015	2.26155E-07	5.0201E-06	7.211054942	1.48093E-06	3.28732E-05	7.108238219	1.45982E-06	3.24045E-05	8.209447235	1.68597E-06	3.74246E-05
Road 10	10	0400-0500	1.199921257	4.72319E-07	1.04844E-05	1.182212493	4.65348E-07	1.03296E-05	7.266358996	2.86022E-06	6.34901E-05	7.180227197	2.82632E-06	6.27375E-05	8.362439691	3.29167E-06	7.30672E-05
Road 10	10	0500-0600	1.063487621	7.46227E-07	1.65645E-05	1.046229497	7.34118E-07	1.62957E-05	6.368870667	4.46891E-06	9.91991E-05	6.284592082	4.40977E-06	9.78864E-05	7.330821579	5.14389E-06	0.000114182
Road 10	10	0600-0700	1.138715071	1.59803E-06	3.54724E-05	1.11901479	1.57038E-06	3.48587E-05	6.714221404	9.42246E-06	0.000209156	6.616254807	9.28498E-06	0.000206105	7.735269597	1.08554E-05	0.000240963
Road 10	10	0700-0800	1.095962095	2.41958E-06	5.3709E-05	1.073484223	2.36996E-06	5.26074E-05	6.526163017	1.4408E-05	0.000319823	6.413295679	1.41588E-05	0.000314291	7.486779902	1.65287E-05	0.000366899
Road 10	10	0800-0900	1.230382161	5.22212E-06	0.000115919	1.205816651	5.11785E-06	0.000113604	7.39361847	3.13808E-05	0.000696579	7.27309527	3.08692E-05	0.000685224	8.47891192	3.59871E-05	0.000798828
Road 10	10	0900-1000	1.259426915	4.26769E-06	9.47326E-05	1.234426676	4.18298E-06	9.28522E-05	7.395220789	2.50594E-05	0.00055626	7.274458752	2.46502E-05	0.000547176	8.508885427	2.88332E-05	0.000640029
Road 10	10	1000-1100	1.260798599	4.63916E-06	0.000102978	1.235838737	4.54732E-06	0.00010094	7.204219649	2.65082E-05	0.000588419	7.089366305	2.60856E-05	0.000579038	8.325205042	3.06329E-05	0.000679978
Road 10	10	1100-1200	1.290042642	4.74676E-06	0.000105367	1.266105946	4.65869E-06	0.000103412	7.546117503	2.77662E-05	0.000616345	7.434354317	2.7355E-05	0.000607216	8.700460263	3.20137E-05	0.000710628
Road 10	10	1200-1300	1.282628325	4.87314E-06	0.000108172	1.258882816	4.78292E-06	0.00010617	7.510363465	2.85344E-05	0.000633396	7.400021432	2.81152E-05	0.00062409	8.658904248	3.28981E-05	0.00073026
Road 10	10	1300-1400	1.243189349	4.08501E-06	9.06776E-05	1.221296141	4.01307E-06	8.90807E-05	7.176257844	2.35806E-05	0.000523433	7.075819817	2.32505E-05	0.000516107	8.297115958	2.72636E-05	0.000605187
Road 10	10	1400-1500	1.134014604	3.51279E-06	7.79756E-05	1.114234753	3.45152E-06	7.66155E-05	6.866020523	2.12686E-05	0.000472112	6.769405393	2.09693E-05	0.000465469	7.883640146	2.44208E-05	0.000542084
Road 10	10	1500-1600	1.203411685	3.81014E-06	8.45761E-05	1.181201545	3.73982E-06	8.30151E-05	7.110845669	2.25137E-05	0.000499752	7.006709246	2.2184E-05	0.000492433	8.187910792	2.59239E-05	0.000575448
Road 10	10	1600-1700	1.09825538	3.87191E-06	8.59473E-05	1.076556886	3.79541E-06	8.42492E-05	6.591100979	2.3237E-05	0.000515806	6.486253017	2.28674E-05	0.000507601	7.562809904	2.66628E-05	0.00059185
Road 10	10	1700-1800	0.998647702	3.33274E-06	7.3979E-05	0.975829142	3.25659E-06	7.22886E-05	5.992824283	1.99996E-05	0.000443943	5.879227228	1.96205E-05	0.000435528	6.85505637	2.28771E-05	0.000507817
Road 10	10	1800-1900	1.079544945	2.23553E-06	4.96235E-05	1.05352587	2.18165E-06	4.84275E-05	6.518377552	1.34983E-05	0.000299631	6.390310764	1.32331E-05	0.000293744	7.443836634	1.54148E-05	0.000342171
Road 10	10	1900-2000	1.052668117	1.96369E-06	4.35893E-05	1.029658526	1.92077E-06	4.26365E-05	6.564739179	1.22461E-05	0.000271835	6.444180915	1.20212E-05	0.000266843	7.473839441	1.3942E-05	0.000309479
Road 10	10	2000-2100	1.349942645	1.66342E-06	3.6924E-05	1.31963859	1.62608E-06	3.60952E-05	8.164994594	1.0061E-05	0.000223331	8.020449406	9.88294E-06	0.000219378	9.340087996	1.1509E-05	0.000255473
Road 10	10	2100-2200	0.897344751	1.13644E-06	2.52262E-05	0.879525343	1.11387E-06	2.47253E-05	5.603284159	7.09626E-06	0.00015752	5.508207858	6.97585E-06	0.000154847	6.3877332	8.08972E-06	0.000179573
Road 10	10	2200-2300	1.070970573	1.41131E-06	3.13278E-05	1.050229983	1.38398E-06	3.07211E-05	6.443886851	8.49168E-06	0.000188495	6.341868311	8.35724E-06	0.000185511	7.392098294	9.74122E-06	0.000216232
Road 10	10	2300-0000	0.977416894	1.20439E-06	2.67346E-05	0.957092891	1.17935E-06	2.61787E-05	5.99269739	7.38431E-06	0.000163914	5.890906272	7.25888E-06	0.00016113	6.847999163	8.43822E-06	0.000187309
Road 11	11	0000-0100	1.355502141	1.03545E-06	8.58917E-06	1.328153554	1.01456E-06	8.41587E-06	8.442405938	6.44906E-06	5.34955E-05	8.307422258	6.34595E-06	5.26402E-05	9.635575812	7.36051E-06	6.1056E-05
Road 11	11	0100-0200	1.325856964	7.13569E-07	5.91911E-06	1.305042534	7.02367E-07	5.82619E-06	8.164551396	4.39412E-06	3.64496E-05	8.062536749	4.33921E-06	3.59941E-05	9.367579283	5.04158E-06	4.18203E-05
Road 11	11	0200-0300	1.232751913	3.21029E-07	2.66296E-06	1.21262263	3.15787E-07	2.61948E-06	7.910987187	2.06015E-06	1.70891E-05	7.805384476	2.03265E-06	1.6861E-05	9.018007106	2.34844E-06	1.94805E-05
Road 11	11	0300-0400	1.32088965	3.2105E-07	2.66313E-06	1.298254485	3.15548E-07	2.6175E-06	8.442463332	2.05199E-06	1.70214E-05	8.327934112	2.02415E-06	1.67905E-05	9.626188597	2.3397E-06	1.9408E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.216649392	4.22448E-07	3.50424E-06	1.198468814	4.16135E-07	3.45187E-06	7.296635624	2.53355E-06	2.1016E-05	7.208931578	2.5031E-06	2.07634E-05	8.407400392	2.91924E-06	2.42153E-05
Road 11	11	0500-0600	0.97046789	4.54907E-07	3.77349E-06	0.954504538	4.47424E-07	3.71142E-06	5.916656951	2.77343E-06	2.30059E-05	5.834594773	2.73497E-06	2.26868E-05	6.789099311	3.18239E-06	2.63982E-05
Road 11	11	0600-0700	1.020151498	9.2097E-07	7.63952E-06	1.003348066	9.058E-07	7.51369E-06	6.225917276	5.62062E-06	4.66235E-05	6.135202032	5.53872E-06	4.59442E-05	7.138550098	6.44452E-06	5.34579E-05
Road 11	11	0700-0800	1.163145813	2.20109E-06	1.82582E-05	1.139494547	2.15634E-06	1.7887E-05	7.203544183	1.36317E-05	0.000113076	7.080891328	1.33996E-05	0.000111151	8.220385875	1.55559E-05	0.000129038
Road 11	11	0800-0900	1.171007925	4.16765E-06	3.4571E-05	1.147726125	4.08479E-06	3.38837E-05	7.13729061	2.54018E-05	0.00021071	7.020804609	2.49872E-05	0.000207271	8.168530735	2.9072E-05	0.000241155
Road 11	11	0900-1000	1.154745937	2.94701E-06	2.44457E-05	1.131995601	2.88895E-06	2.39641E-05	6.825905151	1.74203E-05	0.000144503	6.713933957	1.71345E-05	0.000142132	7.845929557	2.00235E-05	0.000166096
Road 11	11	1000-1100	1.247857424	2.62137E-06	2.17445E-05	1.224367836	2.57202E-06	2.13351E-05	7.22630353	1.51803E-05	0.000125921	7.11528632	1.4947E-05	0.000123987	8.339654156	1.75191E-05	0.000145322
Road 11	11	1100-1200	1.172895306	2.76934E-06	2.29719E-05	1.15207634	2.72018E-06	2.25641E-05	7.089441589	1.6739E-05	0.000138851	6.985145512	1.64927E-05	0.000136808	8.137221852	1.92129E-05	0.000159372
Road 11	11	1200-1300	1.292489423	3.68E-06	3.05259E-05	1.268967042	3.61303E-06	2.99704E-05	7.716390688	2.19703E-05	0.000182245	7.604000559	2.16503E-05	0.000179591	8.872967602	2.52633E-05	0.000209561
Road 11	11	1300-1400	1.307078497	2.74577E-06	2.27764E-05	1.284135147	2.69758E-06	2.23766E-05	7.438550621	1.56261E-05	0.00012962	7.334111294	1.54067E-05	0.0001278	8.618246441	1.81043E-05	0.000150177
Road 11	11	1400-1500	1.042873559	2.10023E-06	1.74216E-05	1.024845241	2.06392E-06	1.71204E-05	6.459547355	1.30088E-05	0.000107909	6.368678554	1.28258E-05	0.000106391	7.393523796	1.48897E-05	0.000123512
Road 11	11	1500-1600	1.135593326	2.30667E-06	1.9134E-05	1.117392524	2.2697E-06	1.88274E-05	7.102402089	1.44268E-05	0.000119671	7.010414006	1.42399E-05	0.000118121	8.127806531	1.65096E-05	0.000136949
Road 11	11	1600-1700	1.011946977	2.45959E-06	2.04025E-05	0.994617384	2.41747E-06	2.00531E-05	6.378962453	1.55044E-05	0.00012861	6.288418068	1.52843E-05	0.000126785	7.283035452	1.77018E-05	0.000146838
Road 11	11	1700-1800	1.032950571	2.56444E-06	2.12723E-05	1.012457352	2.51357E-06	2.08502E-05	6.50605804	1.61522E-05	0.000133984	6.397361117	1.58823E-05	0.000131745	7.409818469	1.83959E-05	0.000152596
Road 11	11	1800-1900	1.161420601	2.3793E-06	1.97365E-05	1.136853561	2.32897E-06	1.9319E-05	7.29312997	1.49408E-05	0.000123935	7.166887806	1.46822E-05	0.00012179	8.303741367	1.70111E-05	0.000141109
Road 11	11	1900-2000	1.080504555	1.70705E-06	1.41601E-05	1.056365347	1.66891E-06	1.38437E-05	6.780931336	1.07129E-05	8.88646E-05	6.653611615	1.05118E-05	8.71961E-05	7.709976962	1.21807E-05	0.00010104
Road 11	11	2000-2100	1.188317123	1.67107E-06	1.38617E-05	1.161137361	1.63285E-06	1.35446E-05	7.210207042	1.01394E-05	8.41068E-05	7.076579023	9.95144E-06	8.2548E-05	8.237716383	1.15843E-05	9.60926E-05
Road 11	11	2100-2200	0.878019543	8.84117E-07	7.33382E-06	0.860608103	8.66585E-07	7.18839E-06	5.677822326	5.71725E-06	4.74251E-05	5.582642884	5.62141E-06	4.66301E-05	6.443250987	6.488E-06	5.38185E-05
Road 11	11	2200-2300	1.094848992	1.19749E-06	9.93329E-06	1.073478568	1.17412E-06	9.7394E-06	6.737018849	7.36861E-06	6.11233E-05	6.629665598	7.2512E-06	6.01493E-05	7.703144166	8.42531E-06	6.98887E-05
Road 11	11	2300-0000	1.037930255	1.08118E-06	8.96845E-06	1.017642097	1.06004E-06	8.79315E-06	6.481302426	6.75136E-06	5.60031E-05	6.377452316	6.64318E-06	5.51057E-05	7.395094414	7.70322E-06	6.38989E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.693281612	5.06256E-06	7.61434E-06	2.587051612	4.86288E-06	7.31401E-06	14.92268354	2.80502E-05	4.21888E-05	14.45718354	2.71752E-05	4.08728E-05	17.04423515	3.2038E-05	4.81868E-05
Haul Road 1	HR1	0800-0900	2.689081612	5.05466E-06	7.60247E-06	2.588251612	4.86513E-06	7.3174E-06	14.90429354	2.80156E-05	4.21368E-05	14.46258354	2.71853E-05	4.0888E-05	17.05083515	3.20504E-05	4.82054E-05
Haul Road 1	HR1	0900-1000	2.691981612	5.06012E-06	7.61066E-06	2.590641612	4.86963E-06	7.32416E-06	14.91718354	2.80398E-05	4.21733E-05	14.47308354	2.7205E-05	4.09177E-05	17.06372515	3.20747E-05	4.82419E-05
Haul Road 1	HR1	1000-1100	2.687981612	5.0526E-06	7.59936E-06	2.590141612	4.86869E-06	7.32275E-06	14.89940354	2.80064E-05	4.2123E-05	14.47058354	2.72003E-05	4.09107E-05	17.06072515	3.2069E-05	4.82334E-05
Haul Road 1	HR1	1100-1200	2.683881612	5.04489E-06	7.58776E-06	2.590441612	4.86925E-06	7.32359E-06	14.88161354	2.7973E-05	4.20727E-05	14.47218354	2.72034E-05	4.09152E-05	17.06262515	3.20726E-05	4.82388E-05
Haul Road 1	HR1	1200-1300	2.679891612	5.03739E-06	7.57648E-06	2.586951612	4.86269E-06	7.31373E-06	14.86371354	2.79393E-05	4.20221E-05	14.45688354	2.71746E-05	4.08719E-05	17.04383515	3.20373E-05	4.81857E-05
Haul Road 1	HR1	1300-1400	2.675791612	5.02968E-06	7.56489E-06	2.586951612	4.86269E-06	7.31373E-06	14.84613354	2.79063E-05	4.19724E-05	14.45688354	2.71746E-05	4.08719E-05	17.04383515	3.20373E-05	4.81857E-05
Haul Road 1	HR1	1400-1500	2.675791612	5.02968E-06	7.56489E-06	2.586951612	4.86269E-06	7.31373E-06	14.84613354	2.79063E-05	4.19724E-05	14.45688354	2.71746E-05	4.08719E-05	17.04383515	3.20373E-05	4.81857E-05
Haul Road 1	HR1	1500-1600	2.671991612	5.02254E-06	7.55415E-06	2.577151612	4.84427E-06	7.28602E-06	14.82944354	2.78749E-05	4.19252E-05	14.41402354	2.7094E-05	4.07508E-05	16.99117515	3.19383E-05	4.80368E-05
Haul Road 1	HR1	1600-1700	2.671991612	5.02254E-06	7.55415E-06	2.572061612	4.8347E-06	7.27163E-06	14.82944354	2.78749E-05	4.19252E-05	14.39152354	2.70517E-05	4.06871E-05	16.96358515	3.18864E-05	4.79588E-05
Haul Road 1	HR1	1700-1800	2.680591612	5.03871E-06	7.57846E-06	2.564161612	4.81985E-06	7.2493E-06	14.86691354	2.79453E-05	4.20312E-05	14.35695354	2.69868E-05	4.05894E-05	16.92111515	3.18066E-05	4.78387E-05
Haul Road 1	HR1	1800-1900	2.677191612	5.03232E-06	7.56885E-06	2.551171612	4.79544E-06	7.21257E-06	14.85232354	2.79179E-05	4.19899E-05	14.30019354	2.68801E-05	4.04289E-05	16.85136515	3.16755E-05	4.76415E-05
Haul Road 1	HR1	1900-2000	2.684881612	5.04677E-06	7.59059E-06	2.554171612	4.80107E-06	7.22105E-06	14.88561354	2.79805E-05	4.2084E-05	14.31308354	2.69043E-05	4.04654E-05	16.86725515	3.17054E-05	4.76864E-05
Haul Road 1	HR1	2000-2100	2.684881612	5.04677E-06	7.59059E-06	2.550071612	4.79337E-06	7.20946E-06	14.88561354	2.79805E-05	4.2084E-05	14.29529354	2.68709E-05	4.04151E-05	16.84536515	3.16642E-05	4.76246E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.693281612	3.48871E-06	6.94615E-06	2.587051612	3.3511E-06	6.67218E-06	14.92268354	1.93299E-05	3.84866E-05	14.45718354	1.87269E-05	3.7286E-05	17.04423515	2.2078E-05	4.39582E-05
Haul Road 2	HR2	0800-0900	2.689081612	3.48327E-06	6.93532E-06	2.588251612	3.35266E-06	6.67527E-06	14.90429354	1.93061E-05	3.84391E-05	14.46258354	1.87339E-05	3.72999E-05	17.05083515	2.20866E-05	4.39752E-05
Haul Road 2	HR2	0900-1000	2.691981612	3.48702E-06	6.9428E-06	2.590641612	3.35575E-06	6.68143E-06	14.91718354	1.93228E-05	3.84724E-05	14.47308354	1.87475E-05	3.7327E-05	17.06372515	2.21033E-05	4.40085E-05
Haul Road 2	HR2	1000-1100	2.687981612	3.48184E-06	6.93248E-06	2.590141612	3.35511E-06	6.68014E-06	14.89940354	1.92997E-05	3.84265E-05	14.47058354	1.87443E-05	3.73206E-05	17.06072515	2.20994E-05	4.40007E-05
Haul Road 2	HR2	1100-1200	2.683881612	3.47653E-06	6.92191E-06	2.590441612	3.35549E-06	6.68092E-06	14.88161354	1.92767E-05	3.83807E-05	14.47218354	1.87464E-05	3.73247E-05	17.06262515	2.21018E-05	4.40056E-05
Haul Road 2	HR2	1200-1300	2.679891612	3.47136E-06	6.91162E-06	2.586951612	3.35097E-06	6.67192E-06	14.86371354	1.92535E-05	3.83345E-05	14.45688354	1.87265E-05	3.72852E-05	17.04383515	2.20775E-05	4.39572E-05
Haul Road 2	HR2	1300-1400	2.675791612	3.46605E-06	6.90104E-06	2.586951612	3.35097E-06	6.67192E-06	14.84613354	1.92307E-05	3.82891E-05	14.45688354	1.87265E-05	3.72852E-05	17.04383515	2.20775E-05	4.39572E-05
Haul Road 2	HR2	1400-1500	2.675791612	3.46605E-06	6.90104E-06	2.586951612	3.35097E-06	6.67192E-06	14.84613354	1.92307E-05	3.82891E-05	14.45688354	1.87265E-05	3.72852E-05	17.04383515	2.20775E-05	4.39572E-05
Haul Road 2	HR2	1500-1600	2.671991612	3.46113E-06	6.89124E-06	2.577151612	3.33828E-06	6.64664E-06	14.82944354	1.92091E-05	3.82461E-05	14.41402354	1.8671E-05	3.71747E-05	16.99117515	2.20093E-05	4.38214E-05
Haul Road 2	HR2	1600-1700	2.671991612	3.46113E-06	6.89124E-06	2.572061612	3.33169E-06	6.63352E-06	14.82944354	1.92091E-05	3.82461E-05	14.39152354	1.86419E-05	3.71167E-05	16.96358515	2.19736E-05	4.37502E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.680591612	3.47227E-06	6.91342E-06	2.564161612	3.32145E-06	6.61314E-06	14.86691354	1.92577E-05	3.83427E-05	14.35695354	1.85971E-05	3.70275E-05	16.92111515	2.19185E-05	4.36407E-05
Haul Road 2	HR2	1800-1900	2.677191612	3.46786E-06	6.90465E-06	2.551171612	3.30463E-06	6.57964E-06	14.85232354	1.92388E-05	3.83051E-05	14.30019354	1.85236E-05	3.68811E-05	16.85136515	2.18282E-05	4.34608E-05
Haul Road 2	HR2	1900-2000	2.684881612	3.47783E-06	6.92449E-06	2.554171612	3.30851E-06	6.58738E-06	14.88561354	1.92819E-05	3.8391E-05	14.31308354	1.85403E-05	3.69144E-05	16.86725515	2.18488E-05	4.35018E-05
Haul Road 2	HR2	2000-2100	2.684881612	3.47783E-06	6.92449E-06	2.550071612	3.3032E-06	6.5768E-06	14.88561354	1.92819E-05	3.8391E-05	14.29529354	1.85172E-05	3.68685E-05	16.84536515	2.18204E-05	4.34453E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.693281612	3.48871E-06	6.42512E-06	2.587051612	3.3511E-06	6.1717E-06	14.92268354	1.93299E-05	3.55997E-05	14.45718354	1.87269E-05	3.44892E-05	17.04423515	2.2078E-05	4.06609E-05
Haul Road 3	HR3	0800-0900	2.689081612	3.48327E-06	6.4151E-06	2.588251612	3.35266E-06	6.17456E-06	14.90429354	1.93061E-05	3.55559E-05	14.46258354	1.87339E-05	3.45021E-05	17.05083515	2.20866E-05	4.06767E-05
Haul Road 3	HR3	0900-1000	2.691981612	3.48702E-06	6.42202E-06	2.590641612	3.35575E-06	6.18026E-06	14.91718354	1.93228E-05	3.55866E-05	14.47308354	1.87475E-05	3.45272E-05	17.06372515	2.21033E-05	4.07074E-05
Haul Road 3	HR3	1000-1100	2.687981612	3.48184E-06	6.41248E-06	2.590141612	3.35511E-06	6.17907E-06	14.89940354	1.92997E-05	3.55442E-05	14.47058354	1.87443E-05	3.45212E-05	17.06072515	2.20994E-05	4.07003E-05
Haul Road 3	HR3	1100-1200	2.683881612	3.47653E-06	6.4027E-06	2.590441612	3.35549E-06	6.17979E-06	14.88161354	1.92767E-05	3.55017E-05	14.47218354	1.87464E-05	3.4525E-05	17.06262515	2.21018E-05	4.07048E-05
Haul Road 3	HR3	1200-1300	2.679891612	3.47136E-06	6.39318E-06	2.586951612	3.35097E-06	6.17146E-06	14.86371354	1.92535E-05	3.5459E-05	14.45688354	1.87265E-05	3.44885E-05	17.04383515	2.20775E-05	4.066E-05
Haul Road 3	HR3	1300-1400	2.675791612	3.46605E-06	6.3834E-06	2.586951612	3.35097E-06	6.17146E-06	14.84613354	1.92307E-05	3.54171E-05	14.45688354	1.87265E-05	3.44885E-05	17.04383515	2.20775E-05	4.066E-05
Haul Road 3	HR3	1400-1500	2.675791612	3.46605E-06	6.3834E-06	2.586951612	3.35097E-06	6.17146E-06	14.84613354	1.92307E-05	3.54171E-05	14.45688354	1.87265E-05	3.44885E-05	17.04383515	2.20775E-05	4.066E-05
Haul Road 3	HR3	1500-1600	2.671991612	3.46113E-06	6.37433E-06	2.577151612	3.33828E-06	6.14808E-06	14.82944354	1.92091E-05	3.53773E-05	14.41402354	1.8671E-05	3.43863E-05	16.99117515	2.20093E-05	4.05343E-05
Haul Road 3	HR3	1600-1700	2.671991612	3.46113E-06	6.37433E-06	2.572061612	3.33169E-06	6.13594E-06	14.82944354	1.92091E-05	3.53773E-05	14.39152354	1.86419E-05	3.43326E-05	16.96358515	2.19736E-05	4.04685E-05
Haul Road 3	HR3	1700-1800	2.680591612	3.47227E-06	6.39485E-06	2.564161612	3.32145E-06	6.11709E-06	14.86691354	1.92577E-05	3.54667E-05	14.35695354	1.85971E-05	3.42501E-05	16.92111515	2.19185E-05	4.03672E-05
Haul Road 3	HR3	1800-1900	2.677191612	3.46786E-06	6.38674E-06	2.551171612	3.30463E-06	6.0861E-06	14.85232354	1.92388E-05	3.54319E-05	14.30019354	1.85236E-05	3.41147E-05	16.85136515	2.18282E-05	4.02008E-05
Haul Road 3	HR3	1900-2000	2.684881612	3.47783E-06	6.40508E-06	2.554171612	3.30851E-06	6.09326E-06	14.88561354	1.92819E-05	3.55113E-05	14.31308354	1.85403E-05	3.41455E-05	16.86725515	2.18488E-05	4.02387E-05
Haul Road 3	HR3	2000-2100	2.684881612	3.47783E-06	6.40508E-06	2.550071612	3.3032E-06	6.08348E-06	14.88561354	1.92819E-05	3.55113E-05	14.29529354	1.85172E-05	3.4103E-05	16.84536515	2.18204E-05	4.01865E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.101331508	3.40434E-07	2.76948E-06	0.09211838	3.09482E-07	2.51768E-06	0.604914749	2.03228E-06	1.65329E-05	0.54604648	1.8345E-06	1.4924E-05	0.63816486	2.14398E-06	1.74416E-05
Road 1	1	0100-0200	0.078726147	1.61058E-07	1.31023E-06	0.07137	1.46008E-07	1.1878E-06	0.479193211	9.80331E-07	7.97514E-06	0.431153119	8.82051E-07	7.17562E-06	0.502523119	1.02806E-06	8.36342E-06
Road 1	1	0200-0300	0.076392987	1.10403E-07	8.98143E-07	0.069045974	9.97849E-08	8.11765E-07	0.496621039	7.17714E-07	5.83871E-06	0.442004935	6.38783E-07	5.1966E-06	0.511050909	7.38568E-07	6.00836E-06
Road 1	1	0300-0400	0.064440545	6.65208E-08	5.41157E-07	0.058011273	5.9884E-08	4.87165E-07	0.402483636	4.15477E-07	3.37996E-06	0.356681455	3.68196E-07	2.99533E-06	0.414692727	4.2808E-07	3.48249E-06
Road 1	1	0400-0500	0.083398953	1.34615E-07	1.09512E-06	0.076100581	1.22835E-07	9.99281E-07	0.484238721	7.81617E-07	6.35857E-06	0.437458256	7.06108E-07	5.74429E-06	0.513558837	8.28943E-07	6.74357E-06
Road 1	1	0500-0600	0.068870266	2.43011E-07	1.97693E-06	0.062764787	2.21467E-07	1.80167E-06	0.414597713	1.46292E-06	1.19011E-05	0.372621915	1.31481E-06	1.06962E-05	0.435386702	1.53627E-06	1.24978E-05
Road 1	1	0600-0700	0.092274392	5.83642E-07	4.74802E-06	0.084036855	5.31539E-07	4.32415E-06	0.497897181	3.14924E-06	2.56195E-05	0.448725846	2.83822E-06	2.30894E-05	0.5327627	3.36976E-06	2.74135E-05
Road 1	1	0700-0800	0.077299466	8.15358E-07	6.63306E-06	0.070377242	7.42343E-07	6.03907E-06	0.433546655	4.57307E-06	3.72026E-05	0.388879359	4.10192E-06	3.33697E-05	0.459256601	4.84426E-06	3.94088E-05
Road 1	1	0800-0900	0.08288598	1.07963E-06	8.78298E-06	0.075557161	9.84172E-07	8.00638E-06	0.449685764	5.85739E-06	4.76508E-05	0.405731816	5.28487E-06	4.29932E-05	0.481288977	6.26904E-06	5.09996E-05
Road 1	1	0900-1000	0.087897997	1.17791E-06	9.58249E-06	0.080495588	1.07871E-06	8.77549E-06	0.491172871	6.58216E-06	5.35468E-05	0.446251821	5.98018E-06	4.86496E-05	0.526747409	7.05889E-06	5.74251E-05
Road 1	1	1000-1100	0.101848187	1.32854E-06	1.08079E-05	0.092956201	1.21255E-06	9.86426E-06	0.548463597	7.15432E-06	5.82015E-05	0.49740377	6.48828E-06	5.27831E-05	0.590359971	7.70083E-06	6.26474E-05
Road 1	1	1100-1200	0.091999228	1.1638E-06	9.46772E-06	0.083990341	1.06249E-06	8.64352E-06	0.531163027	6.71929E-06	5.46624E-05	0.481312344	6.08867E-06	4.95323E-05	0.565302685	7.15116E-06	5.81758E-05
Road 1	1	1200-1300	0.095157076	1.19125E-06	9.69099E-06	0.08606973	1.07749E-06	8.76552E-06	0.541955517	6.78462E-06	5.51939E-05	0.486882384	6.09517E-06	4.95851E-05	0.572952114	7.17266E-06	5.83506E-05
Road 1	1	1300-1400	0.099402341	1.32275E-06	1.07608E-05	0.090061848	1.19846E-06	9.74963E-06	0.554626135	7.38044E-06	6.0041E-05	0.499019633	6.64048E-06	5.40213E-05	0.589081481	7.83894E-06	6.37709E-05
Road 1	1	1400-1500	0.094287945	1.36088E-06	1.10709E-05	0.08533446	1.23165E-06	1.00196E-05	0.514735176	7.42927E-06	6.04382E-05	0.462739506	6.6788E-06	5.43331E-05	0.548073966	7.91045E-06	6.43527E-05
Road 1	1	1500-1600	0.101530251	1.36441E-06	1.10997E-05	0.091960154	1.2358E-06	1.00534E-05	0.55229486	7.42198E-06	6.03789E-05	0.497104804	6.68031E-06	5.43453E-05	0.589064958	7.91611E-06	6.43988E-05
Road 1	1	1600-1700	0.097171417	1.37696E-06	1.12018E-05	0.088195205	1.24976E-06	1.0167E-05	0.53625947	7.59902E-06	6.18192E-05	0.482711576	6.84023E-06	5.56463E-05	0.570906781	8.08999E-06	6.58133E-05
Road 1	1	1700-1800	0.077476478	1.10224E-06	8.96686E-06	0.069988113	9.95702E-07	8.10018E-06	0.438163325	6.23363E-06	5.07115E-05	0.391743984	5.57323E-06	4.53391E-05	0.461732098	6.56894E-06	5.34393E-05
Road 1	1	1800-1900	0.069086512	1.00362E-06	8.16461E-06	0.06257584	9.09041E-07	7.39518E-06	0.418953127	6.08614E-06	4.95117E-05	0.375090052	5.44894E-06	4.4328E-05	0.437665891	6.35798E-06	5.17231E-05
Road 1	1	1900-2000	0.083350624	9.27682E-07	7.54683E-06	0.074908314	8.33721E-07	6.78244E-06	0.483580034	5.38219E-06	4.37849E-05	0.429647757	4.78193E-06	3.89017E-05	0.504556071	5.61565E-06	4.56841E-05
Road 1	1	2000-2100	0.075660338	7.14286E-07	5.81082E-06	0.068340795	6.45184E-07	5.24867E-06	0.452489125	4.27181E-06	3.47518E-05	0.404604632	3.81975E-06	3.10742E-05	0.472945427	4.46493E-06	3.63229E-05
Road 1	1	2100-2200	0.079596841	6.85716E-07	5.5784E-06	0.0715561	6.16446E-07	5.01488E-06	0.480805251	4.14207E-06	3.36964E-05	0.427617277	3.68387E-06	2.99688E-05	0.499173377	4.30031E-06	3.49837E-05
Road 1	1	2200-2300	0.077524736	6.32944E-07	5.14909E-06	0.069649425	5.68647E-07	4.62603E-06	0.468442161	3.82456E-06	3.11133E-05	0.415822805	3.39495E-06	2.76184E-05	0.48547223	3.9636E-06	3.22444E-05
Road 1	1	2300-0000	0.067946154	4.97354E-07	4.04605E-06	0.061439744	4.49728E-07	3.6586E-06	0.424642692	3.10831E-06	2.52865E-05	0.378131487	2.76785E-06	2.25169E-05	0.439571231	3.21758E-06	2.61755E-05
Road 2	2	0000-0100	0.167772115	2.01948E-07	1.30416E-06	0.152567308	1.83646E-07	1.18597E-06	0.714830192	8.60444E-07	5.55666E-06	0.646344615	7.78007E-07	5.0243E-06	0.798911923	9.61653E-07	6.21026E-06
Road 2	2	0100-0200	0.118771765	9.34778E-08	6.0367E-07	0.107694412	8.47595E-08	5.47369E-07	0.59121	4.65304E-07	3.00489E-06	0.532372647	4.18997E-07	2.70584E-06	0.640067059	5.03756E-07	3.25321E-06
Road 2	2	0200-0300	0.123898261	6.59644E-08	4.25991E-07	0.112170435	5.97204E-08	3.85668E-07	0.683987826	3.6416E-07	2.35171E-06	0.613186522	3.26465E-07	2.10828E-06	0.725356957	3.86185E-07	2.49395E-06
Road 2	2	0300-0400	0.107362	3.72785E-08	2.40741E-07	0.09683	3.36215E-08	2.17125E-07	0.396989333	1.37844E-07	8.9018E-07	0.352645333	1.22446E-07	7.90746E-07	0.449475333	1.56068E-07	1.00787E-06
Road 2	2	0400-0500	0.145105185	9.06907E-08	5.85672E-07	0.132466667	8.27917E-08	5.3466E-07	0.704312222	4.40195E-07	2.84274E-06	0.639136296	3.9946E-07	2.57967E-06	0.771602963	4.82252E-07	3.11434E-06
Road 2	2	0500-0600	0.115097895	1.51865E-07	9.80731E-07	0.10499193	1.38531E-07	8.9462E-07	0.516823509	6.8192E-07	4.40377E-06	0.466121404	6.15021E-07	3.97175E-06	0.571113333	7.53552E-07	4.86637E-06
Road 2	2	0600-0700	0.161577212	3.88982E-07	2.51201E-06	0.147220673	3.5442E-07	2.28881E-06	0.659473077	1.58762E-06	1.02527E-05	0.596328173	1.4356E-06	9.271E-06	0.743548846	1.79003E-06	1.15598E-05
Road 2	2	0700-0800	0.132126625	4.89358E-07	3.16023E-06	0.12034725	4.45731E-07	2.87848E-06	0.55729775	2.06407E-06	1.33295E-05	0.501250875	1.85648E-06	1.1989E-05	0.621598125	2.30222E-06	1.48675E-05
Road 2	2	0800-0900	0.148749375	1.04675E-06	6.75984E-06	0.13562727	9.54414E-07	6.16351E-06	0.6311525	4.44144E-06	2.86824E-05	0.570170625	4.01231E-06	2.59111E-05	0.705797895	4.96673E-06	3.20746E-05
Road 2	2	0900-1000	0.173418016	1.01161E-06	6.53285E-06	0.158843929	9.2659E-07	5.98383E-06	0.74237754	4.33054E-06	2.79662E-05	0.675909365	3.9428E-06	2.54622E-05	0.834753294	4.86939E-06	3.14461E-05
Road 2	2	1000-1100	0.193055668	8.35681E-07	5.39674E-06	0.176231604	7.62854E-07	4.92644E-06	0.81732984	3.53798E-06	2.28479E-05	0.742342781	3.21338E-06	2.07517E-05	0.918574385	3.97624E-06	2.56781E-05
Road 2	2	1100-1200	0.22839459	9.67505E-07	6.24805E-06	0.208579563	8.83566E-07	5.70598E-06	0.934890929	3.9603E-06	2.55752E-05	0.851231093	3.60591E-06	2.32866E-05	1.059810656	4.48948E-06	2.89926E-05
Road 2	2	1200-1300	0.176527895	7.76396E-07	5.01389E-06	0.159717211	7.0246E-07	4.53642E-06	0.776653	3.41583E-06	2.20591E-05	0.698245579	3.07099E-06	1.98321E-05	0.857962789	3.77345E-06	2.43686E-05
Road 2	2	1300-1400	0.195013677	1.00667E-06	6.50096E-06	0.176617265	9.11705E-07	5.8877E-06	0.80077417	4.13363E-06	2.66946E-05	0.72131565	3.72346E-06	2.40457E-05	0.897932915	4.63516E-06	2.99334E-05
Road 2	2	1400-1500	0.167439455	6.39526E-07	4.12999E-06	0.151545758	5.78821E-07	3.73797E-06	0.726255455	2.77389E-06	1.79135E-05	0.654499212	2.49982E-06	1.61436E-05	0.80604497	3.07864E-06	1.98816E-05
Road 2	2	1500-1600	0.209629016	8.88012E-07	5.73469E-06	0.189821803	8.04106E-07	5.19284E-06	0.828109617	3.50796E-06	2.26541E-05	0.747217268	3.1653E-06	2.04412E-05	0.937039071	3.9694E-06	2.5634E-05
Road 2	2	1600-1700	0.17597819	9.00259E-07	5.81378E-06	0.159798416	8.17487E-07	5.27925E-06	0.74367638	3.80446E-06	2.45688E-05	0.671400362	3.43471E-06	2.2181E-05	0.831198778	4.2522E-06	2.74603E-05
Road 2	2	1700-1800	0.135665135	6.97168E-07	4.50224E-06	0.122652703	6.30299E-07	4.07041E-06	0.541628514	2.78337E-06	1.79747E-05	0.486243964	2.49875E-06	1.61367E-05	0.608896667	3.12905E-06	2.02071E-05
Road 2	2	1800-1900	0.14959932	8.65737E-07	5.59084E-06	0.13565516	7.85041E-07	5.06972E-06	0.67767364	3.92172E-06	2.53261E-05	0.61039956	3.5324E-06	2.28119E-05	0.74605472	4.31745E-06	2.78816E-05
Road 2	2	1900-2000	0.127866391	5.00218E-07	3.23036E-06	0.114934024	4.49626E-07	2.90364E-06	0.585764083	2.29153E-06	1.47985E-05	0.521282899	2.03928E-06	1.31695E-05	0.636216923	2.4889E-06	1.60731E-05
Road 2	2	2000-2100	0.12156068	4.13644E-07	2.67127E-06	0.109793673	3.73603E-07	2.41269E-06	0.524665782	1.78532E-06	1.15294E-05	0.468850748	1.59539E-06	1.03029E-05	0.578644422	1.969E-06	1.27156E-05
Road 2	2	2100-2200	0.094595621	3.35026E-07	2.16357E-06	0.084998562	3.01037E-07	1.94406E-06	0.442540588	1.56733E-06	1.01217E-05	0.391121634	1.38522E-06	8.94563E-06	0.476120196	1.68626E-06	1.08897E-05
Road 2	2	2200-2300	0.13717136	3.96908E-07	2.56319E-06	0.12334752	3.56908E-07	2.30488E-06	0.59125688	1.71081E-06	1.10483E-05	0.52618264	1.52252E-06	9.83228E-06	0.64953016	1.87943E-06	1.21372E-05
Road 2	2	2300-0000	0.122605135	3.15027E-07	2.03441E-06	0.110981261	2.8516E-07	1.84154E-06	0.56238036	1.44501E-06	9.3317E-06	0.502705946	1.29168E-06	8.34151E-06	0.613687207	1.57684E-06	1.0183E-05
Road 3	3	0000-0100	0.105944	3.90838E-07	1.51909E-05	0.095885652	3.53731E-07	1.37487E-05	0.589696696	2.17545E-06	8.45542E-05	0.529288087	1.9526E-06	7.58925E-05	0.625173739	2.30633E-06	8.96411E-05
Road 3	3	0100-0200	0.079634789	1.81377E-07	7.04969E-06	0.072023169	1.64041E-07	6.37587E-06	0.468523592	1.06712E-06	4.14762E-05	0.420413803	9.57541E-07	3.72172E-05	0.492436972	1.12158E-06	4.35931E-05
Road 3	3	0200-0300	0.078477273	1.24615E-07	4.84348E-06	0.070771818	1.1238E-07	4.36792E-06	0.498187879	7.9108E-07	3.07473E-05	0.442921111	7.03321E-07	2.73363E-05	0.513692929	8.15701E-07	3.17043E-05
Road 3	3	0300-0400	0.065676	7.3739E-08	2.86605E-06	0.059166	6.64297E-08	2.58196E-06	0.369914	4.15328E-07	1.61427E-05	0.327212143	3.67384E-07	1.42793E-05	0.386378143	4.33813E-07	1.68612E-05
Road 3	3	0400-0500	0.087251681	1.58141E-07	6.14654E-06	0.079628584	1.44324E-07	5.60953E-06	0.488535133	8.85455E-07	3.44154E-05	0.441739912	8.0064E-07	3.11189E-05	0.521368496	9.44964E-07	3.67284E-05
Road 3	3	0500-0600	0.070762967	2.79212E-07	1.08523E-05	0.064371504	2.53993E-07	9.87205E-06	0.401203821	1.58304E-06	6.15289E-05	0.359839309	1.41983E-06	5.51852E-05	0.424210813	1.67382E-06	6.50572E-05
Road 3	3	0600-0700	0.097958604	6.97618E-07	2.71147E-05	0.089044122	6.34133E-07	2.46472E-05	0.49523723	3.52686E-06	0.00013708	0.445707658	3.17413E-06	0.000123371	0.534751779	3.80827E-06	0.000148018
Road 3	3	0700-0800	0.080471032	9.38353E-07	3.64714E-05	0.073254209	8.54199E-07	3.32006E-05	0.429446176	5.00767E-06	0.000194635	0.385377813	4.4938E-06	0.000174663	0.458632022	5.348E-06	0.000207863
Road 3	3	0800-0900	0.08892344	1.42201E-06	5.52701E-05	0.080771364	1.29165E-06	5.02032E-05	0.445269348	7.12049E-06	0.000276756	0.399918285	6.39527E-06	0.000248568	0.480689649	7.68692E-06	0.000298771
Road 3	3	0900-1000	0.09595314	1.48518E-06	5.77252E-05	0.087806725	1.35909E-06	5.28243E-05	0.49838085	7.71402E-06	0.000299825	0.452462808	7.0033E-06	0.0002722	0.540269534	8.36238E-06	0.000325025
Road 3	3	1000-1100	0.109030205	1.53719E-06	5.97468E-05	0.099407998	1.40153E-06	5.4474E-05	0.553280796	7.80058E-06	0.000303189	0.501334073	7.06819E-06	0.000274723	0.600742071	8.46972E-06	0.000329197
Road 3	3	1100-1200	0.107536897	1.47302E-06	5.72525E-05	0.09767459	1.33792E-06	5.20018E-05	0.561667541	7.6936E-06	0.000299031	0.506368829	6.93613E-06	0.00026959	0.604043419	8.27405E-06	0.000321592
Road 3	3	1200-1300	0.101379637	1.38868E-06	5.39743E-05	0.092223349	1.26325E-06	4.90995E-05	0.541265211	7.41413E-06	0.000288169	0.489085398	6.69938E-06	0.000260388	0.581308747	7.96264E-06	0.000309488

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.108106224	1.6074E-06	6.24754E-05	0.097331316	1.44719E-06	5.62485E-05	0.554160054	8.23962E-06	0.000320253	0.495493355	7.36732E-06	0.000286349	0.592824671	8.81451E-06	0.000342598
Road 3	3	1400-1500	0.099236103	1.48665E-06	5.77824E-05	0.089693298	1.34369E-06	5.22259E-05	0.51652349	7.73801E-06	0.000300757	0.463949325	6.9504E-06	0.000270145	0.553642623	8.29409E-06	0.00032237
Road 3	3	1500-1600	0.110129587	1.58095E-06	6.14477E-05	0.100513408	1.44291E-06	5.60823E-05	0.558030547	8.01075E-06	0.000311358	0.50650914	7.27114E-06	0.000282611	0.607022547	8.71405E-06	0.000338693
Road 3	3	1600-1700	0.104127039	1.63007E-06	6.33566E-05	0.094427305	1.47822E-06	5.74548E-05	0.537188986	8.40948E-06	0.000326855	0.483212203	7.56449E-06	0.000294013	0.577639508	9.04272E-06	0.000351468
Road 3	3	1700-1800	0.082797497	1.30015E-06	5.05334E-05	0.074604168	1.17149E-06	4.55328E-05	0.430150306	6.75453E-06	0.000262532	0.383751093	6.02594E-06	0.000234213	0.45835526	7.19742E-06	0.000279746
Road 3	3	1800-1900	0.078362639	1.29084E-06	5.01716E-05	0.070631091	1.16348E-06	4.52215E-05	0.43769518	7.20999E-06	0.000280234	0.389679649	6.41904E-06	0.000249492	0.46031074	7.58252E-06	0.000294714
Road 3	3	1900-2000	0.083479526	1.01762E-06	3.95523E-05	0.07503025	9.14623E-07	3.55491E-05	0.46584775	5.67871E-06	0.000220717	0.413912	5.04561E-06	0.00019611	0.48894225	5.96023E-06	0.000231659
Road 3	3	2000-2100	0.077909476	8.11012E-07	3.1522E-05	0.070485532	7.33731E-07	2.85183E-05	0.432734407	4.50462E-06	0.000175083	0.387577273	4.03455E-06	0.000156813	0.458062804	4.76828E-06	0.000185331
Road 3	3	2100-2200	0.076598618	7.55594E-07	2.9368E-05	0.068832358	6.78985E-07	2.63904E-05	0.439127106	4.33169E-06	0.000168362	0.390033854	3.84742E-06	0.00014954	0.458866211	4.52641E-06	0.00017593
Road 3	3	2200-2300	0.082554423	7.45489E-07	2.89753E-05	0.074737496	6.749E-07	2.62317E-05	0.459738739	4.15156E-06	0.000161361	0.411286483	3.71403E-06	0.000144355	0.486023979	4.38893E-06	0.000170587
Road 3	3	2300-0000	0.072037829	5.80038E-07	2.25446E-05	0.065276315	5.25595E-07	2.04286E-05	0.422534163	3.40218E-06	0.000132234	0.377203606	3.03719E-06	0.000118048	0.44247992	3.56278E-06	0.000138476
Road 4	4	0000-0100	0.283915143	2.30024E-07	2.463E-06	0.257004571	2.08221E-07	2.22955E-06	1.403126	1.13679E-06	1.21723E-05	1.269289429	1.02836E-06	1.10112E-05	1.526294	1.23658E-06	1.32408E-05
Road 4	4	0100-0200	0.268011	1.24079E-07	1.32859E-06	0.2426585	1.12342E-07	1.20291E-06	1.3262955	6.14026E-07	6.57473E-06	1.200684	5.55872E-07	5.95205E-06	1.4433425	6.68214E-07	7.15495E-06
Road 4	4	0200-0300	0.290278462	8.73523E-08	9.35332E-07	0.262580769	7.90174E-08	8.46085E-07	1.388837692	4.17937E-07	4.4751E-06	1.256183077	3.78018E-07	4.04766E-06	1.518763846	4.57035E-07	4.89374E-06
Road 4	4	0300-0400	0.263768571	4.27403E-08	4.57645E-07	0.238334286	3.8619E-08	4.13516E-07	1.354341429	2.19453E-07	2.34982E-06	1.223415714	1.98239E-07	2.12266E-06	1.46175	2.36858E-07	2.53617E-06
Road 4	4	0400-0500	0.270545714	8.76769E-08	9.38807E-07	0.247092143	8.00762E-08	8.57422E-07	1.295015714	4.19681E-07	4.49377E-06	1.182661429	3.8327E-07	4.10389E-06	1.429753571	4.63346E-07	4.96131E-06
Road 4	4	0500-0600	0.249702917	1.38724E-07	1.4854E-06	0.227560417	1.26422E-07	1.35368E-06	1.151735833	6.39853E-07	6.85128E-06	1.04818625	5.82326E-07	6.2353E-06	1.275746667	7.08748E-07	7.58898E-06
Road 4	4	0600-0700	0.278279434	3.41408E-07	3.65565E-06	0.253173208	3.10606E-07	3.32584E-06	1.289990943	1.58263E-06	1.69461E-05	1.172420189	1.43839E-06	1.54016E-05	1.425593396	1.74899E-06	1.87275E-05
Road 4	4	0700-0800	0.278380326	5.92847E-07	6.34796E-06	0.253895761	5.40704E-07	5.78963E-06	1.338858152	2.85127E-06	3.05302E-05	1.219378587	2.59682E-06	2.78057E-05	1.473274348	3.13753E-06	3.35953E-05
Road 4	4	0800-0900	0.285260323	1.0235E-06	1.09592E-05	0.259516323	9.31135E-07	9.9702E-06	1.375829935	4.93643E-06	5.28572E-05	1.25018671	4.48562E-06	4.80302E-05	1.509703032	5.41676E-06	5.80004E-05
Road 4	4	0900-1000	0.289781959	9.92772E-07	1.06302E-05	0.265081351	9.08149E-07	9.72408E-06	1.326713649	4.54522E-06	4.86683E-05	1.212317568	4.15331E-06	4.44719E-05	1.477398919	5.06146E-06	5.4196E-05
Road 4	4	1000-1100	0.323084722	1.07695E-06	1.15315E-05	0.294643681	9.82146E-07	1.05164E-05	1.482325	4.94108E-06	5.2907E-05	1.351288333	4.50429E-06	4.82301E-05	1.645932014	5.48644E-06	5.87465E-05
Road 4	4	1100-1200	0.300374452	1.07773E-06	1.15399E-05	0.272916387	9.79214E-07	1.0485E-05	1.369479935	4.91364E-06	5.26132E-05	1.243517935	4.4617E-06	4.7774E-05	1.516434323	5.44091E-06	5.8259E-05
Road 4	4	1200-1300	0.307891419	1.05481E-06	1.12945E-05	0.280144932	9.59756E-07	1.02767E-05	1.465089392	5.01929E-06	5.37444E-05	1.332520068	4.56512E-06	4.88813E-05	1.612665	5.52487E-06	5.9158E-05
Road 4	4	1300-1400	0.316702133	1.09966E-06	1.17747E-05	0.285204267	9.90293E-07	1.06036E-05	1.472107467	5.11148E-06	5.47316E-05	1.324869	4.60024E-06	4.92574E-05	1.610073267	5.59053E-06	5.98611E-05
Road 4	4	1400-1500	0.287179	9.30673E-07	9.96525E-06	0.2595525	8.41142E-07	9.0066E-06	1.378125286	4.46615E-06	4.78216E-05	1.244442071	4.03291E-06	4.31827E-05	1.503994571	4.87406E-06	5.21893E-05
Road 4	4	1500-1600	0.32230184	9.32586E-07	9.98574E-06	0.29412232	8.51048E-07	9.11267E-06	1.49802144	4.33455E-06	4.64126E-05	1.3666764	3.9545E-06	4.23432E-05	1.66079872	4.80555E-06	5.14558E-05
Road 4	4	1600-1700	0.302124032	8.67208E-07	9.2857E-06	0.274040968	7.86599E-07	8.42257E-06	1.418381613	4.07128E-06	4.35936E-05	1.285987177	3.69126E-06	3.95244E-05	1.560028145	4.47786E-06	4.7947E-05
Road 4	4	1700-1800	0.290498976	8.54013E-07	9.14441E-06	0.262019528	7.70289E-07	8.24793E-06	1.386684724	4.0766E-06	4.36505E-05	1.249949606	3.67462E-06	3.93463E-05	1.511969134	4.44491E-06	4.75942E-05
Road 4	4	1800-1900	0.32093717	7.87485E-07	8.43205E-06	0.289794434	7.1107E-07	7.61383E-06	1.545416415	3.79199E-06	4.06031E-05	1.395027736	3.42298E-06	3.66519E-05	1.68482217	4.13405E-06	4.42657E-05
Road 4	4	1900-2000	0.289001216	4.95048E-07	5.30077E-06	0.260125676	4.45586E-07	4.77114E-06	1.39541	2.39029E-06	2.55942E-05	1.255053649	2.14986E-06	2.30198E-05	1.515179324	2.59545E-06	2.77909E-05
Road 4	4	2000-2100	0.252343061	2.86222E-07	3.06475E-06	0.228523265	2.59205E-07	2.77545E-06	1.224503878	1.3889E-06	1.48718E-05	1.107262857	1.25592E-06	1.34479E-05	1.335786122	1.51513E-06	1.62233E-05
Road 4	4	2100-2200	0.21090973	1.8064E-07	1.93422E-06	0.190023784	1.62752E-07	1.74268E-06	1.046270811	8.96112E-07	9.59518E-06	0.940421622	8.05454E-07	8.62446E-06	1.130445405	9.68206E-07	1.03671E-05
Road 4	4	2200-2300	0.284256349	4.14541E-07	4.43872E-06	0.257747619	3.75882E-07	4.02479E-06	1.352735079	1.97274E-06	2.11233E-05	1.225394127	1.78703E-06	1.91348E-05	1.483141746	2.16292E-06	2.31596E-05
Road 4	4	2300-0000	0.264182857	2.99652E-07	3.20855E-06	0.239734082	2.71921E-07	2.91161E-06	1.291926327	1.46538E-06	1.56907E-05	1.171104898	1.32834E-06	1.42233E-05	1.41083898	1.60026E-06	1.71349E-05
Road 5	5	0000-0100	0.089717979	3.24992E-07	4.39493E-06	0.081156321	2.93978E-07	3.97553E-06	0.507908964	1.83984E-06	2.48804E-05	0.45455772	1.64658E-06	2.2267E-05	0.535714041	1.94056E-06	2.62425E-05
Road 5	5	0100-0200	0.060465328	1.38453E-07	1.87232E-06	0.054654098	1.25146E-07	1.69238E-06	0.37637418	8.61818E-07	1.16545E-05	0.336368361	7.70213E-07	1.04157E-05	0.391022459	8.95359E-07	1.21081E-05
Road 5	5	0200-0300	0.058036279	9.36772E-08	1.26681E-06	0.052245698	8.43305E-08	1.14042E-06	0.409981047	6.61756E-07	8.94905E-06	0.361977326	5.84273E-07	7.90123E-06	0.414223023	6.68603E-07	9.04165E-06
Road 5	5	0300-0400	0.051708571	6.11419E-08	8.26833E-07	0.046482063	5.49619E-08	7.4326E-07	0.29395381	3.47581E-07	4.7004E-06	0.25789	3.04938E-07	4.12373E-06	0.304372063	3.59899E-07	4.86699E-06
Road 5	5	0400-0500	0.071424141	1.32714E-07	1.79471E-06	0.065159394	1.21073E-07	1.6373E-06	0.414981212	7.7108E-07	1.04275E-05	0.373950707	6.94841E-07	9.39646E-06	0.439110101	8.15914E-07	1.10338E-05
Road 5	5	0500-0600	0.057954636	2.39302E-07	3.23613E-06	0.052686409	2.17549E-07	2.94196E-06	0.345353773	1.42601E-06	1.92842E-05	0.308388955	1.27338E-06	1.72201E-05	0.361075364	1.49093E-06	2.01621E-05
Road 5	5	0600-0700	0.084906082	6.1831E-07	8.36152E-06	0.077154227	5.61859E-07	7.59812E-06	0.433652088	3.15798E-06	4.27059E-05	0.389117216	2.83366E-06	3.83201E-05	0.466271443	3.39552E-06	4.59183E-05
Road 5	5	0700-0800	0.065844376	7.82273E-07	1.05788E-05	0.059890269	7.11534E-07	9.62221E-06	0.356237441	4.23233E-06	5.72345E-05	0.317889826	3.77673E-06	5.10735E-05	0.377780095	4.48827E-06	6.06957E-05
Road 5	5	0800-0900	0.070389348	1.11371E-06	1.50608E-05	0.063902977	1.01108E-06	1.3673E-05	0.350433345	5.54458E-06	7.49804E-05	0.312988387	4.95212E-06	6.69685E-05	0.376891364	5.9632E-06	8.06415E-05
Road 5	5	0900-1000	0.077422868	1.18576E-06	1.60352E-05	0.070856201	1.08519E-06	1.46752E-05	0.416673309	6.38148E-06	8.6298E-05	0.377400833	5.78001E-06	7.81642E-05	0.448257034	6.8652E-06	9.28394E-05
Road 5	5	1000-1100	0.088338052	1.21697E-06	1.64573E-05	0.080549196	1.10967E-06	1.50062E-05	0.461164169	6.35313E-06	8.59145E-05	0.416779646	5.74167E-06	7.76457E-05	0.497328842	6.85134E-06	9.2652E-05
Road 5	5	1100-1200	0.087190172	1.14388E-06	1.54689E-05	0.079198727	1.03904E-06	1.40511E-05	0.476172346	6.24708E-06	8.44804E-05	0.428013305	5.61526E-06	7.59363E-05	0.507212031	6.6543E-06	8.99874E-05
Road 5	5	1200-1300	0.081043607	1.07541E-06	1.4543E-05	0.073720141	9.78231E-07	1.32288E-05	0.445634809	5.91336E-06	7.99675E-05	0.401497086	5.32767E-06	7.20471E-05	0.475217228	6.3059E-06	8.52759E-05
Road 5	5	1300-1400	0.088847825	1.2957E-06	1.7522E-05	0.079988687	1.1665E-06	1.57748E-05	0.466348494	6.80092E-06	9.19701E-05	0.415894775	6.06513E-06	8.20199E-05	0.495883462	7.23163E-06	9.77947E-05
Road 5	5	1400-1500	0.083405894	1.24295E-06	1.68086E-05	0.07538927	1.12348E-06	1.5193E-05	0.439541121	6.55022E-06	8.85798E-05	0.394068149	5.87256E-06	7.94158E-05	0.469457418	6.99604E-06	9.46088E-05
Road 5	5	1500-1600	0.093109117	1.34561E-06	1.81969E-05	0.084996701	1.22837E-06	1.66115E-05	0.478442571	6.91443E-06	9.35051E-05	0.433517286	6.26517E-06	8.47251E-05	0.518513987	7.49354E-06	0.000101337
Road 5	5	1600-1700	0.088663705	1.41948E-06	1.9196E-05	0.080392837	1.28707E-06	1.74053E-05	0.46570789	7.45587E-06	0.000100827	0.417960528	6.69145E-06	9.04897E-05	0.498353365	7.97852E-06	0.000107895
Road 5	5	1700-1800	0.065498425	1.04616E-06	1.41474E-05	0.05899604	9.42298E-07	1.27429E-05	0.345867603	5.52427E-06	7.47058E-05	0.307256569	4.90757E-06	6.6366E-05	0.366252609	5.84987E-06	7.91089E-05
Road 5	5	1800-1900	0.061306627	1.05745E-06	1.43001E-05	0.05523827	9.52777E-07	1.28846E-05	0.355615919	6.13384E-06	8.29491E-05	0.315044157	5.43404E-06	7.34855E-05	0.370282427	6.38682E-06	8.63701E-05
Road 5	5	1900-2000	0.0711157	9.15641E-07	1.23824E-05	0.063869796	8.22348E-07	1.11208E-05	0.407215612	5.24305E-06	7.09028E-05	0.360685423	4.64396E-06	6.28011E-05	0.424555219	5.46631E-06	7.39219E-05
Road 5	5	2000-2100	0.06896805	7.76667E-07	1.0503E-05	0.062393917	7.02634E-07	9.50185E-06	0.3894741	4.38597E-06	5.93123E-05	0.3481561	3.92068E-06	5.302E-05	0.410550017	4.62331E-06	6.25219E-05
Road 5	5	2100-2200	0.071429758	7.74895E-07	1.0479E-05	0.064182093	6.9627E-07	9.41579E-06	0.414653201	4.4983E-06	6.08314E-05	0.36776474	3.98964E-06	5.39527E-05	0.431946834	4.68591E-06	6.33684E-05
Road 5	5	2200-2300	0.069087956	6.47051E-07	8.7502E-06	0.062510281	5.85447E-07	7.91711E-06	0.397029078	3.71842E-06	5.02849E-05	0.353817455	3.31372E-06	4.4812E-05	0.416327735	3.89917E-06	5.27291E-05
Road 5	5	2300-0000	0.060544768	5.14767E-07	6.96129E-06	0.054808609	4.65997E-07	6.30176E-06	0.366817196	3.11877E-06	4.21757E-05	0.326092428	2.77252E-06	3.74933E-05	0.380901038	3.23852E-06	4.37951E-05
Road 6	6	0000-0100	0.0538884	1.51713E-07	5.42312E-06	0.048587467	1.36789E-07	4.88965E-06	0.356982067	1.00502E-06	3.59253E-05	0.315503667	8.88242E-07	3.17511E-05	0.364091133	1.02503E-06	3.66407E-05
Road 6	6	0100-0200	0.071313246	1.52585E-07	5.45428E-06	0.064448246	1.37896E-07	4.92922E-06	0.410162982	8.77601E-07	3.13707E-05	0.365299561	7.81609E-07	2.79394E-05	0.429747807	9.19505E-07	3.28686E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.065112152	9.65439E-08	3.45105E-06	0.058759494	8.71246E-08	3.11435E-06	0.381336456	5.6542E-07	2.02115E-05	0.338383291	5.01732E-07	1.79349E-05	0.397142785	5.88857E-07	2.10492E-05
Road 6	6	0300-0400	0.066753871	7.76791E-08	2.77671E-06	0.060250645	7.01115E-08	2.5062E-06	0.435249839	5.06484E-07	1.81048E-05	0.387095484	4.50449E-07	1.61017E-05	0.447346129	5.2056E-07	1.86079E-05
Road 6	6	0400-0500	0.072254	1.22051E-07	4.36282E-06	0.065906556	1.11329E-07	3.97955E-06	0.433598778	7.3243E-07	2.61814E-05	0.389884667	6.58589E-07	2.35419E-05	0.455791222	7.69918E-07	2.75214E-05
Road 6	6	0500-0600	0.064723148	1.96793E-07	7.03456E-06	0.05886642	1.78986E-07	6.39801E-06	0.401009506	1.21929E-06	4.35845E-05	0.35833679	1.08954E-06	3.89466E-05	0.41720321	1.26852E-06	4.53446E-05
Road 6	6	0600-0700	0.069400552	3.77743E-07	1.35028E-05	0.062993414	3.4287E-07	1.22562E-05	0.449846	2.44849E-06	8.75235E-05	0.400496897	2.17988E-06	7.79219E-05	0.46349031	2.52275E-06	9.01781E-05
Road 6	6	0700-0800	0.064702035	5.61042E-07	2.0055E-05	0.058865844	5.10436E-07	1.8246E-05	0.382443874	3.31624E-06	0.000118542	0.340648571	2.95382E-06	0.000105587	0.399514416	3.46426E-06	0.000123833
Road 6	6	0800-0900	0.054826631	6.81217E-07	2.43507E-05	0.049628822	6.16634E-07	2.20422E-05	0.334418157	4.15512E-06	0.000148529	0.294085363	3.65399E-06	0.000130615	0.343714184	4.27062E-06	0.000152657
Road 6	6	0900-1000	0.057619384	6.84555E-07	2.44701E-05	0.052553397	6.24367E-07	2.23186E-05	0.334528863	3.97441E-06	0.000142069	0.298232923	3.5432E-06	0.000126655	0.350786319	4.16756E-06	0.000148973
Road 6	6	1000-1100	0.077215327	7.75342E-07	2.77153E-05	0.07028172	7.05719E-07	2.52266E-05	0.429421533	4.31195E-06	0.000154135	0.385291028	3.86882E-06	0.000138295	0.455572748	4.57454E-06	0.000163521
Road 6	6	1100-1200	0.088969361	8.88358E-07	3.17552E-05	0.080803778	8.06825E-07	2.88407E-05	0.470997782	4.70291E-06	0.00016811	0.42301	4.22375E-06	0.000150982	0.503813778	5.03057E-06	0.000179823
Road 6	6	1200-1300	0.085496119	8.39236E-07	2.99993E-05	0.077803021	7.6372E-07	2.72999E-05	0.433019598	4.25055E-06	0.00015194	0.390668107	3.83482E-06	0.000137079	0.468471128	4.59854E-06	0.000164379
Road 6	6	1300-1400	0.099391593	9.71904E-07	3.47416E-05	0.089482246	8.75005E-07	3.12779E-05	0.512250038	5.00905E-06	0.000179053	0.456991747	4.46871E-06	0.000159738	0.546473992	5.34371E-06	0.000191016
Road 6	6	1400-1500	0.094144756	1.01425E-06	3.62552E-05	0.085103118	9.16839E-07	3.27733E-05	0.47789324	5.14847E-06	0.000184037	0.428127439	4.61233E-06	0.000164872	0.513230557	5.52917E-06	0.000197646
Road 6	6	1500-1600	0.082752473	8.72877E-07	3.12018E-05	0.075478043	7.96146E-07	2.8459E-05	0.435406317	4.59269E-06	0.00016417	0.393479626	4.15044E-06	0.000148361	0.468957669	4.94659E-06	0.00017682
Road 6	6	1600-1700	0.086761997	9.37968E-07	3.35285E-05	0.07866066	8.50386E-07	3.03978E-05	0.436053264	4.71409E-06	0.00016851	0.391611997	4.23364E-06	0.000151336	0.470272656	5.08403E-06	0.000181733
Road 6	6	1700-1800	0.065195885	7.46424E-07	2.66816E-05	0.058725361	6.72344E-07	2.40336E-05	0.34113718	3.90566E-06	0.000139612	0.303205984	3.47139E-06	0.000124088	0.361931344	4.14373E-06	0.000148122
Road 6	6	1800-1900	0.063759666	8.2452E-07	2.94732E-05	0.057437634	7.42765E-07	2.65508E-05	0.340830319	4.40751E-06	0.000157551	0.302943454	3.91757E-06	0.000140037	0.360381089	4.66033E-06	0.000166588
Road 6	6	1900-2000	0.075746469	7.44954E-07	2.66291E-05	0.068031202	6.69076E-07	2.39167E-05	0.405224466	3.98532E-06	0.000142459	0.358857061	3.5293E-06	0.000126158	0.426888263	4.19838E-06	0.000150075
Road 6	6	2000-2100	0.059964665	4.70444E-07	1.68164E-05	0.054205287	4.25259E-07	1.52013E-05	0.358041722	2.80896E-06	0.000100409	0.319134665	2.50372E-06	8.94979E-05	0.373339952	2.92898E-06	0.000104699
Road 6	6	2100-2200	0.083896556	5.66869E-07	2.02633E-05	0.075410278	5.09529E-07	1.82136E-05	0.454818861	3.0731E-06	0.000109851	0.404114556	2.7305E-06	9.76044E-05	0.479524833	3.24003E-06	0.000115818
Road 6	6	2200-2300	0.063172047	4.51737E-07	1.61478E-05	0.057089843	4.08244E-07	1.45931E-05	0.369536089	2.64252E-06	9.44592E-05	0.326283071	2.33322E-06	8.34031E-05	0.383372913	2.74146E-06	9.79961E-05
Road 6	6	2300-0000	0.042405378	2.84135E-07	1.01567E-05	0.038362297	2.57045E-07	9.18831E-06	0.274848599	1.84161E-06	6.58301E-05	0.243313137	1.63031E-06	5.82769E-05	0.281675434	1.88735E-06	6.74652E-05
Road 7	7	0000-0100	0.07864442	2.12376E-07	5.30159E-06	0.071155173	1.92151E-07	4.79673E-06	0.47281771	1.27682E-06	3.18737E-05	0.422762062	1.14165E-06	2.84993E-05	0.493917236	1.3338E-06	3.32961E-05
Road 7	7	0100-0200	0.096619793	2.03404E-07	5.07761E-06	0.087461518	1.84124E-07	4.59632E-06	0.535001931	1.12628E-06	2.81157E-05	0.480021099	1.01054E-06	2.52263E-05	0.567482617	1.19466E-06	2.98226E-05
Road 7	7	0200-0300	0.08296617	1.13228E-07	2.82654E-06	0.075013775	1.02375E-07	2.55561E-06	0.477380319	6.51503E-07	1.62636E-05	0.426672008	5.82299E-07	1.45361E-05	0.501685783	6.84674E-07	1.70917E-05
Road 7	7	0300-0400	0.084522237	9.32629E-08	2.32815E-06	0.076377105	8.42755E-08	2.10379E-06	0.5170225	5.70489E-07	1.42413E-05	0.462146316	5.09938E-07	1.27297E-05	0.538523421	5.94214E-07	1.48335E-05
Road 7	7	0400-0500	0.093701441	1.51006E-07	3.7696E-06	0.085524505	1.37828E-07	3.44064E-06	0.529459009	8.53257E-07	2.13001E-05	0.478604054	7.71301E-07	1.92542E-05	0.564128559	9.09129E-07	2.26948E-05
Road 7	7	0500-0600	0.084486414	2.42871E-07	6.06286E-06	0.076967332	2.21256E-07	5.52328E-06	0.485126111	1.39458E-06	3.48133E-05	0.436572111	1.25501E-06	3.1329E-05	0.513539443	1.47626E-06	3.68523E-05
Road 7	7	0600-0700	0.089517881	4.60084E-07	1.14852E-05	0.081393698	4.18329E-07	1.04429E-05	0.529404944	2.72092E-06	6.7923E-05	0.47468636	2.43969E-06	6.09026E-05	0.556080058	2.85802E-06	7.13454E-05
Road 7	7	0700-0800	0.085186	6.98781E-07	1.74438E-05	0.07758492	6.36429E-07	1.58873E-05	0.473668336	3.8855E-06	9.69948E-05	0.425182053	3.48777E-06	8.70661E-05	0.502766973	4.1242E-06	0.000102953
Road 7	7	0800-0900	0.084324444	1.04675E-06	2.61304E-05	0.07661171	9.51011E-07	2.37403E-05	0.466847623	5.79516E-06	0.000144666	0.417450352	5.18197E-06	0.000129359	0.494062062	6.13299E-06	0.000153099
Road 7	7	0900-1000	0.085592354	9.84203E-07	2.45689E-05	0.078211051	8.99327E-07	2.24501E-05	0.455190982	5.23411E-06	0.000130661	0.410292289	4.71784E-06	0.000117773	0.48850334	5.61716E-06	0.000140223
Road 7	7	1000-1100	0.101655205	1.02574E-06	2.56059E-05	0.092662317	9.35001E-07	2.33407E-05	0.540001799	5.44884E-06	0.000136021	0.487571405	4.9198E-06	0.000122814	0.580233721	5.8548E-06	0.000146155
Road 7	7	1100-1200	0.112745347	1.13601E-06	2.83585E-05	0.102620938	1.034E-06	2.5812E-05	0.581636488	5.86051E-06	0.000146297	0.525714962	5.29705E-06	0.000132232	0.628335901	6.33105E-06	0.000158044
Road 7	7	1200-1300	0.110157504	1.10834E-06	2.76677E-05	0.100053412	1.00668E-06	2.51299E-05	0.559429336	5.62863E-06	0.000140509	0.505374711	5.08477E-06	0.000126932	0.605428123	6.09144E-06	0.000152062
Road 7	7	1300-1400	0.117709003	1.16552E-06	2.90951E-05	0.106228377	1.05184E-06	2.62573E-05	0.599364765	5.93472E-06	0.00014815	0.537494464	5.3221E-06	0.000132857	0.643722841	6.37393E-06	0.000159114
Road 7	7	1400-1500	0.109402502	1.1341E-06	2.83107E-05	0.098928045	1.02551E-06	2.56002E-05	0.56015374	5.80671E-06	0.000144954	0.503378727	5.21816E-06	0.000130262	0.602306771	6.24367E-06	0.000155862
Road 7	7	1500-1600	0.101576085	1.03379E-06	2.58069E-05	0.092409012	9.40495E-07	2.34778E-05	0.528054118	5.37429E-06	0.00013416	0.47723498	4.85707E-06	0.000121248	0.569643992	5.79757E-06	0.000144726
Road 7	7	1600-1700	0.105720587	1.11281E-06	2.77794E-05	0.095916492	1.00961E-06	2.52033E-05	0.53051834	5.58422E-06	0.0001394	0.478141877	5.03291E-06	0.000125638	0.574058369	6.04252E-06	0.000150841
Road 7	7	1700-1800	0.081673038	9.09491E-07	2.27039E-05	0.073678081	8.20461E-07	2.04814E-05	0.427194785	4.75714E-06	0.000118754	0.381767184	4.25127E-06	0.000106125	0.455445265	5.07173E-06	0.000126607
Road 7	7	1800-1900	0.0756044	8.74842E-07	2.18389E-05	0.068306365	7.90394E-07	1.97308E-05	0.402904165	4.66213E-06	0.000116382	0.360320277	4.16938E-06	0.000104081	0.428626642	4.95977E-06	0.000123812
Road 7	7	1900-2000	0.087779917	7.67213E-07	1.91521E-05	0.078889037	6.89505E-07	1.72123E-05	0.471438621	4.12046E-06	0.00010286	0.419175498	3.66367E-06	9.14572E-05	0.498064535	4.35318E-06	0.00010867
Road 7	7	2000-2100	0.081183334	5.84619E-07	1.4594E-05	0.073389738	5.28496E-07	1.3193E-05	0.450218228	3.24212E-06	8.09339E-05	0.40292371	2.90154E-06	7.24319E-05	0.476313448	3.43004E-06	8.56249E-05
Road 7	7	2100-2200	0.093323599	5.6094E-07	1.40029E-05	0.083917415	5.04402E-07	1.25915E-05	0.505837198	3.04043E-06	7.58991E-05	0.450485121	2.70773E-06	6.75937E-05	0.534402536	3.21213E-06	8.01853E-05
Road 7	7	2200-2300	0.078549826	5.09773E-07	1.27256E-05	0.07086872	4.59924E-07	1.14812E-05	0.442661244	2.87279E-06	7.17141E-05	0.392647933	2.54821E-06	6.36116E-05	0.463516652	3.00813E-06	7.50928E-05
Road 7	7	2300-0000	0.05535159	3.30291E-07	8.24513E-06	0.050107251	2.98997E-07	7.46394E-06	0.336557484	2.00829E-06	5.01333E-05	0.299847348	1.78923E-06	4.4665E-05	0.349954599	2.08823E-06	5.2129E-05
Road 8	8	0000-0100	0.249021111	1.81106E-07	2.98547E-06	0.225410833	1.63935E-07	2.70241E-06	1.2342025	8.97602E-07	1.47966E-05	1.116630556	8.12095E-07	1.33871E-05	1.342041389	9.7603E-07	1.60895E-05
Road 8	8	0100-0200	0.258222	1.56498E-07	2.57981E-06	0.233811333	1.41704E-07	2.33593E-06	1.275670333	7.73134E-07	1.27448E-05	1.154942667	6.99965E-07	1.15387E-05	1.388754	8.41669E-07	1.38746E-05
Road 8	8	0200-0300	0.244548667	7.41057E-08	1.2216E-06	0.221292	6.70582E-08	1.10543E-06	1.270458	3.84987E-07	6.34637E-06	1.149330667	3.48282E-07	5.7413E-06	1.370622667	4.1534E-07	6.84673E-06
Road 8	8	0300-0400	0.222701429	6.29863E-08	1.0383E-06	0.201390714	5.6959E-08	9.38948E-07	1.133204286	3.20502E-07	5.28336E-06	1.024321429	2.89707E-07	4.77571E-06	1.225712143	3.46666E-07	5.71466E-06
Road 8	8	0400-0500	0.252276667	1.07026E-07	1.76429E-06	0.230462381	9.77719E-08	1.61173E-06	1.210332381	5.13474E-07	8.46443E-06	1.105511429	4.69005E-07	7.73137E-06	1.33597381	5.66777E-07	9.3431E-06
Road 8	8	0500-0600	0.239966176	1.64825E-07	2.71708E-06	0.218759706	1.50259E-07	2.47697E-06	1.132133529	7.77627E-07	1.28189E-05	1.031453529	7.08473E-07	1.16789E-05	1.250213235	8.58732E-07	1.41559E-05
Road 8	8	0600-0700	0.268897742	3.36801E-07	5.55204E-06	0.24476	3.06568E-07	5.05366E-06	1.253930806	1.57058E-06	2.58904E-05	1.140042097	1.42793E-06	2.35389E-05	1.384802097	1.7345E-06	2.85926E-05
Road 8	8	0700-0800	0.266068725	5.48263E-07	9.03791E-06	0.242701078	5.00111E-07	8.24415E-06	1.253116667	2.58218E-06	4.25663E-05	1.142006667	2.35323E-06	3.8792E-05	1.384707745	2.85334E-06	4.70362E-05
Road 8	8	0800-0900	0.294566094	1.14256E-06	1.88347E-05	0.268081406	1.03983E-06	1.71412E-05	1.392158021	5.39989E-06	8.90151E-05	1.265902031	4.91017E-06	8.09422E-05	1.533983438	5.95E-06	9.80835E-05
Road 8	8	0900-1000	0.313183734	9.99657E-07	1.6479E-05	0.286566139	9.14696E-07	1.50784E-05	1.40647462	4.48935E-06	7.40053E-05	1.286646709	4.10687E-06	6.77002E-05	1.573212848	5.02157E-06	8.27787E-05
Road 8	8	1000-1100	0.296703688	9.59042E-07	1.58095E-05	0.270611875	8.74705E-07	1.44192E-05	1.373206875	4.43865E-06	7.31695E-05	1.251521063	4.04532E-06	6.66856E-05	1.522132938	4.92003E-06	8.11048E-05
Road 8	8	1100-1200	0.308358931	9.90486E-07	1.63278E-05	0.280173648	8.99952E-07	1.48354E-05	1.440195975	4.62608E-06	7.62593E-05	1.308059497	4.20165E-06	6.92625E-05	1.588233145	5.1016E-06	8.40979E-05
Road 8	8	1200-1300	0.310975882	1.068E-06	1.76055E-05	0.282968059	9.71809E-07	1.60199E-05	1.464866294	5.03085E-06	8.29317E-05	1.332233824	4.57535E-06	7.54229E-05	1.615201882	5.54716E-06	9.14428E-05
Road 8	8	1300-1400	0.285341975	9.33846E-07	1.53941E-05	0.256993457	8.41069E-07	1.38647E-05	1.32616358	4.34017E-06	7.15461E-05	1.193626296	3.90641E-06	6.43958E-05	1.450619753	4.74748E-06	7.82605E-05
Road 8	8	1400-1500	0.277849496	7.80224E-07	1.28617E-05	0.251155324	7.05264E-07	1.1626E-05	1.344303669	3.77491E-06	6.2228E-05	1.214602518	3.4107E-06	5.62241E-05	1.465757842	4.11597E-06	6.78502E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.286540216	8.04628E-07	1.3264E-05	0.261477698	7.34251E-07	1.21038E-05	1.352258777	3.79725E-06	6.25963E-05	1.232990863	3.46234E-06	5.70753E-05	1.494468561	4.19659E-06	6.91792E-05
Road 8	8	1600-1700	0.286724966	8.63071E-07	1.42274E-05	0.260028725	7.82713E-07	1.29027E-05	1.340587315	4.0353E-06	6.65205E-05	1.215199933	3.65787E-06	6.02987E-05	1.475228658	4.44059E-06	7.32014E-05
Road 8	8	1700-1800	0.235300705	7.41554E-07	1.22242E-05	0.21215891	6.68622E-07	1.1022E-05	1.144606923	3.60725E-06	5.94641E-05	1.030484936	3.24759E-06	5.35353E-05	1.242643846	3.91621E-06	6.45573E-05
Road 8	8	1800-1900	0.236285981	5.1076E-07	8.41968E-06	0.213427009	4.61347E-07	7.60514E-06	1.177952897	2.54628E-06	4.19745E-05	1.062673738	2.29709E-06	3.78667E-05	1.276100748	2.75844E-06	4.54718E-05
Road 8	8	1900-2000	0.234546364	3.6485E-07	6.01441E-06	0.211148571	3.28453E-07	5.41443E-06	1.197120519	1.86219E-06	3.06975E-05	1.077103896	1.67549E-06	2.76199E-05	1.288252468	2.00395E-06	3.30343E-05
Road 8	8	2000-2100	0.258020909	4.01366E-07	6.61637E-06	0.233659091	3.6347E-07	5.99166E-06	1.202383247	1.87037E-06	3.08324E-05	1.087587662	1.6918E-06	2.78887E-05	1.321246753	2.05527E-06	3.38804E-05
Road 8	8	2100-2200	0.213654444	2.33078E-07	3.8422E-06	0.192396296	2.09887E-07	3.45991E-06	1.088684259	1.18766E-06	1.95781E-05	0.977733333	1.06662E-06	1.75828E-05	1.17012963	1.27651E-06	2.10427E-05
Road 8	8	2200-2300	0.257474219	3.32896E-07	5.48766E-06	0.233451406	3.01836E-07	4.97566E-06	1.239769531	1.60293E-06	2.64238E-05	1.122476875	1.45128E-06	2.39239E-05	1.355928281	1.75312E-06	2.88995E-05
Road 8	8	2300-0000	0.201486038	2.15733E-07	3.55627E-06	0.182893019	1.95825E-07	3.2281E-06	1.009959057	1.08137E-06	1.7826E-05	0.915655849	9.80399E-07	1.61615E-05	1.098548868	1.17622E-06	1.93896E-05
Road 9	9	0000-0100	0.676065011	1.76792E-07	5.35991E-06	0.659017857	1.72334E-07	5.22476E-06	3.696144369	9.66547E-07	2.93034E-05	3.610447799	9.44137E-07	2.8624E-05	4.269465656	1.11647E-06	3.38488E-05
Road 9	9	0100-0200	0.703050393	1.44453E-07	4.37946E-06	0.684836932	1.4071E-07	4.266E-06	3.668603806	7.53771E-07	2.28526E-05	3.580368013	7.35642E-07	2.23029E-05	4.265204945	8.76352E-07	2.65689E-05
Road 9	9	0200-0300	0.35140514	3.28189E-08	9.94992E-07	0.342614165	3.19979E-08	9.701E-07	2.426316801	2.26602E-07	6.87003E-06	2.355397704	2.19979E-07	6.66923E-06	2.698011869	2.51976E-07	7.63933E-06
Road 9	9	0300-0400	0.435297761	3.25231E-08	9.86025E-07	0.424727313	3.17334E-08	9.62081E-07	2.879971994	2.15176E-07	6.52363E-06	2.813855693	2.10236E-07	6.37387E-06	3.238583006	2.4197E-07	7.33595E-06
Road 9	9	0400-0500	0.768494671	1.43545E-07	4.35193E-06	0.750337173	1.40153E-07	4.24911E-06	3.972134319	7.41942E-07	2.24939E-05	3.88716371	7.26071E-07	2.20127E-05	4.637500883	8.66224E-07	2.62619E-05
Road 9	9	0500-0600	0.561073923	1.78162E-07	5.40145E-06	0.547388324	1.73816E-07	5.2697E-06	3.157113187	1.0025E-06	3.03935E-05	3.078304094	9.77477E-07	2.96348E-05	3.625692418	1.15129E-06	3.49045E-05
Road 9	9	0600-0700	0.616964899	3.68771E-07	1.11803E-05	0.601411915	3.59474E-07	1.08984E-05	3.495007723	2.08903E-06	6.33344E-05	3.397623208	2.03082E-06	6.15696E-05	3.999035123	2.39029E-06	7.24681E-05
Road 9	9	0700-0800	0.443161563	4.05606E-07	1.2297E-05	0.431014625	3.94488E-07	1.196E-05	2.584226713	2.36523E-06	7.17081E-05	2.495887789	2.28437E-06	6.92568E-05	2.926902414	2.67886E-06	8.12168E-05
Road 9	9	0800-0900	0.773874777	1.66232E-06	5.03976E-05	0.753089714	1.61767E-06	4.9044E-05	4.505176148	9.67733E-06	0.000293394	4.389160163	9.42812E-06	0.000285838	5.142249877	1.10458E-05	0.000334882
Road 9	9	0900-1000	0.747452742	1.21464E-06	3.68251E-05	0.728639878	1.18407E-06	3.58983E-05	3.981730529	6.47049E-06	0.00019617	3.88377728	6.31131E-06	0.000191344	4.612417159	7.49538E-06	0.000227242
Road 9	9	1000-1100	0.915739992	1.24865E-06	3.78561E-05	0.893285273	1.21803E-06	3.69279E-05	4.757045374	6.48644E-06	0.000196653	4.650873634	6.34167E-06	0.000192264	5.544158908	7.5597E-06	0.000229192
Road 9	9	1100-1200	0.719289704	1.02109E-06	3.0957E-05	0.701238343	9.95463E-07	3.01801E-05	4.033423927	5.72576E-06	0.000173592	3.932443683	5.58242E-06	0.000169246	4.633682026	6.57788E-06	0.000199426
Road 9	9	1200-1300	0.81224589	1.1227E-06	3.40377E-05	0.790651069	1.09286E-06	3.31328E-05	4.269326754	5.90116E-06	0.000178909	4.161791085	5.75252E-06	0.000174403	4.952442153	6.84537E-06	0.000207536
Road 9	9	1300-1400	0.878766925	1.00127E-06	3.0356E-05	0.852226785	9.71026E-07	2.94392E-05	3.988184921	4.54413E-06	0.000137767	3.875135364	4.41533E-06	0.000133862	4.72736215	5.38635E-06	0.000163301
Road 9	9	1400-1500	0.548667762	6.9689E-07	2.11281E-05	0.532770864	6.76699E-07	2.05159E-05	3.299606641	4.19099E-06	0.000127061	3.205259817	4.07116E-06	0.000123428	3.738030681	4.74786E-06	0.000143944
Road 9	9	1500-1600	0.574442767	6.116E-07	1.85423E-05	0.560761782	5.97034E-07	1.81007E-05	3.392213982	3.61164E-06	0.000109496	3.310900552	3.52506E-06	0.000106872	3.871662334	4.1221E-06	0.000124972
Road 9	9	1600-1700	0.521235031	7.78878E-07	2.36138E-05	0.507961921	7.59044E-07	2.30124E-05	3.207241212	4.79256E-06	0.000145299	3.123400447	4.66728E-06	0.000141501	3.631362368	5.42632E-06	0.000164513
Road 9	9	1700-1800	0.394895546	5.08953E-07	1.54302E-05	0.383654583	4.94465E-07	1.4991E-05	2.371483509	3.05644E-06	9.26639E-05	2.294936952	2.95778E-06	8.96729E-05	2.678591535	3.45224E-06	0.000104664
Road 9	9	1800-1900	0.374948865	3.08156E-07	9.34256E-06	0.364591253	2.99644E-07	9.08448E-06	2.114039942	1.73745E-06	5.26753E-05	2.046868605	1.68224E-06	5.10016E-05	2.411459859	1.98189E-06	6.00861E-05
Road 9	9	1900-2000	0.417334253	3.35196E-07	1.01623E-05	0.404875314	3.25189E-07	9.85896E-06	2.454750116	1.97161E-06	5.97747E-05	2.372684146	1.9057E-06	5.77763E-05	2.77755946	2.23089E-06	6.76353E-05
Road 9	9	2000-2100	0.545281788	2.95369E-07	8.95489E-06	0.530267852	2.87236E-07	8.70833E-06	2.465771025	1.33566E-06	4.04941E-05	2.3940422	1.29681E-06	3.93162E-05	2.924310052	1.58404E-06	4.80245E-05
Road 9	9	2100-2200	0.0229898	1.20237E-08	3.64531E-07	0.02101447	1.09906E-08	3.3321E-07	0.339911157	1.77775E-07	5.3897E-06	0.303912455	1.58947E-07	4.8189E-06	0.324926925	1.69938E-07	5.15211E-06
Road 9	9	2200-2300	0.574536311	3.54142E-07	1.07367E-05	0.559700212	3.44997E-07	1.04595E-05	3.206346504	1.97638E-06	5.99192E-05	3.125069378	1.92628E-06	5.84003E-05	3.68476959	2.27128E-06	6.88598E-05
Road 9	9	2300-0000	0.405637248	2.27303E-07	6.89129E-06	0.394788036	2.21223E-07	6.70697E-06	2.328719473	1.30492E-06	3.95621E-05	2.262650595	1.2679E-06	3.84397E-05	2.657438631	1.48912E-06	4.51467E-05
Road 10	10	0000-0100	1.22557359	9.43858E-07	2.09514E-05	1.197733341	9.22417E-07	2.04755E-05	7.641359284	5.88489E-06	0.000130631	7.499599555	5.77571E-06	0.000128207	8.697332897	6.69813E-06	0.000148683
Road 10	10	0100-0200	1.174971829	6.83693E-07	1.51764E-05	1.148010088	6.68005E-07	1.48281E-05	7.254786437	4.22142E-06	9.37055E-05	7.118380267	4.14205E-06	9.19436E-05	8.266390355	4.81005E-06	0.000106772
Road 10	10	0200-0300	1.252164714	4.07165E-07	9.03809E-06	1.223767836	3.97931E-07	8.83312E-06	7.626471238	2.47989E-06	5.50476E-05	7.486348663	2.43432E-06	5.40362E-05	8.710116499	2.83226E-06	6.28694E-05
Road 10	10	0300-0400	1.135330532	2.33162E-07	5.17565E-06	1.109186601	2.27793E-07	5.05647E-06	7.293127687	1.49779E-06	3.32473E-05	7.151803516	1.46876E-06	3.26031E-05	8.260990118	1.69656E-06	3.76595E-05
Road 10	10	0400-0500	1.216737995	4.78939E-07	1.06313E-05	1.191024735	4.68817E-07	1.04066E-05	7.349561887	2.89297E-06	6.42171E-05	7.223852909	2.84349E-06	6.31187E-05	8.414877644	3.31231E-06	7.35254E-05
Road 10	10	0500-0600	1.076631081	7.5545E-07	1.67692E-05	1.05306128	7.38911E-07	1.64021E-05	6.436561364	4.5164E-06	0.000100253	6.319766521	4.43445E-06	9.84343E-05	7.3728278	5.17336E-06	0.000114836
Road 10	10	0600-0700	1.154408795	1.62005E-06	3.59613E-05	1.12685868	1.58139E-06	3.5103E-05	6.795465237	9.53648E-06	0.000211687	6.656939699	9.34207E-06	0.000207372	7.783798379	1.09235E-05	0.000242475
Road 10	10	0700-0800	1.108665556	2.44763E-06	5.43315E-05	1.081495734	2.38764E-06	5.3E-05	6.595206493	1.45604E-05	0.000323206	6.455742935	1.42525E-05	0.000316372	7.537238669	1.66401E-05	0.000369372
Road 10	10	0800-0900	1.245498206	5.28627E-06	0.000117343	1.213358826	5.14986E-06	0.000114315	7.472027359	3.17136E-05	0.000703966	7.311485537	3.10322E-05	0.000688841	8.524844363	3.6182E-05	0.000803156
Road 10	10	0900-1000	1.272237548	4.3111E-06	9.56962E-05	1.241790804	4.20793E-06	9.34061E-05	7.459228333	2.52763E-05	0.000561075	7.310979663	2.4774E-05	0.000549923	8.552770466	2.89819E-05	0.00064333
Road 10	10	1000-1100	1.275881057	4.69465E-06	0.00010421	1.243266198	4.57465E-06	0.000101546	7.275436179	2.67702E-05	0.000594236	7.124356425	2.62143E-05	0.000581896	8.367622624	3.0789E-05	0.000683443
Road 10	10	1100-1200	1.307576644	4.81128E-06	0.000106799	1.273343598	4.68532E-06	0.000104003	7.629694047	2.80738E-05	0.000623171	7.468572873	2.74809E-05	0.000610011	8.741916472	3.21662E-05	0.000714014
Road 10	10	1200-1300	1.301701519	4.9456E-06	0.000109781	1.267980779	4.81749E-06	0.000106937	7.601313937	2.888E-05	0.000641067	7.442711131	2.82774E-05	0.000627691	8.71069191	3.30949E-05	0.000734627
Road 10	10	1300-1400	1.263163832	4.15065E-06	9.21345E-05	1.22719773	4.03247E-06	8.95112E-05	7.270533635	2.38903E-05	0.000530309	7.103170623	2.33404E-05	0.000518102	8.330368353	2.73729E-05	0.000607613
Road 10	10	1400-1500	1.150854819	3.56495E-06	7.91335E-05	1.119568545	3.46804E-06	7.69823E-05	6.952029871	2.1535E-05	0.000478026	6.795881822	2.10513E-05	0.000467289	7.915450367	2.45194E-05	0.000544272
Road 10	10	1500-1600	1.220677163	3.8648E-06	8.57895E-05	1.190933036	3.77063E-06	8.36991E-05	7.194883616	2.27798E-05	0.000505658	7.053073993	2.23308E-05	0.000495692	8.244007029	2.61015E-05	0.000579391
Road 10	10	1600-1700	1.114513954	3.92923E-06	8.72196E-05	1.085075186	3.82544E-06	8.49158E-05	6.673428633	2.35272E-05	0.000522249	6.528060056	2.30147E-05	0.000510873	7.613135242	2.68402E-05	0.000595789
Road 10	10	1700-1800	1.012647629	3.37946E-06	7.50161E-05	0.9845448	3.28568E-06	7.29343E-05	6.064960579	2.02403E-05	0.000449287	5.923918972	1.97696E-05	0.000438839	6.908463773	2.30553E-05	0.000511773
Road 10	10	1800-1900	1.095032093	2.2676E-06	5.03354E-05	1.065826515	2.20712E-06	4.89929E-05	6.596800157	1.36607E-05	0.000303236	6.452367222	1.33616E-05	0.000296596	7.518193737	1.55687E-05	0.000345589
Road 10	10	1900-2000	1.064110791	1.98504E-06	4.40631E-05	1.038435816	1.93714E-06	4.29999E-05	6.627211324	1.23627E-05	0.000274422	6.49185321	1.21102E-05	0.000268817	7.530289026	1.40473E-05	0.000311817
Road 10	10	2000-2100	1.363844972	1.68055E-06	3.73043E-05	1.33308195	1.64265E-06	3.64629E-05	8.232637217	1.01444E-05	0.000225182	8.085825427	9.9635E-06	0.000221166	9.418907378	1.16061E-05	0.000257629
Road 10	10	2100-2200	0.908412012	1.15045E-06	2.55374E-05	0.886493264	1.1227E-06	2.49212E-05	5.666134618	7.17585E-06	0.000159287	5.547154294	7.02517E-06	0.000155942	6.433647558	8.14787E-06	0.000180863
Road 10	10	2200-2300	1.084865242	1.42962E-06	3.17342E-05	1.060282729	1.39723E-06	3.10152E-05	6.516295411	8.5871E-06	0.000190613	6.393408774	8.42516E-06	0.000187019	7.453691503	9.82239E-06	0.000218034
Road 10	10	2300-0000	0.990279939	1.22024E-06	2.70864E-05	0.966442355	1.19087E-06	2.64344E-05	6.060969152	7.46843E-06	0.000165782	5.939765998	7.31908E-06	0.000162466	6.906208353	8.50995E-06	0.000188901
Road 11	11	0000-0100	1.372152369	1.04817E-06	8.69467E-06	1.34089646	1.0243E-06	8.49662E-06	8.525390483	6.51245E-06	5.40213E-05	8.370595938	6.39421E-06	5.30405E-05	9.711492398	7.4185E-06	6.15371E-05
Road 11	11	0100-0200	1.344264083	7.23475E-07	6.00129E-06	1.313390512	7.06859E-07	5.86346E-06	8.255693956	4.44317E-06	3.68564E-05	8.103973009	4.36151E-06	3.61791E-05	9.417363522	5.06837E-06	4.20426E-05
Road 11	11	0200-0300	1.249156121	3.25301E-07	2.6984E-06	1.220822699	3.17923E-07	2.63719E-06	7.998301293	2.08289E-06	1.72777E-05	7.84917138	2.04406E-06	1.69556E-05	9.069994079	2.36198E-06	1.95928E-05
Road 11	11	0300-0400	1.338250512	3.25269E-07	2.69813E-06	1.307601812	3.1782E-07	2.63634E-06	8.530694526	2.07343E-06	1.71993E-05	8.375539868	2.03572E-06	1.68865E-05	9.68314168	2.35354E-06	1.95228E-05

Appendix 3.4 Calculation of Vehicular Emisisons

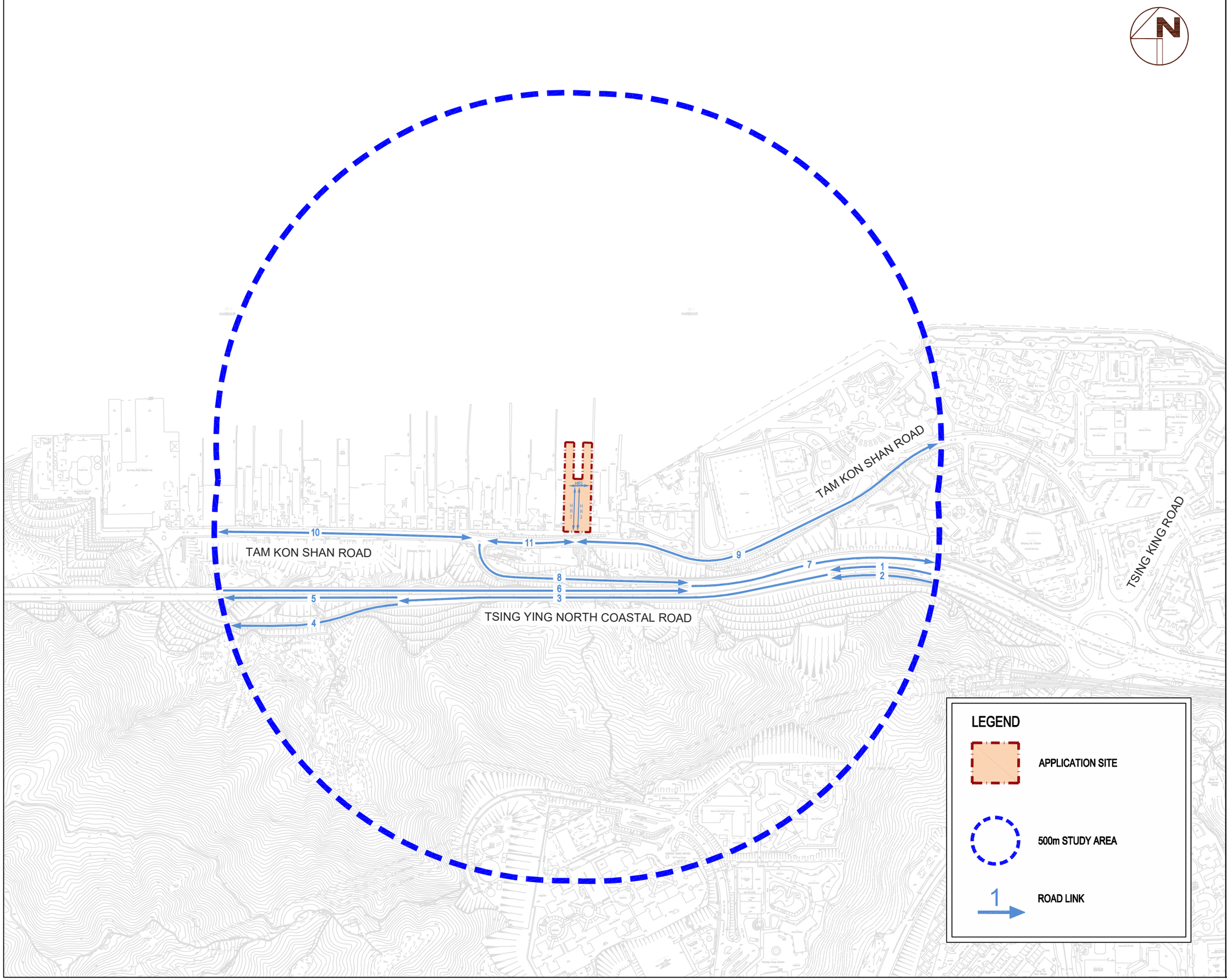
Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.233963141	4.28459E-07	3.55411E-06	1.207544392	4.19286E-07	3.47801E-06	7.381558929	2.56304E-06	2.12606E-05	7.253433624	2.51855E-06	2.08916E-05	8.460978017	2.93784E-06	2.43696E-05
Road 11	11	0500-0600	0.982687882	4.60635E-07	3.821E-06	0.960879001	4.50412E-07	3.7362E-06	5.984472576	2.80522E-06	2.32695E-05	5.869806581	2.75147E-06	2.28237E-05	6.830685582	3.20188E-06	2.65599E-05
Road 11	11	0600-0700	1.033567481	9.33082E-07	7.73999E-06	1.010025113	9.11828E-07	7.56369E-06	6.302575345	5.68982E-06	4.71976E-05	6.173652806	5.57344E-06	4.62321E-05	7.183677919	6.48526E-06	5.37958E-05
Road 11	11	0700-0800	1.176474434	2.22631E-06	1.84675E-05	1.147904251	2.17225E-06	1.8019E-05	7.278004415	1.37726E-05	0.000114245	7.126801413	1.34865E-05	0.000111871	8.274705663	1.56587E-05	0.00012989
Road 11	11	0800-0900	1.185332909	4.21863E-06	3.49939E-05	1.154855136	4.11016E-06	3.40941E-05	7.213682877	2.56737E-05	0.000212965	7.058068952	2.51199E-05	0.000208371	8.212924088	2.923E-05	0.000242465
Road 11	11	0900-1000	1.166415517	2.97679E-06	2.46927E-05	1.13870419	2.90607E-06	2.41061E-05	6.885903738	1.75734E-05	0.000145773	6.748169068	1.72219E-05	0.000142857	7.886873258	2.0128E-05	0.000166963
Road 11	11	1000-1100	1.262125355	2.65134E-06	2.19931E-05	1.231354334	2.5867E-06	2.14569E-05	7.295397284	1.53254E-05	0.000127125	7.149015395	1.50179E-05	0.000124575	8.38036973	1.76046E-05	0.000146032
Road 11	11	1100-1200	1.188147818	2.80535E-06	2.32706E-05	1.158421721	2.73516E-06	2.26884E-05	7.169037647	1.69269E-05	0.00014041	7.017302	1.65686E-05	0.000137438	8.175723722	1.93038E-05	0.000160127
Road 11	11	1200-1300	1.31138379	3.7338E-06	3.09722E-05	1.277992928	3.63873E-06	3.01836E-05	7.809308726	2.22348E-05	0.00018444	7.647491487	2.17741E-05	0.000180618	8.925484415	2.54128E-05	0.000210802
Road 11	11	1300-1400	1.327940736	2.7896E-06	2.31399E-05	1.290327029	2.71058E-06	2.24845E-05	7.535693326	1.58302E-05	0.000131313	7.36252349	1.54664E-05	0.000128295	8.652850518	1.8177E-05	0.00015078
Road 11	11	1400-1500	1.058238016	2.13117E-06	1.76783E-05	1.029724897	2.07375E-06	1.72019E-05	6.541983311	1.31748E-05	0.000109286	6.393776884	1.28764E-05	0.00010681	7.423501782	1.49501E-05	0.000124012
Road 11	11	1500-1600	1.149782727	2.3355E-06	1.93731E-05	1.125385292	2.28594E-06	1.8962E-05	7.178674191	1.45817E-05	0.000120956	7.051939183	1.43243E-05	0.000118821	8.177324475	1.66102E-05	0.000137783
Road 11	11	1600-1700	1.024935261	2.49116E-06	2.06644E-05	1.001400477	2.43396E-06	2.01899E-05	6.451325819	1.56803E-05	0.000130069	6.324725882	1.53726E-05	0.000127517	7.326126359	1.78066E-05	0.000147707
Road 11	11	1700-1800	1.045564072	2.59576E-06	2.1532E-05	1.020318981	2.53308E-06	2.10121E-05	6.575396086	1.63243E-05	0.000135412	6.440454019	1.59893E-05	0.000132633	7.460773	1.85224E-05	0.000153645
Road 11	11	1800-1900	1.176018237	2.4092E-06	1.99845E-05	1.148422804	2.35267E-06	1.95156E-05	7.370556122	1.50994E-05	0.000125251	7.227962343	1.48073E-05	0.000122828	8.376385147	1.716E-05	0.000142343
Road 11	11	1900-2000	1.092497695	1.72599E-06	1.43173E-05	1.065580175	1.68347E-06	1.39645E-05	6.846509284	1.08165E-05	8.9724E-05	6.703781848	1.0591E-05	8.78536E-05	7.769362022	1.22745E-05	0.000101818
Road 11	11	2000-2100	1.200846291	1.68869E-06	1.40078E-05	1.173208975	1.64983E-06	1.36854E-05	7.273682388	1.02286E-05	8.48472E-05	7.137972227	1.00378E-05	8.32641E-05	8.311181202	1.16876E-05	9.69496E-05
Road 11	11	2100-2200	0.888821772	8.94994E-07	7.42405E-06	0.867400923	8.73425E-07	7.24513E-06	5.739177906	5.77903E-06	4.79376E-05	5.620900946	5.65993E-06	4.69496E-05	6.488301869	6.53336E-06	5.41947E-05
Road 11	11	2200-2300	1.109170252	1.21315E-06	1.00632E-05	1.08383333	1.18544E-06	9.83334E-06	6.813527404	7.4523E-06	6.18174E-05	6.684044294	7.31067E-06	6.06426E-05	7.767877624	8.49612E-06	7.0476E-05
Road 11	11	2300-0000	1.050759968	1.09454E-06	9.07931E-06	1.026969824	1.06976E-06	8.87375E-06	6.551131492	6.8241E-06	5.66064E-05	6.427437067	6.69525E-06	5.55376E-05	7.45440689	7.76501E-06	6.44114E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.752441612	5.17376E-06	7.78159E-06	2.624521612	4.93331E-06	7.41994E-06	15.18171354	2.85371E-05	4.29211E-05	14.62148354	2.7484E-05	4.13373E-05	17.24600515	3.24173E-05	4.87572E-05
Haul Road 1	HR1	0800-0900	2.750441612	5.17E-06	7.77594E-06	2.619031612	4.92299E-06	7.40442E-06	15.17311354	2.85209E-05	4.28968E-05	14.59739354	2.74387E-05	4.12692E-05	17.21642515	3.23617E-05	4.86736E-05
Haul Road 1	HR1	0900-1000	2.743641612	5.15722E-06	7.75672E-06	2.620321612	4.92542E-06	7.40807E-06	15.14344354	2.84651E-05	4.28129E-05	14.60319354	2.74496E-05	4.12856E-05	17.22351515	3.2375E-05	4.86936E-05
Haul Road 1	HR1	1000-1100	2.747141612	5.1638E-06	7.76661E-06	2.619131612	4.92318E-06	7.40471E-06	15.15873354	2.84939E-05	4.28562E-05	14.59799354	2.74398E-05	4.12709E-05	17.21712515	3.2363E-05	4.86756E-05
Haul Road 1	HR1	1100-1200	2.751941612	5.17282E-06	7.78018E-06	2.618731612	4.92243E-06	7.40357E-06	15.17971354	2.85333E-05	4.29155E-05	14.59589354	2.74359E-05	4.12649E-05	17.21462515	3.23583E-05	4.86685E-05
Haul Road 1	HR1	1200-1300	2.753941612	5.17658E-06	7.78584E-06	2.622521612	4.92955E-06	7.41429E-06	15.18850354	2.85498E-05	4.29403E-05	14.61259354	2.74673E-05	4.13121E-05	17.23511515	3.23968E-05	4.87264E-05
Haul Road 1	HR1	1300-1400	2.756541612	5.18147E-06	7.79319E-06	2.610931612	4.90777E-06	7.38152E-06	15.19969354	2.85709E-05	4.2972E-05	14.56202354	2.73722E-05	4.11692E-05	17.17295515	3.228E-05	4.85507E-05
Haul Road 1	HR1	1400-1500	2.750941612	5.17094E-06	7.77735E-06	2.610931612	4.90777E-06	7.38152E-06	15.17531354	2.8525E-05	4.2903E-05	14.56202354	2.73722E-05	4.11692E-05	17.17295515	3.228E-05	4.85507E-05
Haul Road 1	HR1	1500-1600	2.745441612	5.1606E-06	7.7618E-06	2.618731612	4.92243E-06	7.40357E-06	15.15123354	2.84798E-05	4.2835E-05	14.59589354	2.74359E-05	4.12649E-05	17.21462515	3.23583E-05	4.86685E-05
Haul Road 1	HR1	1600-1700	2.746241612	5.16211E-06	7.76407E-06	2.611131612	4.90814E-06	7.38209E-06	15.15463354	2.84862E-05	4.28446E-05	14.56252354	2.73732E-05	4.11706E-05	17.17365515	3.22813E-05	4.85527E-05
Haul Road 1	HR1	1700-1800	2.751341612	5.17169E-06	7.77848E-06	2.608431612	4.90307E-06	7.37446E-06	15.17721354	2.85286E-05	4.29084E-05	14.55103354	2.73516E-05	4.11381E-05	17.15946515	3.22546E-05	4.85126E-05
Haul Road 1	HR1	1800-1900	2.751341612	5.17169E-06	7.77848E-06	2.610331612	4.90664E-06	7.37983E-06	15.17721354	2.85286E-05	4.29084E-05	14.55912354	2.73668E-05	4.1161E-05	17.16945515	3.22734E-05	4.85408E-05
Haul Road 1	HR1	1900-2000	2.748841612	5.167E-06	7.77142E-06	2.603641612	4.89406E-06	7.36091E-06	15.16592354	2.85074E-05	4.28765E-05	14.52983354	2.73117E-05	4.10782E-05	17.13347515	3.22058E-05	4.84391E-05
Haul Road 1	HR1	2000-2100	2.746241612	5.16211E-06	7.76407E-06	2.609631612	4.90532E-06	7.37785E-06	15.15463354	2.84862E-05	4.28446E-05	14.55622354	2.73613E-05	4.11528E-05	17.16585515	3.22666E-05	4.85306E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.752441612	3.56534E-06	7.09873E-06	2.624521612	3.39964E-06	6.76881E-06	15.18171354	1.96654E-05	3.91546E-05	14.62148354	1.89397E-05	3.77098E-05	17.24600515	2.23394E-05	4.44786E-05
Haul Road 2	HR2	0800-0900	2.750441612	3.56275E-06	7.09357E-06	2.619031612	3.39253E-06	6.75465E-06	15.17311354	1.96543E-05	3.91325E-05	14.59739354	1.89085E-05	3.76476E-05	17.21642515	2.23011E-05	4.44023E-05
Haul Road 2	HR2	0900-1000	2.743641612	3.55394E-06	7.07603E-06	2.620321612	3.3942E-06	6.75798E-06	15.14344354	1.96159E-05	3.90559E-05	14.60319354	1.89161E-05	3.76626E-05	17.22351515	2.23103E-05	4.44206E-05
Haul Road 2	HR2	1000-1100	2.747141612	3.55847E-06	7.08506E-06	2.619131612	3.39266E-06	6.75491E-06	15.15873354	1.96357E-05	3.90954E-05	14.59799354	1.89093E-05	3.76492E-05	17.21712515	2.2302E-05	4.44041E-05
Haul Road 2	HR2	1100-1200	2.751941612	3.56469E-06	7.09744E-06	2.618731612	3.39214E-06	6.75388E-06	15.17971354	1.96628E-05	3.91495E-05	14.59589354	1.89066E-05	3.76438E-05	17.21462515	2.22987E-05	4.43976E-05
Haul Road 2	HR2	1200-1300	2.753941612	3.56728E-06	7.1026E-06	2.622521612	3.39705E-06	6.76365E-06	15.18850354	1.96742E-05	3.91721E-05	14.61259354	1.89282E-05	3.76868E-05	17.23511515	2.23253E-05	4.44505E-05
Haul Road 2	HR2	1300-1400	2.756541612	3.57065E-06	7.1093E-06	2.610931612	3.38204E-06	6.73376E-06	15.19969354	1.96887E-05	3.9201E-05	14.56202354	1.88627E-05	3.75564E-05	17.17295515	2.22448E-05	4.42902E-05
Haul Road 2	HR2	1400-1500	2.750941612	3.5634E-06	7.09486E-06	2.610931612	3.38204E-06	6.73376E-06	15.17531354	1.96571E-05	3.91381E-05	14.56202354	1.88627E-05	3.75564E-05	17.17295515	2.22448E-05	4.42902E-05
Haul Road 2	HR2	1500-1600	2.745441612	3.55627E-06	7.08067E-06	2.618731612	3.39214E-06	6.75388E-06	15.15123354	1.9626E-05	3.9076E-05	14.59589354	1.89066E-05	3.76438E-05	17.21462515	2.22987E-05	4.43976E-05
Haul Road 2	HR2	1600-1700	2.746241612	3.55731E-06	7.08274E-06	2.611131612	3.38229E-06	6.73428E-06	15.15463354	1.96304E-05	3.90848E-05	14.56252354	1.88634E-05	3.75577E-05	17.17365515	2.22457E-05	4.4292E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.751341612	3.56391E-06	7.09589E-06	2.608431612	3.3788E-06	6.72732E-06	15.17721354	1.96596E-05	3.9143E-05	14.55103354	1.88485E-05	3.75281E-05	17.15946515	2.22273E-05	4.42554E-05
Haul Road 2	HR2	1800-1900	2.751341612	3.56391E-06	7.09589E-06	2.610331612	3.38126E-06	6.73222E-06	15.17721354	1.96596E-05	3.9143E-05	14.55912354	1.8859E-05	3.75489E-05	17.16945515	2.22402E-05	4.42811E-05
Haul Road 2	HR2	1900-2000	2.748841612	3.56068E-06	7.08944E-06	2.603641612	3.37259E-06	6.71496E-06	15.16592354	1.9645E-05	3.91139E-05	14.52983354	1.8821E-05	3.74734E-05	17.13347515	2.21936E-05	4.41884E-05
Haul Road 2	HR2	2000-2100	2.746241612	3.55731E-06	7.08274E-06	2.609631612	3.38035E-06	6.73041E-06	15.15463354	1.96304E-05	3.90848E-05	14.55622354	1.88552E-05	3.75415E-05	17.16585515	2.22356E-05	4.42719E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.752441612	3.56534E-06	6.56626E-06	2.624521612	3.39964E-06	6.26109E-06	15.18171354	1.96654E-05	3.62177E-05	14.62148354	1.89397E-05	3.48812E-05	17.24600515	2.23394E-05	4.11423E-05
Haul Road 3	HR3	0800-0900	2.750441612	3.56275E-06	6.56148E-06	2.619031612	3.39253E-06	6.24799E-06	15.17311354	1.96543E-05	3.61972E-05	14.59739354	1.89085E-05	3.48237E-05	17.21642515	2.23011E-05	4.10717E-05
Haul Road 3	HR3	0900-1000	2.743641612	3.55394E-06	6.54526E-06	2.620321612	3.3942E-06	6.25107E-06	15.14344354	1.96159E-05	3.61264E-05	14.60319354	1.89161E-05	3.48375E-05	17.22351515	2.23103E-05	4.10886E-05
Haul Road 3	HR3	1000-1100	2.747141612	3.55847E-06	6.55361E-06	2.619131612	3.39266E-06	6.24823E-06	15.15873354	1.96357E-05	3.61628E-05	14.59799354	1.89093E-05	3.48251E-05	17.21712515	2.2302E-05	4.10734E-05
Haul Road 3	HR3	1100-1200	2.751941612	3.56469E-06	6.56506E-06	2.618731612	3.39214E-06	6.24728E-06	15.17971354	1.96628E-05	3.62129E-05	14.59589354	1.89066E-05	3.48201E-05	17.21462515	2.22987E-05	4.10674E-05
Haul Road 3	HR3	1200-1300	2.753941612	3.56728E-06	6.56983E-06	2.622521612	3.39705E-06	6.25632E-06	15.18850354	1.96742E-05	3.62339E-05	14.61259354	1.89282E-05	3.486E-05	17.23511515	2.23253E-05	4.11163E-05
Haul Road 3	HR3	1300-1400	2.756541612	3.57065E-06	6.57604E-06	2.610931612	3.38204E-06	6.22867E-06	15.19969354	1.96887E-05	3.62606E-05	14.56202354	1.88627E-05	3.47393E-05	17.17295515	2.22448E-05	4.0968E-05
Haul Road 3	HR3	1400-1500	2.750941612	3.5634E-06	6.56268E-06	2.610931612	3.38204E-06	6.22867E-06	15.17531354	1.96571E-05	3.62024E-05	14.56202354	1.88627E-05	3.47393E-05	17.17295515	2.22448E-05	4.0968E-05
Haul Road 3	HR3	1500-1600	2.745441612	3.55627E-06	6.54956E-06	2.618731612	3.39214E-06	6.24728E-06	15.15123354	1.9626E-05	3.6145E-05	14.59589354	1.89066E-05	3.48201E-05	17.21462515	2.22987E-05	4.10674E-05
Haul Road 3	HR3	1600-1700	2.746241612	3.55731E-06	6.55146E-06	2.611131612	3.38229E-06	6.22914E-06	15.15463354	1.96304E-05	3.61531E-05	14.56252354	1.88634E-05	3.47405E-05	17.17365515	2.22457E-05	4.09697E-05
Haul Road 3	HR3	1700-1800	2.751341612	3.56391E-06	6.56363E-06	2.608431612	3.3788E-06	6.2227E-06	15.17721354	1.96596E-05	3.62069E-05	14.55103354	1.88485E-05	3.47131E-05	17.15946515	2.22273E-05	4.09358E-05
Haul Road 3	HR3	1800-1900	2.751341612	3.56391E-06	6.56363E-06	2.610331612	3.38126E-06	6.22724E-06	15.17721354	1.96596E-05	3.62069E-05	14.55912354	1.8859E-05	3.47324E-05	17.16945515	2.22402E-05	4.09596E-05
Haul Road 3	HR3	1900-2000	2.748841612	3.56068E-06	6.55767E-06	2.603641612	3.37259E-06	6.21128E-06	15.16592354	1.9645E-05	3.618E-05	14.52983354	1.8821E-05	3.46625E-05	17.13347515	2.21936E-05	4.08738E-05
Haul Road 3	HR3	2000-2100	2.746241612	3.55731E-06	6.55146E-06	2.609631612	3.38035E-06	6.22557E-06	15.15463354	1.96304E-05	3.61531E-05	14.55622354	1.88552E-05	3.47255E-05	17.16585515	2.22356E-05	4.09511E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Traffic Forecast for Air Quality Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

INDEX PLAN

FIGURE 1.1

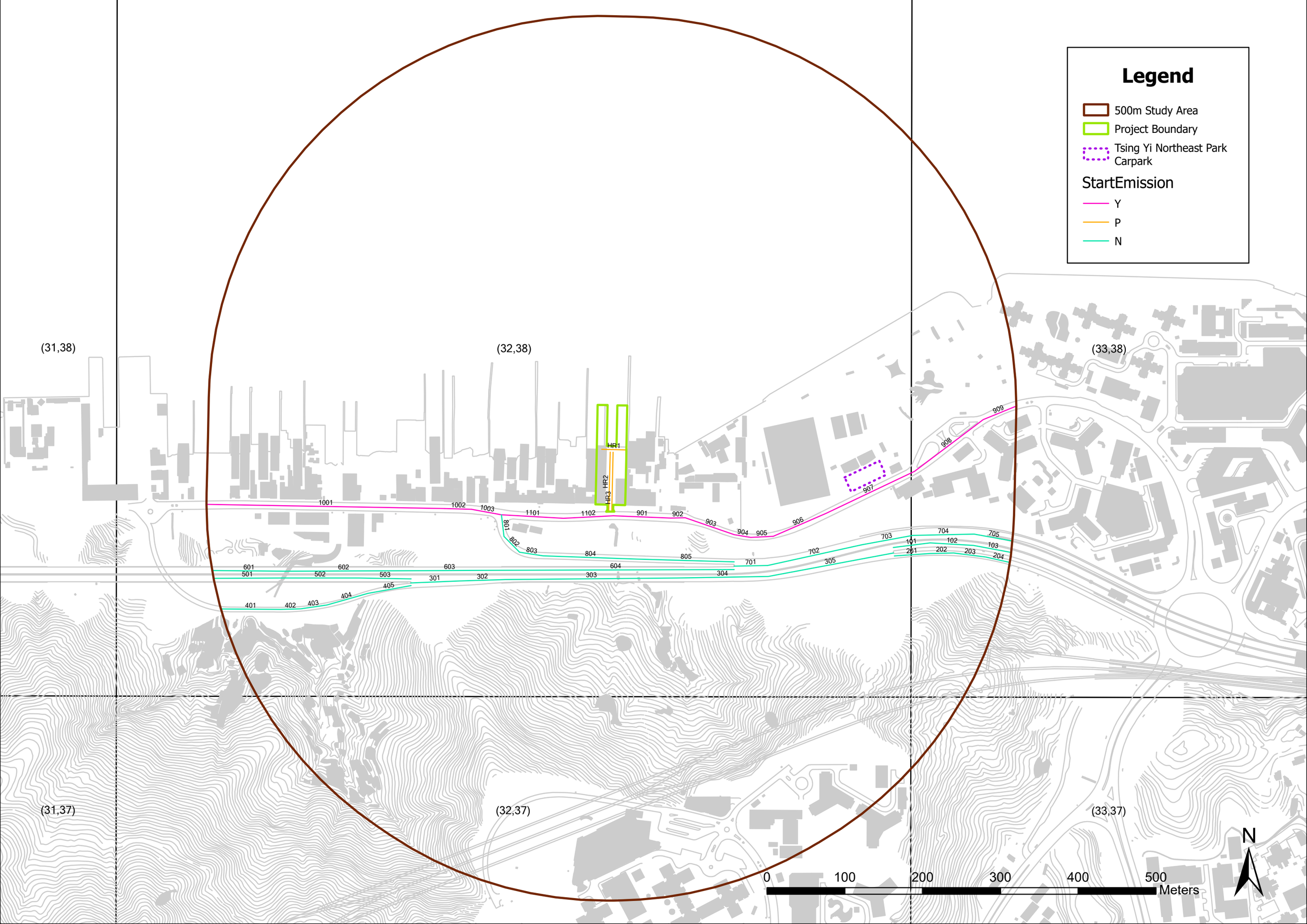
Scale : 1:5000 (A3)

Date : NOV 2024

Rev. : A

AXON CONSULTANCY
http://www.axonhk.com

C:\USERS\USER\DESKTOP\31048\DATA\DRAWING\FIGURE 1.1.DWG


Legend
500m Study Area
Project Boundary
Tsing Yi Northeast Park Carpark
StartEmission
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(33,38)
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(32,37)
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From: [redacted]
Sent: Wednesday, March 19, 2025 11:15 AM
To: [redacted]
Subject: RE: Traffic Forecast Methodology for Air Quality Impact Assessment

Dear [redacted]

Thank you for your prompt response. Please be advised that the methodology for the traffic forecast remains consistent with that adopted in the Traffic Impact Assessment for the aforementioned project.

Should you require any further information, please let us know.

Yours sincerely,
[redacted]

AXON

AXON Engineering and Consulting Ltd.
Unit 209, 2/F, No. 19 Science Park West Avenue
Hong Kong Science Park, Shatin, Hong Kong
Office: 2258 6392 Fax: 3020 0321
Office: 2258 6392 Fax: 3020 0321
Email: info@axonhk.com
Homepage: http://www.axonhk.com

From: [redacted]
Sent: Wednesday, March 19, 2025 11:12 AM
To: [redacted]
Subject: Re: Traffic Forecast Methodology for Air Quality Impact Assessment

Dear [redacted]

Please note that Environmental Assessment is not under our purview. We are not in a position to provide comments on the traffic figures tailor-made for the environmental assessment purposes.

Notwithstanding the above, we have no objection in principle to the methodology for traffic forecast provided that it is the same as that adopted in the traffic impact assessment for the captioned project.

Regards,
[redacted]
E/TY,TD

From: [redacted]
To:
Cc: [redacted]
Date: 19/03/2025 11:09 AM

Subject: Traffic Forecast Methodology for Air Quality Impact Assessment

Dear [redacted]

We are the traffic consultant for the Proposed CBP Development at Tam Kon Shan Road, Tsing Yi. As noted in our environmental consultant's correspondence with the Environmental Protection Department (EPD), an Environmental Assessment (EA) has been submitted, in which traffic data has been adopted as part of the Air Quality Impact Assessment.

In this regard, please find attached the proposed methodology for forecasting traffic data, which is solely for use in the Air Quality Impact Assessment, for your review and consideration. Grateful if you could advise whether you have any in-principle objection to the methodology.

Thank you for your time and cooperation.

Yours sincerely,

[redacted]

AXON

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[attachment "31048-R03-01.pdf" deleted by [redacted]/TD/HKSARG]

APPENDIX 3.5

Calculation of Marine Emissions

Appendix 3.5 Calculation of Marine Emissions

Description of Marine Routes

Marine Traffic

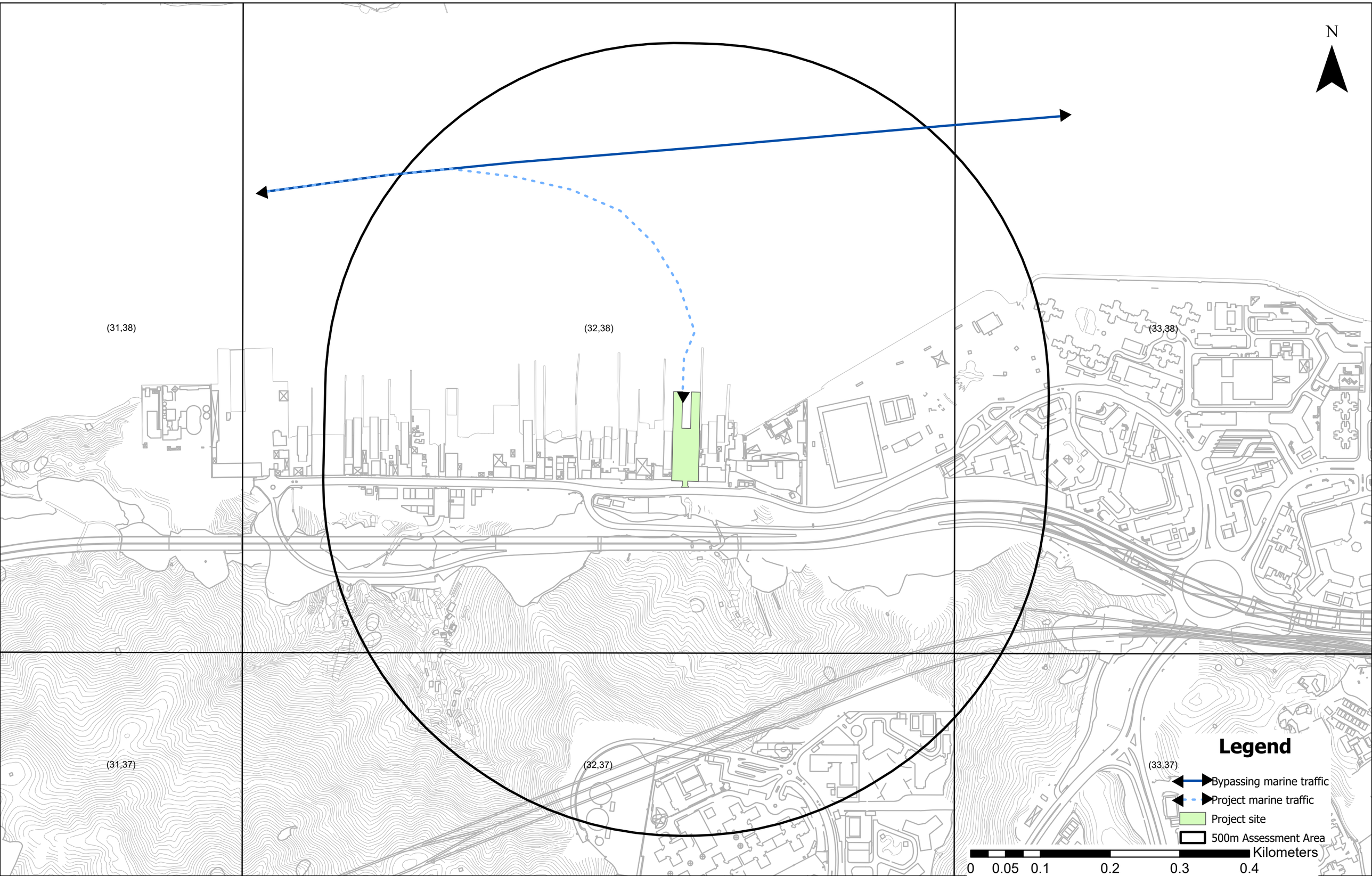
Route 1 is located to the north of the CBP, and the vessels that travel on it are mainly river trade vessels, tug and tows, local ferries, fast launches, small crafts and ocean-going vessels.
The information about Route 1 are obtained by site surveys conducted by Marine Consultant.
Route 1 is the only travelling route for marine vessels within the assessment area based on the site survey.

The bypassing marine traffic consists of the following vessel types:
- River trade vessels: Fully Cellular Container Vessel (RTV01), Dry Bulk Carrier (RTV03)
- Fast launches (FL01)
- Tug and tows (TT01)
- Local ferries (LF01)
- Small crafts: Pleasure Vessel (SC01)
- Ocean-going vessels: Gas Carrier/Tanker (OGV06), Chemical Carrier/Tanker (OGV07), Oil Tanker (OGV08)

The marine traffic induced by the Project consists of the following vessel types:
- River trade vessels: Dry Bulk Carrier (RTV03M, RTV03H, for transporting aggregates), Chemical Carrier/Tanker (RTV07M, RTV07H, for transporting cement)

Appendix 3.5 Calculation of Marine Emissions

Marine Route Map



Appendix 3.5 Calculation of Marine Emissions

Marine Traffic

Hourly distribution by vessel type on each route - Future 2026

Route #	ShipType	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
1	OGV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	1.75	2.25	2.25	3.17	3.92	2.75	1.00	1.25	1.33	1.08	0.58	0.00	0.00	0.00	0.00	0.00	23.42
1	RTV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.92	1.42	1.42	1.75	4.42	3.50	1.92	3.08	0.83	0.67	1.67	0.00	0.00	0.00	0.00	0.00	23.00
1	TT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.67	0.25	0.33	0.83	0.50	0.33	0.42	0.08	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	4.25
1	LF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.83	3.75	1.25	2.00	0.00	0.00	2.00	0.00	0.00	2.00	1.92	2.42	0.00	0.00	0.00	0.00	0.00	21.17
1	FL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.04	10.12	3.66	3.66	3.84	3.31	2.44	3.84	3.92	3.14	7.06	13.60	0.00	0.00	0.00	0.00	0.00	70.64
1	SC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.72	6.27	5.67	9.53	7.73	11.25	6.95	5.84	9.19	10.30	11.25	6.61	0.00	0.00	0.00	0.00	0.00	95.30

Hourly distribution by vessel type on each route - Future 2028

Route #	ShipType	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
1	OGV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	1.75	2.25	2.25	3.17	3.92	2.75	1.00	1.25	1.33	1.08	0.58	0.00	0.00	0.00	0.00	0.00	23.42
1	RTV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.92	1.42	1.42	1.75	4.42	3.50	1.92	3.08	0.83	0.67	1.67	0.00	0.00	0.00	0.00	0.00	23.00
1	TT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.67	0.25	0.33	0.83	0.50	0.33	0.42	0.08	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	4.25
1	LF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.83	3.75	1.25	2.00	0.00	0.00	2.00	0.00	0.00	2.00	1.92	2.42	0.00	0.00	0.00	0.00	0.00	21.17
1	FL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.60	10.59	3.83	3.83	4.02	3.47	2.56	4.02	4.11	3.29	7.39	14.24	0.00	0.00	0.00	0.00	0.00	73.93
1	SC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.86	6.46	5.84	9.82	7.96	11.59	7.16	6.01	9.46	10.61	11.59	6.81	0.00	0.00	0.00	0.00	0.00	98.18

Hourly distribution by vessel type on each route - Future 2030

Route #	ShipType	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
1	OGV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	1.75	2.25	2.25	3.17	3.92	2.75	1.00	1.25	1.33	1.08	0.58	0.00	0.00	0.00	0.00	0.00	23.42
1	RTV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.92	1.42	1.42	1.75	4.42	3.50	1.92	3.08	0.83	0.67	1.67	0.00	0.00	0.00	0.00	0.00	23.00
1	TT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.67	0.25	0.33	0.83	0.50	0.33	0.42	0.08	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	4.25
1	LF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.83	3.75	1.25	2.00	0.00	0.00	2.00	0.00	0.00	2.00	1.92	2.42	0.00	0.00	0.00	0.00	0.00	21.17
1	FL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.18	11.08	4.01	4.01	4.20	3.63	2.67	4.20	4.30	3.44	7.74	14.90	0.00	0.00	0.00	0.00	0.00	77.37
1	SC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.01	6.65	6.01	10.11	8.20	11.94	7.38	6.20	9.75	10.93	11.94	7.02	0.00	0.00	0.00	0.00	0.00	101.14

Remark

1. The marine traffics are provided by engineers and endorsed by Marine Department.
2. Marine traffic data for Year 2030 are adopted for assessment, as it represents the highest traffic volume within the five-year Project period and reflects the worst-case scenario.

Appendix 3.5 Calculation of Marine Emissions

Speed Distribution

Speed distribution by vessel type (Route 1)

Speed Range (knots)	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	10 - 12	12 - 14	14 - 16	16 - 18	18 - 20	20 - 22	22 - 24	24 - 26	26 - 28	28 - 30	30 - 32	32 - 34	34 - 36	36 - 38	38 - 40	40 - 42	42 - 44	44 - 46	46 - 48	48 - 50	Total
Speed Median (knots)	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	
OGV	0.90%	4.50%	3.60%	5.41%	10.81%	8.11%	21.62%	22.52%	8.11%	6.31%	1.80%	0.90%	0.90%	0.00%	0.00%	0.00%	0.90%	0.00%	0.90%	0.00%	0.00%	0.90%	0.90%	0.00%	0.90%	100.00%
RTV	0.00%	0.00%	0.00%	0.00%	6.94%	31.94%	33.33%	18.06%	6.94%	0.00%	0.00%	0.00%	1.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%	100.00%
TT	0.00%	0.00%	0.00%	0.00%	33.33%	0.00%	33.33%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
LF	0.00%	0.00%	5.26%	0.00%	0.00%	0.00%	0.00%	13.16%	2.63%	21.05%	7.89%	21.05%	10.53%	7.89%	5.26%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.26%	100.00%
FL	3.13%	3.13%	0.00%	1.56%	3.13%	4.69%	12.50%	12.50%	10.94%	9.38%	3.13%	3.13%	6.25%	3.13%	1.56%	3.13%	3.13%	0.00%	0.00%	3.13%	0.00%	1.56%	0.00%	1.56%	9.38%	100.00%
SC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.53%	21.05%	31.58%	26.32%	5.26%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.26%	100.00%

Remark

1. The speed distributions are provided by marine consultants and endorsed by Marine Department.

Appendix 3.5 Calculation of Marine Emissions

Operation Mode by Vessel Speed

Vessel Speed	Operation Mode
0	Hotelling
1	Maneuvering
8	Slow Cruise
12	Fairway Cruise

Vessel Information by Vessel

Vessel Category	Vessel Type [1,2]	Vessel Type (MVEIS) [3]	Vessel Class [4,5]	Number of Vessels / Arrivals [5]	Proportion of Arrivals by vessel type
RTV	Fully Cellular Container Vessel	Fully Cellular Container Vessel	-	23813	80.13%
RTV	Dry Bulk Carrier	Dry Bulk Carrier	-	5905	19.87%
Subtotal	**-**	**-**	**-**	**29718**	**100.00%**
FL	Fast Launch	Others (GRT >=1000)	-	-	100.00%
Subtotal	**-**	**-**	**-**	**-**	**100.00%**
TT	Tug	Tug	-	-	100.00%
Subtotal	**-**	**-**	**-**	**-**	**100.00%**
LF	Local Ferry	Local Ferry	-	-	100.00%
Subtotal	**-**	**-**	**-**	**-**	**100.00%**
SC	Pleasure Vessel	Pleasure Vessel	Class IV	12553	100.00%
Subtotal	**-**	**-**	**-**	**12553**	**100.00%**
OGV	Gas Carrier/Tanker	Gas Carrier/Tanker	-	292	21.50%
OGV	Chemical Carrier/Tanker	Chemical Carrier/Tanker	-	480	35.35%
OGV	Oil Tanker	Oil Tanker	-	586	43.15%
Subtotal	**-**	**-**	**-**	**1358**	**100.00%**

Remark

1. Marine traffic consultant has not further breakdown the marine traffic data of OGV into various vessel types. Therefore, vessel types catalogized by the Marine Department is adopted to breakdown the marine traffic data (https://www.mardep.gov.hk/filemanager/en/share/fact/pdf/portstat_2_y_a2.pdf).
2. According to data from marine consultants, tugs and cross boundary ferry are classified as an independent vessel type and are consequently excluded from calculation of marine emission of RTV.
3. Classification of vessel type refers to Table 3-2 and Table 4-1 of MVEIS, Fast Launch is classifed as "Others (GRT >= 1000)" as a conservative estimation .
4. The vessel class refer to Cap. 548D MERCHANT SHIPPING (LOCAL VESSELS) (CERTIFICATION AND LICENSING) REGULATION – SCHEDULE 1 Class and Type of Local Vessel (https://www.elegislation.gov.hk/hk/cap548D!en@2014-03-03T00:00:00).
5. Number of vessels / arrivals refers to statistics published by Marine Department.
- For RTV and OGV, the number of arrivals refers to Table 3 in Port of Hong Kong Statistical Tables 2023 (https://www.mardep.gov.hk/filemanager/en/share/fact/pdf/portstat_ast_2023.pdf).
- For Small Crafts (SC), the number of licensed vessels in refer to Table 24 in Port of Hong Kong Statistical Tables 2023 (https://www.mardep.gov.hk/filemanager/en/share/fact/pdf/portstat_ast_2023.pdf).

Appendix 3.5 Calculation of Marine Emissions

Hourly Traffic Volume of Marine Traffic

Route #
1

Hourly Traffic Volume

Vessel ID	Vessel Category	Vessel Type	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV01	RTV	Fully Cellular Container Vessel	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV03	RTV	Dry Bulk Carrier	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_FL01	FL	Fast Launch	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_TT01	TT	Tug	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_LF01	LF	Local Ferry	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_SC01	SC	Pleasure Vessel	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_OGV06	OGV	Gas Carrier/Tanker	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07	OGV	Chemical Carrier/Tanker	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV08	OGV	Oil Tanker	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_RTV03M	RTV	Dry Bulk Carrier	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV07M	RTV	Chemical Carrier/Tanker	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV03H	RTV	Dry Bulk Carrier	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	0
R1_RTV07H	RTV	Chemical Carrier/Tanker	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0

Remark

1. The hourly traffic volume of a vessel type is obtained by the following formula:
hourly traffic volume = traffic data x proportion of arrivals

2. The hourly traffic volume for each vessel ID is used as their hourly profile in air dispersion modelling.

3. Maneuvering is assumed for RTV03 during 7:00-8:00, 11:00-12:00, 15:00-16:00 and 19:00-20:00, and for RTV07 during 11:00-12:00 and 15:00-16:00.

4. Hotelling is assumed for RTV03 during 7:00-13:00 and 15:00-19:00, and for RTV07 during 11:00-15:00.

Appendix 3.5 Calculation of Marine Emissions

Load Factor by Vessel

Vessel Category	Vessel Type	Engine Category	GRT/DWT/PAX Sub-group	Fairway Cruise	Slow Cruise	Maneuvering	Hotelling
RTV	Fully Cellular Container Vessel	Main Engine	GRT >= 1000	0.450	0.450	0.300	0.000
RTV	Dry Bulk Carrier	Main Engine	GRT >= 1000	0.450	0.450	0.300	0.000
RTV	Chemical Carrier/Tanker	Main Engine	GRT >= 1000	0.450	0.450	0.300	0.000
RTV	Fully Cellular Container Vessel	Auxiliary Engine	GRT >= 1000	0.430	0.430	0.430	0.430
RTV	Dry Bulk Carrier	Auxiliary Engine	GRT >= 1000	0.430	0.430	0.430	0.430
RTV	Chemical Carrier/Tanker	Auxiliary Engine	GRT >= 1000	0.430	0.430	0.430	0.430
FL	Fast Launch	Main Engine	-	0.450	0.450	0.300	0.000
TT	Tug	Main Engine	-	0.310	0.310	0.300	0.000
TT	Tug	Auxiliary Engine	-	0.430	0.430	0.430	0.430
FL	Fast Launch	Auxiliary Engine	-	0.450	0.450	0.450	0.450
LF	Local Ferry	Main Engine	-	0.800	0.600	0.300	0.000
LF	Local Ferry	Auxiliary Engine	-	0.450	0.450	0.450	0.450
SC	Pleasure Vessel	Main Engine	-	-	0.210	0.020	-
SC	Pleasure Vessel	Auxiliary Engine	-	-	0.320	0.320	0.320
OGV	Gas Carrier/Tanker	Main Engine	DWT >= 40000	-	0.375	0.025	-
OGV	Chemical Carrier/Tanker	Main Engine	DWT >= 40000	-	0.396	0.024	-
OGV	Oil Tanker	Main Engine	DWT >= 120000	-	0.382	0.023	-
OGV	Gas Carrier/Tanker	Auxiliary Engine	DWT >= 40000	-	0.273	0.322	0.244
OGV	Chemical Carrier/Tanker	Auxiliary Engine	DWT >= 40000	-	0.297	0.350	0.265
OGV	Oil Tanker	Auxiliary Engine	DWT >= 120000	-	0.283	0.334	0.253

Remark

1. The load factors refers to MVEIS:
- Load factors of main engine of RTV (Table 4-7)
- Load factors of auxiliary engine of RTV (Table 4-10)
- Load factors of main engine of Fast Launch (Table 4-7)
- Load factors of auxiliary engine of Fast Launch (Table 4-10)
- Load factors of main engine of Tug (Table 4-7)
- Load factors of auxiliary engine of Tug (Table 4-10)
- Load factors of main engine of Local Ferry (Table 4-9)
- Load factors of main engine of Local Ferry (Table 4-10)
- Load factors of main engine of Pleasure Vessel of Small Crafts (Table 3-18)
- Load factors of auxiliary engine of Pleasure Vessel of Small Crafts (Table 3-21)
- Load factors of main engine of OGV (Table 3-18)
- Load factors of auxiliary engine of OGV (Table 3-21)

Appendix 3.5 Calculation of Marine Emissions

Emission Factors by Vessel

Vessel Category	Vessel Type [1,2]	Vessel Type (MVEIS) [3]	Vessel Class [4]	Route	Route Code	Engine Category	Engine Type [5,6]	Fuel [7,8]	GRT/DWT/PAX Sub-group [9,10]	Vessel Calls [11]	Proportion of each engine type [12]	Engine Power (kW) [13]	Baseline Specific Fuel Consumption (g/kWh) [14]	NOx Emission Factors (g/kWh) [15]	SO_2 Emission Factors (g/kWh) [16]	RSP Emission Factors (g/kWh) [17]	FSP Emission Factor (g/kWh) [18]
RTV	Fully Cellular Container Vessel	-	-	-	-	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	GRT >= 1000	-	100.00%	704.00	213.00	10.00	2.08	0.32	0.31
RTV	Fully Cellular Container Vessel	-	-	-	-	Auxiliary Engine	-	-	GRT >= 1000	-	100.00%	115.00	213.00	10.00	2.08	0.32	0.31
RTV	Dry Bulk Carrier	-	-	-	-	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	GRT >= 1000	-	100.00%	744.00	213.00	10.00	2.08	0.32	0.31
RTV	Dry Bulk Carrier	-	-	-	-	Auxiliary Engine	-	-	GRT >= 1000	-	100.00%	115.00	213.00	10.00	2.08	0.32	0.31
RTV	Chemical Carrier/Tanker	-	-	-	-	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	GRT >= 1000	-	100.00%	1565.00	213.00	13.20	2.08	0.32	0.31
RTV	Chemical Carrier/Tanker	-	-	-	-	Auxiliary Engine	-	-	GRT >= 1000	-	100.00%	375.00	213.00	10.00	2.08	0.32	0.31
TT	Tug	Tug	-	-	-	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	2344.00	213.00	13.20	0.21	0.17	0.16
TT	Tug	Tug	-	-	-	Auxiliary Engine	-	-	-	-	100.00%	520.00	213.00	10.00	0.21	0.17	0.16
FL	Fast Launch	Others (GRT >=1000)	-	-	-	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	GRT >= 1000	-	100.00%	707.00	213.00	10.00	0.21	0.17	0.16
FL	Fast Launch	Others (GRT >=1000)	-	-	-	Auxiliary Engine	-	-	GRT >= 1000	-	100.00%	115.00	213.00	10.00	0.21	0.17	0.16
SC	Pleasure Vessel	Pleasure Vessel	Class IV	-	-	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	786.00	213.00	10.00	0.21	0.17	0.16
SC	Pleasure Vessel	Pleasure Vessel	Class IV	-	-	Auxiliary Engine	-	-	-	-	100.00%	60.00	213.00	13.90	0.21	0.17	0.16
OGV	Gas Carrier/Tanker	-	-	-	-	Main Engine	SSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	55	16.08%	3364.00	205.00	17.00	2.00	0.31	0.29
OGV	Gas Carrier/Tanker	-	-	-	-	Main Engine	MSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	276	80.70%	3364.00	215.00	13.00	2.10	0.32	0.29
OGV	Gas Carrier/Tanker	-	-	-	-	Main Engine	HSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	10	2.92%	3364.00	225.00	9.80	2.20	0.32	0.30
OGV	Gas Carrier/Tanker	-	-	-	-	Main Engine	ST	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	1	0.29%	3364.00	340.00	2.10	3.32	0.37	0.34
OGV	Gas Carrier/Tanker	-	-	-	-	Auxiliary Engine	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	709.80	225.00	11.20	2.20	0.32	0.30
OGV	Gas Carrier/Tanker	-	-	-	-	Auxiliary Boiler	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	371.00	340.00	2.10	3.32	0.37	0.34
OGV	Chemical Carrier/Tanker	-	-	-	-	Main Engine	SSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	119	26.33%	3515.00	205.00	17.00	2.00	0.31	0.29
OGV	Chemical Carrier/Tanker	-	-	-	-	Main Engine	MSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	313	69.25%	3515.00	215.00	13.00	2.10	0.32	0.29
OGV	Chemical Carrier/Tanker	-	-	-	-	Main Engine	HSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	20	4.42%	3515.00	225.00	9.80	2.20	0.32	0.30
OGV	Chemical Carrier/Tanker	-	-	-	-	Auxiliary Engine	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	741.67	225.00	11.20	2.20	0.32	0.30
OGV	Chemical Carrier/Tanker	-	-	-	-	Auxiliary Boiler	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	371.00	340.00	2.10	3.32	0.37	0.34
OGV	Oil Tanker	-	-	-	-	Main Engine	SSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 120000	682	48.71%	5652.00	205.00	17.00	2.00	0.31	0.29
OGV	Oil Tanker	-	-	-	-	Main Engine	MSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 120000	645	46.07%	5652.00	215.00	13.00	2.10	0.32	0.29
OGV	Oil Tanker	-	-	-	-	Main Engine	HSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 120000	73	5.21%	5652.00	225.00	9.80	2.20	0.32	0.30
OGV	Oil Tanker	-	-	-	-	Auxiliary Engine	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	1192.57	225.00	11.20	2.20	0.32	0.30
OGV	Oil Tanker	-	-	-	-	Auxiliary Boiler	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	371.00	340.00	2.10	3.32	0.37	0.34
LF	Local Ferry	-	-	Sam Ka Tsuen - Tung Lung Island	1	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	-	1	100.00%	786	203	13.2	1.98	0.31	0.30
LF	Local Ferry	-	-	Sam Ka Tsuen - Tung Lung Island	1	Auxiliary Engine	-	Fuel with sulphur content not exceeding 0.5%	-	1	100.00%	60	217	13.9	2.12	0.32	0.31

Remarks

1. Marine traffic consultant has not further breakdown the marine traffic data of OGV into various vessel types. Therefore, vessel types catalogized by the Marine Department is adopted to breakdown the marine traffic data (https://www.mardep.gov.hk/filemanager/en/share/fact/pdf/portstat_2_y_a2.pdf).
2. According to data from marine consultants, tugs and cross boundary ferry are classified as an independent vessel type and are consequently excluded from calculation of marine emission of RTV.
3. Classification of vessel type refers to Table 3-2 and Table 4-1 of MVEIS, Fast Launch is classifed as "Others (GRT >= 1000)" as a conservative estimation .
4. The vessel class refer to Cap. 548D MERCHANT SHIPPING (LOCAL VESSELS) (CERTIFICATION AND LICENSING) REGULATION – SCHEDULE 1 Class and Type of Local Vessel (https://www.elegislation.gov.hk/hk/cap548D!en@2014-03-03T00:00:00).
5. The main engine type of RTV, Tug, FL and SC refers to S4.2.6 of MVEIS.
6. The main engine type of OGV and LF refers to Table 3-17 of MVEIS. SSD, MSD, HSD and ST denote slow speed diesel, medium speed diesel, high speed diesel and steam turbine engine, respectively.
7. According to the Air Pollution Control (Marine Light Diesel) Regulation, the sulphur content of locally supplied marine light diesel is capped at 0.05%. Locally supplied marine light diesel oil are assumed to be used for refueling RTVs, Tugs, FLs and SCs in Hong Kong. Marine gas oil with 0.05% sulphur content is assumed to be used for refueling LFs.
8. All vessels are required to use compliant fuels (sulphur content <= 0.5%) under the Air Pollution Control (Fuel for Vessels) Regulations. Therefore, it is assumed that all OGVs use fuel with sulphur content not exceeding 0.5%.
9. The GRT sub-group refers to Table 4-5; the highest GRT for each vessel type is adopted as a conservative approach.
10. DWT / PAX Sub-Group refers to Table 3-18 of MVEIS; the highest DWT/PAX is adopted as a conservative approach.
11. Vessel calls are the number of vessel arrivals in Hong Kong in a year and refer to Section 1.4.5-1.4.8 and Table 3-17 of MVEIS.
12. Proportion of main engine type for OGV refers to Table 3-17 of MVEIS. Proportion of engine types for local ferry is based on the number of operators for a certain route code. Proportions of engine types for other vessel categories are set as 100%.
13. The average engine power makes references to MVEIS:
- main engine power of RTV (Table 4-5)
- auxiliary engine power of RTV (Table 4-6)
- main engine power of Tug (Table 3-15)
- auxiliary engine power of Tug (Table 3-20)
- main engine power of Fast Launch (Table 4-5)
- auxiliary engine power of Fast Launch (Table 4-6)
- main engine power of Pleasure Vessel (Table 3-15)
- auxiliary engine power of Pleasure Vessel (Table 3-20)
- main engine power of Small Fishing Vessel/Sampan, Tug Boat and Work Boat (Table 4-5)
- auxiliary engine power of Small Fishing Vessel/Sampan, Tug Boat and Work Boat (Table 4-6)
- main engine power of OGV FCCV (Table 3-16)
- auxiliary engine power of OGV FCCV (Table 3-22)
- main engine power of OGV other vessel types (Table 3-15)
- auxiliary engine power of OGV other vessel types (Table 3-20)
- auxiliary boiler power of OGV (Table 3-23)
- main engine power of Local Ferry (Table 3-15)
- auxiliary engine power of Local Ferry (Table 3-20)

With reference to Table 3-23 of MVEIS, there is no boiler for Fishing/Fish Processing Vessel of OGV.

14. The Baseline Specific Fuel Consumption (BSFC) makes reference to MVEIS and IMO Fourth Greenhouse Gas Study 2020:
- BSFC of RTV, Tug, Fast Launch and Small Vessels (Table 4-16, MVEIS)
- BSFC of OGV (Table 19, IMO Fourth Greenhouse Gas Study 2020)
  · SFC_BASE for ships built in Years 1984-2000 is adopted as a balance assumption.
  · According to Page 71 of IMO Fourth Greenhouse Gas Study, it is assumed that the Auxiliary Engine Specific Fuel Consumption Specific Fuel Consumption = Baseline Specific Fuel Consumption of Auxiliary Engines.
  · According to Page 71 of IMO Fourth Greenhouse Gas Study, it is assumed that the Auxiliary Boiler Specific Fuel Consumption Specific Fuel Consumption = Baseline Specific Fuel Consumption of Auxiliary Boilers.
- BSFC of main engine of Local Ferry (Table 3-27, MVEIS)
- BSFC of auxiliary engine of Local Ferry (Table 4-16, MVEIS)

15. The NOx emission factor refers to MVEIS and IMO Fourth Greenhouse Gas Study 2020:
- NOx emission of RTV, Tug and Fast Launch (Table 4-16, MVEIS)
- NOx emission of main engine of Pleasure Vessel (Table 4-16, MVEIS)
- NOx emission of auxiliary engine of Pleasure Vessel (Table 3-28, MVEIS)
- NOx emission of Small Fishing Vessel/Sampan, Tug Boat and Work Boat (Table 4-16, MVEIS)
- NOx emission factor of OGV (Table 49, Annex M, IMO Fourth Greenhouse Gas Study 2020)
- NOx emission factor of main engine of Local Ferry (Table 3-27, MVEIS)
- NOx emission factor of auxiliary engine of Local Ferry (Table 3-28, MVEIS)

16. The SO_2 emission factor is calculated based on the formula stated in Paragraph 4.2.31 of MVEIS:
SO_2 EF = BSFC x 2 x 0.97753 x Fuel Sulphur Fraction

17. The RSP emission factor is calculated based on the formula stated in Paragraph 4.2.31 of MVEIS:
PM_{10} EF = 0.23 + BSFC x 7 x 0.02247 x (Fuel Sulphur Fraction - 0.0024)

18. - According to the Forth IMO Greenhouse Gas Study, the RSP to FSP conversion factor used for OGV is 0.92.
- According to According to Paragraph 4.2.32 of MVEIS, the RSP to FSP conversion factor used for other vessel types is 0.97.

Appendix 3.5 Calculation of Marine Emissions

Emission Factors by Engine Category by Vessel

Vessel Category	Vessel Type	Route	Route Code	Engine Category	Operation Mode	Load Factor	NOx Emission Factors (g/hr) [1]	SO_2 Emission Factors (g/hr) [1]	RSP Emission Factors (g/hr) [1]	FSP Emission Factor (g/hr) [1]
RTV	Fully Cellular Container Vessel	-	-	Main Engine	Fairway Cruise	0.45	3.1680E+03	6.5962E+02	1.0046E+02	9.7446E+01
RTV	Fully Cellular Container Vessel	-	-	Auxiliary Engine	Fairway Cruise	0.43	4.9450E+02	1.0296E+02	1.5681E+01	1.5211E+01
RTV	Dry Bulk Carrier	-	-	Main Engine	Fairway Cruise	0.45	3.3480E+03	6.9710E+02	1.0617E+02	1.0298E+02
RTV	Dry Bulk Carrier	-	-	Main Engine	Maneuvering	0.30	2.2320E+03	4.6473E+02	7.0778E+01	6.8655E+01
RTV	Dry Bulk Carrier	-	-	Main Engine	Hotelling	0.00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
RTV	Dry Bulk Carrier	-	-	Auxiliary Engine	Fairway Cruise	0.43	4.9450E+02	1.0296E+02	1.5681E+01	1.5211E+01
RTV	Dry Bulk Carrier	-	-	Auxiliary Engine	Maneuvering	0.43	4.9450E+02	1.0296E+02	1.5681E+01	1.5211E+01
RTV	Dry Bulk Carrier	-	-	Auxiliary Engine	Hotelling	0.43	4.9450E+02	1.0296E+02	1.5681E+01	1.5211E+01
RTV	Chemical Carrier/Tanker	-	-	Main Engine	Maneuvering	0.30	6.1974E+03	9.7756E+02	1.4888E+02	1.4442E+02
RTV	Chemical Carrier/Tanker	-	-	Main Engine	Hotelling	0.00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
RTV	Chemical Carrier/Tanker	-	-	Auxiliary Engine	Maneuvering	0.43	1.6125E+03	3.3574E+02	5.1134E+01	4.9600E+01
RTV	Chemical Carrier/Tanker	-	-	Auxiliary Engine	Hotelling	0.43	1.6125E+03	3.3574E+02	5.1134E+01	4.9600E+01
TT	Tug	-	-	Main Engine	Fairway Cruise	0.31	9.5916E+03	1.5130E+02	1.2087E+02	1.1725E+02
TT	Tug	-	-	Auxiliary Engine	Fairway Cruise	0.43	2.2360E+03	4.6557E+01	3.7195E+01	3.6079E+01
FL	Fast Launch	-	-	Main Engine	Fairway Cruise	0.45	3.1815E+03	6.6243E+01	5.2923E+01	5.1335E+01
FL	Fast Launch	-	-	Auxiliary Engine	Fairway Cruise	0.45	5.1750E+02	1.0775E+01	8.6083E+00	8.3501E+00
SC	Pleasure Vessel	-	-	Main Engine	Fairway Cruise	0.02	1.5720E+02	3.2731E+00	2.6149E+00	2.5365E+00
SC	Pleasure Vessel	-	-	Auxiliary Engine	Fairway Cruise	1.00	8.3400E+02	1.2493E+01	9.9807E+00	9.6813E+00
OGV	Gas Carrier/Tanker	-	-	Main Engine	Fairway Cruise	0.02	9.0948E+02	1.4078E+02	2.1364E+01	1.9655E+01
OGV	Gas Carrier/Tanker	-	-	Auxiliary Engine	Fairway Cruise	1.00	7.9498E+03	1.5612E+03	2.2857E+02	2.1028E+02
OGV	Gas Carrier/Tanker	-	-	Auxiliary Boiler	Fairway Cruise	1.00	7.7910E+02	1.2331E+03	1.3692E+02	1.2596E+02
OGV	Chemical Carrier/Tanker	-	-	Main Engine	Fairway Cruise	0.02	9.7798E+02	1.4624E+02	2.2287E+01	2.0504E+01
OGV	Chemical Carrier/Tanker	-	-	Auxiliary Engine	Fairway Cruise	1.00	8.3066E+03	1.6312E+03	2.3883E+02	2.1972E+02
OGV	Chemical Carrier/Tanker	-	-	Auxiliary Boiler	Fairway Cruise	1.00	7.7910E+02	1.2331E+03	1.3692E+02	1.2596E+02
OGV	Oil Tanker	-	-	Main Engine	Fairway Cruise	0.02	1.6709E+03	2.3277E+02	3.5737E+01	3.2878E+01
OGV	Oil Tanker	-	-	Auxiliary Engine	Fairway Cruise	1.00	1.3357E+04	2.6230E+03	3.8403E+02	3.5330E+02
OGV	Oil Tanker	-	-	Auxiliary Boiler	Fairway Cruise	1.00	7.7910E+02	1.2331E+03	1.3692E+02	1.2596E+02
LF	Local Ferry	Sam Ka Tsuen - Tung Lung Island	1	Main Engine	Fairway Cruise	0.80	8.3002E+03	1.2478E+03	1.9683E+02	1.9092E+02
LF	Local Ferry	Sam Ka Tsuen - Tung Lung Island	1	Auxiliary Engine	Fairway Cruise	0.45	3.7530E+02	5.7273E+01	8.6061E+00	8.3479E+00

Remarks

1. The load factor makes reference to the *Load_factor* sheet. Whenever a load factor is not available, it is assumed to be 0.02 for main engine and 1 otherwise for calculation purpose.
1. The calculations of the emission factor of each engine type refer to the following equation: Emission Factor of an Engine Type (g/hr) = Engine Power (kW) * Emission Factor (g/kWh) * Engine Load Factor.

Appendix 3.5 Calculation of Marine Emissions

Composite Emission Factors by Vessel

Vessel Category	Vessel Type	Route Code	Operation Mode	Composite NOx Emission Factors (g/hr) [1]	Composite SO2 Emission Factors (g/hr) [1]	Composite RSP Emission Factors (g/hr) [1]	Composite FSP Emission Factor (g/hr) [1]
RTV	Fully Cellular Container Vessel	-	Fairway Cruise	3.6625E+03	7.6258E+02	1.1614E+02	1.1266E+02
RTV	Dry Bulk Carrier	-	Fairway Cruise	3.8425E+03	8.0006E+02	1.2185E+02	1.1819E+02
RTV	Dry Bulk Carrier	-	Maneuvering	2.7265E+03	5.6770E+02	8.6459E+01	8.3866E+01
RTV	Dry Bulk Carrier	-	Hotelling	4.9450E+02	1.0296E+02	1.5681E+01	1.5211E+01
RTV	Chemical Carrier/Tanker	-	Maneuvering	7.8099E+03	1.3133E+03	2.0002E+02	1.9401E+02
RTV	Chemical Carrier/Tanker	-	Hotelling	1.6125E+03	3.3574E+02	5.1134E+01	4.9600E+01
TT	Tug	-	Fairway Cruise	1.1828E+04	1.9785E+02	1.5807E+02	1.5333E+02
FL	Fast Launch	-	Fairway Cruise	3.6990E+03	7.7018E+01	6.1531E+01	5.9685E+01
SC	Pleasure Vessel	-	Fairway Cruise	9.9120E+02	1.5766E+01	1.2596E+01	1.2218E+01
OGV	Gas Carrier/Tanker	-	Fairway Cruise	9.6384E+03	2.9350E+03	3.8685E+02	3.5590E+02
OGV	Chemical Carrier/Tanker	-	Fairway Cruise	1.0064E+04	3.0105E+03	3.9803E+02	3.6619E+02
OGV	Oil Tanker	-	Fairway Cruise	1.5807E+04	4.0888E+03	5.5668E+02	5.1214E+02
LF	Local Ferry	1	Fairway Cruise	3.7530E+02	5.7273E+01	8.6061E+00	8.3479E+00

Remark

1. Total Emission Rate is determined by this equation : Main Engine Emission Rate + Auxiliary Engine Emission Rate + Auxiliary Boiler Emission Rate (if applicable).

Appendix 3.5 Calculation of Marine Emissions

Vessel Parameters by Vessel

Vessel Category	Vessel Type	Parameter Group	Source Type	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	Remarks
RTV	Fully Cellular Container Vessel	Group 1 of RTV	POINT	1.30	42.00	503.15	24.60	1.90	[1], [2], [5]
RTV	Dry Bulk Carrier	Group 3 of RTV	POINT	1.30	27.00	503.15	25.00	0.80	[1], [2], [5]
RTV	Chemical Carrier/Tanker	Group 5 of RTV	POINT	1.30	30.00	503.15	25.00	0.80	[1], [2], [5]
FL	Fast Launch	Group 1 of FL	POINTHOR	1.30	0.00	313.00	8.00	0.70	[1], [3], [5]
TT	Tug	Group 1 of TT	POINTHOR	1.30	5.00	503.15	8.00	0.30	[1], [2], [5]
LF	Local Ferry	Group 1 of LF	POINTHOR	1.30	0.00	313.00	8.00	0.70	[1], [4], [6]
SC	Pleasure Vessel	Group 1 of SC	POINTHOR	1.30	0.00	313.00	8.00	0.30	[1], [4], [5]
OGV	Gas Carrier/Tanker	Group 4 of OGV	POINT	1.30	20.00	503.15	25.00	0.80	[1], [2], [5]
OGV	Chemical Carrier/Tanker	Group 4 of OGV	POINT	1.30	30.00	503.15	25.00	0.80	[1], [2], [5]
OGV	Oil Tanker	Group 4 of OGV	POINT	1.30	20.00	503.15	25.00	0.80	[1], [2], [5]

Notes

[1] The release height of the vessels are determined by desktop review or on-site observations.

[2] The exhaust temperature refer to the journal article: Dong, Thi Minh Hao & Xuan Phuong Nguyen. (2019). Exhaust Gas Recovery from Marine Diesel Engine in Order to Reduce the Toxic Emission and Save Energy: A Mini Review. Journal of Mechanical Engineering Research & Developments, 42(5):143-147. https://doi.org/10.26480/jmerd.05.2019.143.147. Given that other emission sources identified in this study (i.e., industrial/vehicular emission sources) mostly affect the air quality at a lower level, the lowest temperature of documented in this article was adopted as a conservative approach.

[3] According to desktop review, most of the local ferries and and fast launches are equipped with the water jet propulsion system. As conservative approach, it is assumed the water jet propulsion system is installed in all local ferries and fast launches, and their exhaust temperature refer to the engine specification of VETUS exhaust system (https://webshop.vetus.com/en/products/exhaust-systems). Given that other emission sources identified in this study (i.e., industrial/vehicular emission sources) mostly affect the air quality at a lower level, the lowest temperature documented was adopted as a conservative approach.

[4] Acoording to 'Examination Guidebook on Pleasure Vessel Operator Grade 2 Certificate of Competency' (May 2021) issued by the Hong Kong Marine Department, wet exhaust system would be installed in some pleasure vessels. As a conservative assessment, it it assumed that all pleasure vessels are equiped with water jet proplusion system and their exhaust temperature refer to the engine specification of VETUS exhaust system (https://webshop.vetus.com/en/products/exhaust-systems). Given that other emission sources identified in this study (i.e., industrial/vehicular emission sources) mostly affect the air quality at a lower level, the lowest temperature documented was adopted as a conservative approach.

[5] The stack parameters, except release height and exit temperature, refer to approved EIA - "Route 11 (Section between Yuen Long and North Lantau)" (EIA-297/2023).

[6] The stack parameters, except release height and exit temperature, refer to approved EIA - "Widening of Tsuen Wan Road and the associated junction improvement works" (EIA-296/2023).

Appendix 3.5 Calculation of Marine Emissions

Total Emission Rate of the Marine Emission

Route #
1

Total Emission Rate

Vessel ID	Vessel Category	Vessel Type	Route Code [1]	Average Speed (Knot) [2]	Operation Mode	Distance (nautical miles) [3]	Time-in-mode (hr)	NOx Emission Rate (g/s-vessel) [4]	SO_2 Emission Rate (g/s-vessel) [4]	RSP Emission Rate (g/s-vessel) [4]	FSP Emission Rate (g/s-vessel) [4]
R1_RTV01	RTV	Fully Cellular Container Vessel	-	13	Fairway Cruise	0.621	0.046	4.7183E-02	9.8242E-03	1.4962E-03	1.4513E-03
R1_RTV03	RTV	Dry Bulk Carrier	-	13	Fairway Cruise	0.621	0.046	4.9502E-02	1.0307E-02	1.5697E-03	1.5227E-03
R1_FL01	FL	Fast Launch	-	22	Fairway Cruise	0.621	0.029	2.9504E-02	6.1432E-04	4.9079E-04	4.7606E-04
R1_TT01	TT	Tug	-	12	Fairway Cruise	0.621	0.050	1.6541E-01	2.7670E-03	2.2106E-03	2.1443E-03
R1_LF01	LF	Local Ferry	1	22	Fairway Cruise	0.621	0.028	2.9354E-03	4.4797E-04	6.7313E-05	6.5294E-05
R1_SC01	SC	Pleasure Vessel	-	19	Fairway Cruise	0.621	0.033	9.2023E-03	1.4637E-04	1.1694E-04	1.1343E-04
R1_OGV06	OGV	Gas Carrier/Tanker	-	14	Fairway Cruise	0.621	0.044	1.1867E-01	3.6137E-02	4.7631E-03	4.3820E-03
R1_OGV07	OGV	Chemical Carrier/Tanker	-	14	Fairway Cruise	0.621	0.044	1.2391E-01	3.7067E-02	4.9007E-03	4.5087E-03
R1_OGV08	OGV	Oil Tanker	-	14	Fairway Cruise	0.621	0.044	1.9462E-01	5.0344E-02	6.8541E-03	6.3058E-03
R1_RTV03M	RTV	Dry Bulk Carrier	-	1	Maneuvering	0.443	0.443	3.3533E-01	6.9821E-02	1.0634E-02	1.0315E-02
R1_RTV07M	RTV	Chemical Carrier/Tanker	-	1	Maneuvering	0.443	0.443	9.6054E-01	1.6152E-01	2.4600E-02	2.3862E-02
R1_RTV03H	RTV	Dry Bulk Carrier	-	0	Hotelling	0.000	1.000	1.3736E-01	2.8600E-02	4.3558E-03	4.2251E-03
R1_RTV07H	RTV	Chemical Carrier/Tanker	-	0	Hotelling	0.000	1.000	4.4792E-01	9.3262E-02	1.4204E-02	1.3778E-02

Remark

1. Despite the actual routes, all general marine vessels are considered travelling in the water at the nearest and safe distance from the project site / nearby shipyards.
2. The average speed is calculated from the speed distribution for each vessel on each route.
3. The distance is measured for each route.
4. The calculations of emission factors refer to the following equation: Emission Factor (g/s-vessel) = Composite Emission Factor (g/hr) * Time-in-mode (hr) / 3600.

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_FL01_01	R1_FL01	FL	Fast Launch	POINTHOR	827278.92	825081.10	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_02	R1_FL01	FL	Fast Launch	POINTHOR	827288.83	825082.44	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_03	R1_FL01	FL	Fast Launch	POINTHOR	827298.74	825083.78	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_04	R1_FL01	FL	Fast Launch	POINTHOR	827308.65	825085.12	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_05	R1_FL01	FL	Fast Launch	POINTHOR	827318.56	825086.46	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_06	R1_FL01	FL	Fast Launch	POINTHOR	827328.47	825087.80	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_07	R1_FL01	FL	Fast Launch	POINTHOR	827338.37	825089.13	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_08	R1_FL01	FL	Fast Launch	POINTHOR	827348.28	825090.47	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_09	R1_FL01	FL	Fast Launch	POINTHOR	827358.19	825091.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_10	R1_FL01	FL	Fast Launch	POINTHOR	827368.10	825093.15	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_11	R1_FL01	FL	Fast Launch	POINTHOR	827378.01	825094.49	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_12	R1_FL01	FL	Fast Launch	POINTHOR	827387.92	825095.83	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_13	R1_FL01	FL	Fast Launch	POINTHOR	827397.83	825097.17	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_14	R1_FL01	FL	Fast Launch	POINTHOR	827407.74	825098.51	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_15	R1_FL01	FL	Fast Launch	POINTHOR	827417.65	825099.85	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_16	R1_FL01	FL	Fast Launch	POINTHOR	827427.56	825101.19	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_17	R1_FL01	FL	Fast Launch	POINTHOR	827437.47	825102.53	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_18	R1_FL01	FL	Fast Launch	POINTHOR	827447.38	825103.87	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_19	R1_FL01	FL	Fast Launch	POINTHOR	827457.32	825104.96	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_20	R1_FL01	FL	Fast Launch	POINTHOR	827467.27	825105.96	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_21	R1_FL01	FL	Fast Launch	POINTHOR	827477.22	825106.96	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_22	R1_FL01	FL	Fast Launch	POINTHOR	827487.17	825107.95	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_23	R1_FL01	FL	Fast Launch	POINTHOR	827497.12	825108.95	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_24	R1_FL01	FL	Fast Launch	POINTHOR	827507.07	825109.94	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_25	R1_FL01	FL	Fast Launch	POINTHOR	827517.02	825110.94	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_26	R1_FL01	FL	Fast Launch	POINTHOR	827526.97	825111.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_27	R1_FL01	FL	Fast Launch	POINTHOR	827536.93	825112.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_28	R1_FL01	FL	Fast Launch	POINTHOR	827546.88	825113.92	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_29	R1_FL01	FL	Fast Launch	POINTHOR	827556.83	825114.92	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_30	R1_FL01	FL	Fast Launch	POINTHOR	827566.78	825115.91	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_31	R1_FL01	FL	Fast Launch	POINTHOR	827576.73	825116.91	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_32	R1_FL01	FL	Fast Launch	POINTHOR	827586.68	825117.90	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_33	R1_FL01	FL	Fast Launch	POINTHOR	827596.63	825118.90	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_34	R1_FL01	FL	Fast Launch	POINTHOR	827606.58	825119.89	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_35	R1_FL01	FL	Fast Launch	POINTHOR	827616.53	825120.89	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_36	R1_FL01	FL	Fast Launch	POINTHOR	827626.48	825121.88	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_37	R1_FL01	FL	Fast Launch	POINTHOR	827636.43	825122.86	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_38	R1_FL01	FL	Fast Launch	POINTHOR	827646.40	825123.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_39	R1_FL01	FL	Fast Launch	POINTHOR	827656.36	825124.49	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_40	R1_FL01	FL	Fast Launch	POINTHOR	827666.33	825125.30	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_41	R1_FL01	FL	Fast Launch	POINTHOR	827676.30	825126.11	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_42	R1_FL01	FL	Fast Launch	POINTHOR	827686.26	825126.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_43	R1_FL01	FL	Fast Launch	POINTHOR	827696.23	825127.74	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_44	R1_FL01	FL	Fast Launch	POINTHOR	827706.20	825128.55	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_45	R1_FL01	FL	Fast Launch	POINTHOR	827716.17	825129.37	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_46	R1_FL01	FL	Fast Launch	POINTHOR	827726.13	825130.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_47	R1_FL01	FL	Fast Launch	POINTHOR	827736.10	825130.99	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_48	R1_FL01	FL	Fast Launch	POINTHOR	827746.07	825131.80	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_49	R1_FL01	FL	Fast Launch	POINTHOR	827756.03	825132.62	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_50	R1_FL01	FL	Fast Launch	POINTHOR	827766.00	825133.43	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_51	R1_FL01	FL	Fast Launch	POINTHOR	827775.97	825134.24	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_52	R1_FL01	FL	Fast Launch	POINTHOR	827785.93	825135.05	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_53	R1_FL01	FL	Fast Launch	POINTHOR	827795.90	825135.87	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_54	R1_FL01	FL	Fast Launch	POINTHOR	827805.87	825136.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_55	R1_FL01	FL	Fast Launch	POINTHOR	827815.83	825137.49	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_56	R1_FL01	FL	Fast Launch	POINTHOR	827825.80	825138.31	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_57	R1_FL01	FL	Fast Launch	POINTHOR	827835.77	825139.12	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_58	R1_FL01	FL	Fast Launch	POINTHOR	827845.74	825139.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_59	R1_FL01	FL	Fast Launch	POINTHOR	827855.70	825140.74	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_60	R1_FL01	FL	Fast Launch	POINTHOR	827865.67	825141.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_61	R1_FL01	FL	Fast Launch	POINTHOR	827875.64	825142.37	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_62	R1_FL01	FL	Fast Launch	POINTHOR	827885.60	825143.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_63	R1_FL01	FL	Fast Launch	POINTHOR	827895.57	825143.99	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_64	R1_FL01	FL	Fast Launch	POINTHOR	827905.54	825144.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_65	R1_FL01	FL	Fast Launch	POINTHOR	827915.50	825145.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_66	R1_FL01	FL	Fast Launch	POINTHOR	827925.46	825146.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_67	R1_FL01	FL	Fast Launch	POINTHOR	827935.42	825147.43	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_68	R1_FL01	FL	Fast Launch	POINTHOR	827945.38	825148.31	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_69	R1_FL01	FL	Fast Launch	POINTHOR	827955.35	825149.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_70	R1_FL01	FL	Fast Launch	POINTHOR	827965.31	825150.06	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_71	R1_FL01	FL	Fast Launch	POINTHOR	827975.27	825150.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_72	R1_FL01	FL	Fast Launch	POINTHOR	827985.23	825151.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_73	R1_FL01	FL	Fast Launch	POINTHOR	827995.19	825152.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_74	R1_FL01	FL	Fast Launch	POINTHOR	828005.15	825153.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_75	R1_FL01	FL	Fast Launch	POINTHOR	828015.12	825154.43	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_76	R1_FL01	FL	Fast Launch	POINTHOR	828025.08	825155.31	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_77	R1_FL01	FL	Fast Launch	POINTHOR	828035.04	825156.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_78	R1_FL01	FL	Fast Launch	POINTHOR	828045.00	825157.06	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_79	R1_FL01	FL	Fast Launch	POINTHOR	828054.96	825157.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_80	R1_FL01	FL	Fast Launch	POINTHOR	828064.92	825158.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_FL01_81	R1_FL01	FL	Fast Launch	POINTHOR	828074.88	825159.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_82	R1_FL01	FL	Fast Launch	POINTHOR	828084.85	825160.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_83	R1_FL01	FL	Fast Launch	POINTHOR	828094.81	825161.43	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_84	R1_FL01	FL	Fast Launch	POINTHOR	828104.77	825162.31	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_85	R1_FL01	FL	Fast Launch	POINTHOR	828114.73	825163.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_86	R1_FL01	FL	Fast Launch	POINTHOR	828124.69	825164.06	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_87	R1_FL01	FL	Fast Launch	POINTHOR	828134.65	825164.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_88	R1_FL01	FL	Fast Launch	POINTHOR	828144.62	825165.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_89	R1_FL01	FL	Fast Launch	POINTHOR	828154.58	825166.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_90	R1_FL01	FL	Fast Launch	POINTHOR	828164.54	825167.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_91	R1_FL01	FL	Fast Launch	POINTHOR	828174.50	825168.43	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_92	R1_FL01	FL	Fast Launch	POINTHOR	828184.46	825169.31	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_93	R1_FL01	FL	Fast Launch	POINTHOR	828194.42	825170.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_94	R1_FL01	FL	Fast Launch	POINTHOR	828204.39	825171.06	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_95	R1_FL01	FL	Fast Launch	POINTHOR	828214.35	825171.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_96	R1_FL01	FL	Fast Launch	POINTHOR	828224.31	825172.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_97	R1_FL01	FL	Fast Launch	POINTHOR	828234.27	825173.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_98	R1_FL01	FL	Fast Launch	POINTHOR	828244.23	825174.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_99	R1_FL01	FL	Fast Launch	POINTHOR	828254.20	825175.40	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_100	R1_FL01	FL	Fast Launch	POINTHOR	828264.16	825176.23	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_101	R1_FL01	FL	Fast Launch	POINTHOR	828274.13	825177.05	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_102	R1_FL01	FL	Fast Launch	POINTHOR	828284.09	825177.88	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_103	R1_FL01	FL	Fast Launch	POINTHOR	828294.06	825178.70	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_104	R1_FL01	FL	Fast Launch	POINTHOR	828304.03	825179.53	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_105	R1_FL01	FL	Fast Launch	POINTHOR	828313.99	825180.35	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_106	R1_FL01	FL	Fast Launch	POINTHOR	828323.96	825181.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_107	R1_FL01	FL	Fast Launch	POINTHOR	828333.92	825182.00	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_108	R1_FL01	FL	Fast Launch	POINTHOR	828343.89	825182.83	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_109	R1_FL01	FL	Fast Launch	POINTHOR	828353.86	825183.65	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_110	R1_FL01	FL	Fast Launch	POINTHOR	828363.82	825184.48	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_111	R1_FL01	FL	Fast Launch	POINTHOR	828373.79	825185.30	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_112	R1_FL01	FL	Fast Launch	POINTHOR	828383.75	825186.13	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_113	R1_FL01	FL	Fast Launch	POINTHOR	828393.72	825186.95	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_114	R1_FL01	FL	Fast Launch	POINTHOR	828403.69	825187.78	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_115	R1_FL01	FL	Fast Launch	POINTHOR	828413.65	825188.60	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_116	R1_FL01	FL	Fast Launch	POINTHOR	828416.64	825188.85	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_LF01_01	R1_LF01	LF	Local Ferry	POINTHOR	827278.92	825081.10	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_02	R1_LF01	LF	Local Ferry	POINTHOR	827288.83	825082.44	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_03	R1_LF01	LF	Local Ferry	POINTHOR	827298.74	825083.78	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_04	R1_LF01	LF	Local Ferry	POINTHOR	827308.65	825085.12	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_05	R1_LF01	LF	Local Ferry	POINTHOR	827318.56	825086.46	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_06	R1_LF01	LF	Local Ferry	POINTHOR	827328.47	825087.80	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_07	R1_LF01	LF	Local Ferry	POINTHOR	827338.37	825089.13	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_08	R1_LF01	LF	Local Ferry	POINTHOR	827348.28	825090.47	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_09	R1_LF01	LF	Local Ferry	POINTHOR	827358.19	825091.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_10	R1_LF01	LF	Local Ferry	POINTHOR	827368.10	825093.15	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_11	R1_LF01	LF	Local Ferry	POINTHOR	827378.01	825094.49	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_12	R1_LF01	LF	Local Ferry	POINTHOR	827387.92	825095.83	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_13	R1_LF01	LF	Local Ferry	POINTHOR	827397.83	825097.17	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_14	R1_LF01	LF	Local Ferry	POINTHOR	827407.74	825098.51	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_15	R1_LF01	LF	Local Ferry	POINTHOR	827417.65	825099.85	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_16	R1_LF01	LF	Local Ferry	POINTHOR	827427.56	825101.19	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_17	R1_LF01	LF	Local Ferry	POINTHOR	827437.47	825102.53	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_18	R1_LF01	LF	Local Ferry	POINTHOR	827447.38	825103.87	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_19	R1_LF01	LF	Local Ferry	POINTHOR	827457.32	825104.96	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_20	R1_LF01	LF	Local Ferry	POINTHOR	827467.27	825105.96	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_21	R1_LF01	LF	Local Ferry	POINTHOR	827477.22	825106.96	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_22	R1_LF01	LF	Local Ferry	POINTHOR	827487.17	825107.95	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_23	R1_LF01	LF	Local Ferry	POINTHOR	827497.12	825108.95	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_24	R1_LF01	LF	Local Ferry	POINTHOR	827507.07	825109.94	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_25	R1_LF01	LF	Local Ferry	POINTHOR	827517.02	825110.94	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_26	R1_LF01	LF	Local Ferry	POINTHOR	827526.97	825111.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_27	R1_LF01	LF	Local Ferry	POINTHOR	827536.93	825112.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_28	R1_LF01	LF	Local Ferry	POINTHOR	827546.88	825113.92	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_29	R1_LF01	LF	Local Ferry	POINTHOR	827556.83	825114.92	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_30	R1_LF01	LF	Local Ferry	POINTHOR	827566.78	825115.91	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_31	R1_LF01	LF	Local Ferry	POINTHOR	827576.73	825116.91	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_32	R1_LF01	LF	Local Ferry	POINTHOR	827586.68	825117.90	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_33	R1_LF01	LF	Local Ferry	POINTHOR	827596.63	825118.90	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_34	R1_LF01	LF	Local Ferry	POINTHOR	827606.58	825119.89	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_35	R1_LF01	LF	Local Ferry	POINTHOR	827616.53	825120.89	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_36	R1_LF01	LF	Local Ferry	POINTHOR	827626.48	825121.88	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_37	R1_LF01	LF	Local Ferry	POINTHOR	827636.43	825122.86	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_38	R1_LF01	LF	Local Ferry	POINTHOR	827646.40	825123.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_39	R1_LF01	LF	Local Ferry	POINTHOR	827656.36	825124.49	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_40	R1_LF01	LF	Local Ferry	POINTHOR	827666.33	825125.30	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_41	R1_LF01	LF	Local Ferry	POINTHOR	827676.30	825126.11	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_42	R1_LF01	LF	Local Ferry	POINTHOR	827686.26	825126.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_43	R1_LF01	LF	Local Ferry	POINTHOR	827696.23	825127.74	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_44	R1_LF01	LF	Local Ferry	POINTHOR	827706.20	825128.55	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_LF01_45	R1_LF01	LF	Local Ferry	POINTHOR	827716.17	825129.37	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_46	R1_LF01	LF	Local Ferry	POINTHOR	827726.13	825130.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_47	R1_LF01	LF	Local Ferry	POINTHOR	827736.10	825130.99	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_48	R1_LF01	LF	Local Ferry	POINTHOR	827746.07	825131.80	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_49	R1_LF01	LF	Local Ferry	POINTHOR	827756.03	825132.62	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_50	R1_LF01	LF	Local Ferry	POINTHOR	827766.00	825133.43	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_51	R1_LF01	LF	Local Ferry	POINTHOR	827775.97	825134.24	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_52	R1_LF01	LF	Local Ferry	POINTHOR	827785.93	825135.05	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_53	R1_LF01	LF	Local Ferry	POINTHOR	827795.90	825135.87	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_54	R1_LF01	LF	Local Ferry	POINTHOR	827805.87	825136.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_55	R1_LF01	LF	Local Ferry	POINTHOR	827815.83	825137.49	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_56	R1_LF01	LF	Local Ferry	POINTHOR	827825.80	825138.31	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_57	R1_LF01	LF	Local Ferry	POINTHOR	827835.77	825139.12	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_58	R1_LF01	LF	Local Ferry	POINTHOR	827845.74	825139.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_59	R1_LF01	LF	Local Ferry	POINTHOR	827855.70	825140.74	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_60	R1_LF01	LF	Local Ferry	POINTHOR	827865.67	825141.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_61	R1_LF01	LF	Local Ferry	POINTHOR	827875.64	825142.37	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_62	R1_LF01	LF	Local Ferry	POINTHOR	827885.60	825143.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_63	R1_LF01	LF	Local Ferry	POINTHOR	827895.57	825143.99	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_64	R1_LF01	LF	Local Ferry	POINTHOR	827905.54	825144.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_65	R1_LF01	LF	Local Ferry	POINTHOR	827915.50	825145.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_66	R1_LF01	LF	Local Ferry	POINTHOR	827925.46	825146.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_67	R1_LF01	LF	Local Ferry	POINTHOR	827935.42	825147.43	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_68	R1_LF01	LF	Local Ferry	POINTHOR	827945.38	825148.31	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_69	R1_LF01	LF	Local Ferry	POINTHOR	827955.35	825149.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_70	R1_LF01	LF	Local Ferry	POINTHOR	827965.31	825150.06	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_71	R1_LF01	LF	Local Ferry	POINTHOR	827975.27	825150.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_72	R1_LF01	LF	Local Ferry	POINTHOR	827985.23	825151.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_73	R1_LF01	LF	Local Ferry	POINTHOR	827995.19	825152.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_74	R1_LF01	LF	Local Ferry	POINTHOR	828005.15	825153.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_75	R1_LF01	LF	Local Ferry	POINTHOR	828015.12	825154.43	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_76	R1_LF01	LF	Local Ferry	POINTHOR	828025.08	825155.31	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_77	R1_LF01	LF	Local Ferry	POINTHOR	828035.04	825156.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_78	R1_LF01	LF	Local Ferry	POINTHOR	828045.00	825157.06	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_79	R1_LF01	LF	Local Ferry	POINTHOR	828054.96	825157.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_80	R1_LF01	LF	Local Ferry	POINTHOR	828064.92	825158.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_81	R1_LF01	LF	Local Ferry	POINTHOR	828074.88	825159.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_82	R1_LF01	LF	Local Ferry	POINTHOR	828084.85	825160.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_83	R1_LF01	LF	Local Ferry	POINTHOR	828094.81	825161.43	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_84	R1_LF01	LF	Local Ferry	POINTHOR	828104.77	825162.31	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_85	R1_LF01	LF	Local Ferry	POINTHOR	828114.73	825163.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_86	R1_LF01	LF	Local Ferry	POINTHOR	828124.69	825164.06	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_87	R1_LF01	LF	Local Ferry	POINTHOR	828134.65	825164.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_88	R1_LF01	LF	Local Ferry	POINTHOR	828144.62	825165.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_89	R1_LF01	LF	Local Ferry	POINTHOR	828154.58	825166.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_90	R1_LF01	LF	Local Ferry	POINTHOR	828164.54	825167.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_91	R1_LF01	LF	Local Ferry	POINTHOR	828174.50	825168.43	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_92	R1_LF01	LF	Local Ferry	POINTHOR	828184.46	825169.31	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_93	R1_LF01	LF	Local Ferry	POINTHOR	828194.42	825170.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_94	R1_LF01	LF	Local Ferry	POINTHOR	828204.39	825171.06	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_95	R1_LF01	LF	Local Ferry	POINTHOR	828214.35	825171.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_96	R1_LF01	LF	Local Ferry	POINTHOR	828224.31	825172.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_97	R1_LF01	LF	Local Ferry	POINTHOR	828234.27	825173.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_98	R1_LF01	LF	Local Ferry	POINTHOR	828244.23	825174.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_99	R1_LF01	LF	Local Ferry	POINTHOR	828254.20	825175.40	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_100	R1_LF01	LF	Local Ferry	POINTHOR	828264.16	825176.23	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_101	R1_LF01	LF	Local Ferry	POINTHOR	828274.13	825177.05	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_102	R1_LF01	LF	Local Ferry	POINTHOR	828284.09	825177.88	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_103	R1_LF01	LF	Local Ferry	POINTHOR	828294.06	825178.70	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_104	R1_LF01	LF	Local Ferry	POINTHOR	828304.03	825179.53	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_105	R1_LF01	LF	Local Ferry	POINTHOR	828313.99	825180.35	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_106	R1_LF01	LF	Local Ferry	POINTHOR	828323.96	825181.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_107	R1_LF01	LF	Local Ferry	POINTHOR	828333.92	825182.00	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_108	R1_LF01	LF	Local Ferry	POINTHOR	828343.89	825182.83	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_109	R1_LF01	LF	Local Ferry	POINTHOR	828353.86	825183.65	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_110	R1_LF01	LF	Local Ferry	POINTHOR	828363.82	825184.48	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_111	R1_LF01	LF	Local Ferry	POINTHOR	828373.79	825185.30	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_112	R1_LF01	LF	Local Ferry	POINTHOR	828383.75	825186.13	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_113	R1_LF01	LF	Local Ferry	POINTHOR	828393.72	825186.95	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_114	R1_LF01	LF	Local Ferry	POINTHOR	828403.69	825187.78	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_115	R1_LF01	LF	Local Ferry	POINTHOR	828413.65	825188.60	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_116	R1_LF01	LF	Local Ferry	POINTHOR	828416.64	825188.85	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_OGV06_01	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827278.92	825081.10	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_02	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827288.83	825082.44	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_03	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827298.74	825083.78	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_04	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827308.65	825085.12	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_05	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827318.56	825086.46	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_06	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827328.47	825087.80	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_07	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827338.37	825089.13	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_08	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827348.28	825090.47	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_OGV06_09	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827358.19	825091.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_10	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827368.10	825093.15	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_11	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827378.01	825094.49	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_12	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827387.92	825095.83	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_13	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827397.83	825097.17	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_14	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827407.74	825098.51	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_15	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827417.65	825099.85	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_16	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827427.56	825101.19	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_17	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827437.47	825102.53	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_18	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827447.38	825103.87	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_19	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827457.32	825104.96	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_20	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827467.27	825105.96	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_21	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827477.22	825106.96	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_22	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827487.17	825107.95	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_23	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827497.12	825108.95	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_24	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827507.07	825109.94	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_25	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827517.02	825110.94	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_26	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827526.97	825111.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_27	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827536.93	825112.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_28	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827546.88	825113.92	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_29	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827556.83	825114.92	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_30	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827566.78	825115.91	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_31	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827576.73	825116.91	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_32	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827586.68	825117.90	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_33	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827596.63	825118.90	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_34	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827606.58	825119.89	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_35	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827616.53	825120.89	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_36	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827626.48	825121.88	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_37	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827636.43	825122.86	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_38	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827646.40	825123.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_39	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827656.36	825124.49	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_40	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827666.33	825125.30	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_41	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827676.30	825126.11	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_42	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827686.26	825126.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_43	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827696.23	825127.74	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_44	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827706.20	825128.55	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_45	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827716.17	825129.37	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_46	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827726.13	825130.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_47	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827736.10	825130.99	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_48	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827746.07	825131.80	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_49	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827756.03	825132.62	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_50	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827766.00	825133.43	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_51	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827775.97	825134.24	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_52	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827785.93	825135.05	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_53	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827795.90	825135.87	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_54	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827805.87	825136.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_55	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827815.83	825137.49	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_56	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827825.80	825138.31	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_57	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827835.77	825139.12	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_58	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827845.74	825139.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_59	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827855.70	825140.74	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_60	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827865.67	825141.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_61	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827875.64	825142.37	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_62	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827885.60	825143.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_63	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827895.57	825143.99	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_64	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827905.54	825144.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_65	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827915.50	825145.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_66	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827925.46	825146.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_67	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827935.42	825147.43	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_68	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827945.38	825148.31	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_69	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827955.35	825149.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_70	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827965.31	825150.06	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_71	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827975.27	825150.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_72	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827985.23	825151.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_73	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827995.19	825152.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_74	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828005.15	825153.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_75	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828015.12	825154.43	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_76	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828025.08	825155.31	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_77	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828035.04	825156.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_78	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828045.00	825157.06	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_79	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828054.96	825157.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_80	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828064.92	825158.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_81	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828074.88	825159.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_82	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828084.85	825160.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_83	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828094.81	825161.43	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_84	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828104.77	825162.31	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_85	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828114.73	825163.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_86	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828124.69	825164.06	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_87	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828134.65	825164.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_88	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828144.62	825165.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_OGV06_89	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828154.58	825166.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_90	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828164.54	825167.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_91	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828174.50	825168.43	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_92	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828184.46	825169.31	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_93	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828194.42	825170.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_94	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828204.39	825171.06	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_95	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828214.35	825171.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_96	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828224.31	825172.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_97	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828234.27	825173.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_98	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828244.23	825174.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_99	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828254.20	825175.40	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_100	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828264.16	825176.23	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_101	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828274.13	825177.05	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_102	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828284.09	825177.88	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_103	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828294.06	825178.70	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_104	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828304.03	825179.53	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_105	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828313.99	825180.35	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_106	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828323.96	825181.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_107	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828333.92	825182.00	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_108	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828343.89	825182.83	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_109	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828353.86	825183.65	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_110	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828363.82	825184.48	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_111	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828373.79	825185.30	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_112	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828383.75	825186.13	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_113	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828393.72	825186.95	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_114	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828403.69	825187.78	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_115	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828413.65	825188.60	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_116	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828416.64	825188.85	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV07_01	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827278.92	825081.10	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_02	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827288.83	825082.44	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_03	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827298.74	825083.78	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_04	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827308.65	825085.12	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_05	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827318.56	825086.46	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_06	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827328.47	825087.80	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_07	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827338.37	825089.13	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_08	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827348.28	825090.47	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_09	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827358.19	825091.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_10	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827368.10	825093.15	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_11	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827378.01	825094.49	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_12	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827387.92	825095.83	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_13	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827397.83	825097.17	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_14	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827407.74	825098.51	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_15	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827417.65	825099.85	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_16	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827427.56	825101.19	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_17	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827437.47	825102.53	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_18	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827447.38	825103.87	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_19	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827457.32	825104.96	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_20	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827467.27	825105.96	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_21	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827477.22	825106.96	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_22	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827487.17	825107.95	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_23	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827497.12	825108.95	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_24	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827507.07	825109.94	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_25	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827517.02	825110.94	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_26	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827526.97	825111.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_27	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827536.93	825112.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_28	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827546.88	825113.92	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_29	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827556.83	825114.92	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_30	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827566.78	825115.91	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_31	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827576.73	825116.91	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_32	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827586.68	825117.90	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_33	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827596.63	825118.90	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_34	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827606.58	825119.89	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_35	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827616.53	825120.89	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_36	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827626.48	825121.88	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_37	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827636.43	825122.86	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_38	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827646.40	825123.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_39	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827656.36	825124.49	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_40	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827666.33	825125.30	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_41	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827676.30	825126.11	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_42	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827686.26	825126.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_43	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827696.23	825127.74	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_44	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827706.20	825128.55	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_45	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827716.17	825129.37	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_46	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827726.13	825130.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_47	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827736.10	825130.99	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_48	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827746.07	825131.80	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_49	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827756.03	825132.62	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_50	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827766.00	825133.43	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_51	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827775.97	825134.24	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_52	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827785.93	825135.05	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_OGV07_53	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827795.90	825135.87	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_54	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827805.87	825136.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_55	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827815.83	825137.49	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_56	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827825.80	825138.31	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_57	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827835.77	825139.12	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_58	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827845.74	825139.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_59	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827855.70	825140.74	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_60	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827865.67	825141.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_61	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827875.64	825142.37	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_62	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827885.60	825143.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_63	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827895.57	825143.99	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_64	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827905.54	825144.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_65	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827915.50	825145.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_66	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827925.46	825146.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_67	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827935.42	825147.43	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_68	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827945.38	825148.31	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_69	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827955.35	825149.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_70	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827965.31	825150.06	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_71	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827975.27	825150.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_72	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827985.23	825151.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_73	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827995.19	825152.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_74	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828005.15	825153.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_75	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828015.12	825154.43	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_76	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828025.08	825155.31	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_77	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828035.04	825156.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_78	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828045.00	825157.06	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_79	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828054.96	825157.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_80	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828064.92	825158.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_81	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828074.88	825159.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_82	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828084.85	825160.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_83	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828094.81	825161.43	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_84	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828104.77	825162.31	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_85	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828114.73	825163.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_86	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828124.69	825164.06	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_87	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828134.65	825164.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_88	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828144.62	825165.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_89	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828154.58	825166.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_90	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828164.54	825167.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_91	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828174.50	825168.43	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_92	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828184.46	825169.31	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_93	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828194.42	825170.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_94	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828204.39	825171.06	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_95	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828214.35	825171.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_96	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828224.31	825172.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_97	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828234.27	825173.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_98	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828244.23	825174.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_99	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828254.20	825175.40	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_100	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828264.16	825176.23	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_101	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828274.13	825177.05	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_102	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828284.09	825177.88	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_103	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828294.06	825178.70	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_104	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828304.03	825179.53	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_105	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828313.99	825180.35	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_106	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828323.96	825181.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_107	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828333.92	825182.00	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_108	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828343.89	825182.83	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_109	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828353.86	825183.65	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_110	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828363.82	825184.48	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_111	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828373.79	825185.30	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_112	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828383.75	825186.13	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_113	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828393.72	825186.95	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_114	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828403.69	825187.78	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_115	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828413.65	825188.60	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_116	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828416.64	825188.85	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV08_01	R1_OGV08	OGV	Oil Tanker	POINT	827278.92	825081.10	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_02	R1_OGV08	OGV	Oil Tanker	POINT	827288.83	825082.44	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_03	R1_OGV08	OGV	Oil Tanker	POINT	827298.74	825083.78	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_04	R1_OGV08	OGV	Oil Tanker	POINT	827308.65	825085.12	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_05	R1_OGV08	OGV	Oil Tanker	POINT	827318.56	825086.46	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_06	R1_OGV08	OGV	Oil Tanker	POINT	827328.47	825087.80	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_07	R1_OGV08	OGV	Oil Tanker	POINT	827338.37	825089.13	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_08	R1_OGV08	OGV	Oil Tanker	POINT	827348.28	825090.47	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_09	R1_OGV08	OGV	Oil Tanker	POINT	827358.19	825091.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_10	R1_OGV08	OGV	Oil Tanker	POINT	827368.10	825093.15	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_11	R1_OGV08	OGV	Oil Tanker	POINT	827378.01	825094.49	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_12	R1_OGV08	OGV	Oil Tanker	POINT	827387.92	825095.83	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_13	R1_OGV08	OGV	Oil Tanker	POINT	827397.83	825097.17	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_14	R1_OGV08	OGV	Oil Tanker	POINT	827407.74	825098.51	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_15	R1_OGV08	OGV	Oil Tanker	POINT	827417.65	825099.85	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_16	R1_OGV08	OGV	Oil Tanker	POINT	827427.56	825101.19	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_OGV08_17	R1_OGV08	OGV	Oil Tanker	POINT	827437.47	825102.53	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_18	R1_OGV08	OGV	Oil Tanker	POINT	827447.38	825103.87	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_19	R1_OGV08	OGV	Oil Tanker	POINT	827457.32	825104.96	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_20	R1_OGV08	OGV	Oil Tanker	POINT	827467.27	825105.96	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_21	R1_OGV08	OGV	Oil Tanker	POINT	827477.22	825106.96	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_22	R1_OGV08	OGV	Oil Tanker	POINT	827487.17	825107.95	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_23	R1_OGV08	OGV	Oil Tanker	POINT	827497.12	825108.95	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_24	R1_OGV08	OGV	Oil Tanker	POINT	827507.07	825109.94	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_25	R1_OGV08	OGV	Oil Tanker	POINT	827517.02	825110.94	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_26	R1_OGV08	OGV	Oil Tanker	POINT	827526.97	825111.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_27	R1_OGV08	OGV	Oil Tanker	POINT	827536.93	825112.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_28	R1_OGV08	OGV	Oil Tanker	POINT	827546.88	825113.92	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_29	R1_OGV08	OGV	Oil Tanker	POINT	827556.83	825114.92	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_30	R1_OGV08	OGV	Oil Tanker	POINT	827566.78	825115.91	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_31	R1_OGV08	OGV	Oil Tanker	POINT	827576.73	825116.91	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_32	R1_OGV08	OGV	Oil Tanker	POINT	827586.68	825117.90	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_33	R1_OGV08	OGV	Oil Tanker	POINT	827596.63	825118.90	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_34	R1_OGV08	OGV	Oil Tanker	POINT	827606.58	825119.89	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_35	R1_OGV08	OGV	Oil Tanker	POINT	827616.53	825120.89	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_36	R1_OGV08	OGV	Oil Tanker	POINT	827626.48	825121.88	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_37	R1_OGV08	OGV	Oil Tanker	POINT	827636.43	825122.86	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_38	R1_OGV08	OGV	Oil Tanker	POINT	827646.40	825123.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_39	R1_OGV08	OGV	Oil Tanker	POINT	827656.36	825124.49	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_40	R1_OGV08	OGV	Oil Tanker	POINT	827666.33	825125.30	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_41	R1_OGV08	OGV	Oil Tanker	POINT	827676.30	825126.11	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_42	R1_OGV08	OGV	Oil Tanker	POINT	827686.26	825126.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_43	R1_OGV08	OGV	Oil Tanker	POINT	827696.23	825127.74	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_44	R1_OGV08	OGV	Oil Tanker	POINT	827706.20	825128.55	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_45	R1_OGV08	OGV	Oil Tanker	POINT	827716.17	825129.37	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_46	R1_OGV08	OGV	Oil Tanker	POINT	827726.13	825130.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_47	R1_OGV08	OGV	Oil Tanker	POINT	827736.10	825130.99	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_48	R1_OGV08	OGV	Oil Tanker	POINT	827746.07	825131.80	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_49	R1_OGV08	OGV	Oil Tanker	POINT	827756.03	825132.62	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_50	R1_OGV08	OGV	Oil Tanker	POINT	827766.00	825133.43	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_51	R1_OGV08	OGV	Oil Tanker	POINT	827775.97	825134.24	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_52	R1_OGV08	OGV	Oil Tanker	POINT	827785.93	825135.05	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_53	R1_OGV08	OGV	Oil Tanker	POINT	827795.90	825135.87	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_54	R1_OGV08	OGV	Oil Tanker	POINT	827805.87	825136.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_55	R1_OGV08	OGV	Oil Tanker	POINT	827815.83	825137.49	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_56	R1_OGV08	OGV	Oil Tanker	POINT	827825.80	825138.31	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_57	R1_OGV08	OGV	Oil Tanker	POINT	827835.77	825139.12	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_58	R1_OGV08	OGV	Oil Tanker	POINT	827845.74	825139.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_59	R1_OGV08	OGV	Oil Tanker	POINT	827855.70	825140.74	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_60	R1_OGV08	OGV	Oil Tanker	POINT	827865.67	825141.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_61	R1_OGV08	OGV	Oil Tanker	POINT	827875.64	825142.37	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_62	R1_OGV08	OGV	Oil Tanker	POINT	827885.60	825143.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_63	R1_OGV08	OGV	Oil Tanker	POINT	827895.57	825143.99	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_64	R1_OGV08	OGV	Oil Tanker	POINT	827905.54	825144.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_65	R1_OGV08	OGV	Oil Tanker	POINT	827915.50	825145.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_66	R1_OGV08	OGV	Oil Tanker	POINT	827925.46	825146.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_67	R1_OGV08	OGV	Oil Tanker	POINT	827935.42	825147.43	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_68	R1_OGV08	OGV	Oil Tanker	POINT	827945.38	825148.31	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_69	R1_OGV08	OGV	Oil Tanker	POINT	827955.35	825149.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_70	R1_OGV08	OGV	Oil Tanker	POINT	827965.31	825150.06	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_71	R1_OGV08	OGV	Oil Tanker	POINT	827975.27	825150.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_72	R1_OGV08	OGV	Oil Tanker	POINT	827985.23	825151.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_73	R1_OGV08	OGV	Oil Tanker	POINT	827995.19	825152.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_74	R1_OGV08	OGV	Oil Tanker	POINT	828005.15	825153.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_75	R1_OGV08	OGV	Oil Tanker	POINT	828015.12	825154.43	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_76	R1_OGV08	OGV	Oil Tanker	POINT	828025.08	825155.31	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_77	R1_OGV08	OGV	Oil Tanker	POINT	828035.04	825156.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_78	R1_OGV08	OGV	Oil Tanker	POINT	828045.00	825157.06	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_79	R1_OGV08	OGV	Oil Tanker	POINT	828054.96	825157.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_80	R1_OGV08	OGV	Oil Tanker	POINT	828064.92	825158.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_81	R1_OGV08	OGV	Oil Tanker	POINT	828074.88	825159.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_82	R1_OGV08	OGV	Oil Tanker	POINT	828084.85	825160.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_83	R1_OGV08	OGV	Oil Tanker	POINT	828094.81	825161.43	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_84	R1_OGV08	OGV	Oil Tanker	POINT	828104.77	825162.31	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_85	R1_OGV08	OGV	Oil Tanker	POINT	828114.73	825163.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_86	R1_OGV08	OGV	Oil Tanker	POINT	828124.69	825164.06	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_87	R1_OGV08	OGV	Oil Tanker	POINT	828134.65	825164.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_88	R1_OGV08	OGV	Oil Tanker	POINT	828144.62	825165.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_89	R1_OGV08	OGV	Oil Tanker	POINT	828154.58	825166.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_90	R1_OGV08	OGV	Oil Tanker	POINT	828164.54	825167.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_91	R1_OGV08	OGV	Oil Tanker	POINT	828174.50	825168.43	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_92	R1_OGV08	OGV	Oil Tanker	POINT	828184.46	825169.31	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_93	R1_OGV08	OGV	Oil Tanker	POINT	828194.42	825170.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_94	R1_OGV08	OGV	Oil Tanker	POINT	828204.39	825171.06	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_95	R1_OGV08	OGV	Oil Tanker	POINT	828214.35	825171.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_96	R1_OGV08	OGV	Oil Tanker	POINT	828224.31	825172.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_OGV08_97	R1_OGV08	OGV	Oil Tanker	POINT	828234.27	825173.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_98	R1_OGV08	OGV	Oil Tanker	POINT	828244.23	825174.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_99	R1_OGV08	OGV	Oil Tanker	POINT	828254.20	825175.40	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_100	R1_OGV08	OGV	Oil Tanker	POINT	828264.16	825176.23	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_101	R1_OGV08	OGV	Oil Tanker	POINT	828274.13	825177.05	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_102	R1_OGV08	OGV	Oil Tanker	POINT	828284.09	825177.88	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_103	R1_OGV08	OGV	Oil Tanker	POINT	828294.06	825178.70	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_104	R1_OGV08	OGV	Oil Tanker	POINT	828304.03	825179.53	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_105	R1_OGV08	OGV	Oil Tanker	POINT	828313.99	825180.35	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_106	R1_OGV08	OGV	Oil Tanker	POINT	828323.96	825181.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_107	R1_OGV08	OGV	Oil Tanker	POINT	828333.92	825182.00	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_108	R1_OGV08	OGV	Oil Tanker	POINT	828343.89	825182.83	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_109	R1_OGV08	OGV	Oil Tanker	POINT	828353.86	825183.65	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_110	R1_OGV08	OGV	Oil Tanker	POINT	828363.82	825184.48	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_111	R1_OGV08	OGV	Oil Tanker	POINT	828373.79	825185.30	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_112	R1_OGV08	OGV	Oil Tanker	POINT	828383.75	825186.13	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_113	R1_OGV08	OGV	Oil Tanker	POINT	828393.72	825186.95	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_114	R1_OGV08	OGV	Oil Tanker	POINT	828403.69	825187.78	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_115	R1_OGV08	OGV	Oil Tanker	POINT	828413.65	825188.60	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_116	R1_OGV08	OGV	Oil Tanker	POINT	828416.64	825188.85	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_RTV01_01	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827278.92	825081.10	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_02	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827288.83	825082.44	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_03	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827298.74	825083.78	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_04	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827308.65	825085.12	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_05	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827318.56	825086.46	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_06	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827328.47	825087.80	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_07	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827338.37	825089.13	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_08	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827348.28	825090.47	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_09	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827358.19	825091.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_10	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827368.10	825093.15	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_11	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827378.01	825094.49	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_12	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827387.92	825095.83	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_13	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827397.83	825097.17	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_14	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827407.74	825098.51	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_15	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827417.65	825099.85	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_16	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827427.56	825101.19	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_17	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827437.47	825102.53	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_18	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827447.38	825103.87	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_19	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827457.32	825104.96	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_20	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827467.27	825105.96	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_21	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827477.22	825106.96	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_22	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827487.17	825107.95	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_23	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827497.12	825108.95	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_24	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827507.07	825109.94	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_25	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827517.02	825110.94	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_26	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827526.97	825111.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_27	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827536.93	825112.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_28	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827546.88	825113.92	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_29	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827556.83	825114.92	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_30	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827566.78	825115.91	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_31	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827576.73	825116.91	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_32	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827586.68	825117.90	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_33	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827596.63	825118.90	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_34	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827606.58	825119.89	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_35	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827616.53	825120.89	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_36	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827626.48	825121.88	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_37	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827636.43	825122.86	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_38	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827646.40	825123.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_39	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827656.36	825124.49	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_40	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827666.33	825125.30	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_41	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827676.30	825126.11	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_42	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827686.26	825126.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_43	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827696.23	825127.74	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_44	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827706.20	825128.55	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_45	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827716.17	825129.37	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_46	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827726.13	825130.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_47	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827736.10	825130.99	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_48	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827746.07	825131.80	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_49	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827756.03	825132.62	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_50	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827766.00	825133.43	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_51	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827775.97	825134.24	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_52	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827785.93	825135.05	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_53	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827795.90	825135.87	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_54	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827805.87	825136.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_55	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827815.83	825137.49	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_56	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827825.80	825138.31	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_57	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827835.77	825139.12	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_58	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827845.74	825139.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_59	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827855.70	825140.74	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_60	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827865.67	825141.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_RTV01_61	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827875.64	825142.37	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_62	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827885.60	825143.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_63	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827895.57	825143.99	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_64	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827905.54	825144.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_65	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827915.50	825145.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_66	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827925.46	825146.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_67	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827935.42	825147.43	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_68	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827945.38	825148.31	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_69	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827955.35	825149.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_70	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827965.31	825150.06	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_71	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827975.27	825150.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_72	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827985.23	825151.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_73	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827995.19	825152.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_74	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828005.15	825153.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_75	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828015.12	825154.43	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_76	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828025.08	825155.31	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_77	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828035.04	825156.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_78	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828045.00	825157.06	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_79	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828054.96	825157.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_80	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828064.92	825158.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_81	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828074.88	825159.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_82	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828084.85	825160.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_83	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828094.81	825161.43	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_84	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828104.77	825162.31	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_85	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828114.73	825163.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_86	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828124.69	825164.06	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_87	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828134.65	825164.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_88	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828144.62	825165.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_89	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828154.58	825166.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_90	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828164.54	825167.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_91	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828174.50	825168.43	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_92	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828184.46	825169.31	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_93	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828194.42	825170.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_94	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828204.39	825171.06	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_95	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828214.35	825171.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_96	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828224.31	825172.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_97	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828234.27	825173.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_98	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828244.23	825174.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_99	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828254.20	825175.40	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_100	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828264.16	825176.23	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_101	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828274.13	825177.05	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_102	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828284.09	825177.88	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_103	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828294.06	825178.70	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_104	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828304.03	825179.53	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_105	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828313.99	825180.35	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_106	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828323.96	825181.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_107	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828333.92	825182.00	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_108	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828343.89	825182.83	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_109	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828353.86	825183.65	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_110	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828363.82	825184.48	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_111	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828373.79	825185.30	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_112	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828383.75	825186.13	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_113	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828393.72	825186.95	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_114	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828403.69	825187.78	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_115	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828413.65	825188.60	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_116	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828416.64	825188.85	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV03_01	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827278.92	825081.10	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_02	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827288.83	825082.44	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_03	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827298.74	825083.78	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_04	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827308.65	825085.12	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_05	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827318.56	825086.46	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_06	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827328.47	825087.80	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_07	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827338.37	825089.13	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_08	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827348.28	825090.47	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_09	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827358.19	825091.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_10	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827368.10	825093.15	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_11	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827378.01	825094.49	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_12	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827387.92	825095.83	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_13	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827397.83	825097.17	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_14	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827407.74	825098.51	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_15	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827417.65	825099.85	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_16	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827427.56	825101.19	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_17	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827437.47	825102.53	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_18	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827447.38	825103.87	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_19	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827457.32	825104.96	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_20	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827467.27	825105.96	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_21	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827477.22	825106.96	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_22	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827487.17	825107.95	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_23	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827497.12	825108.95	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_24	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827507.07	825109.94	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_RTV03_25	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827517.02	825110.94	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_26	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827526.97	825111.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_27	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827536.93	825112.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_28	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827546.88	825113.92	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_29	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827556.83	825114.92	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_30	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827566.78	825115.91	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_31	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827576.73	825116.91	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_32	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827586.68	825117.90	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_33	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827596.63	825118.90	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_34	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827606.58	825119.89	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_35	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827616.53	825120.89	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_36	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827626.48	825121.88	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_37	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827636.43	825122.86	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_38	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827646.40	825123.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_39	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827656.36	825124.49	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_40	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827666.33	825125.30	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_41	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827676.30	825126.11	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_42	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827686.26	825126.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_43	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827696.23	825127.74	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_44	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827706.20	825128.55	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_45	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827716.17	825129.37	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_46	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827726.13	825130.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_47	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827736.10	825130.99	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_48	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827746.07	825131.80	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_49	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827756.03	825132.62	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_50	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827766.00	825133.43	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_51	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827775.97	825134.24	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_52	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827785.93	825135.05	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_53	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827795.90	825135.87	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_54	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827805.87	825136.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_55	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827815.83	825137.49	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_56	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827825.80	825138.31	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_57	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827835.77	825139.12	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_58	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827845.74	825139.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_59	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827855.70	825140.74	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_60	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827865.67	825141.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_61	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827875.64	825142.37	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_62	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827885.60	825143.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_63	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827895.57	825143.99	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_64	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827905.54	825144.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_65	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827915.50	825145.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_66	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827925.46	825146.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_67	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827935.42	825147.43	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_68	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827945.38	825148.31	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_69	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827955.35	825149.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_70	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827965.31	825150.06	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_71	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827975.27	825150.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_72	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827985.23	825151.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_73	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827995.19	825152.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_74	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828005.15	825153.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_75	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828015.12	825154.43	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_76	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828025.08	825155.31	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_77	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828035.04	825156.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_78	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828045.00	825157.06	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_79	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828054.96	825157.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_80	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828064.92	825158.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_81	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828074.88	825159.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_82	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828084.85	825160.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_83	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828094.81	825161.43	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_84	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828104.77	825162.31	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_85	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828114.73	825163.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_86	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828124.69	825164.06	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_87	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828134.65	825164.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_88	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828144.62	825165.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_89	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828154.58	825166.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_90	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828164.54	825167.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_91	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828174.50	825168.43	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_92	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828184.46	825169.31	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_93	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828194.42	825170.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_94	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828204.39	825171.06	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_95	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828214.35	825171.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_96	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828224.31	825172.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_97	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828234.27	825173.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_98	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828244.23	825174.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_99	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828254.20	825175.40	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_100	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828264.16	825176.23	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_101	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828274.13	825177.05	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_102	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828284.09	825177.88	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_103	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828294.06	825178.70	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_104	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828304.03	825179.53	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_RTV03_105	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828313.99	825180.35	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_106	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828323.96	825181.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_107	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828333.92	825182.00	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_108	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828343.89	825182.83	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_109	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828353.86	825183.65	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_110	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828363.82	825184.48	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_111	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828373.79	825185.30	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_112	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828383.75	825186.13	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_113	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828393.72	825186.95	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_114	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828403.69	825187.78	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_115	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828413.65	825188.60	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_116	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828416.64	825188.85	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03H_01	R1_RTV03H	RTV	Dry Bulk Carrier	POINT	827874.99	824793.69	1	1.30	27.00	503.15	25.00	0.80	1.3736E-01	2.8600E-02	4.3558E-03	4.2251E-03
R1_RTV03M_01	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827278.92	825081.10	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_02	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827288.83	825082.44	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_03	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827298.74	825083.78	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_04	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827308.65	825085.12	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_05	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827318.56	825086.46	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_06	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827328.47	825087.80	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_07	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827338.37	825089.13	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_08	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827348.28	825090.47	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_09	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827358.19	825091.81	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_10	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827368.10	825093.15	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_11	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827378.01	825094.49	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_12	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827387.92	825095.83	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_13	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827397.83	825097.17	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_14	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827407.74	825098.51	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_15	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827417.65	825099.85	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_16	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827427.56	825101.19	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_17	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827437.47	825102.53	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_18	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827447.38	825103.87	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_19	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827457.32	825104.96	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_20	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827467.27	825105.96	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_21	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827477.22	825106.96	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_22	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827487.17	825107.95	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_23	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827497.12	825108.95	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_24	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827507.07	825109.94	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_25	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827517.02	825110.94	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_26	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827526.97	825111.93	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_27	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827536.93	825112.93	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_28	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827546.86	825112.72	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_29	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827556.79	825111.52	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_30	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827566.72	825110.32	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_31	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827576.65	825109.12	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_32	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827586.57	825107.92	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_33	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827596.50	825106.72	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_34	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827606.43	825105.52	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_35	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827616.36	825104.32	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_36	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827626.29	825103.12	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_37	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827636.17	825101.66	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_38	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827645.92	825099.45	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_39	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827655.67	825097.23	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_40	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827665.42	825095.02	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_41	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827675.17	825092.80	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_42	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827684.93	825090.58	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_43	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827694.68	825088.37	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_44	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827704.43	825086.15	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_45	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827714.18	825083.93	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_46	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827723.42	825080.16	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_47	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827732.60	825076.20	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_48	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827741.79	825072.24	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_49	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827750.97	825068.27	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_50	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827760.15	825064.31	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_51	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827769.33	825060.35	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_52	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827778.51	825056.39	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_53	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827787.25	825051.77	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_54	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827794.44	825044.81	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_55	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827801.62	825037.85	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_56	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827808.80	825030.89	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_57	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827815.98	825023.93	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_58	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827823.17	825016.98	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_59	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827830.35	825010.02	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_60	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827836.31	825002.09	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_61	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827841.50	824993.54	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_62	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827846.70	824985.00	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_63	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827851.89	824976.45	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_64	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827857.08	824967.90	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_65	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827862.27	824959.36	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_66	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827867.47	824950.81	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_67	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827871.19	824941.57	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_RTV03M_68	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827874.44	824932.12	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_69	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827877.70	824922.66	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_70	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827880.95	824913.21	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_71	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827884.20	824903.75	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_72	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827887.46	824894.30	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_73	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827890.71	824884.84	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_74	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827890.71	824875.47	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_75	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827886.96	824866.20	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_76	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827883.22	824856.92	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_77	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827879.47	824847.65	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_78	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827876.76	824838.16	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_79	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827876.36	824828.17	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_80	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827875.96	824818.17	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_81	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827875.56	824808.18	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_82	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827875.17	824798.19	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_83	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827874.99	824793.69	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV07H_01	R1_RTV07H	RTV	Chemical Carrier/Tanker	POINT	827874.99	824793.69	1	1.30	30.00	503.15	25.00	0.80	4.4792E-01	9.3262E-02	1.4204E-02	1.3778E-02
R1_RTV07M_01	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827278.92	825081.10	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_02	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827288.83	825082.44	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_03	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827298.74	825083.78	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_04	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827308.65	825085.12	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_05	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827318.56	825086.46	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_06	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827328.47	825087.80	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_07	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827338.37	825089.13	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_08	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827348.28	825090.47	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_09	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827358.19	825091.81	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_10	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827368.10	825093.15	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_11	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827378.01	825094.49	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_12	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827387.92	825095.83	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_13	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827397.83	825097.17	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_14	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827407.74	825098.51	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_15	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827417.65	825099.85	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_16	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827427.56	825101.19	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_17	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827437.47	825102.53	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_18	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827447.38	825103.87	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_19	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827457.32	825104.96	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_20	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827467.27	825105.96	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_21	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827477.22	825106.96	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_22	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827487.17	825107.95	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_23	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827497.12	825108.95	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_24	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827507.07	825109.94	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_25	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827517.02	825110.94	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_26	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827526.97	825111.93	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_27	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827536.93	825112.93	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_28	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827546.86	825112.72	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_29	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827556.79	825111.52	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_30	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827566.72	825110.32	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_31	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827576.65	825109.12	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_32	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827586.57	825107.92	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_33	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827596.50	825106.72	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_34	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827606.43	825105.52	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_35	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827616.36	825104.32	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_36	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827626.29	825103.12	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_37	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827636.17	825101.66	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_38	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827645.92	825099.45	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_39	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827655.67	825097.23	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_40	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827665.42	825095.02	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_41	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827675.17	825092.80	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_42	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827684.93	825090.58	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_43	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827694.68	825088.37	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_44	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827704.43	825086.15	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_45	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827714.18	825083.93	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_46	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827723.42	825080.16	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_47	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827732.60	825076.20	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_48	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827741.79	825072.24	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_49	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827750.97	825068.27	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_50	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827760.15	825064.31	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_51	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827769.33	825060.35	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_52	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827778.51	825056.39	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_53	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827787.25	825051.77	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_54	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827794.44	825044.81	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_55	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827801.62	825037.85	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_56	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827808.80	825030.89	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_57	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827815.98	825023.93	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_58	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827823.17	825016.98	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_59	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827830.35	825010.02	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_60	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827836.31	825002.09	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_61	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827841.50	824993.54	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_62	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827846.70	824985.00	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_63	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827851.89	824976.45	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_RTV07M_64	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827857.08	824967.90	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_65	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827862.27	824959.36	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_66	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827867.47	824950.81	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_67	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827871.19	824941.57	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_68	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827874.44	824932.12	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_69	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827877.70	824922.66	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_70	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827880.95	824913.21	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_71	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827884.20	824903.75	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_72	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827887.46	824894.30	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_73	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827890.71	824884.84	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_74	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827890.71	824875.47	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_75	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827886.96	824866.20	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_76	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827883.22	824856.92	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_77	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827879.47	824847.65	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_78	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827876.76	824838.16	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_79	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827876.36	824828.17	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_80	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827875.96	824818.17	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_81	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827875.56	824808.18	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_82	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827875.17	824798.19	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_83	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827874.99	824793.69	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_SC01_01	R1_SC01	SC	Pleasure Vessel	POINTHOR	827278.92	825081.10	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_02	R1_SC01	SC	Pleasure Vessel	POINTHOR	827288.83	825082.44	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_03	R1_SC01	SC	Pleasure Vessel	POINTHOR	827298.74	825083.78	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_04	R1_SC01	SC	Pleasure Vessel	POINTHOR	827308.65	825085.12	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_05	R1_SC01	SC	Pleasure Vessel	POINTHOR	827318.56	825086.46	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_06	R1_SC01	SC	Pleasure Vessel	POINTHOR	827328.47	825087.80	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_07	R1_SC01	SC	Pleasure Vessel	POINTHOR	827338.37	825089.13	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_08	R1_SC01	SC	Pleasure Vessel	POINTHOR	827348.28	825090.47	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_09	R1_SC01	SC	Pleasure Vessel	POINTHOR	827358.19	825091.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_10	R1_SC01	SC	Pleasure Vessel	POINTHOR	827368.10	825093.15	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_11	R1_SC01	SC	Pleasure Vessel	POINTHOR	827378.01	825094.49	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_12	R1_SC01	SC	Pleasure Vessel	POINTHOR	827387.92	825095.83	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_13	R1_SC01	SC	Pleasure Vessel	POINTHOR	827397.83	825097.17	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_14	R1_SC01	SC	Pleasure Vessel	POINTHOR	827407.74	825098.51	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_15	R1_SC01	SC	Pleasure Vessel	POINTHOR	827417.65	825099.85	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_16	R1_SC01	SC	Pleasure Vessel	POINTHOR	827427.56	825101.19	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_17	R1_SC01	SC	Pleasure Vessel	POINTHOR	827437.47	825102.53	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_18	R1_SC01	SC	Pleasure Vessel	POINTHOR	827447.38	825103.87	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_19	R1_SC01	SC	Pleasure Vessel	POINTHOR	827457.32	825104.96	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_20	R1_SC01	SC	Pleasure Vessel	POINTHOR	827467.27	825105.96	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_21	R1_SC01	SC	Pleasure Vessel	POINTHOR	827477.22	825106.96	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_22	R1_SC01	SC	Pleasure Vessel	POINTHOR	827487.17	825107.95	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_23	R1_SC01	SC	Pleasure Vessel	POINTHOR	827497.12	825108.95	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_24	R1_SC01	SC	Pleasure Vessel	POINTHOR	827507.07	825109.94	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_25	R1_SC01	SC	Pleasure Vessel	POINTHOR	827517.02	825110.94	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_26	R1_SC01	SC	Pleasure Vessel	POINTHOR	827526.97	825111.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_27	R1_SC01	SC	Pleasure Vessel	POINTHOR	827536.93	825112.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_28	R1_SC01	SC	Pleasure Vessel	POINTHOR	827546.88	825113.92	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_29	R1_SC01	SC	Pleasure Vessel	POINTHOR	827556.83	825114.92	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_30	R1_SC01	SC	Pleasure Vessel	POINTHOR	827566.78	825115.91	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_31	R1_SC01	SC	Pleasure Vessel	POINTHOR	827576.73	825116.91	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_32	R1_SC01	SC	Pleasure Vessel	POINTHOR	827586.68	825117.90	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_33	R1_SC01	SC	Pleasure Vessel	POINTHOR	827596.63	825118.90	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_34	R1_SC01	SC	Pleasure Vessel	POINTHOR	827606.58	825119.89	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_35	R1_SC01	SC	Pleasure Vessel	POINTHOR	827616.53	825120.89	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_36	R1_SC01	SC	Pleasure Vessel	POINTHOR	827626.48	825121.88	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_37	R1_SC01	SC	Pleasure Vessel	POINTHOR	827636.43	825122.86	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_38	R1_SC01	SC	Pleasure Vessel	POINTHOR	827646.40	825123.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_39	R1_SC01	SC	Pleasure Vessel	POINTHOR	827656.36	825124.49	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_40	R1_SC01	SC	Pleasure Vessel	POINTHOR	827666.33	825125.30	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_41	R1_SC01	SC	Pleasure Vessel	POINTHOR	827676.30	825126.11	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_42	R1_SC01	SC	Pleasure Vessel	POINTHOR	827686.26	825126.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_43	R1_SC01	SC	Pleasure Vessel	POINTHOR	827696.23	825127.74	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_44	R1_SC01	SC	Pleasure Vessel	POINTHOR	827706.20	825128.55	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_45	R1_SC01	SC	Pleasure Vessel	POINTHOR	827716.17	825129.37	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_46	R1_SC01	SC	Pleasure Vessel	POINTHOR	827726.13	825130.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_47	R1_SC01	SC	Pleasure Vessel	POINTHOR	827736.10	825130.99	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_48	R1_SC01	SC	Pleasure Vessel	POINTHOR	827746.07	825131.80	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_49	R1_SC01	SC	Pleasure Vessel	POINTHOR	827756.03	825132.62	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_50	R1_SC01	SC	Pleasure Vessel	POINTHOR	827766.00	825133.43	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_51	R1_SC01	SC	Pleasure Vessel	POINTHOR	827775.97	825134.24	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_52	R1_SC01	SC	Pleasure Vessel	POINTHOR	827785.93	825135.05	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_53	R1_SC01	SC	Pleasure Vessel	POINTHOR	827795.90	825135.87	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_54	R1_SC01	SC	Pleasure Vessel	POINTHOR	827805.87	825136.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_55	R1_SC01	SC	Pleasure Vessel	POINTHOR	827815.83	825137.49	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_56	R1_SC01	SC	Pleasure Vessel	POINTHOR	827825.80	825138.31	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_57	R1_SC01	SC	Pleasure Vessel	POINTHOR	827835.77	825139.12	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_58	R1_SC01	SC	Pleasure Vessel	POINTHOR	827845.74	825139.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_59	R1_SC01	SC	Pleasure Vessel	POINTHOR	827855.70	825140.74	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_60	R1_SC01	SC	Pleasure Vessel	POINTHOR	827865.67	825141.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_SC01_61	R1_SC01	SC	Pleasure Vessel	POINTHOR	827875.64	825142.37	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_62	R1_SC01	SC	Pleasure Vessel	POINTHOR	827885.60	825143.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_63	R1_SC01	SC	Pleasure Vessel	POINTHOR	827895.57	825143.99	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_64	R1_SC01	SC	Pleasure Vessel	POINTHOR	827905.54	825144.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_65	R1_SC01	SC	Pleasure Vessel	POINTHOR	827915.50	825145.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_66	R1_SC01	SC	Pleasure Vessel	POINTHOR	827925.46	825146.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_67	R1_SC01	SC	Pleasure Vessel	POINTHOR	827935.42	825147.43	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_68	R1_SC01	SC	Pleasure Vessel	POINTHOR	827945.38	825148.31	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_69	R1_SC01	SC	Pleasure Vessel	POINTHOR	827955.35	825149.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_70	R1_SC01	SC	Pleasure Vessel	POINTHOR	827965.31	825150.06	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_71	R1_SC01	SC	Pleasure Vessel	POINTHOR	827975.27	825150.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_72	R1_SC01	SC	Pleasure Vessel	POINTHOR	827985.23	825151.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_73	R1_SC01	SC	Pleasure Vessel	POINTHOR	827995.19	825152.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_74	R1_SC01	SC	Pleasure Vessel	POINTHOR	828005.15	825153.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_75	R1_SC01	SC	Pleasure Vessel	POINTHOR	828015.12	825154.43	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_76	R1_SC01	SC	Pleasure Vessel	POINTHOR	828025.08	825155.31	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_77	R1_SC01	SC	Pleasure Vessel	POINTHOR	828035.04	825156.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_78	R1_SC01	SC	Pleasure Vessel	POINTHOR	828045.00	825157.06	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_79	R1_SC01	SC	Pleasure Vessel	POINTHOR	828054.96	825157.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_80	R1_SC01	SC	Pleasure Vessel	POINTHOR	828064.92	825158.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_81	R1_SC01	SC	Pleasure Vessel	POINTHOR	828074.88	825159.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_82	R1_SC01	SC	Pleasure Vessel	POINTHOR	828084.85	825160.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_83	R1_SC01	SC	Pleasure Vessel	POINTHOR	828094.81	825161.43	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_84	R1_SC01	SC	Pleasure Vessel	POINTHOR	828104.77	825162.31	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_85	R1_SC01	SC	Pleasure Vessel	POINTHOR	828114.73	825163.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_86	R1_SC01	SC	Pleasure Vessel	POINTHOR	828124.69	825164.06	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_87	R1_SC01	SC	Pleasure Vessel	POINTHOR	828134.65	825164.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_88	R1_SC01	SC	Pleasure Vessel	POINTHOR	828144.62	825165.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_89	R1_SC01	SC	Pleasure Vessel	POINTHOR	828154.58	825166.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_90	R1_SC01	SC	Pleasure Vessel	POINTHOR	828164.54	825167.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_91	R1_SC01	SC	Pleasure Vessel	POINTHOR	828174.50	825168.43	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_92	R1_SC01	SC	Pleasure Vessel	POINTHOR	828184.46	825169.31	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_93	R1_SC01	SC	Pleasure Vessel	POINTHOR	828194.42	825170.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_94	R1_SC01	SC	Pleasure Vessel	POINTHOR	828204.39	825171.06	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_95	R1_SC01	SC	Pleasure Vessel	POINTHOR	828214.35	825171.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_96	R1_SC01	SC	Pleasure Vessel	POINTHOR	828224.31	825172.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_97	R1_SC01	SC	Pleasure Vessel	POINTHOR	828234.27	825173.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_98	R1_SC01	SC	Pleasure Vessel	POINTHOR	828244.23	825174.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_99	R1_SC01	SC	Pleasure Vessel	POINTHOR	828254.20	825175.40	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_100	R1_SC01	SC	Pleasure Vessel	POINTHOR	828264.16	825176.23	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_101	R1_SC01	SC	Pleasure Vessel	POINTHOR	828274.13	825177.05	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_102	R1_SC01	SC	Pleasure Vessel	POINTHOR	828284.09	825177.88	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_103	R1_SC01	SC	Pleasure Vessel	POINTHOR	828294.06	825178.70	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_104	R1_SC01	SC	Pleasure Vessel	POINTHOR	828304.03	825179.53	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_105	R1_SC01	SC	Pleasure Vessel	POINTHOR	828313.99	825180.35	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_106	R1_SC01	SC	Pleasure Vessel	POINTHOR	828323.96	825181.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_107	R1_SC01	SC	Pleasure Vessel	POINTHOR	828333.92	825182.00	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_108	R1_SC01	SC	Pleasure Vessel	POINTHOR	828343.89	825182.83	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_109	R1_SC01	SC	Pleasure Vessel	POINTHOR	828353.86	825183.65	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_110	R1_SC01	SC	Pleasure Vessel	POINTHOR	828363.82	825184.48	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_111	R1_SC01	SC	Pleasure Vessel	POINTHOR	828373.79	825185.30	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_112	R1_SC01	SC	Pleasure Vessel	POINTHOR	828383.75	825186.13	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_113	R1_SC01	SC	Pleasure Vessel	POINTHOR	828393.72	825186.95	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_114	R1_SC01	SC	Pleasure Vessel	POINTHOR	828403.69	825187.78	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_115	R1_SC01	SC	Pleasure Vessel	POINTHOR	828413.65	825188.60	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_116	R1_SC01	SC	Pleasure Vessel	POINTHOR	828416.64	825188.85	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_TT01_01	R1_TT01	TT	Tug	POINTHOR	827278.92	825081.10	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_02	R1_TT01	TT	Tug	POINTHOR	827288.83	825082.44	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_03	R1_TT01	TT	Tug	POINTHOR	827298.74	825083.78	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_04	R1_TT01	TT	Tug	POINTHOR	827308.65	825085.12	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_05	R1_TT01	TT	Tug	POINTHOR	827318.56	825086.46	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_06	R1_TT01	TT	Tug	POINTHOR	827328.47	825087.80	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_07	R1_TT01	TT	Tug	POINTHOR	827338.37	825089.13	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_08	R1_TT01	TT	Tug	POINTHOR	827348.28	825090.47	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_09	R1_TT01	TT	Tug	POINTHOR	827358.19	825091.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_10	R1_TT01	TT	Tug	POINTHOR	827368.10	825093.15	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_11	R1_TT01	TT	Tug	POINTHOR	827378.01	825094.49	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_12	R1_TT01	TT	Tug	POINTHOR	827387.92	825095.83	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_13	R1_TT01	TT	Tug	POINTHOR	827397.83	825097.17	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_14	R1_TT01	TT	Tug	POINTHOR	827407.74	825098.51	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_15	R1_TT01	TT	Tug	POINTHOR	827417.65	825099.85	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_16	R1_TT01	TT	Tug	POINTHOR	827427.56	825101.19	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_17	R1_TT01	TT	Tug	POINTHOR	827437.47	825102.53	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_18	R1_TT01	TT	Tug	POINTHOR	827447.38	825103.87	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_19	R1_TT01	TT	Tug	POINTHOR	827457.32	825104.96	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_20	R1_TT01	TT	Tug	POINTHOR	827467.27	825105.96	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_21	R1_TT01	TT	Tug	POINTHOR	827477.22	825106.96	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_22	R1_TT01	TT	Tug	POINTHOR	827487.17	825107.95	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_23	R1_TT01	TT	Tug	POINTHOR	827497.12	825108.95	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_24	R1_TT01	TT	Tug	POINTHOR	827507.07	825109.94	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_TT01_25	R1_TT01	TT	Tug	POINTHOR	827517.02	825110.94	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_26	R1_TT01	TT	Tug	POINTHOR	827526.97	825111.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_27	R1_TT01	TT	Tug	POINTHOR	827536.93	825112.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_28	R1_TT01	TT	Tug	POINTHOR	827546.88	825113.92	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_29	R1_TT01	TT	Tug	POINTHOR	827556.83	825114.92	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_30	R1_TT01	TT	Tug	POINTHOR	827566.78	825115.91	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_31	R1_TT01	TT	Tug	POINTHOR	827576.73	825116.91	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_32	R1_TT01	TT	Tug	POINTHOR	827586.68	825117.90	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_33	R1_TT01	TT	Tug	POINTHOR	827596.63	825118.90	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_34	R1_TT01	TT	Tug	POINTHOR	827606.58	825119.89	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_35	R1_TT01	TT	Tug	POINTHOR	827616.53	825120.89	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_36	R1_TT01	TT	Tug	POINTHOR	827626.48	825121.88	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_37	R1_TT01	TT	Tug	POINTHOR	827636.43	825122.86	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_38	R1_TT01	TT	Tug	POINTHOR	827646.40	825123.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_39	R1_TT01	TT	Tug	POINTHOR	827656.36	825124.49	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_40	R1_TT01	TT	Tug	POINTHOR	827666.33	825125.30	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_41	R1_TT01	TT	Tug	POINTHOR	827676.30	825126.11	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_42	R1_TT01	TT	Tug	POINTHOR	827686.26	825126.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_43	R1_TT01	TT	Tug	POINTHOR	827696.23	825127.74	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_44	R1_TT01	TT	Tug	POINTHOR	827706.20	825128.55	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_45	R1_TT01	TT	Tug	POINTHOR	827716.17	825129.37	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_46	R1_TT01	TT	Tug	POINTHOR	827726.13	825130.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_47	R1_TT01	TT	Tug	POINTHOR	827736.10	825130.99	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_48	R1_TT01	TT	Tug	POINTHOR	827746.07	825131.80	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_49	R1_TT01	TT	Tug	POINTHOR	827756.03	825132.62	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_50	R1_TT01	TT	Tug	POINTHOR	827766.00	825133.43	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_51	R1_TT01	TT	Tug	POINTHOR	827775.97	825134.24	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_52	R1_TT01	TT	Tug	POINTHOR	827785.93	825135.05	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_53	R1_TT01	TT	Tug	POINTHOR	827795.90	825135.87	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_54	R1_TT01	TT	Tug	POINTHOR	827805.87	825136.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_55	R1_TT01	TT	Tug	POINTHOR	827815.83	825137.49	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_56	R1_TT01	TT	Tug	POINTHOR	827825.80	825138.31	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_57	R1_TT01	TT	Tug	POINTHOR	827835.77	825139.12	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_58	R1_TT01	TT	Tug	POINTHOR	827845.74	825139.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_59	R1_TT01	TT	Tug	POINTHOR	827855.70	825140.74	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_60	R1_TT01	TT	Tug	POINTHOR	827865.67	825141.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_61	R1_TT01	TT	Tug	POINTHOR	827875.64	825142.37	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_62	R1_TT01	TT	Tug	POINTHOR	827885.60	825143.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_63	R1_TT01	TT	Tug	POINTHOR	827895.57	825143.99	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_64	R1_TT01	TT	Tug	POINTHOR	827905.54	825144.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_65	R1_TT01	TT	Tug	POINTHOR	827915.50	825145.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_66	R1_TT01	TT	Tug	POINTHOR	827925.46	825146.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_67	R1_TT01	TT	Tug	POINTHOR	827935.42	825147.43	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_68	R1_TT01	TT	Tug	POINTHOR	827945.38	825148.31	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_69	R1_TT01	TT	Tug	POINTHOR	827955.35	825149.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_70	R1_TT01	TT	Tug	POINTHOR	827965.31	825150.06	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_71	R1_TT01	TT	Tug	POINTHOR	827975.27	825150.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_72	R1_TT01	TT	Tug	POINTHOR	827985.23	825151.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_73	R1_TT01	TT	Tug	POINTHOR	827995.19	825152.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_74	R1_TT01	TT	Tug	POINTHOR	828005.15	825153.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_75	R1_TT01	TT	Tug	POINTHOR	828015.12	825154.43	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_76	R1_TT01	TT	Tug	POINTHOR	828025.08	825155.31	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_77	R1_TT01	TT	Tug	POINTHOR	828035.04	825156.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_78	R1_TT01	TT	Tug	POINTHOR	828045.00	825157.06	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_79	R1_TT01	TT	Tug	POINTHOR	828054.96	825157.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_80	R1_TT01	TT	Tug	POINTHOR	828064.92	825158.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_81	R1_TT01	TT	Tug	POINTHOR	828074.88	825159.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_82	R1_TT01	TT	Tug	POINTHOR	828084.85	825160.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_83	R1_TT01	TT	Tug	POINTHOR	828094.81	825161.43	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_84	R1_TT01	TT	Tug	POINTHOR	828104.77	825162.31	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_85	R1_TT01	TT	Tug	POINTHOR	828114.73	825163.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_86	R1_TT01	TT	Tug	POINTHOR	828124.69	825164.06	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_87	R1_TT01	TT	Tug	POINTHOR	828134.65	825164.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_88	R1_TT01	TT	Tug	POINTHOR	828144.62	825165.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_89	R1_TT01	TT	Tug	POINTHOR	828154.58	825166.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_90	R1_TT01	TT	Tug	POINTHOR	828164.54	825167.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_91	R1_TT01	TT	Tug	POINTHOR	828174.50	825168.43	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_92	R1_TT01	TT	Tug	POINTHOR	828184.46	825169.31	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_93	R1_TT01	TT	Tug	POINTHOR	828194.42	825170.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_94	R1_TT01	TT	Tug	POINTHOR	828204.39	825171.06	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_95	R1_TT01	TT	Tug	POINTHOR	828214.35	825171.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_96	R1_TT01	TT	Tug	POINTHOR	828224.31	825172.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_97	R1_TT01	TT	Tug	POINTHOR	828234.27	825173.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_98	R1_TT01	TT	Tug	POINTHOR	828244.23	825174.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_99	R1_TT01	TT	Tug	POINTHOR	828254.20	825175.40	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_100	R1_TT01	TT	Tug	POINTHOR	828264.16	825176.23	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_101	R1_TT01	TT	Tug	POINTHOR	828274.13	825177.05	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_102	R1_TT01	TT	Tug	POINTHOR	828284.09	825177.88	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_103	R1_TT01	TT	Tug	POINTHOR	828294.06	825178.70	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_104	R1_TT01	TT	Tug	POINTHOR	828304.03	825179.53	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05

Appendix 3.5 Calculation of Marine Emissions

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_TT01_105	R1_TT01	TT	Tug	POINTHOR	828313.99	825180.35	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_106	R1_TT01	TT	Tug	POINTHOR	828323.96	825181.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_107	R1_TT01	TT	Tug	POINTHOR	828333.92	825182.00	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_108	R1_TT01	TT	Tug	POINTHOR	828343.89	825182.83	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_109	R1_TT01	TT	Tug	POINTHOR	828353.86	825183.65	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_110	R1_TT01	TT	Tug	POINTHOR	828363.82	825184.48	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_111	R1_TT01	TT	Tug	POINTHOR	828373.79	825185.30	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_112	R1_TT01	TT	Tug	POINTHOR	828383.75	825186.13	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_113	R1_TT01	TT	Tug	POINTHOR	828393.72	825186.95	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_114	R1_TT01	TT	Tug	POINTHOR	828403.69	825187.78	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_115	R1_TT01	TT	Tug	POINTHOR	828413.65	825188.60	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_116	R1_TT01	TT	Tug	POINTHOR	828416.64	825188.85	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_FL01_01	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_02	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_03	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_04	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_05	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_06	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_07	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_08	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_09	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_10	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_11	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_12	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_13	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_14	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_15	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_16	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_17	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_18	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_19	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_20	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_21	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_22	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_23	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_24	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_25	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_26	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_27	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_28	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_29	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_30	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_31	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_32	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_33	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_34	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_35	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_36	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_37	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_38	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_39	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_40	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_41	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_42	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_43	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_44	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_45	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_46	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_47	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_48	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_49	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_50	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_51	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_52	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_53	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_54	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_55	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_56	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_57	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_58	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_59	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_60	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_61	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_62	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_63	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_64	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_65	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_66	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_67	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_68	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_69	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_FL01_70	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_71	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_72	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_73	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_74	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_75	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_76	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_77	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_78	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_79	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_80	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_81	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_82	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_83	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_84	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_85	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_86	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_87	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_88	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_89	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_90	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_91	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_92	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_93	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_94	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_95	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_96	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_97	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_98	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_99	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_100	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_101	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_102	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_103	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_104	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_105	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_106	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_107	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_108	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_109	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_110	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_111	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_112	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_113	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_114	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_115	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_116	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_LF01_01	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_02	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_03	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_04	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_05	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_06	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_07	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_08	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_09	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_10	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_11	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_12	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_13	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_14	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_15	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_16	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_17	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_18	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_19	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_20	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_21	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_22	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_LF01_23	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_24	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_25	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_26	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_27	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_28	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_29	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_30	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_31	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_32	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_33	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_34	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_35	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_36	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_37	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_38	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_39	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_40	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_41	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_42	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_43	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_44	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_45	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_46	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_47	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_48	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_49	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_50	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_51	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_52	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_53	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_54	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_55	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_56	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_57	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_58	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_59	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_60	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_61	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_62	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_63	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_64	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_65	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_66	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_67	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_68	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_69	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_70	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_71	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_72	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_73	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_74	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_75	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_76	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_77	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_78	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_79	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_80	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_81	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_82	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_83	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_84	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_85	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_86	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_87	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_88	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_89	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_90	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_91	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_LF01_92	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_93	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_94	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_95	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_96	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_97	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_98	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_99	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_100	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_101	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_102	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_103	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_104	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_105	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_106	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_107	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_108	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_109	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_110	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_111	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_112	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_113	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_114	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_115	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_116	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_OGV06_01	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_02	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_03	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_04	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_05	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_06	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_07	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_08	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_09	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_10	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_11	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_12	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_13	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_14	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_15	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_16	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_17	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_18	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_19	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_20	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_21	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_22	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_23	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_24	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_25	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_26	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_27	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_28	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_29	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_30	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_31	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_32	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_33	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_34	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_35	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_36	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_37	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_38	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_39	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_40	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_41	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_42	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_43	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_44	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_OGV06_45	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_46	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_47	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_48	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_49	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_50	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_51	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_52	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_53	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_54	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_55	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_56	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_57	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_58	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_59	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_60	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_61	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_62	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_63	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_64	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_65	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_66	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_67	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_68	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_69	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_70	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_71	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_72	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_73	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_74	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_75	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_76	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_77	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_78	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_79	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_80	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_81	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_82	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_83	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_84	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_85	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_86	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_87	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_88	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_89	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_90	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_91	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_92	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_93	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_94	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_95	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_96	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_97	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_98	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_99	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_100	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_101	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_102	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_103	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_104	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_105	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_106	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_107	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_108	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_109	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_110	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_111	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_112	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_113	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_OGV06_114	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_115	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_116	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_01	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_02	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_03	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_04	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_05	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_06	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_07	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_08	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_09	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_10	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_11	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_12	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_13	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_14	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_15	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_16	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_17	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_18	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_19	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_20	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_21	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_22	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_23	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_24	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_25	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_26	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_27	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_28	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_29	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_30	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_31	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_32	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_33	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_34	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_35	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_36	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_37	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_38	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_39	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_40	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_41	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_42	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_43	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_44	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_45	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_46	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_47	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_48	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_49	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_50	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_51	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_52	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_53	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_54	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_55	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_56	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_57	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_58	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_59	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_60	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_61	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_62	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_63	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_64	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_65	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_66	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_OGV07_67	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_68	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_69	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_70	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_71	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_72	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_73	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_74	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_75	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_76	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_77	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_78	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_79	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_80	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_81	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_82	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_83	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_84	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_85	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_86	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_87	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_88	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_89	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_90	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_91	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_92	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_93	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_94	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_95	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_96	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_97	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_98	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_99	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_100	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_101	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_102	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_103	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_104	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_105	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_106	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_107	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_108	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_109	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_110	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_111	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_112	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_113	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_114	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_115	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_116	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV08_01	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_02	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_03	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_04	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_05	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_06	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_07	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_08	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_09	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_10	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_11	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_12	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_13	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_14	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_15	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_16	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_17	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_18	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_19	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_OGV08_20	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_21	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_22	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_23	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_24	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_25	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_26	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_27	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_28	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_29	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_30	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_31	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_32	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_33	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_34	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_35	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_36	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_37	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_38	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_39	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_40	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_41	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_42	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_43	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_44	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_45	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_46	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_47	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_48	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_49	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_50	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_51	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_52	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_53	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_54	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_55	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_56	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_57	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_58	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_59	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_60	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_61	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_62	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_63	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_64	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_65	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_66	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_67	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_68	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_69	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_70	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_71	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_72	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_73	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_74	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_75	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_76	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_77	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_78	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_79	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_80	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_81	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_82	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_83	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_84	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_85	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_86	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_87	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_88	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_OGV08_89	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_90	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_91	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_92	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_93	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_94	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_95	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_96	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_97	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_98	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_99	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_100	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_101	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_102	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_103	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_104	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_105	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_106	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_107	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_108	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_109	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_110	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_111	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_112	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_113	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_114	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_115	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_116	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_RTV01_01	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_02	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_03	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_04	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_05	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_06	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_07	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_08	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_09	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_10	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_11	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_12	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_13	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_14	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_15	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_16	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_17	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_18	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_19	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_20	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_21	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_22	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_23	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_24	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_25	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_26	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_27	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_28	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_29	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_30	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_31	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_32	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_33	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_34	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_35	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_36	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_37	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_38	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_39	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_40	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_41	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV01_42	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_43	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_44	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_45	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_46	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_47	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_48	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_49	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_50	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_51	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_52	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_53	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_54	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_55	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_56	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_57	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_58	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_59	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_60	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_61	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_62	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_63	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_64	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_65	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_66	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_67	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_68	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_69	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_70	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_71	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_72	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_73	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_74	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_75	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_76	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_77	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_78	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_79	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_80	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_81	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_82	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_83	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_84	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_85	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_86	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_87	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_88	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_89	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_90	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_91	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_92	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_93	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_94	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_95	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_96	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_97	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_98	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_99	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_100	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_101	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_102	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_103	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_104	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_105	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_106	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_107	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_108	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_109	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_110	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV01_111	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_112	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_113	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_114	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_115	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_116	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV03_01	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_02	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_03	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_04	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_05	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_06	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_07	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_08	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_09	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_10	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_11	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_12	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_13	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_14	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_15	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_16	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_17	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_18	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_19	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_20	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_21	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_22	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_23	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_24	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_25	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_26	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_27	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_28	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_29	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_30	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_31	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_32	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_33	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_34	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_35	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_36	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_37	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_38	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_39	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_40	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_41	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_42	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_43	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_44	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_45	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_46	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_47	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_48	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_49	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_50	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_51	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_52	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_53	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_54	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_55	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_56	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_57	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_58	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_59	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_60	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_61	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_62	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_63	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV03_64	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_65	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_66	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_67	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_68	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_69	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_70	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_71	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_72	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_73	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_74	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_75	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_76	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_77	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_78	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_79	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_80	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_81	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_82	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_83	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_84	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_85	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_86	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_87	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_88	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_89	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_90	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_91	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_92	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_93	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_94	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_95	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_96	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_97	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_98	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_99	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_100	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_101	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_102	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_103	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_104	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_105	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_106	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_107	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_108	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_109	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_110	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_111	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_112	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_113	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_114	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_115	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_116	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03H_01	R1_RTV03H	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	0
R1_RTV03M_01	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_02	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_03	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_04	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_05	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_06	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_07	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_08	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_09	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_10	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_11	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_12	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_13	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_14	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_15	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV03M_16	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_17	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_18	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_19	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_20	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_21	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_22	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_23	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_24	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_25	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_26	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_27	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_28	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_29	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_30	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_31	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_32	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_33	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_34	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_35	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_36	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_37	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_38	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_39	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_40	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_41	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_42	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_43	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_44	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_45	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_46	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_47	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_48	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_49	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_50	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_51	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_52	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_53	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_54	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_55	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_56	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_57	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_58	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_59	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_60	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_61	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_62	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_63	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_64	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_65	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_66	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_67	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_68	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_69	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_70	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_71	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_72	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_73	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_74	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_75	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_76	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_77	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_78	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_79	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_80	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_81	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_82	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_83	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV07H_01	R1_RTV07H	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV07M_01	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_02	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_03	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_04	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_05	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_06	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_07	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_08	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_09	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_10	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_11	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_12	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_13	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_14	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_15	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_16	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_17	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_18	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_19	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_20	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_21	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_22	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_23	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_24	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_25	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_26	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_27	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_28	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_29	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_30	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_31	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_32	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_33	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_34	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_35	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_36	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_37	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_38	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_39	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_40	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_41	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_42	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_43	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_44	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_45	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_46	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_47	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_48	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_49	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_50	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_51	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_52	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_53	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_54	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_55	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_56	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_57	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_58	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_59	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_60	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_61	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_62	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_63	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_64	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_65	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_66	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_67	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_68	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_69	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV07M_70	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_71	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_72	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_73	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_74	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_75	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_76	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_77	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_78	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_79	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_80	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_81	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_82	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_83	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_SC01_01	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_02	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_03	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_04	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_05	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_06	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_07	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_08	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_09	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_10	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_11	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_12	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_13	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_14	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_15	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_16	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_17	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_18	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_19	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_20	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_21	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_22	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_23	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_24	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_25	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_26	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_27	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_28	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_29	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_30	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_31	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_32	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_33	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_34	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_35	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_36	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_37	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_38	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_39	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_40	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_41	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_42	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_43	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_44	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_45	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_46	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_47	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_48	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_49	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_50	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_51	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_52	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_53	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_54	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_55	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_SC01_56	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_57	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_58	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_59	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_60	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_61	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_62	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_63	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_64	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_65	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_66	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_67	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_68	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_69	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_70	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_71	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_72	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_73	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_74	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_75	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_76	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_77	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_78	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_79	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_80	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_81	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_82	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_83	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_84	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_85	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_86	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_87	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_88	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_89	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_90	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_91	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_92	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_93	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_94	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_95	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_96	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_97	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_98	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_99	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_100	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_101	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_102	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_103	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_104	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_105	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_106	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_107	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_108	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_109	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_110	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_111	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_112	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_113	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_114	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_115	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_116	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_TT01_01	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_02	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_03	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_04	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_05	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_06	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_07	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_08	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

Hourly Profile

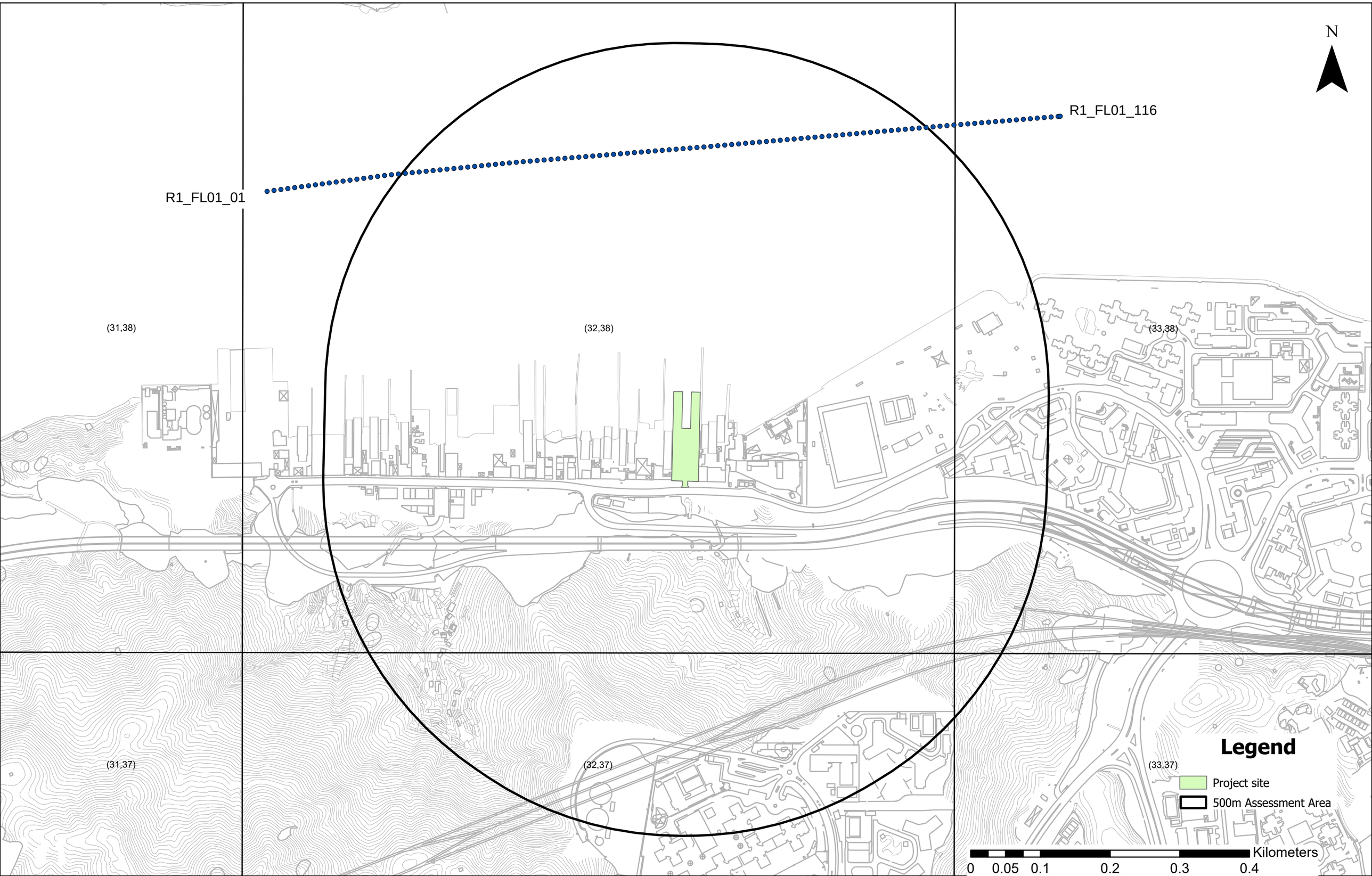
Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_TT01_09	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_10	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_11	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_12	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_13	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_14	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_15	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_16	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_17	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_18	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_19	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_20	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_21	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_22	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_23	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_24	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_25	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_26	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_27	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_28	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_29	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_30	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_31	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_32	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_33	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_34	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_35	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_36	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_37	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_38	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_39	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_40	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_41	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_42	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_43	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_44	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_45	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_46	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_47	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_48	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_49	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_50	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_51	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_52	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_53	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_54	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_55	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_56	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_57	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_58	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_59	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_60	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_61	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_62	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_63	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_64	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_65	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_66	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_67	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_68	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_69	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_70	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_71	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_72	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_73	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_74	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_75	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_76	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_77	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.5 Calculation of Marine Emissions

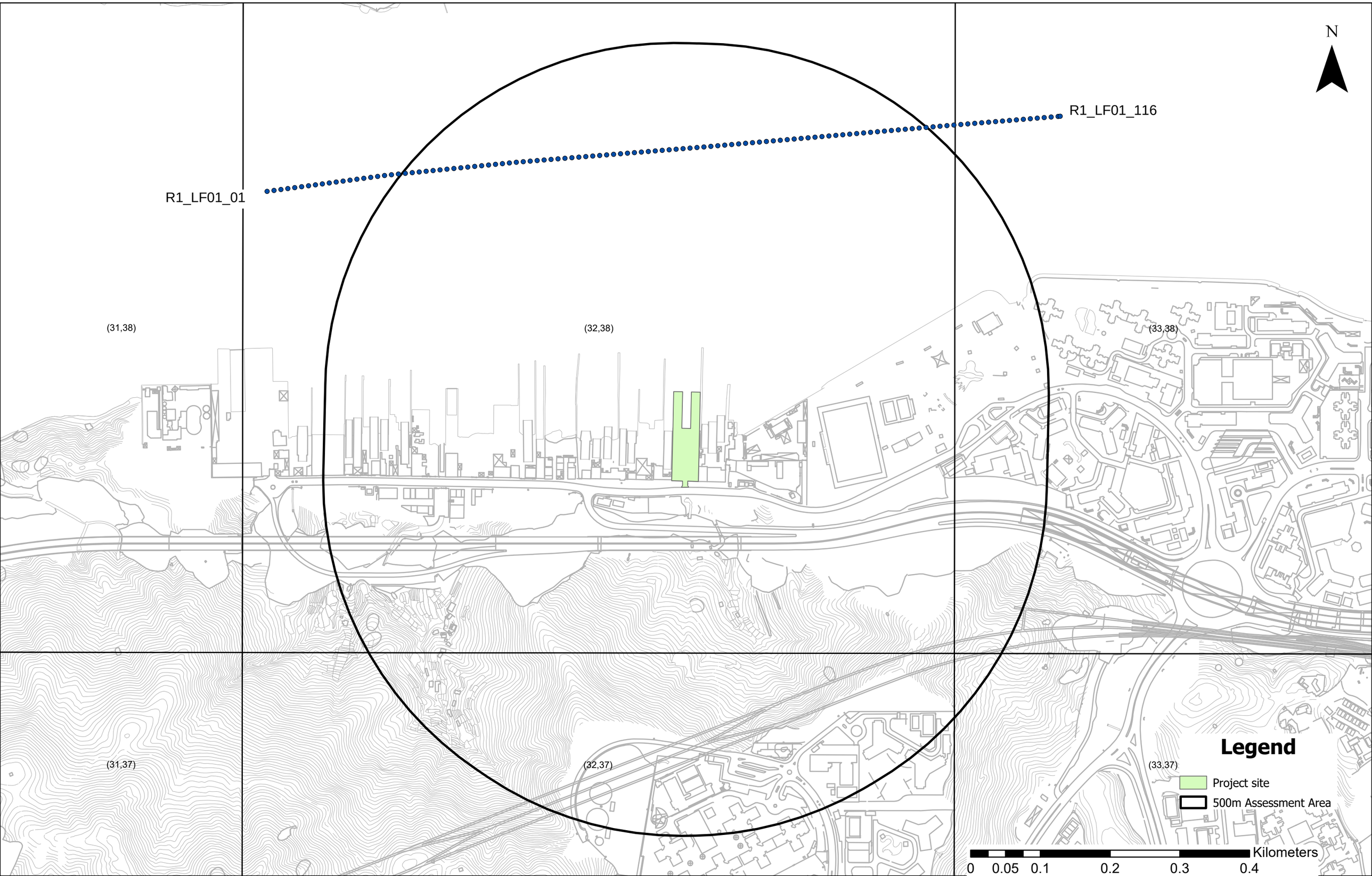
Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_TT01_78	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_79	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_80	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_81	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_82	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_83	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_84	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_85	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_86	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_87	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_88	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_89	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_90	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_91	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_92	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_93	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_94	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_95	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_96	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_97	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_98	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_99	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_100	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_101	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_102	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_103	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_104	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_105	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_106	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_107	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_108	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_109	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_110	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_111	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_112	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_113	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_114	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_115	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_116	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0

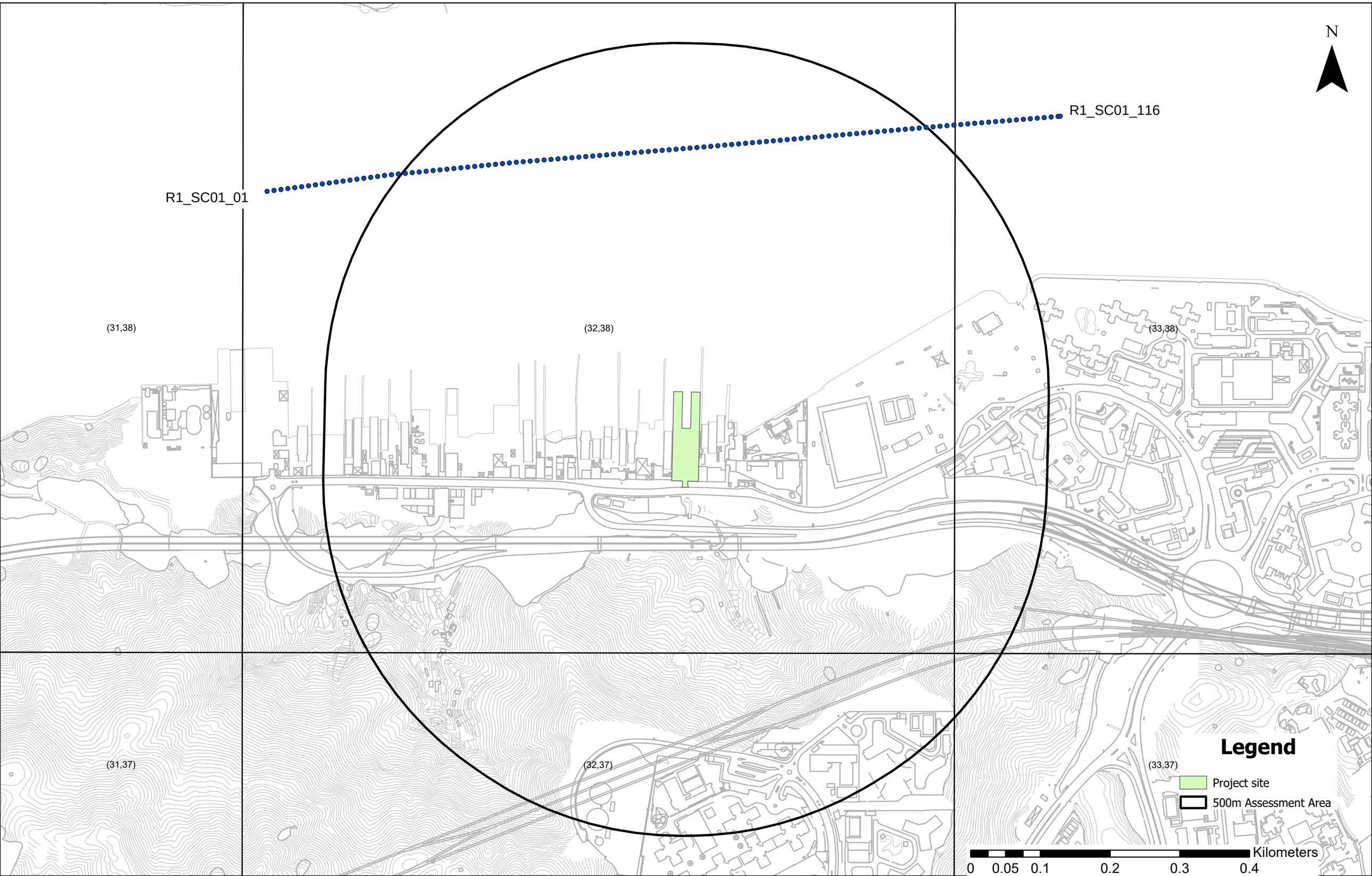
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Fast Launch FL01)



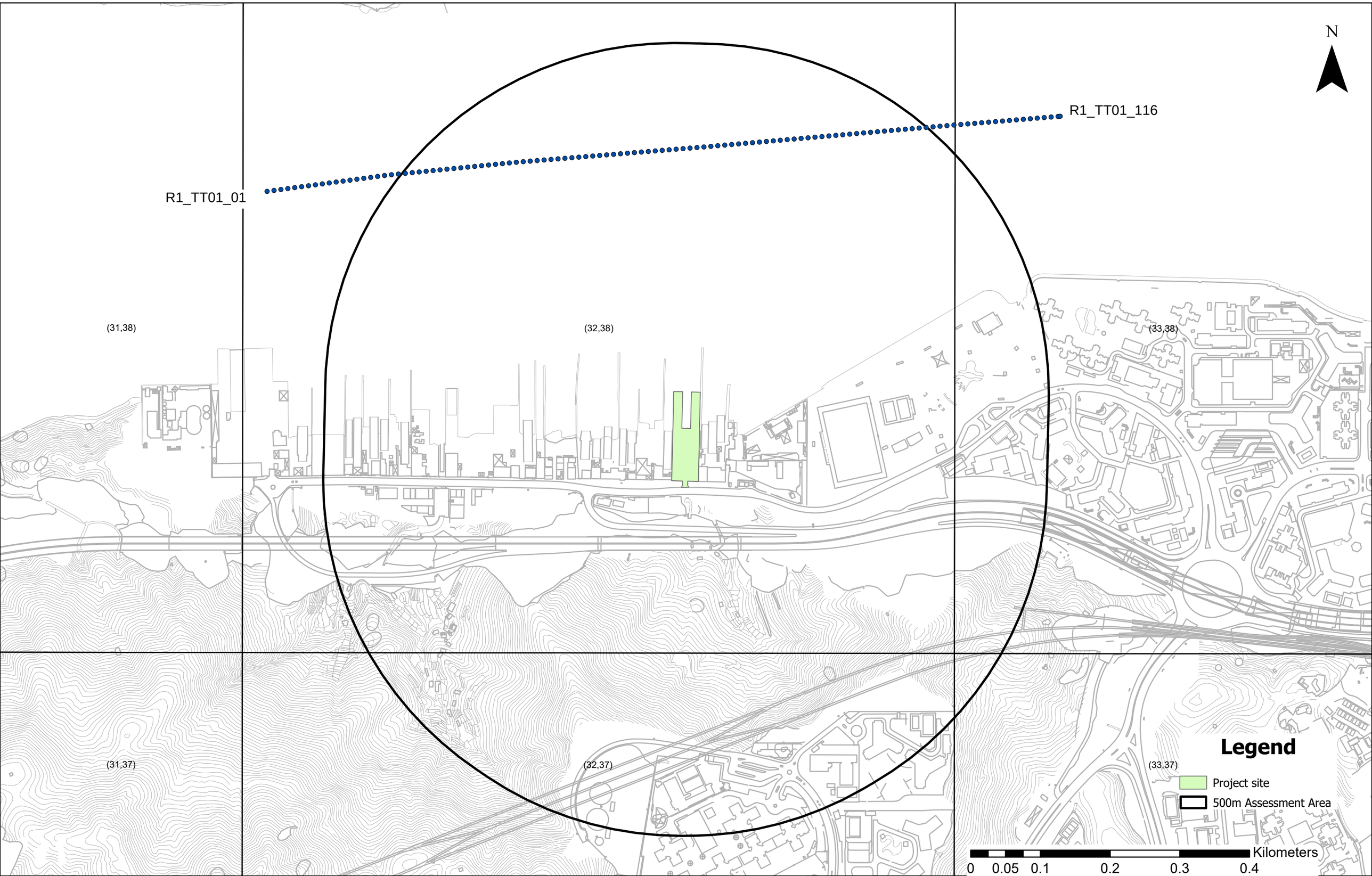
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Local Ferry LF01)



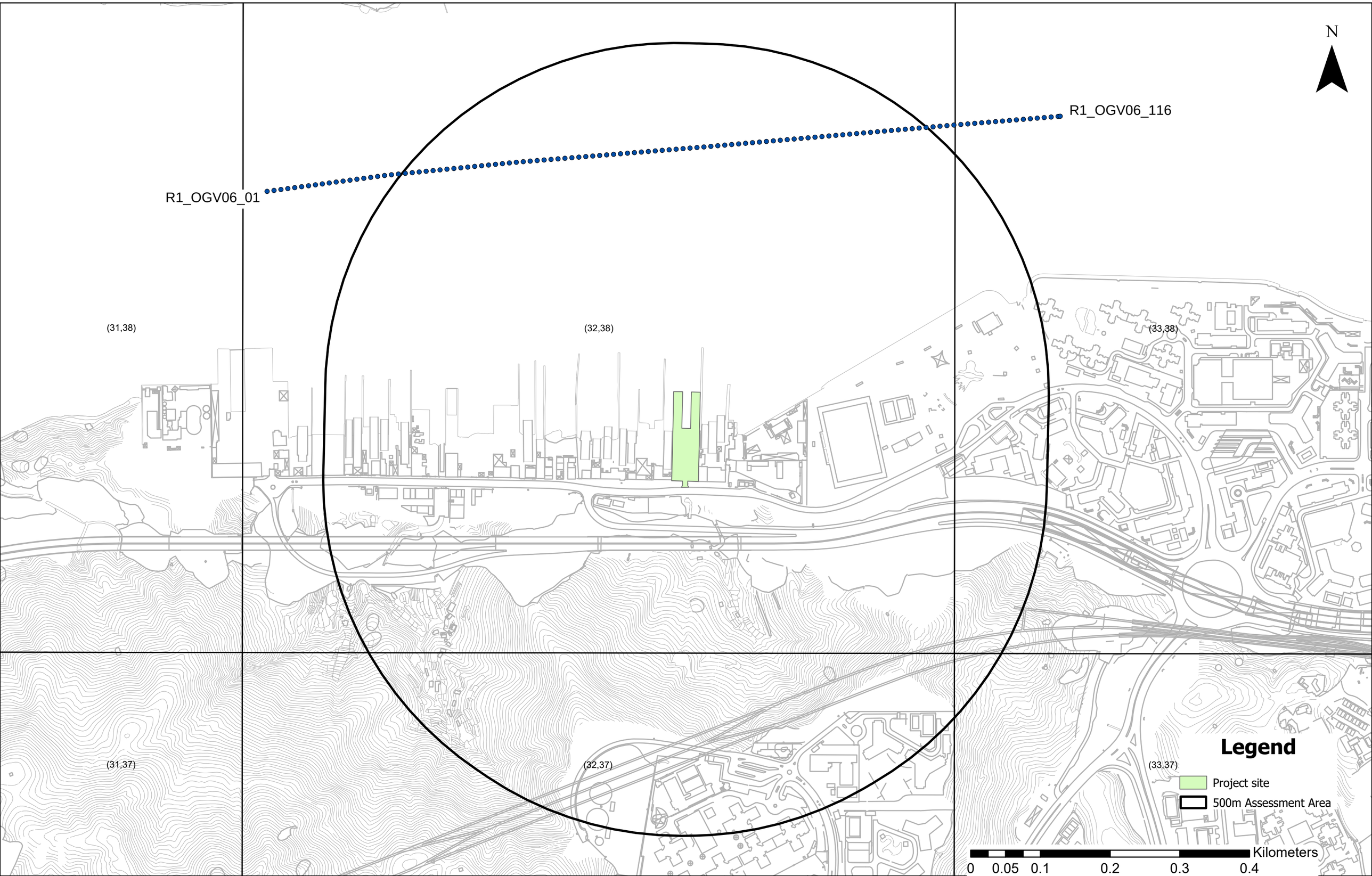
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Small Craft SC01)



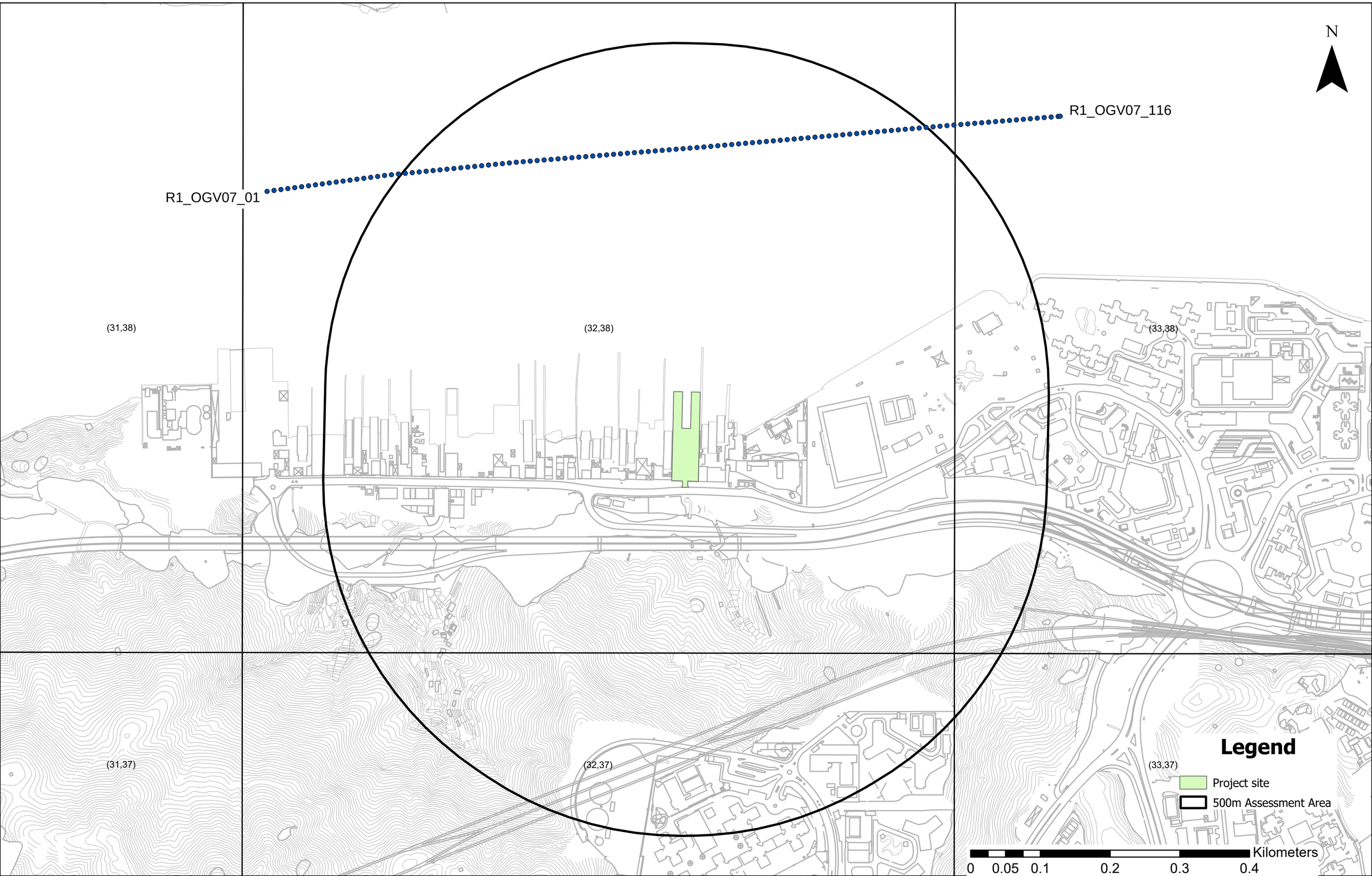
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Tug and Tow TT01)



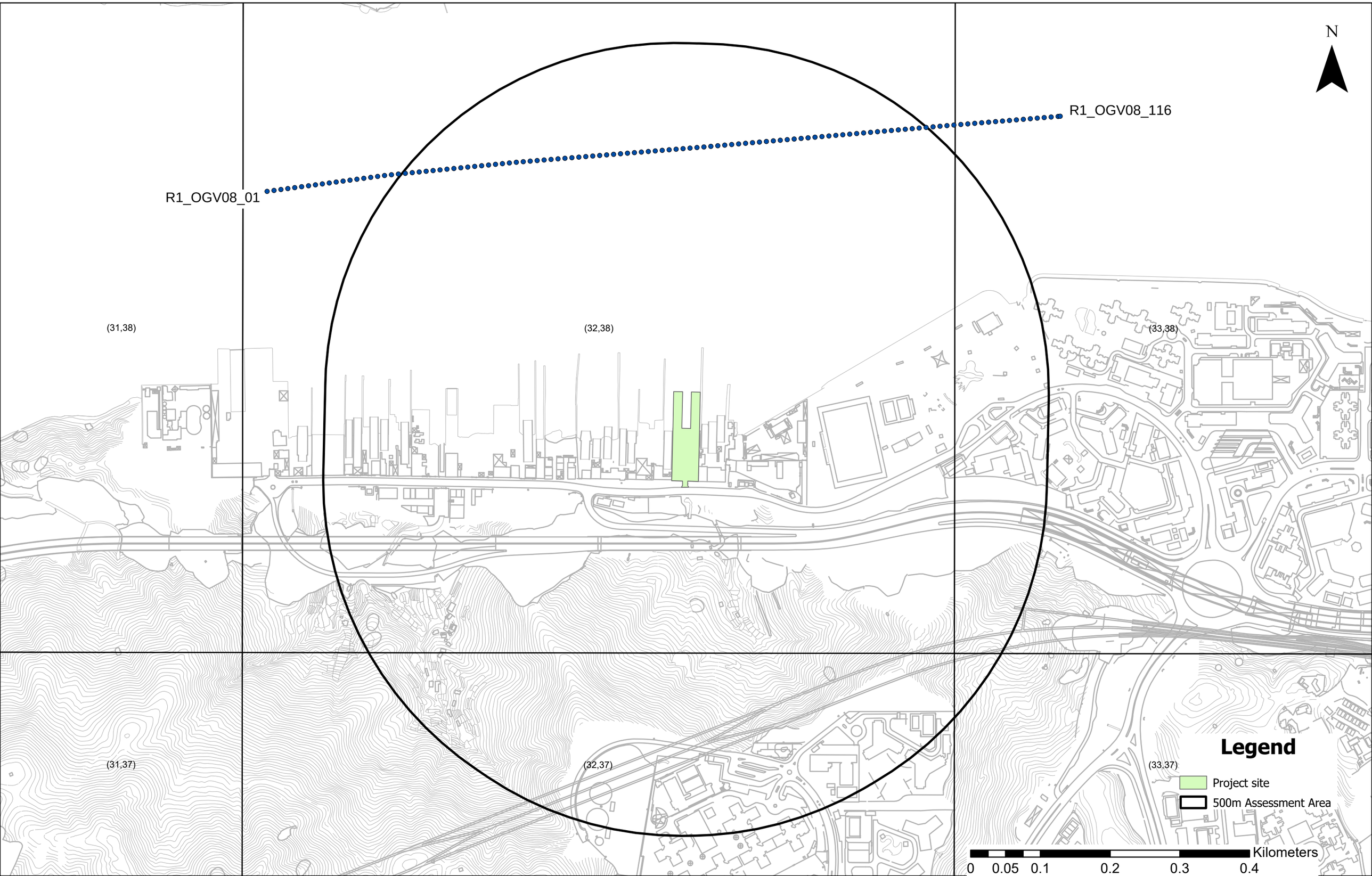
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Ocean-going Vessel OGV06)



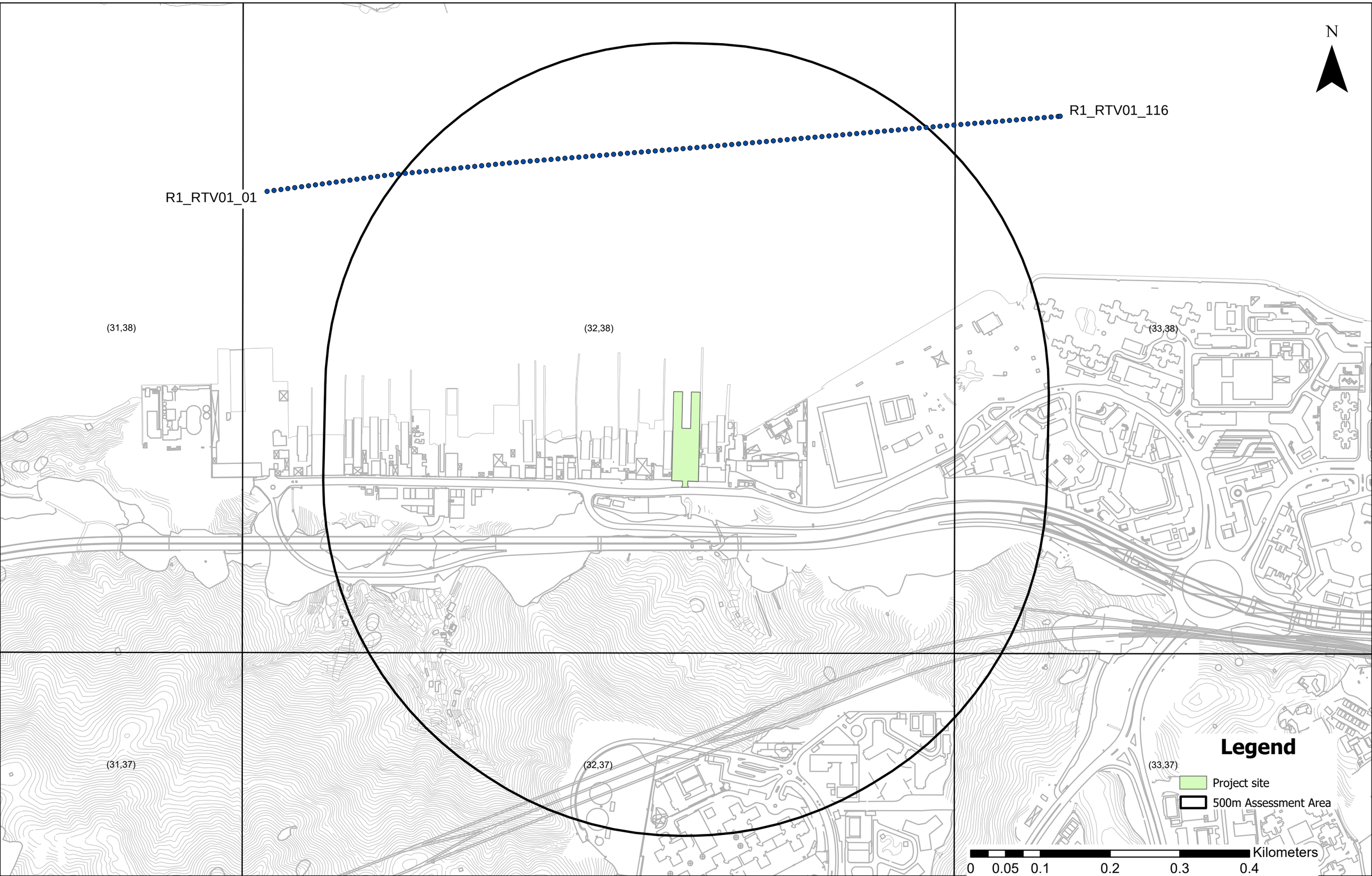
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Ocean-going Vessel OGV07)



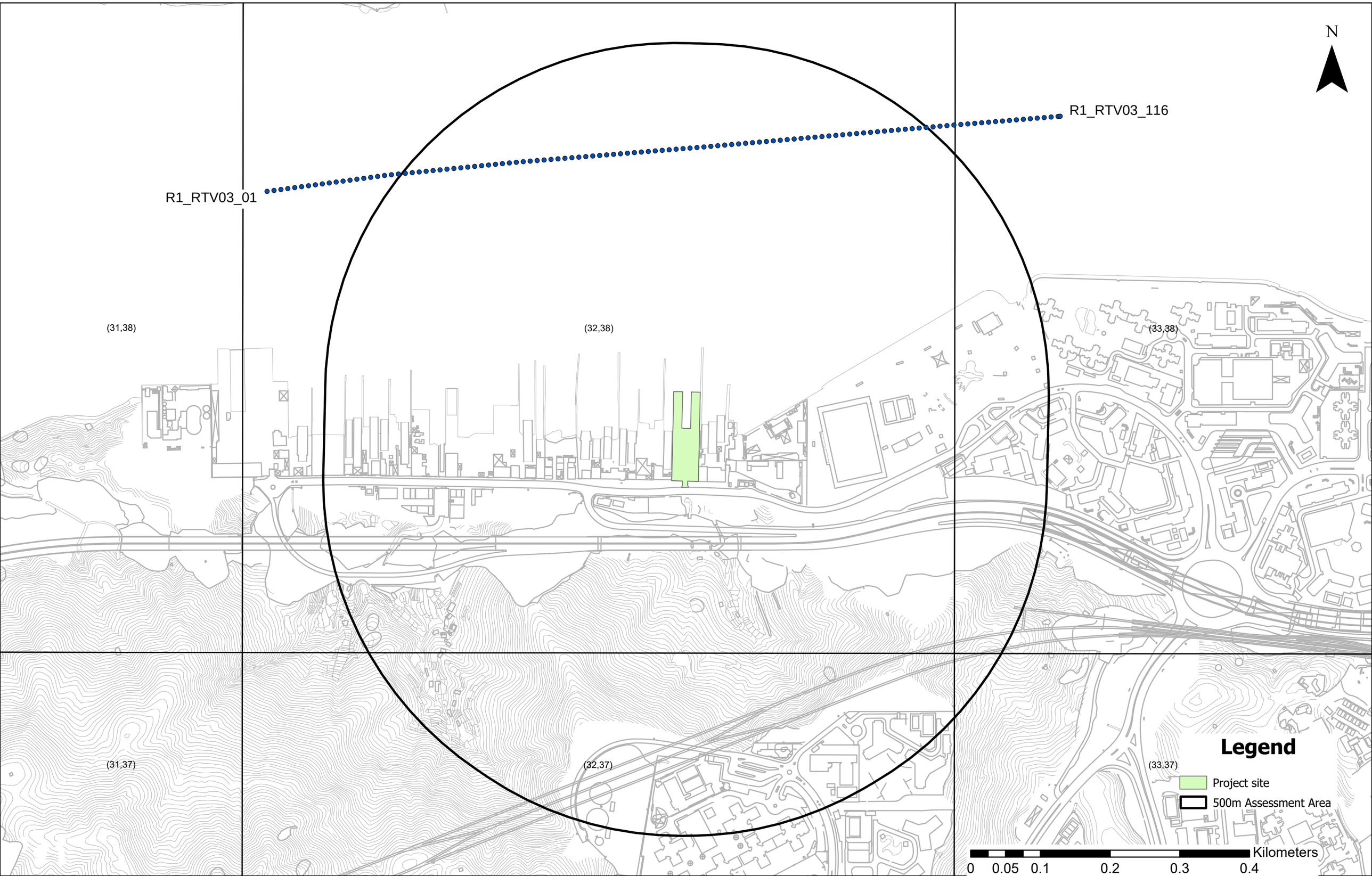
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Ocean-going Vessel OGV08)



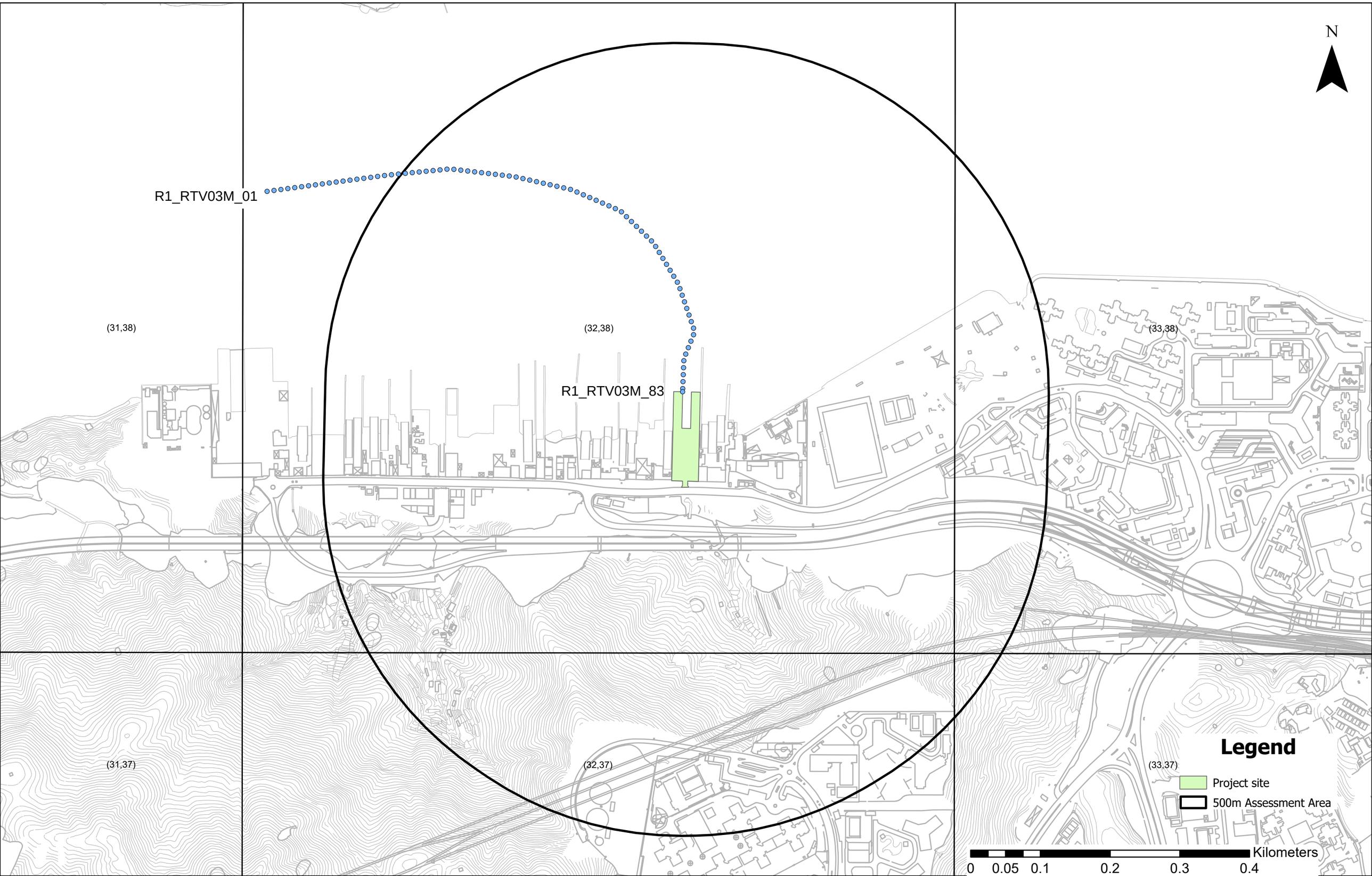
Location of Marine Emission Sources (marine routes in the vicinity of the Project, River Trade Vessel RTV01)



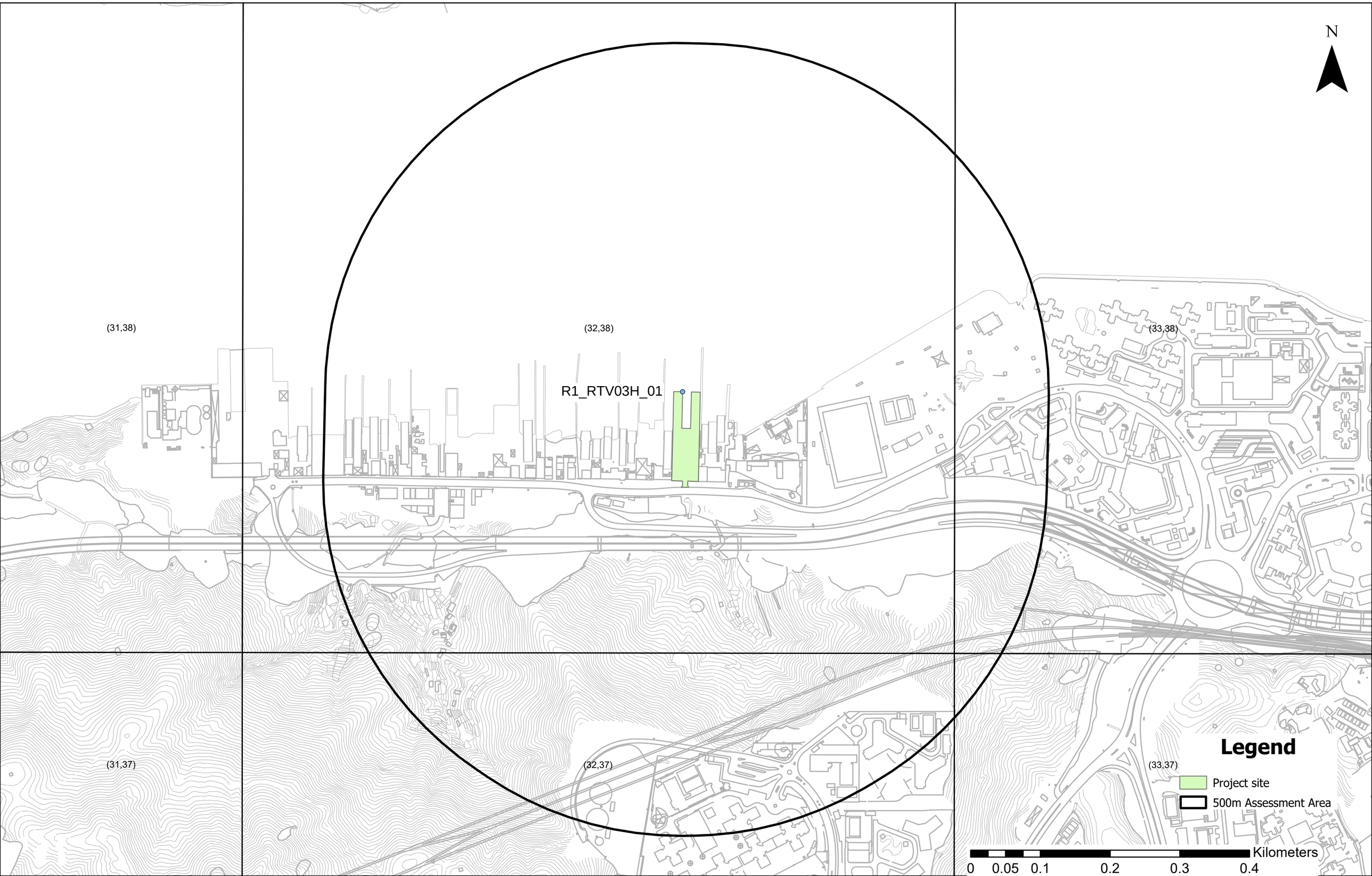
Location of Marine Emission Sources (marine routes in the vicinity of the Project, River Trade Vessel RTV03)



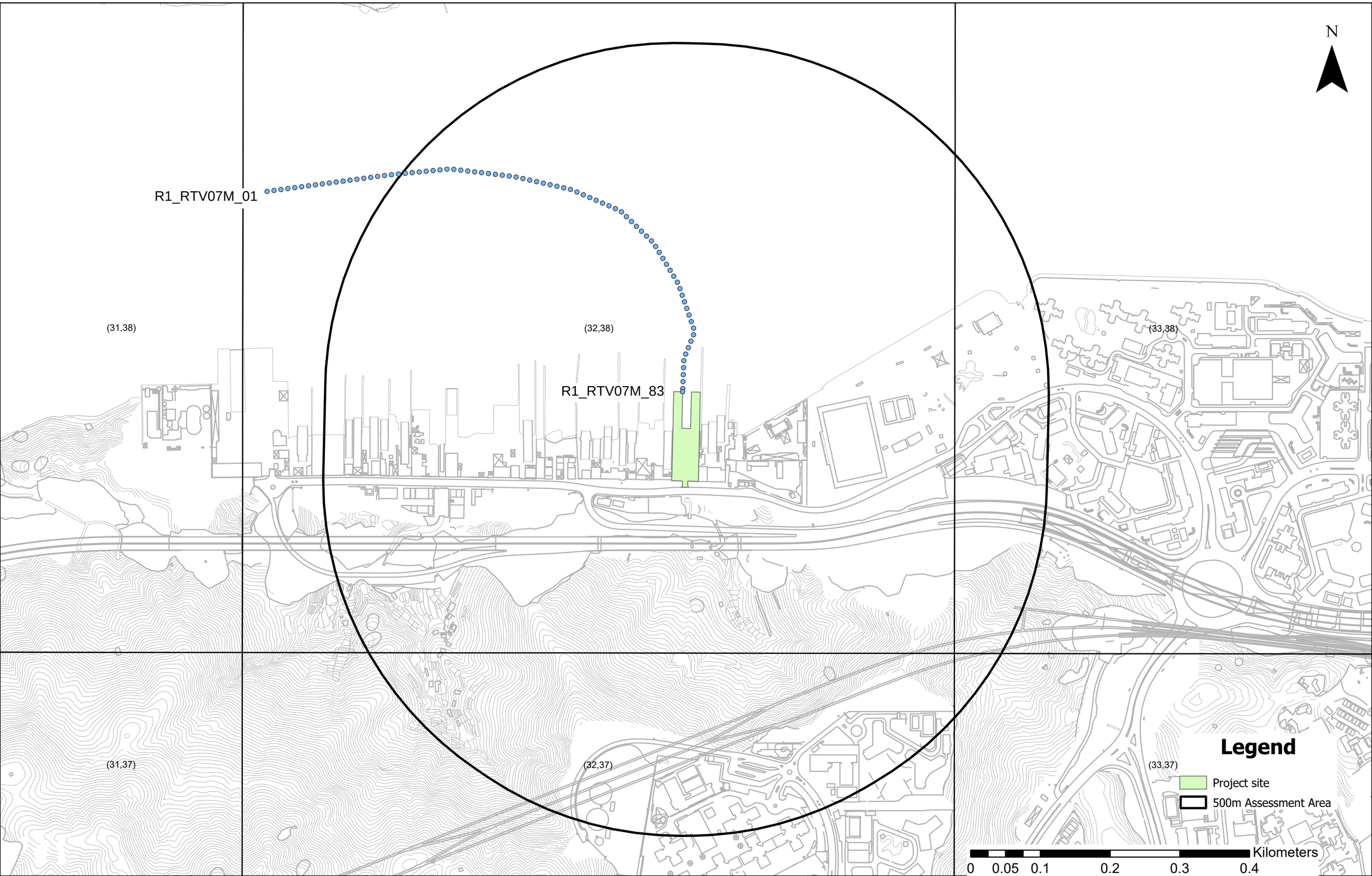
Location of Marine Emission Sources (marine route of the Project, River Trade Vessel RTV03M)



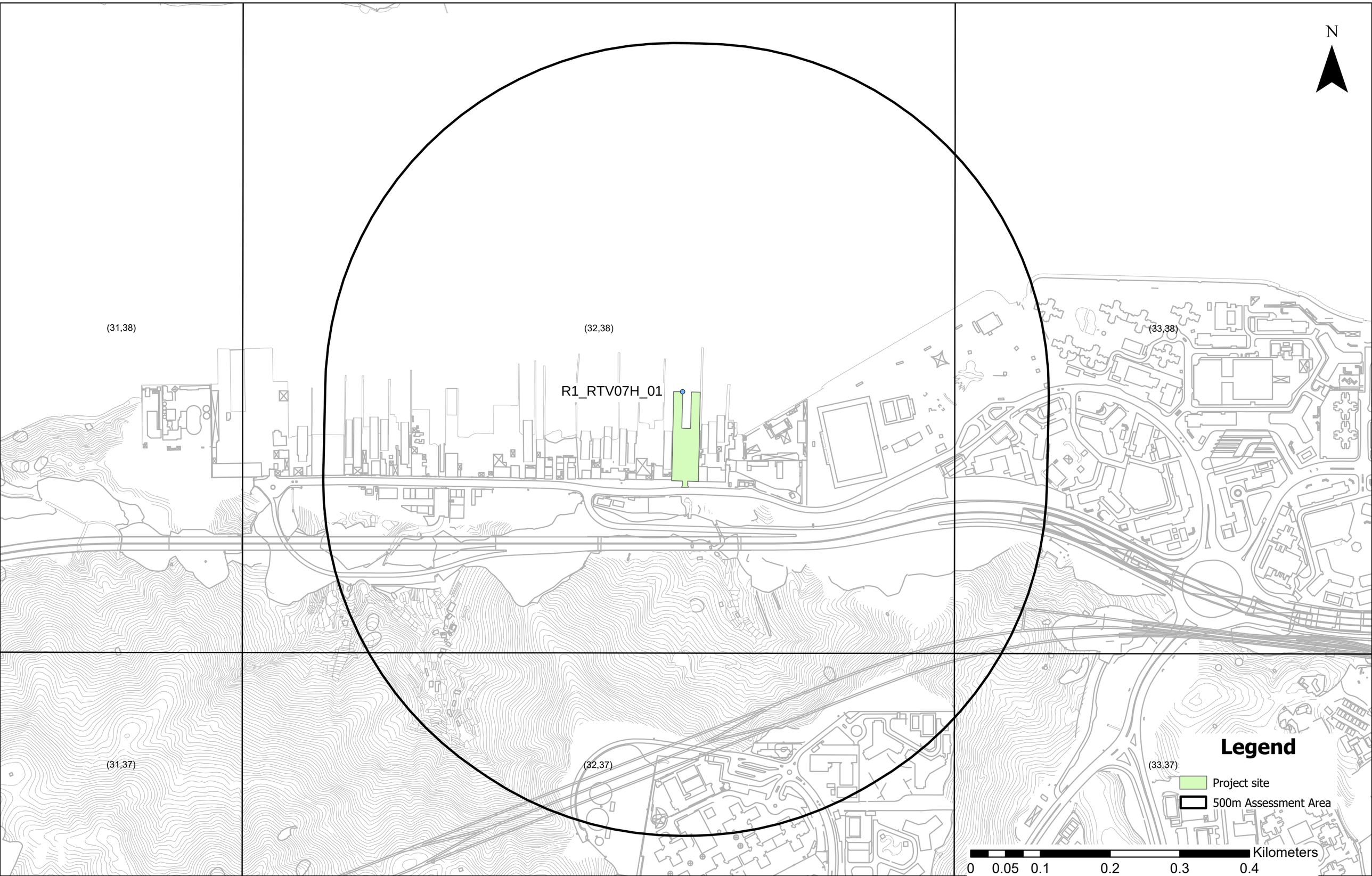
Location of Marine Emission Sources (marine route of the Project, River Trade Vessel Hotelling RTV03H)



Location of Marine Emission Sources (marine route of the Project, River Trade Vessel RTV07M)



Location of Marine Emission Sources (marine route of the Project, River Trade Vessel Hotelling RTV07H)



From: [redacted]
Sent: Thursday, March 20, 2025 10:31 AM
To: [redacted]
Cc:
Subject: Re: Marine Traffic Forecast Methodology for Air Quality Impact Assessment
Attachments: 31048-R04-01.pdf

Dear [redacted],

Thank you for your email regarding the methodology for forecasting marine traffic data for the Air Quality Impact Assessment.

As the Air Quality Impact Assessment falls under the purview of the EPD, please consult directly with them regarding this matter.

Regarding the Marine Traffic Visual Survey on Part 3, I have no comments on its content.

For Part 6 - Major Planned/Other Committed Developments, I noticed that you mentioned the Kau Yi Chau Artificial Islands (KYCAI) Project. If you require details or the commencement timeline of this project, I suggest reaching out directly to CEDD for clarification.

Thank you.

[redacted]
Senior Marine Officer / Planning and Development (2)
Marine Department
Tele: 2852 4453 Fax: 2581 1765

From: [redacted]
To:
Cc:
Date: 2025-03-19 11:04
Subject: Marine Traffic Forecast Methodology for Air Quality Impact Assessment

Dear [redacted],

We are the marine consultant for the Proposed CBP Development at Tam Kon Shan Road, Tsing YiAs noted in our environmental consultant's correspondence with the Environmental Protection Department (EPD), an Environmental Assessment (EA) has been submitted, in which marine traffic data has been adopted as part of the Air Quality Impact Assessment.

In this regard, please find attached the proposed methodology for forecasting marine traffic data, which is solely for use in the Air Quality Impact Assessment, for your review and consideration. Grateful if you could advise whether you have any in-principle objection to the methodology.

Thank you for your time and cooperation.

Yours sincerely,

[redacted]

AXON

AXON Engineering and Consulting Ltd.
Unit 209, 2/F, No. 19 Science Park West Avenue
Hong Kong Science Park, Shatin, Hong Kong
Office: 2258 6392 Fax: 3020 0321
Office: 2258 6392 Fax: 3020 0321
Email: info@axonhk.com
Homepage: http://www.axonhk.com

APPENDIX 3.6

Calculation of Start Emissions

Appendix 3.6 Calculation of Start Emissions

https://www.elegislation.gov.hk/hk/cap374A!en-zh-Hant-HK?INDEX_CS=N

Cap. 374A Road Traffic (Construction and Maintenance of Vehicles) Regulations

First Schedule

Code	**車輛類型** (Vehicle Type)	EMFAC	Vehicle Class
1	私家車	PC	01 - Private Cars
2	的士(請註明)	Taxi	02 - Taxi
3	輕型貨VAN	LGV3	03 - Light Goods Vehicles<=2.5t
4	輕型貨車	LGV6	05 - Light Goods Vehicles>3.5t
5	中型貨車	HGV7	06 - Medium Goods Vehicles<=15t
6	重型貨車	HGV8	07 - Medium Goods Vehicles15-24t
7	12座以下輕型巴士	PV4	09 - Private Light Bus <=3.5t
8	12-19座輕型巴士	PLB	08 - Public Light Buses
9	20座或以上輕型校巴	PV5	10 - Private Light Bus >3.5t
10	20座或以上輕型巴士	NFB8	13 - Non-franchised Bus 15-24t
11	旅遊巴士	NFB9	18 - Non-franchised Bus >24t
12	單層巴士	FBSD	14 - Franchised Bus (SD)
13	雙層巴士	FBDD	15 - Franchised Bus (DD)
14	貨櫃車	HGV9	17 - Heavy Goods Vehicles>24t
15	電單車	MC	16 - Motorcycles

Vehicle Class	Overall Height (m)
PC	2.0
Taxi	2.0
Invalid Carriage	2.0
Light Bus	3.0
Bus - SD	3.5
Bus - DD	4.6
Bus - Articulated	3.5
LGV	3.5
MGV	4.6
HGV - Rigid	4.6
HGV - Articulated	4.6
Special Purpose Vehicle	4.6
Tricycle	-
Trailer	4.6
Pedestrian-controlled Vehicle	-

Appendix 3.6 Calculation of Start Emissions

Calculation of Iding Emission Factor

PC (Diesel)

NO/NO_2 Ratio [1] = 7.92 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [4]	PM (g/hr) [5]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	46.75%	4.47E-04	5.00E-02	1.61E+00	5.00E-02	-	1.3	5.657E-02	5.023E-02	6.339E-03	7.908E-04	5.657E-02	5.023E-02	6.339E-03	7.908E-04
Euro V	52.41%	9.58E-04	2.00E-02	3.45E+00	2.00E-02										
Euro IV	0.56%	1.66E-03	1.60E-01	5.96E+00	1.60E-01										
Euro I	0.13%	1.36E-03	5.80E-01	4.88E+00	5.80E-01										
Pre-Euro	0.16%	1.83E-03	6.30E-01	6.57E+00	6.30E-01										

PC (Petrol)

NO/NO_2 Ratio [1] = 18.88 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [8]	PM (g/hr) [9]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	80.49%	1.67E-05	0.00E+00	6.00E-02	0.00E+00	-	1.3	1.567E-03	1.488E-03	7.880E-05	3.174E-05	1.567E-03	1.488E-03	7.880E-05	3.174E-05
Euro V	14.56%	2.22E-05	1.00E-02	8.00E-02	1.00E-02										
Euro IV	4.41%	6.39E-05	0.00E+00	2.30E-01	0.00E+00										
Euro III	0.44%	8.33E-05	0.00E+00	3.00E-01	0.00E+00										
Euro II	0.07%	2.67E-04	1.00E-02	9.60E-01	1.00E-02										
Euro I	0.01%	2.11E-04	1.00E-02	7.60E-01	1.00E-02										
Pre-Euro	0.01%	3.28E-04	1.00E-02	1.18E+00	1.00E-02										

Taxi (Petrol)

NO/NO_2 Ratio [1] = 18.96 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [11]	PM (g/hr) [11]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro V	100.00%	2.22E-05	1.00E-02	8.00E-02	1.00E-02	-	1.3	1.733E-03	1.646E-03	8.683E-05	2.167E-04	1.733E-03	1.646E-03	8.683E-05	2.167E-04

Taxi (LPG)

NO/NO_2 Ratio [1] = 35.88 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [10]	NOx (g/hr) [12]	PM (g/hr) [10]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	73.40%	2.80E-03	0.00E+00	1.01E+01	0.00E+00	-	1.3	1.685E-01	1.639E-01	4.569E-03	0.000E+00	2.190E-01	2.131E-01	5.939E-03	0.000E+00
Euro V	26.04%	2.80E-03	0.00E+00	1.01E+01	0.00E+00										
Euro IV	0.37%	3.50E-03	0.00E+00	1.26E+01	0.00E+00										
Euro II/III	0.19%	5.70E-03	0.00E+00	2.05E+01	0.00E+00										

LGV3 (Diesel)

NO/NO_2 Ratio [1] = 11.14 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	62.97%	3.56E-04	2.00E-02	1.28E+00	2.00E-02	-	1.3	4.635E-02	4.253E-02	3.816E-03	4.333E-04	4.635E-02	4.253E-02	3.816E-03	4.333E-04
Euro V	37.03%	1.00E-03	2.00E-02	3.60E+00	2.00E-02										

LGV3 (Petrol)

NO/NO_2 Ratio [1] = 18.99 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [15]	PM (g/hr) [16]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	54.60%	1.94E-05	0.00E+00	7.00E-02	0.00E+00	-	1.3	4.395E-03	4.175E-03	2.199E-04	3.106E-05	4.395E-03	4.175E-03	2.199E-04	3.106E-05
Euro V	19.40%	1.67E-05	0.00E+00	6.00E-02	0.00E+00										
Euro IV	4.89%	4.72E-05	0.00E+00	1.70E-01	0.00E+00										
Euro III	6.77%	9.44E-05	0.00E+00	3.40E-01	0.00E+00										
Euro II	2.51%	1.67E-04	1.00E-02	6.00E-01	1.00E-02										
Euro I	2.77%	4.69E-04	1.00E-02	1.69E+00	1.00E-02										
Pre-Euro	9.06%	1.83E-04	1.00E-02	6.60E-01	1.00E-02										

Appendix 3.6 Calculation of Start Emissions

Calculation of Iding Emission Factor

LGV6 (Diesel)

NO/NO_2 Ratio [1] = 2.57 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	58.17%	1.00E-03	2.00E-02	1.28E+00	2.00E-02										
Euro V	41.83%	2.80E-03	2.00E-02	3.60E+00	2.00E-02										
Euro IV	0.01%	2.80E-03	1.60E-01	3.62E+00	1.60E-01										
Euro III	0.00%	2.80E-03	1.00E-01	4.12E+00	1.00E-01	-	1.3	1.052E-01	7.573E-02	2.945E-02	4.336E-04	4.876E-02	3.511E-02	1.365E-02	4.336E-04
Euro II	0.00%	2.80E-03	5.40E-01	5.53E+00	5.40E-01										
Euro I	0.00%	2.80E-03	6.30E-01	5.88E+00	6.30E-01										
Pre-Euro	0.00%	2.80E-03	1.59E+00	6.52E+00	1.59E+00										

HGV7 (Diesel)

NO/NO_2 Ratio [1] = 2.28 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	53.78%	5.90E-03	1.00E-02	1.75E+00	1.00E-02										
Euro V	46.21%	5.90E-03	1.00E-01	1.17E+01	1.00E-01	0.9	1.3	3.540E-01	2.461E-01	1.079E-01	1.006E-03	1.239E-01	8.614E-02	3.775E-02	1.006E-03
Euro IV	0.01%	5.90E-03	2.00E-01	7.51E+00	2.00E-01										

HGV8 (Diesel)

NO/NO_2 Ratio [1] = 3.92 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	61.37%	3.70E-03	1.00E-02	1.75E+00	1.00E-02										
Euro V	38.62%	2.30E-02	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.01%	1.44E-02	2.00E-01	7.51E+00	2.00E-01										
Euro III	0.00%	1.44E-02	1.29E+00	4.21E+01	1.29E+00	1.0	1.3	6.693E-01	5.332E-01	1.361E-01	9.704E-04	1.213E-01	9.661E-02	2.467E-02	9.704E-04
Euro II	0.00%	1.44E-02	1.43E+00	4.06E+01	1.43E+00										
Euro I	0.00%	1.44E-02	5.53E+00	3.26E+01	5.53E+00										
Pre-Euro	0.00%	1.44E-02	6.62E+00	4.06E+01	6.62E+00										

PLB (Diesel)

NO/NO_2 Ratio [1] = 2.57 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	79.43%	1.00E-03	2.00E-02	1.28E+00	2.00E-02										
Euro V	20.57%	1.00E-03	2.00E-02	3.60E+00	2.00E-02										
Euro IV	0.00%	1.00E-03	1.60E-01	3.62E+00	1.60E-01										
Euro III	0.00%	1.00E-03	1.00E-01	4.12E+00	1.00E-01	-	1.3	6.000E-02	4.320E-02	1.680E-02	4.334E-04	3.807E-02	2.742E-02	1.066E-02	4.334E-04
Euro II	0.00%	1.00E-03	5.40E-01	5.53E+00	5.40E-01										
Euro I	0.00%	1.00E-03	6.30E-01	5.88E+00	6.30E-01										
Pre-Euro	0.00%	1.00E-03	1.59E+00	6.52E+00	1.59E+00										

PLB (LPG)

NO/NO_2 Ratio [1] = 189.13 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro V	89.29%	3.90E-03	2.00E-02	3.60E+00	2.00E-02										
Euro IV	4.85%	3.90E-03	1.60E-01	3.62E+00	1.60E-01	-	1.3	2.526E-01	2.513E-01	1.329E-03	6.820E-04	7.868E-02	7.827E-02	4.138E-04	6.820E-04
Euro III	5.86%	9.20E-03	1.00E-01	4.12E+00	1.00E-01										

PV4 (Diesel)

NO/NO_2 Ratio [1] = 4.00 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	91.04%	3.56E-04	2.00E-02	1.28E+00	2.00E-02										
Euro V	8.95%	1.00E-03	2.00E-02	3.60E+00	2.00E-02	-	1.3	3.224E-02	2.579E-02	6.446E-03	4.335E-04	3.224E-02	2.579E-02	6.446E-03	4.335E-04
Euro IV	0.01%	1.01E-03	1.60E-01	3.62E+00	1.60E-01										

PV4 (Petrol)

NO/NO_2 Ratio [1] = 18.94 From EMFAC

Appendix 3.6 Calculation of Start Emissions

Calculation of Iding Emission Factor

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [15]	PM (g/hr) [16]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro V	40.50%	1.67E-05	0.00E+00	6.00E-02	0.00E+00	-	1.3	3.367E-03	3.198E-03	1.689E-04	7.880E-07	3.367E-03	3.198E-03	1.689E-04	7.880E-07
Euro IV	42.43%	4.72E-05	0.00E+00	1.70E-01	0.00E+00										
Euro III	16.71%	9.44E-05	0.00E+00	3.40E-01	0.00E+00										
Euro II	0.36%	1.67E-04	1.00E-02	6.00E-01	1.00E-02										

PV5 (Diesel)

NO/NO_2 Ratio [1] = 2.57 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	70.26%	1.00E-03	2.00E-02	1.28E+00	2.00E-02	-	1.3	6.000E-02	4.320E-02	1.680E-02	4.336E-04	4.268E-02	3.073E-02	1.195E-02	4.336E-04
Euro V	29.73%	1.00E-03	2.00E-02	3.60E+00	2.00E-02										
Euro IV	0.01%	1.00E-03	1.60E-01	3.62E+00	1.60E-01										
Euro III	0.00%	1.00E-03	1.00E-01	4.12E+00	1.00E-01										
Euro II	0.00%	1.00E-03	5.40E-01	5.53E+00	5.40E-01										
Euro I	0.00%	1.00E-03	6.30E-01	5.88E+00	6.30E-01										
Pre-Euro	0.00%	1.00E-03	1.59E+00	6.52E+00	1.59E+00										

PV5 (LPG)

NO/NO_2 Ratio [1] = 195.55 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro V	74.12%	1.00E-03	2.00E-02	3.60E+00	2.00E-02	-	1.3	7.888E-02	7.848E-02	4.013E-04	1.126E-03	7.888E-02	7.848E-02	4.013E-04	1.126E-03
Euro IV	18.76%	1.01E-03	1.60E-01	3.62E+00	1.60E-01										
Euro III	7.12%	1.14E-03	1.00E-01	4.12E+00	1.00E-01										

PV5 (Petrol)

NO/NO_2 Ratio [1] = 19.02 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [15]	PM (g/hr) [16]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro V	61.78%	1.67E-05	0.00E+00	6.00E-02	0.00E+00	-	1.3	9.506E-03	9.031E-03	4.748E-04	4.799E-05	9.506E-03	9.031E-03	4.748E-04	4.799E-05
Euro IV	16.07%	4.72E-05	0.00E+00	1.70E-01	0.00E+00										
Euro I	22.15%	4.69E-04	1.00E-02	1.69E+00	1.00E-02										

NFB8 (Diesel)

NO/NO_2 Ratio [1] = 5.11 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	70.94%	7.70E-03	1.00E-02	1.75E+00	1.00E-02	1.0	1.3	1.154E+00	9.652E-01	1.890E-01	7.850E-04	1.007E-01	8.417E-02	1.648E-02	7.850E-04
Euro V	29.05%	4.74E-02	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.00%	5.73E-02	2.00E-01	7.51E+00	2.00E-01										
Euro II	0.01%	5.73E-02	1.43E+00	4.06E+01	1.43E+00										

FBSD (Diesel)

NO/NO_2 Ratio [1] = 16.01 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	43.27%	7.70E-03	1.00E-02	1.75E+00	1.00E-02	1.0	1.3	1.813E+00	1.707E+00	1.066E-01	1.323E-03	1.603E-01	1.509E-01	9.425E-03	1.323E-03
Euro V	56.73%	4.74E-02	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.00%	5.73E-02	2.00E-01	7.51E+00	2.00E-01										

Appendix 3.6 Calculation of Start Emissions

Calculation of Iding Emission Factor

FBDD (Diesel)

NO/NO_2 Ratio [1] = 19.75 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	27.01%	2.25E-02	1.00E-02	1.75E+00	1.00E-02	1.2	1.3	7.087E+00	6.746E+00	3.416E-01	1.973E-03	2.343E-01	2.230E-01	1.129E-02	1.973E-03
Euro V	72.81%	1.54E-01	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.19%	1.54E-01	2.00E-01	7.51E+00	2.00E-01										
Euro III	0.00%	7.37E-02	1.29E+00	4.21E+01	1.29E+00										
Euro II	0.00%	7.37E-02	1.43E+00	4.06E+01	1.43E+00										
Euro I	0.00%	7.37E-02	5.53E+00	3.26E+01	5.53E+00										
Pre-Euro	0.00%	7.37E-02	6.62E+00	4.06E+01	6.62E+00										

MC (Petrol)

NO/NO_2 Ratio [1] = 18.99 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [8]	PM (g/hr) [9]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro IV	62.01%	6.39E-05	0.00E+00	2.30E-01	0.00E+00	-	1.3	6.204E-03	5.894E-03	3.104E-04	1.240E-05	6.204E-03	5.894E-03	3.104E-04	1.240E-05
Euro III	32.27%	8.33E-05	0.00E+00	3.00E-01	0.00E+00										
Euro I	4.91%	2.11E-04	1.00E-02	7.60E-01	1.00E-02										
Pre-Euro	0.81%	3.28E-04	1.00E-02	1.18E+00	1.00E-02										

HGV9 (Diesel)

NO/NO_2 Ratio [1] = 4.45 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	51.79%	3.70E-03	1.00E-02	1.75E+00	1.00E-02	1.2	1.3	7.802E-01	6.370E-01	1.432E-01	1.389E-03	1.703E-01	1.391E-01	3.127E-02	1.389E-03
Euro V	48.19%	2.30E-02	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.02%	1.44E-02	2.00E-01	7.51E+00	2.00E-01										
Euro III	0.00%	1.44E-02	1.29E+00	4.21E+01	1.29E+00										
Euro II	0.00%	1.44E-02	1.43E+00	4.06E+01	1.43E+00										
Euro I	0.00%	1.44E-02	5.53E+00	3.26E+01	5.53E+00										
Pre-Euro	0.00%	1.44E-02	6.62E+00	4.06E+01	6.62E+00										

NFB9 (Diesel)

NO/NO_2 Ratio = 2.03 From EMFAC

	Population	Idling Emission Factor				Mass Factor	AC Factor [5]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [20]	PM (g/hr) [3]	NOx (g/hr) [16]	PM (g/hr) [17]			NOx [6]	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	100.00%	7.70E-03	1.00E-02	1.75E+00	1.00E-02	1.2	1.3	4.550E-02	3.049E-02	1.501E-02	2.600E-04	4.550E-02	3.049E-02	1.501E-02	2.600E-04
Euro V	0.00%	4.74E-02	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.00%	5.73E-02	2.00E-01	7.51E+00	2.00E-01										
Euro III	0.00%	1.17E-02	1.29E+00	4.21E+01	1.29E+00										
Euro II	0.00%	1.13E-02	1.43E+00	4.06E+01	1.43E+00										
Euro I	0.00%	9.06E-03	5.53E+00	3.26E+01	5.53E+00										
Pre-Euro	0.00%	1.13E-02	6.62E+00	4.06E+01	6.62E+00										

Remarks

[1] NO/NO2 ratio, at the respective running speed, was calculated based on emisison factors extracted from EMFAC-HK.
[2] Due to the lack of information, NOx cold idling emission factor was referenced to the corresponding hot idling emission factor.
[3] Due to the lack of information, PM cold idling emission factor was referenced to the corresponding hot idling emission factor.
[4] Reference made to Table 36 of VEADV.
[5] Reference made to Table 37 of VEADV.
[6] Reference made to the approved Liantang / Heung Yuen Wai Boundary Control Point and Associated Works EIA Report.
[7] All TSP (PM) emissions were assumed for RSP and FSP as a conservative approach.
[8] Reference made to Table 33 of VEADV.
[9] Reference made to Table 34 of VEADV.
[10] PM cold and hot idling emission factors are assumed to be 0 as the running and starting emission factors from EMFAC-HK are also 0.
[11] Due to the lack of information and similarity in taxi and PC, hot idling emission factors were referenced to corresponding hot idling emission factor of PC (petrol).
[12] NOx idling emission factor was referenced to Calculation of Start Emissions in Air Quality Impact Assessment published by EPD whenever available; otherwise the highest emission factor in the same vehicle class was adopted as a conservative approach.
[13] Reference made to Table 42 of VEADV.
[14] Reference made to Table 43 of VEADV.
[15] Reference made to Table 39 of VEADV.
[16] Reference made to Table 40 of VEADV.
[17] Reference made to Table 45 of VEADV.
[18] Reference made to Table 46 of VEADV.
[19] Reference made to Table 27 of VEADV.
[20] NOx cold idling emission factor was referenced to Calculation of Start Emissions in Air Quality Impact Assessment published by EPD whenever possible; otherwise it was referenced to the corresponding hot idling emission factor.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

Site Parameters

Average Distance from Starting Place to PTI/Parking Site Egress (m)	34
Average Travelling Distance within PTI/Parking Site (m)	68
Average Travelling Speed (km/h)	15

Frequency

Hour	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
0000 - 0100	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0100 - 0200	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0200 - 0300	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0300 - 0400	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0400 - 0500	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0500 - 0600	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0600 - 0700	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0700 - 0800	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
0800 - 0900	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
0900 - 1000	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1000 - 1100	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1100 - 1200	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1200 - 1300	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1300 - 1400	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1400 - 1500	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1500 - 1600	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1600 - 1700	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1700 - 1800	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1800 - 1900	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1900 - 2000	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
2000 - 2100	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
2100 - 2200	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
2200 - 2300	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
2300 - 2400	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0

Vehicle Parameters

	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
Spread Distance of Adjusted Start Emission (m)	700	0	150	0	700	0		700	700	700	700	150	700	0	700	150	0			700	700	700	0	700	700
Max. Idling Time for Adjusting Starting Emission (min)	1	0	0.5	0	1	0		1	1	1	1	1	1	0	1	1	0			1	1	1	0	1	1
Soak Time (duration of engine off prior to engine ignition) (min)	60	240	240	240	60	240		60	60	60	60	240	60	240	60	240	240			60	60	60	240	60	60
Average Spread Distance outside PTI/Parking Site (m)	666	0	116	0	666	0		666	666	666	666	116	666	0	666	116	0			666	666	666	0	666	666
Idling Time for Terminating Vehicle (min)	2	2	2	2	2	2		2	2	2	2	2	2	2	2	2	2			2	2	2	2	2	2
Idling Time for Non-terminating Vehicle (min)	0.67	0.67	1.5	1.5	1.5	1.5		7.17	112.44	112.44	1.5	1.5	1.5	1.5	1.5	1.5	1.5			1.5	1.5	1.5	1.5	63.91	1.5
Vehicle Percentage (%)	1.66%	98.34%	99.99%	0.01%	96.72%	3.28%		100.00%	100.00%	100.00%	69.27%	30.73%	81.13%	18.87%	85.83%	14.05%	0.12%			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
NO Cold Idling Emission Factor (g/min)	5.023E-02	1.488E-03	1.639E-01	1.646E-03	4.253E-02	4.175E-03		7.573E-02	2.461E-01	5.332E-01	4.320E-02	2.513E-01	2.579E-02	3.198E-03	4.320E-02	7.848E-02	9.031E-03			9.652E-01	1.707E+00	6.746E+00	5.894E-03	6.370E-01	3.049E-02
NO Hot Idling Emission Factor (g/min)	5.023E-02	1.488E-03	2.131E-01	1.646E-03	4.253E-02	4.175E-03		3.511E-02	8.614E-02	9.661E-02	2.742E-02	7.827E-02	2.579E-02	3.198E-03	3.073E-02	7.848E-02	9.031E-03			8.417E-02	1.509E-01	2.230E-01	5.894E-03	1.391E-01	3.049E-02
NO_2 Cold Idling Emission Factor (g/min)	6.339E-03	7.880E-05	4.569E-03	8.683E-05	3.816E-03	2.199E-04		2.945E-02	1.079E-01	1.361E-01	1.680E-02	1.329E-03	6.446E-03	1.689E-04	1.680E-02	4.013E-04	4.748E-04			1.890E-01	1.066E-01	3.416E-01	3.104E-04	1.432E-01	1.501E-02
NO_2 Hot Idling Emission Factor (g/min)	6.339E-03	7.880E-05	5.939E-03	8.683E-05	3.816E-03	2.199E-04		1.365E-02	3.775E-02	2.467E-02	1.066E-02	4.138E-04	6.446E-03	1.689E-04	1.195E-02	4.013E-04	4.748E-04			1.648E-02	9.425E-03	1.129E-02	3.104E-04	3.127E-02	1.501E-02
TSP Cold Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
TSP Hot Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
RSP Cold Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
RSP Hot Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
FSP Cold Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
FSP Hot Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
NO Running Emission Factor (g/mile/vehicle)	1.339E-01	5.185E-02	1.189E+00	7.934E-02	2.473E+00	8.987E-01		2.147E+00	3.349E+00	5.595E+00	1.097E+00	2.678E+00	1.704E+00	5.274E-01	1.265E+00	1.951E+00	8.755E-01			7.463E+00	6.795E+00	1.324E+01	4.736E-01	6.836E+00	2.964E+00
NO_2 Running Emission Factor (g/mile/vehicle)	1.690E-02	2.746E-03	3.315E-02	4.184E-03	2.219E-01	4.733E-02		8.349E-01	1.468E+00	1.429E+00	4.265E-01	1.416E-02	4.260E-01	2.784E-02	4.921E-01	9.978E-03	4.603E-02			1.461E+00	4.244E-01	6.703E-01	2.501E-02	1.537E+00	1.460E+00
TSP Running Emission Factor (g/mile/vehicle)	9.012E-03	1.272E-02	0.000E+00	1.271E-02	3.396E-02	3.117E-02		8.288E-02	1.271E-01	2.915E-01	8.916E-02	0.000E+00	1.352E-02	7.226E-02	8.127E-02	0.000E+00	1.271E-02			3.251E-01	2.655E-01	5.240E-01	1.675E-02	3.454E-01	1.024E-01
RSP Running Emission Factor (g/mile/vehicle)	9.012E-03	1.240E-02	0.000E+00	1.239E-02	3.396E-02	2.974E-02		8.288E-02	1.271E-01	2.915E-01	8.916E-02	0.000E+00	1.352E-02	7.017E-02	8.127E-02	0.000E+00	1.239E-02			3.251E-01	2.655E-01	5.240E-01	1.578E-02	3.454E-01	1.024E-01
FSP Running Emission Factor (g/mile/vehicle)	8.369E-03	1.143E-02	0.000E+00	1.143E-02	3.122E-02	2.627E-02		7.628E-02	1.168E-01	2.681E-01	8.208E-02	0.000E+00	1.239E-02	6.502E-02	7.467E-02	0.000E+00	1.143E-02			2.990E-01	2.443E-01	4.820E-01	1.342E-02	3.177E-01	9.415E-02

Survey Data on Start Emission [1]

01 - Private Cars (Code: 1)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

01 - Private Cars (Code: 1)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

02 - Taxi (Code: 2)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

02 - Taxi (Code: 2)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

03 - Light Goods Vehicles<=2.5t (Code: 3)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

03 - Light Goods Vehicles<=2.5t (Code: 3)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

05 - Light Goods Vehicles>3.5t (Code: 4)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

05 - Light Goods Vehicles>3.5t (Code: 4)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

06 - Medium Goods Vehicles<=15t (Code: 5)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

07 - Medium Goods Vehicles15-24t (Code: 6)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

09 - Private Light Bus <=3.5t (Code: 7)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

06 - Medium Goods Vehicles<=15t (Code: 5)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

07 - Medium Goods Vehicles15-24t (Code: 6)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

09 - Private Light Bus <=3.5t (Code: 7)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

08 - Public Light Buses (Code: 8)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

10 - Private Light Bus >3.5t (Code: 9)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

13 - Non-franchised Bus 15-24t (Code: 10)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

18 - Non-franchised Bus >24t (Code: 11)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

08 - Public Light Buses (Code: 8)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

10 - Private Light Bus >3.5t (Code: 9)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

13 - Non-franchised Bus 15-24t (Code: 10)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

18 - Non-franchised Bus >24t (Code: 11)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

14 - Franchised Bus (SD) (Code: 12)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

15 - Franchised Bus (DD) (Code: 13)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

17 - Heavy Goods Vehicles>24t (Code: 14)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	110

16 - Motorcycles (Code: 15)

Sitting Time (min)	Bypass	5	10	15	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	>720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Remark

[1] Number of starts were derived based on on-site observations at the PTIs and operators' published schedules, while sitting time was obtained based on on-site observations at PTIs.

14 - Franchised Bus (SD) (Code: 12)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

15 - Franchised Bus (DD) (Code: 13)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

17 - Heavy Goods Vehicles>24t (Code: 14)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	110

16 - Motorcycles (Code: 15)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

NO

Running Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.888E+00	0.000E+00

Remark

1. $R = E_r * f * d_t * p$

where

R: running emission at a specific speed for a vehicle type with a fuel type in an hour,

E_r: running emission factor for the vehicle type at the specific speed, obtained from the *EMFACEmf* tab,

f: total traffic frequency of the vehicle type in the hour, obtained from the *Frequency* table,

d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

NO Total Start Emission (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.793E+01	0.000E+00

Remark

1. $S_{total} = \sum_i(E_{s,i} * f_i) * p$

where

S_{total}: total start emission for a vehicle type with a fuel type in an hour,

$E_{s,i}$: start emission factor of the vehicle type with sitting time i min, obtained from the *EMFACEmf* tab,

f_i: traffic frequency of the vehicle type with sitting time i min in the hour, obtained from the *Traffic Flow* table of the vehicle type,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

NO Idling Emission within PTI/Parking Site (Terminating Vehicle) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00

Remark

1. $I_t = E_c * T_t * f_c * p + E_h * T_t * f_h * p$

where

I_t: idling emission within PTI of a vehicle type with a fuel type in an hour (terminating vehicle),

E_c: cold idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

E_h: hot idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_t: idling time of the terminating vehicle, obtained from the *Vehicle Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,

f_c: total traffic frequency of the vehicle type with the fuel type for cold idling emission, obtained from the *Traffic Flow* table of the vehicle type,

f_h: total traffic frequency of the vehicle type with the fuel type for hot idling emission, obtained from the *Traffic Flow* table of the vehicle type.

2. According to *Calculation of Start Emissios in Air Quality Impact Assessment*, the soak time for cold idling is longer than or equal to 240 min for petrol/LPG vehicles or 60 min for diesel SCR vehicles.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

NO Idling Emission for the Purpose of Start Emission Adjustment (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.370E+00	0.000E+00

Remark

1. $I_a = I_t * T_a / T_t$

where

I_a: idling emission for the purpose of start emission adjustment of a vehicle type with a fuel type in an hour,

I_t: idling emission within PTI of the vehicle type with the fuel type in an hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,

T_a: max. idling time for adjusting start emission of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_t: ilding time for the terminating vehicle, obtained from the *Vehicle Parameters* table.

NO Adjusted Start Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.504E+00	0.000E+00

Remark

1. S_{aw}

= 0, if $S_{total} - I_a < 0$

or

= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise

where

S_{aw}: adjusted start emission within PTI,

S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,

I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,

d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,

d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

NO Adjusted Start Emission outside PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.906E+01	0.000E+00

Remark

1. S_{ao}

= 0, if $S_{total} - I_a < 0$

or

= $(S_{total} - I_a) * d_s / (d_t + d_s)$, otherwise

where

S_{ao}: adjusted start emission outside PTI,

S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,

I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,

d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,

d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

NO Idling Emission within PTI/Parking Site (Non-terminating Vehicle) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Remark

1. $I_n = E_h * T_n * f_n * p$

where

I_n: idling emission within PTI of a vehicle type with a fuel type in an hour (non-terminating vehicle),

E_h: hot idling emission factor of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_n: idling time of the non-terminating vehicle, obtained from the *Vehicle Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,

f_n: traffic frequency of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from the *Bypass* column of the *Traffic Flow* table of the vehicle type.

NO Idling Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.274E+01	0.000E+00

Remark

1. $I = I_t + I_n$

where

I: idling emission within PTI of a vehicle type with a fuel type in an hour,

I_t: idling emission within PTI of the vehicle type with the fuel type in the hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,

I_n: idling emission within PTI of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from the *Idling Emission within PTI (Non-terminating Vehicle) (g)* table above.

NO Total Emission within PTI/Parking Site (Running + Adjusted Start + Idling) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.813E+01	0.000E+00

Remark

1. $W = R + S_{aw} + I$

where

W: total emission within PTI of a vehicle type with a fuel type in an hour,

R: running emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Running Emission within PTI (g)* table above,

S_{aw}: adjusted start emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Adjusted Start Emission within PTI (g)* table above,

I: idling emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Idling Emission within PTI (g)* table above.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

NO_2

Running Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.494E-01	0.000E+00

Remark

1. $R = E_r * f * d_t * p$

where

R: running emission at a specific speed for a vehicle type with a fuel type in an hour,

E_r: running emission factor for the vehicle type at the specific speed, obtained from the *EMFACEmf* tab,

f: total traffic frequency of the vehicle type in the hour, obtained from the *Frequency* table,

d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

NO_2 Total Start Emission (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.081E+00	0.000E+00

Remark

1. $S_{total} = \sum_i(E_{s,i} * f_i) * p$

where

S_{total}: total start emission for a vehicle type with a fuel type in an hour,

$E_{s,i}$: start emission factor of the vehicle type with sitting time i min, obtained from the *EMFACEmf* tab,

f_i: traffic frequency of the vehicle type with sitting time i min in the hour, obtained from the *Traffic Flow* table of the vehicle type,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

NO_2 Idling Emission within PTI/Parking Site (Terminating Vehicle) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00

Remark

1. $I_t = E_c * T_t * f_c * p + E_h * T_t * f_h * p$

where

I_t: idling emission within PTI of a vehicle type with a fuel type in an hour (terminating vehicle),

E_c: cold idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

E_h: hot idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_t: idling time of the terminating vehicle, obtained from the *Vehicle Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,

f_c: total traffic frequency of the vehicle type with the fuel type for cold idling emission, obtained from the *Traffic Flow* table of the vehicle type,

f_h: total traffic frequency of the vehicle type with the fuel type for hot idling emission, obtained from the *Traffic Flow* table of the vehicle type.

2. According to *Calculation of Start Emissios in Air Quality Impact Assessment*, the soak time for cold idling is longer than or equal to 240 min for petrol/LPG vehicles or 60 min for diesel SCR vehicles.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

NO_2 Idling Emission for the Purpose of Start Emission Adjustment (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.432E+00	0.000E+00

Remark

1. $I_a = I_t * T_a / T_t$

where

I_a: idling emission for the purpose of start emission adjustment of a vehicle type with a fuel type in an hour,

I_t: idling emission within PTI of the vehicle type with the fuel type in an hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,

T_a: max. idling time for adjusting start emission of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_t: ilding time for the terminating vehicle, obtained from the *Vehicle Parameters* table.

NO_2 Adjusted Start Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.229E-01	0.000E+00

Remark

1. S_{aw}

= 0, if $S_{total} - I_a < 0$

or

= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise

where

S_{aw}: adjusted start emission within PTI,

S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,

I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,

d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,

d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

NO_2 Adjusted Start Emission outside PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.326E+00	0.000E+00

Remark

1. S_{ao}

= 0, if $S_{total} - I_a < 0$

or

= $(S_{total} - I_a) * d_s / (d_t + d_s)$, otherwise

where

S_{ao}: adjusted start emission outside PTI,

S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,

I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,

d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,

d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

NO_2 Idling Emission within PTI/Parking Site (Non-terminating Vehicle) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Remark

1. $I_n = E_h * T_n * f_n * p$

where

I_n: idling emission within PTI of a vehicle type with a fuel type in an hour (non-terminating vehicle),

E_h: hot idling emission factor of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_n: idling time of the non-terminating vehicle, obtained from the *Vehicle Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,

f_n: traffic frequency of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from the *Bypass* column of the *Traffic Flow* table of the vehicle type.

NO_2 Idling Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.864E+00	0.000E+00

Remark

1. $I = I_t + I_n$

where

I: idling emission within PTI of a vehicle type with a fuel type in an hour,

I_t: idling emission within PTI of the vehicle type with the fuel type in the hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,

I_n: idling emission within PTI of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from the *Idling Emission within PTI (Non-terminating Vehicle) (g)* table above.

NO_2 Total Emission within PTI/Parking Site (Running + Adjusted Start + Idling) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.837E+00	0.000E+00

Remark

1. $W = R + S_{aw} + I$

where

W: total emission within PTI of a vehicle type with a fuel type in an hour,

R: running emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Running Emission within PTI (g)* table above,

S_{aw}: adjusted start emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Adjusted Start Emission within PTI (g)* table above,

I: idling emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Idling Emission within PTI (g)* table above.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

RSP

RSP Running Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.459E-01	0.000E+00

Remark

1. $R = E_r * f * d_t * p$

where

R: running emission at a specific speed for a vehicle type with a fuel type in an hour,

E_r: running emission factor for the vehicle type at the specific speed, obtained from the *EMFACEmf* tab,

f: total traffic frequency of the vehicle type in the hour, obtained from the *Frequency* table,

d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

RSP Total Start Emission (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Remark

1. $S_{total} = \sum_i(E_{s,i} * f_i) * p$

where

S_{total}: total start emission for a vehicle type with a fuel type in an hour,

$E_{s,i}$: start emission factor of the vehicle type with sitting time i min, obtained from the *EMFACEmf* tab,

f_i: traffic frequency of the vehicle type with sitting time i min in the hour, obtained from the *Traffic Flow* table of the vehicle type,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

RSP Idling Emission within PTI/Parking Site (Terminating Vehicle) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00

Remark

1. $I_t = E_c * T_t * f_c * p + E_h * T_t * f_h * p$

where

I_t: idling emission within PTI of a vehicle type with a fuel type in an hour (terminating vehicle),

E_c: cold idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

E_h: hot idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_t: idling time of the terminating vehicle, obtained from the *Vehicle Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,

f_c: total traffic frequency of the vehicle type with the fuel type for cold idling emission, obtained from the *Traffic Flow* table of the vehicle type,

f_h: total traffic frequency of the vehicle type with the fuel type for hot idling emission, obtained from the *Traffic Flow* table of the vehicle type.

2. According to *Calculation of Start Emissios in Air Quality Impact Assessment* , the soak time for cold idling is longer than or equal to 240 min for petrol/LPG vehicles or 60 min for diesel SCR vehicles.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

RSP Idling Emission for the Purpose of Start Emission Adjustment (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00

Remark

1. $I_a = I_t * T_a / T_t$

where

I_a: idling emission for the purpose of start emission adjustment of a vehicle type with a fuel type in an hour,

I_t: idling emission within PTI of the vehicle type with the fuel type in an hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,

T_a: max. idling time for adjusting start emission of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_t: ilding time for the terminating vehicle, obtained from the *Vehicle Parameters* table.

RSP Adjusted Start Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Remark

1. S_{aw}

= 0, if $S_{total} - I_a < 0$

or

= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise

where

S_{aw}: adjusted start emission within PTI,

S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,

I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,

d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,

d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

RSP Adjusted Start Emission outside PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Remark

1. S_{ao}

= 0, if $S_{total} - I_a < 0$

or

= $(S_{total} - I_a) * d_s / (d_t + d_s)$, otherwise

where

S_{ao}: adjusted start emission outside PTI,

S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,

I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,

d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,

d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

RSP Idling Emission within PTI/Parking Site (Non-terminating Vehicle) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Remark

1. $I_n = E_h * T_n * f_n * p$

where

I_n: idling emission within PTI of a vehicle type with a fuel type in an hour (non-terminating vehicle),

E_h: hot idling emission factor of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_n: idling time of the non-terminating vehicle, obtained from the *Vehicle Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,

f_n: traffic frequency of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from the *Bypass* column of the *Traffic Flow* table of the vehicle type.

RSP Idling Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00

Remark

1. $I = I_t + I_n$

where

I: idling emission within PTI of a vehicle type with a fuel type in an hour,

I_t: idling emission within PTI of the vehicle type with the fuel type in the hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,

I_n: idling emission within PTI of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from the *Idling Emission within PTI (Non-terminating Vehicle) (g)* table above.

RSP Total Emission within PTI/Parking Site (Running + Adjusted Start + Idling) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.737E-01	0.000E+00

Remark

1. $W = R + S_{aw} + I$

where

W: total emission within PTI of a vehicle type with a fuel type in an hour,

R: running emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Running Emission within PTI (g)* table above,

S_{aw}: adjusted start emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Adjusted Start Emission within PTI (g)* table above,

I: idling emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Idling Emission within PTI (g)* table above.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

FSP

Running Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.342E-01	0.000E+00

Remark

1. $R = E_r * f * d_t * p$

where

R: running emission at a specific speed for a vehicle type with a fuel type in an hour,

E_r: running emission factor for the vehicle type at the specific speed, obtained from the *EMFACEmf* tab,

f: total traffic frequency of the vehicle type in the hour, obtained from the *Frequency* table,

d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

FSP Total Start Emission (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Remark

1. $S_{total} = \sum_i(E_{s,i} * f_i) * p$

where

S_{total}: total start emission for a vehicle type with a fuel type in an hour,

$E_{s,i}$: start emission factor of the vehicle type with sitting time i min, obtained from the *EMFACEmf* tab,

f_i: traffic frequency of the vehicle type with sitting time i min in the hour, obtained from the *Traffic Flow* table of the vehicle type,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

FSP Idling Emission within PTI/Parking Site (Terminating Vehicle) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2.5t	03 - Light Goods Vehicles<=2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00

Remark

1. $I_t = E_c * T_t * f_c * p + E_h * T_t * f_h * p$

where

I_t: idling emission within PTI of a vehicle type with a fuel type in an hour (terminating vehicle),

E_c: cold idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

E_h: hot idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_t: idling time of the terminating vehicle, obtained from the *Vehicle Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,

f_c: total traffic frequency of the vehicle type with the fuel type for cold idling emission, obtained from the *Traffic Flow* table of the vehicle type,

f_h: total traffic frequency of the vehicle type with the fuel type for hot idling emission, obtained from the *Traffic Flow* table of the vehicle type.

2. According to *Calculation of Start Emissios in Air Quality Impact Assessment*, the soak time for cold idling is longer than or equal to 240 min for petrol/LPG vehicles or 60 min for diesel SCR vehicles.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

FSP Idling Emission for the Purpose of Start Emission Adjustment (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.389E-02	0.000E+00

Remark
1. $I_a = I_t * T_a / T_t$
where
I_a: idling emission for the purpose of start emission adjustment of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in an hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
T_a: max. idling time for adjusting start emission of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
T_t: ilding time for the terminating vehicle, obtained from the *Vehicle Parameters* table.

FSP Adjusted Start Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission within PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

FSP Adjusted Start Emission outside PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Remark
1. S_{ao}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_s / (d_t + d_s)$, otherwise
where
S_{ao}: adjusted start emission outside PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

FSP Idling Emission within PTI/Parking Site (Non-terminating Vehicle) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Remark

1. $I_n = E_h * T_n * f_n * p$

where

I_n: idling emission within PTI of a vehicle type with a fuel type in an hour (non-terminating vehicle),

E_h: hot idling emission factor of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

T_n: idling time of the non-terminating vehicle, obtained from the *Vehicle Parameters* table,

p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,

f_n: traffic frequency of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from the *Bypass* column of the *Traffic Flow* table of the vehicle type.

FSP Idling Emission within PTI/Parking Site (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E-02	0.000E+00

Remark

1. $I = I_t + I_n$

where

I: idling emission within PTI of a vehicle type with a fuel type in an hour,

I_t: idling emission within PTI of the vehicle type with the fuel type in the hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,

I_n: idling emission within PTI of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from the *Idling Emission within PTI (Non-terminating Vehicle) (g)* table above.

FSP Total Emission within PTI/Parking Site (Running + Adjusted Start + Idling) (g)

Hour	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<= 15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.620E-01	0.000E+00

Remark

1. $W = R + S_{aw} + I$

where

W: total emission within PTI of a vehicle type with a fuel type in an hour,

R: running emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Running Emission within PTI (g)* table above,

S_{aw}: adjusted start emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Adjusted Start Emission within PTI (g)* table above,

I: idling emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Idling Emission within PTI (g)* table above.

Appendix 3.6 Calculation of Start Emissions

Chun Wang Street Carpark

Hourly Profile

Hour	Emission Within PTI/Parking Site – Total Emission Rate (g/s)				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
0100 - 0200	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
0200 - 0300	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
0300 - 0400	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
0400 - 0500	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
0500 - 0600	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
0600 - 0700	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
2100 - 2200	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
2200 - 2300	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
2300 - 2400	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05
Max	5.037E-03	1.066E-03	4.825E-05	4.825E-05	4.500E-05

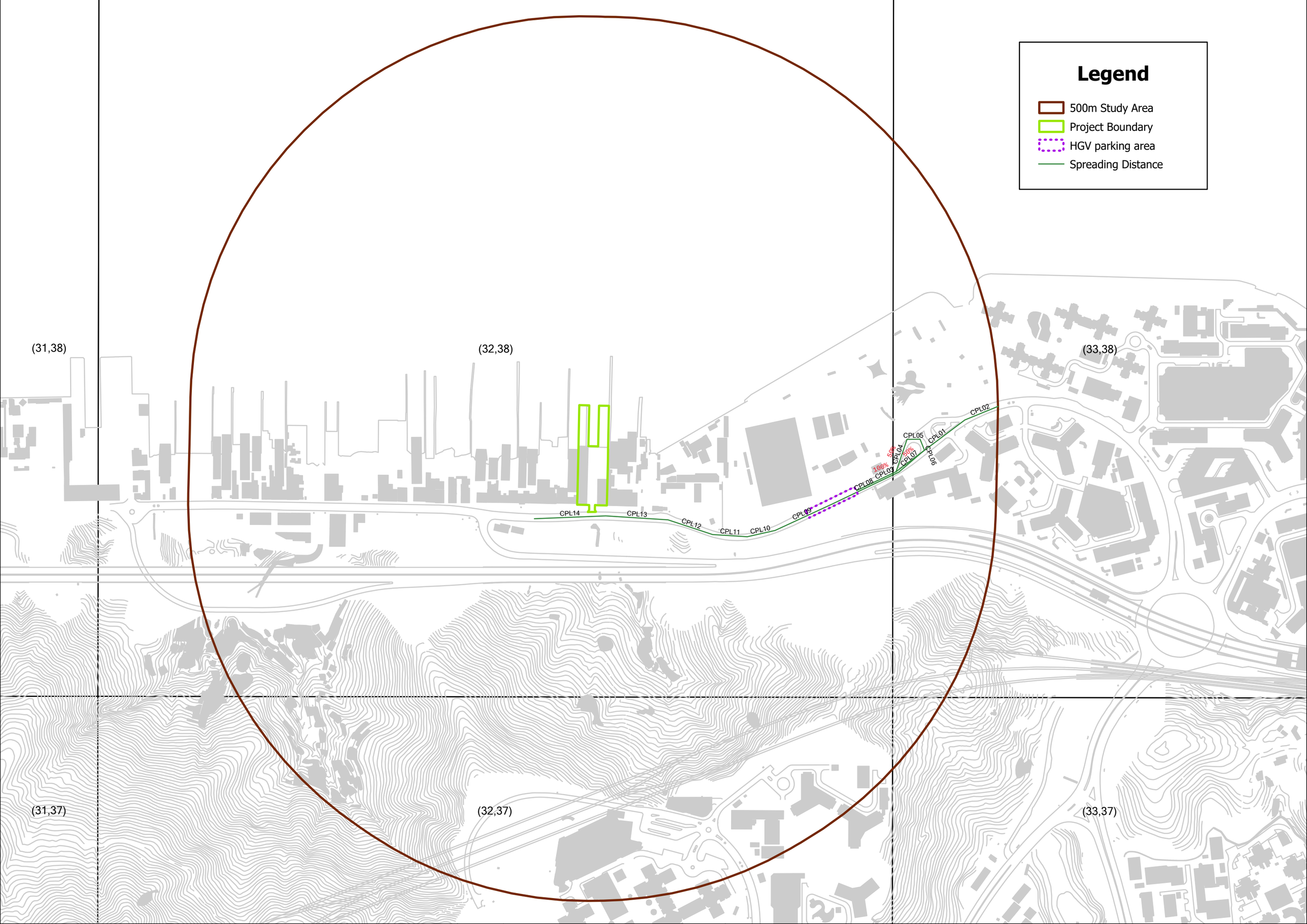
Hour	Hourly Profile				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	1.0000	1.0000	1.0000	1.0000	1.0000
0100 - 0200	1.0000	1.0000	1.0000	1.0000	1.0000
0200 - 0300	1.0000	1.0000	1.0000	1.0000	1.0000
0300 - 0400	1.0000	1.0000	1.0000	1.0000	1.0000
0400 - 0500	1.0000	1.0000	1.0000	1.0000	1.0000
0500 - 0600	1.0000	1.0000	1.0000	1.0000	1.0000
0600 - 0700	1.0000	1.0000	1.0000	1.0000	1.0000
0700 - 0800	0.0000	0.0000	0.0000	0.0000	0.0000
0800 - 0900	0.0000	0.0000	0.0000	0.0000	0.0000
0900 - 1000	0.0000	0.0000	0.0000	0.0000	0.0000
1000 - 1100	0.0000	0.0000	0.0000	0.0000	0.0000
1100 - 1200	0.0000	0.0000	0.0000	0.0000	0.0000
1200 - 1300	0.0000	0.0000	0.0000	0.0000	0.0000
1300 - 1400	0.0000	0.0000	0.0000	0.0000	0.0000
1400 - 1500	0.0000	0.0000	0.0000	0.0000	0.0000
1500 - 1600	0.0000	0.0000	0.0000	0.0000	0.0000
1600 - 1700	0.0000	0.0000	0.0000	0.0000	0.0000
1700 - 1800	0.0000	0.0000	0.0000	0.0000	0.0000
1800 - 1900	0.0000	0.0000	0.0000	0.0000	0.0000
1900 - 2000	0.0000	0.0000	0.0000	0.0000	0.0000
2000 - 2100	1.0000	1.0000	1.0000	1.0000	1.0000
2100 - 2200	1.0000	1.0000	1.0000	1.0000	1.0000
2200 - 2300	1.0000	1.0000	1.0000	1.0000	1.0000
2300 - 2400	1.0000	1.0000	1.0000	1.0000	1.0000

Hour	Emission Outside PTI/Parking Site (Spread Distance = 700m) – Total Emission Rate (g/s)				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	1.363E-02	1.757E-03	0.000E+00	0.000E+00	0.000E+00
Max	1.363E-02	1.757E-03	-	-	-

Hour	Hourly Profile				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	1.0000	1.0000	-	-	-
0100 - 0200	1.0000	1.0000	-	-	-
0200 - 0300	1.0000	1.0000	-	-	-
0300 - 0400	1.0000	1.0000	-	-	-
0400 - 0500	1.0000	1.0000	-	-	-
0500 - 0600	1.0000	1.0000	-	-	-
0600 - 0700	1.0000	1.0000	-	-	-
0700 - 0800	0.0000	0.0000	-	-	-
0800 - 0900	0.0000	0.0000	-	-	-
0900 - 1000	0.0000	0.0000	-	-	-
1000 - 1100	0.0000	0.0000	-	-	-
1100 - 1200	0.0000	0.0000	-	-	-
1200 - 1300	0.0000	0.0000	-	-	-
1300 - 1400	0.0000	0.0000	-	-	-
1400 - 1500	0.0000	0.0000	-	-	-
1500 - 1600	0.0000	0.0000	-	-	-
1600 - 1700	0.0000	0.0000	-	-	-
1700 - 1800	0.0000	0.0000	-	-	-
1800 - 1900	0.0000	0.0000	-	-	-
1900 - 2000	0.0000	0.0000	-	-	-
2000 - 2100	1.0000	1.0000	-	-	-
2100 - 2200	1.0000	1.0000	-	-	-
2200 - 2300	1.0000	1.0000	-	-	-
2300 - 2400	1.0000	1.0000	-	-	-

Hour	Emission Outside PTI/Parking Site (Spread Distance = 150m) – Total Emission Rate (g/s)				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Max	-	-	-	-	-

Hour	Hourly Profile				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	-	-	-	-	-
0100 - 0200	-	-	-	-	-
0200 - 0300	-	-	-	-	-
0300 - 0400	-	-	-	-	-
0400 - 0500	-	-	-	-	-
0500 - 0600	-	-	-	-	-
0600 - 0700	-	-	-	-	-
0700 - 0800	-	-	-	-	-
0800 - 0900	-	-	-	-	-
0900 - 1000	-	-	-	-	-
1000 - 1100	-	-	-	-	-
1100 - 1200	-	-	-	-	-
1200 - 1300	-	-	-	-	-
1300 - 1400	-	-	-	-	-
1400 - 1500	-	-	-	-	-
1500 - 1600	-	-	-	-	-
1600 - 1700	-	-	-	-	-
1700 - 1800	-	-	-	-	-
1800 - 1900	-	-	-	-	-
1900 - 2000	-	-	-	-	-
2000 - 2100	-	-	-	-	-
2100 - 2200	-	-	-	-	-
2200 - 2300	-	-	-	-	-
2300 - 2400	-	-	-	-	-


Legend
500m Study Area
Project Boundary
HGV parking area
Spreading Distance
(31,38)
(32,38)
(33,38)
(31,37)
(32,37)
(33,37)
CPL01
CPL02
CPL03
CPL04
CPL05
CPL06
CPL07
CPL08
CPL09
CPL10
CPL11
CPL12
CPL13
CPL14
5%
5%
10%

APPENDIX 3.7

Derivation of Cumulative Annual Average NOX-to-NO2 Conversion Equation using Jenkin Method

Appendix 3.7 Derivation of Cumulative Annual Average NOX-to-NO2 Conversion Equation using Jenkin Method

Jenkin Method for Long-term Cumulative NO_2 Assessment

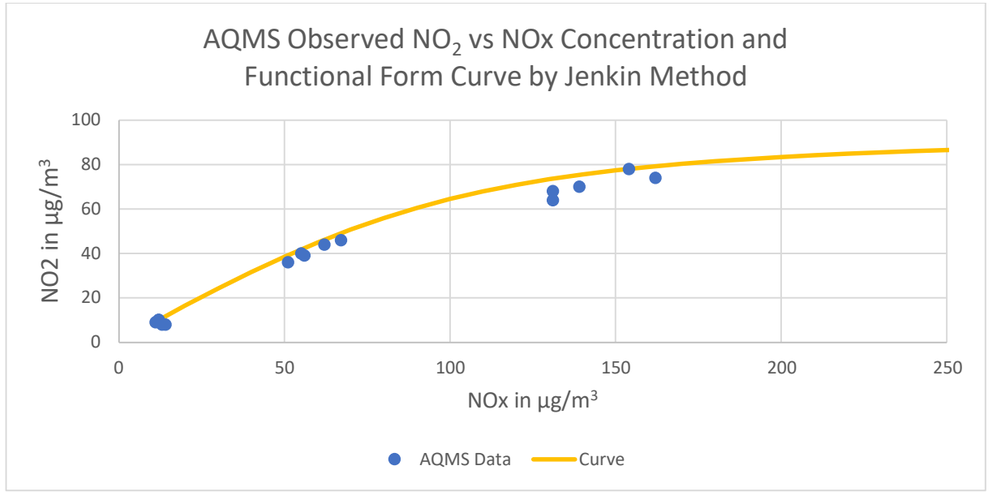
With reference to the *Review of Methods for NO to NO_2 Conversion in plumes at short ranges*[1], Jenkin method was adopted for the conversion of cumulative annual average NO_x to NO_2 by using the functional form of annual mean of NO_2-to-NOx. The mentioned functional form is referenced from Jenkin, 2004a[2] and is presented below:

$$[NO2] = \frac{\left([\mathrm{NOx}] + [\mathrm{OX}] + \frac{\mathrm{J}}{\mathrm{k}}\right) - \sqrt{([NOx] + [OX] + \frac{J}{k})^2 - 4[NOx][OX]}}{2}$$

where

$[NO_2]$	is the NO_2 concentration
$[NO_x]$	is the NOx concentration
[OX]	is the sum of NO_2 concentration and O_3 concentration (i.e. [OX] = $[NO_2]$ + $[O_3]$)
J	is the photolysis rate of NO_2
k	is the rate coefficient for reaction between NO and O_3

The above functional form was used to analyze the annual mean data obtained from the nearest EPD's air quality monitoring stations (AQMS) including Tuen Mun general station, Tap Mun general station and Roadside AQMS (i.e. Mong Kok roadside station). The recent five years annual mean data are extracted and presented in below table. Scattered plot for recent 5 years annual means NO_2 versus NO_x concentrations obtained from relevant AQMS was created. The functional form curve would fit the annual mean data when [OX] = 95.57 µg/m^3 and J/k = 17.114 µg/m^3. The value of [OX] and J/k are considered reasonable as they are within typical value range for Hong Kong. The resulting functional form curve was adopted for the cumulative annual average NO_x to NO_2 conversion. The curve is slightly higher than all the annual mean data obtained from AQMS, the calculated annual average NO_2 concentration using the obtained functional form curve based on the observed annual average NO_x obtained from AQMS are presented in below table, the calculated annual average NO_2 concentration are higher than the observed annual average NO_2 concentration, no underestimation of the annual average NO_2 concentration is expected.



For the long-term cumulative NO_2 assessment (i.e. predictions of annual average NO_2 concentration), cumulative annual average NO_x to NO_2 conversion equation for this assessment was calculated as follows:

$$[NO2]_c = \frac{([NOx]_c + 95.57 + 17.11) - \sqrt{([NOx]_c + 95.57 + 17.11)^2 - 4[NOx]_c \times 95.57}}{2}$$

where

$[NO_2]_c$	is the predicted cumulative NO_2 concentration
$[NO_x]_c$	is the predicted cumulative NO_x concentration

[1] Environment Agency. 2007. *Review of methods for NO to NO_2 conversion in plumes at short range*. Prepared by Environmental Agency.

[2] Jenkin. 2004a. *Analysis of sources and partitioning of oxidant in the UK – Part 1: The NOx-dependence of annual mean concentrations of nitrogen dioxide and ozone.* Atmospheric Environment, 38, 5117-5129.

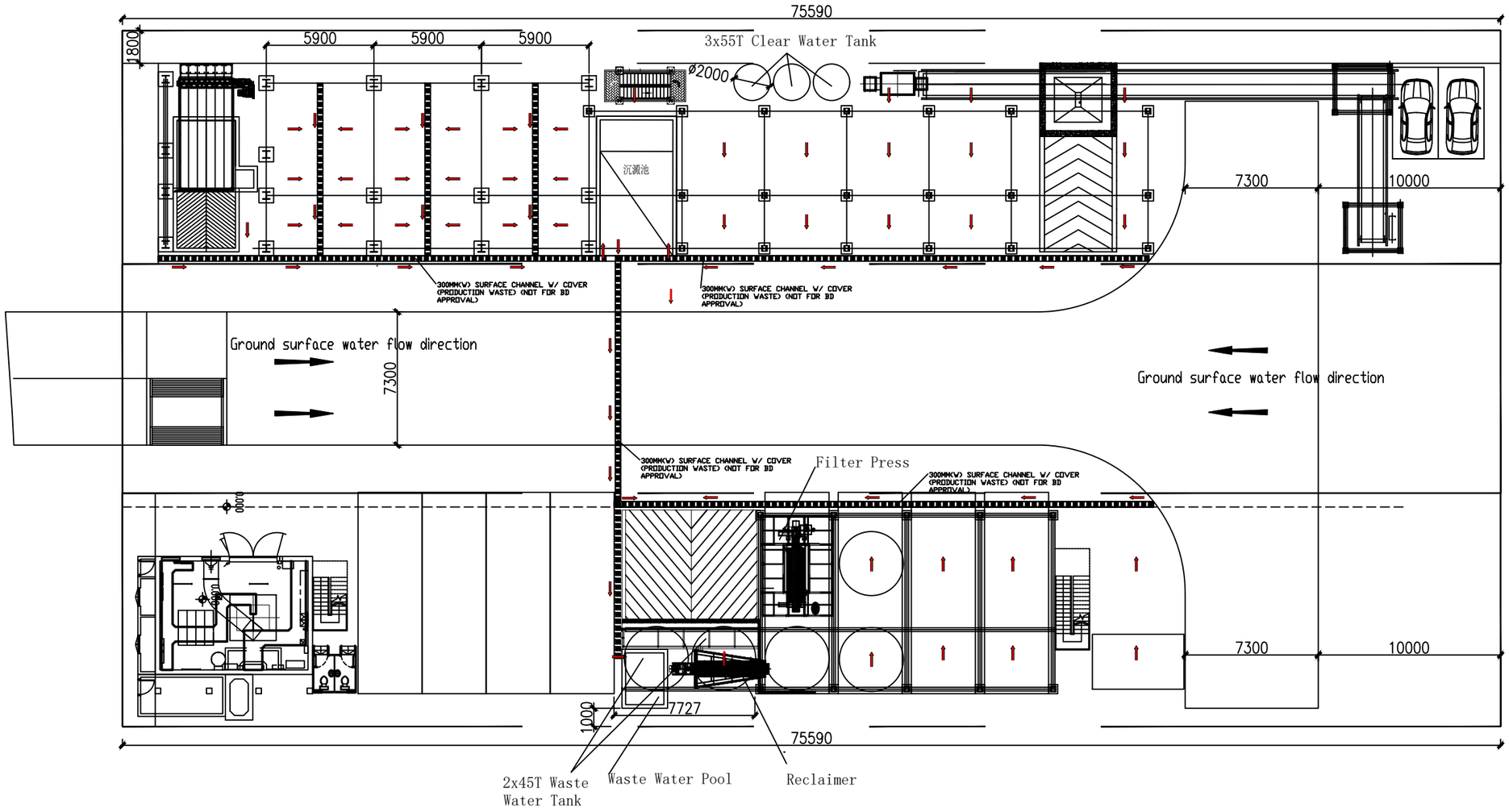
Appendix 3.7 Derivation of Cumulative Annual Average NOX-to-NO2 Conversion Equation using Jenkin Method

Annual Average NO_X, NO_2 and OX concentration in Recent Five Years (Year 2019-2023) at Selected EPD AQMS

AQMS Data of the Past 5 Years				
Year	**Station**	**NO2 (ug/m3)**	**NOx (ug/m3)**	**Conversion**
2019	TSUEN WAN	46	67	49.0
2020	TSUEN WAN	36	51	39.1
2021	TSUEN WAN	44	62	46.1
2022	TSUEN WAN	39	56	42.4
2023	TSUEN WAN	40	55	41.7
2019	TAP MUN	10	12	10.0
2020	TAP MUN	9	11	9.2
2021	TAP MUN	10	12	10.0
2022	TAP MUN	8	13	10.8
2023	TAP MUN	8	14	11.6
2019	MONG KOK	78	154	78.0
2020	MONG KOK	74	162	79.2
2021	MONG KOK	70	139	75.3
2022	MONG KOK	64	131	73.6
2023	MONG KOK	68	131	73.6

APPENDIX 5.1

Surface Channel Plan



Remark:

Surface channel

Ground surface water flow direction

工程编号:

合同编号:

圳通(香港)钢结构设备有限公
ZhenTong(HONGKONG)Steel structure Equipment Co.LTD
深圳市圳通钢结构设备有限公司
ZhenTong Steelstructure Equipment Co.LTD In ShenZhen

典型平面:
key plan

设计变更说明:
Revision

A 版

备注说明:
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建设单位:
Client
中港混凝土有限公司

建设地点:
Site
青衣

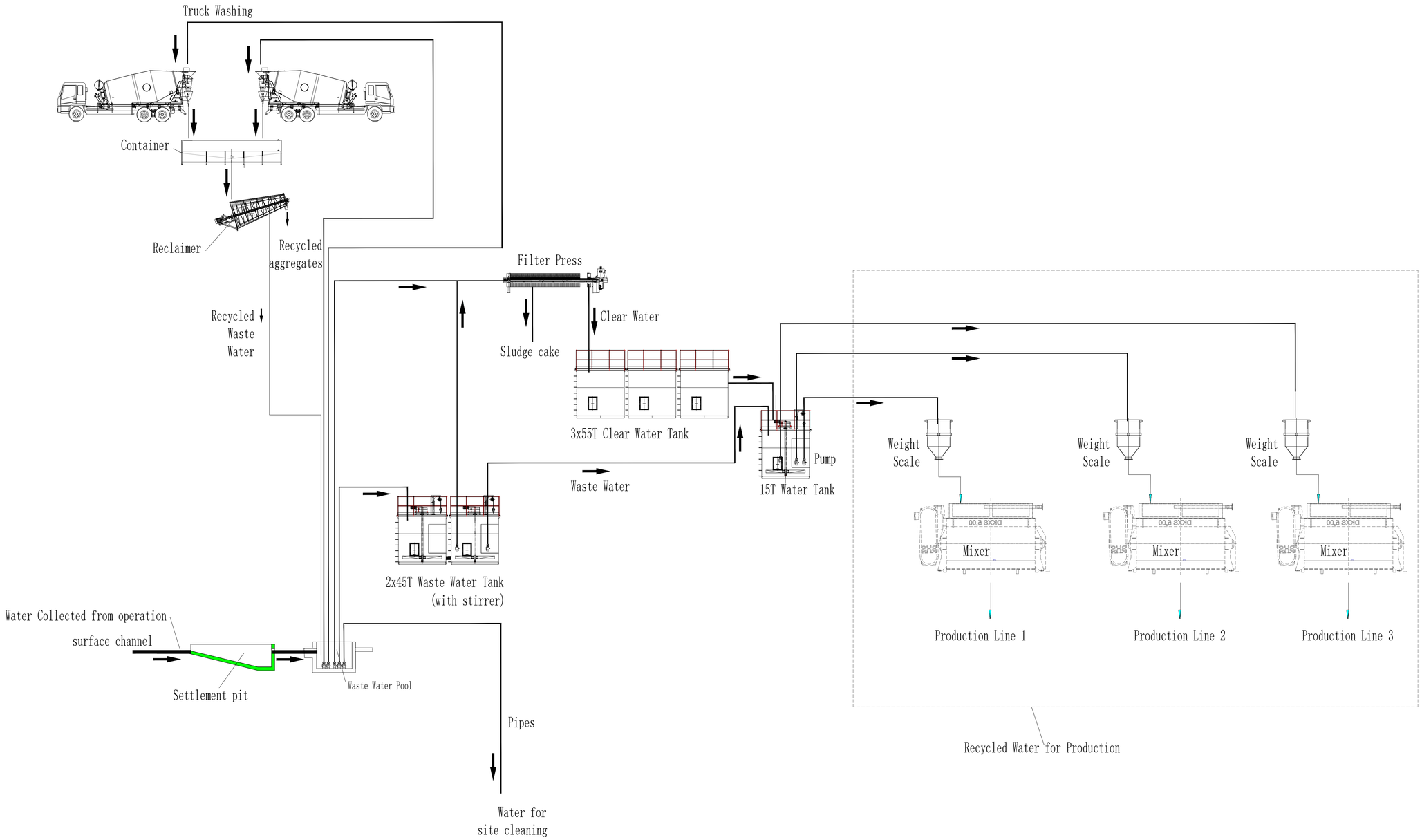
工程名称	3*HZS300混凝土生产线		
审定		核对	
审核		设计	
设计负责		绘图	
设计阶段		版本	

名称: 污水溝渠平面圖

比例	日期	图号
1:1	2024-11-25	

APPENDIX 5.2

Wastewater Treatment Plan



工程编号:

合同编号:

圳通(香港）钢结构设备有限公
ZhenTong(HONGKONG)Steel structure Equipment Co.LTD

深圳市圳通钢结构设备有限公司
ZhenTong Steelstructure Equipment Co.LTD In ShenZhen

典型平面：
key plan

设计变更说明：
Revision

A 版

备注说明：
Remark

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建设单位：
Client

建设地点：
Site
青衣

工程名称	3*HZS300混凝土生产线		
审定		核对	
审核		设计	
设计负责		绘图	
设计阶段		版本	

名称	回收水工藝流程圖

比例	日期	图号
1:1	2024-11-25	

APPENDIX 7.1

Reviewed Aerial Photographs

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

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11/2/2025
Plot File by: haiquan.zhao
PATH: P:\PROJECTS\60739290\DRAWING\REPORT\EAIEA_703.dgn

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PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

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工程管理公司

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修訂

I/R 修訂	DATE 日期	DESCRIPTION 修訂摘要	CHK. 核對

STATUS
現狀

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 1963

SHEET NUMBER
圖紙編號
60739290/EA/AP1

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

SITE BOUNDARY

827750 E

828000 E

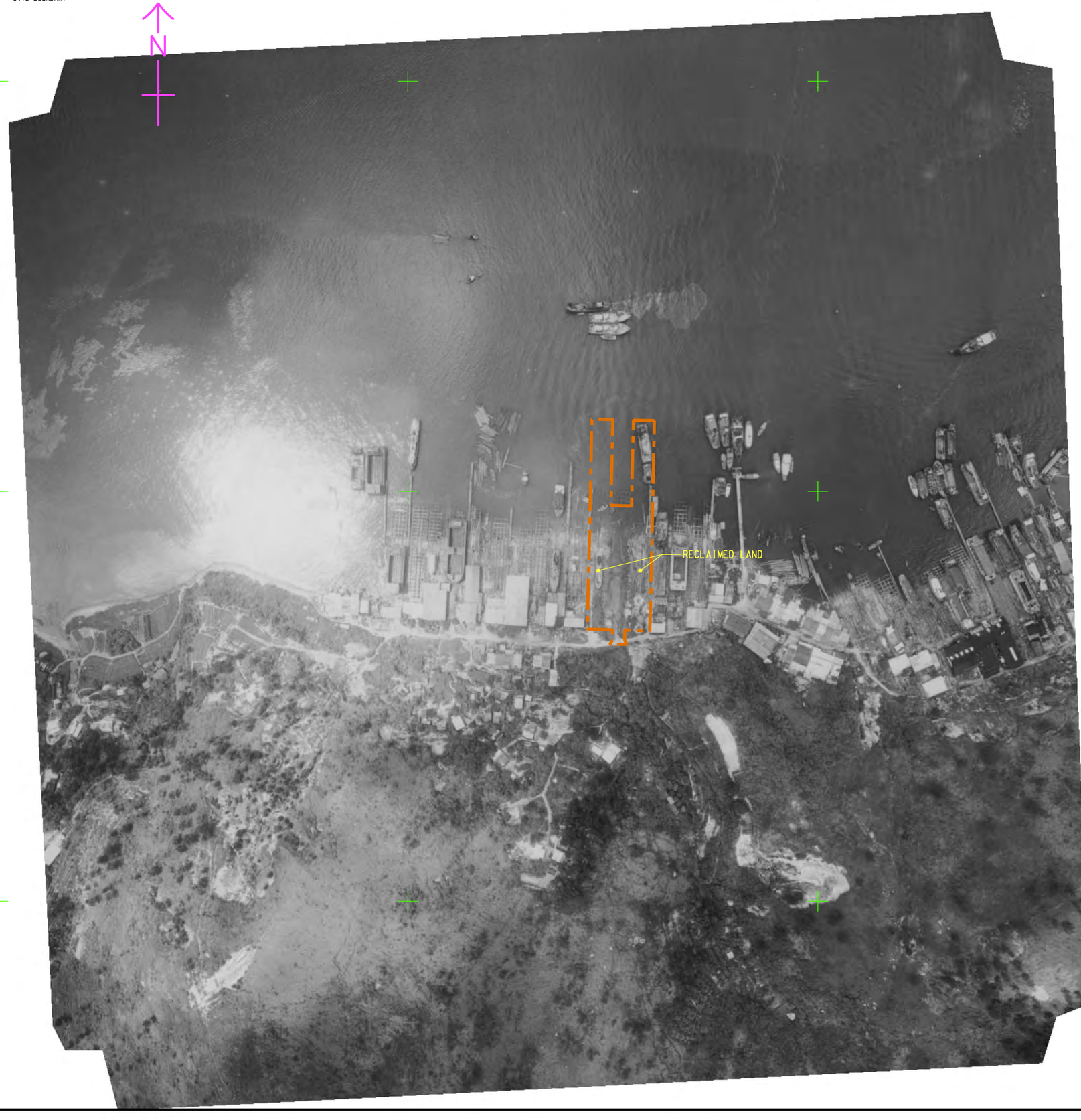
828250 E

825000 N

824750 N

824500 N

N



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STATUS
階段

SCALE
比例

A3 1 : 2500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60739290

CONTRACT NO.
合約編號

SHEET TITLE
圖紙名稱

AERIAL PHOTOGRAPH 1973

SHEET NUMBER
圖紙編號

60739290/EA/AP2

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

SITE BOUNDARY

N

825000 N

824750 N

824500 N

834750 E

835000 E

835250 E

OPEN STORAGE

SLIPWAY

SHIPYARD

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Plot File by: haiquan.zhao
PATH: P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_705.dgn

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STATUS
階段

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 1983

SHEET NUMBER
圖紙編號
60739290/EA/AP3

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

LEGEND:

SITE BOUNDARY

827750 E

828000 E

828250 E

825000 N

824750 N

824500 N

N

JETTY

SLIPWAY

OPEN STORAGE

TAM KON SHAN ROAD

SHIPYARD

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19/2025
Plot File by: haiquan.zhao
PATH: P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_706.dgn

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階段

SCALE
比例

A3 1 : 2500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60739290

CONTRACT NO.
合約編號

SHEET TITLE
圖紙名稱

AERIAL PHOTOGRAPH 1993

SHEET NUMBER
圖紙編號

60739290/EA/AP4

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

SITE BOUNDARY

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2025/2/18
Plot File by: TaoY
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STATUS
階段

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

AGREEMENT NO. 協議編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 2003

SHEET NUMBER
圖紙編號
60739290/EA/AP5

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:

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CLIENT
業主

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ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 校核

STATUS
階段

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

AGREEMENT NO. 協議編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 2013

SHEET NUMBER
圖紙編號
60739290/EA/AP6

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

827500 E

827750 E

828000 E

828250 E

825000 N

824750 N

824500 N

LEGEND:

SITE BOUNDARY

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2/19/2025
Plot File by: haiquan.zhao
PATH P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_709.dgn

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AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
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ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容/修改	CHK. 核准

STATUS
狀況

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

AGREEMENT NO. 協議編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 2023

SHEET NUMBER
圖紙編號
60739290/EA/AP7

APPENDIX 7.2

Site Walkover Checklist

Annex C1

Site Walkover Checklist

DATE OF INSPECTION 12 December 2024

GENERAL SITE DETAILS

~~SITE OWNER~~/CLIENT [redacted]

PROPERTY ADDRESS Tsing Yi Town Lot Nos. 14 and 15 and adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

PERSON CONDUCTING THE QUESTIONNAIRE

NAME Mr. Alex Fan / Ms. Chloe Ng

POSITION Graduate / Senior Environmental Consultant, AECOM

AUTHORIZED OWNER/CLIENT REPRESENTATIVE (IF APPLICABLE)

NAME [redacted]

POSITION [redacted]

TELEPHONE [redacted]

SITE ACTIVITIES

Briefly describe activities carried out on site, including types of products/chemicals/materials handled. Obtain a flow schematic if possible.

Number of employees:	Full-time:	1
	Part-time:	N/A
	Temporary/Seasonal:	N/A
Maximum no. of people on site at any time:		50
Typical hours of operation:		8am – 5pm
Number of shifts:		N/A
Days per week:		6
Weeks per year:		52
Scheduled plant shut-down:		N/A

Detail the main sources of energy at the site:

Gas	~~Yes~~/No
Electricity	Yes/~~No~~
Coal	~~Yes~~/No
Oil	~~Yes~~/No
Other	~~Yes~~/No

SITE DESCRIPTION

This section is intended to gather information on site setting and environmental receptors on, adjacent or close to the site.

What is the total site area: Approx. 4,335 m^2

What area of the site is covered by buildings (%): 30 %

Please list all current and previous owners/occupiers if possible. Supreme Enterprises, Limited

---

Is a site plan available? If yes, please attach. Yes/~~No~~ Refer to Figure 7.1

Are there any other parties on site as tenants or sub-tenants? ~~Yes~~/No

If yes, identify those parties: N/A

Describe surrounding land use (residential, industrial, rural, etc.) and identify neighbouring facilities and types of industry.

North: Open water

South: Tam Kon Shan Road

East: Shipyard (Industrial)

West: Shipyard (Industrial)

Annex C1
Site Walkover Checklist

Describe the topography of the area (flat terrain, rolling hills, mountains, by a large body of water, vegetation, etc.).

Flat reclaimed land by the sea.

State the size and location of the nearest residential communities.

Cheung On Estate (approx. 450m east of the Site, area of about 7.9 ha)

Are there any sensitive habitats nearby, such as nature reserves, parks, wetlands or sites of special scientific interest?

No.

Questionnaire with Existing/Previous Site Owner or Occupier

	Yes/No	Notes
1. What are the main activities/operations at the above address?	--	Private parking site
2. How long have you been occupying the site?	--	48 years, since 1976
3. Were you the first occupant on site? (If yes, what was the usage of the site prior to occupancy.)	Yes	Open water
4. Prior to your occupancy, who occupied the site?	N/A	
5. What were the main activities/operations during their occupancy?	--	Shipyard from 1976 to 1994
6. Have there been any major changes in operations carried out at the site in the last 10 years?	No	
7. Have any polluting activities been carried out in the vicinity of the site in the past?	No	
8. To the best of your knowledge, has the site ever been used as a petrol filling station/car service garage?	No	
9. Are there any boreholes/wells or natural springs either on the site or in the surrounding area?	Yes	
10. Do you have any registered hazardous installations as defined under relevant ordinances? (If yes, please provide details.)	Yes	There is a disused Dangerous Goods (DG) store previously used for storing oxy-acetylene cylinders located in the western building of the Site.
11. Are any chemicals used in your daily operations? (If yes, please provide details.)	No	
• Where do you store these chemicals?	N/A	
12. Material inventory lists, including quantities and locations available? (If yes, how often are these inventories updated?)	No	
13. Has the facility produced a separate hazardous substance inventory?	No	
14. Have there ever been any incidents or accidents (e.g. spills, fires, injuries, etc.) involving any of these materials? (If yes, please provide details.)	No	

	Yes/No	Notes
15. How are materials received (e.g. rail, truck, etc.) and stored on site (e.g. drums, tanks, carboys, bags, silos, cisterns, vaults and cylinders)?	N/A	No materials are received and stored for use on-site.
16. Do you have any underground storage tanks? (If yes, please provide details.)	No	
• How many underground storage tanks do you have on site?	N/A	
• What are the tanks constructed of?	N/A	
• What are the contents of these tanks?	N/A	
• Are the pipelines above or below ground?	N/A	
• If the pipelines are below ground, has any leak and integrity testing been performed?	N/A	
• Have there been any spills associated with these tanks?	N/A	
17. Are there any disused underground storage tanks?	No	
18. Do you have regular check for any spillage and monitoring of chemicals handled? (If yes, please provide details.)	No	
19. How are the wastes disposed of?	--	Wastes are disposed to the nearby refuse collection point.
20. Have you ever received any notices of violation of environmental regulations or received public complaints? (If yes, please provide details.)	No	
21. Have any spills occurred on site? (If yes, please provide details.)	No	
• When did the spill occur?	N/A	
• What were the substances spilled?	N/A	
• What was the quantity of material spilled?	N/A	
• Did you notify the relevant departments of the spill?	N/A	
• What were the actions taken to clean up the spill?	N/A	
• What were the areas affected?	N/A	
22. Do you have any records of major renovation of your site or re-arrangement of underground utilities, pipe work/underground tanks (If yes, please provide details.)	No	
23. Have disused underground tanks been removed or otherwise secured (e.g. concrete, sand, etc.)?	No	
24. Are there any known contaminations on site? (If yes, please provide details.)	No	
25. Has the site ever been remediated? (If yes, please provide details.)	No	

Annex C1
Site Walkover Checklist

Observations

	Yes/No	Notes
1. Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?	No	The chemicals are stored on a covered box / wooden plank or directly above concrete paved ground.
2. What are the conditions of the bund walls and floors?	--	The covered box / wooden plank and concrete paved ground were observed to be intact.
3. Are any surface water drains located near to drum storage and unloading areas?	N/A	
4. Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	No	
5. Is there a storage site for the wastes?	No	
6. Is there an on-site landfill?	No	
7. Were any stressed vegetation noted on site during the site reconnaissance? (If yes, please indicate location and approximate size.)	No	
8. Were any stained surfaces noted on-site during the site reconnaissance? (If yes, please provide details.)	No	
9. Are there any potential off-site sources of contamination?	No	
10. Does the site have any equipment which might contain polychlorinated biphenyls (PCBs)?	No	
11. Are there any sumps, effluent pits, interceptors or lagoons on site?	No	
12. Any noticeable odours during site walkover?	No	
13. Are any of the following chemicals used on site: fuels, lubricating oils, hydraulic fluids, cleaning solvents, used chemical solutions, acids, anti-corrosive paints, thinners, coal, ash, oily tanks and bilge sludge, metal wastes, wood preservatives and polyurethane foam?	No	

APPENDIX 7.3

Acquisition of Information from Government Departments

AECOM
12/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, Hong Kong
香港新界沙田鄉事會路 138 號
新城市中央廣場第 2 座 12 樓
www.aecom.com

+852 3922 9000 tel
+852 3922 9797 fax

Your Ref:
Our Ref: 60739290/AYMC202412122

By Post and Fax (F: 2411 3073)

Environmental Protection Department
Regional Office (West)
8/F., Tsuen Wan Government Offices,
38 Sai Lau Kok Road, Tsuen Wan,
New Territories

12 December 2024

Dear Sir/Madam,

Land Contamination Assessment for Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi

Request for Information of Chemical Waste Producer and Chemical Spillage Accident

AECOM Asia Co. Ltd. has been commissioned by Supreme Enterprise Limited as the Consultant to undertake land contamination assessment for the captioned project. The concerned site is indicated in the figure enclosed.

As part of the land contamination assessment and following the *Practice Guide for Investigation and Remediation of Contaminated Land* issued by EPD, we have to collect historical information regarding the past and present activities of the site. In order to facilitate our assessment, we would like to request for the following information regarding the captioned concerned site:

1. Current and past (as early as the records are available) registered Chemical Waste Producer(s) within the concerned site (preferably with the registration date, status (moved out or active), nature and quantity of the chemical waste); and
2. Reported accidents of spillage / leakage of chemicals within the concerned site.

Please feel free to contact our Ms. Chloe Ng at 3856 5662 / chloe.ng@aecom.com or Mr. Alex Fan at 3856 5244 / alex.fan@aecom.com should you have any queries.

Thank you very much for your kind assistance.

Yours faithfully,
AECOM Asia Co. Ltd.

Anna Chung
Executive Director
Environment

Encl. Site Location Plan

ZONING OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m^2 (ABOUT)
OUTLINE ZONING PLAN	: APPROVED TSING YI OZP
PLAN NO.	: S/TY/32
ZONING OF THE SITE	: "OTHER SPECIFIED USES" ANNOTATED "BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES" : 2,213 m^2 (ABOUT)
	AND AREA SHOWN AS 'ROAD' : 29 m^2 (ABOUT)

ONLY PORTION OF THE SITE (ABOUT 2,242 m^2, 52%) FALL WITHIN THE ABOVE OZP COVERAGE, WHILE THE REMAINING AREA (ABOUT 2,093 m^2, 48%) FALLS OUTSIDE OZP PLANNING SCHEME BOUNDARY.

船廠及依靠海運之工業用途
BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES

APPLICATION SITE

青衣東北公園
Tsing Yi Northeast Park

長安邨
Cheung On Esta

TSING YI NORTH COASTAL ROAD

樟樹頭
Cheung Shue Tau

油柑頭
Yau Kom Tau

楓樹窩
FUNG SHUE WO

OU | GB | G/IC | O | R(A)3

*SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.

AIRPORT EXPRESS AND TUNG CHUNG LINE)

NORTH
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PLANNING CONSULTANT

PROJECT

SITE LOCATION
TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE
1 : 5000 @ A4

DRAWN BY	DATE
MN	19.11.2024
REVISED BY	DATE
APPROVED BY	DATE

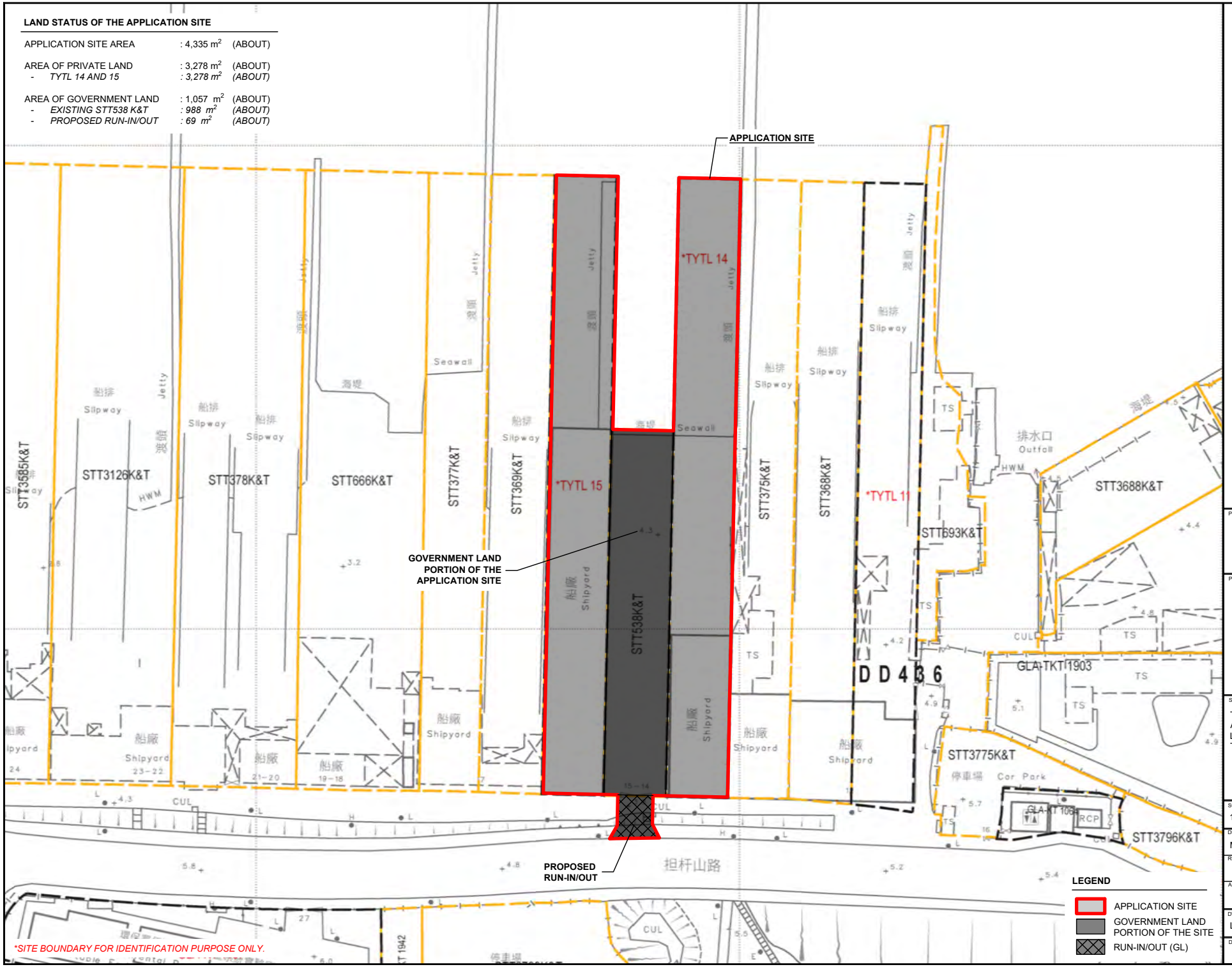
DWG. TITLE
ZONING PLAN

DWG NO. | VER.

LEGEND
APPLICATION SITE

LAND STATUS OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m^2	(ABOUT)
AREA OF PRIVATE LAND	: 3,278 m^2	(ABOUT)
- *TYTL 14 AND 15*	: *3,278 m^2*	*(ABOUT)*
AREA OF GOVERNMENT LAND	: 1,057 m^2	(ABOUT)
- *EXISTING STT538 K&T*	: *988 m^2*	*(ABOUT)*
- *PROPOSED RUN-IN/OUT*	: *69 m^2*	*(ABOUT)*



*SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.

LEGEND

- APPLICATION SITE
- GOVERNMENT LAND PORTION OF THE SITE
- RUN-IN/OUT (GL)

NORTH

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PLANNING CONSULTANT

PROJECT

SITE LOCATION

TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE

1 : 1000 @ A4

DRAWN BY	DATE
MN	19.11.2024
REVISED BY	DATE
APPROVED BY	DATE

DWG. TITLE

LAND STATUS

DWG NO. | VER.

AERIAL PHOTO OF THE APPLICATION SITE

APPLICATION SITE AREA : 4,335 m^2 (ABOUT)

AERIAL PHOTO NO. : E211645C
DATE OF AERIAL PHOTO : 20.11.2023
SOURCE OF AERIAL PHOTO : LANDS DEPARTMENT

NORTH
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LEGEND

APPLICATION SITE

**SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.*

PLANNING CONSULTANT

PROJECT

SITE LOCATION

TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE
1 : 5000 @ A4

DRAWN BY	DATE
MN	19.11.2024
CHECKED BY	DATE
APPROVED BY	DATE

DWG. TITLE
AERIAL PHOTO OF THE SITE

DWG NO. | VER.

本署檔號
OUR REF: EP/RW/0000484730
來函檔號
YOUR REF: 60739290/AYMC202412122
電　話
TEL. NO.: 2417 6067
圖文傳真
FAX NO.: 2411 3073
網　址
HOMEPAGE: http://www.epd.gov.hk

Environmental Protection Department
Environmental Compliance Division
Regional Office (West)

8/F., Tsuen Wan Government Offices,
38 Sai Lau Kok Road,
Tsuen Wan, N.T.

環境保護署
環保法規管理科
區域辦事處(西)

荃灣西樓角路38號
荃灣政府合署八樓

20 December 2024

By Post and Fax (3922 9797)

AECOM Asia Co. Ltd.
12/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, New Territories
(Attn: Ms. Anna CHUNG)

Dear Ms. CHUNG,

Re. Land Contamination Assessment for Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi

Request for Information of Chemical Waste Producer and Chemical Spillage Accident

I refer your above letter dated 12 December 2024 and the project layout plan. This Regional Office (West) has no record of reported cases of spillage/ leakage of chemicals at the application site as indicated in the project layout plan. You may need to check with other relevant parties/ government departments for such information as appropriate.

As for the records of Chemical Waste Producers (CWPs), you may contact Mr. K.H. LO at 2835 1357 for making an appointment to view the records of CWPs at the Territory Control Office.

Should you have any queries, please contact the undersigned.

Yours faithfully,

(Heidi H.Y. CHEUNG)
for Director of Environmental Protection

AECOM
12/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, Hong Kong
香港新界沙田鄉事會路 138 號
新城市中央廣場第 2 座 12 樓
www.aecom.com

+852 3922 9000 tel
+852 3922 9797 fax

Your Ref:
Our Ref: 60739290/AYMC202412121

By Post and Fax (F: 2739 5879)

Fire Services Department
Corporate Strategy Command Management Group
9/F, Fire Services HQ Building,
1 Hong Chong Road, Tsim Sha Tsui East,
Kowloon.

12 December 2024

Dear Sir/Madam,

Land Contamination Assessment for Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi

Request for Information about Dangerous Goods Store and Incidents Records

AECOM Asia Co. Ltd has been commissioned by Supreme Enterprise Limited as the Consultant to undertake land contamination assessment for the captioned project. The concerned site is indicated in the figure enclosed.

As a part of the land contamination assessment and following the *Practice Guide for Investigation and Remediation of Contaminated Land* issued by EPD, we have to collect historical information regarding the past and present activities of the site. In order to facilitate our assessment, we would like to request for the following information regarding the captioned concerned site:

1. Records of current and past (as early as the records are available) registration of Dangerous Goods storage (with type of dangerous goods, storage method, quantity, licence no., date of issue and storage location) within the concerned site;
2. Any records of reported accidents of spillage/leakage of dangerous goods stored within the concerned site; and
3. Any records of fire incidents within the concerned site.

Please feel free to contact our Ms. Chloe Ng at 3856 5662 / chloe.ng@aecom.com or Mr. Alex Fan at 3856 5244 / alex.fan@aecom.com should you have any queries.

Thank you very much for your kind assistance.

Yours faithfully,
AECOM Asia Co. Ltd.

Anna Chung
Executive Director
Environment

Encl. Site Location Plan

ZONING OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m^2 (ABOUT)
OUTLINE ZONING PLAN	: APPROVED TSING YI OZP
PLAN NO.	: S/TY/32
ZONING OF THE SITE	: "OTHER SPECIFIED USES" ANNOTATED "BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES" : 2,213 m^2 (ABOUT)
	AND AREA SHOWN AS 'ROAD' : 29 m^2 (ABOUT)

ONLY PORTION OF THE SITE (ABOUT 2,242 m^2, 52%) FALL WITHIN THE ABOVE OZP COVERAGE, WHILE THE REMAINING AREA (ABOUT 2,093 m^2, 48%) FALLS OUTSIDE OZP PLANNING SCHEME BOUNDARY.

船廠及依靠海運之工業用途
BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES

APPLICATION SITE

青衣東北公園
Tsing Yi Northeast Park

長安邨
Cheung On Esta

TSING YI NORTH COASTAL ROAD

樟樹頭
Cheung Shue Tau

油柑頭
Yau Kom Tau

楓樹窩
FUNG SHUE WO

OU | GB | G/IC | O | R(A)3

*SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.

AIRPORT EXPRESS AND TUNG CHUNG LINE)

NORTH
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PLANNING CONSULTANT

PROJECT

SITE LOCATION
TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE
1 : 5000 @ A4

DRAWN BY	DATE
MN	19.11.2024
REVISED BY	DATE
APPROVED BY	DATE

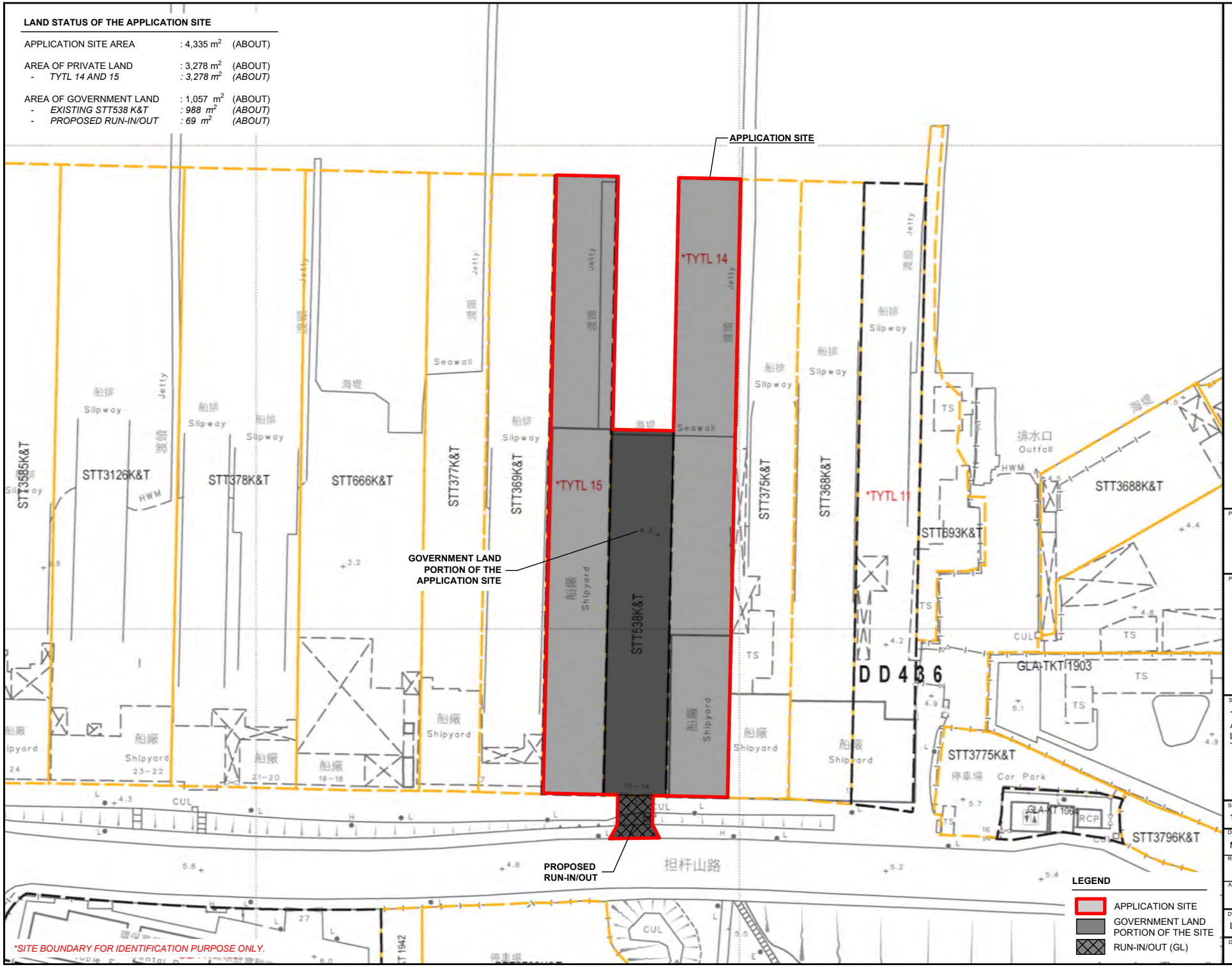
DWG. TITLE
ZONING PLAN

DWG NO. | VER.

LEGEND
APPLICATION SITE

LAND STATUS OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m^2	(ABOUT)
AREA OF PRIVATE LAND	: 3,278 m^2	(ABOUT)
- *TYTL 14 AND 15*	: *3,278 m^2*	*(ABOUT)*
AREA OF GOVERNMENT LAND	: 1,057 m^2	(ABOUT)
- *EXISTING STT538 K&T*	: *988 m^2*	*(ABOUT)*
- *PROPOSED RUN-IN/OUT*	: *69 m^2*	*(ABOUT)*



*SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.

LEGEND

- APPLICATION SITE
- GOVERNMENT LAND PORTION OF THE SITE
- RUN-IN/OUT (GL)

NORTH

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PLANNING CONSULTANT

PROJECT

SITE LOCATION

TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE

1 : 1000 @ A4

DRAWN BY	DATE
MN	19.11.2024
REVISED BY	DATE
APPROVED BY	DATE

DWG. TITLE

LAND STATUS

DWG NO. | VER.

AERIAL PHOTO OF THE APPLICATION SITE

APPLICATION SITE AREA : 4,335 m^2 (ABOUT)

AERIAL PHOTO NO. : E211645C
DATE OF AERIAL PHOTO : 20.11.2023
SOURCE OF AERIAL PHOTO : LANDS DEPARTMENT

NORTH
W E
S

LEGEND

APPLICATION SITE

**SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.*

PLANNING CONSULTANT

PROJECT

SITE LOCATION

TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE
1 : 5000 @ A4

DRAWN BY	DATE
MN	19.11.2024
CHECKED BY	DATE
APPROVED BY	DATE

DWG. TITLE
AERIAL PHOTO OF THE SITE

DWG NO. | VER.

消 防 處
香港九龍尖沙咀東部康莊道 1 號
消防總部大廈

FIRE SERVICES DEPARTMENT
FIRE SERVICES HEADQUARTERS BUILDING,
No.1 Hong Chong Road,
Tsim Sha Tsui East, Kowloon,
Hong Kong.

本處檔號 **OUR REF.** : (167) in FSD GR 6-5/4 R Pt. 56
來函檔號 **YOUR REF.** : 60739290/AYMC202412121
電子郵件 **E-mail** : hkfsdenq@hkfsd.gov.hk
圖文傳真 **FAX NO.** : 2988 1196
電　　話 **TEL NO.** : 2733 7896

16 January 2024

AECOM Asia Co. Ltd
12/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, Hong Kong.
(Attn: Ms. Anna CHUNG, Executive Director)

Dear Ms. CHUNG,

Land Contamination Assessment for
Tsing Yi Town Lots 14 and 15 and Adjoining
Government Land, Tam Kon Shan Road, Tsing Yi
Request for Information of Dangerous Goods & Incident Records

I refer to your letter of 12.12.2024 regarding the captioned request and reply below in response to your questions:-

Please be advised that neither records of dangerous goods license, fire incidents nor incidents of spillage / leakage of dangerous goods were found in connection with the given conditions of your request at the subject location.

If you have further questions, please feel free to contact the undersigned.

Yours sincerely,

(AU Ting-hin)
for Director of Fire Services

APPENDIX 7.4

Risk-Based Remediation Goals (RBRGs) for Soil and Soil Saturation Limit and for Groundwater and Solubility Limit

Table 2.1
Risk-Based Remediation Goals (RBRGs) for Soil & Soil Saturation Limit

Chemical	Risk-Based Remediation Goals for Soil				Soil Saturation Limit (C_{sat}) (mg/kg)
	Urban Residential (mg/kg)	Rural Residential (mg/kg)	Industrial (mg/kg)	Public Parks (mg/kg)	
VOCs					
Acetone	9.59E+03	4.26E+03	1.00E+04*	1.00E+04*	***
Benzene	7.04E-01	2.79E-01	9.21E+00	4.22E+01	3.36E+02
Bromodichloromethane	3.17E-01	1.29E-01	2.85E+00	1.34E+01	1.03E+03
2-Butanone	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	***
Chloroform	1.32E-01	5.29E-02	1.54E+00	2.53E+02	1.10E+03
Ethylbenzene	7.09E+02	2.98E+02	8.24E+03	1.00E+04*	1.38E+02
Methyl tert-Butyl Ether	6.88E+00	2.80E+00	7.01E+01	5.05E+02	2.38E+03
Methylene Chloride	1.30E+00	5.29E-01	1.39E+01	1.28E+02	9.21E+02
Styrene	3.22E+03	1.54E+03	1.00E+04*	1.00E+04*	4.97E+02
Tetrachloroethene	1.01E-01	4.44E-02	7.77E-01	1.84E+00	9.71E+01
Toluene	1.44E+03	7.05E+02	1.00E+04*	1.00E+04*	2.35E+02
Trichloroethene	5.23E-01	2.11E-01	5.68E+00	6.94E+01	4.88E+02
Xylenes (Total)	9.50E+01	3.68E+01	1.23E+03	1.00E+04*	1.50E+02
SVOCs					
Acenaphthene	3.51E+03	3.28E+03	1.00E+04*	1.00E+04*	6.02E+01
Acenaphthylene	2.34E+03	1.51E+03	1.00E+04*	1.00E+04*	1.98E+01
Anthracene	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	2.56E+00
Benzo(a)anthracene	1.20E+01	1.14E+01	9.18E+01	3.83E+01	
Benzo(a)pyrene	1.20E+00	1.14E+00	9.18E+00	3.83E+00	
Benzo(b)fluoranthene	9.88E+00	1.01E+01	1.78E+01	2.04E+01	
Benzo(g,h,i)perylene	1.80E+03	1.71E+03	1.00E+04*	5.74E+03	
Benzo(k)fluoranthene	1.20E+02	1.14E+02	9.18E+02	3.83E+02	
bis-(2-Ethylhexyl)phthalate	3.00E+01	2.80E+01	9.18E+01	9.42E+01	
Chrysene	8.71E+02	9.19E+02	1.14E+03	1.54E+03	
Dibenzo(a,h)anthracene	1.20E+00	1.14E+00	9.18E+00	3.83E+00	
Fluoranthene	2.40E+03	2.27E+03	1.00E+04*	7.62E+03	
Fluorene	2.38E+03	2.25E+03	1.00E+04*	7.45E+03	5.47E+01
Hexachlorobenzene	2.43E-01	2.20E-01	5.82E-01	7.13E-01	
Indeno(1,2,3-cd)pyrene	1.20E+01	1.14E+01	9.18E+01	3.83E+01	
Naphthalene	1.82E+02	8.56E+01	4.53E+02	9.14E+02	1.25E+02
Phenanthrene	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	2.80E+01
Phenol	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	7.26E+03
Pyrene	1.80E+03	1.71E+03	1.00E+04*	5.72E+03	
Metals					
Antimony	2.95E+01	2.91E+01	2.61E+02	9.79E+01	
Arsenic	2.21E+01	2.18E+01	1.96E+02	7.35E+01	
Barium	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	
Cadmium	7.38E+01	7.28E+01	6.53E+02	2.45E+02	
Chromium III	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	
Chromium VI	2.21E+02	2.18E+02	1.96E+03	7.35E+02	
Cobalt	1.48E+03	1.46E+03	1.00E+04*	4.90E+03	
Copper	2.95E+03	2.91E+03	1.00E+04*	9.79E+03	
Lead	2.58E+02	2.55E+02	2.29E+03	8.57E+02	
Manganese	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	
Mercury	1.10E+01	6.52E+00	3.84E+01	4.56E+01	
Molybdenum	3.69E+02	3.64E+02	3.26E+03	1.22E+03	
Nickel	1.48E+03	1.46E+03	1.00E+04*	4.90E+03	
Tin	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	
Zinc	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	
Dioxins / PCBs					
Dioxins (I-TEQ)	1.00E-03	1.00E-03	5.00E-03	1.00E-03	
PCBs	2.36E-01	2.26E-01	7.48E-01	7.56E-01	
Petroleum Carbon Ranges					
C6 - C8	1.41E+03	5.45E+02	1.00E+04*	1.00E+04*	1.00E+03
C9 - C16	2.24E+03	1.33E+03	1.00E+04*	1.00E+04*	3.00E+03
C17 - C35	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	5.00E+03
Other Inorganic Compounds					
Cyanide, free	1.48E+03	1.46E+03	1.00E+04*	4.90E+03	
Organometallics					
TBTO	2.21E+01	2.18E+01	1.96E+02	7.35E+01	

Notes:
(1) For Dioxins, the cleanup levels in USEPA Office of Solid Waste and Emergency Response (OSWER) Directive of 1998 have been adopted. The OSWER Directive value of 1 ppb for residential use has been applied to the scenarios of "Urban Residential", "Rural Residential", and "Public Parks", while the low end of the range of values for industrial, 5 ppb, has been applied to the scenario of "Industrial".
(2) Soil saturation limits for petroleum carbon ranges taken from the Canada-Wide Standards for Petroleum Hydrocarbons in Soil, CCME 2000.
(3) * indicates a 'ceiling limit' concentration.
(4) *** indicates that the C_{sat} value exceeds the 'ceiling limit' therefore the RBRG applies.

Table 2.2
Risk-Based Remediation Goals (RBRGs) for Groundwater and Solubility Limit

Chemical	Risk-Based Remediation Goals for Groundwater			Solubility Limit (mg/L)
	Urban Residential (mg/L)	Rural Residential (mg/L)	Industrial (mg/L)	
VOCs				
Acetone	1.00E+04*	1.00E+04*	1.00E+04*	***
Benzene	3.86E+00	1.49E+00	5.40E+01	1.75E+03
Bromodichloromethane	2.22E+00	8.71E-01	2.62E+01	6.74E+03
2-Butanone	1.00E+04*	1.00E+04*	1.00E+04*	***
Chloroform	9.56E-01	3.82E-01	1.13E+01	7.92E+03
Ethylbenzene	1.02E+03	3.91E+02	1.00E+04*	1.69E+02
Methyl tert-Butyl Ether	1.53E+02	6.11E+01	1.81E+03	***
Methylene Chloride	1.90E+01	7.59E+00	2.24E+02	***
Styrene	3.02E+03	1.16E+03	1.00E+04*	3.10E+02
Tetrachloroethene	2.50E-01	9.96E-02	2.95E+00	2.00E+02
Toluene	5.11E+03	1.97E+03	1.00E+04*	5.26E+02
Trichloroethene	1.21E+00	4.81E-01	1.42E+01	1.10E+03
Xylenes (Total)	1.12E+02	4.33E+01	1.57E+03	1.75E+02
SVOCs				
Acenaphthene	1.00E+04*	7.09E+03	1.00E+04*	4.24E+00
Acenaphthylene	1.41E+03	5.42E+02	1.00E+04*	3.93E+00
Anthracene	1.00E+04*	1.00E+04*	1.00E+04*	4.34E-02
Benzo(a)anthracene				
Benzo(a)pyrene				
Benzo(b)fluoranthene	5.39E-01	2.03E-01	7.53E+00	1.50E-03
Benzo(g,h,i)perylene				
Benzo(k)fluoranthene				
bis-(2-Ethylhexyl)phthalate				
Chrysene	5.81E+01	2.19E+01	8.12E+02	1.60E-03
Dibenzo(a,h)anthracene				
Fluoranthene	1.00E+04*	1.00E+04*	1.00E+04*	2.06E-01
Fluorene	1.00E+04*	1.00E+04*	1.00E+04*	1.98E+00
Hexachlorobenzene	5.89E-02	2.34E-02	6.95E-01	6.20E+00
Indeno(1,2,3-cd)pyrene				
Naphthalene	6.17E+01	2.37E+01	8.62E+02	3.10E+01
Phenanthrene	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+00
Phenol				
Pyrene	1.00E+04*	1.00E+04*	1.00E+04*	1.35E-01
Metals				
Antimony				
Arsenic				
Barium				
Cadmium				
Chromium III				
Chromium VI				
Cobalt				
Copper				
Lead				
Manganese				
Mercury	4.86E-01	1.84E-01	6.79E+00	
Molybdenum				
Nickel				
Tin				
Zinc				
Dioxins / PCBs				
Dioxins (I-TEQ)				
PCBs	4.33E-01	1.71E-01	5.11E+00	3.10E-02
Petroleum Carbon Ranges				
C6 - C8	8.22E+01	3.17E+01	1.15E+03	5.23E+00
C9 - C16	7.14E+02	2.76E+02	9.98E+03	2.80E+00
C17 - C35	1.28E+01	4.93E+00	1.78E+02	2.80E+00
Other Inorganic Compounds				
Cyanide, free				
Organometallics				
TBTO				

Notes:
(1) Blank indicates that RBRG could not be calculated because the toxicity or physical/chemical values were unavailable, or the condition of Henry's Law Constant>1.00E-05 was not met for the inhalation pathway.
(2) Water solubilities for Petroleum Carbon Range aliphatic C9-C16 and greater than C16 generally are considered to be effectively zero and therefore the aromatic solubility for C9-C16 is used.
(3) * indicates a 'ceiling limit' concentration.
(4) *** indicates that the solubility limit exceeds the 'ceiling limit' therefore the RBRG applies.

Appendix V

Drainage Impact Assessment

Drainage Impact Assessment For Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

DRAINAGE IMPACT ASSESSMENT REPORT

Reference: 31048-R06-01
Date: April 2025

AXON
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Appendix B Typical Design of U-channel and Catchpit

1 Introduction

1.1 Background

The Applicant intends to seek Town Planning Board ("TPB") approval for a Proposed Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lots (TYTL) 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi (hereafter "the proposed development").

In the Approved Tsing Yi Outline Zoning Plan No. S/TY/32 (referred to as the "OZP"), the Application Site is zoned as "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses". According to the Schedule of Uses outlined in the OZP, the intended use of a Concrete Batching Plant falls under Column 2 uses. Consequently, obtaining planning permission from TPB is necessary for the proposed temporary concrete batching plant under Section 16 of the Town Planning Ordinance.

This submission intends to demonstrate the overall drainage design and provide basic information and is structured to follow the requirement of Stormwater Drainage Manual – Planning, Design and Management (2018 Edition) (SDM).

AXON Engineering & Consulting Limited (AXON) was commissioned to carry out a Drainage Impact Assessment (DIA) report for the proposed development.

1.2 Objectives

The objectives of the DIA are as follow:

- to assess the potential drainage impacts arising from the proposed development; and
- to recommend the necessary mitigation measures to alleviate the impacts, if necessary.

1.3 References

Reference is made to the following document:

1. Stormwater Drainage Manual (SDM) – 5th Edition issued by the Drainage Services Department (DSD)

2. Drainage Services Department Advice Note No. 1 – Application of the Drainage Impact Assessment Process to Private Section Project

3. Technical Note to prepare a Drainage Submission – Drainage Services Department (DSD)

2 Baseline Conditions and Review Methodology

2.1 Site Description

The Application Site is bounded by TYTL 14, TYTL 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi. It is bordered by Tam Kon Shan Road on the south and Tsing Yi Waterfront on the north. The site is situated to the west of Green Kwai Tsing and Tsing Yi Northeast Park. The site location is illustrated in **Figure 2.1**.

2.2 Site Conditions and Discharge Strategies

The Application Site encompasses an approximate application area of 4,335m^2 and a site area (paved land) of approximately 2,908m^2 in total. The site is surrounded by boundary walls along its eastern, western and southern site boundary, while there is no boundary wall constructed along the northern side to facilitate barge operations. Currently, the site is fully covered by the concrete surface. No site formation work will be conducted for the proposed development. Thus, there is no net difference in surface runoff due to this application.

The elevations within the paved area range from +4.05 mPD to +4.35 mPD. **Figure 2.2** shows the catchment areas and path flow of the site.

The stormwater fall on the roofs in catchments A, B and C will be collected through gutters and downpipes. In catchments D, the runoff is anticipated to primarily flow towards the northeast or the northwest, and will be collected via the proposed u-channel system.

It's important to note that many stormwater manholes from the Drainage Services Department are situated along Tam Kon Shan Road. The pipelines from both the eastbound and westbound directions divert the collected stormwater into northward through the stormwater manhole SWD4023664, which connects to the existing box culvert located beneath the site. Ultimately, the collected rainwater will be discharged into the sea.

The proposed underground pipe UP1 will establish a connection from the final catchpit, which includes a sand trap, government stormwater manhole SWD4023664, serving as the final discharge point for the planned stormwater drainage system.

2.3 Calculation Methodology for Runoff

Peak instantaneous runoff values before and after the development were calculated based on the Rational Method and with recommended physical parameters including runoff coefficient (C) and storm constants for different return periods referred to the SDM.

The Rational Method is adopted for hydraulic analysis and the peak runoff is calculated based on the following equation:

$$Q_p = 0.278\ C\ i\ A$$

where Q_p = Peak Runoff, m^3/s
C = Runoff Coefficient
i = Rainfall Intensity, mm/hr
A = Catchment Area, km^2

The paved areas of the site will account for 2,908 m². The runoff coefficient of 1.0 was assumed.

Based on the storm constants for 50-year return period recommended in the SDM, the appropriate rainfall intensities (i) were calculated as detailed in **Appendix A**.

2.4 Calculation Methodology for Channel Capacity Checking

The development site is smaller than one hectare in size. To manage stormwater runoff, it is recommended that U-channels be constructed on site. The U-channel system will collect the stormwater and divert it to the proposed u-channels and underground pipe. Eventually, the collected stormwater will be discharged to the government stormwater manhole.

A Manning's roughness coefficient value of 0.016 and 0.015 was used to calculate the capacities of concrete U-channels and concrete drainpipe respectively. This assumed the fair condition of concrete channels and concrete pipe.

Typical designs of the U-channel and Catchpit are shown in **Appendix B**.

Manning's Equation for calculating the channel and pipe capacities was adopted for this analysis:

$$V = \frac{R^{2/3} S^{1/2}}{n}$$

where V = mean velocity, m/s
S = slope of the total energy line
n = Manning's roughness coefficient
R = hydraulic radius, m

2.5 Summary of Assessment Assumptions

Below is a summary of the assumptions underlying the Drainage Impact Assessment:

- A 50-year return period was adopted;
- A runoff coefficient of 1.0 for the paved area was assumed; and
- Manning's roughness coefficient of 0.016 for U-channels was adopted; and
- Manning's roughness coefficient of 0.015 for underground concrete drain pipe was adopted.

3 Assessment Results

The estimated peak runoff of each catchment area is calculated based on 50 years return period and is summarised in **Table 3.1** below, runoffs and capacities of the proposed drainage system are summarised in **Table 3.2**. The proposed layout plan of the drainage system and detailed calculations are provided in **Figure 3.1** and **Appendix A**, respectively.

Table 3.1 Estimated Peak Runoffs of Each Catchment Area

Catchment ID	Catchment Area, m^2	Peak Runoff, m^3/s
A	534	0.0393
B	166	0.0136
C	87	0.0072
D	2,121	0.1417

Table 3.2 Estimated Runoffs and Capacities of the Channels & Pipe

Type	ID	Catchment Served	Actual Runoff, m^3/s	% of Capacity Flow	OK? (Y/N)
U-channel (375mm)	UC1	A + D (10%)	0.0532	44%	Y
U-channel (450mm)	UC2	A + D (65%)	0.1297	67%	Y
U-channel (525mm)	UC3	A + D (74%)	0.1422	48%	Y
U-channel (525mm)	UC4	A + B + D (74%)	0.1558	53%	Y
U-channel (525mm)	UC5	A + B + C + D (99%)	0.1977	67%	Y
U-channel (150mm)	UC6	D (1%)	0.0014	13%	Y
Underground Pipe (375mm)	UP1	A + D (10%)	0.0532	44%	Y

As depicted in **Table 3.2**, a drainage system, including u-channels and underground pipe, is designed to ensure that the collected stormwater runoff does not surpass 70% of its total capacity, effectively collecting the rainfall within the proposed development and discharging the runoff into government drainage system.

4 Summary and Conclusions

The Applicant intends to seek Town Planning Board ("TPB") approval for a Proposed Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lots (TYTL) 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi (hereafter "the proposed development").

To prevent flooding in the Site and its surrounding areas, a drainage system is designed to ensure that the stormwater runoff does not surpass 70% of its total capacity, effectively collecting the rainfall within the proposed development and discharging the runoff into government drainage system.

The results of the assessment reveal that there would be no significant impact on the Site and the surroundings at the peak runoff under 50 years return period.

Figures

Drainage Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SITE LOCATION

FIGURE 2.1

Scale : 1:5000 (A3)

Date : APR 2025

Rev. :

AXON CONSULTANCY
http://www.axonhk.com

C:\USERS\USER\DESKTOP\1048\DATA\DRAWING\DIA\FIGURE-2.1.DWG

Drainage Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

CATCHMENT AREA

FIGURE 2.2

Scale : 1:600 (A3)

Date : APR 2025

Rev. :

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C:\USERS\USER\DESKTOP\31048\DATA\DRAWING\DAI\FIGURE-2.2.DWG

LEGEND

- PAVED AREA
- BOUNDARY FOR ASSESSMENT
- FLOW DIRECTION
- DOWNPIPE TO GROUND FLOOR

A
B
C
D

Drainage Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

PROPOSED DRAINAGE PLAN

FIGURE 3.1

Scale : 1:600 (A3)

Date : APR 2025

Rev. :

AXON CONSULTANCY
http://www.axonhk.com

C:\USERS\USER\DESKTOP\31049\DATA\DRAWING\DA\FIGURE-3.1.DWG

UC2 - 450, Grad - 0.005
CP1
CL 4.07
A1 3.55 - 375UC1
X1 3.54 - 450UC2
CP2
CL 4.05
A1 3.36 - 450UC2
X1 3.35 - 525UC3
UC3 - 525
Grad - 0.005
UC1 - 375,
Grad - 0.005
CP3
CL 4.20
A1 3.15 - 525UC3
X1 3.14 - 525UC4
UC4 - 525,
Grad - 0.005
U CHANNEL WITH HEAVY DUTY COVER
UC6 - 150, Grad - 0.005
UC5 - 525,
Grad - 0.005
CP4
CL 4.33
A1 2.98 - 525UC4
X1 2.97 - 525UC5
CP6
CL 4.34
X1 3.92 - 375UC1
GOVERNMENT STORMWATER MANHOLE SWD4023664
CL 4.50
A1 1.50
A2 2.31
UP1 - 375, Grad - 0.1
CP5 (WITH SNAD TRAP)
CL 4.35
A1 2.92 - 525UC5
A2 4.03 - 150UC6
X1 2.91 - 375UP1
A
B
C
D
Jetty
渡頭
Seawall
海堤
船排
Slipway
船廠
Shipyard
排水口
Outfall
HWM
TS
CUL
担杆山路

LEGEND

PAVED AREA

BOUNDARY FOR ASSESSMENT

UP1 PROPOSED UNDERGROUND PIPE AND FLOW DIRECTION

UC1 PROPOSED U-CHANNEL WITH COVER AND FLOW DIRECTION

CP1 PROPOSED CATCHPIT WITH COVER

Appendix A

Calculations of Drainage Impact

Drainage Analysis

Part A - Estimation of Peak Runoff

Return Period (No. of Years): **50**

Catchment ID	Catchment Area (A), m^2	Level Difference (dh), m	Average Low Distance, (LA), m	Average Slope (H), m/100m	Flow Path Length (L), m	Inlet Time (t_0), min.	Time of Concentration (t_c), min.	Storm Constants			Runoff Intensity (I), mm/hr	Surface	Runoff Coefficient (C)	Peak Runoff (Qp), m^3/s	Inside Site Boundary (Y/N)
								a	b	c					
A	534	0.10	14	0.714	14	1.16	2.4267	451.3	2.46	0.337	264.4	Roof	1.00	0.0393	Y
B	166	0.10	7	1.429	7	0.57	1.1072	451.3	2.46	0.337	294.0	Roof	1.00	0.0136	Y
C	87	0.10	7	1.429	7	0.60	1.0199	451.3	2.46	0.337	296.5	Roof	1.00	0.0072	Y
D	2121	0.30	39	0.769	39	2.76	4.3890	451.3	2.46	0.337	236.0	Paved Area	1.00	0.1391	Y

Part B - Estimated Channel Capacities

The fair condition of concrete-lined channels is considered for the value of n fir Manning equation (DSD SDM Table 13)

U-Channel ID	Nominal Diameter, mm	Nominal Depth, mm	Manning's Roughness Coefficient	Channel Gradient	Cross Section Area, m^2	Wetted Perimeter, m	Hydraulic Radius, m	Mean Velocity, m/s	Capacity, m^3/s	Catchment Served	Actual Runoff, m^3/s	% of Capcity Flow	Sufficient Capacity (Y/N)
UC1 (from CP6 to CP1)	375	375	0.016	0.005	0.1130	0.96	0.117	1.0584	0.1196	A + D (10%)	0.0532	44%	Y
UC2 (from CP1 to CP2)	450	450	0.016	0.005	0.1627	1.16	0.141	1.1952	0.1944	A + D (65%)	0.1297	67%	Y
UC3 (from CP2 to CP3)	525	525	0.016	0.005	0.2214	1.35	0.164	1.3245	0.2933	A + D (74%)	0.1422	48%	Y
UC4 (from CP3 to CP4)	525	525	0.016	0.005	0.2214	1.35	0.164	1.3245	0.2933	A + B + D (74%)	0.1558	53%	Y
UC5 (from CP4 to CP5)	525	525	0.016	0.005	0.2214	1.35	0.164	1.3245	0.2933	A + B + C + D (99%)	0.1977	67%	Y
UC6 (to CP5)	150	150	0.016	0.005	0.0181	0.39	0.047	0.5746	0.0104	D (1%)	0.0014	13%	Y

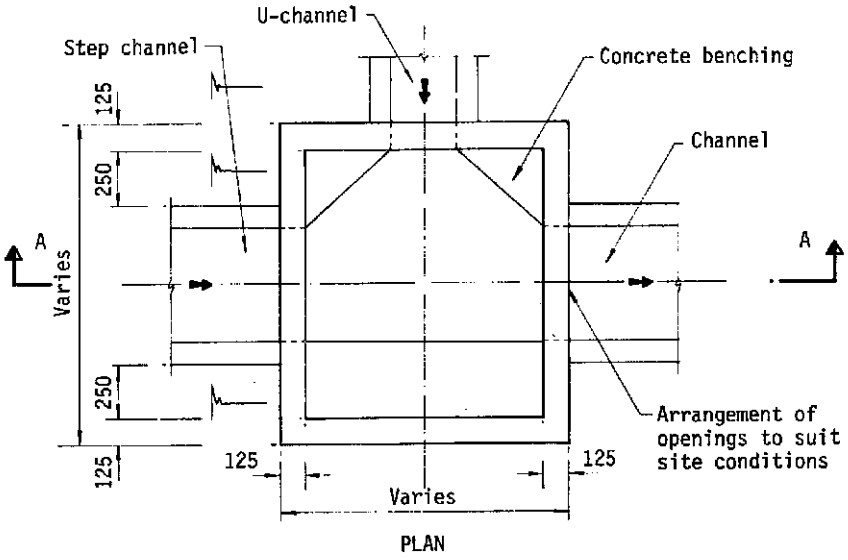
Part C - Manning's Equation is adopted for full-bore pipe velocity calculation

The fair conditions of concrete pipe are considered for the value of n for Manning equation (DSD SDM Table 13)

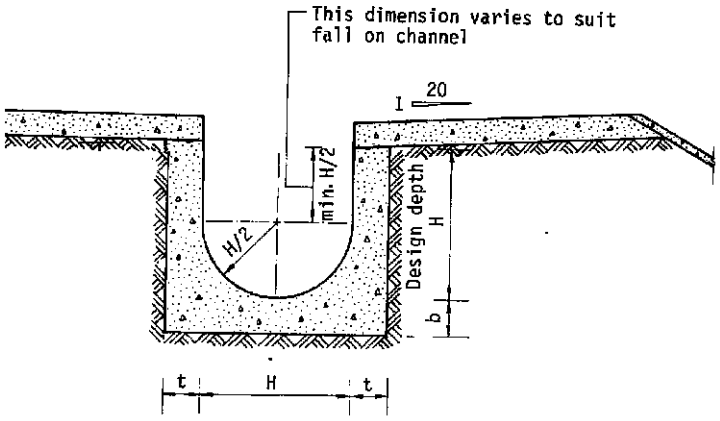
Drain Pipe ID	Nominal Diameter, mm	Gradient	Manning's Roughness Coefficient	Cross Section Area, m^2	Wetted Perimeter, m	Hydraulic Radius, m	Full Bore Velocity (Vc), m/s	Full Bore Capacity (Qc), m^3/s	Catchment Served	Design Flow (Q), m^3/s	% of Capcity Flow	Sufficient Capacity (Y/N)
UP1 [from CP5 to Government Manhole]	375	0.10	0.015	0.1049	1.18	0.089	4.204	0.441144989	A + B + C + D	0.1991	45%	Y

Appendix B

Typical Design of U-channel and Catchpit



TYPICAL DETAILS OF CATCHPIT



TYPICAL DETAILS OF U CHANNEL

Extracted from: *Technical Note to prepare a "Drainage Submission "(relating to applications for temporary change of land use such as temporary storage areas, car parks, workshops, small factories .....etc. under S.16 of the town Planning Ordinance published by DSD in November 2011*

Appendix VI

Sewerage Impact Assessment

Sewage Impact Assessment For Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SEWAGE IMPACT ASSESSMENT REPORT

Reference: 31048-R05-02
Date: May 2025

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2.2 Evaluation of Wastewaters Generation 2

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Appendix A Calculations of Wastewater Generation

Appendix B Sewerage Drain Analysis

1 Introduction

1.1 Background

The Applicant intends to seek Town Planning Board ("TPB") approval for a Proposed Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lots (TYTL) 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi (hereafter "the proposed development").

In the Approved Tsing Yi Outline Zoning Plan No. S/TY/32 (referred to as the "OZP"), the Application Site is zoned as "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses". According to the Schedule of Uses outlined in the OZP, the intended use of a Concrete Batching Plant falls under Column 2 uses. Consequently, obtaining planning permission from TPB is necessary for the proposed temporary concrete batching plant under Section 16 of the Town Planning Ordinance.

As there is a public sewer system currently available in the vicinity of the subject site, it is necessary to propose a sewerage connection between the proposed development and the public sewer.

AXON Engineering & Consulting Limited (AXON) was commissioned to carry out a Sewage Impact Assessment (SIA) report to review and recommend appropriate sewage treatment and disposal scheme.

1.2 Objectives

The objectives of the SIA are as follow:

- to estimate the sewage generation; and
- to examine the impact arising from the estimated sewage on the proposed sewerage connection and existing sewer system.

1.3 References

Reference is made to the following document:

1. Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (GESFSIP) (Version 1.0), EPD; and

2. Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM), EPD; and

3. Sewerage Manual – Key Planning Issues and Gravity Collection System (Sewerage Manual) (3rd edition), Drainage Services Department (DSD), May 2013.

2 Baseline Conditions and Review Methodology

2.1 Site Description

The Application Site has an approximate area of 4,335m^2 and is bounded by TYTL 14, TYTL 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi. The site location is shown in **Figure 2.1**.

2.2 Evaluation of Wastewaters Generation

The Concrete Batching Plant (CBP) is designed to include three production lines, achieving an overall processing capacity of 300 cubic meters per hour and 4,200 cubic meters per day. The concrete batching procedure primarily entails the management of raw materials from their delivery to storage, followed by the respective weigh hoppers, concrete batch mixers, and ultimately the loading of the mixed concrete onto mixer trucks for distribution.

The concrete batching and ground washing processes are designed to generate no effluent. As outlined in the environmental assessment of this Concrete Batching Plant, the project proponent will adopt a "Zero Discharge Strategy" for these operations: water used for ground washing will be collected and transferred to wastewater tanks for reuse in truck washing or recycled for concrete production. Additionally, concrete waste will be collected by a concrete reclaimer, which will separate the cement slurry water from the aggregates. The cement slurry water will subsequently be treated through a filter press to extract cement particles, enabling the clear water to be recycled for site cleaning, dust control or even concrete production.

The main types of wastewaters generated by the proposed development will be sewage from on-site staff and visitors (concrete mixer truck drivers). To estimate sewage generation, the following assumptions were made:

- The proposed development will have 15 on-site staff and 600 visitors per day, which is derived from dividing the daily concrete production (4,200 cubic meters) by capacity of concrete mixer trucks (7 cubic meters)
- For on-site staff, the combined UFF of 0.230m^3/person/day is used to calculate sewage generation for the on-site staff, based on the Commercial Employee and Commercial Activities J9 (Construction) in Table T-2 of GESFSIP.

- For visitor, the combined UFF of 0.0026m³/person/visit (= 200mL micturition + 1L flushing + 1.4L handwashing) is used to calculate sewage generation for the based on the (1) Human's micturition is assumed to be 200mL in accordance with P.3081 of Magill's Medical Guide, 6th edition; (2) Volume of flushing system as advised by the supplier; and (3) Volume of handwashing system in accordance with BEAM Plus New Buildings Version 1.2 in July 2012.

As calculated in **Appendix A**, the estimated Average Dry Weather Flow (ADWF) is 5.01m³/day and the Design Peak Flow is 0.0005m³/second, respectively.

2.3 Proposed Sewerage Connection and Calculation

It is essential to highlight that sufficient foul water manholes from the Drainage Services Department (DSD) are situated along Tam Kon Shan Road. A proposed sewerage connection, consisting of a 150mm underground pipe, aims to connect the public sewer to the manhole within the planned development, and a 225mm underground pipe functions for enhancing existing government pipes FMD4003000. Manning's Equation for calculating the pipe capacities was adopted for this analysis:

$$V = \frac{R^{2/3} S^{1/2}}{n}$$

where
V = mean velocity, m/s
S = slope of the total energy line
n = Manning's roughness coefficient
R = hydraulic radius, m

A Manning's roughness coefficient of 0.015 was utilized to determine the capacities of the new concrete drainpipe, reflecting the assumption of the concrete pipe being in fair condition.

The proposed layout plan for the sewerage connection, along with comprehensive calculations, can be found in **Figure 2.2** and **Appendix B**, respectively. Pipe DP1 establishes a direct link between the Manhole MH1 located on the Site and the Government Foul Water Manhole FMH4052191, whereas Pipe DP2 enhances two existing 150mm government pipes FMD4003000 by replacing them with a 225mm diameter pipe that offers greater hydraulic capacity and improved self-cleaning properties. A summary of pipe's capacity is outlined in **Table 2.1**.

Table 2.1 Capacities of the Pipes

Type	ID	Capacity, m^3/s	Design Peak Flow, m^3/s	% of Capacity Flow	OK? (Y/N)
Underground Pipe (150 mm)	DP1	0.0111	0.0005	4%	Y
Underground Pipe (225 mm)	DP2	0.0270	0.0005	2%	Y

As depicted in **Table 2.1**, the proposed sewerage connection is designed to ensure that the peak design flow does not its total capacity, effectively discharging the sewage produced by the proposed development.

2.4 Sensitivity Test

An evaluation of the drainage impact of the proposed development on the existing sewer system has been conducted through a sensitivity test for the public foul water drainpipe FWD4019926, which connects the government foul water manholes FMH4019395 and FMH4019396. The boundaries of assessment for sensitivity test are depicted in **Figure 2.3**, including the upstream catchments (nearby developments along Tam Kon Shan Road) and encompassing the public sewer network between FMH4019445 and FMH4019396.

In a conservative approach, the upstream flow resulting from the nearby development along Tam Kong Shan Road is assumed to equal the full bore capacity of the upstream public foul water drainpipe FWD4019925, which is $0.0197m^3/s$, as indicated in the calculations sheet found in **Appendix B**. The design peak flow for the sensitivity test is the total of this maximum capacity of pipe FWD4019925 and the design peak flow from the proposed development, amounting to $0.0202m^3/s$.

A Manning's roughness coefficient of 0.017 was applied to evaluate the capacities of the public clay drainpipe FWD4019926, which reflects the assumption that the common clay drainage tile is in poor condition. A summary of the sensitivity test results for drainpipe FWD4019926 is provided in **Table 2.2**, with detailed calculations available in **Appendix B**.

Table 2.2 Capacities of the Pipes (Sensitivity Test)

Type	ID	Capacity, m^3/s	Design Peak Flow, m^3/s	% of Capacity Flow	OK? (Y/N)
Underground Pipe (300 mm)	Government Drainpipe FWD4019926	0.0217	0.0202	93%	Y

As depicted in **Table 2.3**, the public foul water drainpipe FWD4019926 possesses adequate hydraulic capacity to accommodate both the foul water from the upstream catchment area and the wastewater generated by the proposed development. As a result, no adverse drainage impact will arise from the proposed development.

3 Summary and Conclusions

The Applicant intends to seek Town Planning Board ("TPB") approval for a Proposed Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lots (TYTL) 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi.

The estimated Design Peak Flow and Estimated Average Dry Weather Flow (ADWF) from the proposed development are estimated to be 0.0005m³/second and 5.01m³/day, respectively. The effluent is proposed to be discharged to the public sewer.

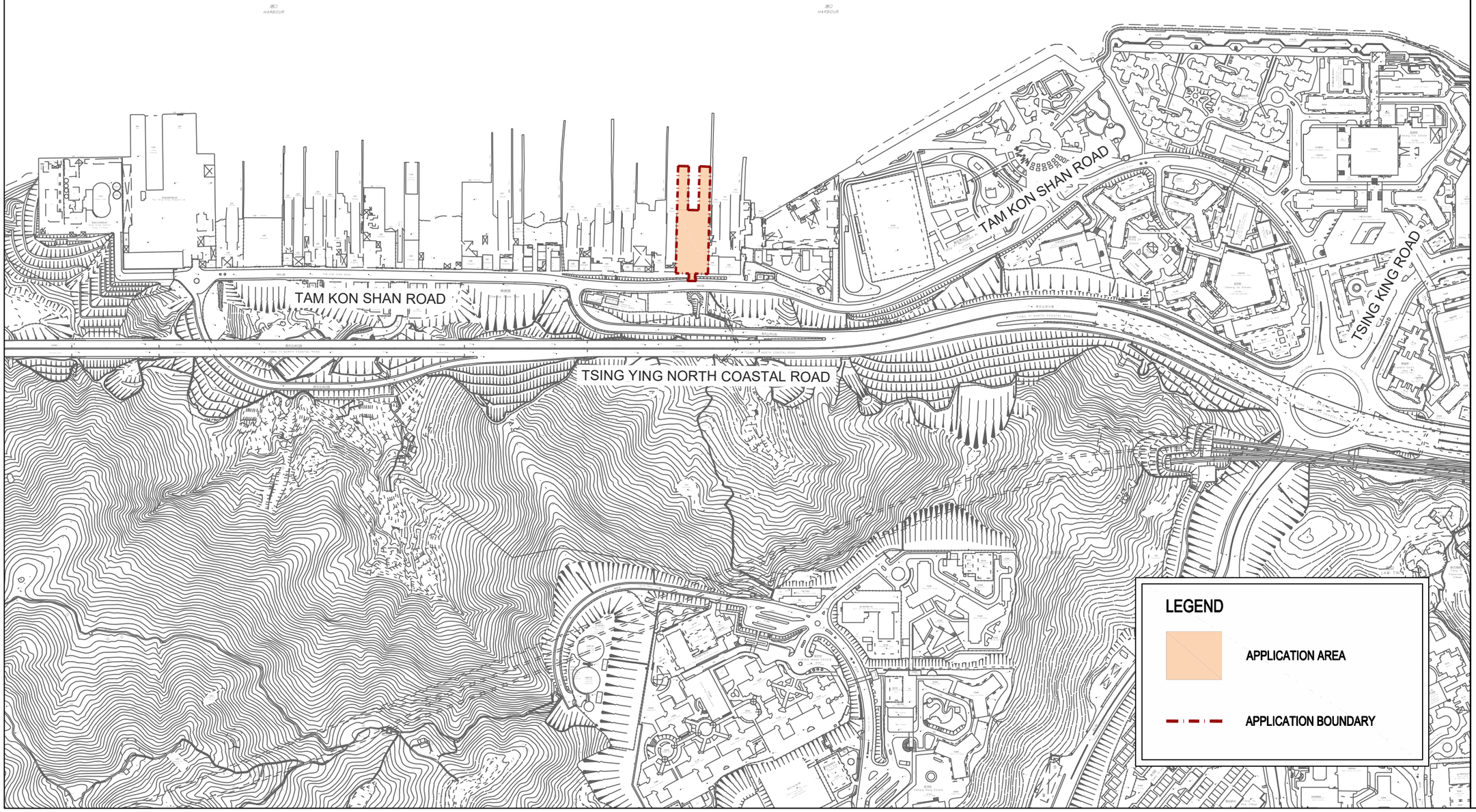
With the provision of proposed sewerage connection mentioned in **Section 2.3** and the sensitivity test analysis for the existing sewerage system discussed in **Section 2.4**, no adverse drainage impact will arise from the proposed development.

Figures

Sewerage Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SITE LOCATION

FIGURE 2.1



Scale : 1:5000 (A3)

Date : APR 2025

Rev. :

AXON CONSULTANCY
http://www.axonhk.com

C:\USERS\USER\DESKTOP\31048\DATA\DRAWINGS\AI\FIGURE 2.1.DWG

Sewerage Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

PROPOSED SEWERAGE CONNECTION

FIGURE 2.2

Scale : 1:600 (A3)

Date : MAY 2025

Rev. : A

AXON CONSULTANCY
http://www.axonhk.com

C:\USERS\USERDESKTOP\31048\DATA\DRAWINGS\AI\FIGURE-2.2.DWG

MH1
CL 4.31
X1 3.85 - 150

DP1 - 150, Grad - 0.01

DP2 - 225,
Grad - 0.007

FWD4019925 - 300
Grad - 0.001

FWD4019926 - 300
Grad - 0.0012

GOVERNMENT FOUL WATER MANHOLE FMH4052191
CL 5.26
A1 3.70 - 150
~~X1 3.79 - 2 x 150~~ NEW X1 3.70 - 225

GOVERNMENT FOUL WATER MANHOLE FMH4019394
CL 5.38
A1 3.72 - 300
A2 3.72 - 225
X1 3.72 - 300

GOVERNMENT FOUL WATER MANHOLE FMH4019395
CL 5.09
A1 3.67 - 300
~~A2 2 x 150~~ NEW A2 3.67 - 225
X1 3.67 - 300

GOVERNMENT FOUL WATER MANHOLE FMH4019396
CL 5.46
A1 3.61 - 300
A2 3.61 - 225
X1 3.61 - 300

LEGEND

- PAVED AREA
- BOUNDARY FOR ASSESSMENT FOR PROPOSED DEVELOPMENT
- DP1 — PROPOSED UNDERGROUND DRAINPIPE
- MH1 — PROPOSED MANHOLE

港口
HARBOUR

港口
HARBOUR

TAM KON SHAN ROAD

TSING YING NORTH COASTAL ROAD

FMH4019445

FMH4019396

LEGEND

PAVED AREA

BOUNDARY FOR ASSESSMENT FOR PROPOSED DEVELOPMENT

BOUNDARY FOR ASSESSMENT FOR SENSITIVITY TEST

Sewerage Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

BOUNDARY FOR SENSITIVITY TEST

FIGURE 2.3

Scale : 1:3000 (A3)

Date : MAY 2025

Rev. :

AXON CONSULTANCY
http://www.axonhk.com

C:\USERS\USER\DESKTOP\31048\DATA\DRAWINGS\AI\FIGURE-2.3.DWG

Appendix A

Calculations of Wastewater Generation

Catchment A - Calculation of Sewage Generation from the Site

				Remarks
On-site Staff				
No. of Production Line	=	3	line	
Production Line occupancy	=	5	person/line	Information advised by the Applicant
No. of workers	=	15	persons	
Unit Flow Factor of Industrial Employees	=	0.08	m^3/person/day	The unit flow factors of Commercial Employees in Table T-2 of GESFSIP (note 1).
Unit Flow Factor of Industrial Activities	=	0.15	m^3/person/day m^3/p	The unit flow factors of Commercial Activities J9 (Construction) in Table T-2 of GESFSIP (note 1).
Combined Unit Flow Factor	=	0.23	m^3/person/day	
Estimated peak daily flow	=	3.45	m^3/day	
Visitor (Truck Driver)				
No. of Visitors	=	600	persons	
Micturition	=	0.0002	m^3	P.3081 of Magill's Medical Guide
Flushing	=	0.001	m^3	The information is advised by the supplier
Handwawshing	=	0.0014	m^3	BEAM Plus New Buildings Version 1.2 in July 2012.
Combined Unit Flow Factor	=	0.0026	m^3/person/visit	
Estimated peak daily flow of the Site Staff	=	1.56	m^3/day	
Total				
Estimated Average Dry Weather Flow (ADWF)	=	5.01	m^3/day	
		0.21	m^3/hour	
Unit Contributing Flow	=	0.27	m^3/person/day	The unit contributing flow in Section 12.1 of GESFSIP (note 1).
Contributing Population	=	19	person	
Flowrate Peaking Factor	=	8		The peaking factor for population < 1,000 population recommended in Table T-5 of GESFSIP (note 1).
Design Peak Flow	=	1.67	m^3/hour	
Design Peak Flow	=	0.0005	m^3/second	

Note:

1. Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (GESFSIP) Version 1.0 published by the Environmental Protection Department

Appendix B

Sewerage Drain Analysis Including Sensitivity Test

Sewerage Drain Analysis

The fair conditions of concrete pipe are considered for the value of n for Manning equation (DSD SM Table 6)

Drain Pipe ID	Nominal Diameter, mm	Upper Invert Level	Lower Invert Level	Gradient	Manning's Roughness Coefficient	Cross Section Area, m^2	Wetted Perimeter, m	Hydraulic Radius, m	Full Bore Velocity (Vc), m/s	Full Bore Capacity (Qc), m^3/s	Design Flow (Q), m^3/s	% of Capcity Flow	Sufficient Capacity (Y/N)
DP1 [from MH1 to Government Manhole FMH4052191]	150	3.85	3.70	0.010	0.015	0.0159	0.47	0.034	0.7	0.0111	0.0005	4%	Y
DP2 [to Government Manhole FMH4019395]	225	3.70	3.67	0.007	0.015	0.0358	0.71	0.051	0.8	0.0270	0.0005	2%	Y

Sewerage Drain Analysis - Sensitivity Test

The bad conditions of common clay drainage tile are considered for the value of n for Manning equation (DSD SM Table 6)

Drain Pipe ID	Nominal Diameter, mm	Upper Invert Level	Lower Invert Level	Gradient	Manning's Roughness Coefficient	Cross Section Area, m^2	Wetted Perimeter, m	Hydraulic Radius, m	Full Bore Velocity (Vc), m/s	Full Bore Capacity (Qc), m^3/s	Design Flow (Q), m^3/s	% of Capcity Flow	Sufficient Capacity (Y/N)
Government Drainpipe FWD4019925 [from Government Manhole FMH4019394 to Government Manhole FMH4019395]	300	3.72	3.67	0.001	0.017	0.0636	0.94	0.068	0.3	0.0197	N/A	N/A	N/A
Government Drainpipe FWD4019926 [from Government Manhole FMH4019395 to Government Manhole FMH4019396]	300	3.67	3.61	0.0012	0.017	0.0636	0.94	0.068	0.3	0.0217	0.0202	93%	Y

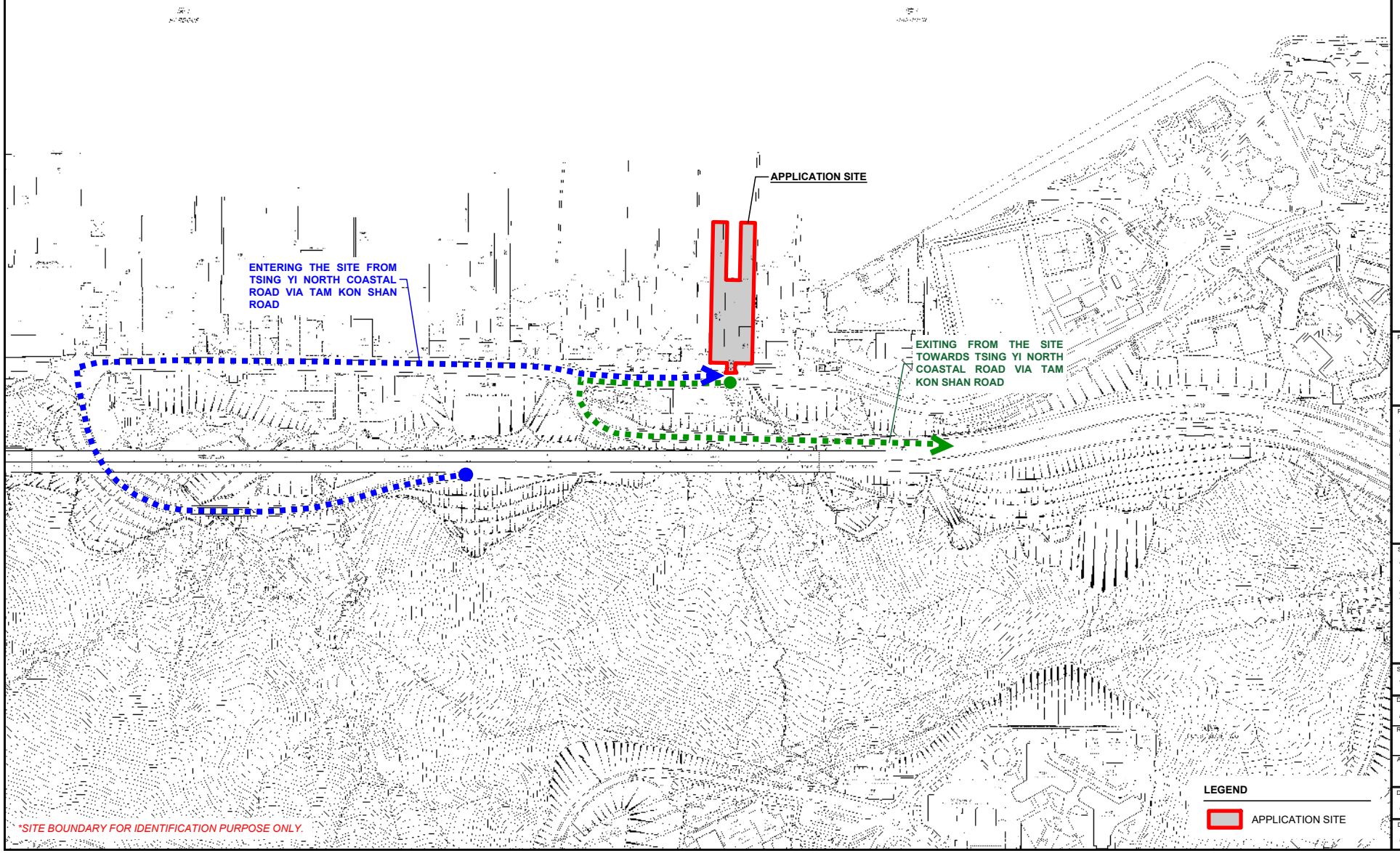
LIST OF PLANS

Plan 1	Location Plan
Plan 2	Plan showing the Zoning of the Site
Plan 3	Plan showing the Land Status of the Site
Plan 4	Aerial Photo of the Site
Plan 5	Layout Plan
Plan 6	Section and Elevation Plan

LOCATION OF THE APPLICATION SITE

APPLICATION SITE AREA : 4,335 m^2 (ABOUT)

- *ENTERING THE SITE FROM TSING YI NORTH COASTAL ROAD VIA TAM KON SHAN ROAD*
- *EXITING FROM THE SITE TOWARDS TSING YI NORTH COASTAL ROAD VIA TAM KON SHAN ROAD*



**SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.*

NORTH
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PLANNING CONSULTANT
R-RICHES PLANNING LIMITED

PROJECT
PROPOSED TEMPORARY CONCRETE BATCHING PLANT FOR A PERIOD OF 5 YEARS

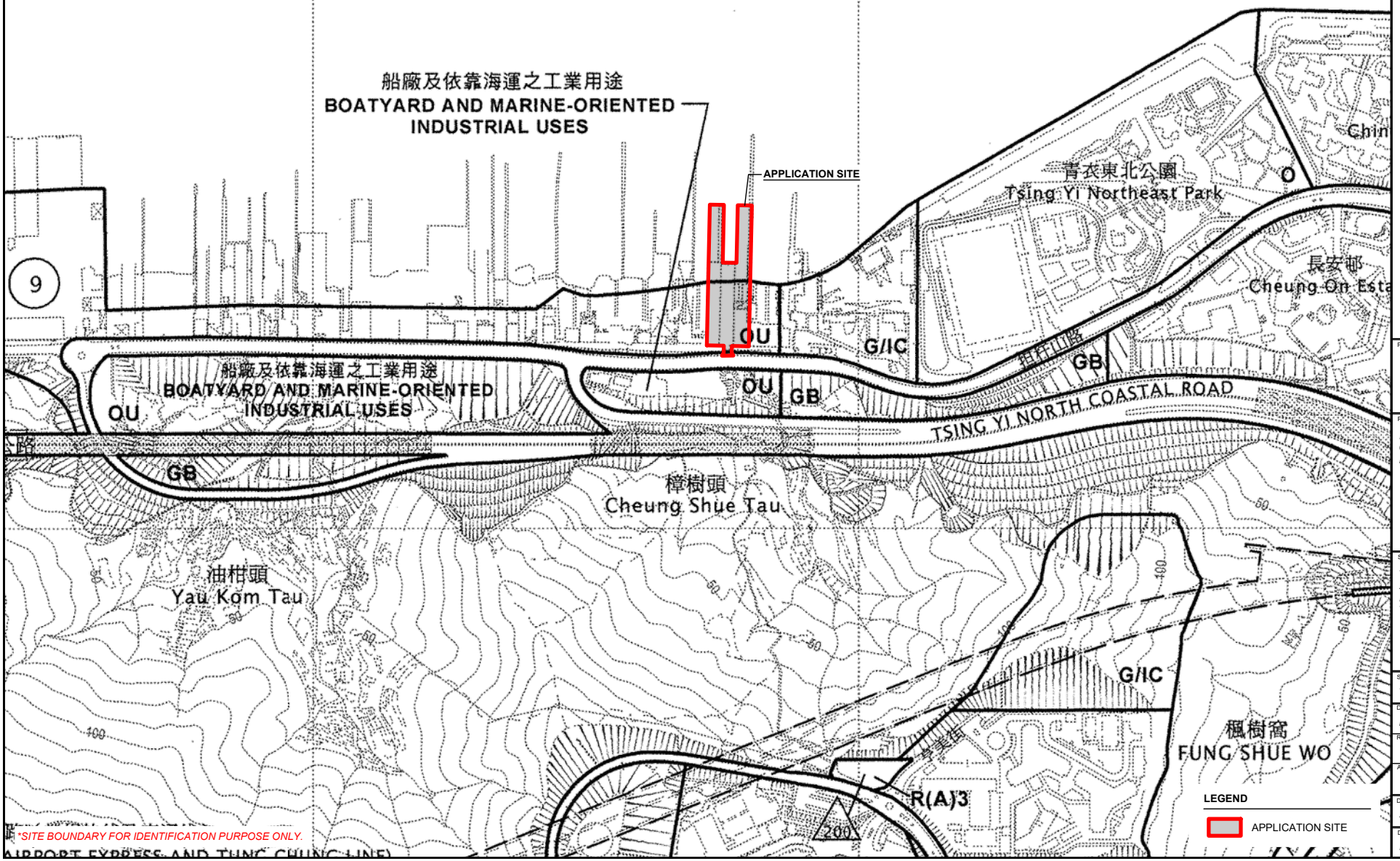
SITE LOCATION
TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE	*1 : 5000 @ A4*
DRAWN BY	*MN*
DATE	*28.4.2025*
REVISED BY	
DATE	
APPROVED BY	
DATE	
DWG. TITLE	*LOCATION PLAN*
DWG NO.	*PLAN 1*
VER.	*1.0*

ZONING OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m^2 (ABOUT)	
OUTLINE ZONING PLAN	: APPROVED TSING YI OZP	
PLAN NO.	: S/TY/32	
ZONING OF THE SITE	: "OTHER SPECIFIED USES" ANNOTATED "BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES"	: 2,213 m^2 (ABOUT)
	AND AREA SHOWN AS 'ROAD'	: 29 m^2 (ABOUT)

ONLY PORTION OF THE SITE (ABOUT 2,242 m^2, 52%) FALL WITHIN THE ABOVE OZP COVERAGE, WHILE THE REMAINING AREA (ABOUT 2,093 m^2, 48%) FALLS OUTSIDE OZP PLANNING SCHEME BOUNDARY.



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LEGEND

APPLICATION SITE

PLANNING CONSULTANT

R-RICHES PLANNING LIMITED

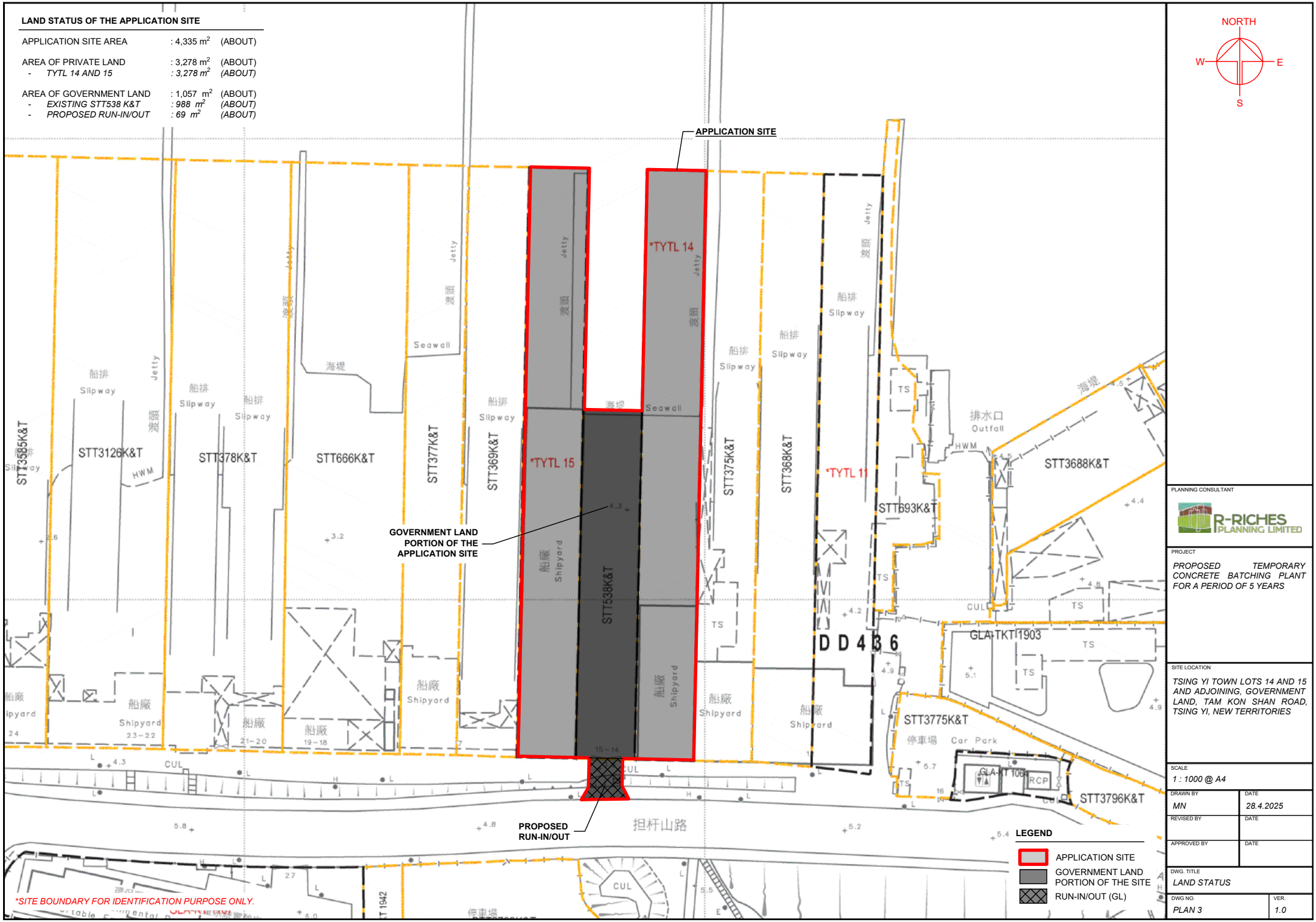
PROJECT

PROPOSED TEMPORARY CONCRETE BATCHING PLANT FOR A PERIOD OF 5 YEARS

SITE LOCATION

TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE	*1 : 5000 @ A4*
DRAWN BY	*MN*
DATE	*28.4.2025*
REVISED BY	
DATE	
APPROVED BY	
DATE	
DWG. TITLE	*ZONING PLAN*
DWG NO.	*PLAN 2*
VER.	*1.0*


LAND STATUS OF THE APPLICATION SITE
APPLICATION SITE AREA : 4,335 m² (ABOUT)
AREA OF PRIVATE LAND : 3,278 m² (ABOUT)
- TYTL 14 AND 15 : 3,278 m² (ABOUT)
AREA OF GOVERNMENT LAND : 1,057 m² (ABOUT)
- EXISTING STT538 K&T : 988 m² (ABOUT)
- PROPOSED RUN-IN/OUT : 69 m² (ABOUT)
APPLICATION SITE
*TYTL 14
*TYTL 15
*TYTL 11
GOVERNMENT LAND PORTION OF THE APPLICATION SITE
PROPOSED RUN-IN/OUT
STT538K&T
STT3585K&T
STT3126K&T
STT378K&T
STT666K&T
STT377K&T
STT369K&T
STT375K&T
STT368K&T
STT693K&T
STT3688K&T
STT3775K&T
STT3796K&T
GLA-TKT1903
GLA-KT 1064
DD 436
Seawall
Jetty
Slipway
Shipyard
Outfall
Car Park
担杆山路
NORTH
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*SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.
LEGEND
APPLICATION SITE
GOVERNMENT LAND PORTION OF THE SITE
RUN-IN/OUT (GL)
PLANNING CONSULTANT
R-RICHES PLANNING LIMITED
PROJECT
PROPOSED TEMPORARY CONCRETE BATCHING PLANT FOR A PERIOD OF 5 YEARS
SITE LOCATION
TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES
SCALE
1 : 1000 @ A4
DRAWN BY
MN
DATE
28.4.2025
REVISED BY
DATE
APPROVED BY
DATE
DWG. TITLE
LAND STATUS
DWG NO.
PLAN 3
VER.
1.0

AERIAL PHOTO OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m^2 (ABOUT)
AERIAL PHOTO NO.	: E211645C
DATE OF AERIAL PHOTO	: 20.11.2023*
SOURCE OF AERIAL PHOTO	: LANDS DEPARTMENT

*LATEST AERIAL PHOTO AVAILABLE ON LANDSD HKMS2.0

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LEGEND

APPLICATION SITE

**SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.*

PLANNING CONSULTANT

R-RICHES PLANNING LIMITED

PROJECT

PROPOSED TEMPORARY CONCRETE BATCHING PLANT FOR A PERIOD OF 5 YEARS

SITE LOCATION

TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE

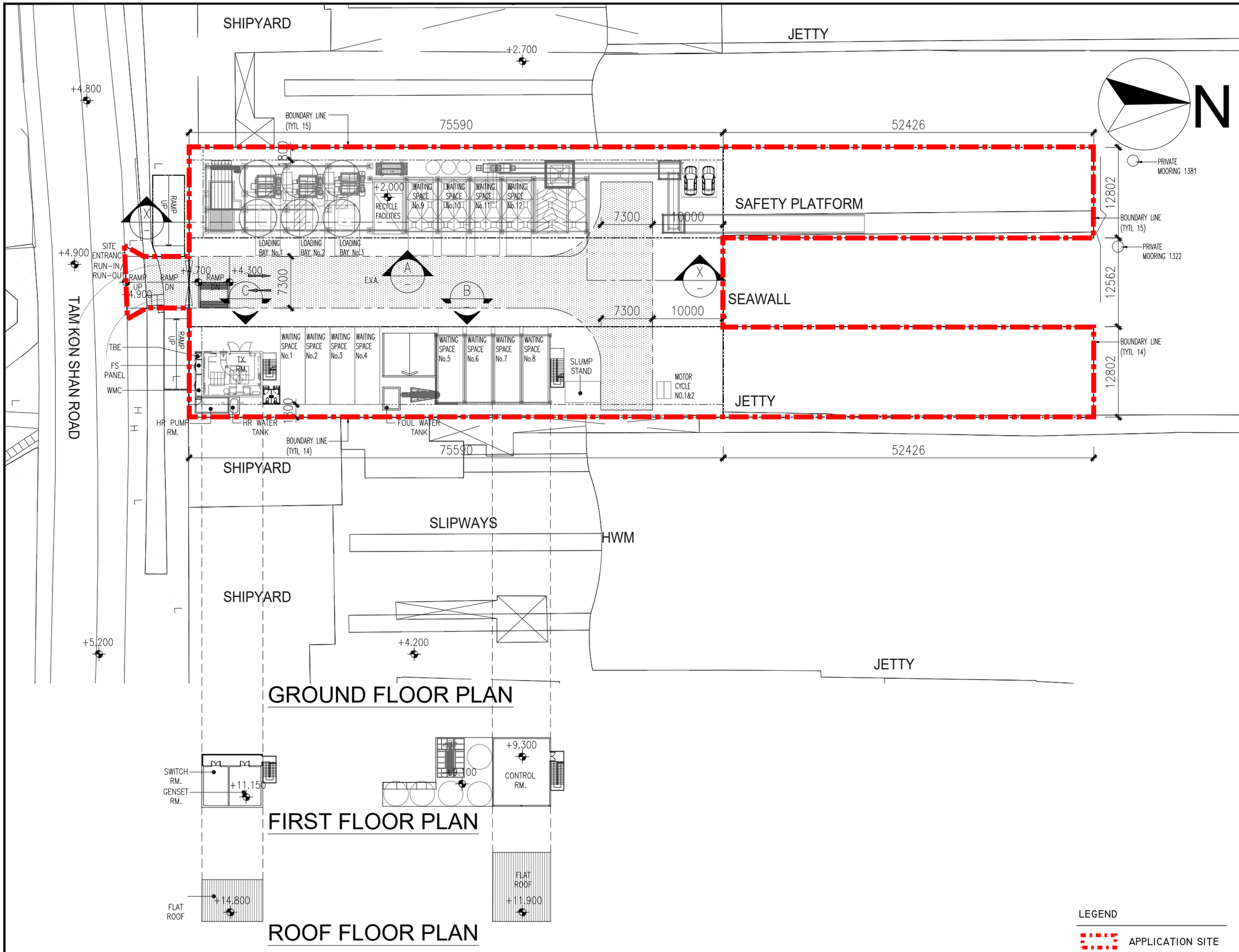
1 : 5000 @ A4

DRAWN BY	DATE
MN	*28.4.2025*
CHECKED BY	DATE
APPROVED BY	DATE

DWG. TITLE

AERIAL PHOTO OF THE SITE

DWG NO.	VER.
PLAN 4	*1.0*



GROUND FLOOR PLAN

FIRST FLOOR PLAN

ROOF FLOOR PLAN

LEGEND

APPLICATION SITE

REV.	DESCRIPTION	DATE	CHK.
–	–	SEP 2024	CP

CLIENT

CONSULTANT

IVIC 思瀛顧問有限公司 CONSULTANCY LIMITED
Workshop 3, 2/F Shun Fat Industrial Building, No.17 Wang Hoi Road, Kowloon Bay, Kowloon
TEL: +852 2540 0686 FAX: +852 2547 6579

SIGNATURE FOR SUBMISSION / CONSTRUCTION

DESIGNED:	CP
DRAWN :	–
CHECKED :	CP
APPROVED :	–

PROJECT :

PROPOSED TEMPORARY CONCRETE BATCHING PLANT AT TSING YI TOWN LOTS 14 AND 15 AND ADJOINING GOVERNMENT LAND

DRAWING TITLE :

G/F LAYOUT PLAN

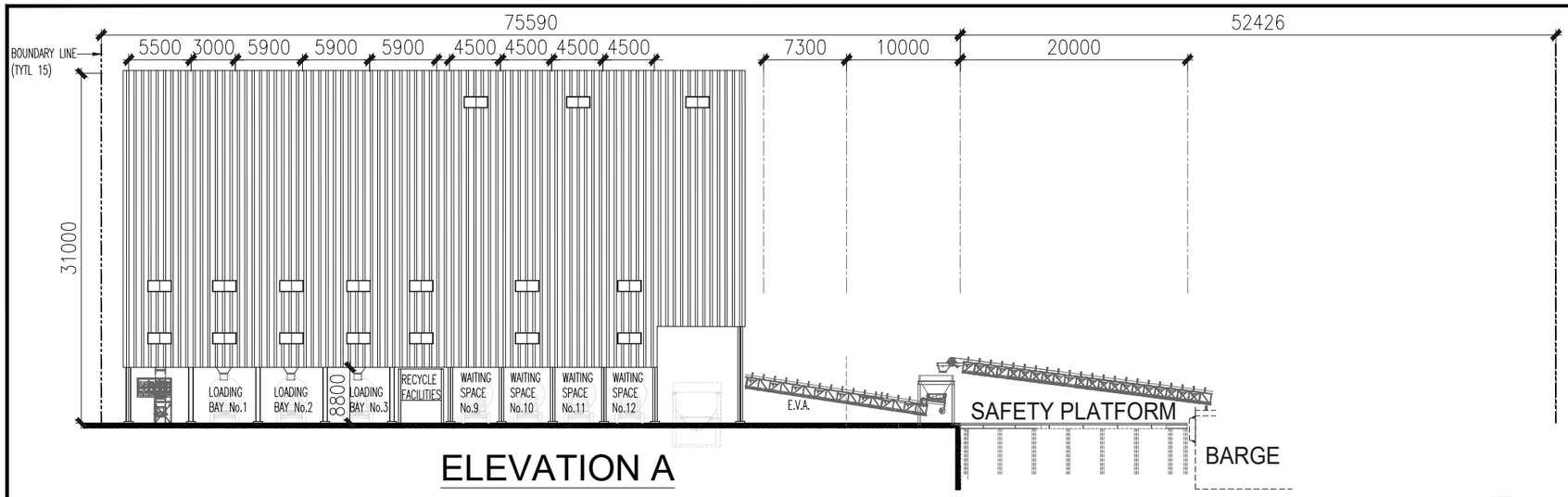
JOB NUMBER :	SHEET NUMBER :
–	

SCALE: 1:500

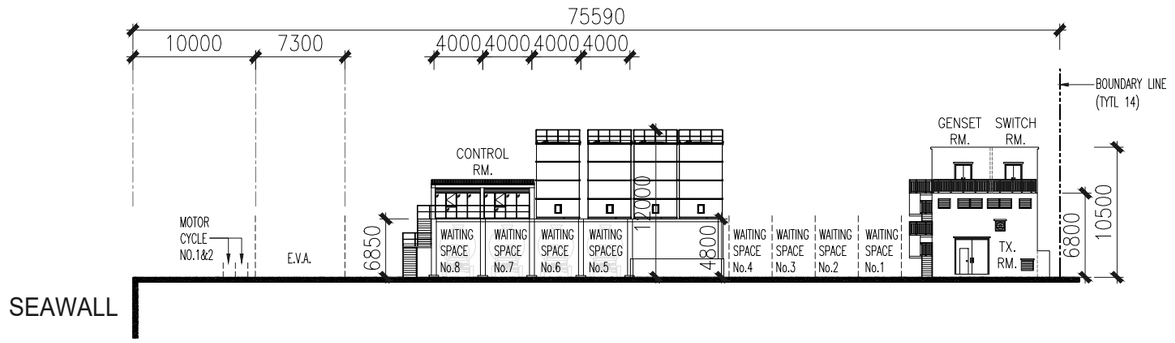
DRAWING No. :	REV.
PLAN 5	–

INFORMATION CLASSIFICATION: PROPRIETARY

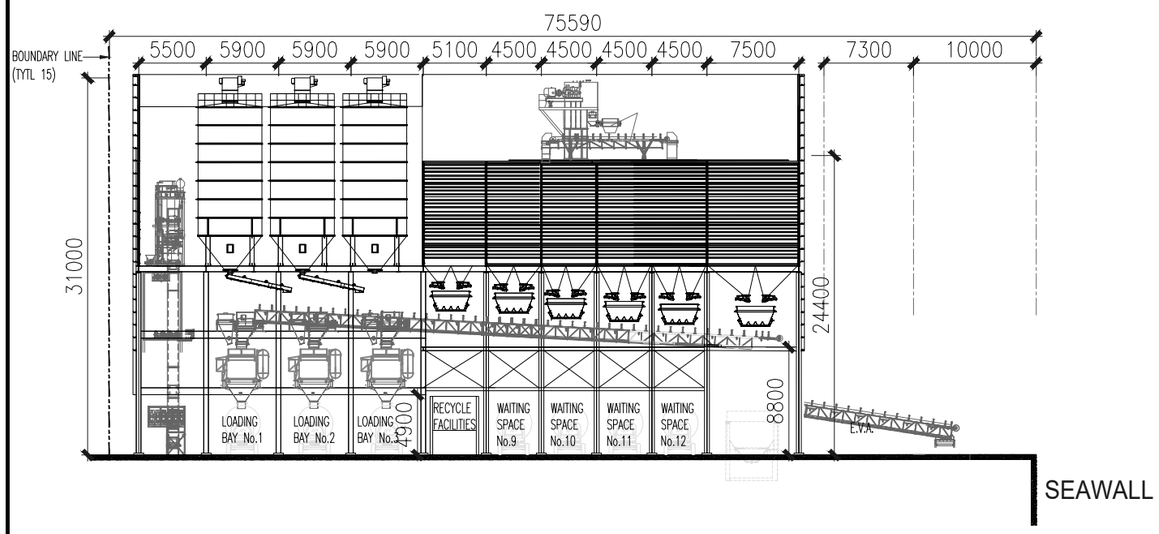
ALL RIGHTS RESERVED AND REPRODUCTION IN ANY FORM MUST BE APPROVED BY CLP POWER



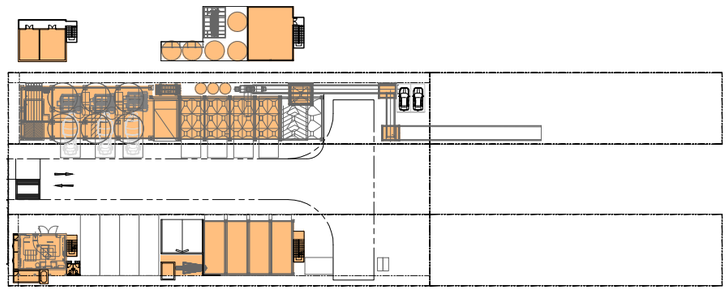
ELEVATION A



ELEVATION B

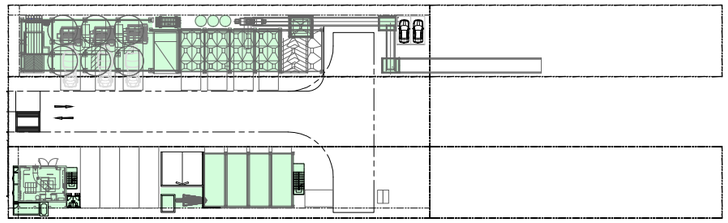


SECTION X-X



G.F.A. CALCULATION

1	GRD FL.	=	93 SQ.M.
2	GRD FL.	=	195 SQ.M.
3	GRD FL.	=	17 SQ.M.
4	GRD FL. x2	=	17 SQ.M.
5	1ST FL.	=	51 SQ.M.
6	1ST FL.	=	80 SQ.M.
7	GRD FL.	=	408 SQ.M.
8	1ST FL. x5	=	48 SQ.M.
9	GRD FL. x3	=	9 SQ.M.
10	1ST FL.	=	408 SQ.M.
11	MEZZ. FL.	=	137 SQ.M.
	TOTAL	=	1463 SQ.M.



SITE COVERAGE CALCULATION

1		=	93 SQ.M.
2		=	194 SQ.M.
3		=	17 SQ.M.
4	x2	=	17 SQ.M.
5		=	408 SQ.M.
6	x3	=	9 SQ.M.
	TOTAL	=	738 SQ.M.

REV.	DESCRIPTION	DATE	CHK.
–	–	SEP 2024	CP

CLIENT

CONSULTANT

思滙顧問有限公司
IMC CONSULTANCY LIMITED
Workshop 3, 2/F Shun Fat Industrial Building,
No.17 Wang Hoi Road, Kowloon Bay, Kowloon
TEL: +852 2540 0686 FAX: +852 2547 6379

SIGNATURE FOR SUBMISSION / CONSTRUCTION

DESIGNED:	CP
DRAWN :	–
CHECKED :	CP
APPROVED :	–

PROJECT :

PROPOSED TEMPORARY CONCRETE BATCHING PLANT AT TSING YI TOWN LOTS 14 AND 15 AND ADJOINING GOVERNMENT LAND

DRAWING TITLE :

ELEVATION A,B , SECTION X–X & CALCULATIONS

JOB NUMBER :	SHEET NUMBER :
–	

SCALE: 1:500

DRAWING No. :	REV.
PLAN 6	–

INFORMATION CLASSIFICATION: PROPRIETARY

ALL RIGHTS RESERVED AND REPRODUCTION IN ANY FORM MUST BE APPROVED BY CLP POWER

R-RICHES PLANNING LIMITED

盈卓規劃有限公司

Our Ref.: TYTL14, 15 - CBP in TY
Your Ref.: TPB/A/TY/150

The Secretary,
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road,
North Point, Hong Kong

By E-mail

15 May 2025

Dear Sir,

Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Area shown as 'Road' and Area not Covered by Statutory Plan, Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

(S.16 Planning Application No. A/TY/150)

We write to provide clarifications for the captioned application submitted to the Town Planning Board on 2.5.2025.

As per the request of the Planning Department, the plot ratio and site coverage of the proposed development shall be revised to **0.34** and **17%** respectively for the purpose of the planning application.

Should you require more information regarding the application, please contact our Mr. Christian CHIM at (852) 2339 0884 / christianchim@r-riches.com.hk or the undersigned at your convenience. Thank you for your kind attention.

Yours faithfully,

For and on behalf of
R-riches Planning Limited

R-riches Planning Limited 盈卓規劃有限公司

Christian CHIM
Town Planner

香港新界錦田吉慶圍 236 號盈匯坊 D 座
Block D, The Richfield, 236 Kat Hing Wai, Kam Tin, NT, HK
(852) 2339 0884
(852) 6345 7884
(852) 2323 3662
matthewng@r-riches.com.hk

R-RICHES PLANNING LIMITED

盈卓規劃有限公司

Our Ref. : TYTL14, 15 - CBP in TY
Your Ref. : TPB/A/TY/150

The Secretary,
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road,
North Point, Hong Kong

By E-mail

18 June 2025

Dear Sir,

Further Information

Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Area shown as 'Road' and Area not Covered by Statutory Plan, Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

(S.16 Planning Application No. A/TY/150)

We write to submit further information in response to the departmental comments on the captioned application.

Should you require more information regarding the application, please contact our Mr. Danny NG at [redacted] or the undersigned at your convenience. Thank you for your kind attention.

Yours faithfully,

For and on behalf of
R-riches Planning Limited

Christian CHIM
Town Planner

cc DPO/TWK, PlanD (Attn.: Mr. W.C. LUI email: wclui@pland.gov.hk)
(Attn.: Mr. Cecil CHOW email: cccchow@pland.gov.hk)
(Attn.: Mr. Norris CHUNG email: npwchung@pland.gov.hk)

香港新界錦田吉慶圍 236 號盈匯坊 D 座
Block D, The Richfield, 236 Kat Hing Wai, Kam Tin, NT, HK
[redacted]

Response-to-Comment

Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Area shown as 'Road' and Area not Covered by Statutory Plan, Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

(Application No. A/TY/150)

(i) The applicant provides the following information in support of the application:

- with the planned development in San Tin Technopole and the continued developments in various NDAs, it is foreseeable that the amount of construction works and the demand for ready-mixed concrete arising from public and private planned development projects shall remain high; and

- the proposed development of a new concrete batching plant is therefore expected to meet the ever-growing demand of local ready-mixed concrete induced by various infrastructural projects and residential developments in Hong Kong.

(ii) A RtC table:

	Departmental Comments	Applicant's Responses
1. Comments of the Environmental Protection Department (EPD)		
(a)	Section 2.4 and Section 3: For the avoidance of doubt, please revise "drainage impact" to "sewerage impact" in Section 2.4 and Section 3.	Noted. The Sewage Impact Assessment report has been revised accordingly (**Annex 1**).
2. Comments of the Port Works Division, Civil Engineering Development Department (PWD, CEDD)		
(a)	PWD, CEDD wishes to remind the applicant that the structural integrity and stability of the existing marine structures/seawall must not be compromised during the construction or operation of the proposed works. Should any damage to these structures occur as a result of the works or related activities, the applicant will be fully responsible for repairing the damage at their own cost.	Noted. The applicant will keep monitoring the structural integrity and stability of the existing marine structures/seawall during the construction or operation of the proposed works. Should any damage to these structures occur as a result of the works or related activities, the applicant will be fully responsible for repairing the damage at our own cost.

Departmental Comments		Applicant's Responses
3. Comments of the Planning Department (PlanD)		
(a)	Table 1 and Table 3 of Supporting Planning Statement – The Consultant may wish to include the building height (BH) of the proposed temporary development in mPD for the sake of clarity.	The building height is at around 35.3 mPD (31 m plus 4.3 m) measured from Ground Floor i.e. 4.3 mPD.
4. Comments of the Water Supplies Department (WSD)		
(a)	Refer to the proposed site layout plan, it is noted that part of the existing public road may become part of the land lot serving as a private run in/out with additional ramp. This may affect our existing water mains (see WSD Mains Record Plan attached) and the associated operation and maintenance works.	The project team confirms that there is no intention to alter the current status or conditions of the existing public road. The existing access arrangement will be maintained in its current form as far as practicable. Detailed design will carefully take into account the locations of the existing water mains as shown in the WSD Mains Record Plan. Coordination with the WSD will be carried out as necessary during the design development stage to ensure protection of existing utilities and to facilitate future operation and maintenance activities.
(b)	The applicant should clarify that the proposed run-in-out will not become a private road.	The project team confirms that there is no intention to convert the existing public road, including the proposed run-in/out, into a private road. The current access arrangement will be maintained as far as practicable.
(c)	If the run-in-out will maintain a public road, as this part of walkway will become a carriageway, applicant shall confirm this section of road can complied with WSD's requirement on the minimum depth requirements as stipulated in our *'Manual of Mainlaying Practice'* as well as Highways Department (HyD)'s minimum depth for underground services. Hence the existing water mains can be protected.	During the detailed design stage, the project team will ensure compliance with the WSD's minimum depth requirements as stipulated in the *'Manual of Mainlaying Practice'*, as well as relevant HyD standards for underground services. The design will take into careful consideration the locations of existing water mains as shown in the WSD Mains Record Plan. The project team will coordinate with WSD as necessary throughout the design development process to ensure the protection of existing water mains and adherence to all applicable requirements.

Departmental Comments		Applicant's Responses
5. Comments of the Electrical and Mechanical Services Department (EMSD)		
(a)	In the interests of public safety and ensuring the continuity of electricity supply, the parties concerned with planning, designing, organising and supervising any activity near the underground cable or submarine cable under the mentioned document should approach the electricity supplier (i.e. CLP Power) for the requisition of cable plans to find out whether there is any underground cable and/or submarine cable within and/or in the vicinity of the concerned site. They should also be reminded to observe the *Electricity Supply Lines (Protection) Regulation* and the *"Code of Practice on Working near Electricity Supply Lines"* established under the Regulation when carrying out works in the vicinity of the electricity supply lines, and be reminded to enquire the electricity supplier for the required precautionary measures for work near submarines cable and to execute them during design and construction.	Noted. The applicant will enquire the electricity supplier to find out whether there is any underground cable and/or submarine cable within and/or in the vicinity of the Site well before carrying out works and execute required precautionary measures for work near submarines cables during design and construction.
6. Comments of the Fire Services Department (FSD)		
(a)	Detailed fire services requirements will be formulated upon receipt of formal submission of STT/STW, general building plans or referral of application via relevant licensing authority as appropriate. Furthermore, the EVA provision in the captioned work shall comply with the standard as stipulated in Section 6, Part D of the Code of Practice for Fire Safety in Buildings 2011, which is administered by the Buildings Department.	Noted.

Departmental Comments		Applicant's Responses
7. Comments of the Buildings Department (BD)		
(a)	It is noted that the temporary concrete batching plant is proposed in the captioned application. Before any new building works (including containers/open sheds as temporary buildings, demolition and load filling etc.) are to be carried out on application site, prior approval and consent of the Building Authority (BA) should be obtained, otherwise they are unauthorised building works (UBW) under the Buildings Ordinance (BO). An Authorised Person should be appointed as the coordinator for the proposed building works in accordance with the BO.	Noted.
(b)	The application site abuts a specified street (Tam Kon Shan Road) of not less than 4.5 m wide. Its permitted development intensity shall be determined under the First Schedule of the Building (Planning) Regulation (B(P)R) at the building plan submission stage;	
(c)	If the structure is erected on leased land without approval of the BA, they are UBW under the BO and should not be designated for any proposed use under the captioned application.	
(d)	For UBW erected on leased land, enforcement action may be taken by the BD to effect their removal in accordance with the prevailing enforcement policy against UBW as and when necessary. The granting of any planning approval should not be construed as an acceptance of any existing building works or UBW on the application site under the BO.	

Departmental Comments		Applicant's Responses
8. Comments of the Marine Department (MD)		
(a)	For the proposed dredging of the seabed to a depth of 3.8 metres, all statutory requirements must be followed.	Noted. All statutory requirements related to dredging works will be strictly followed in accordance with relevant government regulations and procedures.
(b)	The applicant should liaise with the Lands Department to arrange a "blue area" to allow sufficient space for safe berthing in future.	Noted. The applicant will liaise with the Lands Department to explore the designation of a "blue area" to ensure sufficient safe berthing space for the proposed operations.
(c)	The project proponent should be reminded that their barging operations must not impede the existing private mooring (PM) owners (PM Nos. 1322 and 1381) from using their moorings. Consent from the PM owners must be obtained for the barging operation.	The applicant is currently liaising with the respective buoy owners to obtain written confirmation of no objection to the proposed use of the adjacent waters for marine operations. Preliminary discussions have been conducted, during which the buoy owners expressed no objection in principle to the proposed arrangements. While formal consent is being arranged, no major concerns are anticipated, and the applicant will continue to coordinate closely to ensure alignment and avoid any future operational conflict.
(d)	The proposed project will introduce new marine traffic, including 50-meter-long cement carriers to the concerned waters. Given the relatively strong tidal currents, the restricted manoeuvring space, and the presence of various nearby private mooring buoys and piers accommodating different types of vessels with frequent maritime activities, Marine Traffic Impact Assessment (MTIA) shall be conduct to detail the marine operations in both construction and operational stage, access impact to existing marine traffic and finally to recommend mitigation measure to the risk. The current Barging Operation Plan for the construction-related activities or the number of vessels involved. Addressing these aspects will be critical to ensuring the safe and efficient management of marine traffic during the project's implementation.	MTIA will be prepared to account for site-specific conditions such as tidal currents, navigational constraints, and interactions with existing marine users. Additional time is required to undertake the necessary analysis and coordination with relevant stakeholders. It is therefore proposed that the MTIA be incorporated as an approval condition, so that the assessment can be conducted with sufficient technical depth and in accordance with relevant regulatory requirements and operational considerations.

<table>
<tr><th colspan="2">Departmental Comments</th><th>Applicant's Responses</th></tr>
<tr><td colspan="3">9. Comments of the Transport Department (TD)</td></tr>
<tr><td>(a)</td><td>Compared to the previously planning application (No. A/TY/134) which featured a similar GFA and site configurations, the concrete production rate has increased remarkably from 700 m^3 per day to 300 m^3 per hour. This represents a substantial escalation in traffic generation and attraction, which warrants thorough review.</td><td>As illustrated in the Table 4.1 in the Traffic Impact Assessment (TIA), the anticipated peak hourly development trips have already taken into account the effect of a heightened concrete production rate of 300 m^3 per hour.

Table 4.1 Development Traffic Generation
<table><tr><th rowspan="2">Use</th><th colspan="3">Generation</th><th colspan="3">Attraction</th></tr><tr><th>AM Peak</th><th>Noon Peak</th><th>PM Peak</th><th>AM Peak</th><th>Noon Peak</th><th>PM Peak</th></tr><tr><td>Private Car Trips (pcus/ hour) [a]</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Concrete Mixer Truck Trips (pcus/ hour) [b]</td><td>121</td><td>121</td><td>121</td><td>121</td><td>121</td><td>121</td></tr><tr><td>Total(pcus/ hour)</td><td>123</td><td>123</td><td>123</td><td>123</td><td>123</td><td>123</td></tr></table>
(a) Information provided by the Applicant.

(b) The no. of concrete mixer truck generated/attracted by plant = design production capacity/capacity of a concrete mixer truck x 2.8 pcu factor = (300 m^3 per hour/7 m^3) x 2.8 pcu = 121 pcus per hour.

As depicted in Section 4.6 of the TIA, the findings of both the junction capacity assessment and the link capacity assessment indicate that the capacities of all key junctions and key links are expected to function adequately during peak periods in future traffic flows, including the trip generation and attraction associated with the development (Design Scenario).</td></tr>
<tr><td>(b)</td><td>With reference to Table 4.1 and Section 6.4 of the Traffic Impact Assessment (TIA), given the narrow site layout and the use of a hammerhead as turn-around facility, a queuing analysis is required to demonstrate that the proposed provision of 3 HGV loading/ unloading bay and 12 HGV waiting spaces can accommodate the peak traffic volumes without causing queuing onto adjacent public roads.</td><td>As shown in Section 5.2 in the TIA, the design includes 12 dedicated waiting spaces for heavy goods vehicles, such as concrete mixer trucks, ensuring that vehicles can park within the site while awaiting their turn for loading or unloading operations. This provision is critical in maintaining traffic flow along the surrounding public roads, as it eliminates the risk of vehicles queuing or waiting on Tam Kon Shan Road.

A comprehensive queuing analysis has been conducted to evaluate the loading/unloading bays' functionality. The results, presented in</td></tr>
</table>

		Appendix B in TIA, confirm that the probability of queuing on public roads is negligible (less than 0.003%). It indicates a confidence level exceeding 99.9% that there will be no traffic queuing on public roads. Consequently, the proposed internal transport provisions are deemed adequate for the proposed development. Moreover, as present in Section 6.2 in the TIA, a well-designed operation procedure is derived to ensure the smooth loading/unloading activities by maintaining consistent communication between drivers and site management.

(iii) The applicant provides the following information in response to the comments received during the public inspection period of the application:

1. Statutory aspect

- the application site (the Site) partly falls within an area zoned "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" ("OU(BMIU)") and an area shown as 'Road' on the Approved Tsing Yi Outline Zoning Plan (OZP) No. S/TY/32, and partly falls outside the OZP planning scheme boundary. According to the Notes of the OZP, the applied use is a Column 2 use within the "OU(BMIU)" zone, which may be permitted with or without conditions on application to the Town Planning Board under section 16 of the Town Planning Ordinance; and

- the planning intention of the "OU(BMIU)" zone is intended primarily for boatyard and **marine-oriented industrial uses**. The proposed development is considered in line with marine-oriented industrial uses and is not incompatible to the surrounding area, which is predominantly surrounded by industrial-related activities, boatyards, cement silos, and concrete batching plants;

2. Traffic safety aspect

- the **Traffic Impact Assessment** has proven that all key junctions and road links perform satisfactorily during peak hours in the assessment year of 2029. It has concluded that no adverse traffic impact arising from the proposed development is anticipated;

- no vehicle will be allowed to turn left while leaving the Site. All vehicles will be required to follow the designated route between Tsing Yi North Coastal Road and the section of Tam Kong Shan Road to the west of the Site. As such, the designated route will not pass through the section of Tam Kon Shan Road to the east of the Site. Given the remote distance (i.e. at least 200 m away from the nearest recreation facility and 500 m from the nearest residential building) and the lack of traffic interface, it is not anticipated that the traffic generated/attracted by the proposed development would impose any hazard to users of Tsing Yi Northeast Park and nearby residents; and

- the proposed development includes 12 dedicated waiting spaces for heavy goods vehicles, such as concrete mixer trucks, ensuring that vehicles can park within the Site while awaiting their turn for loading or unloading operations. This provision is critical in maintaining traffic flow along the surrounding public roads, as it helps eliminate the risk of vehicles queuing or waiting on Tam Kon Shan Road or other access routes. Hence, the concerns on illegal parking of concrete trucks of the proposed development along public road/on pedestrian path is not envisaged;

3. Environmental aspect

- in order to confirm the acceptability of the Site in respect of environmental aspects, an **Environmental Assessment** was carried out to examine the impacts associated with the proposed development during construction and operation phases. Potential environmental impacts including air quality, noise, water quality, waste management, and land contamination issues associated with construction and operation of the proposed development have been assessed. It has concluded that no adverse environmental impact on the Site would be anticipated;

- the estimated design peak flow and estimated average dry weather flow from the proposed development will be minimal. The effluent is proposed to be discharged to the public sewer. With the provision of proposed sewerage connection and the sensitivity test analysis for the existing sewerage system as discussed in the **Sewage Impact Assessment**, no adverse sewerage impact arising from the proposed development should be expected; and

- a drainage system has been designed to ensure that the stormwater runoff does not surpass 70% of its total capacity, effectively collecting the rainfall within the proposed development and discharging the runoff into government drainage system. The results of the **Drainage Impact Assessment** have revealed that there will be no significant drainage impact on the Site; and

4. Marine aspect

- although the Site was subject of a previous application rejected by the Metro Planning Committee in 2018 on the ground that the applicant could not demonstrate that the proposed barging operation will not have adverse impact on marine safety and the shipyards nearby, the applicant has provided a revised **Barging Operation Plan** in response to departmental concerns. Under the current proposal, vessels for delivering raw materials would remain stable and correctly align during the unloading of cement and aggregate operations;

- the operation of the proposed development will strictly comply with relevant statutory procedures, environmental legislation, and guidelines. No sewage effluents, aggregates, cement, and concrete product will be allowed to be disposed into the marine frontage;

- sedimentation has reduced the nearshore water depth at the barging point to below the level required for safe batching operations. To remedy this, maintenance dredging is considered necessary to remove the accumulated sediment and restore adequate water depth for vessel navigation. To accommodate tidal variations and provide a safety margin, a water depth of around 3.8 m (at Chart Datum) will generally be maintained for operations involving a Pelican Aggregate Barge. It ensures that, even under varying conditions, there will be adequate clearance for safe navigation; and

- mitigation measures including deployment of silt curtain will be implemented during the maintenance dredging works. A silt curtain deployment plan should be submitted to the Environmental Protection Department prior to the commencement of the maintenance dredging works. The maintenance dredging works should be carried out in dry season to further minimise the potential water quality impact.

Annex 1

Revised Sewage Impact Assessment

Sewage Impact Assessment For Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

SEWAGE IMPACT ASSESSMENT REPORT

Reference: 31048-R05-03
Date: May 2025

AXON
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Appendix A Calculations of Wastewater Generation

Appendix B Sewerage Drain Analysis

1 Introduction

1.1 Background

The Applicant intends to seek Town Planning Board ("TPB") approval for a Proposed Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lots (TYTL) 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi (hereafter "the proposed development").

In the Approved Tsing Yi Outline Zoning Plan No. S/TY/32 (referred to as the "OZP"), the Application Site is zoned as "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses". According to the Schedule of Uses outlined in the OZP, the intended use of a Concrete Batching Plant falls under Column 2 uses. Consequently, obtaining planning permission from TPB is necessary for the proposed temporary concrete batching plant under Section 16 of the Town Planning Ordinance.

As there is a public sewer system currently available in the vicinity of the subject site, it is necessary to propose a sewerage connection between the proposed development and the public sewer.

AXON Engineering & Consulting Limited (AXON) was commissioned to carry out a Sewage Impact Assessment (SIA) report to review and recommend appropriate sewage treatment and disposal scheme.

1.2 Objectives

The objectives of the SIA are as follow:

- to estimate the sewage generation; and
- to examine the impact arising from the estimated sewage on the proposed sewerage connection and existing sewer system.

1.3 References

Reference is made to the following document:

1. Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (GESFSIP) (Version 1.0), EPD; and

2. Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM), EPD; and

3. Sewerage Manual – Key Planning Issues and Gravity Collection System (Sewerage Manual) (3rd edition), Drainage Services Department (DSD), May 2013.

2 Baseline Conditions and Review Methodology

2.1 Site Description

The Application Site has an approximate area of 4,335m^2 and is bounded by TYTL 14, TYTL 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi. The site location is shown in **Figure 2.1**.

2.2 Evaluation of Wastewaters Generation

The Concrete Batching Plant (CBP) is designed to include three production lines, achieving an overall processing capacity of 300 cubic meters per hour and 4,200 cubic meters per day. The concrete batching procedure primarily entails the management of raw materials from their delivery to storage, followed by the respective weigh hoppers, concrete batch mixers, and ultimately the loading of the mixed concrete onto mixer trucks for distribution.

The concrete batching and ground washing processes are designed to generate no effluent. As outlined in the environmental assessment of this Concrete Batching Plant, the project proponent will adopt a "Zero Discharge Strategy" for these operations: water used for ground washing will be collected and transferred to wastewater tanks for reuse in truck washing or recycled for concrete production. Additionally, concrete waste will be collected by a concrete reclaimer, which will separate the cement slurry water from the aggregates. The cement slurry water will subsequently be treated through a filter press to extract cement particles, enabling the clear water to be recycled for site cleaning, dust control or even concrete production.

The main types of wastewaters generated by the proposed development will be sewage from on-site staff and visitors (concrete mixer truck drivers). To estimate sewage generation, the following assumptions were made:

- The proposed development will have 15 on-site staff and 600 visitors per day, which is derived from dividing the daily concrete production (4,200 cubic meters) by capacity of concrete mixer trucks (7 cubic meters)
- For on-site staff, the combined UFF of 0.230m³/person/day is used to calculate sewage generation for the on-site staff, based on the Commercial Employee and Commercial Activities J9 (Construction) in Table T-2 of GESFSIP.

- For visitor, the combined UFF of 0.0026m^3/person/visit (= 200mL micturition + 1L flushing + 1.4L handwashing) is used to calculate sewage generation for the based on the (1) Human's micturition is assumed to be 200mL in accordance with P.3081 of Magill's Medical Guide, 6th edition; (2) Volume of flushing system as advised by the supplier; and (3) Volume of handwashing system in accordance with BEAM Plus New Buildings Version 1.2 in July 2012.

As calculated in **Appendix A**, the estimated Average Dry Weather Flow (ADWF) is 5.01m³/day and the Design Peak Flow is 0.0005m³/second, respectively.

2.3 Proposed Sewerage Connection and Calculation

It is essential to highlight that sufficient foul water manholes from the Drainage Services Department (DSD) are situated along Tam Kon Shan Road. A proposed sewerage connection, consisting of a 150mm underground pipe, aims to connect the public sewer to the manhole within the planned development, and a 225mm underground pipe functions for enhancing existing government pipes FMD4003000. Manning's Equation for calculating the pipe capacities was adopted for this analysis:

$$V = \frac{R^{2/3} S^{1/2}}{n}$$

where V = mean velocity, m/s
S = slope of the total energy line
n = Manning's roughness coefficient
R = hydraulic radius, m

A Manning's roughness coefficient of 0.015 was utilized to determine the capacities of the new concrete drainpipe, reflecting the assumption of the concrete pipe being in fair condition.

The proposed layout plan for the sewerage connection, along with comprehensive calculations, can be found in **Figure 2.2** and **Appendix B**, respectively. Pipe DP1 establishes a direct link between the Manhole MH1 located on the Site and the Government Foul Water Manhole FMH4052191, whereas Pipe DP2 enhances two existing 150mm government pipes FMD4003000 by replacing them with a 225mm diameter pipe that offers greater hydraulic capacity and improved self-cleaning properties. A summary of pipe's capacity is outlined in **Table 2.1**.

Table 2.1 Capacities of the Pipes

Type	ID	Capacity, m^3/s	Design Peak Flow, m^3/s	% of Capacity Flow	OK? (Y/N)
Underground Pipe (150 mm)	DP1	0.0111	0.0005	4%	Y
Underground Pipe (225 mm)	DP2	0.0270	0.0005	2%	Y

As depicted in **Table 2.1**, the proposed sewerage connection is designed to ensure that the peak design flow does not its total capacity, effectively discharging the sewage produced by the proposed development.

2.4 Sensitivity Test

An evaluation of the sewerage impact of the proposed development on the existing sewer system has been conducted through a sensitivity test for the public foul water drainpipe FWD4019926, which connects the government foul water manholes FMH4019395 and FMH4019396. The boundaries of assessment for sensitivity test are depicted in **Figure 2.3**, including the upstream catchments (nearby developments along Tam Kon Shan Road) and encompassing the public sewer network between FMH4019445 and FMH4019396.

In a conservative approach, the upstream flow resulting from the nearby development along Tam Kong Shan Road is assumed to equal the full bore capacity of the upstream public foul water drainpipe FWD4019925, which is $0.0197m^3/s$, as indicated in the calculations sheet found in **Appendix B**. The design peak flow for the sensitivity test is the total of this maximum capacity of pipe FWD4019925 and the design peak flow from the proposed development, amounting to $0.0202m^3/s$.

A Manning's roughness coefficient of 0.017 was applied to evaluate the capacities of the public clay drainpipe FWD4019926, which reflects the assumption that the common clay drainage tile is in poor condition. A summary of the sensitivity test results for drainpipe FWD4019926 is provided in **Table 2.2**, with detailed calculations available in **Appendix B**.

Table 2.2 Capacities of the Pipes (Sensitivity Test)

Type	ID	Capacity, m^3/s	Design Peak Flow, m^3/s	% of Capacity Flow	OK? (Y/N)
Underground Pipe (300 mm)	Government Drainpipe FWD4019926	0.0217	0.0202	93%	Y

As depicted in **Table 2.3**, the public foul water drainpipe FWD4019926 possesses adequate hydraulic capacity to accommodate both the foul water from the upstream catchment area and the wastewater generated by the proposed development. As a result, no adverse sewerage impact will arise from the proposed development.

3 Summary and Conclusions

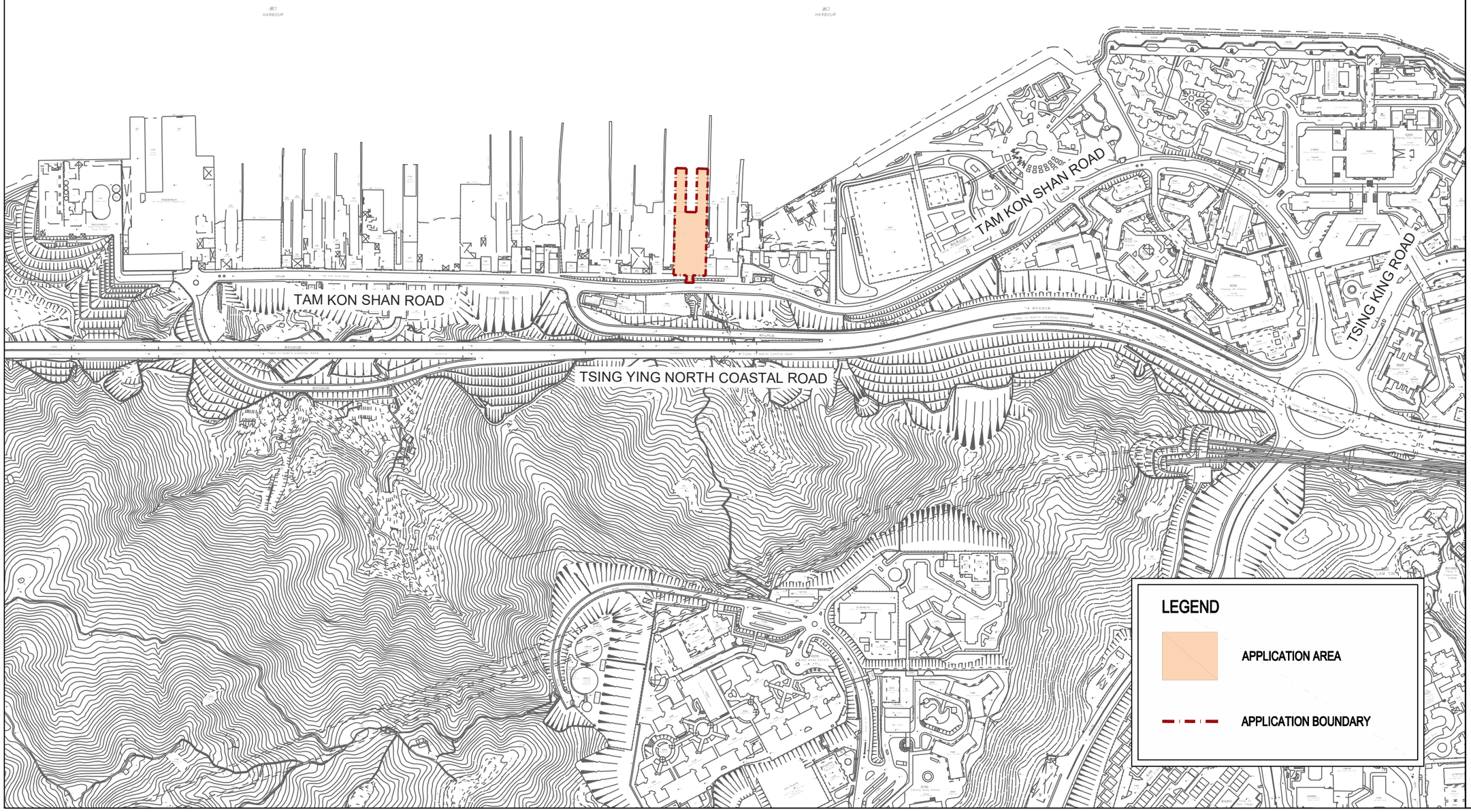
The Applicant intends to seek Town Planning Board ("TPB") approval for a Proposed Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lots (TYTL) 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi.

The estimated Design Peak Flow and Estimated Average Dry Weather Flow (ADWF) from the proposed development are estimated to be 0.0005m³/second and 5.01m³/day, respectively. The effluent is proposed to be discharged to the public sewer.

With the provision of proposed sewerage connection mentioned in **Section 2.3** and the sensitivity test analysis for the existing sewerage system discussed in **Section 2.4**, no adverse sewerage impact will arise from the proposed development.

Figures

Sewerage Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories



SITE LOCATION

FIGURE 2.1

Scale : 1:5000 (A3)

Date : APR 2025

Rev. :

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C:\USERS\USER\DESKTOP\31048\DATA\DRAWINGS\AI\FIGURE 2.1.DWG

Sewerage Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

PROPOSED SEWERAGE CONNECTION

FIGURE 2.2

Scale : 1:600 (A3)

Date : MAY 2025

Rev. : A

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C:\USERS\USERDESKTOP\31048\DATA\DRAWINGS\AI\FIGURE-2.2.DWG

MH1
CL 4.31
X1 3.85 - 150

DP1 - 150, Grad - 0.01

DP2 - 225,
Grad - 0.007

FWD4019925 - 300
Grad - 0.001

FWD4019926 - 300
Grad - 0.0012

GOVERNMENT FOUL WATER MANHOLE FMH4052191
CL 5.26
A1 3.70 - 150
~~X1 3.79 - 2 x 150~~ NEW X1 3.70 - 225

GOVERNMENT FOUL WATER MANHOLE FMH4019394
CL 5.38
A1 3.72 - 300
A2 3.72 - 225
X1 3.72 - 300

GOVERNMENT FOUL WATER MANHOLE FMH4019395
CL 5.09
A1 3.67 - 300
~~A2 2 x 150~~ NEW A2 3.67 - 225
X1 3.67 - 300

GOVERNMENT FOUL WATER MANHOLE FMH4019396
CL 5.46
A1 3.61 - 300
A2 3.61 - 225
X1 3.61 - 300

LEGEND

- PAVED AREA
- BOUNDARY FOR ASSESSMENT FOR PROPOSED DEVELOPMENT
- DP1 — PROPOSED UNDERGROUND DRAINPIPE
- MH1 — PROPOSED MANHOLE

港口
HARBOUR

港口
HARBOUR

TAM KON SHAN ROAD

TSING YI NORTH COASTAL ROAD

FMH4019445

FMH4019396

LEGEND

PAVED AREA

BOUNDARY FOR ASSESSMENT FOR PROPOSED DEVELOPMENT

BOUNDARY FOR ASSESSMENT FOR SENSITIVITY TEST

Sewerage Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

BOUNDARY FOR SENSITIVITY TEST

FIGURE 2.3

Scale : 1:3000 (A3)

Date : MAY 2025

Rev. :

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C:\USERS\USER\DESKTOP\31048\DATA\DRAWINGS\AI\FIGURE-2.3.DWG

Appendix A

Calculations of Wastewater Generation

Catchment A - Calculation of Sewage Generation from the Site

				Remarks
On-site Staff				
No. of Production Line	=	3	line	
Production Line occupancy	=	5	person/line	Information advised by the Applicant
No. of workers	=	15	persons	
Unit Flow Factor of Industrial Employees	=	0.08	m^3/person/day	The unit flow factors of Commercial Employees in Table T-2 of GESFSIP (note 1).
Unit Flow Factor of Industrial Activities	=	0.15	m^3/person/day m^3/p	The unit flow factors of Commercial Activities J9 (Construction) in Table T-2 of GESFSIP (note 1).
Combined Unit Flow Factor	=	0.23	m^3/person/day	
Estimated peak daily flow	=	3.45	m^3/day	
Visitor (Truck Driver)				
No. of Visitors	=	600	persons	
Micturition	=	0.0002	m^3	P.3081 of Magill's Medical Guide
Flushing	=	0.001	m^3	The information is advised by the supplier
Handwawshing	=	0.0014	m^3	BEAM Plus New Buildings Version 1.2 in July 2012.
Combined Unit Flow Factor	=	0.0026	m^3/person/visit	
Estimated peak daily flow of the Site Staff	=	1.56	m^3/day	
Total				
Estimated Average Dry Weather Flow (ADWF)	=	5.01	m^3/day	
		0.21	m^3/hour	
Unit Contributing Flow	=	0.27	m^3/person/day	The unit contributing flow in Section 12.1 of GESFSIP (note 1).
Contributing Population	=	19	person	
Flowrate Peaking Factor	=	8		The peaking factor for population < 1,000 population recommended in Table T-5 of GESFSIP (note 1).
Design Peak Flow	=	1.67	m^3/hour	
Design Peak Flow	=	0.0005	m^3/second	

Note:

1. Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (GESFSIP) Version 1.0 published by the Environmental Protection Department

Appendix B

Sewerage Drain Analysis Including Sensitivity Test

Sewerage Drain Analysis

The fair conditions of concrete pipe are considered for the value of n for Manning equation (DSD SM Table 6)

Drain Pipe ID	Nominal Diameter, mm	Upper Invert Level	Lower Invert Level	Gradient	Manning's Roughness Coefficient	Cross Section Area, m^2	Wetted Perimeter, m	Hydraulic Radius, m	Full Bore Velocity (Vc), m/s	Full Bore Capacity (Qc), m^3/s	Design Flow (Q), m^3/s	% of Capcity Flow	Sufficient Capacity (Y/N)
DP1 [from MH1 to Government Manhole FMH4052191]	150	3.85	3.70	0.010	0.015	0.0159	0.47	0.034	0.7	0.0111	0.0005	4%	Y
DP2 [to Government Manhole FMH4019395]	225	3.70	3.67	0.007	0.015	0.0358	0.71	0.051	0.8	0.0270	0.0005	2%	Y

Sewerage Drain Analysis - Sensitivity Test

The bad conditions of common clay drainage tile are considered for the value of n for Manning equation (DSD SM Table 6)

Drain Pipe ID	Nominal Diameter, mm	Upper Invert Level	Lower Invert Level	Gradient	Manning's Roughness Coefficient	Cross Section Area, m^2	Wetted Perimeter, m	Hydraulic Radius, m	Full Bore Velocity (Vc), m/s	Full Bore Capacity (Qc), m^3/s	Design Flow (Q), m^3/s	% of Capcity Flow	Sufficient Capacity (Y/N)
Government Drainpipe FWD4019925 [from Government Manhole FMH4019394 to Government Manhole FMH4019395]	300	3.72	3.67	0.001	0.017	0.0636	0.94	0.068	0.3	0.0197	N/A	N/A	N/A
Government Drainpipe FWD4019926 [from Government Manhole FMH4019395 to Government Manhole FMH4019396]	300	3.67	3.61	0.0012	0.017	0.0636	0.94	0.068	0.3	0.0217	0.0202	93%	Y

R-RICHES PLANNING LIMITED 盈卓規劃有限公司

Our Ref. : TYTL14, 15 - CBP in TY
Your Ref. : TPB/A/TY/150

The Secretary,
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road,
North Point, Hong Kong

By E-mail

23 June 2025

Dear Sir,

3rd Further Information

Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Area shown as 'Road' and Area not Covered by Statutory Plan, Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

(S.16 Planning Application No. A/TY/150)

We write to submit further information in response to the comments from the Hong Kong Police Force on the captioned application.

Should you require more information regarding the application, please contact our Mr. Danny NG at [redacted] or the undersigned at your convenience. Thank you for your kind attention.

Yours faithfully,

For and on behalf of
R-riches Planning Limited

Christian CHIM
Town Planner

cc DPO/TWK, PlanD (Attn.: Mr. W.C. LUI email: wclui@pland.gov.hk)
(Attn.: Mr. Cecil CHOW email: cccchow@pland.gov.hk)
(Attn.: Mr. Norris CHUNG email: npwchung@pland.gov.hk)

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Block D, The Richfield, 236 Kat Hing Wai, Kam Tin, NT, HK
[redacted]

Response-to-Comment

Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Area shown as 'Road' and Area not Covered by Statutory Plan, Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

(Application No. A/TY/150)

(i) A RtC table:

Departmental Comments		Applicant's Responses
1. Comments of the Hong Kong Police Force (HKPF)		
(a)	The location in right in the middle of Tam Kon Shan Road, any incident with traffic at the plant, it will cut off Tam Kon Shan Road, and may cause congestion of both east and west of the plant.	Tam Kon Shan Road is not expected to be blocked by plant operations. The internal layout of the application site (the Site) provides 12 dedicated waiting spaces for trucks and 3 loading/unloading bays, which allows vehicles to wait and operate entirely within the Site. Queuing analysis confirms that the chance of vehicles queuing onto the public road is negligible (<0.003%).
(b)	The location is very near the park and playground facilities, with many children. Large vehicles that close or driving past may be unsafe to the park and sport ground users.	To address safety concerns near the adjacent park and playground, specific traffic management and routing restrictions have been implemented as part of the Traffic Management Plan. Notably, "No Left Turn" signs will be installed at the plant's access on Tam Kon Shan Road to enforce a fixed routing pattern, avoiding vehicle turning movements that could bring cement trucks near the playground entrance. All trucks will follow designated ingress and egress routes as illustrated in the approved Traffic Impact Assessment, and there will be no direct vehicle access to the park area. To further enhance safety, trucks will be equipped with front and rear cameras, and real-time GPS tracking will be used to actively manage movement and prevent clustering near sensitive areas.
(c)	The PCU/hr is 123 at peak hours. Any hiccups with the operation will cause congestion, especially with such PCU, the traffic may build up easily.	Link and junction assessments in both existing and future design scenarios confirm that all surrounding roads and junctions will continue to operate below capacity thresholds. No significant congestion is anticipated.

(d)	The other concrete plant is at United Dockyard which HKPF believes is near Sai Tso Wan Road. This location is some distance away. Furthermore, what is the capacity of that location and operation procedures.	The United Dockyard plant is a separate facility operating under its own approvals. Its internal operations and capacity fall outside the scope of this application. That said, we have already taken into account traffic from this and other nearby facilities, as our junction surveys reflect actual traffic conditions observed on site during the survey period. As such, any associated impact has been inherently captured in the baseline traffic data and included in our assessment. We remain open to coordinating with relevant operators if needed to support overall traffic management in the area.
(e)	The manoeuvring of trunks is the plant is not simple and seems to requiring some time and several turns need to be made, this may cause vehicle to queue to get in or out.	The internal layout of the plant has been designed to accommodate truck turning movements with adequate space. Swept path analysis has been conducted to confirm that all vehicle types can enter and exit without reversing onto public roads. Vehicle movement will be managed to prevent queuing and ensure smooth internal circulation.
(f)	A common complaint against cement truck in the area is the overloading of cement and then dropping of the cement onto the road, thereby severely damaging the road. What are their preventive measures and remedies measure.	All cement trucks serving the proposed plant will be equipped with front and rear cameras to monitor driving behavior and ensure compliance with traffic and safety protocols. Operational procedures include proper loading control, enclosed mixer drums, and a designated cleaning area within the Site. These measures help prevent spillage and road contamination. Furthermore, the plant has established a non-conformance and auditing mechanism which ensures that any spillage or incidents are addressed immediately. Enforcement measures such as on-the-spot clean-up, fines, and contract penalties are in place to hold operators accountable and protect the public road network from damage.

(ii) Regarding HKPF's concern on the traffic impact, flow and safety, the applicant provides the following measures to alleviate relevant potential impacts that would have arisen from the proposed development:

- all concrete mixers will enter and exit via the ramp connecting Tsing Yi North Coastal Road and Tam Kon Shan Road, and will not use any internal roads of Cheung Fat Estate;

- "No Left Turn" and "No Right Turn" signs will be installed at the plant entrance to prevent project related trucks from diverting into Cheung Fat Estate;

- traffic assessments at the key junctions indicate design flow/capacity ratios below 0.78 during the PM peak, demonstrating that any additional delay to other road users will remain within acceptable limits; and

- pedestrian activity along Tam Kon Shan Road near the plant is very low, "Heavy Vehicles Turning" warning signs will be erected upstream of the entrance to alert other road users.

(iii) The applicant provides the following information in relation to the contingency plan for the off-site vehicle holding area:

- the off-site holding area provides 12 on-site waiting spaces;

- surplus vehicles which it is estimated not more than 5 vehicles will be directed to the holding area at Sai Tso Wan Road;

- all diverted trucks will remain under real-time GPS monitoring to ensure the off-site holding area does not exceed its capacity and to prevent roadside queuing; and

- drivers of diverted trucks will receive timely updates on expected wait times and clear instructions. They will be directed to an alternate production plant under the applicant and advised when to return once normal loading operations resume.

R-RICHES PLANNING LIMITED

盈卓規劃有限公司

Our Ref. : TYTL14, 15 - CBP in TY
Your Ref. : TPB/A/TY/150

The Secretary,
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road,
North Point, Hong Kong

By E-mail

25 June 2025

Dear Sir,

2nd Further Information

Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Area shown as 'Road' and Area not Covered by Statutory Plan, Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

(S.16 Planning Application No. A/TY/150)

We write to submit a revised Environmental Assessment report *(enclosed)* in response to the comments from the Environmental Protection Department on the captioned application. This is to supersede our previous submission of further information on 20.06.2025.

Should you require more information regarding the application, please contact our Mr. Danny NG at [redacted] or the undersigned at your convenience. Thank you for your kind attention.

Yours faithfully,

For and on behalf of
R-riches Planning Limited

Christian CHIM
Town Planner

cc DPO/TWK, PlanD (Attn.: Mr. W.C. LUI email: wclui@pland.gov.hk)
(Attn.: Mr. Cecil CHOW email: cccchow@pland.gov.hk)
(Attn.: Mr. Norris CHUNG email: npwchung@pland.gov.hk)

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Block D, The Richfield, 236 Kat Hing Wai, Kam Tin, NT, HK
[redacted]

Tam Kon Shan Road, Tsing Yi Town Lot. 14 & 15
Pre-submission of S.16 Planning Application
Environmental Assessment

Response to Comments

Comments Received		Date Received
1.	Environmental Protection Department (by email)	24 June 2025

Tam Kon Shan Road, Tsing Yi Town Lot. 14 & 15
Pre-submission of S.16 Planning Application
Environmental Assessment

Response to Comments

No.	Comment	Response
	Comments from Environmental Protection Department Received on 24 June 2025	
1.	1. The applicant to confirm the assumptions and conclusions of the revised Environmental Assessment (EA) remain unchanged.	Confirmed.
2.	2. Please remove the section number "3.3.2" before "Table 3.3".	The section number is removed.
3.	3. Table 3.2: The concentration data are incorrect. Please review whether the PATH grids should be in the order of "(32,38), (33,38), (33,37), (32,37)".	The tables are revised.
4.	4. Section 3.5.8: Please append the statement "Please refer to Appendix 3.4 for more detailed justifications" at the end of this section.	The section is revised.
5.	5. Section 3.5.11 and Table 3.7: Please provide the calculation files used to estimate emissions for the years 2026, 2029, and 2030.	The calculations files are attached.
6.	6. Section 3.5.13: Please follow up and provide MD's agreement on the marine traffic data once available.	MD's agreement will be provided once available.
7.	7. Section 3.6.1: Please revise "Table 3.12 – Table 3.20" in Line 6 to "Table 3.16 – Table 3.20".	The section is revised.
8.	8. Appendix 3.4, Pages 108 and 199: Please review whether the content on these two pages should be consistent and revise as necessary to ensure alignment.	The two pages are aligned.
9.	9. Appendix 3.6, Page 351: Please review whether the two tables contain duplicate content or include remark(s) to clarify the information presented in these tables. Additionally, remark [1] is missing and should be supplemented.	Remarks are supplemented.

Planning Applications for a Concrete Batching Plant at Tsing Yi Town Lot Nos. 14&15

Environmental Assessment Report

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1 INTRODUCTION

1.1 Background

1.1.1 The Applicant would like to seek permission from the Town Planning Board (the Board) to operate a temporary concrete batching plant (CBP) for a period of 5 years at Tsing Yi Town Lot Nos. 14&15 and adjoining Government Land (GL), Tam Kon Shan Road, Tsing Yi, New Territories (the Site). The total site area is approximately 4,335 sq. meters, including approximately 1,057 sq. meters of GL. A CBP with ancillary supporting facilities (with total gross floor area (GFA) of about 1419.2 sq. meters and building height of not exceeding 31 meters) is proposed at the Site. The Site is accessible from Tsing Yi North Coastal Road via Tam Kon Shan Road.

1.1.2 AECOM has been commissioned to provide an Environmental Assessment (EA) to supplement the abovementioned planning application. This EA presents a study of the potential environmental impacts, including air quality, noise, water quality, land contamination and waste management, in order to confirm the environmental suitability of the Proposed Plant at the Site.

1.2 Existing Land Use

1.2.1 The Site partly falls within an area zoned “Other Specified Uses” annotated “Boatyard and Marine-oriented Industrial Uses” (“OU(BMIU)”) and area shown as “Road” on the Approved Tsing Yi Outline Zoning Plan (OZP) No.: S/TY/32, and partly falls outside the OZP planning scheme boundary. A planning permission for a temporary concrete batching plant is required from the Board for the use of CBP is a Column 2 use within the OU(BMIU) zone. The Site is located on Tam Kon Shan Road on Tsing Yi Island. Surrounding developments comprise industrial buildings and dockyards. The location of the Site is illustrated in **Figure 1.1**.

1.3 Potential Environmental Issues

1.3.1 The Site is currently fenced, partially vacant and occupied by vacant structure. Pre-existing jetty is available to support the operation of the CBP. Environmental impacts during construction and operation are of concern.

1.3.2 Concrete batching process is a dusty operation which poses potential dust nuisance to the nearby sensitive receivers. The Proposed Plant has been classified as specified process (SP) under the Air Pollution Control Ordinance (APCO) and is required to operate under a valid SP License. The dust impact due to the operation of the Proposed Plant will be evaluated to ensure the compliance with Air Quality Objectives (AQOs).

1.3.3 The existing major noise sources in the vicinity of the study area are traffic noise from Tam Kon Shan Road and Tsing Yi North Coastal Road, and fixed plant noise / industrial noise from the dockyard. In view of the existing environmental condition, cumulative fixed plant noise impact from nearby existing industrial buildings and the Proposed Plant would be expected. However, no noise sensitive receiver has been identified within 300m from the Subject Site. The noise impact is to be addressed qualitatively.

1.3.4 Other environmental issues including water quality, waste management and land contamination are considered minor. Their corresponding impacts are to be evaluated qualitatively.

1.3.5 In this EA, five key environmental issues associated with the operation of the Proposed Plant are identified and addressed in the following sections:

Section 3: Air Quality

Section 4: Noise

Section 5: Water Quality

Section 6: Waste Management

Section 7: Land Contamination

Section 8: Conclusion

2 DESCRIPTION OF PROPOSED CONCRETE BATCHING PLANT

2.1 Configurations of the Proposed Plant

2.1.1 The proposed CBP comprises silo and compartment with total capacity of approximately 2,200 tonnes for storage of cementitious materials for concrete production, which is classified as Specified Process (SP) in accordance with the Air Pollution Control (Specified Processes) Regulations. The design layout of the plant is shown in **Appendix 2.1**.

2.1.2 The CBP is planned to consist of 3 production line, with a total hourly processing capacity of 300m^3/hr. The production of concrete requires raw material including aggregates (mixed with sand), cementitious materials (cement, Pulverized Fuel Ash (PFA), Ground Granulated Blast-Furnace Slag (GGBS), Condensed Silica Fume (CSF)), admixtures and water. The concrete batching process mainly involves handling of raw material from delivery to storage, then respective weigh hoppers, concrete batch mixers and finally loading of mixed concrete onto concrete mixer trucks for delivery.

2.1.3 The CBP will be equipped with aggregate overhead bins with total capacity of 3000 tonnes, 6 sets of 350-tonne cementitious materials silos, 2 set of 50-tonne CSF silo, 3 wet concrete mixers, 2 aggregate receiving hoppers (one for barge and one for truck in case of emergency), 18 weigh hoppers (6 weigh hoppers for each mixer, including 1 for aggregate, 3 for cementitious materials, 1 for water/ice and 1 for admixture, in total 3 mixer), water tanks and admixture tanks. Aggregate and cement will be delivered to the plant by barge. The aggregate and cementitious materials within the plant will be transferred via enclosed conveyors and sealed pipeline respectively. The operation details of the proposed CBP are summarized in **Table 2.1**.

2.1.4 The operation details of the proposed CBP is summarized in **Table 2.1**. The normal operation period will be 07:00 to 21:00.

Table 2.1 Operation Details of Proposed CBP

Operation Parameter	Details
Hourly Processing Capacity	300 m^3/hr
Total Aggregate Storage Capacity	3000 Tonnes
Total Cementitious Materials Silos Capacity	2200 Tonnes
Mode of Operation	Batch
Proposed Plant Operation Period	14 hours between 07:00 to 21:00
Total No. of potential emission points related to the CBP operation	19

2.2 The Schematic Flow of Operation Process

2.2.1 The schematic flow diagram showing various components of the Proposed Plant is presented in **Appendix 2.2**.

Aggregate Handling

2.2.2 Aggregates will be delivered to the plant by barge. The compartments of the aggregate barge will be covered during transportation and unloading process to avoid any dust emission. During the unloading of aggregates, the compartment will remain covered as far as safety issue is concerned. Water spraying by sprinklers will be provided at the barge during the unloading process to keep the aggregate adequately wetted. When the unloading is complete, the empty barge will leave the barging location with the top cover remaining closed. Should the barge be required to park at the barging location overnight (between 21:00 to 07:00 next day), the stockpile on barge will be fully covered by top cover to prevent any dust pickup by gust.

2.2.3 The aggregates will be unloaded to the aggregate receiving hopper on the jetty (EP01) and then transferred via enclosed conveyors to overhead bins for concrete production. The aggregate receiving hopper will be covered in 3-side cladded and roof and installed with water

sprinkler to reduce dust emission during material unloading. The enclosed conveyors will be arranged such that there is minimal gap at the transfer points between conveyors so as to minimize free fall as far as practicable. Also, all transfer points along the conveyor pathway will be housed inside either fully cladded conveyor transfer tower or fully cladded structure housing the aggregate overhead bins. All transfer of aggregates will therefore be conducted in enclosed condition. No exhaust is required and no dust emission is anticipated.

2.2.4 The aggregates in overhead bins will be transferred to the respective aggregate weigh hopper through guiding chute with flexible seal. Aggregates will be weighed and then discharged through guiding chutes to the concrete mixer under a fully enclosed environment, i.e. the aggregate weigh hoppers will be covered on 4 sides such that the aggregate transfer process is fully enclosed. No exhaust is required and no dust emission is anticipated. The guiding chutes will be arranged such that there will be minimal gap to the mixer so as to minimize free fall as far as practicable.

2.2.5 Another ground aggregate receiving hopper (EP02) will receive aggregates delivered by aggregate tipper truck on haul road (EP17), which will be backup use in case of emergency.

Cementitious Materials Handling

2.2.6 Cement will be delivered by barge while cementitious materials such as PFA, GGBS and silica fume will be delivered by tanker trucks (around 7 trucks a day). The materials will be pumped to the overhead silos or the ground storage silos via pneumatically sealed cement pipes. The transfer process will thus be carried out in totally enclosed condition.

2.2.7 Each of the cementitious silo will be installed with a dust collector (EP09 – EP16). Before connecting the pumping pipe, the dust collector on the silo will be switched on and remain switched on during the whole transfer process. The cementitious materials will then be pumped to the silo via fully enclosed piping. All silos will be equipped with a pressure relief valve. The seating of the valve will be checked and valve will be reseated if necessary before each delivery of cementitious materials. Audible high level alarms will be installed in all silos to warn and prevent overfilling. The high level alarms will be interlocked with filling pipelines and the material filling line will be closed in time to prevent any overfilling, but in any case within 1 minute or less after the high level alarm has been triggered.

2.2.8 Cementitious materials from the silos will be transferred to respective weigh hoppers by a screw conveyor which will be pneumatically sealed such that fugitive dust emission will not be anticipated. All weigh hoppers will be housed inside the fully enclosed mixer tower and treated collectively by dust collector. The dust collectors will prevent escape of fugitive dust due to the transfer process to the atmosphere. The weighed cementitious materials in the respective weigh hoppers will then be discharged to the concrete mixer by gravity through pneumatically sealed piping.

Water, ice and Admixtures Handling

2.2.9 Water and ice will be weighed in the ice/water hopper and then added to the concrete mixer, while admixtures will be weighed by another weigh hopper. Water and admixtures will be transferred by pneumatically sealed pipe.

Concrete Mixing

2.2.10 The concrete mixers will be located in the mixing tower. The aggregates, cementitious materials, water and admixtures will be mixed in one of the concrete mixers (3 mixers in total) in a fully wetted and enclosed condition.

2.2.11 Each of the wet mixers will be installed with a dust collector (EP03 – EP05) with fabric filtering system. The dust collector of the mixer will be switched on prior to the transfer of any material to the mixer and will stay switched on whenever there is material inside it. Dust-laden air from the concrete mixer will be filtered through bag filters of dust collector, which will prevent escape of fugitive dust due to the material transfer and the wet mixing process.

2.2.12 The mixed and fully wetted concrete will be discharged into a concrete mixer truck directly by gravity via wet concrete guiding chute. No dust emission will be anticipated. Furthermore, the concrete unloading area will be enclosed on 2 sides with the roof by cladded structure.

Transportation of Raw Material and Product Concrete

2.2.13 All the haul roads within the Site (EP18 & EP19) will be paved and provided with water spraying by sprinklers in 1-hour intervals to maintain a wet surface. The speed limit for all the vehicles travelling in the abovementioned CBP area and on haul roads is 8 km/hr.

2.2.14 Water for ground washing will be collected by surface channel, where the water will be pumped to wastewater tanks for reuse in truck washing or recycled for concrete production.

2.2.15 The concrete mixer truck will go to the slump stand quality check point, where the quality inspection will take place. All vehicles leaving the CBP will be cleaned to wash off any dust/mud deposited on the wheels and vehicle body such that leaving no dust to the public road.

2.2.16 Concrete waste will be collected by the concrete reclaimer, where the cement slurry water will be separated from the aggregates. The separated aggregates will be wet in nature, i.e. no dust emission is expected.

2.2.17 The cement slurry water will pass through the filter press, where cement particles will be captured. The clear water will be recycled for concrete production. The solid waste (sludge cake collected by the filter press and aggregates collected by the concrete reclaimer) will be disposed of by waste disposal trucks

3 AIR QUALITY

3.1 Introduction

3.1.1 In this section, the potential air quality impact due to the construction and operation of the Proposed Plant is assessed qualitatively and quantitatively respectively, and evaluated against the Air Quality Objectives. The air quality within 500m away from the Subject Site boundary are discussed and sensitive receivers in this area are identified.

3.1.2 Air quality impact assessment is conducted based on the latest design of the Proposed Plant with the aid of an air quality dispersion model and a regional air quality model. The predicted cumulative air quality impacts are concluded at the identified sensitive receivers and in a spatial manner with the aid of contour plots at different altitude. Appropriate mitigation measures are proposed to minimize the potential air quality impact on the ambient air.

3.2 Environmental Legislation and Guidelines

Air Quality Objectives

3.2.1 The Air Pollution Control Ordinance (APCO) provides the statutory authority for controlling air pollutants from a variety of sources. In APCO, the Air Quality Objectives (AQOs) are stipulated as the air quality that should be achieved and maintained under the maximum allowable concentration for typical pollutants. Respirable Suspended Particulates (RSP) and Fine Suspended Particulates (FSP) are the dominant pollutants for concrete batching plant. Furthermore, AQOs have been reviewed and revised criteria has been enforced on 11 April 2025. The latest AQOs of relevant air pollutants are listed in below **Table 3.1**.

Table 3.1 Hong Kong Air Quality Objective Relevant to the Assessment

Pollutant	Time Average	Concentration Limit (µg/m^3) under current AQO (1)(2)
RSP (4)	24-hour	75 (9) (3)
	Annual	30
FSP (5)	24-hour	37.5 (18) (3)
	Annual	15
NO_2	1-hour	200 (18) (3)
	24-hour	120 (9) (3)
	Annual	40
SO_2	10-min	500 (3) (3)
	24-hour	40 (3) (3)

Note:
(1) All measurements of the concentration of gaseous air pollutants, i.e., sulphur dioxide and nitrogen dioxide, are to be adjusted to a reference temperature of 293 K and a reference pressure of 101.325 kPa.
(2) The annual average concentration is calculated as the arithmetic mean.
(3) The number in the bracket represents the number of exceedances allowed per year.
(4) Suspended particulates in air with a nominal aerodynamic diameter of 10 µm or smaller.
(5) Fine suspended particulates in air with a nominal aerodynamic diameter of 2.5 µm or smaller.

3.2.2 "A Guidance Note on the Technical, Management and Monitoring Requirements for Specified Process – Cement Works (Concrete Batching Plant) BPM 3/2 (2025)" (BPM) by EPD sets out definition for cement works, which are works where cement is handled, argillaceous and calcareous materials are used in the production of cement clinker or clinker is ground, and for which the total bulk storage capacity exceeds 50 tonnes, the total installed capacity of concrete mixers exceeds 3 m^3 or the total hourly concrete production rate exceeds 20 m^3. It requires that the particulates emission concentration limit of 10 mg/m^3 (expressed at reference condition, 0°C, 101.325 kPa) should be satisfied. Furthermore, the premises covered by the BPM should include a ship or barge.

3.3 Description of the Environment

Background Air Quality

3.3.1 The modelling approach involves the use of an integrated modelling system called Pollutant in the Atmosphere and their Transport in Hong Kong (PATHv3.0) which is developed and maintained by EPD to provide background pollutant concentration in assessing the total impact in the study area (*Guidelines on Assessing the 'TOTAL' Air Quality Impacts*). As Year 2028 has the highest vehicular emission in the study area for RSP, FSP and SO_2, while Year 2027 has the highest vehicular emission in the study area for NO_2 as discussed in **Section 3.5.11,** the dataset of Year 2028 in PATHv3.0 is selected for the assessment for RSP, FSP and SO_2, while Year 2027 in PATHv3.0 is selected for the assessment for NO_2. The background concentrations of RSP, FSP, NO_2 and SO_2 in the study area are extracted from PATHv3.0 and presented in **Table 3.2** and **Table 3.3**.

Table 3.2 Background Air Quality Extracted from PATH (Yr 2028)

Pollutant	Averaging Time	AQO	Data Summary	PATH v3.0 Grid in Year 2028			
				32,37	32,38	33,37	33,38
RSP	24-hour	75 (9)	10th	56.08	53.88	56.48	54.82
			Exceedance	0	0	0	0
	Annual	30	-	20.84	20.32	20.82	20.86
FSP	24-hour	37.5 (18)	19th	32.52	30.32	32.04	31.89
			Exceedance	10	6	9	7
	Annual	15	-	13.11	12.68	13.12	13.18
NO_2	1-hour	200 (18)	19th	94.56	94.35	97.17	98.64
			Exceedance	0	0	0	0
	Daily	120 (9)	10th	41.09	40.32	43.23	42.3
			Exceedance	0	0	0	0
	Annual	40	-	23.85	23.85	25.02	24.4
SO_2	10-minute	500 (3)	4th	28.5	23.58	22.5	22.89
			Exceedance	0	0	0	0
	24-hour	50 (3)	4th	7.39	7.29	7.26	7.28
			Exceedance	0	0	0	0

Table 3.3 Background Air Quality Extracted from PATH (Yr 2027)

Pollutant	Averaging Time	AQO	Data Summary	PATH v3.0 Grid in Year 2027			
				32,37	32,38	33,37	33,38
RSP	24-hour	75 (9)	10th	56.17	53.96	56.52	54.93
			Exceedance	0	0	0	0
	Annual	30	-	20.9	20.37	20.88	20.93
FSP	24-hour	37.5 (18)	19th	32.57	30.37	32.08	31.95
			Exceedance	10	6	9	7
	Annual	15	-	13.16	12.73	13.18	13.24
NO_2	1-hour	200 (18)	19th	95.89	95.47	98.07	99.32
			Exceedance	0	0	0	0
	Daily	120 (9)	10th	41.97	41.11	44.11	43.32
			Exceedance	0	0	0	0
	Annual	40	-	24.31	24.34	25.5	24.97
SO_2	10-minute	500 (3)	4th	28.52	24.26	22.51	22.89
			Exceedance	0	0	0	0
	24-hour	50 (3)	4th	7.44	7.33	7.3	7.31
			Exceedance	0	0	0	0

Air Sensitive Receivers

3.3.2 The CBP locates in the vicinity of Tam Kon Road at Tsing Yi Island. A site survey has been conducted on 12 December 2024 to identify the representative air sensitive receivers (ASRs) which are likely to be affected most by the operation of the CBP for assessment within 500m study area of the Subject Site (the study boundary) with reference to the Outline Zoning Plans (OZPs), OZP Plan No. S/TY/32 – Tsing Yi. While there are schools and residential buildings located in the southern part of the study boundary, they are located uphill and are shielded from the Project Site by the hills with no direct line of sight with the Project, and hence no direct impact is expected. Thus, ASRs in the southern part of the study boundary are not included in the assessment. The details of the identified ASRs are summarized in below **Table 3.4** and their locations in the study boundary are shown in **Figure 3.1**.

Table 3.4 Representative Air Sensitive Receivers

ASR	Coordinates		Description	Land Use	Horizontal Distance from the Project (m)	Assessment Height Above Ground (mAG)
	X	Y				
A01	827535.0	824705.4	DB Maintenance Centre	Shipyard	325	1.5, 5, 10
A02	827685.7	824668.4	Cheun Kee Seafood Restaurant	Eating Place	175	1.5, 5, 10, 15
A03	827844.6	824667.7	Wing Cheong Shipyard	Shipyard	15	1.5, 5, 10, 15
A04	827816.5	824667.6	Kwong Tat Loong Shipyard (Brothers) Limited	Shipyard	45	1.5, 5, 10, 15
A05	827920.5	824664.4	Leung Wan Kee Shipyard Limited	Shipyard	25	1.5, 5, 10, 15
A06	828018.6	824669.4	Green@Kwai Tsing	G/IC	120	1.5, 5
A07	828179.5	824706.5	Tsing Yi Northeast Park Office	Recreational	280	1.5, 5, 10, 15
A08	828289.1	824690.7	Queen's College Old Boys' Association S econdary School	Educational	390	1.5, 5, 10, 15, 20, 30
A09	828358.2	824749.3	Cheung On Estate Block 1 On Hoi House	Residential	460	1.5, 5, 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110
A14	827791.2	824635.1	Environmental Protection Department Portable Emission Measurement System (PEMS) Laboratory	G/IC	75	1.5, 5

3.3.3 The assessment heights of the representative ASRs range from 1.5 meters above ground to up to its maximum physical heights, e.g. up to 15mAG at A02 and 110 mAG at A09.

3.4 Identification of Environmental Impact

Construction Phase

3.4.1 The development would mainly involve demolition of structures and the erection of equipment for the concrete batching plant. The erection of equipment for the three ancillary plants would involve minor construction activities such as minor excavation for foundation works and plant fabrication works. Potential construction dust would arise from these construction activities. Most of material to be handled would be the demolished debris which is around 1,100 tonnes. Spoil from the foundation works would be around 100 tonnes. The number of construction trucks or mechanical equipment is not known at this stage and they are subject to the future contractor. Nevertheless, dust mitigation measures stipulated in Air Pollution Control (Construction Dust) Regulation are proven effective measures in construction work sites and will be implemented to minimize the potential dust impact. Therefore, the potential construction dust impact is assessed qualitatively.

3.4.2 On-site use of diesel-powered engines is also the potential source for air pollutants, such as NO_2, SO_2, CO and smoke. The emissions from the NRMM are regulated under the *Air Pollution Control (Non-Road Mobile Machinery) (Emission) Regulation*. Fuel with sulphur content not exceeding 0.001% by weight will be used to minimise SO_2 emission in accordance with the *Air Pollution Control (Fuel Restriction) (Amendment) Regulation 2024*. In addition, the use of NRMMs with exempted label under the *Air Pollution Control (NRMM) Regulation* will be avoided as far as practicable. The equipment would also be properly maintained to minimise any emissions. Furthermore, the use of electric NRMMs is to be explored. On-site power supply will be provided and the use of diesel generators and machinery will be avoided during the construction stage, as far as practicable. In view of the minor impact by NRMMs, particulates from construction activities would be the major air pollutant during construction phase.

Odour from Dredging

3.4.3 Dredging would be required in the seafront fronting the proposed site to provide sufficient depth of water for vessels. The dredging scale proposed under the Project is small. The total volume of dredged sediments generated from the dredging operation would be approximately 4,000 m^3 and the dredging work would be conducted by one dredger (of about 8 m^3 capacity) at a dredging rate of no more than 500 m^3 per day. The dredged material would be well covered on-site with tarpaulin and would be removed off-site as soon as possible within 24 hours. In view of the transient nature of the dredging work and small dredging scale, odour nuisance would not be expected during dredging and transportation of the dredged sediment with the adoption of the good site practice as mentioned in **Section 3.7.14.**

Operation Phase

3.4.4 The Proposed Plant uses electricity as the power supply for its operation, thus no gaseous pollutants by fuel combustion is anticipated. Based on the design and operation of the Proposed Plant, the activities considered as major potential dust emission sources are identified as follows in accordance with the specification given in *Compilation of Air Pollutant Emission Factors (AP-42), 5th Edition* issued by U.S. Environmental Protection Agency.

(a) Aggregate handling at the seafront and inside the CBP;
(b) Loading of raw material to the storage silos;
(c) Loading of raw material to weigh hoppers;
(d) Loading of weighed raw material to mixers; and
(e) Vehicle movements on paved haul roads.

3.4.5 Best Practicable Means of air quality control measures suggested in BPM will be implemented in the design of the Proposed Plant and equipment. According to the characteristics of the emission points, different control measures to minimize air pollution will be adopted. Dust collectors, enclosures and water sprayers will be adopted to control the likely particulate emission due to the transport and handling of aggregates and cementitious materials.

3.4.6 Description of the emission points and the corresponding control measures are tabulated in **Table 3.5**.

Table 3.5 Dust Emission Points Due to Operation of CBP and Corresponding Control Measures

Emission Point Description	Control Measures
Delivery of aggregate by barge	• The compartments of the aggregate barge will be covered during transportation and unloading process to avoid any dust emission. • During the unloading of aggregates, the compartment will remain covered as far as safety issue is concerned. • Water spraying by sprinklers will be provided at the barge during the unloading process to keep the aggregate adequately wetted. • Stockpile on barge will be fully covered by top cover when parking at the barging location overnight.
Unloading of aggregates from barge to aggregate receiving hopper (EP01) and transfer of aggregate from aggregate barge receiving hopper to aggregate overhead bin	• The aggregate receiving hoppers will be covered in 3-side cladded and roof. • Water spraying by sprinkler will be provided inside the enclosure during unloading process such that dust will be suppressed and the aggregate is maintained adequately wetted. • The aggregates will be unloaded to the aggregate receiving hoppers and then transferred via enclosed conveyors to overhead bins for production. • The enclosed conveyors will be arranged such that there is minimal gap at the transfer points between conveyors so as to minimize free fall as far as practicable. • All transfer points along the conveyor pathway will be housed inside either fully cladded conveyor transfer tower or fully cladded structure housing the aggregate overhead bins. All transfer of aggregates will therefore be conducted in enclosed condition. No exhaust is required and no dust emission is anticipated.
Transfer of aggregate from aggregate overhead bin to aggregate weigh hoppers	• The aggregates in overhead bins will be transferred to the respective aggregate weigh hopper through guiding chute with flexible seal. • Aggregates will be weighed and then discharged through guiding chutes to the concrete mixer under a fully enclosed environment, i.e. the aggregate weigh hoppers will be covered on 4 sides such that the aggregate transfer process is fully enclosed. No exhaust is required and no dust emission is anticipated. • The guiding chutes will be arranged such that there is minimal gap to the mixer so as to minimize free fall as far as practicable.
Transfer of cementitious materials from cementitious materials tankers to silos (EP09-EP16)	• Cement will be delivered by barge while cementitious materials will be delivered to the plant by tanker trucks. • The materials will be pumped to the overhead silos or the ground storage silos via pneumatically sealed cement pipes. The transfer process will thus be carried out in totally enclosed condition. • Each cementitious material silo will be fitted with a dust collector incorporating a fabric filtering system.

Emission Point Description	Control Measures
	• Before connecting the pumping pipe at the cementitious materials tanker, the dust collector on the silo will be switched on and remain switched on during the whole transfer process. • The cementitious materials will be pumped to the silo via fully enclosed piping. All silos will be equipped with a pressure relief valve and the valve will be checked and reseated if necessary before each delivery of cementitious materials. • Audible high level alarms will be installed in all silos to warn and prevent overfilling. The high level alarms will be interlocked with filling pipelines and the material filling line will be closed in time to prevent any overfilling, but in case within 1 minute or less after the high level alarm has been triggered. • Dust-laden air in the silos will be filtered by fabric bags and vented through the dust collectors. The dust collectors can maintain a dust emission rate of less than 10 milligrams per cubic meter of air.
Weighing and batching of cementitious materials (EP06-EP08)	• Cementitious materials will be transferred from the silos to weigh hoppers by screw conveyor which is pneumatically sealed such that fugitive dust emission is not anticipated. • All weigh hoppers will be housed inside the fully enclosed mixer tower and treated collectively by dust collectors (EP06-EP08) with capability of treating ultra-fine particle. The dust collectors will prevent escape of fugitive dust due to the transfer process to the atmosphere. • The weighed cementitious materials will be discharged to concrete mixers through pneumatically sealed piping.
Mixing of raw material in the concrete mixer (EP03-EP05)	• The aggregate, cementitious materials, water and admixture will be mixed in one of the concrete mixers (3 mixers in total) under fully wetted and enclosed conditions. • Each of the wet mixer will be installed with a dust collector with fabric filtering system. The dust collector of the mixers will be switched on prior to the transfer of any material to the mixer and will stay switched on whenever there is material inside them. • Dust-laden air from the concrete mixer will be filtered through bag filters of dust collector, which prevents escape of fugitive dust due to the material transfer and the wet mixing process. The dust collector can maintain a dust emission rate of less than 10 milligrams per cubic meter of air.
Discharge of concrete to concrete mixer trucks	• The mixed and fully wetted concrete will be discharged into the concrete mixer truck directly by gravity. No dust emission is anticipated. • The concrete unloading area will be enclosed on 2 sides and roof by cladded structure.

Emission Point Description	Control Measures
Vehicle movement on paved haul road (EP18-EP19)	• All the haul roads within the Site will be paved and provided with water spraying by sprinkler in 1-hour intervals to maintain a wet surface. • Speed limit for all trucks travelling in the Site will be set as 8km/hr. • Vehicle movement will mainly involve concrete mixer trucks. Cement tanker for PFA/GGBS/Silica Fume is expected to be less than a truck per hour. • All vehicles leaving the CBP will be cleaned by vehicle washing facility to wash off any dust/mud deposited on the wheels and vehicle body such that leaving no dust to the public road.

Other Emission Sources

3.4.7 Vehicular emission from open road is also a significant contributor to ambient air pollutant concentration. Major road infrastructures namely Cheung Tsing Highway, Lantau Link and North West Tsing Yi Interchange are within the 500m study area of the Site. There is no PTIs/bus terminus, nor any bus depots within 500 m from the project site boundary. Coach parking is identified at Tsing Yi Northeast Park Car Park and HGV on-street parking site (for 8PM to 7AM) is identified outside Tsing Yi Northeast Park Car Park. Regarding roads inside the proposed CBP, there is no HGV parking assumed in the operation design. Concrete trucks are to undergo several procedures at the Project Site, e.g. drum cleaning, loading of concrete product, quality check, and truck washing before leaving the site. Cement / cementitious material tankers are to unload the raw material to silos with on-board pump. Both kinds of trucks require the power supply to perform these operations, i.e. engine stop is not anticipated. The air quality impact due to these open-road emission is considered in the cumulative air quality assessment, as well as the local roads connecting to the Site.

3.4.8 The proposed uses of the CBP would induce marine traffic during operation. Marine emission is expected and would pose potential air quality impact on the existing and proposed ASRs. Apart from the induced marine traffic, there are also existing marine routes within the 500m study boundary of the Project, including the route between Park Island Pier and Tsuen Wan Ferry Pier. All these existing marine traffic also contributes to cumulative air quality impact. The marine traffic inputs are provided by Marine Consultants and the marine emissions have been considered in the quantitative assessment.

Odour from Maintenance Dredging

3.4.9 Maintenance dredging would be carried out to maintain sufficient water depth for vessels once every year subject to the depth of sediment accumulated affecting operation of the vessels. The volume of sediment to be dredged during maintenance dredging would be less than 500m^3 in total. The volume of sediment would require one grab dredger only and the dredging period would be completed in a few days. In view of the limited dredging volume and short duration, odour impact from the maintenance dredging is considered negligible with the adoption of the good site practice as mentioned in **Section 3.7.14.**

3.5 Assessment Methodology

Emission Inventory of Project

3.5.1 Dust generating activities and corresponding air quality control measures are identified in **Table 3.5**. Emission rates by source are estimated in accordance with the USEPA *Compilation of Air Pollution Emission Factors (AP-42), 5th Edition* and summarized in **Table 3.6**. Detailed calculations of emission rates are presented in **Appendix 3.2**. The spatial distribution of effective dust emission sources is illustrated in the appendix as well. The diurnal profile of each emission source is also presented in **Appendix 3.2**.

Table 3.6 Emission Rates for the CBP

Emission Source	RSP Emission Rate	FSP Emission Rate	Remarks
Unloading of aggregates to Aggregate Receiving Hopper (EP01)	6.437×10^{-4} g/s	1.508×10^{-4} g/s	• Max. aggregate handling capacity: 610 Mg/hr • 65% and 40% of dust suppression by water sprays for particle size of 2.5 - 6μm and 0 - 2.5μm respectively • Reference to Table B.2.3, Appendix B.2, USEPA AP-42
Exhaust from Dust Collector for Mixers (EP03 – EP05)	1.523×10^{-3} g/s	6.924×10^{-4} g/s	• Max. emission concentration from exhaust = 2.29 mg/m^3 • Exhaust rate of Dust Collector: 7864 m^3/hr
Exhaust from Dust Collector for Weigh Hopper (EP06 – EP08)	2.564×10^{-3} g/s	7.541×10^{-4} g/s	• Max. emission concentration from exhaust = 3.08mg/m^3 • Exhaust rate of Dust Collector: 6000 m^3/hr
Exhaust from Dust Collector for Cement Silo (350T) (EP09, EP11, EP13)	6.120×10^{-3} g/s	2.782×10^{-3} g/s	• Max. emission concentration from exhaust = 5.79mg/m^3 • Exhaust rate of Dust Collector: 11196 m^3/hr
Exhaust from Dust Collector for PFA Silo (350T) (EP12)	1.163×10^{-2} g/s	5.286×10^{-3} g/s	• Max. emission concentration from exhaust = 7.01mg/m^3 • Exhaust rate of Dust Collector: 11196 m^3/hr
Exhaust from Dust Collector for GBBS Silo (350T) (EP10, EP14)	1.163×10^{-2} g/s	5.286×10^{-3} g/s	• Max. emission concentration from exhaust = 7.01mg/m^3 • Exhaust rate of Dust Collector: 11196 m^3/hr

Emission Source	RSP Emission Rate	FSP Emission Rate	Remarks
Exhaust from Dust Collector for Silica Fume Silo (50T) (EP15 – EP16)	5.815×10^{-3} g/s	2.643×10^{-3} g/s	• Max. emission concentration from exhaust = 3.51mg/m^3 • Exhaust rate of Dust Collector: 11196 m^3/hr
Paved haul roads inside project site and access to CBP (EP18 – EP19)	5.283×10^{-5} g/s·m at maximum, subject to number and average weight of vehicles travelling per hour	1.278×10^{-5} g/s·m at maximum, subject to number and average weight of vehicles travelling per hour	• 91.7% of dust suppression by watering every hour (calculated from *Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), as detailed in Appendix 3.2*).

Note:
(1) EP18 ─ EP19 is denoted as HR01 – HR03 in the model.
(2) Max. aggregate handling capacity, exhaust rate of dust collector, and max. emission concentration from exhaust are provided by design engineer.

Diurnal Profile

3.5.2 In this assessment, a diurnal profile is derived based on expected on-site raw material delivery and concrete production schedule to consider the diurnal variations in the emission rates in the Project. The diurnal profile of each emission source is presented in **Appendix 3.2**.

3.5.3 As there will only one barging point in the design, the delivery of aggregates and cement will not overlap. Aggregates will be delivered by barge and unloaded into the ground aggregate receiving hopper (EP01), which is assumed to be 100% active during 07:00 – 11:00 and 15:00 – 19:00. Cement will be delivered by barge and pumped to the cement silos (EP09, EP11 and EP13), which are expected to be 100% active during 11:00 – 15:00.

3.5.4 Other cement supplement materials will be delivered by tankers during 07:00 – 19:00. In every hour, it is expected that only one tanker truck will deliver either PFA or GGBS and complete unloading into their respective silos in one hour. Hence, dust collectors on PFA Silo (EP12) and GGBS Silos (EP10 and EP14) are assumed to be active 100% at alternate hours during 07:00–19:00. Furthermore, it is expected that there will only be one delivery of silica fume by tanker truck every day, which will take one hour for unloading. To account for different possible scenarios, where the silica fume tanker truck arrives with either PFA/GGBS tanker in either morning or evening, 100% activity for dust collector on silica fume silo (EP15 and EP16) is assumed for 07:00 – 09:00 and 17:00 – 19:00.

3.5.5 For concrete production, concrete production rate of 100% is assumed during 07:00 – 19:00. The profile is adopted for the emissions associated with the concrete production, i.e. the dust collectors on mixers (EP03 – EP05), the dust collectors on weigh hoppers (EP06 – EP08) and the haul roads used for transporting the concretes (HR01 – HR03).

Vehicular Emission from Open Roads

3.5.6 EMFAC-HK v4.3 was adopted to estimate the vehicular emission factors in NO_X, RSP and FSP in various travelling speeds and ambient conditions with reference to WRF meteorological data extracted from PATHv3.0. For short-term cumulative impacts, an approach of using daily profile of lowest temperature and relative humidity data in each hour for each month was adopted. For long-term cumulative impacts, an approach of using daily profile of averaged temperature and relative humidity data in each hour for each month was adopted.

3.5.7 The traffic data for each road in 500m study area comprises 24-hour traffic flow with vehicle percentage, travelling speed in 18 vehicle classes. Roads located in the southern part of the study boundary are located uphill and are shielded from the Project Site by the hills with no direct line of sight with the Project, and hence no direct impact by these roads is expected. Thus, these roads are not included in the vehicular emissions calculations. The agreement on the adopted traffic data by Transport Department (TD) is provided in **Appendix 3.4**. With reference to the traffic data, hourly emission factor of each open road is determined by summation of emission by each vehicle class which is product of traffic flow and emission factor at specific speed and ambient condition. The hourly emissions factors of RSP, FSP and NO_2 are further divided by the hourly flow to obtain a composite emission rate in g/s-m^2, ready for input to the dispersion model. The Smart Air Modelling Platform (SAMP v2.1) with ZEV scenario is used for the calculation of composite vehicular emission factor and emission rates. The detailed calculation of vehicular emission source was presented in **Appendix 3.4**.

3.5.8 Start emission refers to the air pollutants generated due to the ignition of the vehicle engines which is released at vehicle tailpipes. Start emission generally occurs on the local road where there is potential trip, while no start emission along district distributor or expressway is anticipated. For the assessment purpose, broad-brush approach is adopted, which assumes start emission at all local roads irrelevant to the actual location of engine start. Start emission is not assumed on district distributor and primary distributor. Also, all vehicle classes were assumed to have potential trip on local road, including minibus and franchised bus which usually starts its engine at its termini throughout its service route. After further review of the Study Area, most of the HGVs along the local roads in the assessment area are the working vehicles travelling to/from the Project, other industrial buildings and dockyards on Tam Kon Shan Road, which includes concrete mixer trucks and cement tankers. These working vehicles are not supposed to park along these roads. Please refer to Appendix 3.4 for more detailed justifications.

3.5.9 As discussed in **Section 3.4.6**, there is no PTIs/bus terminus, nor any bus depots within 500 m from the project site boundary. Coach parking is identified at Tsing Yi Northeast Park Car Park. Owing to the infrequent access to Tsing Yi Northeast Park Car Park, start emission of associated coaches are considered under Road 9, 10 and 11 by broad-brush approach. Vehicle classes that can park inside Tsing Yi Northeast Park Car Park (including PC, TAXI, LGV3, LGV4, LGV6, PLB, PV4, PV5, NFB6, NFB7, NFB8 and MC) were assumed to have potential start on Road 9,10 and 11. Frequency of start emission of a vehicle type on a road is estimated by its forecasted VKT, Trips/VKT ratio extracted from EMFAC-HK v4.3 and minor-road-to-all-road ratio (3.62%) extracted from 2023 Annual Traffic Census published by the Transport Department. SAMP v2.1 has accounted for the start emission when calculating the composite vehicular emission factor. The open road sources considered with start emission are illustrated in **Appendix 3.4**.

3.5.10 Also, the HGV on-street parking site (for 8PM to 7AM) outside Tsing Yi Northeast Park Car Park is identified and is assessed with precise approach. Data for the HGV on-street parking site was estimated by traffic forecast or by design. As the allowed hours for the on-street parking site for the HGVs is 8PM to 7AM, assuming all parked HGVs are leaving at 7AM, the soak time is assumed to be duration of parking (i.e. 8PM to 7AM of the following day). Maximum number of HGVs allowed to be parked overnight is determined by observation based on the length of the parking site (i.e. 10 HGVs). The start emissions calculation was conducted according to the “Technical Note on the Calculation of Start Emissions in Air Quality Impact Assessment”. Start emission factors of vehicle types at various soak times are extracted from EMFAC-HK v4.3. An approach of using the lowest temperature and relative humidity data in the year among all PATH grids covering the assessment area (i.e. 11ºC and 16%) was adopted. The detailed calculation of start emission is also presented in **Appendix 3.6.**

Determination of Assessment Year for Vehicular Emission

3.5.11 The operation of the Project is proposed to commission in 2026 and last for 5 years. The vehicular emission burden in each year during Year 2026to Year 2030 are thus assessed. Year 2028 is selected as assessment year for RSP and FSP because vehicular emission burden of RSP and FSP is the highest in Year 2028, while Year 2027 is selected as the assessment year for NOx as the vehicular emission burden of NOx is the highest in Year 2027, as shown in

Table 3.7. TD's endorsement of the traffic forecasts is provided in **Appendix 3.4**. The traffic data including 24-hr traffic flow with vehicle percentage, trips, daily vehicle-kilometer-travelled (VKT), speed fraction in 18 types of vehicle for the assessment year are presented in **Appendix 3.4**. Vehicular emission rate is calculated with zero emission vehicle scenario from SAMPv2.1. The detailed calculation of vehicular emission source is presented in **Appendix 3.4.**

Table 3.7 Vehicular Emission Burden in the Study Area

Year	Vehicular Emission Burden (tonne per year)		
	RSP	FSP	NOx
2026	0.2537	0.2332	7.6586
2027	0.3032	0.2787	**8.3571**
2028	**0.3036**	**0.2791**	7.8228
2029	0.2658	0.2444	6.6306
2030	0.2206	0.2029	5.4241

Remark:
Bolded figure denotes the highest value among modelled years.

Marine Emission

3.5.12 The operation of the Project would induce marine traffic. Marine emission is expected and would pose potential air quality impact on the proposed ASRs. Apart from the induced marine traffic, there is also existing marine traffic and a scheduled ferry route within the 500m study boundary of the Project, namely the scheduled route between Park Island Pier and Tsuen Wan Ferry Pier. All these existing marine traffic also contributes to cumulative air quality impact. Major air pollutants associated with marine emissions include NO_X, SO_2 and particulates.

3.5.13 The existing marine traffic was assessed with visual survey and the future marine traffic was projected with growth factors by Marine Consultant. The agreement on the adopted marine traffic data have been sought from Marine Department (MD). The marine traffic data of Year 2026, 2028 and 2030 are presented in **Appendix 3.5**. Given that the marine traffic within the study boundary attains the highest in Year 2030, the marine traffic data of Year 2030 is adopted for the assessment.

3.5.14 With reference to the Study on Marine Vessels Emission Inventory (MVEIS) by HKUST, the marine emission is estimated in activity-based approach. The emission factors were derived in units of works (gram per kilowatt-hour), dependent on fractional load of the equipment during different vessel activity modes. The calculation can be summarized as below:

$$Emission = P \times FL \times T \times EF$$

where P is the installed power of equipment;
FL is fractional load of equipment in a specific mode;
T is operation time-in-mode; and
EF is fractional load emission factor of equipment.

3.5.15 Typical power equipment installed on marine vessels are Main Engine (ME) for propulsion, Auxiliary Engine (AE) for electricity and Auxiliary Boiler (AB) for fuel pre-heating and pumping. Subject to the vessel types, different combinations of engines are equipped on a vessel. For example, all 3 kinds of engines are equipped on fully cellular container vessel, no ME for barge, and no AB for pleasure vessel.

3.5.16 The vessel types identified by the Marine Consultant are matched with equivalent vessel types considered in MVEIS. Typical engine power rating, engine type, fuel type of each vessel type are adopted from MVEIS. Moreover, when there are multiple sub-groups for the same vessel type in MVEIS, typically the one with the largest gross registered tonnage (GRT), deadweight tonnage (DWT) or passenger carrying capacity (PAX) is adopted as a conservative approach. The detailed assumptions are presented in **Appendix 3.5**. The vessel types considered in the assessment include:

- Fully Cellular Container Vessel (category RTV)
- Dry Bulk Carrier (category RTV)
- Semi-container Vessel (category RTV)
- Fast Launch (category FL)
- Tug (category TT)
- Local Ferry (category LF)
- Pleasure Vessel (category SC)
- Tug Boat (category SC)

3.5.17 Typical engine load factor by vessel type and by operation mode refers to MVEIS. Engine load factor of marine source was then determined according to its vessel type and its operation mode, which is defined according to the vessel speed with reference to MVEIS and shown in **Table 3.8**.

Table 3.8 Operation Mode of Marine Vessels

Operation Mode	Vessel Speed
Cruise / Fairway Cruise	Over 12 knots
Slow Cruise	8 to 12 knots
Maneuvering	1 to below 8 knots
Hotelling	Below 1 knot

3.5.18 The time-in-mode is estimated by the distance and vessel speed travelled in the corresponding mode.

3.5.19 Emission factors of RSP and FSP by vessel type and by operation mode refers to MVEIS and IMO Fourth Greenhouse Gas Study 2020. According to the *Air Pollution Control (Marine Light Diesel) Regulation*, the sulphur content of locally supplied marine light diesel is capped at 0.05%, so fuel with sulphur content of 0.05% is assumed to be used by local vessels such as Small Crafts (SCs), Tug Boats (TTs), Fast Launch (FLs) and Local Ferries (LFs). On the other hand, *Air Pollution Control (Fuel for Vessels) Regulation* stipulates the use of fuel with sulphur content of 0.5% for all vessels within Hong Kong waters. As such, fuel with sulphur content of 0.5% is assumed to be used by River Trade Vessels (RTV) and Ocean-going Vessels (OGVs) for modelling purpose as a conservative approach. Together with the parameters discussed above, emission of a marine source is estimated with the equation discussed above.

3.5.20 The stack parameters exit temperature and release height are determined by desktop review and site surveys whenever possible, and the other stack parameters (exit velocity and stack diameter) refer to previous studies concerning nearby waters such as the approved EIA Report of Lei Yue Mun Waterfront Enhancement Project (AEIAR-219/2018) and Route 11 (Section between Yuen Long and North Lantau) (AEIAR-255/2023). The emission inventory is summarized in **Appendix 3.5**.

Dispersion Modelling and Modelling Approach for the Proposed Plant

3.5.21 According to *Guidelines on Assessing the 'TOTAL' Air Quality Impacts* by EPD, an integrated modelling system PATHv3.0 which is developed and maintained by EPD will be applied to provide background pollutant concentrations in assessing the total impact in the study area. In addition, Weather Research and Forecast (WRF) meteorological data should be adopted for modelling.

3.5.22 American Meteorological Society (AMS) and U.S. Environmental Protection Agency (EPA) Regulatory Model (AERMOD), the HKEPD approved air dispersion model, has been employed to predict the air quality impacts at the representative ASRs due to the Project. Daily and annual averages of RSP and FSP concentrations are predicted at each identified ASRs at various assessment height, ranging from 1.5 metres to 110 metres above ground.

3.5.23 Hourly meteorological conditions including wind data, temperature, relative humidity, pressure, cloud cover and mixing height of Year 2019 are extracted from the WRF meteorological data adopted in the PATHv3.0 system. The dataset by WRF should be intact and consistent among

parameters. In order to avoid any missing hours misidentified by AERMOD and its associated components, the WRF met data is handled manually to set wind direction between 0° – 0.1° to be 360°. The height of the input data is assumed to be 9 metres above ground for the first layer of the WRF data as input.

3.5.24 The wind speed and mixing heights in the WRF data will be further adjusted before meteorological pre-processing by AERMET. The minimum wind speed is capped at 0.5 metre per second. The mixing height is capped between 119 metres and 2009 metres according to the observation in Year 2019 by HKO. After pre-processed by AERMET, the mixing height is verified once again and adjusted to the capped range if necessary.

3.5.25 Surface characteristic parameters such as albedo, Bowen ratio and surface roughness are required in the AERMET. The parameters are determined according to land use classified for the surrounding and the latest AERMOD Implementation Guide. The details of estimation is presented in **Appendix 3.3**. Elevated terrain in AERMOD is adopted for this assessment.

3.5.26 Further, dry deposition is applied in the model run. Particle size distribution is assigned for particles with aerodynamic diameters smaller than 10 μm to each type of source in the AERMOD in order to account for the particle deposition. The sources are divided into three types, (i) general concrete batching processes (further classified into 3 different processes as described in **Table 3.9**), (ii) aggregate handling and storage piles, and (iii) fugitive emission from paved roads. The particle size distributions for each type of source are summarized in **Table 3.9 – Table 3.11**.

Table 3.9 Particle Size Distribution of General Concrete Batching Process [(d) (e)]

Process	RSP to TSP Ratio [(a)]	FSP to RSP Ratio [(b)]
Cement unloading to elevated storage silo (Controlled)	34%	45%
Cement supplement unloading to elevated storage silo (Controlled)	53%	45%
Weigh Hopper Loading (Uncontrolled)	50%	29%
Mixer loading (central mix) (Controlled)	30%	45%

Average Particle Diameter (μm)	Normalized Fraction for RSP [(b)(c)]
0.5	12%
1.5	21%
2.25	12%
2.75	5%
3.5	11%
4.5	8%
5.5	6%
8	26%

Note:
(a) Derived from Table 11.12-1 Emission Factors for Concrete Batching, Chapter 11.12 Concrete Batching, AP-42, USEPA (Version 01/12)
(b) Derived from Category 3 “Mechanically Generated Aggregate, Unprocessed Ores”, Page B.2-13, Appendix B.2 Generalized Particle Size Distributions, AP-42, USEPA (Version 1/95)
(c) Control efficiency of fabric filter on different size of particle refers to Table B.2-3 Typical Collection Efficiencies of Various Particulate Control Device, Appendix B.2 Generalized Particle Size Distributions, AP-42, USEPA (Version 1/95)
(d) The cumulative percentage of all particle sizes maintains 100% in air dispersion model by applying percentage in 6 decimal places.
(e) Details of derivation of the figures are shown in Appendix 3.2

Table 3.10 Particle Size Distribution of Aggregate Handling and Storage Piles

Average Particle Diameter (μm)	Aerodynamic Particle Size Multiplier (k)[(a)]	Normalized Fraction[(b)]
1.25	0.053	15%
3.75	0.2	42%
7.5	0.35	43%

Note:
(a) Reference from Aerodynamic Particle Size Multiplier (k) For Equation 1 Table, Section 13.2.4.3 , AP-42 Fifth Version, USEPA
(b) Derived from dividing the respective aerodynamic particle size multiplier by that of RSP (i.e. 0.35)

Table 3.11 Particle Size Distribution of Fugitive Emission from Paved Roads

Average Particle Diameter (μm)	Particle Size Multiplier (g/VKT)[(a)]	Normalized Fraction[(b)]
1.25	0.15	24%
6.25	0.62	76%

Note:
(a) Reference from Table 13.2.1-1, Section 13.2.1.3 , AP-42 Fifth Version, USEPA
(b) Derived from dividing the respective particle size multiplier by that of RSP (i.e. 0.62)

Dispersion Modelling and Modelling Approach for Open Road

3.5.27 According to *Technical Note for Modelling Vehicular Emission Using AERMOD* by EPD, AERMOD is also used to assess the vehicular emission from open road.

3.5.28 The mixing zone of a road source needs to be defined in the AERMOD. The top of plume is defined as 1.7 times of the average height of vehicle fleet on the road. The average height of vehicle fleet is determined for each road and is weighted by the total daily traffic flow of each vehicle class. The suggested average vehicle height of each vehicle class refers to the same technical note.

Dispersion Modelling and Modelling Approach for Marine Emission

3.5.29 AERMOD was applied to assess the marine emission in the nearby waters. Marine emission is line source in nature because of the mobile vessels along the route. However, the emission also resembles point source for its high exhaust temperature, exhaust velocity and higher release height. In consideration of these similarities, the marine emission along a route was modelled by numerous of point sources along the route with an interval of 50m and its emission strength is equally allocated to these point sources.

3.5.30 High speed vessels, fishing vessels, pleasure vessels, government vessels (mostly patrol boats) and others (mostly tugboats) generally equip with horizontal stack based on site surveys. These vessels are therefore modelled as point source with horizontal release in AERMOD.

Cumulative Impact of Criteria Air Pollutants

3.5.31 Cumulative AQO pollutant concentration at ASR was derived by the sum of contributions by various sources, and background contribution from PATHv3.0 on hour-by-hour basis. Averaging results, namely 10-min, hourly, daily, and annual, were derived from the cumulative hour-by-hour results in accordance with *Title 40, Code of Federal Regulations, US Environmental Protection Agency (USEPA 40 CFR) Part 51 "Revision to the Guideline on Air Quality Models, January 2017*". For annual average, the sum of all valid hourly concentrations was divided by the number of valid hours during the year. For daily average, cumulative results at each ASR amongst 365 days were ranked by highest concentration and compared with the maximum allowable concentration to determine the number of exceedance throughout a year. The air quality impact on ASRs was then evaluated by number of exceedance per annum against the criteria of EIAO-TM and AQOs.

3.5.32 Ozone Limiting Method (OLM) has been adopted for the conversion of short-term NO_X to NO_2 based on the ozone background concentration from PATHv3.0. Regarding vehicular emission, NO_2 and NO were predicted separately in AERMOD. Following the principle of OLM, the total predicted vehicular NO_2 is estimated as below:

$$[NO_2]_{vehicular} = [NO_2]_{predicted} + MIN \{[NO]_{predicted}, \text{ or } (46/48) \times [O_3]_{PATH}\}$$

where

$[NO_2]_{vehicular}$	is the total predicted vehicular NO_2 concentration
$[NO_2]_{predicted}$	is the predicted NO_2 concentration
$[NO]_{predicted}$	is the predicted NO concentration
MIN	means the minimum of the two values within the bracket
$[O_3]_{PATH}$	is the representative O_3 PATH concentration (from other contributions)
(46/48)	is the molecular weight of NO_2 divided by the molecular weight of O_3

3.5.33 With reference to the *Guidance on Choice of Models and Model Parameters*, Jenkin method was adopted for the conversion of cumulative annual average NO_X to NO_2 by using the empirical relationship in observed annual mean of NO_X and NO_2 concentrations. The empirical relationship is derived from the annual mean observed data by relevant EPD's air quality monitoring stations (AQMS) including Tsuen Wan (the closest station), Tap Mun (background station with no vehicular emission), and Mong Kok roadside station (station dominated by vehicular emission). The resulting curve is adopted for the cumulative annual average NO_x to NO_2 conversion. Detailed derivation of NO_X-to-NO_2 conversion equation using Jenkin method is presented in **Appendix 3.7**.

3.5.34 According to "*Guidelines on the Estimation of 10-min average SO_2 Concentration for Air Quality Assessment in Hong Kong*", SO_2 concentration in 10-min average due to the stack emissions was estimated by applying stability-dependent multiplicative factor to 1-hour average model prediction by AERMOD.

3.6 Prediction and Evaluation of Impact

Cumulative Air Quality Impact

3.6.1 The 10th highest cumulative daily averages of RSP and 19th highest cumulative daily averages of FSP concentrations, as well their cumulative annual averages, at each representative ASR are presented in **Table 3.12** – **Table 3.15**, while the 4th highest cumulative 10-min and 4th highest cumulative daily averages of SO_2 concentrations, and 19th highest cumulative hourly, 10th highest daily and annual averages NO_2 concentrations at each representative ASR are presented in **Table 3.16** – **Table 3.20.** The prediction shows that the concentrations of the pollutant of concern would comply with the relevant AQOs at each representative ASR.

3.6.2 According to the predictions at discrete receptors in **Table 3.12** – **Table 3.15**, the worst predicted levels of cumulative daily RSP impact appear at 1.5m and 10m above ground, while those of cumulative annual RSP impact appear at 1.5m and 5m above ground for all representative ASRs. The worst predicted levels of cumulative daily FSP impact appear at 1.5m and 5m above ground, while those of cumulative annual FSP impact occur at 1.5m above ground. Contour plots of cumulative daily average of RSP concentrations at 1.5m and 10m above ground, and cumulative annual average of RSP concentrations at 1.5m and 5m above ground, cumulative daily average of FSP concentrations at 1.5m and 5m above ground and cumulative annual average of FSP concentrations at 1.5m above ground are presented in **Figure 3.2** – **Figure 3.8** respectively.

3.6.3 According to the predictions at discrete receptors in **Table 3.16** – **Table 3.17**, the worst predicted levels of cumulative 10-min and daily averages of SO_2 appear at 1.5m and 15m above ground for all representative ASRs. Contour plots of cumulative 10-min and daily averages of SO_2 concentrations at 1.5m and 15m above ground are presented in **Figure 3.9** – **Figure 3.12** respectively.

3.6.4 According to the predictions at discrete receptors in **Table 3.18** – **Table 3.20**, the worst predicted levels of cumulative hourly, daily and annual averages of NO_2 impact appear at 1.5m above ground for all representative ASRs, except the cumulative hourly average at A08 and daily average at A09, which occur at 5m and 10m respectively. Contour plots of cumulative hourly average of NO_2 concentrations at 1.5m and 5m above ground, daily average of NO_2 concentrations at 1.5m and 10m above ground, and annual averages of NO_2 concentrations at 1.5m above ground, are presented in **Figure 3.13**– **Figure 3.17** respectively.

3.6.5 Exceedance in annual RSP and FSP was generally predicted within the Subject Site and adjacent dockyard areas where slipways and temporary structures are located. It is confirmed that no air sensitive uses are located within the exceedance area.

3.6.6 In short, the predictions at discrete locations and spatial predictions within the study area showed that no adverse air quality impact on the nearby ASRs would be anticipated during the operation of the Proposed Plant.

Table 3.12 Predicted 10th Highest Cumulative Daily Average RSP Concentration (µg/m³) at ASRs

ASR	10th Highest Cumulative Daily Average RSP Concentration (µg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	54.5490	54.5819	54.5946	-	-	-	-	-	-	-	-	-	-	-
A02	55.5579	55.5191	55.3651	55.3132	-	-	-	-	-	-	-	-	-	-
A03	61.1906	60.3142	59.0514	56.0725	-	-	-	-	-	-	-	-	-	-
A04	59.2761	58.7010	57.6933	56.1574	-	-	-	-	-	-	-	-	-	-
A05	56.3075	54.7860	54.5722	54.4047	-	-	-	-	-	-	-	-	-	-
A06	54.1648	54.1550	-	-	-	-	-	-	-	-	-	-	-	-
A07	54.0592	54.0525	54.0383	54.0241	-	-	-	-	-	-	-	-	-	-
A08	55.0123	55.0103	55.0046	54.9902	54.9577	54.8797	-	-	-	-	-	-	-	-
A09	54.9052	54.8969	54.8881	54.8833	54.8785	54.8611	54.8418	54.8328	54.8298	54.8284	54.8276	54.8272	54.8269	54.8266
A14	57.6460	57.3549	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.13 Predicted Cumulative Annual Average RSP Concentration (µg/m³) at ASRs

ASR	Cumulative Annual Average RSP Concentration (µg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	20.7712	20.7764	20.7523	-	-	-	-	-	-	-	-	-	-	-
A02	21.4847	21.3902	21.1521	21.0023	-	-	-	-	-	-	-	-	-	-
A03	24.4667	23.6584	22.7150	21.6564	-	-	-	-	-	-	-	-	-	-
A04	23.2224	22.7786	22.0428	21.3428	-	-	-	-	-	-	-	-	-	-
A05	21.3877	21.1830	20.9217	20.7442	-	-	-	-	-	-	-	-	-	-
A06	20.7026	20.6838	-	-	-	-	-	-	-	-	-	-	-	-
A07	20.5032	20.4994	20.4870	20.4740	-	-	-	-	-	-	-	-	-	-
A08	21.0442	21.0433	21.0390	21.0257	20.9919	20.9308	-	-	-	-	-	-	-	-
A09	20.9520	20.9463	20.9405	20.9358	20.9291	20.9113	20.8969	20.8878	20.8826	20.8797	20.8778	20.8765	20.8754	20.8745
A14	21.8429	21.5984	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.14 Predicted 19th Highest Cumulative Daily Average FSP Concentration (µg/m³) at ASRs

ASR	19th Highest Cumulative Daily Average FSP Concentration (µg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	30.6508	30.6682	30.6581	-	-	-	-	-	-	-	-	-	-	-
A02	31.1616	31.0958	30.8999	30.7959	-	-	-	-	-	-	-	-	-	-
A03	31.9776	32.1107	31.8877	31.3614	-	-	-	-	-	-	-	-	-	-
A04	31.7588	31.7030	31.4771	30.9833	-	-	-	-	-	-	-	-	-	-
A05	30.9627	30.8671	30.7528	30.6804	-	-	-	-	-	-	-	-	-	-
A06	30.5018	30.4935	-	-	-	-	-	-	-	-	-	-	-	-
A07	30.4242	30.4213	30.4134	30.4067	-	-	-	-	-	-	-	-	-	-
A08	31.9815	31.9817	31.9802	31.9726	31.9499	31.9193	-	-	-	-	-	-	-	-
A09	31.9244	31.9202	31.9168	31.9153	31.9141	31.9071	31.9008	31.8978	31.8962	31.8949	31.8940	31.8932	31.8926	31.8922
A14	31.1376	30.9876	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.15 Predicted Cumulative Annual Average FSP Concentration (µg/m³) at ASRs

ASR	Cumulative Annual Average FSP Concentration (µg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	12.9211	12.9199	12.9015	-	-	-	-	-	-	-	-	-	-	-
A02	13.3237	13.2395	13.0649	12.9976	-	-	-	-	-	-	-	-	-	-
A03	14.0153	13.9605	13.9207	13.4214	-	-	-	-	-	-	-	-	-	-
A04	13.7296	13.6495	13.4540	13.1755	-	-	-	-	-	-	-	-	-	-
A05	13.1342	13.0704	12.9875	12.9220	-	-	-	-	-	-	-	-	-	-
A06	12.8945	12.8871	-	-	-	-	-	-	-	-	-	-	-	-
A07	12.8101	12.8078	12.7991	12.7910	-	-	-	-	-	-	-	-	-	-
A08	13.3241	13.3241	13.3218	13.3116	13.2828	13.2307	-	-	-	-	-	-	-	-
A09	13.2457	13.2410	13.2364	13.2332	13.2284	13.2149	13.2041	13.1973	13.1934	13.1912	13.1899	13.1890	13.1883	13.1877
A14	13.3593	13.2701	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.16 Predicted 4th Highest Cumulative 10-Min Average SO_2 Concentration (μg/m³) at ASRs

ASR	4th Highest Cumulative 10-Min Average SO2 Concentration (μg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	23.7310	23.7227	23.7142	-	-	-	-	-	-	-	-	-	-	-
A02	23.7398	23.7334	23.7293	23.7287	-	-	-	-	-	-	-	-	-	-
A03	23.6967	23.7009	23.7186	23.7470	-	-	-	-	-	-	-	-	-	-
A04	23.7048	23.7094	23.7255	23.7500	-	-	-	-	-	-	-	-	-	-
A05	23.6945	23.6986	23.7150	23.7399	-	-	-	-	-	-	-	-	-	-
A06	23.7140	23.7108	-	-	-	-	-	-	-	-	-	-	-	-
A07	23.8171	23.8063	23.7979	23.7943	-	-	-	-	-	-	-	-	-	-
A08	22.9459	22.9452	22.9441	22.9432	22.9422	22.9404	-	-	-	-	-	-	-	-
A09	22.9448	22.9440	22.9429	22.9419	22.9410	22.9392	22.9374	22.9358	22.9342	22.9326	22.9311	22.9296	22.9282	22.9269
A14	23.7189	23.7171	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.17 Predicted 4th Highest Cumulative Daily Average SO_2 Concentration (μg/m³) at ASRs

ASR	4th Highest Cumulative Daily Average SO2 Concentration (μg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	7.3292	7.3284	7.3278	-	-	-	-	-	-	-	-	-	-	-
A02	7.3258	7.3252	7.3250	7.3252	-	-	-	-	-	-	-	-	-	-
A03	7.3267	7.3268	7.3276	7.3291	-	-	-	-	-	-	-	-	-	-
A04	7.3263	7.3263	7.3270	7.3281	-	-	-	-	-	-	-	-	-	-
A05	7.3255	7.3255	7.3262	7.3274	-	-	-	-	-	-	-	-	-	-
A06	7.3210	7.3204	-	-	-	-	-	-	-	-	-	-	-	-
A07	7.3125	7.3118	7.3110	7.3105	-	-	-	-	-	-	-	-	-	-
A08	7.2982	7.2979	7.2976	7.2973	7.2970	7.2966	-	-	-	-	-	-	-	-
A09	7.2976	7.2973	7.2969	7.2966	7.2963	7.2958	7.2954	7.2951	7.2948	7.2946	7.2943	7.2940	7.2937	7.2933
A14	7.3221	7.3217	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.18 Predicted 19th Highest Cumulative Hourly Average NO_2 Concentration (μg/m³) at ASRs

ASR	19th Highest Cumulative Hourly Average NO2 Concentration (μg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	101.156	101.183	100.702	-	-	-	-	-	-	-	-	-	-	-
A02	113.992	109.878	103.004	101.144	-	-	-	-	-	-	-	-	-	-
A03	113.095	109.958	104.592	100.885	-	-	-	-	-	-	-	-	-	-
A04	107.906	107.253	103.383	100.686	-	-	-	-	-	-	-	-	-	-
A05	106.974	104.180	102.129	100.415	-	-	-	-	-	-	-	-	-	-
A06	101.565	101.641	-	-	-	-	-	-	-	-	-	-	-	-
A07	101.978	101.891	100.388	99.975	-	-	-	-	-	-	-	-	-	-
A08	106.989	107.127	106.317	105.705	103.025	100.577	-	-	-	-	-	-	-	-
A09	102.596	102.422	102.323	101.751	100.995	99.797	99.796	99.324	99.324	99.324	99.324	99.324	99.324	99.324
A14	112.296	109.271	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.19 Predicted 10th Highest Cumulative Daily Average NO_2 Concentration (μg/m³) at ASRs

ASR	10th Highest Cumulative Daily Average NO2 Concentration (μg/m³)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	45.324	45.187	44.557	-	-	-	-	-	-	-	-	-	-	-
A02	55.133	52.055	45.767	44.312	-	-	-	-	-	-	-	-	-	-
A03	51.689	50.585	46.443	44.356	-	-	-	-	-	-	-	-	-	-
A04	50.510	49.109	45.696	44.325	-	-	-	-	-	-	-	-	-	-
A05	48.912	48.253	45.908	44.599	-	-	-	-	-	-	-	-	-	-
A06	46.013	45.967	-	-	-	-	-	-	-	-	-	-	-	-
A07	45.626	45.472	44.819	44.040	-	-	-	-	-	-	-	-	-	-
A08	51.861	49.756	49.503	48.892	47.957	47.334	-	-	-	-	-	-	-	-
A09	46.376	44.942	46.495	46.205	45.459	45.174	44.955	44.511	44.118	43.861	43.727	43.665	43.631	43.606
A14	43.587	43.571	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.20 Predicted Cumulative Annual Average NO_2 Concentration (μg/m^3) at ASRs

ASR	Cumulative Annual Average NO2 Concentration (μg/m^3)													
	1.5mAG	5mAG	10mAG	15mAG	20mAG	30mAG	40mAG	50mAG	60mAG	70mAG	80mAG	90mAG	100mAG	110mAG
A01	26.349	26.266	25.944	-	-	-	-	-	-	-	-	-	-	-
A02	31.362	29.814	26.826	26.086	-	-	-	-	-	-	-	-	-	-
A03	30.024	29.045	27.018	26.053	-	-	-	-	-	-	-	-	-	-
A04	28.996	28.374	26.892	26.072	-	-	-	-	-	-	-	-	-	-
A05	27.409	27.078	26.299	25.940	-	-	-	-	-	-	-	-	-	-
A06	26.385	26.362	-	-	-	-	-	-	-	-	-	-	-	-
A07	26.635	26.509	25.916	25.385	-	-	-	-	-	-	-	-	-	-
A08	27.641	27.513	27.314	27.068	26.576	25.733	-	-	-	-	-	-	-	-
A09	26.297	26.109	25.920	25.815	25.719	25.499	25.334	25.235	25.181	25.149	25.131	25.119	25.110	25.104
A14	29.722	28.836	-	-	-	-	-	-	-	-	-	-	-	-

3.7 Mitigation Measures

Plant Operation

3.7.1 It should be noted that the mitigation measures applied in the calculations are based on the proposed configuration of the Project. Details of mitigation measures that will be implemented in the plant have been presented in **Table 3.5**.

3.7.2 Despite the air control technologies and control measures proposed, good operation and maintenance practices is vital in achieving the goals of air pollution control measures and ensuring the environmental performance of the Plant. Standard operation and maintenance procedures will be set up and followed by all the operation staff to keep all the air pollution control equipment in good operating condition. Adequate training will be given to the personnel for inspection and maintenance of all the air pollution control equipment.

3.7.3 The plant operator shall maintain high standard of housekeeping to prevent emission of fugitive dust. Loading, unloading, handling and storage of raw materials, products, wastes or by-products should be carried out in an acceptable manner so as to minimize dust emission impact on the surrounding environment.

3.7.4 All sprinkler system used for dust suppression shall be maintained in good condition during operation. The flow rate and operating pressure of the spraying liquid/solution shall be sufficient to suppress dust emission from the corresponding sources. The sprinkler system shall be able to cover the areas of emission points concerned.

3.7.5 Air pollution control equipment, including fabric filters with 99.9% dust removal efficiency, silo overfilling alarms and filling link interlock shall be maintained in good operation condition and put into use whenever the relevant plant served by the air control equipment is in operation.

3.7.6 In order to guarantee the control efficiency of the dust collectors implemented, the performance of dust collectors will be monitored by fitting a pressure gauge to indicate the adequate pressure drop across the filter throughout the operation.

3.7.7 The emission rate or concentrations at all identified emission sources shall also be monitored upon commissioning and during the operation of the Project. The sampling methods for the emission sources and the monitoring programme shall be agreed with the EPD prior to the operation of the proposed CBP.

3.7.8 The dust extraction and collection system shall be routinely inspected at least once per month. This system shall be maintained in good condition during production. Collected dust will be returned to process stream or disposed of without generating any fugitive dust.

3.7.9 The maintenance, repair, or general cleaning of the plant facilities and vehicle within the site boundary shall be carried out in such a manner that the air emission is minimized.

3.7.10 The plant operator shall take all practical measures to minimize air emissions which may be caused by handling the muddy waste generated from the plant operation. No accumulation and dumping of such waste are allowed in open area.

3.7.11 Malfunction or breakdown of equipment leading to abnormal emission shall be dealt with promptly. In any case, the abnormal emission due to equipment failure shall be stopped as soon as possible. Sufficient numbers of spare parts for air pollution control equipment shall be kept in stock to allow rapid repair of the equipment. Each fabric filter shall be inspected at least once per month.

3.7.12 Should any office or control room of the Project be located within any predicted exceedance zones discussed above, it is recommended that centralized air conditioning and air filtering system with recommended dust removal efficiency of at least 90% shall be installed to minimize the air quality impacts and achieve AQO compliance at these uses in the plant.

3.7.13 Together with proper operation and maintenance practices discussed above, the proposed measures should ensure that there will be no adverse air quality impacts on any nearby ASRs, as predicted by the air quality impact assessment. As a Specified Process defined under the APCO, a licence from EPD will be applied where the detailed design of plant and air quality control proposals will be formulated to ensure full compliance with relevant requirements under the APCO during operation.

Odour from Sediments from Dredging and Maintenance Dredging

3.7.14 The dredging activities during both construction and operation phases might result in odour impacts. The following precautionary measures are proposed to minimize the potential impacts:

- Loading of the dredged sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.
- Any dredged sediment should be stored in enclosed tanks or properly covered as far as practicable to minimise its exposed area during its temporary storage and should be placed as far away from the identified ASRs as practically possible.
- Dredging rate should be controlled carefully.
- The dredged sediment is suggested to be delivered off-site for disposal every day as possible to avoid the dredged sediment for storage at the barge overnight.
- Dredged sediment placed on marine vessel for disposal should also be properly covered during transportation.
- The dredging activities are conducted during non-summer season.

With the implementation of these measures, the potential odour nuisance could be minimized and adverse odour impact at nearby ASRs is not expected.

4 NOISE

4.1 Introduction

4.1.1 The construction and operation of the concrete batching plant may induce potential noise impacts to surrounding noise sensitive receivers. Representative Noise Sensitive Receivers (NSRs) in the vicinity of the study area are identified. The potential noise impacts on these NSRs arising from the Proposed Plant are assessed and appropriate mitigation measures are proposed to alleviate the potential noise impacts where necessary.

4.2 Description of Environment

4.2.1 The Subject Site is located at Tsing Yi Town Lot Nos. 14& 15 at Tam Kon Shan Road in the northern Tsing Yi . It is located on marine frontage in the north and surrounded by areas of dockyards and marine-oriented industries in the east and west. Green@Kwai Tsing, site office and Tsing Yi Northeast Park are in the further east. Tam Kon Shan Road and Tsing Yi North Coastal Road is in the south of the Subject Site. The existing noise climate of the study area is dominated by the fixed plant noise from the existing dockyards and road traffic noise from the highways and local roads in the vicinity.

Noise Sensitive Receivers

4.2.2 In accordance with Annex 13 of the EIAO-TM, all domestic premises, including temporary housing accommodation, educational institution, hospital, medical clinic, home for the aged, convalescent homes, places of public worship, libraries, courts of law, performing arts centres, auditoria, amphitheatres and hostels shall be considered to be as NSRs. Representative NSRs are to be identified within the study boundary, which is 300 m from the Site.

4.2.3 Referring to the Tsing Yi Outline Zoning Plan No. S/TY/32, the land uses within 300m of the subject site are “Other Specified Uses” annotated “Boatyard and Marine-oriented Industrial Uses” (“OU(BMIU)”) and green belts, and there are no residential uses or educational institutes. After carrying out detailed desktop review and site survey, no noise sensitive receiver (NSR) is identified within the 300m of the subject site. The nearest NSR identified is The Met. Azure, which is located approximately 350m from the proposed CBP on top of the hill.

4.3 Environmental Legislation and Guidelines

Construction Noise

4.3.1 The Noise Control Ordinance (NCO) provides the statutory framework for noise control of construction work other than percussive piling, using Powered Mechanical Equipment (PME) between the hours of 1900 and 0700 hours or at any time on a general holiday (i.e. restricted hours). Noise control on construction activities taking place at other times is subject to the Noise assessment criteria for Daytime Construction Activities as stated in Professional Persons Environmental Consultative Committee (ProPECC) Practice Notes PN2/93 Noise from Construction Activities - Non-statutory. The noise assessment criteria are 75 dB(A) for domestic dwelling, 70 dB(A) for schools during normal teaching period and 65 dB(A) for schools during examination period.

Operation Fixed Plant Noise

4.3.2 Industrial fixed plant noise impacts were assessed in accordance with the criteria and methodology given in the Technical Memoranda made under the NCO, and Hong Kong Planning Standard and Guidelines (HKPSG).

4.3.3 The HKPSG states that all fixed noise sources should be so located and designed that when assessed in accordance with the Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM), the level

of the intruding noise at the facade of the nearest sensitive use should be at least 5 dB(A) below the appropriate ANL shown in Table 2 of the IND-TM or, in the case of the background being 5 dB(A) lower than the ANL, the predicted noise level should not exceed the background.

4.3.4 Determination of the ANL depends on the area sensitivity rating (ASR), which is based on the characterization of the area within which they are located such as rural, village, low-density residential, or urban. Within these areas, the presence of "influencing factors" (such as the presence of industrial activities or major roads) can further affect the ASR and therefore the acceptable noise level. The ASR is determined from **Table 4.1** below.

Table 4.1 Area Sensitivity Ratings (ASRs)

Type of Area Containing NSR	Degree to which NSR is affected by IF		
	Not Affected	Indirectly Affected	Directly Affected
Rural Area	A	B	B
Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
Urban Area	B	C	C
Area other than those above	B	B	C

4.3.5 The ANLs for all ASRs are provided in **Table 4.2**.

Table 4.2 Acceptable Noise Levels for Fixed Noise Sources

Time Period	Acceptable Noise Level, dB(A)		
	ASR A	ASR B	ASR C
Daytime and Evening (0700 to 2300 hours)	60	65	70
Night (2300 to 0700 hours)	50	55	60

4.3.6 The surrounding area of the Project site is of industrial uses, which is not rural area, low density residential area, nor urban area. Therefore, the type of use of the area is considered as “area other than those above”. The area is directly affected by influencing factors, such as nearby industries and traffic noise from local roads and highways. With reference to **Table 4.1** above, ASR of “C” has been assumed for the NSR in the vicinity of the proposed Project site.

4.3.7 In any event, the ASR assumed in this report is for indicative assessment only. It should be noted that the fixed noise sources are controlled under Section 13 of the NCO. At the time of investigation, the Noise Control Authority shall determine noise impact from concerned fixed noise sources on the basis of prevailing legislation and practices being in force and taking account of contemporary conditions/situations of adjoining land uses. Nothing in this report shall bind the Noise Control Authority in the context of law enforcement against all the fixed noise sources being assessed.

4.3.8 The HKPSG recommends that the level of the intruding noise at the façade of the nearest sensitive use should be at least 5 dB(A) below the appropriate ANL or, in the case of background noise being 5 dB(A) lower than the ANL, the predicted noise level arising from the operation of the Proposed Plant at the façade of the nearest sensitive use should not exceed the background noise level.

4.4 Identification and Evaluation of Impact

Construction Phase

4.4.1 During the construction phase, the use of PME for the construction works of the proposed development would likely be the source of noise impact and would have the potential noise impact on the NSR located in the vicinity of the Subject Site.

4.4.2 In view of the nature of the development, the major construction activities would include minor excavation for foundation works and plant fabrication works. Potential noise impacts generated from the use of PME such as excavators, generators, air compressors, cranes, lorries, and pneumatic breakers for these construction activities would be expected.

4.4.3 In order to alleviate the potential construction noise impacts on the nearby NSRs, the following mitigation measures are suggested:

- Scheduling of work to avoid simultaneous operation of noisy equipment and erecting, as early as possible, any new structures which will have the effect of screening noise sources
- Noisy equipment should be located as far as possible from the NSR
- Implementation of good site practices to limit noise emissions at source
- Use of quieter PME
- Use of quieter alternative construction method
- Use of noise barriers/enclosure

4.4.4 With the implementation of the noise mitigation measures, it is anticipated that there would be no unacceptable construction noise impacts.

Operation Phase

4.4.5 In general, the CBP will operate from 07:00 to 21:00. The production rate and number of on-site vehicles are listed in **Table 4.3**.

Table 4.3 Production Rate and Number of On-site Vehicles during Normal Day

Activities / On-site Vehicles	07:00 – 21:00
Concrete Production Rate	100%
Concrete mixer truck per hour	43
PFA/GGBS/Silica Fume tanker per hour	2
Aggregates tipper truck per hour	0

4.4.6 However, no NSR has been identified within the study area and the nearest NSR, The Met, Azure, is 350m away on top of the hill. Given that sufficient separation distance from the NSR, more than 300m, the operational noise impact would become negligible. No adverse noise impact would be expected due to the operation of the propose CBP.

4.4.7 No further mitigation measures would therefore be required for the Proposed Plant.

5 WATER QUALITY

5.1 Introduction

5.1.1 The potential water quality impacts associated with the construction and operation of the proposed concrete batching plant are assessed in this section. Where necessary, mitigation measures are proposed to ensure that all residual impacts are in compliance with the relevant environmental legislation, standards and guidelines.

5.2 Environmental Legislation and Guidelines

5.2.1 The Water Pollution Control Ordinance (Cap.358) provides the major statutory framework for the protection and control of water quality in Hong Kong. According to the Ordinance and its subsidiary legislation, Hong Kong waters are divided into ten Water Control Zones (WCZ). Corresponding statements of Water Quality Objectives (WQO) are stipulated for different water regimes (marine waters, inland waters, bathing beaches subzones, secondary contact recreation subzones and fish culture subzones) in the WCZ based on their beneficial uses. The proposed concrete batching plant site is located within the Western Buffer Water Control Zone.

Technical Memorandum

5.2.2 Besides setting the WQOs, the WPCO controls effluent discharging into the WCZs through a licensing system. A Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters was issued under the WPCO which gives guidance on the permissible effluent discharges based on the type of receiving waters (foul sewers, storm water drains, inland and coastal waters). The limits control the physical, chemical and microbial quality of effluents. The discharge standard will vary with the use of downstream water. Any new effluent discharge would be required to comply with the terms and conditions of a discharge licence, issued by EPD, under the WPCO.

Practice Notes

5.2.3 A Practice Note (PN) for Professional Persons was issued by the EPD to provide environmental guidelines for handling and disposal of construction site discharges. The PN 2/24 “Construction Site Drainage” provides good practice guidelines for dealing with various types of discharge from a construction site. Practices outlined in the PN should be followed as far as possible during construction to minimize the water quality impact due to construction site drainage.

5.3 Identification and Evaluation of Impact

Construction Phase

Dredging Works

5.3.1 The recent sounding survey showed that sedimentation has reduced the nearshore water depth at the barging point to below the level required for safe barging operations. To restore the nearshore water depth, a dredging works during construction is thus proposed to remove the accumulated sediment at the nearshore of the Site and restore adequate water depth for safe vessel navigation. The proposed dredging works is required to be carried out once during the construction phase of the Project. The extent of the dredging is illustrated in **Figure 6.1.** Approximately 4,000 m^3 of dredged sediment is involved based on the preliminary design and subject to further detailed analysis and the dredging is estimated to last 10 days based on the preliminary design. The dredging would cause potential water quality impacts on the water column.

5.3.2 Mitigation measures including deployment of silt curtain will be implemented during the dredging works. A silt curtain deployment plan should be submitted to EPD prior to the commencement of the dredging works, under which detailed silt curtain arrangement should be

proposed. The dredging works should be carried out in dry season to further minimize the potential water quality impact. With reference to *Recommended Pollution Control Clauses for Construction Contracts* (RPCC), all equipment shall be designed and maintained to minimize the risk of silt and other contaminants being released into the water column or deposited in locations other than designated location. All vessels shall be monitored to ensure that no dumping outside the approved location nor loss of material during transportation takes place. Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water, and vessels shall not be filled to a level which will cause overflowing of material or polluted water during loading or transportation. With the implementation of these measures, no adverse water quality impact due to the dredging is anticipated. In case of any changes in the programme, the dredging works will be minimized during the wet season.

Land-based Works

5.3.3 Based on the engineering design, land-based works would be involved during the construction. Potential sources of water quality impact associated with the construction phase of the proposed concrete batching plant have been identified and include:

- excavation and foundation works;
- construction site runoff and drainage;
- general construction activities; and
- sewage effluent produced by on-site workforce.

Construction Site Runoff and Drainage

5.3.4 Runoff from the construction works areas during earthworks may contain increased loads of suspended solids and contaminants. Potential sources of pollution from site drainage include:

- runoff and erosion from exposed soil surfaces, earth working areas and stockpiles;
- bentonite slurries from foundation works.
- wash water from dust suppression sprays; and
- fuel and lubricants from maintenance of construction vehicles and mechanical equipment.

5.3.5 Mitigation measures should be implemented to control construction site runoff and drainage from the works areas, and to prevent runoff and drainage water with high levels of suspended solids from entering the nearby waters or local storm water drainage system. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. With the implementation of adequate construction site drainage and provision of sediment removal facilities, it is anticipated that unacceptable water quality impacts would not arise.

General Construction Activities

5.3.6 On-site construction activities may cause water pollution from the following:

- uncontrolled discharge of debris and rubbish such as packaging, construction materials and refuse; and
- spillage of liquids stored on-site, such as oil, diesel and solvents etc., are likely to result in water quality impacts if they enter the nearby waters or local storm water drainage system.

5.3.7 Good construction and site management practices should be observed to ensure that litter, fuels and solvents do not enter the nearby watercourses or storm water drains.

Sewage Effluents

5.3.8 Domestic sewage would be generated from the workforce during the construction phase. However, this temporary sewage can be adequately treated by interim sewage treatment facilities, such as portable chemical toilets, which can be installed within the construction site. It is unlikely that sewage generated from the site would have a significant water quality impact,

provided that sewage is not discharged directly to the nearby waters or drainage channels, and chemical toilets are used and properly maintained.

5.3.9 Given the nature of the proposed development, the duration of the construction activities will be relatively short and only minimal excavation is required for foundation works. With the above recommended mitigation measures, it is anticipated the water quality impact will be insignificant during the construction phase.

5.3.10 However, no water sensitive receiver has been identified within 500m from the project site. No adverse water quality impact would be expected due to the construction of the Project. No further mitigation measures would therefore be required.

Operation Phase

5.3.11 During operation phase, the main sources of wastewater would be mixer truck cleaning activities, the wheel washing facility, general site cleaning, water spraying for dust suppression and lorries cleaning before exiting the plant. On-site wastewater recycling system will be provided to collect wastewater for recycling and reuse. 3 recycle water tanks with total capacity of 55,000L will be provided for storage of recycled wastewater from the on-site wastewater recycling system to minimize any potential discharge of wastewater. All transfer of aggregates will be conducted in enclosed condition and no potential water quality impact is expected during unloading of aggregates.

5.3.12 The plant has been designed to contain all production wastewater as well as surface runoff within the plant. Surface channel will be laid within the plant to collect any production wastewater and runoff. The ground will also be formed with gradient such that all surface runoff flows toward the middle of the Site and collected by the surface channel. The site arrangement and layout of surface channels are presented in **Appendix 5.1**. With the implementation of such site arrangement, no water will be discharged from the plant.

5.3.13 Wastewater generated from mixer truck cleaning activities will be collected at container and passed through the reclaimer to separate aggregates and slurry, after which the slurry water will be directed into the wastewater tanks. The slurry water will then pass through a filter press to capture cement particle. The clear water will be collected in the clear water tank where the water will be pumped to the water tank for recycling. The reclaimed water will be reuse for site cleaning, truck washing and/or concrete production. Details of the wastewater treatment is presented in **Appendix. 5.2**.

Stormwater Runoff

5.3.14 Surface runoff from the Site will be retained within the site and collected via the surface channels for recycling as discussed in **Section 5.3.12** and no water will be discharged from the plant. No adverse drainage impact to the existing drainage system would be expected.

Sewage Effluents by Work Force and Visitors (concrete mixer truck drivers)

5.3.15 Domestic sewage will be expected from the workforce and visitors (concrete mixer truck drivers) during the operation phase. Around 15 staffs will be required for the routine operation of the Proposed Plant. The sewage generated from the workforce and visitors is expected to be small in quantity. Purposedly-built toilets will be provided on-site. With the connection to public sewerage, the domestic sewage will be collected and discharged via the public sewerage network.

5.3.16 However, no water sensitive receiver has been identified within 500m from the project site and the closest WSR is illustrated in **Figure 5.1**.No adverse water quality impact would be expected due to the operation of the Project. No further mitigation measures would therefore be required. A Sewerage Impact Assessment (SIA) will be carried out and submitted to the satisfaction of SIG.

Maintenance Dredging

5.3.17 Maintenance dredging would be required during operation subject to the siltation rate. Should a maintenance dredging be required, it is expected to be carried out in two days. And the sediment volume to be removed under each maintenance dredging event is expected to be less than 500 m^3 in total. Deployment of silt curtain and relevant mitigation measures will be deployed during the maintenance dredging as mentioned in **Section 5.3.2.** No adverse water quality impact due to the maintenance dredging is anticipated.

6 WASTE MANAGEMENT

6.1 Introduction

6.1.1 This section includes the discussion of the following issues in relation to waste management:

- identifies the type of wastes that would be generated during construction and operation of the proposed concrete batching plant;
- assesses the potential environmental impacts that are associated with the handling and disposal of these wastes; and
- mitigation measures and good site practice, including waste handling, storage and disposal, were recommended with reference to the applicable legislation and guidelines.

6.2 Environmental Legislation and Guidelines

6.2.1 The criteria and guidelines for assessing waste management implications are set out in Annex 7 and Annex 15 of the EIAO-TM, respectively.

6.2.2 The following legislation relates to the handling, treatment and disposal of wastes in the Hong Kong SAR and has been used in assessing potential environmental impacts:

- Waste Disposal Ordinance (Cap. 354)
- Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C)
- Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)
- Land (Miscellaneous Provisions) Ordinance (Cap. 28)
- Public Health and Municipal Services Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation
- Dumping at Sea Ordinance (Cap. 466)

Waste Management

6.2.3 The Waste Disposal Ordinance (WDO) prohibits the unauthorised disposal of wastes. Construction waste is defined as any substance, matter or thing that is generated from construction work and abandoned, whether or not it has been processed or stockpiled before being abandoned, but does not include any sludge, screenings or matter removed in or generated from any desludging, desilting or dredging works. Under the WDO, wastes can be disposed of only at designated waste disposal facilities.

6.2.4 Under the WDO, the Chemical Waste (General) Regulation provides regulations for chemical waste control, and administers the possession, storage, collection, transport and disposal of chemical wastes. The Environmental Protection Department (EPD) has also issued guideline documents, the “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes”, “A Guide to the Chemical Waste Control Scheme”, and “A Guide to the Registration of Chemical Waste Producers”, which detail how the Contractor should comply with the regulations on chemical wastes.

6.2.5 The Public Cleansing and Prevention of Nuisances Regulation provides control on illegal tipping of wastes on unauthorised (unlicensed) sites.

Construction and Demolition (C&D) Material

6.2.6 The current policy related to the disposal of C&D material is documented in the Works Branch Technical Circular No. 2/93, ‘Public Dumps’. Construction and demolition materials that are wholly inert, namely public fill, should not be disposed of to landfill, but taken to public filling areas, which usually form part of reclamation schemes. The Land (Miscellaneous Provisions) Ordinance requires that dumping licences be obtained by individuals or companies who deliver public fill to public filling areas. The Civil Engineering & Development Department (CEDD) issues the licences under delegated powers from the Director of Lands.

6.2.7 Under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation, enacted in January 2006, construction waste delivered to a landfill for disposal must not contain more than 50% by weight of inert material. Construction waste delivered to a sorting facility for disposal must contain more than 50% by weight of inert material, and construction waste delivered to a public fill reception facility for disposal must consist entirely of inert material.

6.2.8 Measures have been introduced under Practice Note for Authorized Persons and Registered Structural Engineers No. 243 (PNAP ADV-19) on Construction and Demolition Waste, to enhance the management of construction and demolition material, and to minimize its generation at source. A Waste Management Plan (WMP) shall be prepared by the contractor and agreed by the engineer. The WMP may cover the types of waste and their estimated quantities, measures for reducing waste generation, on-site material reuse, quantities of waste requiring off-site disposal, disposal outlet, monitoring and auditing programme, implementation of the trip-ticket system, etc.

Chemical Waste

6.2.9 Under the Waste Disposal (Chemical Waste) (General) Regulation, all producers of chemical waste must register with EPD and treat their wastes, either utilising on-site plant licensed by EPD, or arranging for a licensed collector to transport the wastes to a licensed facility. The regulation also prescribes the storage facilities to be provided on site, including labelling and warning signs, and requires the preparation of written procedures and training to deal with emergencies such as spillages, leakages or accidents arising from the storage of chemical wastes.

Dredged Sediment

6.2.10 The Dumping at Sea Ordinance (DASO) came into operation in April 1995 and empowers the Director of Environmental Protection (DEP) to control the disposal and incineration of substances and particles at sea for the protection of the marine environment. Under the Ordinance, a dumping permit from the DEP is required for the disposal of regulated substances within and outside the waters of Hong Kong. The permit contains terms and conditions which include the following specifications, but not limited to:

- Type and quantity of substances permitted to be dumped;
- Location of the disposal grounds;
- Requirement of equipment for monitoring the disposal operations; and
- Environmental monitoring requirements.

6.2.11 Marine disposal of any dredged/excavated sediment is subject to control under DASO. Dredged/excavated sediment destined for marine disposal is classified based on its contaminant levels with reference to the Administrative Guidance – Management Framework for Disposal of Dredged/Excavated Sediment. The Administrative Guidance stipulated a set of sediment quality criteria or Chemical Exceedance Levels (CEL) for contaminants including metals, metalloid and organic pollutants.

6.2.12 The Administrative Guidance - Management Framework for Disposal of Dredged/Excavated Sediment sets out the procedure for seeking approval to and the management framework for marine disposal of dredged/excavated sediment. It outlines the requirements to be followed in assessing and classifying the sediment and explains the marine disposal arrangement for the classified material. The sediment quality criteria for the classification of sediment were referred as the Lower Chemical Exceedance Level (LCEL) and Upper Chemical Exceedance Level (UCEL). The LCEL and UCEL are presented in Appendix A of the Administrative Guidance. Subject to the results of the chemical screening, biological screening may be required to determine the disposal requirement of the sediment. There are three types of disposal options for dredged / excavated sediments stipulated in the Administrative Guidance as listed below.

- Type 1 – Open Sea Disposal;
- Type 2 – Confined Marine Disposal; and
- Type 3 – Special Treatment/Disposal.

6.3 Prediction and Evaluation of Impacts

Construction Phase

6.3.1 Based on the engineering design, only land-based works would be involved during the construction, i.e. no marine work is expected. The construction activities to be carried out for the Proposed Plant would generate a variety of wastes that can be divided into distinct categories based on their composition and ultimate method of disposal. The identified waste types include:

- construction and demolition (C&D) materials from the excavation and construction works;
- general refuse from the workforce;
- chemical waste from any maintenance of construction plant and equipment; and
- dredged sediment from maintenance dredging.

Construction and Demolition (C&D) Materials

6.3.2 C&D materials contain a mixture of inert and non-inert materials. The inert portion, such as soil, rock, concrete, brick and asphalt etc., is known as “public fill” and the non-inert portion, including metal, timber, paper, glass and general garbage is known as “C&D waste”. C&D materials comprise unwanted materials generated during construction, including rejected structures and materials, materials which have been over-ordered and materials which have been used and discarded. Examples of C&D materials may include:

- wood from formwork and falsework (non-inert portion);
- material and equipment wrapping (non-inert portion);
- unusable/surplus concrete/grouting mixes (inert portion); and
- damaged/ surplus construction materials (inert portion such as bricks).

6.3.3 For the whole civil construction period, approximate 1,250 tonnes of C&D material will be generated, where there are around 950 tonnes from the demolition of existing buildings and around 300 tonnes from construction works. Demolished debris would comprise inert materials including reinforced concrete waste (700t), soil and gravel (100t), and other miscellaneous inert material (60t), and non-inert materials including waste steel (60t) and timber (30t). Excavated soil (around 300t) from foundation works is expected to be the major inert C&D materials during construction. The Contractor is responsible for transfer of C&D materials to public fill reception facilities or landfills, depending on the type of material and the percentage of inert material. The public fill inert portion should be reused on site or disposed delivered to public fill reception facilities for beneficial uses. The non-inert portion of the C&D materials should be reused or recycled, and disposal of at designated landfills as the last resort. Waste steel in the C&D material will be delivered to recycler to minimize disposal quantity to landfill, among which around 20 tonnes of steel can be recycled.

6.3.4 C&D materials should be sorted on-site and be separated as public fill (inert portion) and C&D waste (non-inert portion). Due to the inert nature of most of the C&D materials generated, disposal would be unlikely to raise environmental concerns. The quantity of non-inert C&D materials is considered to be small and is not envisaged to have any adverse impact on the capacity of landfills.

Chemical Wastes

6.3.5 The Waste Disposal (Chemical Waste) (General) Regulation defines chemical waste as any substance being scrap material or unwanted substances specified in its Schedule 1 and provides a complete list of such substances. However, substances likely to be generated by construction activities would mainly arise from the maintenance of equipment. These may include, but not be limited to, the following:

- scrap batteries or spent acid/alkali;
- used engine oils, hydraulic fluids and waste fuel;
- spent mineral oils/cleaning fluids from mechanical machinery; and
- spent solvents/solutions, some of which may be halogenated, from equipment cleaning activities.

6.3.6 The amount of chemical waste generated from the construction activities depends on the Contractor's on-site maintenance requirements and the amount of plant utilised. However, it is anticipated that the quantity of chemical waste would be minimal, e.g. a few hundred litres, due to the short-term construction of the Proposed Plant.

6.3.7 To mitigate any potential chemical waste impact to the environment, chemical wastes should be handled according to the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*. Spent chemicals should be collected by a licensed collector for disposal at the CWTC or other licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.

6.3.8 Provided that the handling, storage and disposal of chemical wastes are in accordance with these requirements, adverse environmental impacts would be negligible.

General Refuse

6.3.9 Throughout construction, the workforce would generate general refuse comprising food scraps, waste paper, empty containers, etc. Release of general refuse into the roadside gully/surface channel should not be permitted as introduction of these wastes is likely to have detrimental effects on water quality in the area. Rapid and effective collection of site wastes would be required to prevent waste materials being blown around by wind, flushed or leached into the aquatic environment, and odour nuisance. The work sites may also attract pests and vermin if the waste storage area is not well maintained and cleaned regularly. Disposal of refuse at sites other than approved waste transfer or disposal facilities can also result in similar impacts.

6.3.10 General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D materials. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. Assuming a generation rate of 0.65 kg per worker per day and around 30 workers deployed for the construction works, approximately 20 kg of general refuse will be generated by the workforce per day, i.e. approximately 4,800 kg of total amount of general refuse in 12-month construction period. The collected general refuse will be recycled at recycling facilities and/or disposed of at designated landfill such as NENT or WENT.

6.3.11 With the implementation of the recommended waste management practices at the site, adverse environmental impacts arising from the storage, handling and transportation of refuse would not be expected.

Dredged Sediment

6.3.12 Maintenance dredging is required to remove the accumulated sediment at the nearshore of the Site in order to restore adequate water depth for safe vessel navigation. The proposed dredging works is required to be carried out once during the construction phase of the Project. The proposed dredging area is shown in **Figure 6.1**. Based on preliminary estimation and subject to further detailed analysis, the estimated volume of dredged sediment arising from the proposed maintenance dredging operation is expected to be approximately 4,000 m^3.

6.3.13 EPD conducts routine monitoring of the bottom sediment quality at 60 stations across the territory of Hong Kong waters. Among these 60 stations, the monitoring station Rambler Channel (VS10) is the closest to the Site. Location of VS10 is shown in **Figure 6.2**.

6.3.14 The sediment quality data at VS10 from 2019 to 2023, as extracted from the latest available EPD's Annual Marine Water Quality Report in 2023, is summarised in **Table 6.1**. As shown in **Table 6.1**, nickel, arsenic and all organic-polyaromatic hydrocarbons (PAHs) were below the LCEL in accordance with the Administrative Guidance. For cadmium, chromium, mercury, lead and total polychlorinated biphenyls (PCBs), the highest levels measured were equal to or above the corresponding LCEL but below the UCEL. For copper, both the arithmetic mean value and highest level measured had exceeded the UCEL. For silver and zinc, the arithmetic mean value had exceeded the corresponding LCEL but below the UCEL and the highest levels measured were above the corresponding UCEL.

Table 6.1 Summary of Sediment Quality Data at EPD Monitoring Station VS10 (Year 2019 to 2023)[1]

Contaminants	Lower Chemical Exceedance Level (LCEL)	Upper Chemical Exceedance Level (UCEL)	Arithmetic Mean Concentration (Data in Brackets Indicate Ranges)
Metals (mg/kg dry wt.)			
Cadmium (Cd)	0.8	4	0.4 (0.2 – 0.8)
Chromium (Cr)	80	160	67 (28 - 120)
Copper (Cu)	65	110	**140** (48 - **250**)
Mercury (Hg)	0.3	1	0.22 (0.10 - 0.37)
Nickel (Ni)	40	40	29 (13 - 37)
Lead (Pb)	75	110	56 (37 - 79)
Silver (Ag)	1	2	1.6 (0.5 – **3.2**)
Zinc (Zn)	200	270	220 (99 - **330**)
Metalloid (mg/kg dry wt.)			
Arsenic (As)	20	42	11.6 (6.8 - 16.0)
Organic-PAHs (µg/kg dry wt.)			
Low Molecular Weight PAHs[2]	550	3160	120 (90 - 200)

Contaminants	Lower Chemical Exceedance Level (LCEL)	Upper Chemical Exceedance Level (UCEL)	Arithmetic Mean Concentration (Data in Brackets Indicate Ranges)
High Molecular Weight PAHs[3]	1700	9600	370 (120 - 910)
Organic-non-PAHs (µg/kg dry wt.)			
Total PCBs[4]	23	180	20 (18 - 33)
Organometallics (µg TBT/L in interstitial water)			
Tributyltin	0.15	0.15	N/A[5]

Notes:
(1) Data extracted from EPD's Marine Water Quality in Hong Kong in 2023.
(2) Low molecular weight polyaromatic hydrocarbons (PAHs) include 6 congeners of molecular weight below 200, namely: Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene and Phenanthrene.
(3) High molecular weight polyaromatic hydrocarbons (PAHs) include 10 congeners of molecular weight above 200, namely: Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene and Indeno(1,2,3-cd)pyrene.
(4) Total PCBs results are derived from the summation of 18 congeners. If the concentration of a congener is below report limit (RL), the result will be taken as 0.5xRL in the calculation.
(5) Sediment data is not available.

6.3.15 As the Site is flat and ready for construction of the Proposed Plant, only minimum backfilling works would be required under the Project and thus the reuse of dredged sediment on site as backfilling materials is unlikely. In view of the above, the dredged sediment would be disposed of at the designated marine disposal areas according to the Administrative Guidance. The disposal options for the dredged sediment should follow the procedures in the Administrative Guidance. Subject to agreement with Marine Fill Committee (MFC) of CEDD, the marine disposal sites for Type 1 – Open Sea Disposal are typically South Cheung Chau and East of Ninepin. For Type 2 – Confined Marine Disposal, the marine disposal sites are typically East Sha Chau. For Type 3 – Special Treatment/Disposal, the project proponent should identify and agree with DEP the most appropriate treatment and/or disposal arrangement. Seabed dredging should be minimised and the dredged marine sediment should be disposed of in a manner which minimizes the loss of pollutants into solution or by re-suspension. Mitigation measures will also be proposed in order to alleviate the adverse environmental impacts, including potential odour / dust emissions and water quality impacts, brought by dredged marine sediment. Given the recommended mitigation measures are implemented, adverse environmental impacts arising from dredged marine sediment will be minimal.

Operation Phase

Solid Waste

6.3.16 The major portion of solid waste arising from the Proposed Plant will be waste concrete, slurry, chemical wastes for maintenance of on-site plants and general refuse from site workers.

6.3.17 Waste concrete and slurry from washing will be diverted to the reclaimer to separate aggregates and slurry, after which the slurry will be directed into the wastewater tanks and the aggregate will be reused for production. The slurry water will then pass through a filter press to capture cement particle. The clear water will be collected in the clear water tank where the water will be pumped to the water tank for recycling. The solid waste including dried sludge cake collected by filter press and waste concrete / aggregates unfit for recycling will be disposed of at designated landfill such as NENT or WENT by waste disposal trucks. Estimated quantities for the solid waste is about 20 tonnes per day.

6.3.18 The Proposed Plant will be registered as a chemical waste producer prior to commencement of operation if chemical waste is expected to be generated. Estimated quantities for chemical waste is expected to be 1L per day. A licensed chemical waste collector will be engaged for proper disposal of the chemical waste at the CWTC or other licensed facility. Records of "Trip Ticket" will be maintained in the site office.

6.3.19 General refuse should be collected by on-site enclosed rubbish bins and collected by the waste collector on a daily basis or every two days, in order to minimize odour, pest and litter impact. Based on a generation rate of 1.02 kg[1] per worker per day and around 15 workers deployed at the plant, approximately 15.3 kg of general refuse will be generated daily during the operational phase. The general refuse collected by reputable waste collector will be recycled at recycling facilities and/or disposed of at designated landfill such as NENT or WENT.

6.3.20 Provided that the environmental control measures are properly implemented, no adverse environmental impact would be anticipated with respect to solid waste management. Formwork should avoid using standard wooden panels, instead alternative materials with high potential for reuse should be considered, such as steel formwork or plastic facing.

Dredged Sediment from Maintenance Dredging

6.3.21 Maintenance dredging would be required during operation subject to the siltation rate. Should a maintenance dredging be required, it is expected to be carried out in two days. And the sediment volume to be removed under each maintenance dredging event is expected to be less than 500 m^3 in total. Deployment of silt curtain and relevant mitigation measures will be deployed during the maintenance dredging as mentioned in **Section 5.3.2.** Seabed dredging should be minimised and the dredged marine sediment should be disposed of in a manner which minimizes the loss of pollutants into solution or by re-suspension. Mitigation measures will also be proposed in order to alleviate the adverse environmental impacts, including potential odour / dust emissions and water quality impacts, brought by dredged marine sediment. Given the recommended mitigation measures are implemented, adverse environmental impacts arising from dredged marine sediment will be minimal.

6.4 Mitigation Measures

Construction Phase

Construction and Demolition Materials

6.4.1 Careful design and planning together with good site management help reducing over-ordering and generation of C&D material such as concrete, mortar and cement grouts.

6.4.2 The inert C&D materials with suitable characteristics / size should be reused on-site as far as practicable. When disposing C&D material at public filling reception facility for beneficial reuse, the material should only consist of soil, rock, concrete, brick, cement plaster / mortar, inert building debris, aggregates and asphalt. The material should be free from household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the Filling Supervisor. Prior to disposal of non-inert C&D materials, such as wood, steel, and other metals should be separated for reuse and/or recycling where practicable so as to minimize the quantity of waste to be disposed of at landfill.

6.4.3 Suitable areas should be setup within the site for sorting and providing temporary stockpiling of C&D materials. The following measures should be undertaken to abate the potential environmental impacts or nuisance:

- Surface of stockpiled soil should be regularly wetted with water especially during dry season;
- Disturbance of stockpiled should be minimized;
- Stockpiled soil should be properly covered with tarpaulin especially during predicted heavy storms; and
- Stockpiled areas should be enclosed where space is available.

[1] Per capita generation rate of waste = Per capita disposal rate / (1 - recovery rate). With reference to the Monitoring of Solid Waste in Hong Kong 2023, the per capita disposal rate and recovery rate of commercial and industrial (C&I) waste in 2023 is 0.55 kg/person/day and 46% respectively.

6.4.4 A trip-ticket system should be implemented to monitor the delivery of C&D materials to the designated public fill reception facility and landfill, and to avoid any fly-tipping. A recording system should be set up to keep track of the amount of waste generated, recycled and disposed, including the disposal sites. Warning signs should be put up to remind the designated disposal sites. CCTV should also be installed at the vehicular entrance and exit of the site to monitor handling of C&D materials disposal. To prohibit illegal dumping and landfilling of C&D materials, the dump trucks engaged on site should be equipped with GPS or equivalent automatic system for real time tracking and monitoring of their travel routings, parking locations and disposal activities. The dump trucks employed should be covered or with the use of enclosed containers to minimize windblown litter and dust during waste transportation.

Chemical Waste

6.4.5 For those processes which generated chemical waste, it may be possible to find alternative to eliminate the use of chemicals, to reduce the quantities generated or to select a chemical type with less impact on environmental, health and safety as far as possible.

6.4.6 Should any chemical waste be produced at the construction site, the Contractor will be required to register with the EPD as chemical waste producer and to follow the guidelines stated in the *Code of Practice on the Packaging, Labelling and Storage of Chemicals Wastes*. Chemical waste should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical waste (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while chemical waste that cannot be recycled should be disposed of at either the CWTC, or another licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.

General Refuse

6.4.7 General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D materials on a daily basis to minimize odour, pest and litter impacts. The collected general refuse would be disposed of at designated landfill. Clearly labelled recycling bins should be provided on site in order to encourage segregation and recycling of aluminium and plastic wastes, and wastepaper in order to reduce general refuse production.

6.4.8 The contractor should carry out an education programme for workers in avoiding, reducing, reusing and recycling of material generation. Posters and leaflets advising on the use of the bins should also be provided onsite as reminders. The recycle waste materials should then be collected by reliable waste recycling agents on a daily basis.

Dredged Sediment

6.4.9 The sediment should be dredged, handled, transported and disposed of in a manner that would minimise adverse environmental impacts.

6.4.10 For off-site disposal, the basic requirements and procedures specified under the Administrative Guidance shall be followed. Marine Fill Committee (MFC) of CEDD is managing the disposal facilities in Hong Kong for the dredged / excavated sediment, while EPD is the authority of issuing marine dumping permit under DASO.

6.4.11 For the purpose of site allocation and application of marine dumping permit, Sediment Sampling and Testing Plan (SSTP) shall be submitted to EPD for agreement under DASO. Site investigation works, based on the SSTP, shall be carried out in order to confirm the disposal arrangements of the dredged sediment. A Sediment Quality Report (SQR), reporting the chemical and biological screening results and the estimated quantities of sediment under different disposal options, shall then be submitted to EPD for agreement under DASO. The dredged sediments would be disposed of according to its determined disposal options and the Administrative Guidance. Previously obtained data or known history of the sediment in the

vicinity should be submitted to DEP for consideration of the most appropriate arrangements for handling these materials.

6.4.12 To ensure disposal space is allocated for the Project, the project proponent should be responsible for obtaining agreement from MFC on the allocation of the disposal site. The contractor(s), on the other hand, should be responsible for the application of the marine dumping permit under DASO from EPD for the sediment disposal.

6.4.13 In order to minimise the potential odour / dust emissions during dredging and transportation of the sediment, the sediments shall be wetted during dredging / material handling and shall be properly covered when placed on trucks or barges. Loading of the dredged sediments to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.

6.4.14 If applicable, the barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP.

Operation Phase

Solid Waste from Concrete Production

6.4.15 Waste concrete /aggregates will be reclaimed by reclaimer for recycling in production as detailed in **Section 6.3.17**. The solid waste including dried sludge cake collected by filter press and waste concrete / aggregates unfit for recycling will be disposed of at designated landfill by waste disposal trucks. The dump trucks employed should be covered or with the use of enclosed containers to minimize windblown litter and dust during waste transportation. A trip-ticket system should also be implemented to monitor the delivery of C&D materials to the designated landfill and to avoid any fly-tipping.

Chemical Waste

6.4.16 For those processes which generated chemical waste, it may be possible to find alternative to eliminate the use of chemicals, to reduce the quantities generated or to select a chemical type with less impact on environmental, health and safety as far as possible.

6.4.17 Should any chemical waste be produced at the construction site, the Contractor will be required to register with the EPD as chemical waste producer and to follow the guidelines stated in the *Code of Practice on the Packaging, Labelling and Storage of Chemicals Wastes*. Chemical waste should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical waste (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while chemical waste that cannot be recycled should be disposed of at either the CWTC, or another licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.

General Refuse

6.4.18 General refuse should be stored in enclosed bins or compaction units. A reputable waste collector should be employed by the contractor to remove general refuse from the site on a daily basis to minimize odour, pest and litter impacts. The collected general refuse would be disposed of at designated landfill. Clearly labelled recycling bins should be provided on site in order to encourage segregation and recycling of aluminium and plastic wastes, and wastepaper in order to reduce general refuse production.

6.4.19 The contractor should carry out an education programme for workers in avoiding, reducing, reusing and recycling of material generation. Posters and leaflets advising on the use of the bins should also be provided onsite as reminders. The recycle waste materials should then be collected by reliable waste recycling agents on a daily basis.

Dredged Sediment from Maintenance Dredging

6.4.20 The sediment should be dredged, handled, transported and disposed of in a manner that would minimise adverse environmental impacts. The mitigation measures should follow the same as presented in **Section 6.4.10 – Section 6.4.14**.

7 LAND CONTAMINATION

7.1 Introduction

7.1.1 This section presents the assessment of potential land contamination implication associated with the proposed development under the Project.

7.2 Environmental Standards and Guidelines

7.2.1 The relevant environmental guidelines and standards for the assessment of land contamination impacts include the following:

- Guidance Note for Contaminated Land Assessment and Remediation (Guidance Note) (EPD, April 2023)

  The Guidance Note sets out the requirements for proper assessment and management of potentially contaminated sites such as oil installations (e.g. oil depots, petrol filling stations), gas works, power plants, shipyards/boatyards, chemical manufacturing/processing plants, steel mills/metal workshops, car repairing/dismantling workshops and scrap yards. In addition, this Guidance Note provides guidelines on how site assessments should be conducted and analysed and suggests practical remedial measures that can be adopted for the remediation of contaminated sites.

- Practice Guide for Investigation and Remediation of Contaminated Land (Practice Guide) (EPD, April 2023)

  This guide outlines typical investigation methods and remediation strategies for the range of potential contaminants typically encountered in Hong Kong.

- Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management (Guidance Manual) (EPD, April 2023)

  The Guidance Manual introduces the risk-based approach in land contamination assessment and present instructions for comparison of soil and groundwater data to the Risk-Based Remediation Goals (RBRGs) for 54 chemicals of concern (COCs) commonly found in Hong Kong. The RBRGs were derived to suit Hong Kong conditions by following the international practice of adopting a risk-based methodology for contaminated land assessment and remediation and were designed to protect the health of people who could potentially be exposed to land impacted by chemicals under four broad post restoration land use categories. The RBRGs also serve as the remediation targets if remediation is necessary.

7.3 Assessment Methodology

7.3.1 A site appraisal was conducted to identify any current / historical potentially contaminating land uses within the Site. The site appraisal, including site walkover and desktop review, was carried out with reference to the Guidance Note, Guidance Manual and Practice Guide.

7.3.2 The site walkover was conducted within the Site to identify any existing contaminative land uses and contamination sources (or 'hotspots'). For the desktop review, the following information was reviewed:

- Available records of dangerous goods, chemical wastes, chemical spillage/leakage and fire incidents from Environmental Protection Department (EPD) and Fire Services Department (FSD);
- Bonding Engineering & Construction Co. Ltd, *Ground Investigation Report for Proposed Concrete Batching Plant in Lot 14 & 15 Tam Kon Shan Road, Tsing Yi,* June 2014;
- Hong Kong Geological Survey Map (Series HGM20) – Sheet No. 6 (1:20,000); and
- Selected aerial photographs and topographic maps held by the Lands Department.

7.3.3 If potentially contaminated land use(s) were identified within the Site, the potential land contamination impacts to the Project would be evaluated and the appropriate mitigation measures would be recommended.

7.4 Description of Environment

7.4.1 The Site is located at Tsing Yi Town Lot Nos. 14 & 15 and adjoining Government Land, Tam Kon Shan Road, Tsing Yi. The total site area is approximately 4,335 m^2. The Site is bounded by the sea to the north, Tam Kon Shan Road to the south, dockyards and industrial uses at the east and west. The site location plan is shown in **Figure 1.1**.

7.5 Identification of Potential Land Contamination Impact

Review of Historical Land Use

7.5.1 A review of the aerial photographs covering the Site has been undertaken. The aim of this review is to evaluate potential land contamination associated with historical land uses at the Site. A summary of the historical land uses is presented in **Table 7.1** and reviewed aerial photographs are shown in **Appendix 7.1**.

Table 7.1 Summary of Historical Land Uses

Year (Photo Reference No.)	Drawing No. in Appendix 7.1	Site Description
1963 (#1963-6348)	AP1	The Site was occupied by open water.
1973 (#04179)	AP2	The eastern and western portions of the Site were reclaimed. No other significant land uses changes were observed.
1983 (#47316)	AP3	The Site was further reclaimed and a shipyard, open storage and slipway were observed. No other significant land uses changes were observed.
1993 (#A36015)	AP4	A jetty was observed in the northwest of the Site. No other significant land uses changes were observed.
2003 (#CW53780)	AP5	The shipyard was abandoned. No other significant land uses changes were observed.
2013 (#CS45547)	AP6	The western portion of the Site was converted into private parking area. No other significant land uses changes were observed.
2023 (#E193635C)	AP7	The open storage was cleared and slipway was demolished. No other significant land uses changes were observed.

Source: *Survey and Mapping Office, Lands Department*

7.5.2 Based on the review of aerial photographs, the Site had been used as a shipyard, open storage, car parking, jetty and slipway. Shipyard and open storage are considered as a potentially contaminating land uses which may have potential land contamination implications to the Project.

Site Walkover

7.5.3 Site walkover was conducted on 12 December 2024 to investigate any land contamination issues associated with the current land uses and activities within the Site that may have potential land contamination implications to the Project. Questionnaire was conducted within available site representatives and the site walkover checklist is attached in **Appendix 7.2**. Findings of the site walkover, including the photographic records and site layout plan, are shown in **Figure 7.1**.

7.5.4 The Site is currently comprised of two buildings (the western building (approximately 939 m^2) and the eastern building (approximately 414 m^2)), an open area in the eastern portion (approximately 515 m^2), an access road in the central portion (approximately 985 m^2), a jetty in the northwest and the sea in the northeastern and northwestern portions of the Site.

7.5.5 Based on the site walkover, except for the northeastern and northwestern portions of the Site which are covered by the sea, the Site is generally concrete paved and largely vacant with private parking areas observed in the western building and the open area in the eastern portion of the Site. As reported by the site staff, the Site is an abandoned shipyard with ship building, repair and maintenance activities previously carried out in the western building and ship parts manufacturing previously carried out in the eastern building, while the central portion of the Site had been used as an access road. Ship repair and maintenance activities were also reportedly carried out in a small portion of the open area adjacent to the north of the eastern building (approximately 91 m^2). The shipyard was reportedly in operation between 1976 and 1994 and has been used as a private parking site since 2013.

7.5.6 Based on the site walkover and as reported by the site staff, there is a disused dangerous goods (DG) store located in the western building previously used for the storage of oxy-acetylene cylinders, and has been used as a storeroom for the storage of office / household appliances and equipment since operation of the shipyard was ceased (refer to Photo 0322 in **Figure 7.1**). As the disused DG store was used for the storage of gas only, potential land contamination issue associated with the disused DG store is not anticipated.

7.5.7 In addition, small quantities of chemicals including engine oil, hydraulic oil, turpentine and paint were observed within the eastern building and outside the disused DG store / storeroom of the Site above a covered box / wooden plank on concrete paved floor or directly on the concrete paved floor (refer to Photos 8518 and 8534 in **Figure 7.1**). According to the site staff, these chemicals are temporarily stored on-site and are used off-site only. No chemical spillage, oil stains or stressed vegetation were observed in the vicinity of the chemical storage areas. Given the chemicals stored were temporary and are reportedly used off-site only, and that no signs of land contamination were observed in the vicinity of the chemical storage areas, potential land contamination issue associated with the chemical storages is not anticipated.

7.5.8 Based on the above, no current potentially contaminating land uses / activities were identified at the Site.

Acquisition of Information from Government Departments

7.5.9 The Environmental Protection Department (EPD) and Fire Services Department (FSD) have been contacted for (i) records on any release of chemicals and chemical waste, (ii) records of dangerous goods (DG), (iii) records of Chemical Waste Producer(s) (CWP(s)) and (iv) records of reported fire incidents within the Site. EPD and FSD's replies on the request have been received and attached in **Appendix 7.3**. The Information is summarised below.

Environmental Protection Department

7.5.10 Based on the reply given by EPD on 20 December 2024, there were no chemical spillage / leakage records within the Site. Further to EPD's reply, a review of the available CWP records at EPD Southorn Office was undertaken on 7 January 2025. According to the records reviewed, there is 1 valid CWP record identified within the Site. The details of the CWP record are summarised in **Table 7.2** below. Location of the CWP is shown in **Figure 7.1**.

Table 7.2 Summary of Chemical Waste Producer within the Site

CWP ID	Status	Company Name	Address	Business Nature
1	Valid	Supercraft (HK) Ltd	T.Y.T.L. 14 & 15, Tsing Yi, N.T.	Boat building and repairing

7.5.11 The CWP record is likely to be associated with the operation of the former shipyard. There could be potential land contamination issues associated with former boat building and repairing activities carried out at the Site.

Fire Services Department

7.5.12 Based on the reply given by FSD on 16 January 2025, there were no records of DG license, fire incident or incident of spillage / leakage of DG found within the Site.

Site Geology

7.5.13 According to the 1:20,000 Geological Map Sheet 6 (Yuen Long), the Site is underlain by Fill. According to the available ground investigation (GI) records, the Site is located on reclaimed ground having a stratum of Fill with thickness of about 1.50m to 6.50m. Underlying the Fill is a relatively thin layer of Marine Deposit with thickness of about 3.00m to 4.50m and/or Alluvium with thickness of about 0.45m to 3.50m. Completely to highly decomposed Granodiorite ranged from 2.06m to 7.50m thickness was encountered beneath the Alluvium. The bedrock encountered was moderately to slightly decomposed Granodiorite, with reduced levels ranged from -1.65 mPD to -11.42 mPD.

7.5.14 Referring to the available groundwater monitoring records, shallow groundwater table was identified, which is generally from 1.8m to 2.5m below ground level.

Summary of Site Appraisal

7.5.15 Based on the site appraisal, the Site was formerly used as a shipyard (from 1976 to 1994) and open storage (from 1983 to 2023). The possible contaminating activities may include storage, handling and use of fuels and solvents (e.g. for thinning paints, cleaning and degreasing metal parts of equipment) for ship building, repair and maintenance activities, transfer and disposal of scrap metal, metal shaving dust and paint chips during manufacturing of ship parts. Locations of the concerned areas are shown in **Figure 7.2**. Details of the site appraisal are summarised in **Table 7.3**. Intrusive site investigation (SI) works is recommended to confirm any land contamination in the Site.

Future Land Use

7.5.16 Land contamination assessment on the potentially contaminated sites would need to be evaluated against the RBRGs and if there were presence of non-aqueous phase liquid (NAPL), soil saturation (C_{sat}) / solubility limits, as stipulated in Table 2.1 and Table 2.2 of the Guidance Manual.

7.5.17 The RBRGs were developed based on a risk assessment approach to suit the local environmental conditions and community needs in Hong Kong. Decisions on contaminated soil and groundwater remediation are based on the nature and extent of the potential risks that are posed to human receptors as a result of exposure to chemicals in the soil and/or groundwater. RBRGs were developed for four different land use scenarios as below reflecting the typical physical settings in Hong Kong under which people could be exposed to contaminated soil and groundwater:

- Urban Residential
- Rural Residential
- Industrial
- Public Park

7.5.18 As the future land use of the Site would be a concrete batching plant, the RBRGs for Industrial land use scenario are considered appropriate for the assessment. The proposed RBRGs land use scenario recommended for the Site is summarised in **Table 7.3**. Relevant RBRG levels, C_{sat} and solubility limits are shown in **Appendix 7.4**.

Table 7.3 Summary of Site Appraisal

Location (Affected Land Lot No.)[1]	Current Land Use	Site Observation / Current Potentially Contaminating Activities / Information from EPD and FSD	Past Potentially Contaminating Land Uses / Activities	Approx. Site Area (m^2)	Potential COCs[2]	Future Land Uses	RBRGs Land Use Scenario
The Site (TYTL Nos. 14 & 15 and STT538)	Private parking site	The Site is comprised of two buildings (the western building and the eastern building), an open area in the eastern portion, an access road in the central portion, a jetty in the northwest and the sea in the northeastern and northwestern portions of the Site. The Site is generally concrete paved and largely vacant with private parking areas in the western building and the open area in the eastern portion of the Site. There is a disused DG store located in the western building previously used for the storage of oxy-acetylene cylinders and has been used as a storeroom for the storage of office / household appliances and equipment since operation of the shipyard was ceased. In addition, small quantities of chemicals including engine oil, hydraulic oil, turpentine and paint were observed within the eastern building and outside the disused DG store / storeroom of the Site above a covered box / wooden plank on concrete paved floor or directly on the concrete paved floor. According to the site staff, these chemicals are stored on-site temporarily and are used off-site only. No chemical spillage, oil stains or stressed vegetation were observed in the vicinity of the chemical storage areas. Given the disused DG store was used for the storage of gas only, the chemicals observed were stored temporarily and are reportedly used off-site only, and that no signs of land contamination were observed in the vicinity of the chemical storage areas, potential	Shipyard (from year 1976 to year 1994) and open storage (from year 1983 to year 2023). The possible contaminating activities may include storage, handling and use of fuels and solvents (e.g. for thinning paints, cleaning and degreasing metal parts of equipment) for ship building, repair and maintenance activities, transfer and disposal of scrap metal, metal shaving dust and paint chips during manufacturing of ship parts.	4,335 m^2 Western Building: 939 m^2 Eastern Building: 414 m^2 Former Maintenance Area: 91 m^2 Former Open Storage: 985 m^2	• Metals (Full List) • Free cyanide • VOCs (Full List) • SVOCs (Full List) • PCRs • TBTO • Dioxins • Furans	Concrete batching plant	Industrial

Location (Affected Land Lot No.)[1]	Current Land Use	Site Observation / Current Potentially Contaminating Activities / Information from EPD and FSD	Past Potentially Contaminating Land Uses / Activities	Approx. Site Area (m^2)	Potential COCs[2]	Future Land Uses	RBRGs Land Use Scenario
		land contamination issue associated with the chemical storages is not anticipated. Based on the above, no current potentially contaminating land uses / activities were identified at the Site. Based on information from the EPD and FSD, there were no records of chemical spillage / DG / fire incident for the Site. However, there is 1 valid registered CWP associated with boat building and repairing at the Site.					

Note:
1. Refer to **Figure 7.1** for the site location.
2. The potential chemicals of concern (COCs) were determined based on findings of the site appraisal and the Practice Guide and took into account current and historical land uses.
   - Full list refers to the parameters as shown in Table 2.1 – Risk-Based Remediation Goals (RBRGs) for Soil & Soil Saturation Limit and Table 2.2 – RBRGs for Groundwater and Solubility Limit under Metals, Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs) and Petroleum Carbon Ranges (PCRs) in the Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management.
   - TBTO: Tributyltin oxide

7.6 Prediction and Evaluation of Potential Land Contamination Impact

7.6.1 Based on findings of the site appraisal, the Site was formerly used as a shipyard and open storage which may have potential land contamination implications to the Project.

7.6.2 As observed during the site walkover and according to information provided by the site staff, only limited and small-scale ship building, repair and maintenance activities were previously carried out at the eastern and western portions of the Site (total area of approximately 1,444 m^2) and the Site was concrete paved. The former open storage in the central portion of the Site was also of small-scale (approximately 985 m^2) and was concrete paved. In addition, based on information from the site staff, EPD and FSD, there were no records of chemical spillage / fire incident at the Site. Extensive contamination due to the operation of the former shipyard and open storage is not envisaged.

7.6.3 Land contamination assessment including intrusive site investigation (SI) works and, if required, remediation works are recommended to be carried out at a later stage of the Project prior to commencement of construction works and should follow EPD's Guidance Manual, Guidance Note and Practice Guide. Any soil/groundwater contamination would be identified and properly treated prior to the commencement of construction works under the Project. The potential Chemicals of Concern (COCs) may include metals, volatile organic chemicals (VOCs), semi-volatile organic chemicals (SVOCs), petroleum carbon ranges (PCRs), free cyanide, tributyltin oxide (TBTO), dioxins and furans and there are commercially available technologies that could tackle these COCs.

7.6.4 Given the above, land contamination impacts are considered not insurmountable to the Project if the recommended further works as outlined in **Section 7.7** were followed and contaminated soil and groundwater (if any) were properly treated using appropriate remediation methods and according to EPD's agreed Remediation Action Plan (RAP).

7.7 Recommended Further Works

7.7.1 A detailed land contamination assessment, including site appraisal (desktop review and site walkover) and SI works, shall be carried out in next stage of the Project prior to commencement of construction works to confirm the presence of land contamination within the Site. The detailed land contamination assessment will be carried out according to EPD's Guidance Manual, Guidance Note and Practice Guide.

7.7.2 In order to determine the extent and nature of any potentially contaminated areas, a Contamination Assessment Plan (CAP), detailing findings of the site appraisal and requirements for SI works would need to be submitted to EPD for endorsement. The SI works would need to be carried out according to the endorsed CAP. Following to the completion of the SI works, a Contamination Assessment Report (CAR) would be submitted to EPD for approval to document the findings of the SI works and the estimated extent of any contamination. If soil or groundwater contamination were identified, a Remediation Action Plan (RAP), discussing the appropriate remedial methods for the identified soil / groundwater contamination, would also be submitted to EPD for approval.

7.7.3 Remediation works (if necessary) would need be carried out according to the approved RAP. Upon completion of remediation work, a Remediation Report (RR) should be prepared and submitted to EPD to demonstrate that the decontamination work is adequate and is carried out in accordance with the approved CAR and RAP. No construction works, other than decontamination work, should be carried out before the approval of RR by EPD.

8 CONCLUSION

8.1 General

8.1.1 In order to confirm the acceptability of the Subject Site in respect of environmental aspects, an Environmental Assessment was carried out to examine the impacts associated with the proposed development during construction and operation phases. Potential environmental impacts including air quality, noise, water quality, waste management and land contamination issues associated with construction and operation of the proposed concrete batching plant have been assessed. It is concluded that no adverse environmental impacts on the Subject Site would be anticipated. The key findings of this assessment are summarized in the following sections.

8.2 Air Quality

8.2.1 Minor construction air quality impact would be arisen from the construction activities during the erection of the proposed plant. With the implementation of adequate air quality control measures, no adverse construction air quality impact shall be anticipated.

8.2.2 The design of the Plant and its operation plan has incorporated air pollution control technologies and control measures to abate the air quality impact generated by the production of wet concrete. Together with proper operation and maintenance practices, the air quality impact due to the operation of the Proposed Plant shall be at acceptable level and has been confirmed by the model predictions. Cumulative air quality impact arising from the Proposed Plant, and vehicular emission and marine emission within 500m assessment area have been evaluated. The prediction results indicated that the cumulative NO_2, SO_2, RSP and FSP concentrations at all existing ASRs would comply with AQOs. No adverse air quality impact due to the Proposed Plant would be anticipated.

8.3 Noise

8.3.1 With the implementation of adequate construction noise mitigation measures, it is anticipated that there would be no unacceptable noise impact on nearby NSR during the construction phase.

8.3.2 There is no existing and planned sensitive use in the vicinity. No adverse impact would therefore be anticipated. No further mitigation measure is required.

8.4 Water Quality

8.4.1 Provided that proper site management practices are followed to prevent construction site runoff and drainage water with high SS from entering nearby nullah and downstream sensitive receivers during construction phase, no adverse water quality impact is anticipated.

8.4.2 No adverse water quality impact would be expected as no wastewater will be discharged from the plant during operation. All production wastewater will be recycled. Domestic sewage from workforce and visitors (concrete mixer truck drivers) will be collected and discharged via the public sewerage network.

8.5 Waste Management

8.5.1 Provided that the identified waste arisings of the construction works are handled, transported and disposed of using approved methods and that the recommended good site practices are adhered to, adverse environmental impacts are not anticipated.

8.5.2 Provided that the environmental control measures are properly implemented, no adverse environmental impact would be anticipated with respect to solid waste management.

8.6 Land Contamination

8.6.1 Based on findings of the site appraisal, the Site was formerly used as a shipyard and open storage which may have potential land contamination implications to the Project. Further works including site appraisal, submission of CAP, intrusive SI works and, if required, remediation works were recommended to be carried out at next stage of the Project prior to commencement of the construction works and would need to follow EPD's Guidance Manual, Guidance Note and Practice Guide. With the implementation of the recommended further works for the Project, any soil/groundwater contamination would be identified and properly treated prior to the construction works. No insurmountable land contamination impacts to the Project are therefore anticipated.

FIGURES

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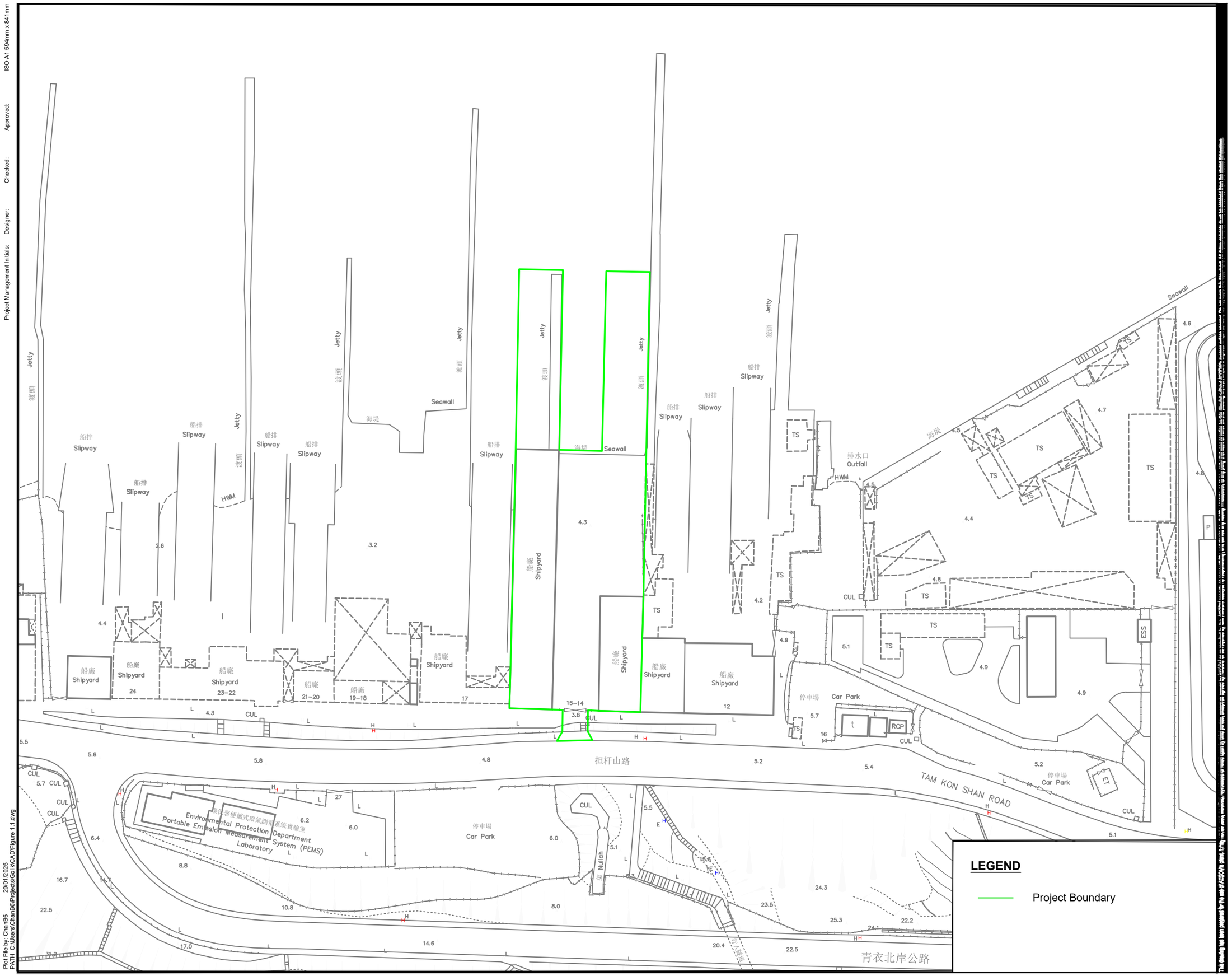

LEGEND

Project Boundary

AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

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PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

Location Plan

SHEET NUMBER

60739290/EA/FIGURE 1.1

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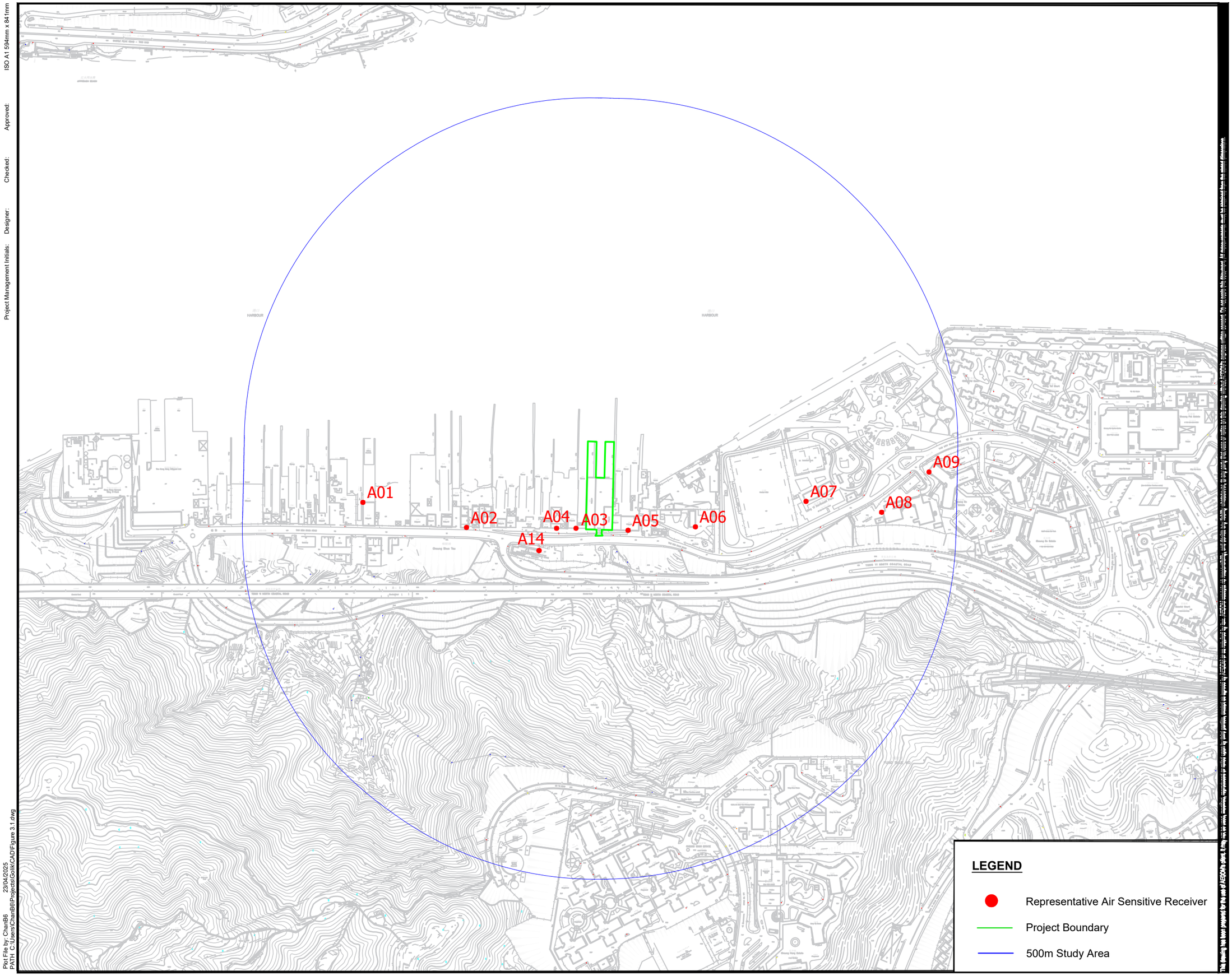

LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

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KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

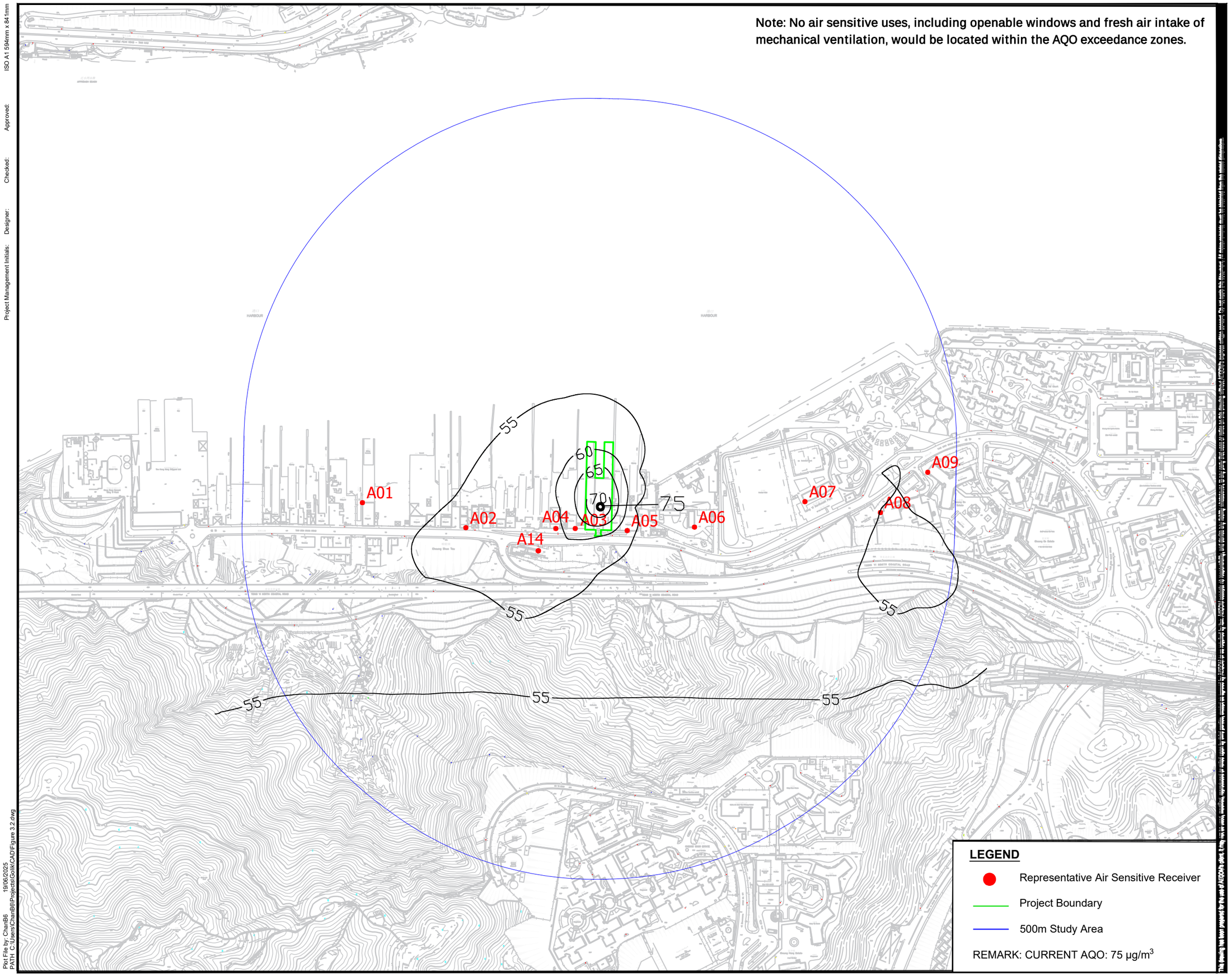
SHEET TITLE

Location of Representative Air Sensitive Receivers

SHEET NUMBER

60739290/EA/FIGURE 3.1

Note: No air sensitive uses, including openable windows and fresh air intake of mechanical ventilation, would be located within the AQO exceedance zones.



LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 75 μg/m^3

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DIMENSION UNIT

KEY PLAN

PROJECT NO. 60739290

CONTRACT NO. N/A

SHEET TITLE

10th Highest Cumulative Daily RSP Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.2

ISO A1 594mm x 841mm
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ISO A1 594mm x 841mm

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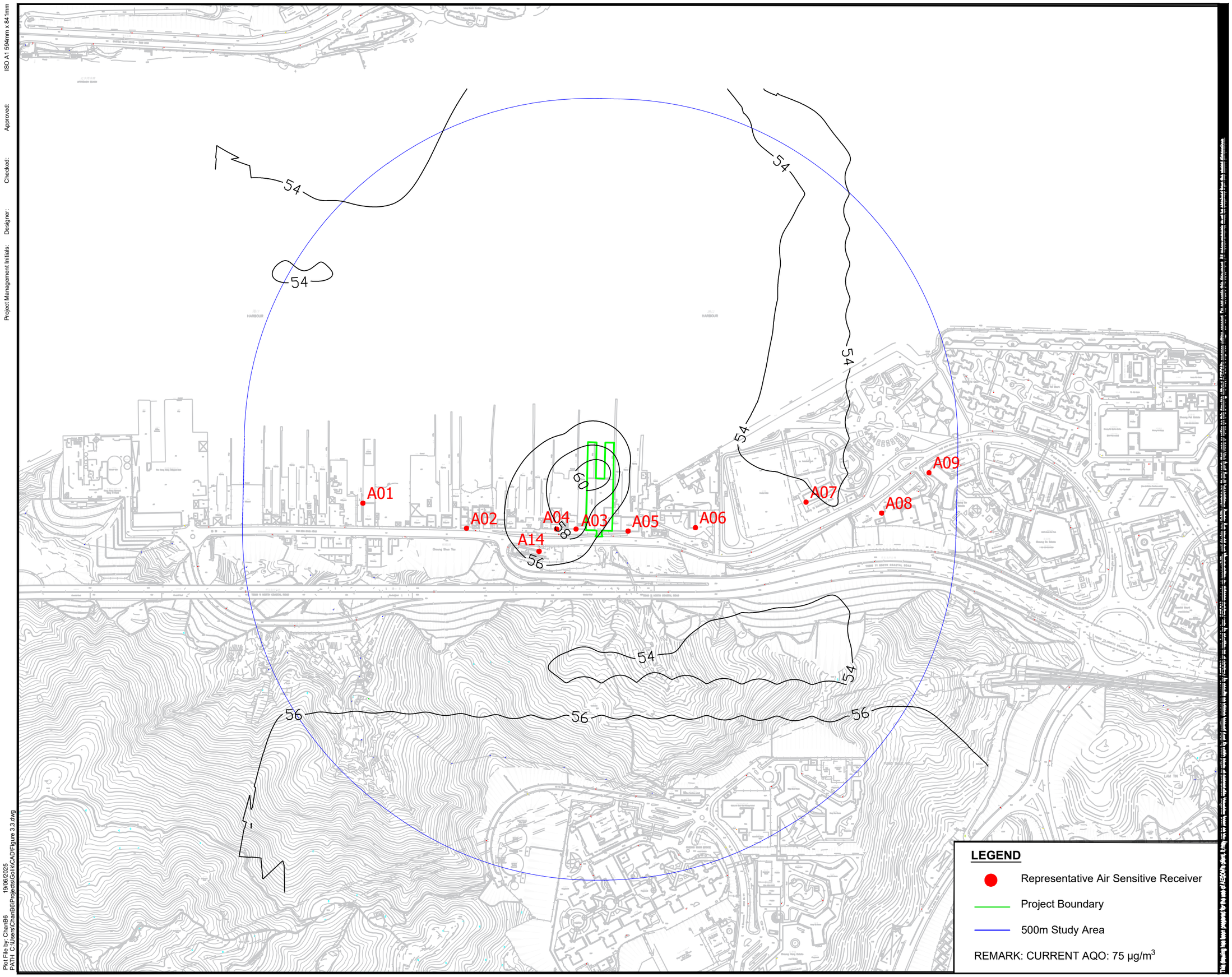
Project Management Initials:



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A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

10th Highest Cumulative Daily RSP Concentration (µg/m3) at 10m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.3

ISO A1 594mm x 841mm

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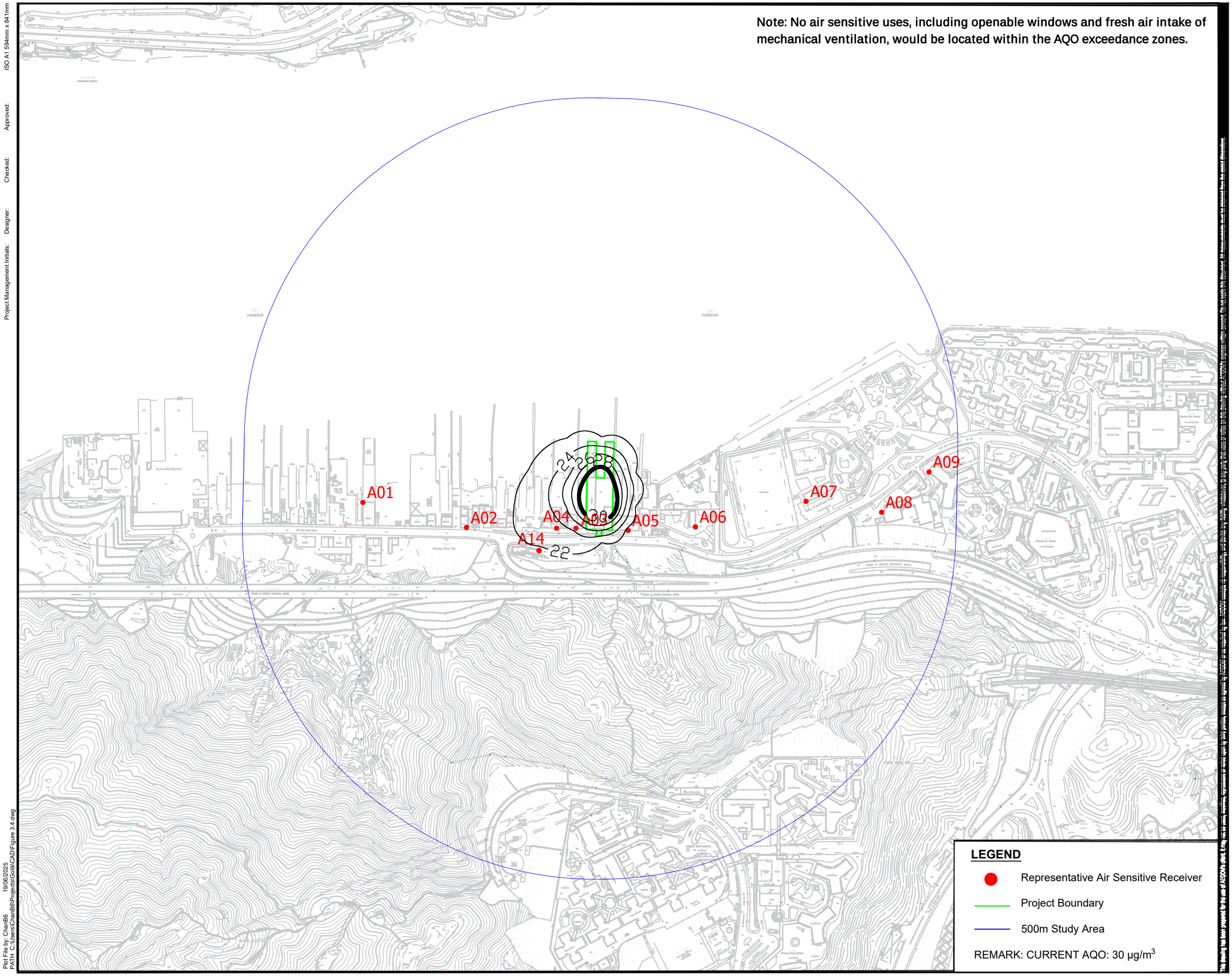
Project Management Initials:

Note: No air sensitive uses, including openable windows and fresh air intake of mechanical ventilation, would be located within the AQO exceedance zones.



LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 30 μg/m^3

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KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

Cumulative Annual RSP Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.4

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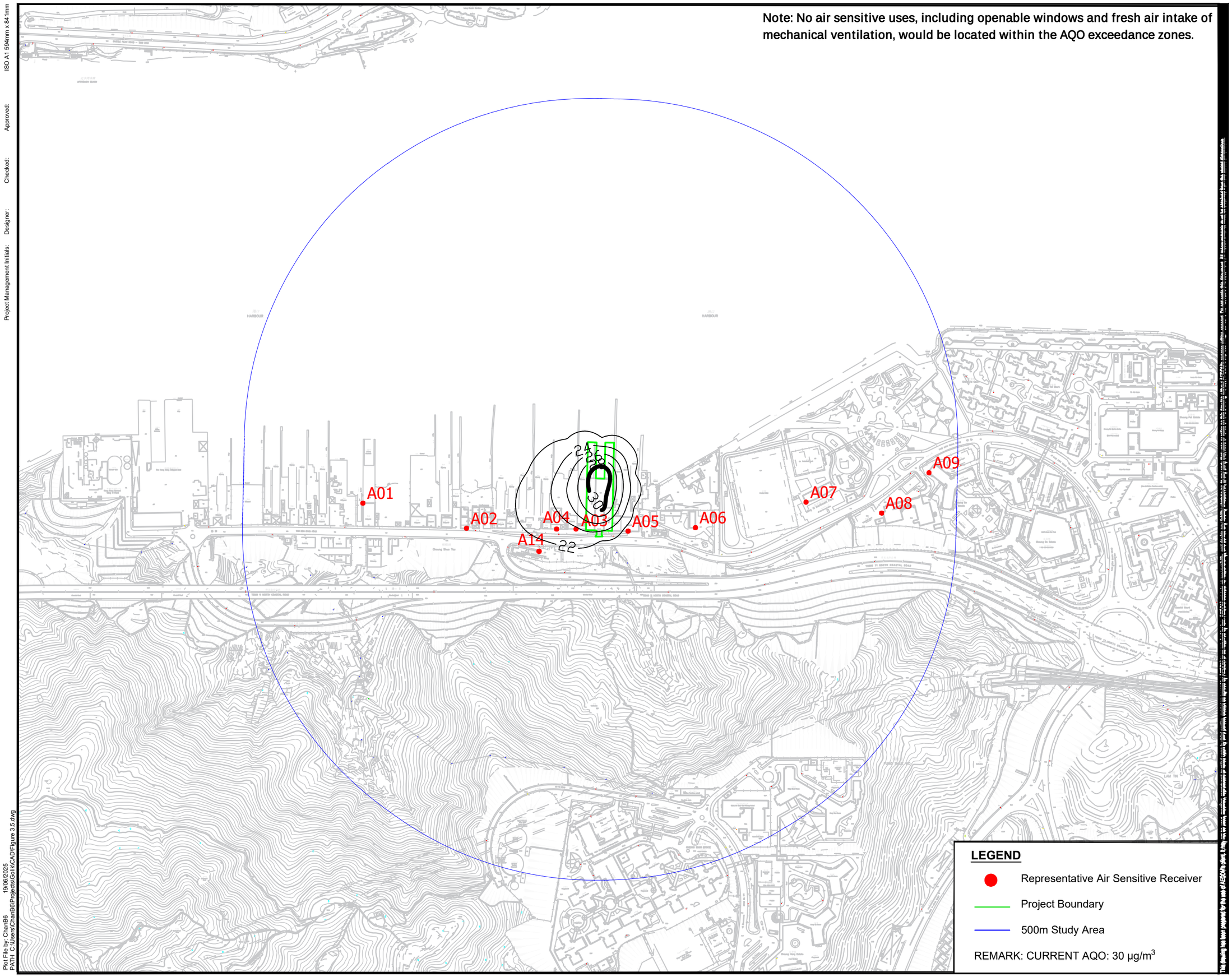
Note: No air sensitive uses, including openable windows and fresh air intake of mechanical ventilation, would be located within the AQO exceedance zones.



LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 30 μg/m^3

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60739290

CONTRACT NO.
N/A

SHEET TITLE
Cumulative Annual RSP Concentration (μg/m3) at 5m Above Ground

SHEET NUMBER
60739290/EA/FIGURE 3.5

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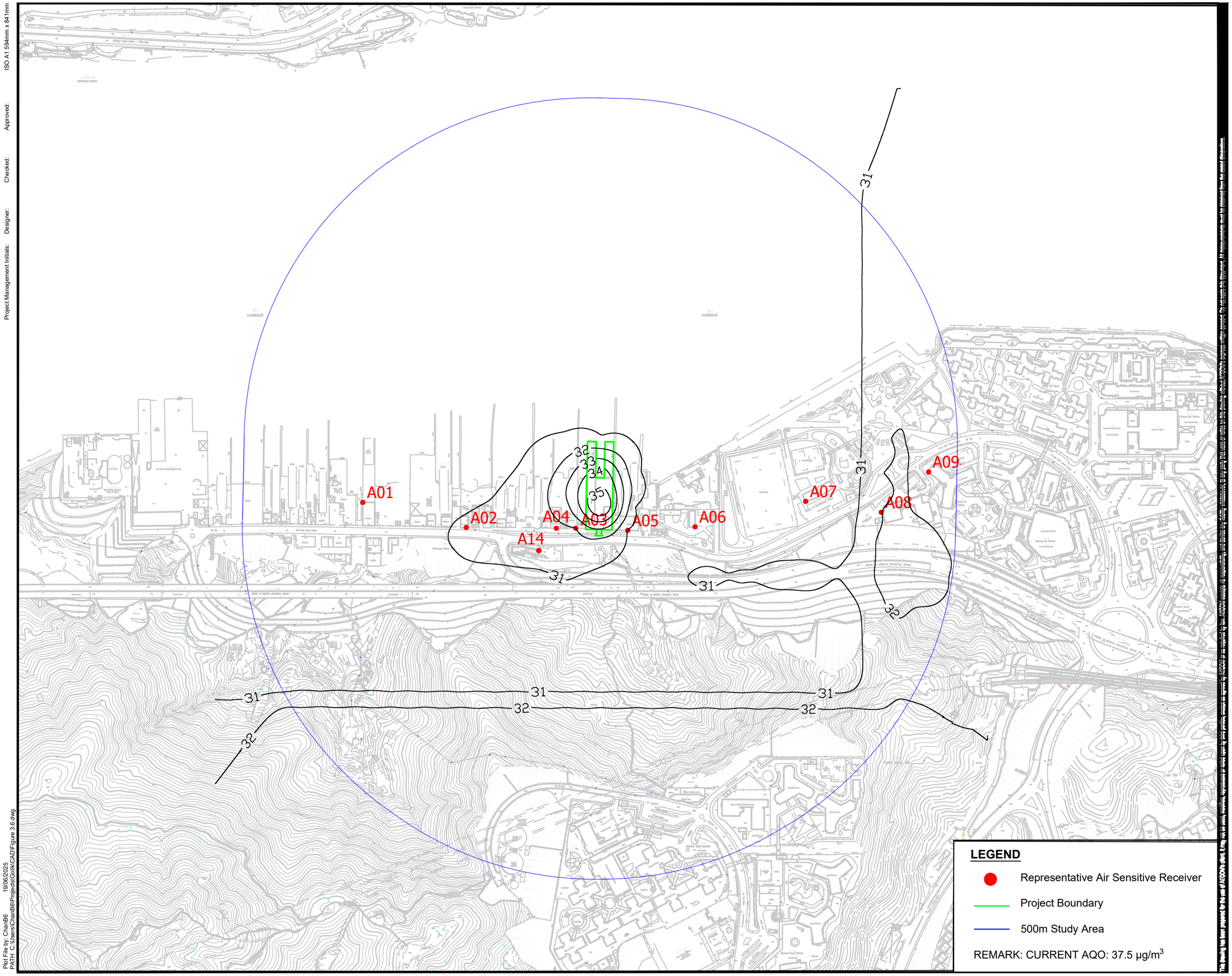
Project Management Initials:



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KEY PLAN

PROJECT NO. | **CONTRACT NO.**

60739290 | N/A

SHEET TITLE

19th Highest Cumulative Daily FSP Concentration (µg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.6

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19/06/2025
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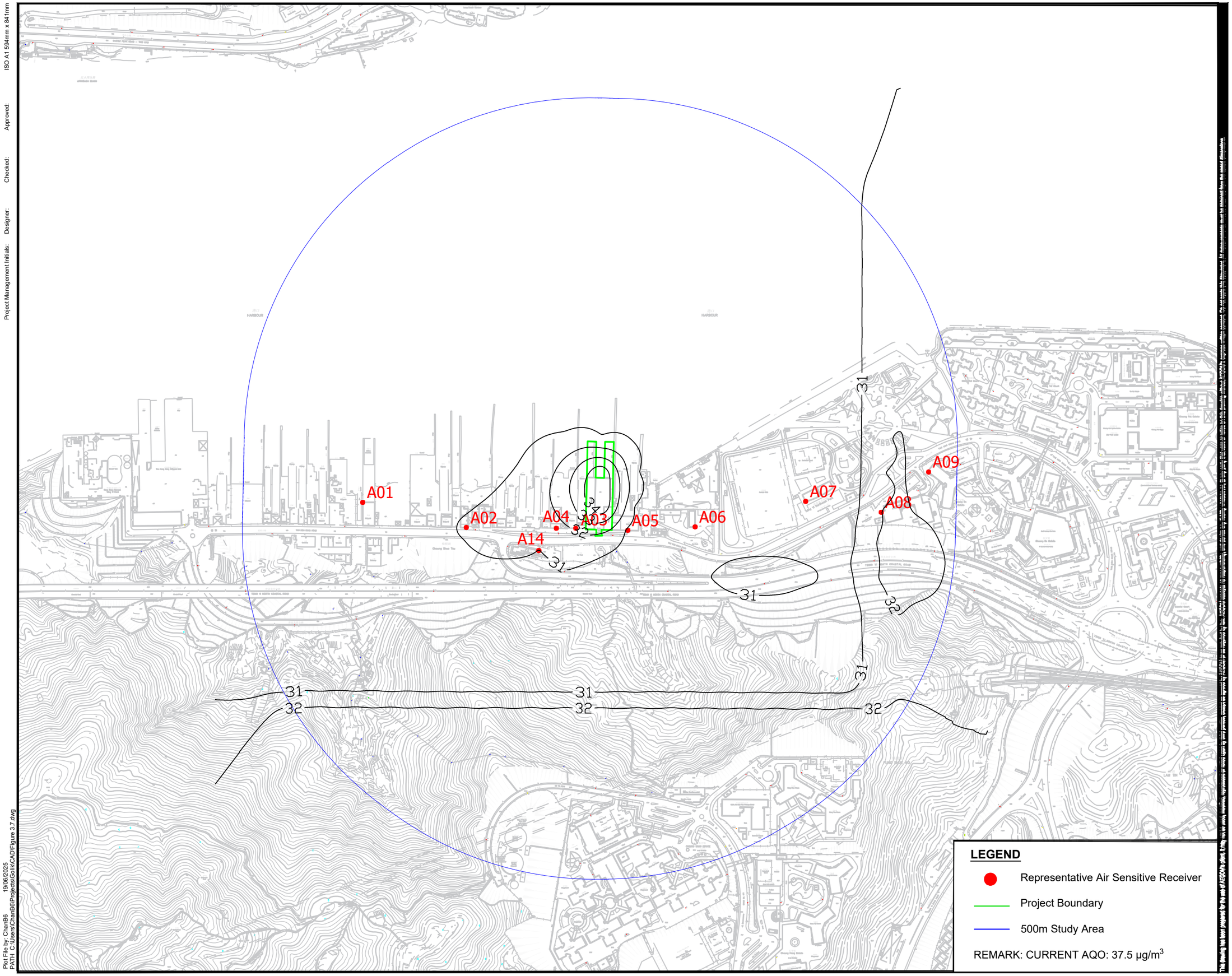
Project Management Initials:



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STATUS

SCALE

A3 1 : 5000

DIMENSION UNIT

KEY PLAN

PROJECT NO.

60739290

CONTRACT NO.

N/A

SHEET TITLE

19th Highest Cumulative Daily FSP Concentration (µg/m3) at 5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.7

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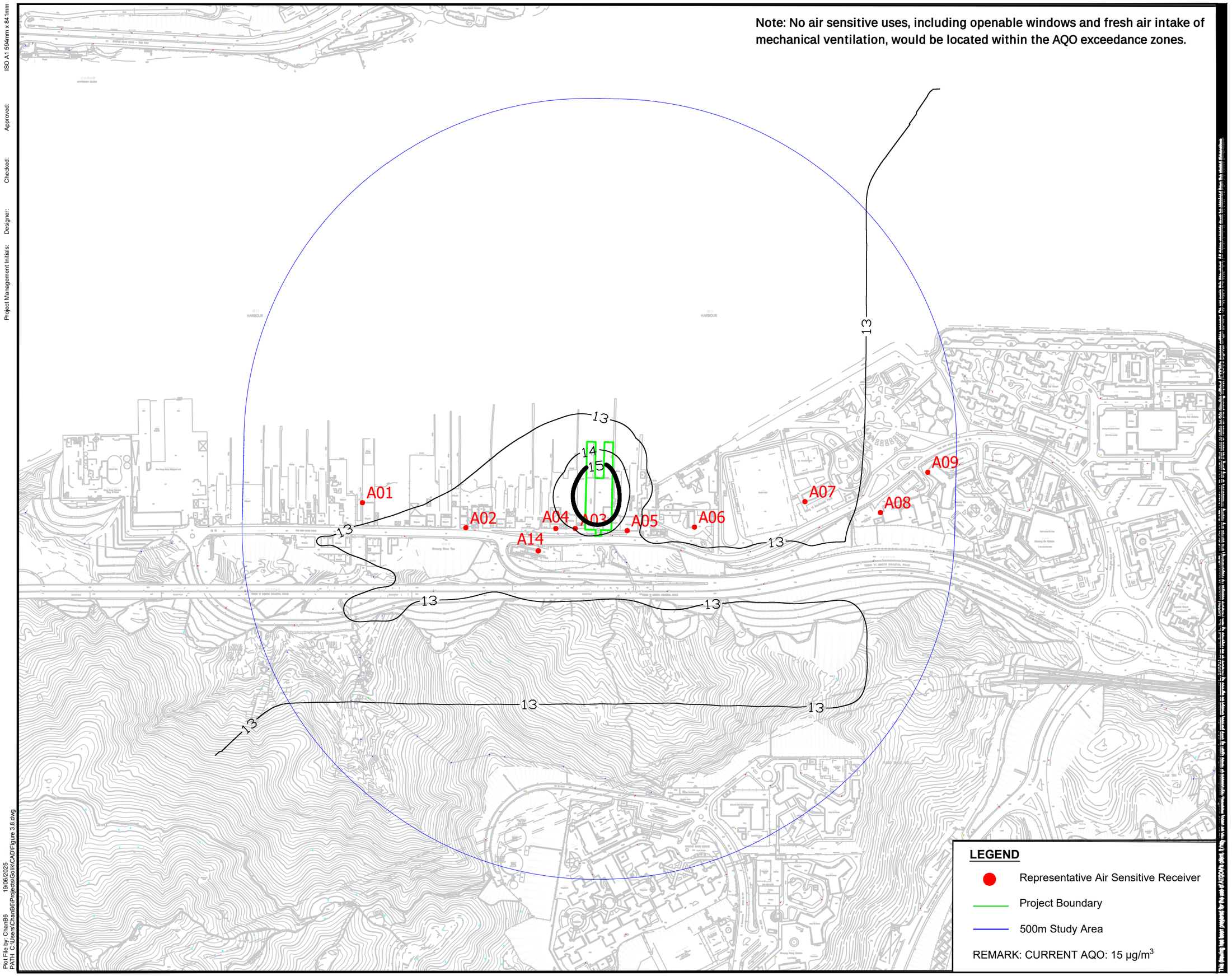
Note: No air sensitive uses, including openable windows and fresh air intake of mechanical ventilation, would be located within the AQO exceedance zones.



LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 15 μg/m^3

ISO A1 594mm x 841mm

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SCALE **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. **CONTRACT NO.**

60739290 N/A

SHEET TITLE

Cumulative Annual FSP Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.8

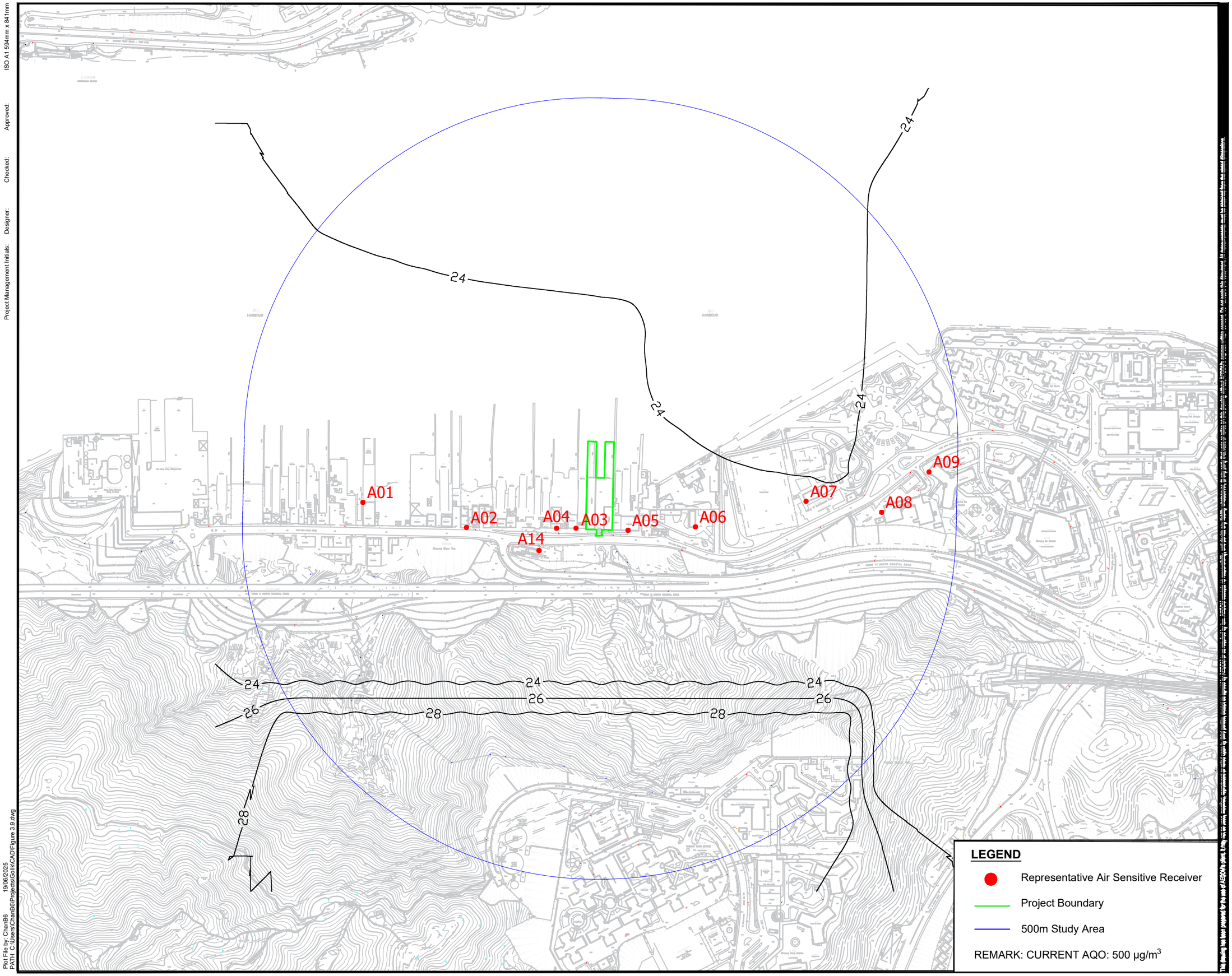
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE / **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

4th Highest Cumulative 10-Min SO2 Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.9

Plot File by: ChanB6 19/06/2025
PATH: C:\Users\ChanB6\Projects\Gollk\CAD\Figure 3.9.dwg

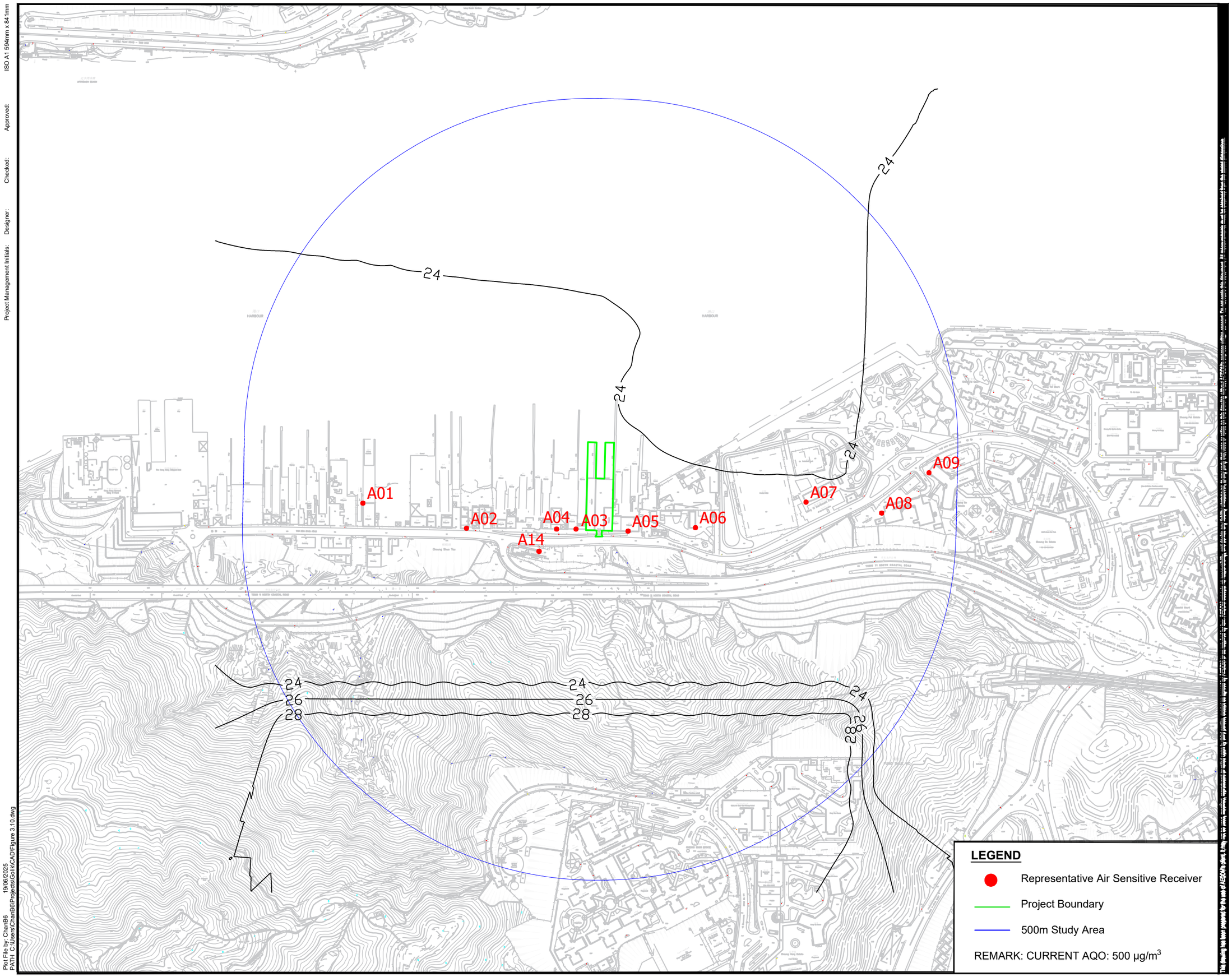
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: ChanB6
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.10.dwg
19/06/2025

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PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

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NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE

A3 1 : 5000

DIMENSION UNIT

KEY PLAN

PROJECT NO.

60739290

CONTRACT NO.

N/A

SHEET TITLE

4th Highest Cumulative 10-Min SO2 Concentration (μg/m3) at 15m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.10

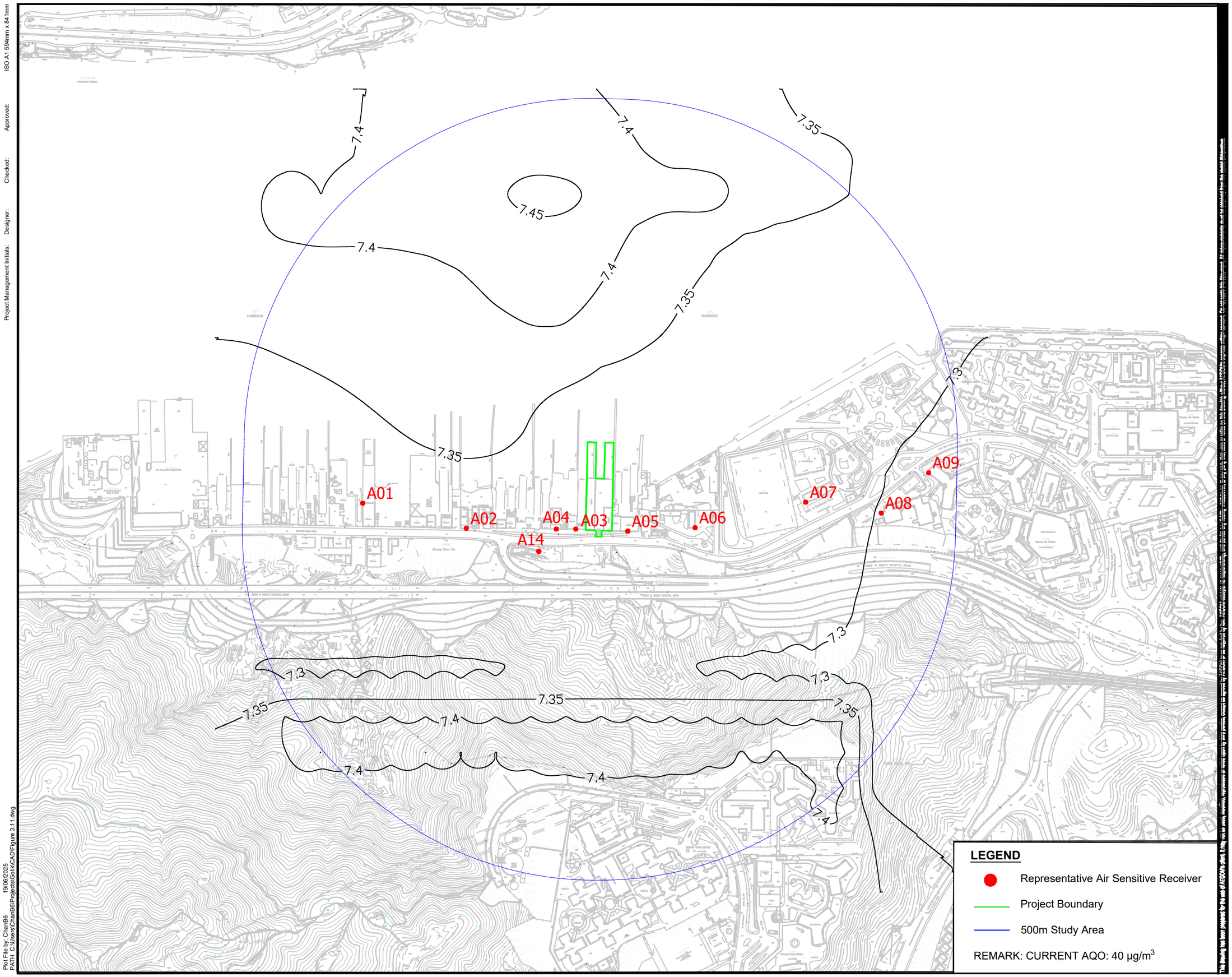
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: ChanB6 19/06/2025
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.11.dwg

AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

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NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. **CONTRACT NO.**

60739290 N/A

SHEET TITLE

4th Highest Cumulative Daily SO2 Concentration (µg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.11

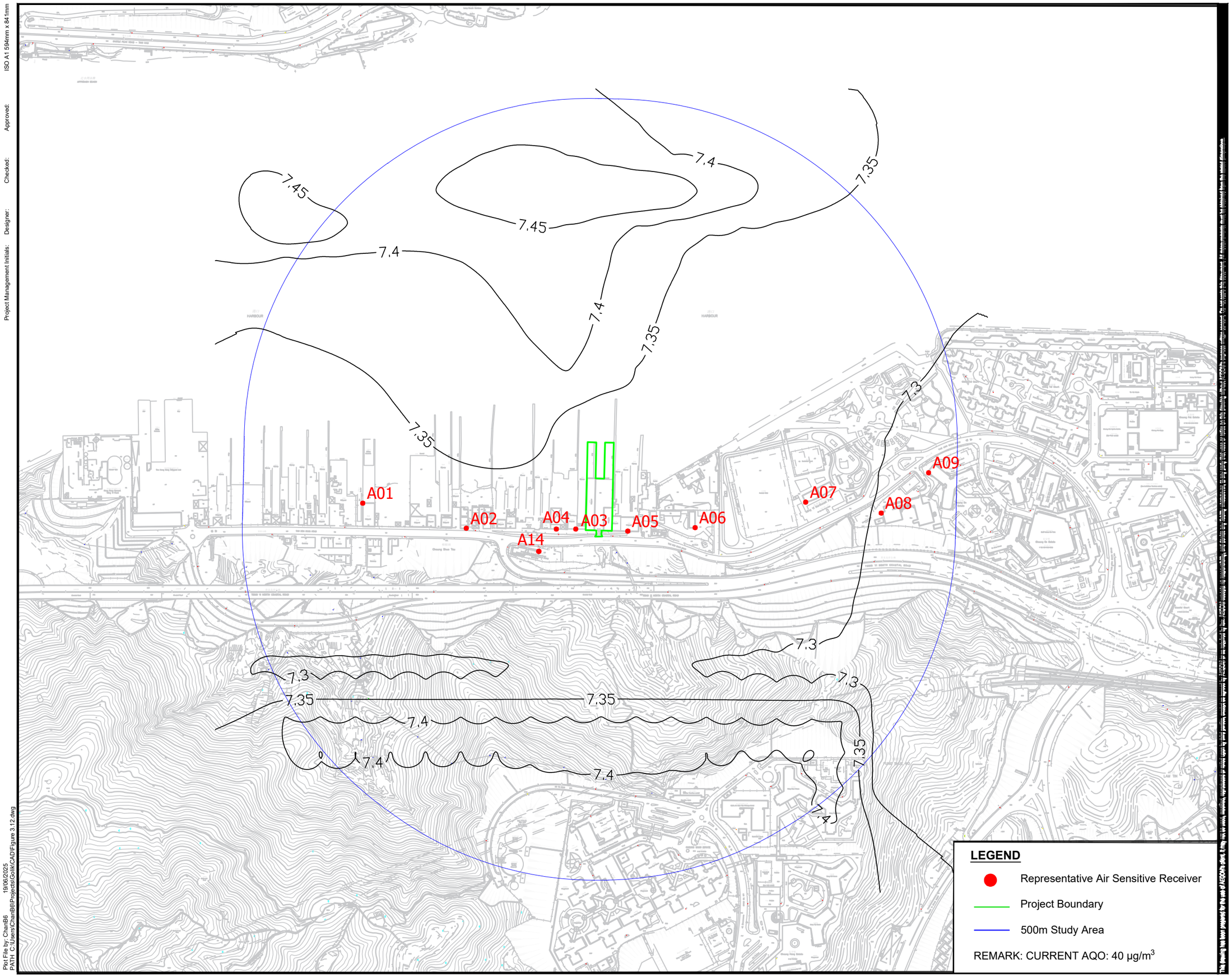
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: ChanB6
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.12.dwg
19/06/2025

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PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

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SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE / **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

4th Highest Cumulative Daily SO2 Concentration (μg/m3) at 15m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.12

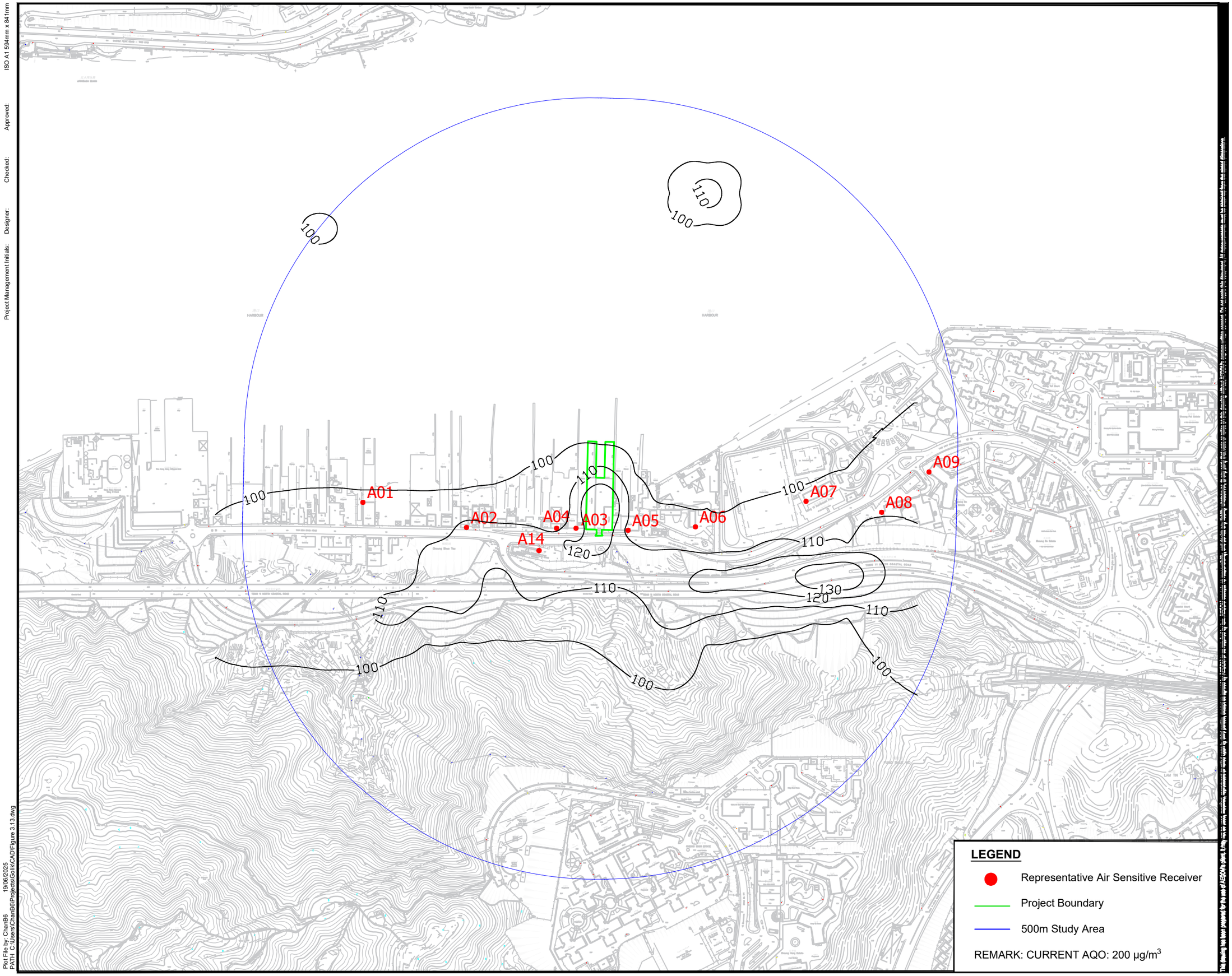
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: ChanB6
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.13.dwg
19/06/2025

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PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

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ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE / **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

19th Highest Cumulative Hourly NO2 Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.13

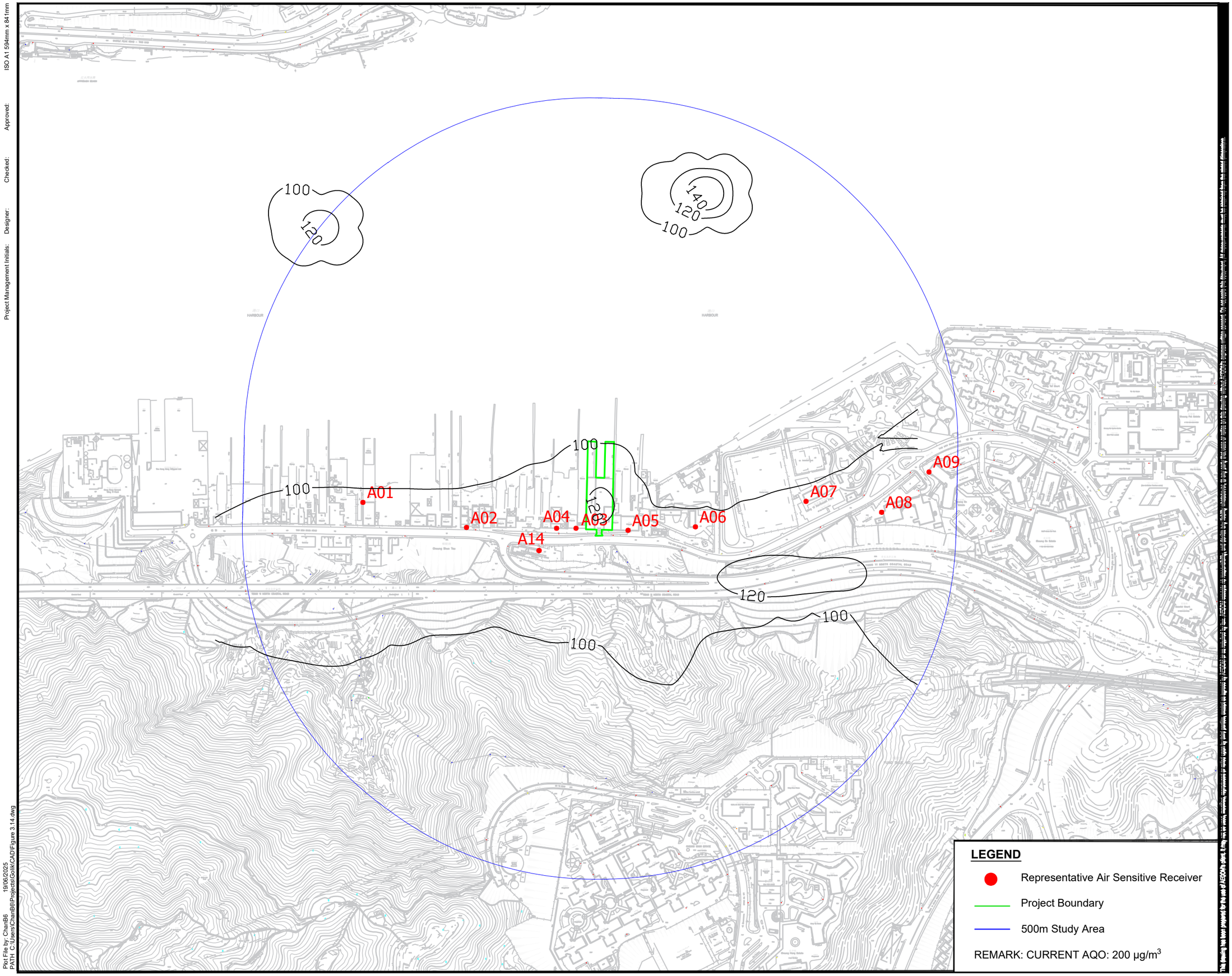
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

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ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. **CONTRACT NO.**

60739290 N/A

SHEET TITLE

19th Highest Cumulative Hourly NO2 Concentration (µg/m3) at 5m Above Ground

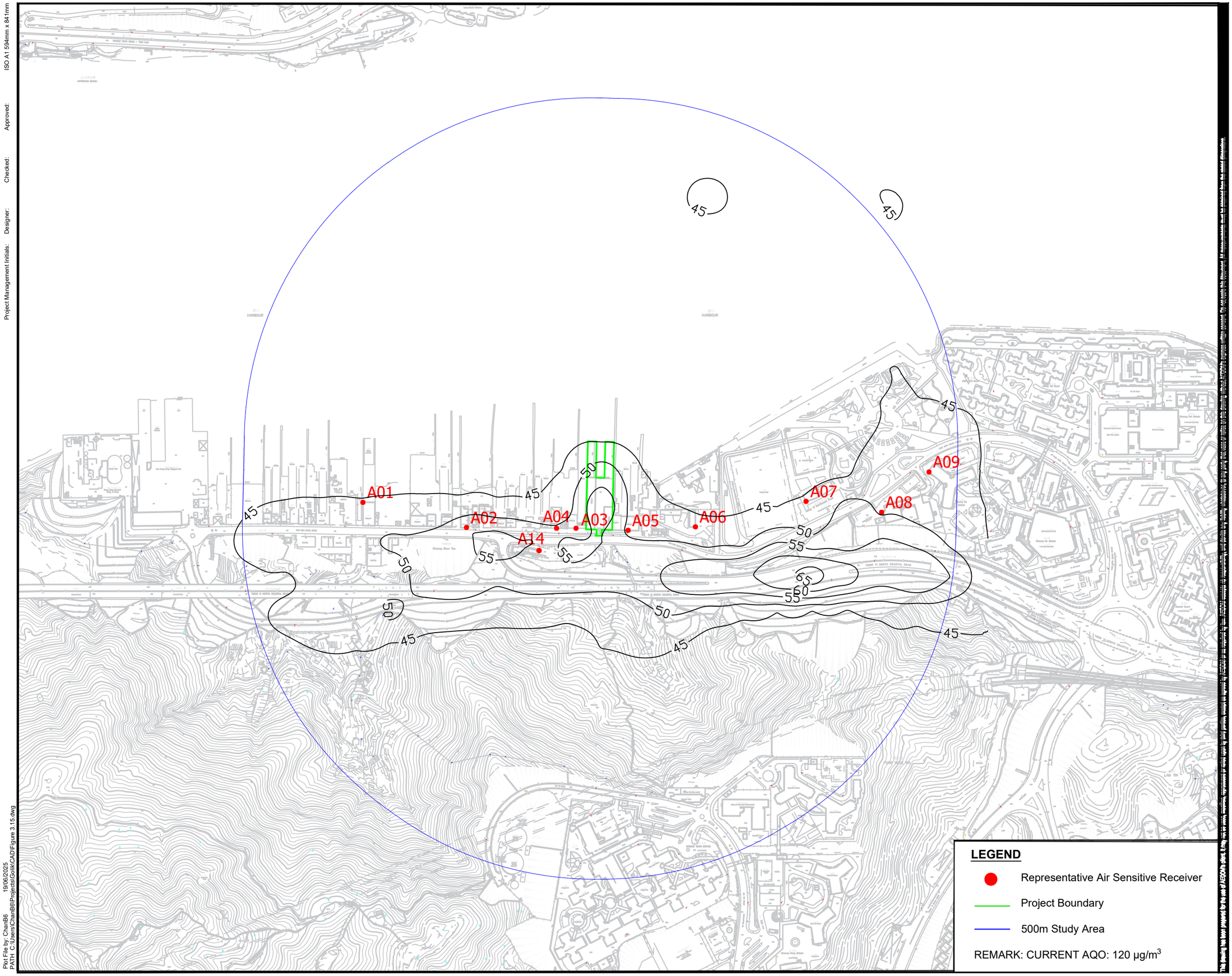
SHEET NUMBER

60739290/EA/FIGURE 3.14

Plot File by: ChanB6 19/06/2025
PATH C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.14.dwg

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:



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PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

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SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE / **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

10th Highest Cumulative Daily NO2 Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.15

Plot File by: ChanB6 19/06/2025
PATH: C:\Users\ChanB6\Projects\Gollk\CAD\Figure 3.15.dwg

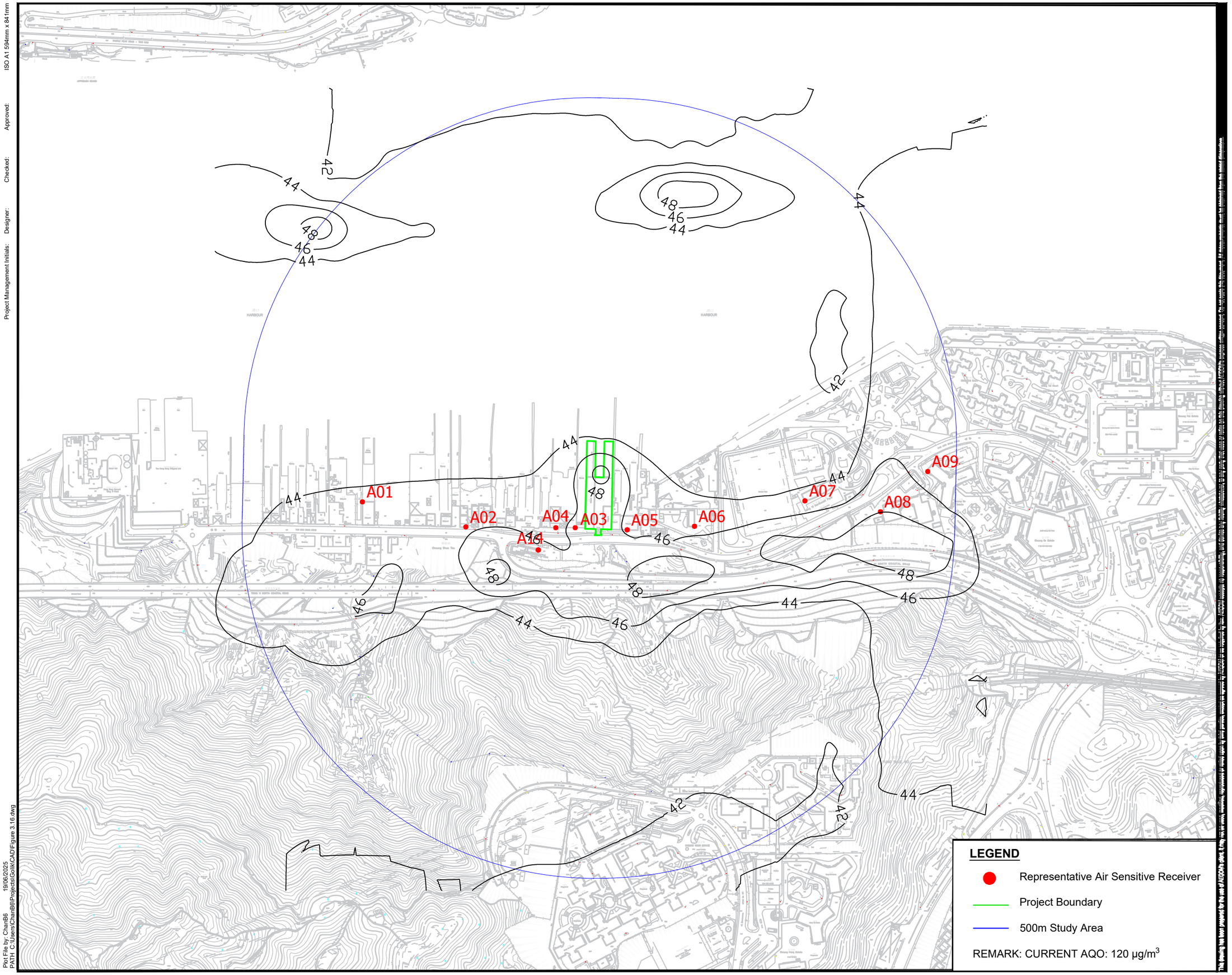
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: ChanB6 19/06/2025
PATH C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.16.dwg

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PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

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ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. **CONTRACT NO.**

60739290 N/A

SHEET TITLE

10th Highest Cumulative Daily NO2 Concentration (μg/m3) at 10m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.16

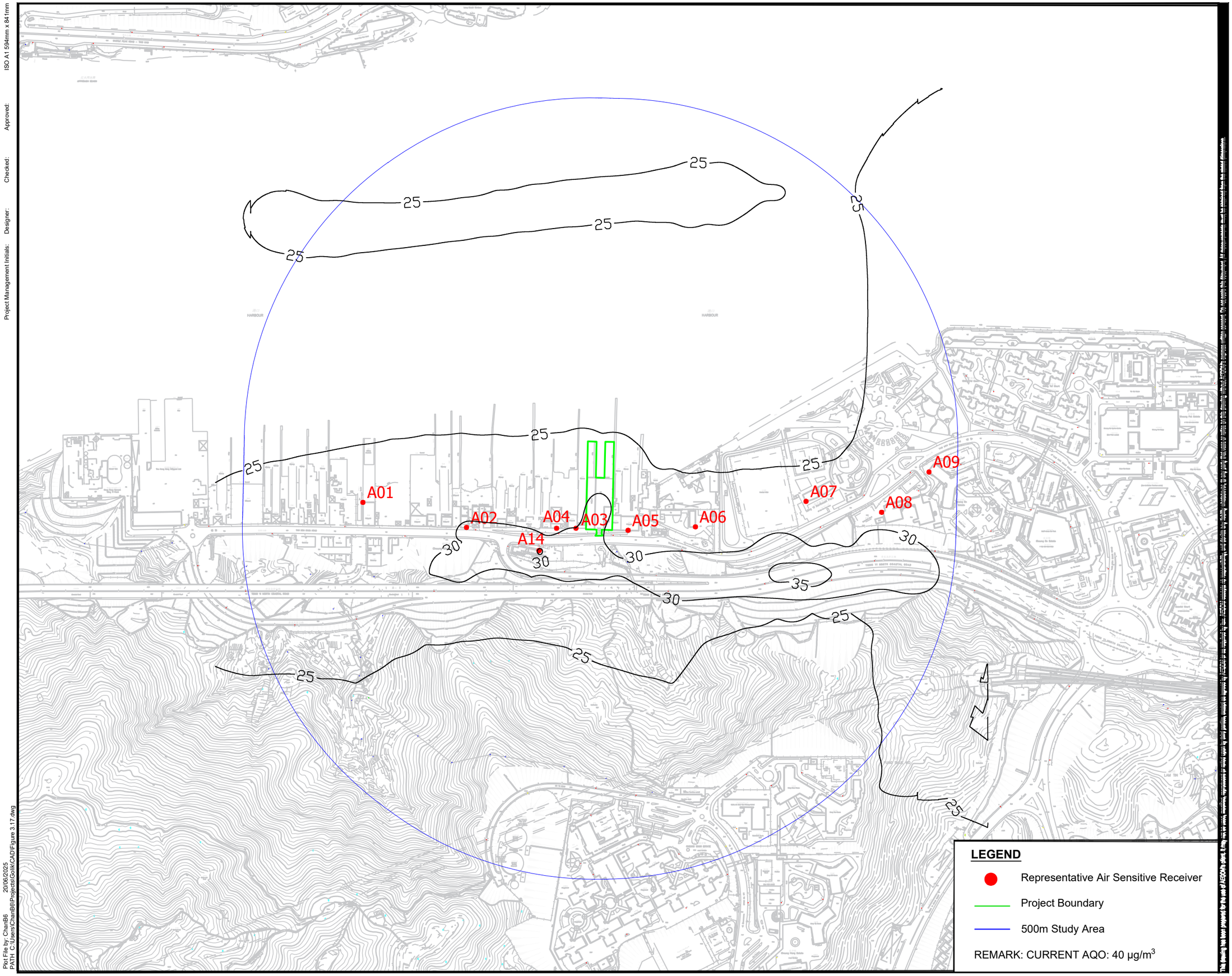
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



LEGEND

- Representative Air Sensitive Receiver
- Project Boundary
- 500m Study Area

REMARK: CURRENT AQO: 40 μg/m^3

Plot File by: ChanB6 20/06/2025
PATH: C:\Users\ChanB6\Projects\Golik\CAD\Figure 3.17.dwg

AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

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ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE / **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. / **CONTRACT NO.**

60739290 N/A

SHEET TITLE

Cumulative Annual NO2 Concentration (μg/m3) at 1.5m Above Ground

SHEET NUMBER

60739290/EA/FIGURE 3.17

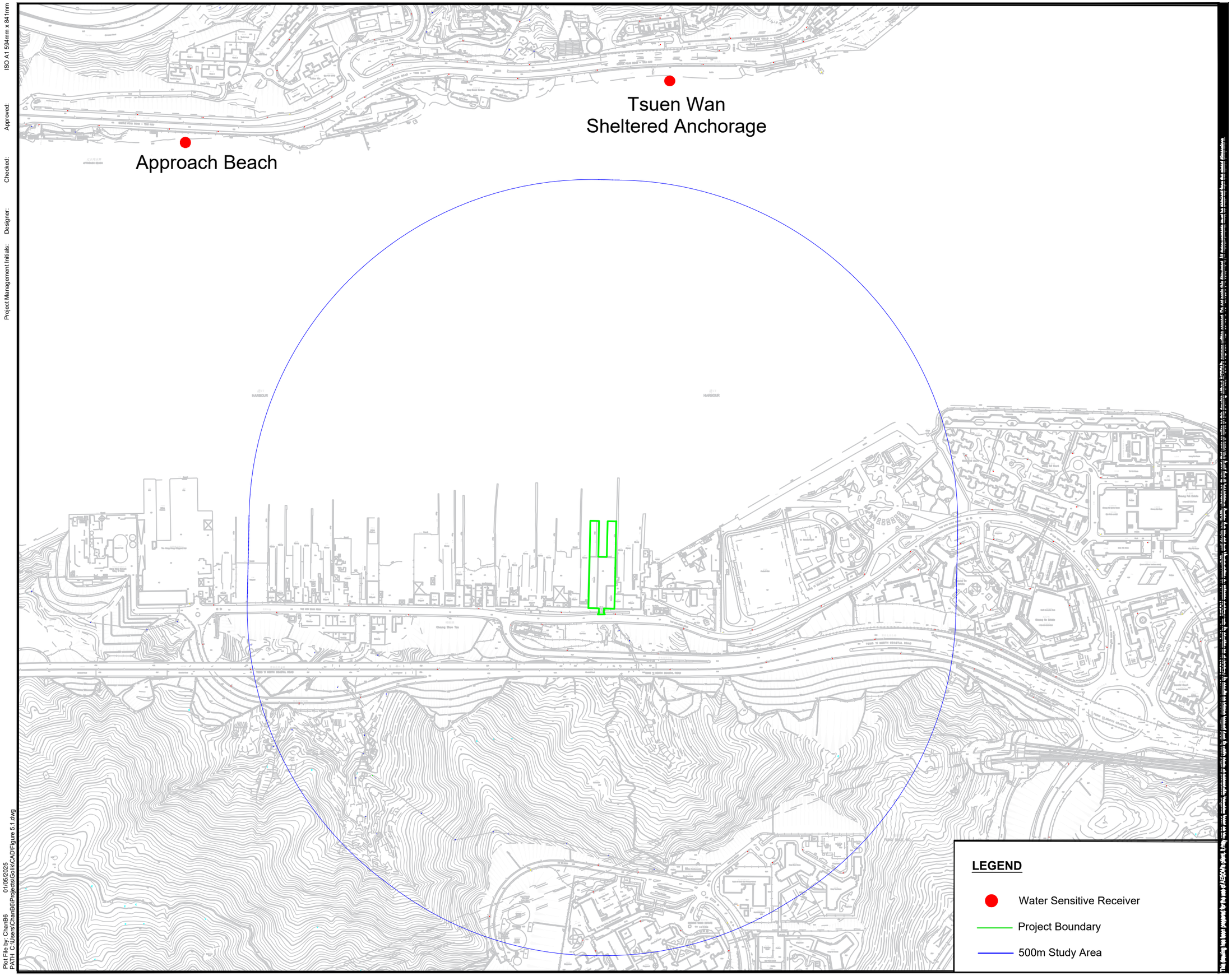
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: ChanB6 01/05/2025
PATH C:\Users\ChanB6\Projects\Golik\CAD\Figure 5.1.dwg

AECOM

PROJECT

PLANNING APPLICATION OF A CONCRETE BATCHING PIANT AT TSING YI TOWN LOT NOS. 14&15

CLIENT

CONSULTANT

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ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

SCALE **DIMENSION UNIT**

A3 1 : 5000

KEY PLAN

PROJECT NO. **CONTRACT NO.**

60739290 N/A

SHEET TITLE

Location of Water Sensitive Receivers

SHEET NUMBER

60739290/EA/FIGURE 5.1

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

827800 E

827900 E

828000 E

824800 N

824700 N

824600 N

LEGEND:

SITE BOUNDARY

MAINTENANCE DREDGING EXTENT

N

Jetty 渡頭

Slipway 船排

Seawall 海堤

HWM

Outfall 排水口

Shipyard 船廠

Car Park 停車場

TS

CUL

RCP

ESS

TAM KON SHAN ROAD 担杆山路

TSING YI NORTH COASTAL ROAD 青衣北岸公路

Environmental Protection Department Portable Emission Measurement System Laboratory 環保署便攜式廢氣測量系統實驗室

Nullah 明渠

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AECOM

PROJECT 項目

PLANNING APPLICATION OF A CONCRETE BATCHING PLANT AT TSING YI TOWN LOT NOS. 14 & 15

CLIENT 業主

CONSULTANT 土木顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS 分判工程顧問公司

ISSUE/REVISION 修訂

I/R 修訂	DATE 日期	DESCRIPTION 修訂摘要	CHK. 核核

STATUS 階段

SCALE 比例 A3 1 : 1000

DIMENSION UNIT 尺寸單位 METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 60739290

AGREEMENT NO. 協議編號

SHEET TITLE 圖紙名稱

MAINTENANCE DREDGING EXTENT

SHEET NUMBER 圖紙編號

60739290/EA/FIGURE 6.1

V:\BAK\US95-BAK\CSWP\plotdrv\Create Plt file\new\CSWP-75(color).pltPlot File by: haiquan.zhaoPATH P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_711.dgn3/7/2025

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:

$DATE$

$PLTDRVL$
Plot File by: $USER$
PATH: $FILE$

825500 N
825000 N
824500 N
828000 E
828500 E
829000 E

LEGEND:

SITE BOUNDARY

MAINTENANCE DREDGING EXTENT

VS10 EPD'S SEDIMENT MONITORING STATION

N

VS10

TSING YI NORTH COASTAL ROAD

TSING TSUEN ROAD

LAM TIN

HARBOUR

RAMBLER CHANNEL

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AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
土木顧問公司

AECOM Asia Company Ltd.
www.aecom.com

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分判工程顧問公司

ISSUE/REVISION
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I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS
階段

SCALE 比例
A3 1 : 5000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

AGREEMENT NO. 協議編號

SHEET TITLE
圖紙名稱
LOCATION OF EPD'S SEDIMENT MONITORING STATION VS10

SHEET NUMBER
圖紙編號
60739290/EA/FIGURE 6.2

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

PHOTO 8489: PRIVATE PARKING AREA
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8482: JETTY
(DATE TAKEN: 12 DECEMBER 2024)

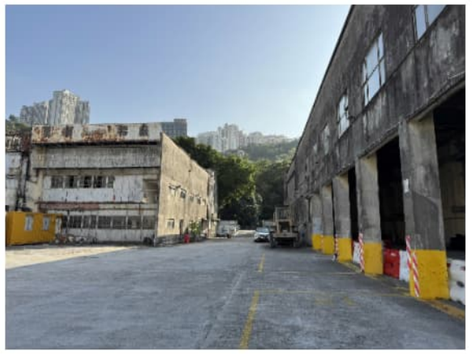

PHOTO 8485: ACCESS ROAD
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 0322: DISUSED DANGEROUS GOODS STORE / STOREROOM
(DATE TAKEN: 12 DECEMBER 2024)

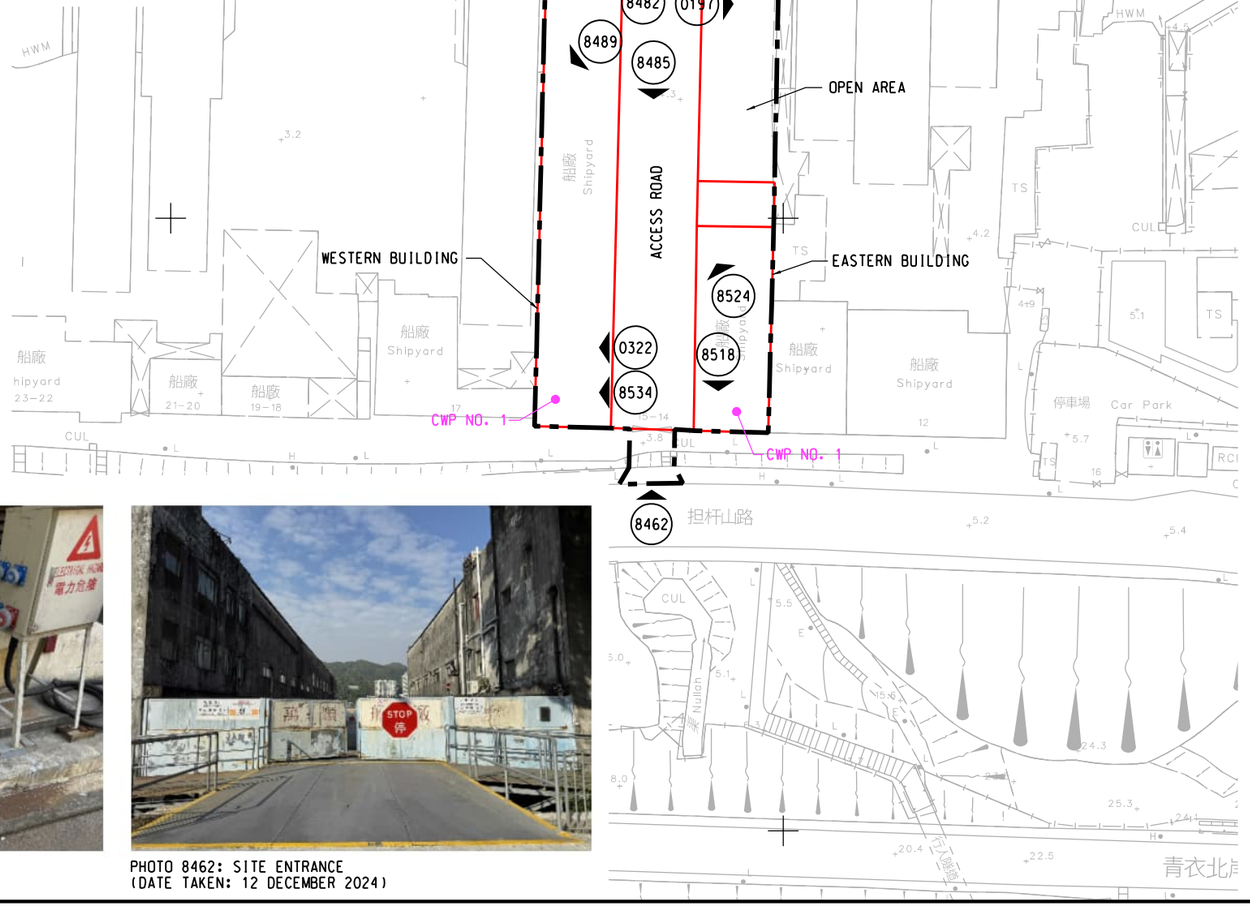

PHOTO 0197: PRIVATE PARKING AREA
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8524: VACANT AREA
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8534: CHEMICAL STORAGE AREA
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8462: SITE ENTRANCE
(DATE TAKEN: 12 DECEMBER 2024)

PHOTO 8518: CHEMICAL STORAGE AREA
(DATE TAKEN: 12 DECEMBER 2024)

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19/9/2025
Plot File by: hahuan.zhao
PATH P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_701.dgn

AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 修改摘要	CHK. 核核

STATUS
階段

SCALE
比例

A3 1 : 1000

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60739290

CONTRACT NO.
合約編號

SHEET TITLE
圖紙名稱

PHOTOGRAPHIC RECORDS
OF SITE WALKOVER

SHEET NUMBER
圖紙編號

60739290/EA/FIGURE 7.1

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ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

827800 E

827900 E

828000 E

824800 N

824700 N

824600 N

LEGEND:

SITE BOUNDARY

CONCERNED AREA

N

FORMER OPEN STORAGE

FORMER MAINTENANCE AREA

WESTERN BUILDING

EASTERN BUILDING

TAM KON SHAN ROAD

TSING YI NORTH COASTAL ROAD

Jetty 渡頭

Slipway 船排

Seawall 海堤

Shipyard 船廠

Car Park 停車場

Outfall 排水口

HWM

TS

CUL

RCP

ESS

Environmental Protection Department Portable Emission Measurement System (PEMS) Laboratory 環保署便攜式廢氣測量系統實驗室

Nullah 明渠

青衣北岸公路

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19/9/2025
Plot File by: haiquan.zhao
PATH: P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_702.dgn

AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
土木顧問公司

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ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS
階段

SCALE 比例
A3 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱
LOCATIONS OF CONCERNED AREAS

SHEET NUMBER
圖紙編號
60739290/EA/FIGURE 7.2

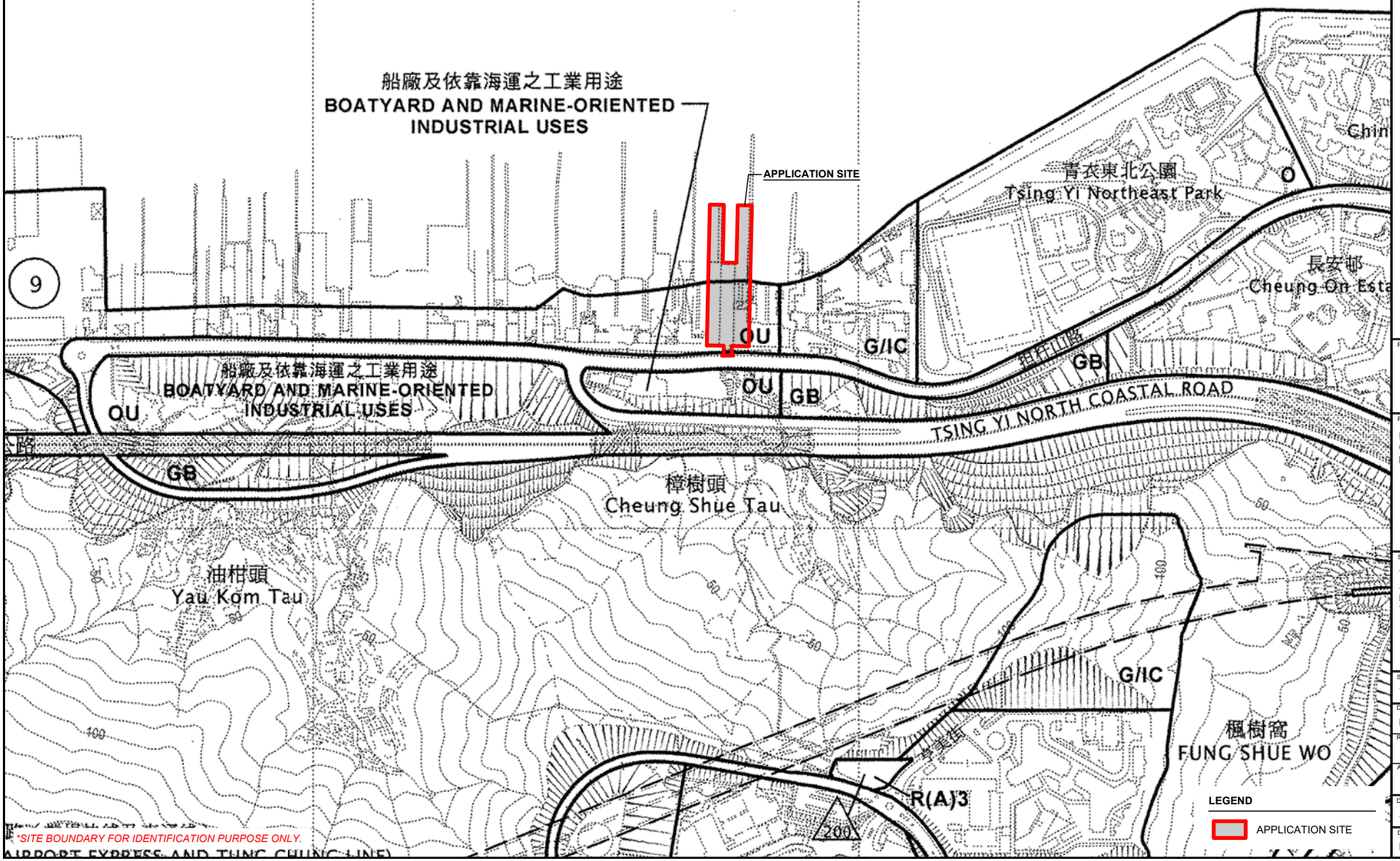
APPENDIX 2.1

Plant Layout

ZONING OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m² (ABOUT)
OUTLINE ZONING PLAN	: APPROVED TSING YI OZP
PLAN NO.	: S/TY/32
ZONING OF THE SITE	: "OTHER SPECIFIED USES" ANNOTATED "BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES" : 2,213 m² (ABOUT)
	AND AREA SHOWN AS 'ROAD' : 29 m² (ABOUT)

ONLY PORTION OF THE SITE (ABOUT 2,242 m², 52%) FALL WITHIN THE ABOVE OZP COVERAGE, WHILE THE REMAINING AREA (ABOUT 2,093 m², 48%) FALLS OUTSIDE OZP PLANNING SCHEME BOUNDARY.



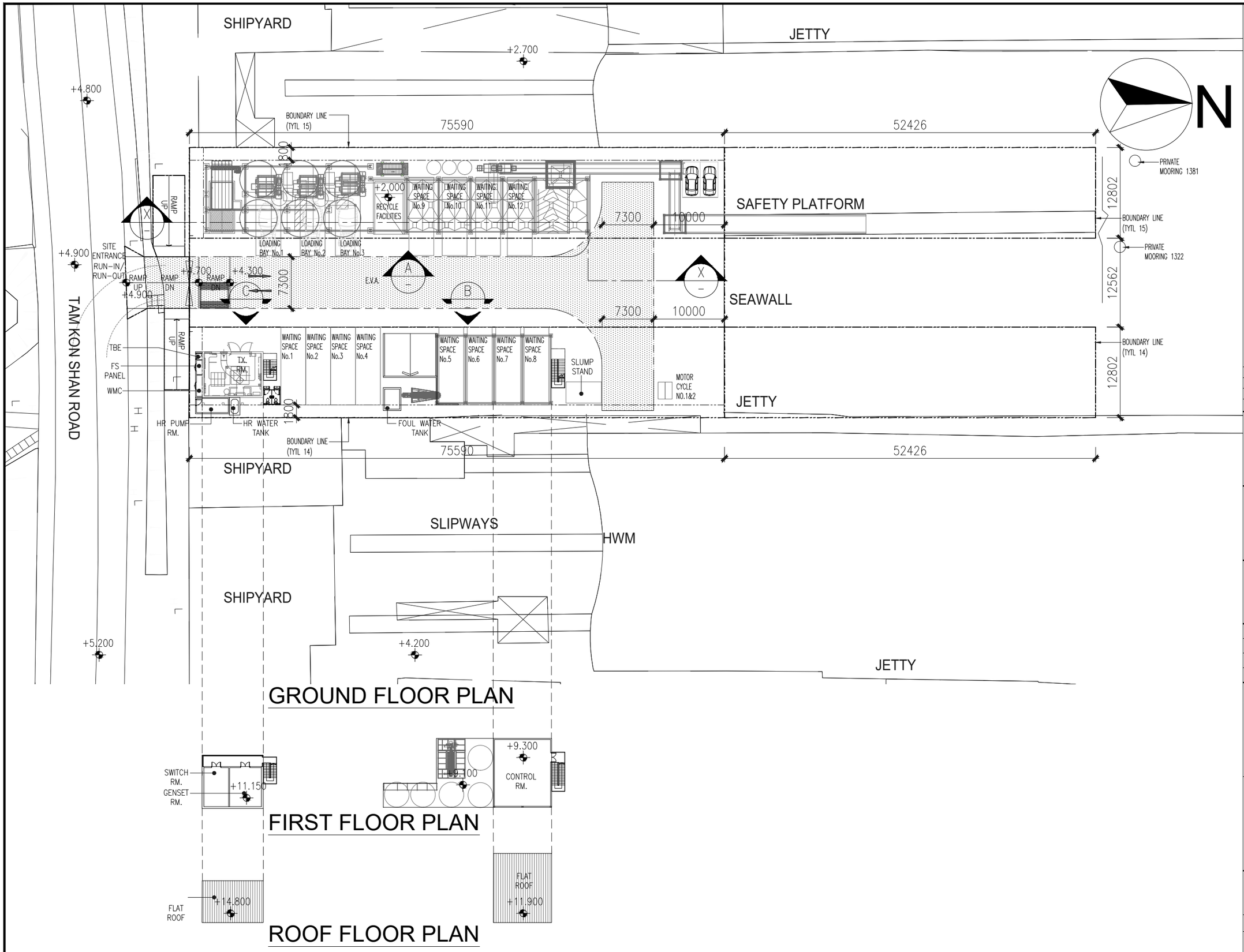
NORTH
W E
S

PLANNING CONSULTANT
R-Riches Property Consultants Ltd.

PROJECT
PROPOSED TEMPORARY CONCRETE BATCHING PLANT FOR A PERIOD OF 5 YEARS

SITE LOCATION
TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE	1 : 5000 @ A4
DRAWN BY	MN
DATE	19.11.2024
REVISED BY	
DATE	
APPROVED BY	
DATE	
DWG. TITLE	ZONING PLAN
DWG NO.	PLAN 2
VER.	1.2



REV.	DESCRIPTION	DATE	CHK.
–	–	SEP 2024	CP

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DRAWN :	–
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PROJECT :

PROPOSED TEMPORARY CONCRETE BATCHING PLANT AT TSING YI TOWN LOTS 14 AND 15 AND ADJOINING GOVERNMENT LAND

DRAWING TITLE :

G/F LAYOUT PLAN
(OPTION 1)

JOB NUMBER :	SHEET NUMBER :
–	

SCALE: 1:500

DRAWING No. :	REV.
SK-01	–

INFORMATION CLASSIFICATION: PROPRIETARY

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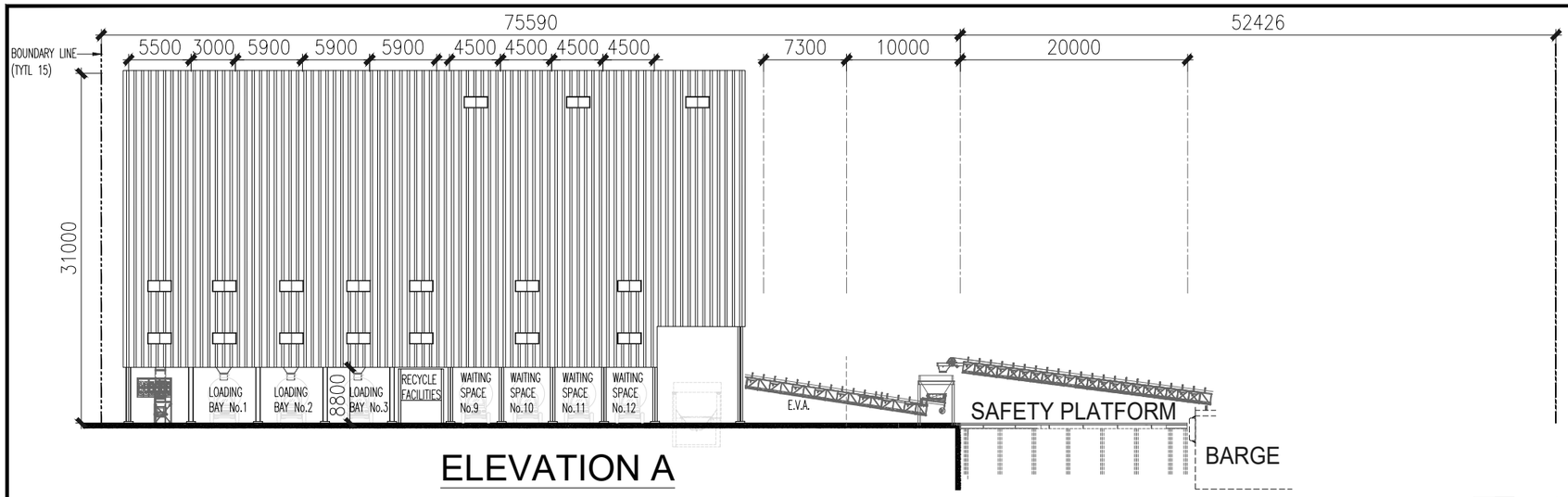

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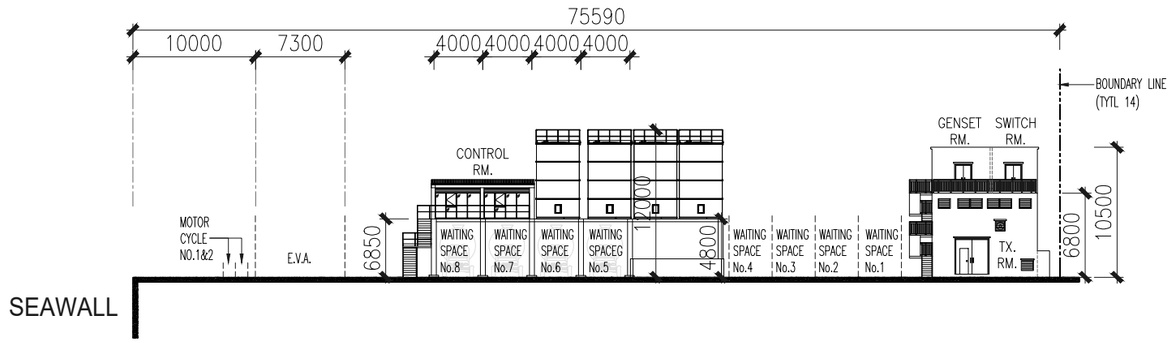

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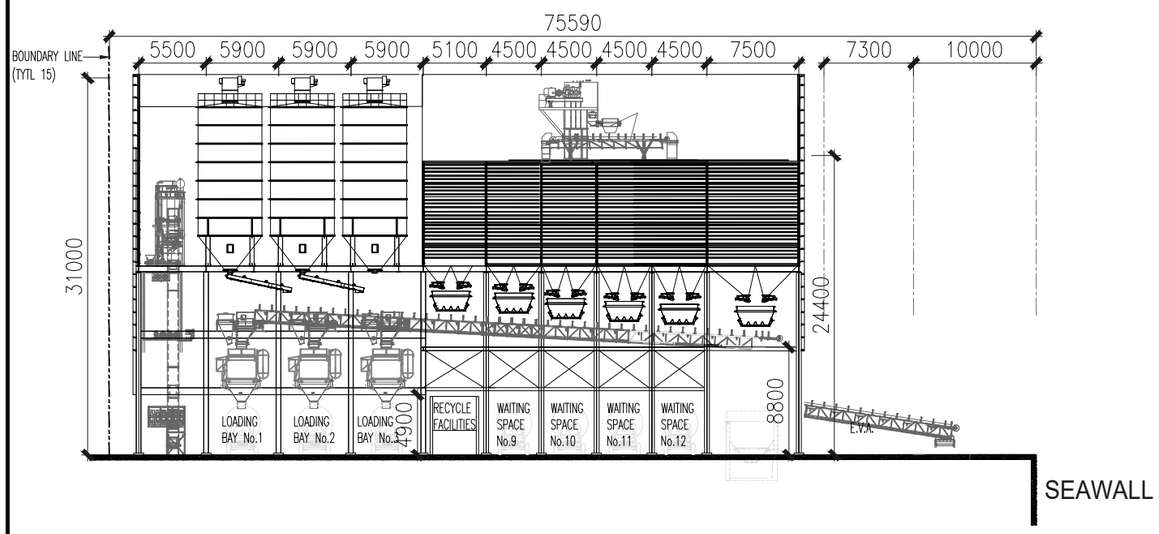
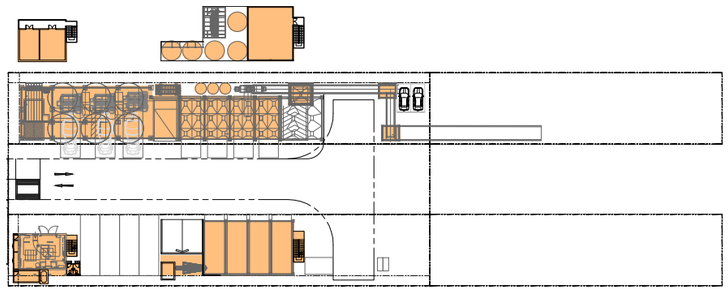
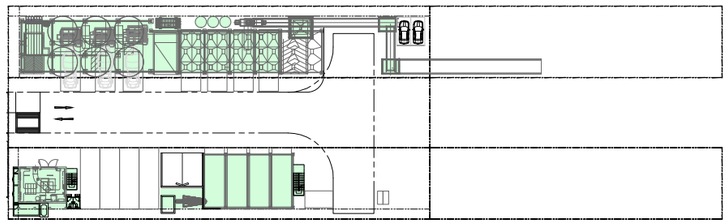


SECTION X-X



G.F.A. CALCULATION

1	GRD FL.	=	93 SQ.M.
2	GRD FL.	=	195 SQ.M.
3	GRD FL.	=	17 SQ.M.
4	GRD FL. x2	=	17 SQ.M.
5	1ST FL.	=	51 SQ.M.
6	1ST FL.	=	80 SQ.M.
7	GRD FL.	=	408 SQ.M.
8	1ST FL. x5	=	48 SQ.M.
9	GRD FL. x3	=	9 SQ.M.
10	1ST FL.	=	408 SQ.M.
11	MEZZ. FL.	=	137 SQ.M.
	TOTAL	=	1463 SQ.M.



SITE COVERAGE CALCULATION

1		=	93 SQ.M.
2		=	194 SQ.M.
3		=	17 SQ.M.
4	x2	=	17 SQ.M.
5		=	408 SQ.M.
6	x3	=	9 SQ.M.
	TOTAL	=	738 SQ.M.

REV.	DESCRIPTION	DATE	CHK.
–	–	SEP 2024	CP

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DRAWN :	–
CHECKED :	CP
APPROVED :	–

PROJECT :

PROPOSED TEMPORARY CONCRETE BATCHING PLANT AT TSING YI TOWN LOTS 14 AND 15 AND ADJOINING GOVERNMENT LAND

DRAWING TITLE :

ELEVATION A,B , SECTION X–X & CALCULATIONS
(OPTION 1)

JOB NUMBER :	SHEET NUMBER :
–	

SCALE: 1:500

DRAWING No. :	REV.
SK–02	–

INFORMATION CLASSIFICATION: PROPRIETARY

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APPENDIX 2.2

Schematic Process Flow Diagram

LEGEND:

- WATER SPRINKLER
- DUST COLLECTOR
- ENCLOSED PIPELINE
- ENCLOSED PIPELINE (EMERGENCY)
- EP EMISSION POINT

Subject to Construction of Barging Point Facilities

BARGE AGGREGATE

ENCLOSED CONVEYOR

EP1

GROUND HOPPER (3 SIDES AND TOP COVER)

FULL ENCLOSURE

CONVEYOR

CONVEYOR

CONVEYOR

EP2

GROUND HOPPER (3 SIDES AND TOP COVER)

AGGREGATE TIPPER TRUCK

EP17

WATER SPRAYING TO THE HAUL ROAD

CONVEYOR

ELEVATOR

CONVEYOR

AGGREGATE OVERHEAD BIN

ICE TANK

WATER&ICE WATER TANK

SLURRY WATER TANK

ADMIXTURE TANKS

SCREW CONVEYOR

LORRIES

EP19

WATER SPRAYING TO THE HAUL ROAD

Subject to Construction of Barging Point Facilities

BARGE CEMENT/PFA/GGBS

CEMENTITIOUS MATERIAL TANKER

EP19

WATER SPRAYING TO THE HAUL ROAD

EP9 CEMENT/ PFA/GGBS SILO

EP10 CEMENT/ PFA/GGBS SILO

EP11 CEMENT/ PFA/GGBS SILO

EP12 CEMENT/ PFA/GGBS SILO

EP13 CEMENT/ PFA/GGBS SILO

EP14 CEMENT/ PFA/GGBS SILO

EP15 SILICA FUME SILO

EP16 SILICA FUME SILO

AGGREGATE WEIGH HOPPERS

ICE/WATER/SLURRY WATER WEIGH HOPPERS

ADMIXTURE WEIGH HOPPERS

CEMENT/ PFA/ GGBS/ WEIGH HOPPER

CEMENT/ PFA/ GGBS/ WEIGH HOPPER

SILICA FUME WEIGH HOPPER

AGGREGATE WEIGH HOPPERS

ICE/WATER/SLURRY WATER WEIGH HOPPERS

ADMIXTURE WEIGH HOPPERS

CEMENT/ PFA/ GGBS/ WEIGH HOPPER

CEMENT/ PFA/ GGBS/ WEIGH HOPPER

SILICA FUME WEIGH HOPPER

AGGREGATE WEIGH HOPPERS

ICE/WATER/SLURRY WATER WEIGH HOPPERS

ADMIXTURE WEIGH HOPPERS

CEMENT/ PFA/ GGBS/ WEIGH HOPPER

CEMENT/ PFA/ GGBS/ WEIGH HOPPER

SILICA FUME WEIGH HOPPER

EP6

DC

DC

EP7

DC

DC

EP8

DC

DC

MIXER A

EP3

MIXER B

EP4

MIXER C

EP5

EP18

WATER SPRAYING TO THE HAUL ROAD

工程编号:

合同编号:

圳通

圳通(香港）钢结构设备有限公
ZhenTong(HONGKONG)Steel structure Equipment Co.LTD

深圳市圳通钢结构设备有限公司
ZhenTong Steelstructure Equipment Co.LTD In ShenZhen

典型平面：
key plan

设计变更说明：
Revision

A 版

备注说明：
Remark

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建设单位：
Client

建设地点：
Site
青衣

工程名称	3*HZS300混凝土生产线		
审定		核对	
审核		设计	
设计负责		绘图	
设计阶段		版本	

名称: Schematic diagram

比例	日期	图号
1:1	2025-03-19	

APPENDIX 3.1

Technical Details of Control Measures

Appendix 3.1 Technical Details of Control Measures

Estimation of Emission Concentrations at Emission Points

Emission Point	Material	Container	Dust Collector	Dust Collector Exhaust Flow Rate, V (m^3/hr)^	Max Hourly Loading Capacity, M (Mg/hr)^	TSP Emission Factor, E (kg/Mg)*	Dust Removal Efficiency, Ef (%)^	Emission Rate, Q (g/hr)	Emission Concentration, c (mg/m^3)#
EP3	Mixed	Mixer	Fabric Filter	7864	63.0	0.286	99.9	18.02	2.29
EP4	Mixed	Mixer	Fabric Filter	7864	63.0	0.286	99.9	18.02	2.29
EP5	Mixed	Mixer	Fabric Filter	7864	63.0	0.286	99.9	18.02	2.29
EP6	Aggregates	Weigh Hopper	Fabric Filter	6000	170	0.0026	99.9	0.44	3.08
	Cement				35.0	0.286		10.01	
	PFA				12.0	0.286		3.43	
	GGBS				15.0	0.286		4.29	
	Silica fume				1.0	0.286		0.29	
EP7	Aggregates	Weigh Hopper	Fabric Filter	6000	170	0.0026	99.9	0.44	3.08
	Cement				35.0	0.286		10.01	
	PFA				12.0	0.286		3.43	
	GGBS				15.0	0.286		4.29	
	Silica fume				1.0	0.286		0.29	
EP8	Aggregates	Weigh Hopper	Fabric Filter	6000	170	0.0026	99.9	0.44	3.08
	Cement				35.0	0.286		10.01	
	PFA				12.0	0.286		3.43	
	GGBS				15.0	0.286		4.29	
	Silica fume				1.0	0.286		0.29	
EP9	Cement	Silo	Fabric Filter	11196	180.0	0.36	99.9	64.80	5.79
EP10	GGBS	Silo	Fabric Filter	11196	50.0	1.57	99.9	78.50	7.01
EP11	Cement	Silo	Fabric Filter	11196	180.0	0.36	99.9	64.80	5.79
EP12	PFA	Silo	Fabric Filter	11196	50.0	1.57	99.9	78.50	7.01
EP13	Cement	Silo	Fabric Filter	11196	180.0	0.36	99.9	64.80	5.79
EP14	GGBS	Silo	Fabric Filter	11196	50.0	1.57	99.9	78.50	7.01
EP15	Silica fume	Silo	Fabric Filter	11196	25.0	1.57	99.9	39.25	3.51
EP16	Silica fume	Silo	Fabric Filter	11196	25.0	1.57	99.9	39.25	3.51

* - TSP emission rates by various material handling are referenced to Table 11.12-1, Section 11.12-4, AP-42, USEPA, 6/06 edition.
# - Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
^ - From Engineer

APPENDIX 3.2

Calculation of Dust Emission Rates

Appendix 3.2 Calculations of Emission Rates

Estimation of RSP and FSP Emission Rates

Location	Source	Emission Rates	Mitigated Emission Rates	Parameters		*Remarks*
Proposed CBP	**Unloading of aggregates to Aggregate Receiving Hopper**	Spoil handling - Unloading of Aggregates		Emission Factor (kg/Mg) = k*(0.0016)*(U/2.2)^1.3/(M/2)^1.4		from USEPA AP-42 Section 13.2.4, 11/06 ed.
at TYTL14&15	Source ID: EP01	($g/m^2/s$)		TSP Particle size multiplier, k	0.74	from USEPA AP-42 Section 13.2.4, 11/06 ed.
				RSP Particle size multiplier, k	0.35	from USEPA AP-42 Section 13.2.4, 11/06 ed.
	Working Hours: 0700 - 2100			FSP Particle size multiplier, k	0.053	from USEPA AP-42 Section 13.2.4, 11/06 ed.
				Moisture content, M (%)	3.00	provided by design engineer
		RSP	**6.4371E-04**	Average wind speed, U (m/s)	2.01	*from WRF data of PATHv3.0 Grid (32,28)*
				Loading rate of materials (Mg/hr)	610	From Engineer
		FSP	**1.5079E-04**	Area of the storage (m^2)	8.64	From Engineer
				Dust Suppression Efficiency for PM (6 - 10μm)	90	for dust suppression by water sprays
				Dust Suppression Efficiency for PM (2.5 - 6μm)	65	from Table B.2.3, Appendix B.2, USEPA AP-42
				Dust Suppression Efficiency for PM (0 - 2.5μm)	40	
				% of dust suppression from 3-side cladded and roof	70	3.3.6, Technical Background Document on Control of Fugitive Dust at Cement Manufacturing Facilities, USEPA, 1998
				RSP emission factor, E (kg/Mg)	2.82E-04	by formula above
				FSP emission factor, E (kg/Mg)	4.27E-05	by formula above
				Mitigated PM(2.5 - 10μm) emission factor (kg/Mg)	2.51E-05	=(RSP emission factor-FSP emission factor)*(1- Dust Suppression efficiency for PM (2.5-6μm)/100)*(1-% of dust suppression from 3-side cladded and roof/100)
				Mitigated PM(2.5) emission factor (kg/Mg)	7.69E-06	=FSP emission factor*(1- Dust Suppression efficiency for PM (0-2.5μm)/100)*(1-% of dust suppression from 3-side cladded and roof/100)
				Mitigated PM(2.5 - 10μm) emission rate (g/s)	4.26E-03	
				Mitigated PM(2.5) emission rate (g/s)	1.30E-03	
	Dust Collector on Mixer	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	2.29	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	7864	From Engineer
	Source ID: EP03 -EP05					
	Working Hours: 0700 - 2100					
		RSP	**1.5233E-03**	Ratio RSP to TSP (Controlled)	0.30	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**6.9239E-04**	Ratio FSP to RSP (Controlled)	0.45	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2
	Dust Collector on Weigh Hopper	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	3.08	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	6000	From Engineer
	Source ID: EP06 - EP08					
	Working Hours: 0700 - 2100					
		RSP	**2.5639E-03**	Ratio RSP to TSP (Uncontrolled)	0.50	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**7.5408E-04**	Ratio FSP to RSP (Uncontrolled)	0.29	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2
	Dust Collector on Cement Silo	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	5.79	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	11196	From Engineer
	Source ID: EP09, EP11, EP13					
	Working Hours: 0700 - 2100					
		RSP	**6.1200E-03**	Ratio RSP to TSP (Controlled)	0.34	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**2.7818E-03**	Ratio FSP to RSP (Controlled)	0.45	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2
	Dust Collector on PFA Silo	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	7.01	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	11196	From Engineer
	Source ID: EP12					
	Working Hours: 0700 - 2100					
		RSP	**1.1630E-02**	Ratio RSP to TSP (Controlled)	0.53	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**5.2862E-03**	Ratio FSP to RSP (Controlled)	0.45	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2
	Dust Collector on GGBS Silo	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	7.01	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	11196	From Engineer
	Source ID: EP10, EP14					
	Working Hours: 0700 - 2100					
		RSP	**1.1630E-02**	Ratio RSP to TSP (Controlled)	0.53	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**5.2862E-03**	Ratio FSP to RSP (Controlled)	0.45	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2
	Dust Collector on Silica Fume Silo	Exhaust from dust collector (g/s)		Emission Concentration, c (mg/m3)	3.51	by engineer, Emission concentration is estimated by c = Q / V where Q = E x M x (1-Ef)
				Flow Rate (m3/hr)	11196	From Engineer
	Source ID: EP15, EP16					
	Working Hours: 0700 - 2100					
		RSP	**5.8148E-03**	Ratio RSP to TSP (Controlled)	0.53	Refer to Table "RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)" shown on Appendix 3.2
		FSP	**2.6431E-03**	Ratio FSP to RSP (Controlled)	0.45	Refer to Table "FSP-to-RSP and FSP-to-TSP Ratios" shown on Appendix 3.2

Appendix 3.2 Calculations of Emission Rates

Estimation of RSP and FSP Emission Rates

Location	Source	Emission Rates	Mitigated Emission Rates	Parameters		Remarks
Proposed CBP at TYTL14&15	Paved Haul Road inside the Plant (laden & unladen cementitious materials tankers & mixer trucks) Source ID: HR01 Working Hours: 0700 - 2100	Paved Haul Road inside CBP ($g/s \cdot m^2$)		Emission factor (g/VKT)	$E = k\,(sL)^{0.91} \times (W)^{1.02}$	AP-42, Section 13.2.1, 1/11 ed.
				Particle Size Multiplier for RSP, k	0.62	*from Section 13.2.1, USEPA AP-42*
				Particle Size Multiplier for FSP, k	0.15	*from Section 13.2.1, USEPA AP-42*
				Road surface silt loading, sL (g/m^2)	12	*AP-42 Table 13.2.1-3, 1/11 ed.*
				Road Width (m)	7.3	From Engineer
				% of dust suppression = 100 - (0.8*p*d*t)/i	91.7	Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), detailed calculations on 'Calculation of Dust Suppression Efficiency from Watering' on Appendix 3.2
				Number of vehicle per hour	90	From Engineer, number of laden & unladen cementitious materials tankers & mixer trucks per hour
				Average weight of the vehicles (US ton)	29.2	From Engineer, total weight of laden & unladen cementitious materials tankers & mixer trucks divided by above number of vehicles per hour
		RSP	**5.2830E-05**	E for RSP (g/vehicle-meter-travelled)	0.186	
		FSP	**1.2781E-05**	E for FSP (g/vehicle-meter-travelled)	0.045	
	Paved Haul Road inside the Plant (laden cementitious materials tankers & unladen mixer trucks) Source ID: HR02 Working Hours: 0700 - 2100	Paved Haul Road inside CBP ($g/s \cdot m^2$)		Emission factor (g/VKT)	$E = k\,(sL)^{0.91} \times (W)^{1.02}$	AP-42, Section 13.2.1, 1/11 ed.
				Particle Size Multiplier for RSP, k	0.62	*from Section 13.2.1, USEPA AP-42*
				Particle Size Multiplier for FSP, k	0.15	*from Section 13.2.1, USEPA AP-42*
				Road surface silt loading, sL (g/m^2)	12	*AP-42 Table 13.2.1-3, 1/11 ed.*
				Road Width (m)	3.65	From Engineer
				% of dust suppression = 100 - (0.8*p*d*t)/i	91.7	Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), detailed calculations on 'Calculation of Dust Suppression Efficiency from Watering' on Appendix 3.2
				Number of vehicle per hour	45	From Engineer, laden cementitious materials tankers & unladen mixer trucks per hour
				Average weight of the vehicles (US ton)	17.7	From Engineer, total weight of laden cementitious materials tankers & unladen mixer trucks divided by above number of vehicles per hour
		RSP	**3.1711E-05**	E for RSP (g/vehicle-meter-travelled)	0.112	
		FSP	**7.6720E-06**	E for FSP (g/vehicle-meter-travelled)	0.027	
	Paved Haul Road inside the Plant (unladen cementitious materials tankers & laden mixer trucks) Source ID: HR03 Working Hours: 0700 - 2100	Paved Haul Road inside CBP ($g/s \cdot m^2$)		Emission factor (g/VKT)	$E = k\,(sL)^{0.91} \times (W)^{1.02}$	AP-42, Section 13.2.1, 1/11 ed.
				Particle Size Multiplier for RSP, k	0.62	*from Section 13.2.1, USEPA AP-42*
				Particle Size Multiplier for FSP, k	0.15	*from Section 13.2.1, USEPA AP-42*
				Road surface silt loading, sL (g/m^2)	12	*AP-42 Table 13.2.1-3, 1/11 ed.*
				Road Width (m)	3.65	From Engineer
				% of dust suppression = 100 - (0.8*p*d*t)/i	91.7	Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), detailed calculations on 'Calculation of Dust Suppression Efficiency from Watering' on Appendix 3.2
				Number of vehicle per hour	45	From Engineer, number of unladen cementitious materials tankers & laden mixer trucks per hour
				Average weight of the vehicles (US ton)	40.7	From Engineer, total weight of unladen cementitious materials tankers & laden mixer trucks divided by above number of vehicles per hour
		RSP	**7.4120E-05**	E for RSP (g/vehicle-meter-travelled)	0.261	
		FSP	**1.7932E-05**	E for FSP (g/vehicle-meter-travelled)	0.063	

Remarks

- The number of trips and the average weight of vehicles are estimated from the activities of all concerned vehicles travelled on the road.

Type of Vehicles	No. of Trips per Hour	Full load Weight (US ton)	Unladen Weight (US ton)
Mixer Truck	43	41.9	16.5
Cementitious materials (PFA/GGBS/Silica Fume) Truck	2	43.0	15.4

Appendix 3.2 Calculations of Emission Rates

Calculation of Dust Suppression Efficiency from Watering

Dust suppression efficiency is assumed to be 91.7%.
Assumptions are stated as below. With reference to the Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), dust suppression efficiency can be estimated by:

$$C = 100 - \frac{0.8 \cdot p \cdot d \cdot t}{i}$$

where
C = average control effiency, in percent
p = potential average hourly daytime evaporation rate, in mm/hr
d = average hourly daytime traffic rate, in vehicles per hour
i = application intensity, in L/m^2
t = time between applications, in hour

The following assumptions are made for assessment purpose:

Assumption 1
Potential average hourly daytime evaporation rate p can be estimated by 0.0049 * e, where e is the mean annual average evaporation rate (inches).
From past measurement data in Hong Kong's Observatory, evaporation recorded at King's Park between 1992 - 2020 is 1204.1 mm[1]. Therefore p = 0.0049 * (1204.1 mm) = 0.0049 * (47.40551 inches) = 0.2323.

Assumption 2
For HR01, estimate average hourly daytime traffic rate in vehicles per hour = 90[2] (d=90)
For HR02-HR03, estimate average hourly daytime traffic rate in vehicles per hour = 45[2] (d=45)

Assumption 3
For HR01, assume watering application intensity as 2.02 L/m^2 [2] (i=2.02)
For HR02-HR03, assume watering application intensity as 1.01 L/m^2 [2] (i=1.01)

Assumption 4
Assume watering frequency as once every hour. [2] (t=1)

With the above assumptions, dust suppression efficiency is calculated as below:
For HR01: C = 100 - 0.8*0.2323*90*1/2.02 = **91.7%**
For HR02-HR03: C = 100 - 0.8*0.2323*45*1/1.01 = **91.7%**

Notes:
[1] The evaporation recorded at King's Park between 1992 - 2020 is taken from https://www.hko.gov.hk/en/cis/normal/1991_2020/normals.htm
[2] Provided by the Engineer

Appendix 3.2 Calculations of Emission Rates

Dust Emission Source Listing in AERMOD

Sources from the proposed Concrete Batching Plant at TYTL14&15

											RSP Emission Rate*		FSP Emission Rate*		
Source ID	Type	X1	Y1	Base Elevation (mPD)	Height (mAG) ^	Exit Temp. (K)	Exit velocity (m/s) ^	Stack Diameter (m) ^	Szinit (m)	Working Hours	Working hours	Non-working hours	Working hours	Non-working hours	Remarks
EP01	Areapoly	827870.97	824758.12	4.20	6.30	-	-	-	0.93023	0700 - 2100	6.4371E-04	0.00E+00	1.5079E-04	0.00E+00	[1]
EP03	Point	827864.30	824675.10	4.20	8.80	0.00	15.60	0.42	-	0700 - 2100	1.5233E-03	0.00E+00	6.9239E-04	0.00E+00	-
EP04	Point	827864.40	824681.80	4.20	8.80	0.00	15.60	0.42	-	0700 - 2100	1.5233E-03	0.00E+00	6.9239E-04	0.00E+00	-
EP05	Point	827864.70	824688.30	4.20	8.80	0.00	15.60	0.42	-	0700 - 2100	1.5233E-03	0.00E+00	6.9239E-04	0.00E+00	-
EP06	Point	827863.90	824675.00	4.20	8.80	0.00	11.90	0.42	-	0700 - 2100	2.5639E-03	0.00E+00	7.5408E-04	0.00E+00	-
EP07	Point	827864.20	824681.80	4.20	8.80	0.00	11.90	0.42	-	0700 - 2100	2.5639E-03	0.00E+00	7.5408E-04	0.00E+00	-
EP08	Point	827864.40	824688.40	4.20	8.80	0.00	11.90	0.42	-	0700 - 2100	2.5639E-03	0.00E+00	7.5408E-04	0.00E+00	-
EP09	Point	827863.20	824688.50	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	6.1200E-03	0.00E+00	2.7818E-03	0.00E+00	-
EP10	Point	827866.60	824688.40	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	1.1630E-02	0.00E+00	5.2862E-03	0.00E+00	-
EP11	Point	827862.60	824681.70	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	6.1200E-03	0.00E+00	2.7818E-03	0.00E+00	-
EP12	Point	827866.50	824681.50	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	1.1630E-02	0.00E+00	5.2862E-03	0.00E+00	-
EP13	Point	827862.40	824674.80	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	6.1200E-03	0.00E+00	2.7818E-03	0.00E+00	-
EP14	Point	827866.30	824674.80	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	1.1630E-02	0.00E+00	5.2862E-03	0.00E+00	-
EP15	Point	827864.60	824685.30	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	5.8148E-03	0.00E+00	2.6431E-03	0.00E+00	-
EP16	Point	827864.40	824678.40	4.20	31.00	0.00	22.21	0.42	-	0700 - 2100	5.8148E-03	0.00E+00	2.6431E-03	0.00E+00	-
HR01	Areapoly	827867.50	824740.50	4.20	3.3065	-	-	-	3.07581	0700 - 2100	5.2830E-05	0.00E+00	1.2781E-05	0.00E+00	[2]
HR02	Areapoly	827880.20	824733.10	4.20	3.3065	-	-	-	3.07581	0700 - 2100	3.1711E-05	0.00E+00	7.6720E-06	0.00E+00	[2]
HR03	Areapoly	827879.00	824680.10	4.20	3.3065	-	-	-	3.07581	0700 - 2100	7.4120E-05	0.00E+00	1.7932E-05	0.00E+00	[2]

Remarks:

Emission rate for Area source (g/m^2/s) = Emission rate (g/s) / Area

* - Emission rate of point source is in gram per second (g/s) while the one of area source is in gram per square meter per second (g/m^2/s).

^ - From Engineer

[1] release height of EP01= (drop height + height of hopper)/2; initial vertical dimension of EP01 = (drop height -height of hopper)/2.15

[2] release height of HR01-HR03 = weighted average vehicle height *1.7 /2; initial vertical dimention of HR01-HR03 = weighted avergae vehicle height *1.7/2.15

Vertices of Area Sources

Source ID	X1	Y1	X2	Y2	X3	Y3	X4	Y4
EP01	827870.97	824758.12	827871.02	824761.35	827873.70	824761.32	827873.71	824758.12
HR01	827867.50	824740.50	827898.90	824739.60	827898.70	824732.30	827867.30	824733.10
HR02	827880.20	824733.10	827878.90	824675.90	827875.30	824676.00	827876.50	824733.20
HR03	827879.00	824680.10	827880.20	824733.10	827883.90	824733.00	827882.60	824680.00

Appendix 3.2 Calculations of Emission Rates

Dust Emission Source Listing in AERMOD

Hourly Profile for EP01, unloading of aggregate from aggregate barge

Hour	EP01
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	1.0000
Hour 9	1.0000
Hour 10	1.0000
Hour 11	1.0000
Hour 12	0.0000
Hour 13	0.0000
Hour 14	0.0000
Hour 15	0.0000
Hour 16	1.0000
Hour 17	1.0000
Hour 18	1.0000
Hour 19	1.0000
Hour 20	0.0000
Hour 21	0.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Hourly Profile for EP03-EP05, DC on Mixer

Hour	EP03-EP05
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	1.0000
Hour 9	1.0000
Hour 10	1.0000
Hour 11	1.0000
Hour 12	1.0000
Hour 13	1.0000
Hour 14	1.0000
Hour 15	1.0000
Hour 16	1.0000
Hour 17	1.0000
Hour 18	1.0000
Hour 19	1.0000
Hour 20	1.0000
Hour 21	1.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Hourly Profile for EP06-EP08, DC on Weigh Hopper

Hour	EP06-EP08
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	1.0000
Hour 9	1.0000
Hour 10	1.0000
Hour 11	1.0000
Hour 12	1.0000
Hour 13	1.0000
Hour 14	1.0000
Hour 15	1.0000
Hour 16	1.0000
Hour 17	1.0000
Hour 18	1.0000
Hour 19	1.0000
Hour 20	1.0000
Hour 21	1.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Hourly Profile for EP09, EP11&EP13 , DC on Cement Silo

Hour	EP09, EP11&EP13
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	0.0000
Hour 9	0.0000
Hour 10	0.0000
Hour 11	0.0000
Hour 12	1.0000
Hour 13	1.0000
Hour 14	1.0000
Hour 15	1.0000
Hour 16	0.0000
Hour 17	0.0000
Hour 18	0.0000
Hour 19	0.0000
Hour 20	0.0000
Hour 21	0.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Hourly Profile for EP12, DC on PFA Silo

Hour	EP12
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	1.0000
Hour 9	0.0000
Hour 10	1.0000
Hour 11	0.0000
Hour 12	1.0000
Hour 13	0.0000
Hour 14	1.0000
Hour 15	0.0000
Hour 16	1.0000
Hour 17	0.0000
Hour 18	1.0000
Hour 19	0.0000
Hour 20	0.0000
Hour 21	0.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Hourly Profile for EP10 &EP14 , DC on GGBS Silo

Hour	EP10	EP14
Hour 1	0.0000	0.0000
Hour 2	0.0000	0.0000
Hour 3	0.0000	0.0000
Hour 4	0.0000	0.0000
Hour 5	0.0000	0.0000
Hour 6	0.0000	0.0000
Hour 7	0.0000	0.0000
Hour 8	0.0000	0.0000
Hour 9	1.0000	1.0000
Hour 10	0.0000	0.0000
Hour 11	1.0000	1.0000
Hour 12	0.0000	0.0000
Hour 13	1.0000	1.0000
Hour 14	0.0000	0.0000
Hour 15	1.0000	1.0000
Hour 16	0.0000	0.0000
Hour 17	1.0000	1.0000
Hour 18	0.0000	0.0000
Hour 19	1.0000	1.0000
Hour 20	0.0000	0.0000
Hour 21	0.0000	0.0000
Hour 22	0.0000	0.0000
Hour 23	0.0000	0.0000
Hour 24	0.0000	0.0000

Hourly Profile for EP15-EP16 , DC on Silica Fume Silo

Hour	EP15	EP16
Hour 1	0.0000	0.0000
Hour 2	0.0000	0.0000
Hour 3	0.0000	0.0000
Hour 4	0.0000	0.0000
Hour 5	0.0000	0.0000
Hour 6	0.0000	0.0000
Hour 7	0.0000	0.0000
Hour 8	1.0000	1.0000
Hour 9	1.0000	1.0000
Hour 10	0.0000	0.0000
Hour 11	0.0000	0.0000
Hour 12	0.0000	0.0000
Hour 13	0.0000	0.0000
Hour 14	0.0000	0.0000
Hour 15	0.0000	0.0000
Hour 16	0.0000	0.0000
Hour 17	0.0000	0.0000
Hour 18	1.0000	1.0000
Hour 19	1.0000	1.0000
Hour 20	0.0000	0.0000
Hour 21	0.0000	0.0000
Hour 22	0.0000	0.0000
Hour 23	0.0000	0.0000
Hour 24	0.0000	0.0000

Hourly Profile for HR01-HR03 , Paved Haul Road

Hour	HR01-HR03
Hour 1	0.0000
Hour 2	0.0000
Hour 3	0.0000
Hour 4	0.0000
Hour 5	0.0000
Hour 6	0.0000
Hour 7	0.0000
Hour 8	1.0000
Hour 9	1.0000
Hour 10	1.0000
Hour 11	1.0000
Hour 12	1.0000
Hour 13	1.0000
Hour 14	1.0000
Hour 15	1.0000
Hour 16	1.0000
Hour 17	1.0000
Hour 18	1.0000
Hour 19	1.0000
Hour 20	1.0000
Hour 21	1.0000
Hour 22	0.0000
Hour 23	0.0000
Hour 24	0.0000

Appendix 3.2 Calculations of Emission Rates

Particle Size Distribution of Process

RSP-to-TSP Ratio of Concrete Batching Process (by Emission Factors)

Source	Uncontrolled Emission Factor (kg/Mg)		Controlled Emission Factor (kg/Mg)		Uncontrolled RSP-to-TSP Ratio	Controlled RSP-to-TSP Ratio
	TSP	RSP	TSP	RSP		
Cement unloading to elevated storage silo (pneumatic)	0.36	0.24	0.00050	0.00017	0.6667	**0.3400**
Cement supplement unloading to elevated storage silo (pneumatic)	1.57	0.65	0.0045	0.0024	0.4140	**0.5333**
Weigh hopper loading (Aggregate and Sand)	0.0026	0.0013	-	-	**0.5000**	-
Mixer loading (central mix)	0.286	0.078	0.0092	0.0028	0.2727	**0.3043**

Remark:

(a) Reference from Table 11.12-1 Emission Factors for Concrete Batching, Chapter 11.12 Concrete Batching, AP-42, USEPA (Version 01/12)

Particle Size Distribution of General Concrete Batching Process (Controlled by Fabric Filter)

Perentage of Particle Size Range

Particale Size Range [a]	Average Partical Size [a]	% before Removal [a]	Removal Efficiency % [b]	% after Removal	Normalised Fraction [c]	Normalised Fraction for PM10 [c, d]
≤ 1.0	0.50	4	99.0%	0.04	7%	12%
1.0 - 2.0	1.50	7	99.0%	0.07	12%	21%
2.0 - 2.5	2.25	4	99.0%	0.04	7%	12%
2.5 - 3.0	2.75	3	99.5%	0.015	3%	5%
3.0 - 4.0	3.50	7	99.5%	0.035	6%	11%
4.0 - 5.0	4.50	5	99.5%	0.025	4%	8%
5.0 - 6.0	5.50	4	99.5%	0.02	3%	6%
6.0 - 10	8.00	17	99.5%	0.085	15%	26%
10 - 30	20.00	49	99.5%	0.245	43%	-

Remark:

(a) Derived from Table B.2.2 "Description of Particle Size Categories" for Category 3 “Mechanically Generated Aggregate, Unprocessed Ores”, Page B.2-13 of Appendix B.2 Generalized Particle Size Distributions, AP-42, USEPA (Version 1/95) (see below)

(b) Control efficiency of fabric filter on different size of particle refers to Table B.2-3 Typical Collection Efficiencies of Various Particulate Control Device, Appendix B.2 Generalized Particle Size Distributions, AP-42, USEPA (Version 1/95) (see below)

(c) Normalised Fraction = % after normal of each particale size range / sum of % after removal of all particle size ranges

(d) Sum of normalizsed fraction maintains 100% in air dispersion model by applying percentage in 6 decimal places.

Cumulative Percentage of Particle Size

Particale Size [a]	Cumulative ratio before Removal [a]	Cumulative % after Removal [b]
≤ 1.0	4.000%	7%
≤ 2.0	11.000%	19%
≤ 2.5	15.000%	26%
≤ 3.0	18.000%	29%
≤ 4.0	25.000%	35%
≤ 5.0	30.000%	39%
≤ 6.0	34.000%	43%
≤ 10	51.000%	57%
≤ 30	100.000%	100%

Remarks

(a) Reference from Table B.2.2 "Description of Particle Size Categories" for Category 3 “Mechanically Generated Aggregate, Unprocessed Ores”, Page B.2-13 of Appendix B.2 Generalized Particle Size Distributions, AP-42, USEPA (Version 1/95) (see below)

(b) Deducted from Normalised Fraction of Table "Percentage of Particle Size Range"

FSP-to-RSP and FSP-to-TSP Ratios

FSP-to-RSP ratio (Uncontrolled)	**0.294**
FSP-to-RSP ratio (Controlled)	**0.455**
FSP-to-TSP ratio (Uncontrolled)	**0.150**

Remarks

(a) Deducted from Table "Cumulative Percentage of Particle Size Range"

Appendix 3.2 Calculations of Emission Rates

Particle Size Distribution of Process

Dust collector on Cement Silo / Cement Supplement Silo		for TSP	for RSP	for FSP
Particale Size Range	**Average Partical Size**	**Percentage**	**Percentage**	**Percentage**
≤ 1.0	0.50	N/A	12%	27%
1.0 - 2.0	1.50	N/A	21%	47%
2.0 - 2.5	2.25	N/A	12%	27%
2.5 - 3.0	2.75	N/A	5%	-
3.0 - 4.0	3.50	N/A	11%	-
4.0 - 5.0	4.50	N/A	8%	-
5.0 - 6.0	5.50	N/A	6%	-
6.0 - 10	8.00	N/A	26%	-
10.0 - 30.0	20.00	N/A	-	-

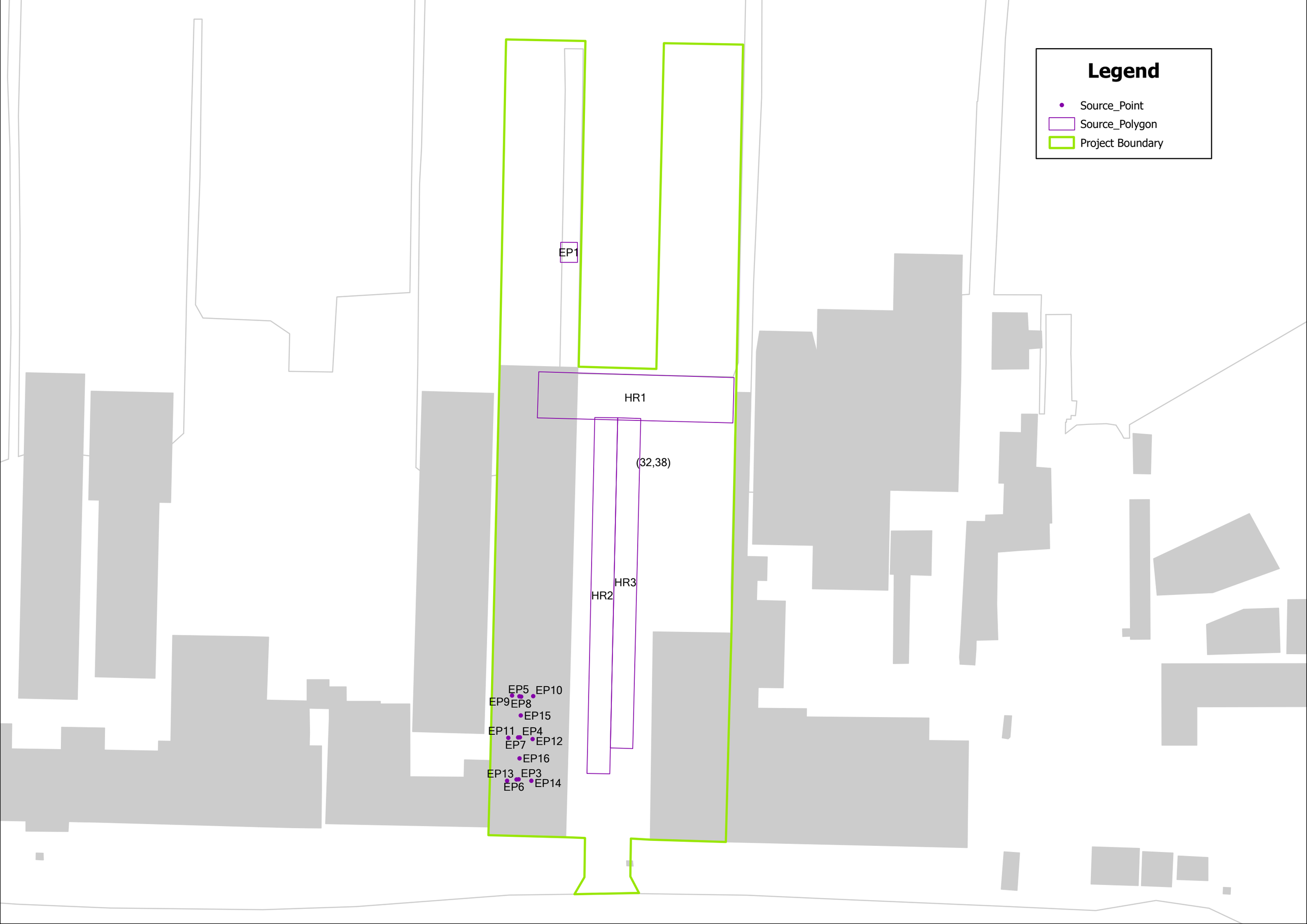
Remark:

(a) Size distribution for RSP refers to Normalised Fraction for PM10 of Table "Particle Size Distribution of General Concrete Batching Process (Controlled by Fabric Filter)"

Dust collector on Mixer & Weigh Hoppers		for TSP	for RSP	for FSP
Particale Size Range	**Average Partical Size**	**Percentage**	**Percentage**	**Percentage**
≤ 1.0	0.50	N/A	12%	27%
1.0 - 2.0	1.50	N/A	21%	47%
2.0 - 2.5	2.25	N/A	12%	27%
2.5 - 3.0	2.75	N/A	5%	-
3.0 - 4.0	3.50	N/A	11%	-
4.0 - 5.0	4.50	N/A	8%	-
5.0 - 6.0	5.50	N/A	6%	-
6.0 - 10	8.00	N/A	26%	-
10.0 - 30.0	20.00	N/A	-	-

Remark:

(a) Size distribution for RSP refers to Normalised Fraction for PM10 of Table "Particle Size Distribution of General Concrete Batching Process (Controlled by Fabric Filter)"


Legend
Source_Point
Source_Polygon
Project Boundary
EP1
HR1
(32,38)
HR2
HR3
EP5
EP10
EP9
EP8
EP15
EP11
EP4
EP7
EP12
EP16
EP13
EP3
EP6
EP14

APPENDIX 3.3

Determination of Surface Characteristics Parameters

Appendix 3.3 Determination of Surface Characteristics Parameters

Summary of Default Albedo, Bowen Ratio and Surface Roughness from AERMET

Code	Color Sampl	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Rat
1		Private Residential	1	0.18	1.5
2		Public Residential	1	0.18	1.5
3		Rural Settlement	0.375	0.165	0.9
11		Commercial/Business and Office	1	0.18	1.5
21		Industrial Land	0.7	0.18	1.5
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5
23		Warehouse and Open Storage	0.7	0.18	1.5
31		Government, Institutional and Community Facilities	0.7	0.18	1.5
32		Open Space and Recreation	0.04	0.15	1
41		Roads and Transport Facilities	0.7	0.18	1.5
42		Railways	0.7	0.18	1.5
43		Airport	0.07	0.18	1.5
44		Port Facilities	0.7	0.18	1.5
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5
52		Utilities	0.7	0.18	1.5
53		Vacant Land/Construction in Progress	0.2	0.18	1
54		Others	0.2	0.18	1
61		Agricultural Land	0.1575	0.18	0.55
62		Fish Ponds/Gei Wais	0.001	0.1	0.1
71		Woodland	1.05	0.1625	0.75
72		Shrubland	0.3	0.18	1.25
73		Grassland	0.065	0.185	0.8
74		Mangrove/Swamp	0.065	0.14	0.225
81		Badland	0.15	0.1625	0.75
83		Rocky Shore	0.05	0.2	4.75
91		Reservoirs	0.001	0.1	0.1
92		Streams and Nullahs	0.001	0.1	0.1
99		SZ Residential *	1	0.18	1.5
0		Open Sea *	0.001	0.1	0.1

* Non-PlanD Land Utilization categories

Remarks

1. Surface roughness length is based on an inverse-distance weighted geometric mean for an upwind distance of 1km relative to the concerned site.
2. Reference to AERMOD Implementation Guide, the determination of the Bowen ratio should be based on a simple unweighted geometric mean (i.e., no direction or distance dependency) for a representative domain, with a default domain defined by a 10km by 10km region centered on the measurement site.
3. Reference to AERMOD Implementation Guide, the determination of the albedo should be based on a simple unweighted arithmetic mean (i.e., no direction or distance dependency) for the same representative domain as defined for Bowen ratio, with a default domain defined by a 10km by 10km region centered on the measurement site.

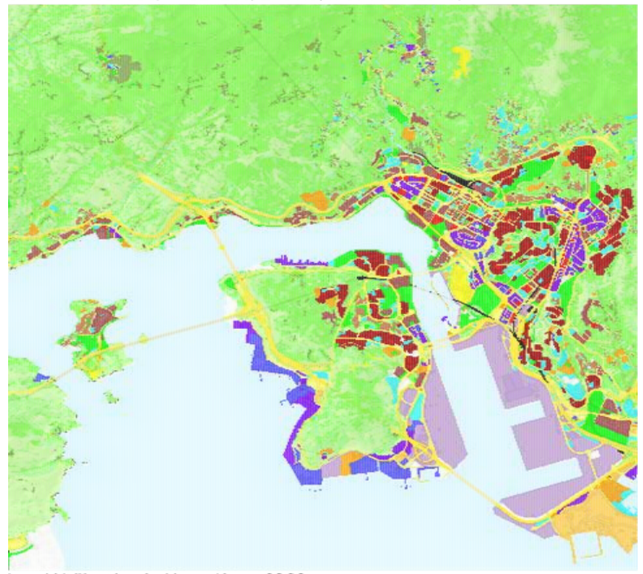
Appendix 3.3 Determination of Surface Characteristics Parameters

(32,37)

Code	Co	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Perce	b^n/Sn
1		Private Residential	1	0.18	1.5	17371	1.74%	0.00312678	1.007068197
2		Public Residential	1	0.18	1.5	21894	2.19%	0.00394092	1.008916773
3		Rural Settlement	0.375	0.165	0.9	8690	0.87%	0.00143385	0.999084836
11		Commercial/Business and Office	1	0.18	1.5	2742	0.27%	0.00049356	1.001112404
21		Industrial Land	0.7	0.18	1.5	13066	1.31%	0.00235188	1.005311865
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5	0	0.00%	0	1
23		Warehouse and Open Storage	0.7	0.18	1.5	9463	0.95%	0.00170334	1.003844287
31		Government, Institutional and Community Facilities	0.7	0.18	1.5	15402	1.54%	0.00277236	1.006264514
32		Open Space and Recreation	0.04	0.15	1	21159	2.12%	0.00317385	1
41		Roads and Transport Facilities	0.7	0.18	1.5	56257	5.63%	0.01012626	1.023072394
42		Railways	0.7	0.18	1.5	1626	0.16%	0.00029268	1.000659504
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	36793	3.68%	0.00662274	1.015030111
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5	3432	0.34%	0.00061776	1.001392525
52		Utilities	0.7	0.18	1.5	9042	0.90%	0.00162756	1.003672944
53		Vacant Land/Construction in Progress	0.2	0.18	1	9715	0.97%	0.0017487	1
54		Others	0.2	0.18	1	9843	0.98%	0.00177174	1
61		Agricultural Land	0.1575	0.18	0.55	13144	1.31%	0.00236592	0.992172824
62		Fish Ponds/Gei Wais	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	266092	26.61%	0.04323995	0.926306692
72		Shrubland	0.3	0.18	1.25	75431	7.54%	0.01357758	1.016974396
73		Grassland	0.065	0.185	0.8	83212	8.32%	0.01539422	0.981603106
74		Mangrove/Swamp	0.065	0.14	0.225	18	0.00%	0.00000252	0.999973151
81		Badland	0.15	0.1625	0.75	0	0.00%	0	1
83		Rocky Shore	0.05	0.2	4.75	326	0.03%	0.0000652	1.000508084
91		Reservoirs	0.001	0.1	0.1	76	0.01%	0.0000076	0.999825019
92		Streams and Nullahs	0.001	0.1	0.1	1796	0.18%	0.0001796	0.995873096
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	323410	32.34%	0.032341	0.474886693
				0.148978	**0.467802**	1000000			

* Non-PlanD Land Utilization categories

Center: X=827855, Y=824285, Z=97.0; Met Year=2019;



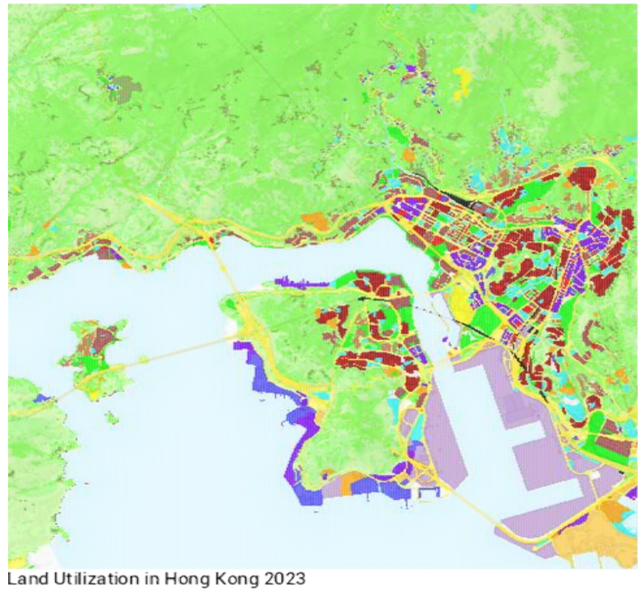
Land Utilization in Hong Kong 2023

(32,38)

Code	Co	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Perce	b^n/Sn
1		Private Residential	1	0.18	1.5	17371	1.74%	0.00312678	1.007068197
2		Public Residential	1	0.18	1.5	21894	2.19%	0.00394092	1.008916773
3		Rural Settlement	0.375	0.165	0.9	8691	0.87%	0.001434015	0.999084731
11		Commercial/Business and Office	1	0.18	1.5	2742	0.27%	0.00049356	1.001112404
21		Industrial Land	0.7	0.18	1.5	13046	1.30%	0.00234828	1.005303713
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5	0	0.00%	0	1
23		Warehouse and Open Storage	0.7	0.18	1.5	9461	0.95%	0.00170298	1.003843473
31		Government, Institutional and Community Facilities	0.7	0.18	1.5	15526	1.55%	0.00279468	1.006315108
32		Open Space and Recreation	0.04	0.15	1	21008	2.10%	0.0031512	1
41		Roads and Transport Facilities	0.7	0.18	1.5	56271	5.63%	0.01012878	1.023078201
42		Railways	0.7	0.18	1.5	1618	0.16%	0.00029124	1.000656258
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	36793	3.68%	0.00662274	1.015030111
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5	3436	0.34%	0.00061848	1.001394149
52		Utilities	0.7	0.18	1.5	9110	0.91%	0.0016398	1.003700618
53		Vacant Land/Construction in Progress	0.2	0.18	1	6612	0.66%	0.00119016	1
54		Others	0.2	0.18	1	9529	0.95%	0.00171522	1
61		Agricultural Land	0.1575	0.18	0.55	13211	1.32%	0.00237798	0.992133083
62		Fish Ponds/Gei Wais	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	291139	29.11%	0.047310088	0.919656111
72		Shrubland	0.3	0.18	1.25	82562	8.26%	0.01486116	1.018593932
73		Grassland	0.065	0.185	0.8	89093	8.91%	0.016482205	0.980315786
74		Mangrove/Swamp	0.065	0.14	0.225	21	0.00%	0.00000294	0.999968676
81		Badland	0.15	0.1625	0.75	7	0.00%	1.1375E-06	0.999997986
83		Rocky Shore	0.05	0.2	4.75	326	0.03%	0.0000652	1.000508084
91		Reservoirs	0.001	0.1	0.1	437	0.04%	0.0000437	0.998994276
92		Streams and Nullahs	0.001	0.1	0.1	1913	0.19%	0.0001913	0.995604842
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	288183	28.82%	0.0288183	0.515011587
				0.151353	**0.503285**	1000000			

* Non-PlanD Land Utilization categories

Center: X=827845, Y=824675, Z=6.0; Met Year=2019;



Land Utilization in Hong Kong 2023

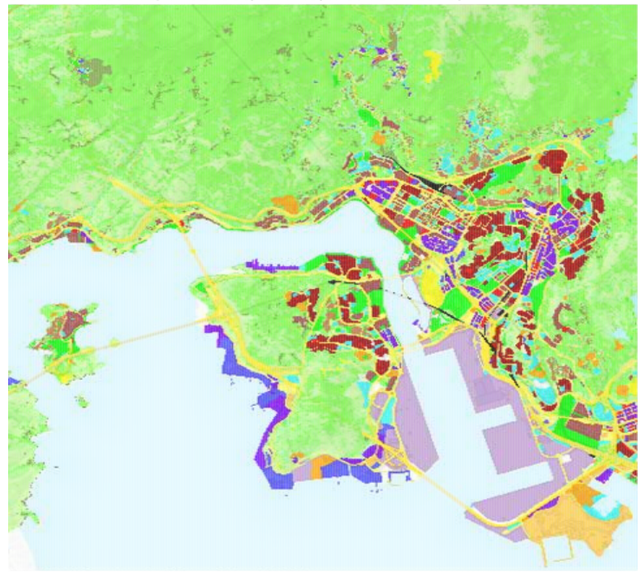
Appendix 3.3 Determination of Surface Characteristics Parameters

(33,37)

Code	Co	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Perce	b^n/Sn
1		Private Residential	1	0.18	1.5	17500	1.75%	0.00315	1.007120873
2		Public Residential	1	0.18	1.5	22351	2.24%	0.00402318	1.00910374
3		Rural Settlement	0.375	0.165	0.9	8634	0.86%	0.00142461	0.999090731
11		Commercial/Business and Office	1	0.18	1.5	3142	0.31%	0.00056556	1.001274783
21		Industrial Land	0.7	0.18	1.5	13757	1.38%	0.00247626	1.005593569
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5	0	0.00%	0	1
23		Warehouse and Open Storage	0.7	0.18	1.5	9464	0.95%	0.00170352	1.003844694
31		Government, Institutional and Community Facilities	0.7	0.18	1.5	16541	1.65%	0.00297738	1.006729339
32		Open Space and Recreation	0.04	0.15	1	21126	2.11%	0.0031689	1
41		Roads and Transport Facilities	0.7	0.18	1.5	58158	5.82%	0.01046844	1.023861271
42		Railways	0.7	0.18	1.5	1618	0.16%	0.00029124	1.000656258
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	36793	3.68%	0.00662274	1.015030111
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5	3727	0.37%	0.00067086	1.001512311
52		Utilities	0.7	0.18	1.5	9578	0.96%	0.00172404	1.003891096
53		Vacant Land/Construction in Progress	0.2	0.18	1	7528	0.75%	0.00135504	1
54		Others	0.2	0.18	1	11054	1.11%	0.00198972	1
61		Agricultural Land	0.1575	0.18	0.55	12660	1.27%	0.0022788	0.992459953
62		Fish Ponds/Gei Wais	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	273385	27.34%	0.044425063	0.924365278
72		Shrubland	0.3	0.18	1.25	73814	7.38%	0.01328652	1.016607515
73		Grassland	0.065	0.185	0.8	76616	7.66%	0.01417396	0.983048947
74		Mangrove/Swamp	0.065	0.14	0.225	17	0.00%	0.00000238	0.999974642
81		Badland	0.15	0.1625	0.75	0	0.00%	0	1
83		Rocky Shore	0.05	0.2	4.75	326	0.03%	0.0000652	1.000508084
91		Reservoirs	0.001	0.1	0.1	4736	0.47%	0.0004736	0.989154201
92		Streams and Nullahs	0.001	0.1	0.1	1829	0.18%	0.0001829	0.995797427
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	315646	31.56%	0.0315646	0.483452711
				0.149065	**0.471855**	1000000			

* Non-PlanD Land Utilization categories

Center: X=828315, Y=824355, Z=74.0; Met Year=2019;



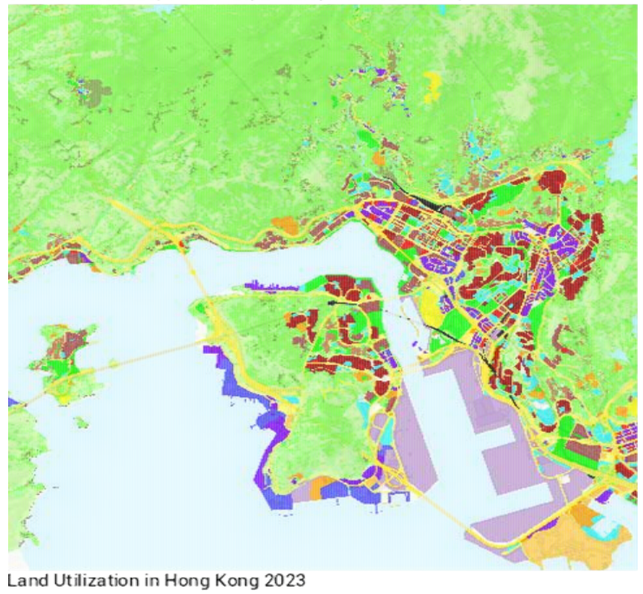
Land Utilization in Hong Kong 2023

(33,38)

Code	Co	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Perce	b^n/Sn
1		Private Residential	1	0.18	1.5	17517	1.75%	0.00315306	1.007127815
2		Public Residential	1	0.18	1.5	22363	2.24%	0.00402534	1.00910865
3		Rural Settlement	0.375	0.165	0.9	8634	0.86%	0.00142461	0.999090731
11		Commercial/Business and Office	1	0.18	1.5	3146	0.31%	0.00056628	1.001276407
21		Industrial Land	0.7	0.18	1.5	13780	1.38%	0.0024804	1.005602947
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5	0	0.00%	0	1
23		Warehouse and Open Storage	0.7	0.18	1.5	9457	0.95%	0.00170226	1.003841845
31		Government, Institutional and Community Facilities	0.7	0.18	1.5	16806	1.68%	0.00302508	1.006837516
32		Open Space and Recreation	0.04	0.15	1	21202	2.12%	0.0031803	1
41		Roads and Transport Facilities	0.7	0.18	1.5	58314	5.83%	0.01049652	1.023926035
42		Railways	0.7	0.18	1.5	1618	0.16%	0.00029124	1.000656258
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	36793	3.68%	0.00662274	1.015030111
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5	3763	0.38%	0.00067734	1.00152693
52		Utilities	0.7	0.18	1.5	9643	0.96%	0.00173574	1.003917554
53		Vacant Land/Construction in Progress	0.2	0.18	1	6014	0.60%	0.00108252	1
54		Others	0.2	0.18	1	10659	1.07%	0.00191862	1
61		Agricultural Land	0.1575	0.18	0.55	12696	1.27%	0.00228528	0.992438594
62		Fish Ponds/Gei Wais	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	297218	29.72%	0.048297925	0.918049204
72		Shrubland	0.3	0.18	1.25	80994	8.10%	0.01457892	1.018237599
73		Grassland	0.065	0.185	0.8	81178	8.12%	0.01501793	0.982048731
74		Mangrove/Swamp	0.065	0.14	0.225	20	0.00%	0.0000028	0.999970167
81		Badland	0.15	0.1625	0.75	6	0.00%	0.000000975	0.999998274
83		Rocky Shore	0.05	0.2	4.75	326	0.03%	0.0000652	1.000508084
91		Reservoirs	0.001	0.1	0.1	5460	0.55%	0.000546	0.987506584
92		Streams and Nullahs	0.001	0.1	0.1	1929	0.19%	0.0001929	0.995568163
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	280464	28.05%	0.0280464	0.524247056
				0.151416	**0.507611**	1000000			

* Non-PlanD Land Utilization categories

Center: X=828325, Y=824725, Z=12.0; Met Year=2019;



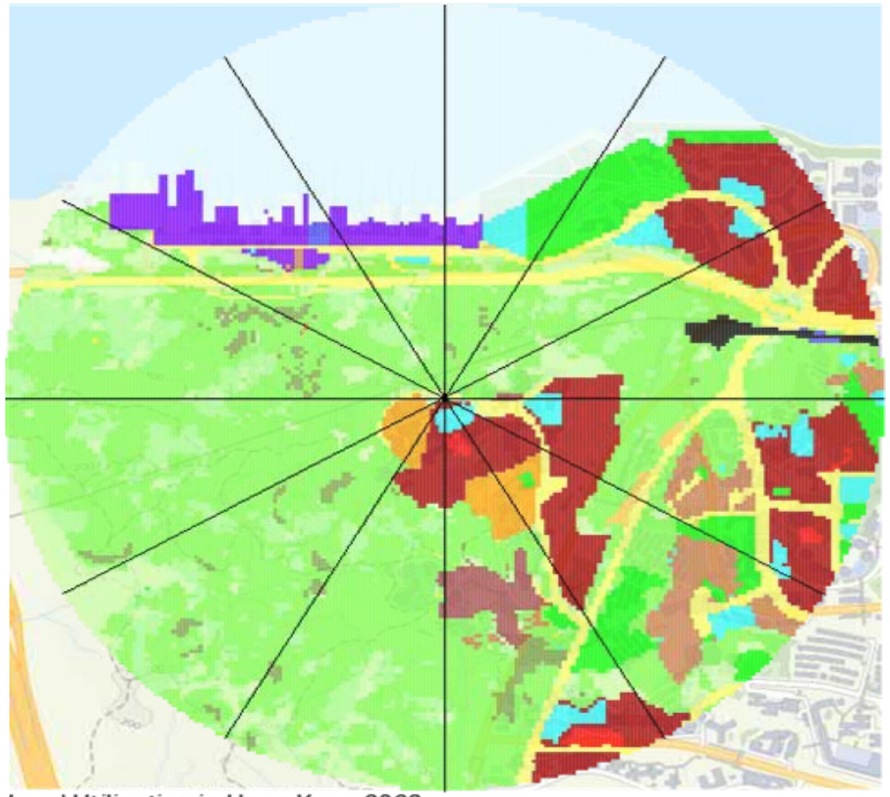
Land Utilization in Hong Kong 2023

Appendix 3.3 Determination of Surface Characteristics Parameters

(32,37)

Angle	Group	Inverse-dis	Roughness
0	0 - 30	5.176453	**0.025219**
30	30 - 60	5.317689	**0.262597**
60	60 - 90	5.176453	**0.632319**
90	90 - 120	5.176453	**0.627891**
120	120 - 150	5.317689	**0.514347**
150	150 - 180	5.176453	**0.725347**
180	180 - 210	5.176453	**0.706511**
210	210 - 240	5.317689	**0.565012**
240	240 - 270	5.176453	**0.670072**
270	270 - 300	5.176453	**0.493658**
300	300 - 330	5.317689	**0.095948**
330	330 - 360	5.176453	**0.020651**

Center: X=827975, Y=824255, Z=88.0; Met Year=2019;

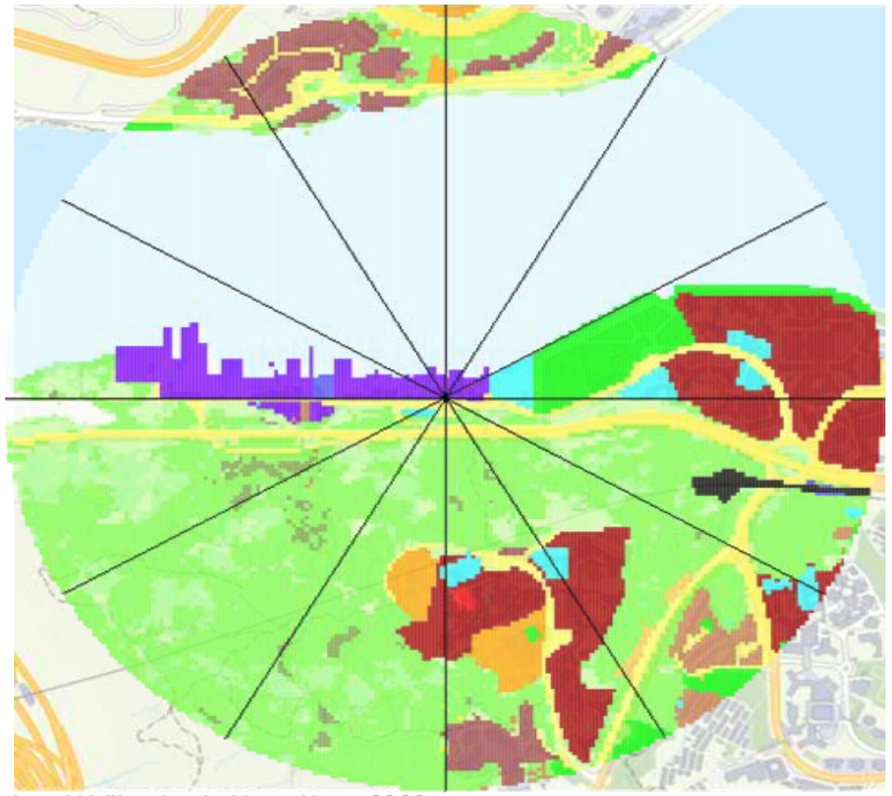


Land Utilization in Hong Kong 2023

(32,38)

Angle	Group	Inverse-dis	Roughness
0	0 - 30	5.176453	**0.004488**
30	30 - 60	5.317689	**0.001898**
60	60 - 90	5.176453	**0.133193**
90	90 - 120	5.176453	**0.569626**
120	120 - 150	5.317689	**0.667292**
150	150 - 180	5.176453	**0.758715**
180	180 - 210	5.176453	**0.699645**
210	210 - 240	5.317689	**0.655760**
240	240 - 270	5.176453	**0.492275**
270	270 - 300	5.176453	**0.017662**
300	300 - 330	5.317689	**0.002955**
330	330 - 360	5.176453	**0.007630**

Center: X=827845, Y=824675, Z=6.0; Met Year=2019;



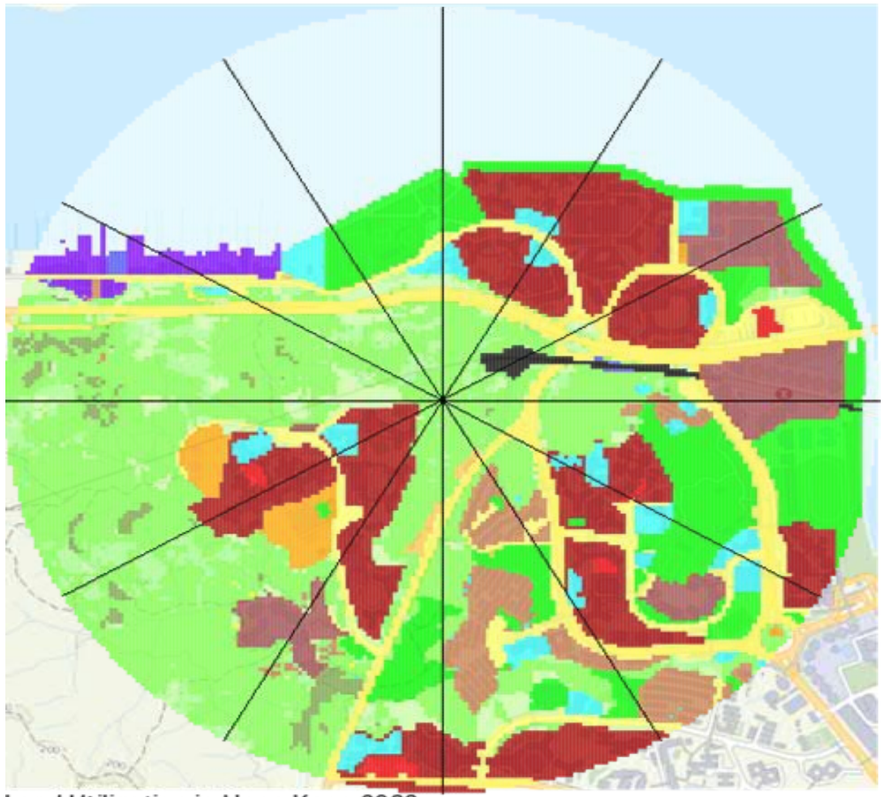
Land Utilization in Hong Kong 2023

Appendix 3.3 Determination of Surface Characteristics Parameters

(33,37)

Angle	Group	Inverse-dis	Roughness
0	0 - 30	5.176453	**0.058366**
30	30 - 60	5.317689	**0.214727**
60	60 - 90	5.176453	**0.482948**
90	90 - 120	5.176453	**0.303801**
120	120 - 150	5.317689	**0.561829**
150	150 - 180	5.176453	**0.461248**
180	180 - 210	5.176453	**0.605824**
210	210 - 240	5.317689	**0.849340**
240	240 - 270	5.176453	**0.705220**
270	270 - 300	5.176453	**0.463543**
300	300 - 330	5.317689	**0.037960**
330	330 - 360	5.176453	**0.019115**

Center: X=828315, Y=824355, Z=74.0; Met Year=2019;

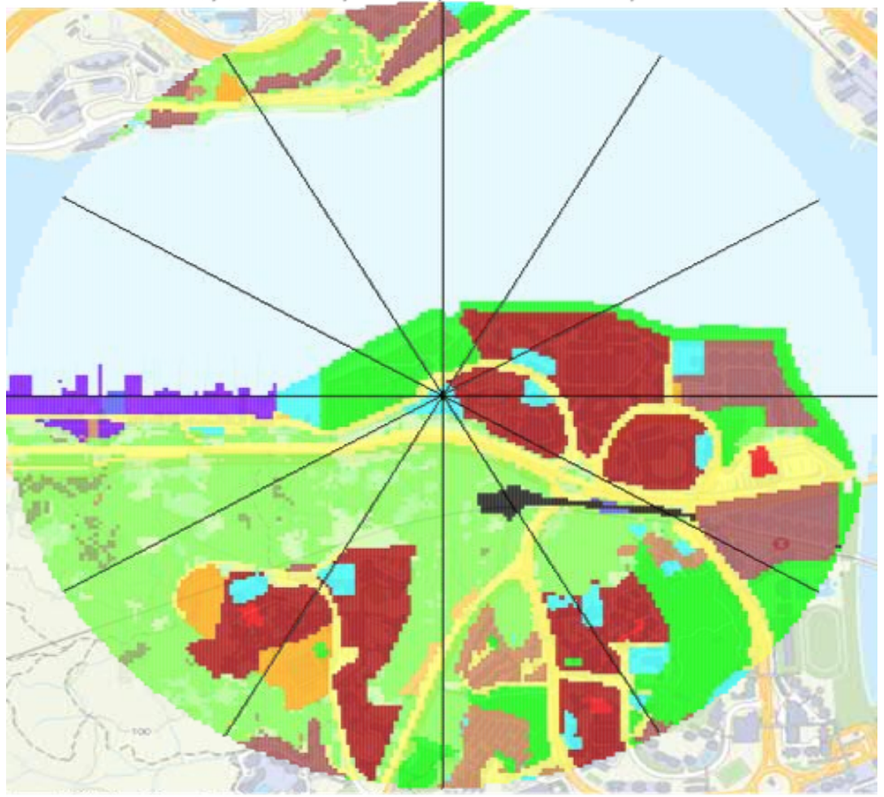


Land Utilization in Hong Kong 2023

(33,38)

Angle	Group	Inverse-dis	Roughness
0	0 - 30	5.176453	**0.003844**
30	30 - 60	5.317689	**0.009490**
60	60 - 90	5.176453	**0.076453**
90	90 - 120	5.176453	**0.548859**
120	120 - 150	5.317689	**0.411079**
150	150 - 180	5.176453	**0.609194**
180	180 - 210	5.176453	**0.641075**
210	210 - 240	5.317689	**0.585318**
240	240 - 270	5.176453	**0.423521**
270	270 - 300	5.176453	**0.004154**
300	300 - 330	5.317689	**0.003984**
330	330 - 360	5.176453	**0.010395**

Center: X=828325, Y=824725, Z=12.0; Met Year=2019;



Land Utilization in Hong Kong 2023

APPENDIX 3.4

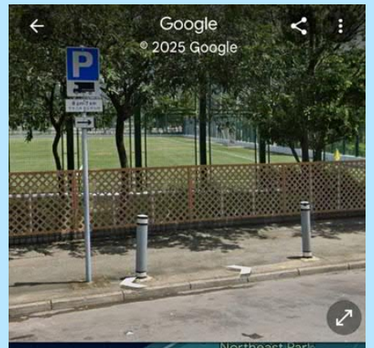
Calculation of Vehicular Emissions

Annex I

N

Remarks:
As stipulated in Transport Department's Road Users' Code "Where Not To Park", 'on a road with street lighting - that is a road where the street lights are spaced not more than 200 metres apart', parking is prohibited.

As measured and indicated below, the lamp posts are spaced not more than 200 metres apart on Tam Kon Shan Road, parking is prohibited on Tam Kon Shan Road, except the overnight parking of Goods Vehicle outside Tsing Yi Northeast Park permitted as per the parking sign.



Overnight parking of Goods Vehicles outside Tsing Yi Northeast Park

Legend

- Lamp Post Location Data in Hong Kong
- Distance between lamp posts (m)

Park Island-Tsuen Wan Pier

Tsing Yi Northeast Park

Cheung On Estate

Queen's College Old Boys' Association Secondary School

GREEN @ KWAI TSING

Tam Kon Shan Road

Tsing Yi North Coastal Road

Cheung Shue Tau

Yau Kom Tau

Airport Express

0 100 200 Meters

Mapwithyou, HKSAR Government CSDI, Esri, TomTom, Garmin, METI/NASA, USGS, Sources: Esri, Maxar, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community

Appendix 3.4 Calculation of Vehicular Emisisons

Traffic Data and Road Segments (Year 2028)

Start Profile	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles> 3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles> 24t	18 - Non-franchised Bus >24t
	PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9
Y	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	1	0	0
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Remarks:

Y:

The start profile 'Y' is adopted for Tam Kon Shan Road (Road 9, 10 and 11)
- As indicated on Annex I on Appendix 3.4, no parking is allowed on Tam Kon Shan Road.
- There are no bus stops on Tam Kon Shan Road and hence no engine start from FBSD, FBDD and NFB9 is expected
- Most of the HGVs along the local roads in the assessment area are the working vehicles travelling to/from the Project, other industrial buildings and dockyards on Tam Kon Shan Road, which includes concrete mixer trucks and cement tankers. These working vehicles are not supposed to park along these roads, i.e. no engine start is expected.
- To account for parking in Tsing Yi Northeast Park Car Park, vehicle classes that can park inside Tsing Yi Northeast Park Car Park (including PC, TAXI, LGV3, LGV4, LGV6, PLB, PV4, PV5, NFB6, NFB7, NFB8 and MC, i.e. start profile Y) were assumed to have potential start on Tam Kon Shan Road (Road 9,10 and 11)

To account for parking at HGV on-street parking site (for 8PM to 7AM) outside Tsing Yi Northeast Park Car Park:
- emission from HGV9 is modelled under precise approach as detailed in Appendix 3.6, for worst case scenario.

N: No start emission under broad-brush approach.

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2028)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 1	1	-	70	68.66815	N	0000-0100	179	25.70%	16.76%	5.59%	8.38%	4.47%	2.23%	10.06%	0.00%	0.00%	0.00%	0.56%	3.91%	2.23%	0.00%	4.47%	2.23%	13.41%	0.00%	100%
Road 1	1	-	70	69.18899	N	0100-0200	109	43.12%	11.01%	4.59%	6.42%	3.67%	1.83%	6.42%	0.00%	0.00%	0.00%	0.00%	2.75%	1.83%	0.00%	3.67%	2.75%	11.93%	0.00%	100%
Road 1	1	-	70	69.42708	N	0200-0300	77	32.47%	27.27%	2.60%	2.60%	1.30%	2.60%	9.09%	0.00%	0.00%	0.00%	0.00%	2.60%	1.30%	0.00%	3.90%	3.90%	10.39%	0.00%	100%
Road 1	1	-	70	69.59077	N	0300-0400	55	49.09%	20.00%	1.82%	1.82%	1.82%	1.82%	3.64%	0.00%	0.00%	0.00%	0.00%	3.64%	1.82%	0.00%	3.64%	1.82%	9.09%	0.00%	100%
Road 1	1	-	70	69.36012	N	0400-0500	86	40.70%	16.28%	3.49%	4.65%	3.49%	2.33%	8.14%	0.00%	0.00%	0.00%	1.16%	3.49%	2.33%	0.00%	3.49%	1.16%	9.30%	0.00%	100%
Road 1	1	-	70	68.60119	N	0500-0600	188	46.28%	19.68%	1.60%	2.66%	2.13%	2.13%	8.51%	0.00%	0.00%	0.00%	0.53%	3.19%	1.60%	0.00%	3.19%	2.13%	6.38%	0.00%	100%
Road 1	1	-	70	67.49256	N	0600-0700	337	37.98%	13.06%	3.26%	4.75%	3.26%	2.97%	9.79%	0.00%	0.30%	0.59%	0.59%	4.75%	2.67%	0.00%	2.97%	4.45%	8.31%	0.30%	100%
Road 1	1	-	70	65.81845	N	0700-0800	562	37.19%	17.44%	3.91%	5.69%	3.91%	2.14%	6.58%	0.00%	0.00%	0.00%	0.53%	3.38%	2.31%	0.00%	1.96%	5.87%	8.90%	0.18%	100%
Road 1	1	-	70	64.56349	N	0800-0900	694	41.21%	13.40%	4.32%	6.34%	4.18%	2.16%	7.35%	0.00%	0.14%	0.29%	0.58%	3.46%	2.16%	0.00%	2.02%	2.02%	10.23%	0.14%	100%
Road 1	1	-	70	64.16667	N	0900-1000	714	33.19%	11.62%	7.98%	11.34%	7.14%	2.66%	8.68%	0.00%	0.14%	0.14%	0.28%	2.24%	1.26%	0.00%	2.66%	1.54%	8.96%	0.14%	100%
Road 1	1	-	70	64.54365	N	1000-1100	695	30.22%	10.65%	6.47%	9.06%	5.76%	3.88%	13.81%	0.00%	0.43%	0.58%	0.29%	2.01%	1.15%	0.00%	2.30%	2.30%	10.94%	0.14%	100%
Road 1	1	-	70	64.96032	N	1100-1200	674	30.12%	14.69%	6.53%	9.05%	5.79%	3.26%	11.28%	0.00%	0.30%	0.30%	0.30%	1.63%	0.89%	0.00%	3.12%	2.23%	10.53%	0.00%	100%
Road 1	1	-	70	65.0372	N	1200-1300	667	32.53%	12.44%	5.70%	8.10%	5.25%	3.15%	10.79%	0.00%	0.15%	0.30%	0.30%	2.10%	1.20%	0.00%	3.15%	2.55%	12.14%	0.15%	100%
Road 1	1	-	70	64.26587	N	1300-1400	709	29.20%	13.82%	6.49%	9.31%	5.92%	3.67%	13.12%	0.00%	0.28%	0.42%	0.28%	1.55%	0.99%	0.00%	2.68%	1.13%	11.14%	0.00%	100%
Road 1	1	-	70	63.0754	N	1400-1500	769	34.07%	13.52%	5.59%	7.80%	4.94%	3.12%	11.83%	0.00%	0.52%	0.65%	0.39%	2.60%	1.69%	0.00%	2.47%	1.17%	9.49%	0.13%	100%
Road 1	1	-	70	64.12698	N	1500-1600	716	25.42%	13.41%	7.40%	10.61%	6.56%	3.21%	11.59%	0.00%	0.56%	0.84%	0.42%	2.65%	1.54%	0.00%	2.51%	2.51%	10.61%	0.14%	100%
Road 1	1	-	70	63.35317	N	1600-1700	755	29.27%	17.35%	5.96%	8.21%	5.17%	3.18%	11.39%	0.00%	0.40%	0.66%	0.40%	2.78%	1.59%	0.00%	2.65%	0.40%	10.46%	0.13%	100%
Road 1	1	-	70	63.29365	N	1700-1800	758	41.03%	15.57%	3.96%	5.80%	3.43%	1.98%	6.99%	0.00%	0.26%	0.26%	0.53%	3.43%	2.11%	0.00%	2.51%	3.30%	8.71%	0.13%	100%
Road 1	1	-	70	62.97619	N	1800-1900	774	38.63%	21.45%	3.36%	4.65%	2.84%	1.55%	5.94%	0.00%	0.13%	0.13%	0.52%	3.23%	1.94%	0.00%	2.84%	4.78%	7.88%	0.13%	100%
Road 1	1	-	70	65.5878	N	1900-2000	593	34.40%	21.59%	3.20%	4.72%	3.04%	2.70%	9.95%	0.00%	0.00%	0.17%	0.51%	3.04%	1.69%	0.00%	2.87%	2.53%	9.44%	0.17%	100%
Road 1	1	-	70	66.25744	N	2000-2100	503	39.96%	20.48%	3.18%	4.57%	2.98%	2.39%	9.15%	0.00%	0.00%	0.00%	0.40%	2.19%	1.39%	0.00%	2.78%	0.99%	9.54%	0.00%	100%
Road 1	1	-	70	66.58482	N	2100-2200	459	39.00%	21.13%	2.18%	3.27%	1.96%	2.83%	11.11%	0.00%	0.00%	0.00%	0.44%	2.40%	1.53%	0.00%	3.27%	1.53%	9.37%	0.00%	100%
Road 1	1	-	70	66.76339	N	2200-2300	435	37.24%	22.99%	2.76%	4.14%	2.30%	2.53%	9.66%	0.00%	0.23%	0.46%	0.46%	2.76%	1.61%	0.00%	3.22%	0.92%	8.74%	0.00%	100%
Road 1	1	-	70	67.09821	N	2300-0000	390	35.64%	26.67%	4.10%	5.64%	3.59%	1.54%	6.41%	0.00%	0.00%	0.00%	0.51%	2.82%	1.79%	0.00%	2.82%	1.03%	7.44%	0.00%	100%
Road 2	2	-	50	40.66667	N	0000-0100	52	30.77%	11.54%	5.77%	7.69%	5.77%	5.77%	7.69%	0.00%	0.00%	0.00%	0.00%	9.62%	3.85%	0.00%	1.92%	1.92%	7.69%	0.00%	100%
Road 2	2	-	50	42.16667	N	0100-0200	34	47.06%	8.82%	2.94%	5.88%	2.94%	2.94%	5.88%	0.00%	0.00%	0.00%	0.00%	5.88%	2.94%	0.00%	2.94%	2.94%	8.82%	0.00%	100%
Road 2	2	-	50	43.08333	N	0200-0300	23	34.78%	17.39%	4.35%	4.35%	0.00%	4.35%	8.70%	0.00%	0.00%	0.00%	0.00%	4.35%	0.00%	0.00%	4.35%	4.35%	13.04%	0.00%	100%
Road 2	2	-	50	45	N	0300-0400	15	60.00%	13.33%	0.00%	0.00%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	13.33%	0.00%	100%
Road 2	2	-	50	42.75	N	0400-0500	27	40.74%	11.11%	3.70%	3.70%	3.70%	3.70%	7.41%	0.00%	0.00%	0.00%	0.00%	7.41%	3.70%	0.00%	3.70%	0.00%	11.11%	0.00%	100%
Road 2	2	-	50	40.25	N	0500-0600	57	50.88%	14.04%	1.75%	3.51%	1.75%	3.51%	5.26%	0.00%	0.00%	0.00%	0.00%	7.02%	1.75%	0.00%	1.75%	1.75%	7.02%	0.00%	100%
Road 2	2	-	50	38.53333	N	0600-0700	104	41.35%	8.65%	2.88%	4.81%	2.88%	5.77%	6.73%	0.00%	0.00%	0.96%	0.00%	10.58%	3.85%	0.00%	1.92%	3.85%	5.77%	0.00%	100%
Road 2	2	-	50	36.66667	N	0700-0800	160	43.13%	13.13%	3.13%	5.63%	3.75%	3.75%	5.00%	0.00%	0.00%	0.00%	0.00%	8.75%	3.13%	0.00%	1.25%	5.63%	3.75%	0.00%	100%
Road 2	2	-	50	31.86667	N	0800-0900	304	44.41%	9.21%	2.96%	7.24%	4.61%	4.61%	5.59%	0.00%	0.00%	0.99%	0.00%	7.24%	3.62%	0.00%	1.32%	5.26%	2.96%	0.00%	100%
Road 2	2	-	50	33.6	N	0900-1000	252	33.73%	9.13%	5.56%	13.10%	7.14%	6.75%	7.94%	0.00%	0.00%	0.00%	0.00%	5.95%	1.59%	0.00%	1.19%	1.19%	6.75%	0.00%	100%
Road 2	2	-	50	35.76667	N	1000-1100	187	27.81%	10.16%	5.88%	10.70%	8.56%	10.16%	9.63%	0.00%	0.00%	0.00%	0.00%	4.81%	2.67%	0.00%	1.60%	0.53%	7.49%	0.00%	100%
Road 2	2	-	50	35.9	N	1100-1200	183	21.31%	7.65%	3.83%	12.02%	10.93%	12.57%	15.30%	0.00%	0.00%	0.00%	0.00%	4.92%	0.55%	0.00%	2.19%	1.09%	7.65%	0.00%	100%
Road 2	2	-	50	35.66667	N	1200-1300	190	27.37%	12.63%	4.21%	12.11%	8.95%	6.32%	9.47%	0.00%	0.00%	0.53%	0.00%	5.26%	1.58%	0.00%	1.58%	2.11%	7.89%	0.00%	100%
Road 2	2	-	50	34.56667	N	1300-1400	223	31.39%	10.31%	3.59%	7.62%	8.07%	11.21%	10.31%	0.45%	0.00%	0.45%	0.00%	3.59%	1.35%	0.00%	1.35%	1.79%	8.52%	0.00%	100%
Road 2	2	-	50	36.5	N	1400-1500	165	34.55%	8.48%	4.24%	10.91%	7.27%	7.88%	7.88%	0.00%	0.00%	0.61%	0.00%	4.85%	1.82%	0.00%	1.82%	1.82%	7.88%	0.00%	100%
Road 2	2	-	50	35.9	N	1500-1600	183	31.15%	8.20%	5.46%	5.46%	7.10%	9.29%	10.38%	0.00%	0.00%	1.09%	0.55%	8.74%	3.83%	0.00%	1.64%	0.55%	6.56%	0.00%	100%
Road 2	2	-	50	34.63333	N	1600-1700	221	33.48%	10.41%	3.62%	12.67%	3.62%	6.33%	8.14%	0.45%	0.00%	0.90%	0.90%	8.14%	4.07%	0.00%	0.90%	0.90%	5.43%	0.00%	100%
Road 2	2	-	50	34.6	N	1700-1800	222	50.00%	7.66%	6.31%	4.50%	4.50%	7.21%	7.66%	0.45%	0.00%	0.00%	0.00%	5.41%	1.80%	0.00%	0.90%	1.80%	1.80%	0.00%	100%
Road 2	2	-	50	33.66667	N	1800-1900	250	41.60%	14.40%	4.00%	4.80%	4.00%	4.00%	9.60%	0.00%	0.00%	0.00%	0.80%	5.60%	4.40%	0.00%	1.20%	1.20%	4.40%	0.00%	100%
Road 2	2	-	50	36.36667	N	1900-2000	169	47.34%	15.98%	3.55%	3.55%	0.59%	1.78%	9.47%	0.59%	0.00%	0.00%	0.00%	8.88%	2.96%	0.00%	1.78%	0.59%	2.96%	0.00%	100%
Road 2	2	-	50	37.1	N	1900-2000	169	46.94%	16.33%	4.76%	1.36%	4.08%	2.72%	4.76%	0.00%	0.00%	0.00%	0.00%	8.16%	0.68%	0.00%	2.04%	2.72%	5.44%	0.00%	100%
Road 2	2	-	50	36.9	N	2100-2200	153	51.63%	18.95%	2.61%	1.96%	0.65%	3.92%	3.27%	0.00%	0.00%	0.00%	0.00%	5.88%	0.65%	0.00%	1.96%	3.92%	4.58%	0.00%	100%
Road 2	2	-	50	37.83333	N	2200-2300	125	43.20%	16.80%	2.40%	4.00%	2.40%	5.60%	7.20%	0.00%	0.00%	0.80%	0.00%	7.20%	2.40%	0.00%	1.60%	0.80%	5.60%	0.00%	100%
Road 2	2	-	50	38.3	N	2300-0000	111	41.44%	19.82%	3.60%	5.41%	3.60%	3.60%	5.41%	0.00%	0.00%	0.00%	0.00%	7.21%	2.70%	0.00%	1.80%	0.90%	4.50%	0.00%	100%
Road 3	3	-	70	68.28869	N	0000-0100	230	26.52%	15.65%	6.09%	8.26%	4.78%	3.04%	9.57%	0.00%	0.00%	0.00%	0.43%	5.22%	2.61%	0.00%	3.91%	2.17%	11.74%	0.00%	100%
Road 3	3	-	70	68.94345	N	0100-0200	142	43.66%	11.27%	4.23%	6.34%	3.52%	2.11%	6.34%	0.00%	0.00%	0.00%	0.00%	3.52%	2.11%	0.00%	3.52%	2.82%	10.56%	0.00%	100%
Road 3	3	-	70	69.26339	N	0200-0300	99	33.33%	25.25%	3.03%	3.03%	1.01%	3.03%	9.09%	0.00%	0.00%	0.00%	0.00%	3.03%	1.01%	0.00%	4.04%	4.04%	10.10%	0.00%	100%
Road 3	3	-	70	69.47917	N	0300-0400	70	51.43%	20.00%	1.43%	1.43%	1.43%	2.86%	2.86%	0.00%	0.00%	0.00%	0.00%	4.29%	1.43%	0.00%	2.86%	1.43%	8.57%	0.00%	100%
Road 3	3	-	70	69.15923	N	0400-0500	113	41.59%	15.04%	3.54%	4.42%	3.54%	2.65%	7.96%	0.00%	0.00%	0.00%	0.88%	4.42%	2.65%	0.00%	3.54%	0.88%	8.85%	0.00%	100%
Road 3	3	-	70	68.16964	N	0500-0600	246	47.56%	18.70%	1.63%	2.85%	2.03%	2.44%	7.72%	0.00%	0.00%	0.00%	0.41%	4.07%	1.63%	0.00%	2.85%	2.03%	6.10%	0.00%	100%
Road 3	3	-	70	66.69643	N	0600-0700	444	38.51%	11.94%	3.38%	4.73%	3.15%	3.83%	9.23%	0.00%	0.23%	0.68%	0.45%	6.08%	3.15%	0.00%	2.70%	4.28%	7.43%	0.23%	100%
Road 3	3	-	70	63.90873	N	0700-0800	727	38.24%	16.37%	3.71%	5.78%	3.85%	2.61%	6.33%	0.14%	0.00%	0.00%	0.41%	4.40%	2.61%	0.00%	1.93%	5.91%	7.57%	0.14%	100%
Road 3	3	-	70	58.55159	N	0800-0900	997	42.23%	12.14%	4.01%	6.52%	4.31%	3.01%	6.72%	0.00%	0.10%	0.50%	0.40%	4.61%	2.61%	0.00%	1.81%	2.91%	8.02%	0.10%	100%
Road 3	3	-	70	59.18651	N	0900-1000	965	33.47%	10.98%	7.36%	11.81%	7.05%	3.63%	8.50%	0.00%	0.10%	0.10%	0.21%	3.11%	1.45%	0.00%	2.28%	1.55%	8.29%	0.10%	100%
Road 3	3	-	70	60.89286	N	1000-1100	879	29.81%	10.58%	6.37%	9.44%	6.37%	5.23%	12.86%	0.00%	0.34%	0.46%	0.23%	2.62%	1.59%	0.00%	2.16%	1.93%	9.90%	0.11%	100%
Road 3	3	-	70	61.38889	N	1100-1200	854	28.22%	13.11%	5.97%	9.72%	6.91%	5.27%	12.18%	0.00%	0.23%	0.23%	0.23%	2.46%	0.82%	0.00%	2.93%	1.99%	9.72%	0.00%	100%
Road 3	3	-	70	61.38889	N	1200-1300	854	31.50%	12.53%	5.50%	9.02%	6.09%	3.86%	10.42%	0.00%	0.12%	0.35%	0.23%	2.81%	1.29%	0.00%	2.81%	2.46%	10.89%	0.12%	100%
Road 3	3	-	70	59.94048	N	1300-1400	927	29.88%	13.05%	5.83%	8.85%	6.36%	5.50%	12.41%	0.11%	0.22%	0.43%	0.22%	2.16%	1.08%	0.00%	2.37%	1.29%	10.25%	0.00%	100%
Road 3	3	-	70	59.80159	N	1400-1500	934	34.15%	12.63%	5.35%	8.35%	5.46%	3.96%	11.24%	0.00%	0.43%	0.64%	0.32%	3.00%	1.82%	0.00%	2.36%	1.28%	8.89%	0.11%	100%
Road 3	3	-	70	60.5754	N	1500-1600	895	26.70%	12.29%	7.04%	9.61%	6.70%	4.36%	11.40%	0.00%	0.45%	0.89%	0.45%	3.80%	2.12%	0.00%	2.35%	2.12%	9.61%	0.11%	100%
Road 3	3	-	70	58.96825	N	1600-1700	976	30.12%	15.78%	5.43%	9.22%	4.92%	3.89%	10.66%	0.10%	0.31%	0.72%	0.51%	4.00%	2.25%	0.00%	2.25%	0.51%	9.22%	0.10%	100%
Road 3	3	-	70	58.90873	N	1700-1800	979	43.11%	13.69%	4.49%	5.52%	3.68%	3.06%	7.15%	0.10%	0.20%	0.20%	0.41%	3.98%	2.04%	0.00%	2.15%	2.96%	7.15%	0.10%	100%
Road 3	3	-	70	57.95635	N	1800-1900	1027	39.24%	19.77%	3.51%	4.77%	3.12%	2.24%	6.82%	0.00%	0.10%	0.10%	0.58%	3.80%	2.53%	0.00%	2.43%	3.99%	6.91%	0.10%	100%
Road 3	3	-	70	63.25397	N	1900-2000	760	37.37%	20.39%	3.29%	4.47%	2.50%	2.50%	9.87%	0.13%	0.00%	0.13%	0.39%	4.21%	2.11%	0.00%	2.63%	2.11%	7.76%	0.13%	100%
Road 3	3	-	70	65.17113	N	2000-2100	649	41.45%	19.57%	3.54%	3.85%	3.24%	2.62%	8.17%	0.00%	0.00%	0.00%	0.31%	3.70%	1.23%	0.00%	2.62%	1.39%	8.32%	0.00%	100%
Road 3	3	-	70	65.42411	N	2100-2200	615	41.95%	20.49%	2.44%	2.93%	1.63%	3.25%	9.11%	0.00%	0.00%	0.00%	0.33%	3.41%	1.30%	0.00%	2.93%	2.28%	7.97%	0.00%	100%
Road 3	3	-	70	65.81101	N	2200-2300	563	38.37%	21.49%	2.84%	4.09%	2.49%	3.37%	9.06%	0.00%	0.18%	0.53%	0.36%	3.91%	1.78%	0.00%	2.84%	0.89%	7.82%	0.00%	100%
Road 3	3	-	70	66.26488	N	2300-0000	502	36.85%	25.10%	3.98%	5.58%	3.59%	1.99%	6.18%	0.00%	0.00%	0.00%	0.40%	3.98%	1.99%	0.00%	2.79%	1.00%	6.57%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2028)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 4	4	-	50	42.08333	N	0000-0100	35	5.71%	2.86%	2.86%	2.86%	2.86%	2.86%	25.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	54.29%	0.00%	100%
Road 4	4	-	50	45	N	0100-0200	20	10.00%	0.00%	0.00%	5.00%	0.00%	5.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	60.00%	0.00%	100%
Road 4	4	-	50	45	N	0200-0300	13	7.69%	0.00%	0.00%	0.00%	0.00%	7.69%	30.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	53.85%	0.00%	100%
Road 4	4	-	50	45	N	0300-0400	7	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	71.43%	0.00%	100%
Road 4	4	-	50	45	N	0400-0500	14	14.29%	0.00%	0.00%	0.00%	0.00%	7.14%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	100%
Road 4	4	-	50	45	N	0500-0600	24	16.67%	4.17%	0.00%	0.00%	4.17%	8.33%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	0.00%	100%
Road 4	4	-	50	40.58333	N	0600-0700	53	11.32%	1.89%	1.89%	1.89%	5.66%	7.55%	33.96%	0.00%	0.00%	0.00%	0.00%	0.00%	1.89%	0.00%	0.00%	1.89%	32.08%	0.00%	100%
Road 4	4	-	50	38.93333	N	0700-0800	92	10.87%	2.17%	2.17%	4.35%	4.35%	5.43%	22.83%	1.09%	0.00%	0.00%	0.00%	0.00%	3.26%	0.00%	0.00%	2.17%	41.30%	0.00%	100%
Road 4	4	-	50	36.83333	N	0800-0900	155	14.84%	1.94%	2.58%	3.87%	3.23%	3.87%	29.68%	0.00%	0.00%	0.00%	0.00%	0.00%	1.94%	0.00%	0.00%	0.65%	37.42%	0.00%	100%
Road 4	4	-	50	37.06667	N	0900-1000	148	12.84%	2.03%	2.70%	4.73%	4.73%	8.11%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.03%	37.84%	0.00%	100%
Road 4	4	-	50	37.2	N	1000-1100	144	4.17%	0.69%	2.78%	6.94%	5.56%	8.33%	34.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.69%	36.81%	0.00%	100%
Road 4	4	-	50	36.83333	N	1100-1200	155	12.26%	1.29%	3.23%	4.52%	3.87%	7.74%	40.65%	0.00%	0.00%	0.00%	0.00%	0.65%	0.00%	0.00%	0.00%	0.00%	25.81%	0.00%	100%
Road 4	4	-	50	37.06667	N	1200-1300	148	8.11%	0.68%	2.70%	6.08%	4.05%	4.73%	29.73%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.35%	42.57%	0.00%	100%
Road 4	4	-	50	37	N	1300-1400	150	6.67%	0.67%	4.00%	5.33%	4.67%	7.33%	32.67%	0.67%	0.00%	0.00%	0.00%	0.00%	0.67%	0.00%	0.00%	0.00%	37.33%	0.00%	100%
Road 4	4	-	50	37.33333	N	1400-1500	140	10.71%	2.86%	2.14%	6.43%	4.29%	4.29%	33.57%	0.00%	0.00%	0.00%	0.00%	0.00%	1.43%	0.00%	0.00%	1.43%	32.86%	0.00%	100%
Road 4	4	-	50	37.83333	N	1500-1600	125	3.20%	1.60%	1.60%	5.60%	6.40%	6.40%	34.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.80%	0.00%	100%
Road 4	4	-	50	37.86667	N	1600-1700	124	6.45%	0.00%	4.84%	6.45%	5.65%	6.45%	29.84%	0.81%	0.00%	0.00%	0.00%	0.00%	0.81%	0.00%	0.00%	0.00%	38.71%	0.00%	100%
Road 4	4	-	50	37.76667	N	1700-1800	127	8.66%	0.00%	5.51%	5.51%	3.94%	5.51%	28.35%	0.79%	0.00%	0.00%	0.00%	0.00%	0.79%	0.00%	0.00%	1.57%	39.37%	0.00%	100%
Road 4	4	-	50	38.46667	N	1800-1900	106	7.55%	0.94%	1.89%	0.94%	2.83%	3.77%	34.91%	0.00%	0.00%	0.00%	0.00%	0.00%	1.89%	0.00%	0.00%	0.00%	45.28%	0.00%	100%
Road 4	4	-	50	39.53333	N	1900-2000	74	6.76%	2.70%	2.70%	4.05%	5.41%	1.35%	36.49%	0.00%	0.00%	0.00%	0.00%	1.35%	0.00%	0.00%	0.00%	0.00%	39.19%	0.00%	100%
Road 4	4	-	50	45	N	2000-2100	49	10.20%	4.08%	0.00%	2.04%	2.04%	6.12%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.08%	57.14%	0.00%	100%
Road 4	4	-	50	45	N	2100-2200	37	16.22%	8.11%	0.00%	10.81%	2.70%	5.41%	10.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	45.95%	0.00%	100%
Road 4	4	-	50	39.9	N	2200-2300	63	11.11%	3.17%	1.59%	3.17%	1.59%	6.35%	34.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	38.10%	0.00%	100%
Road 4	4	-	50	40.91667	N	2300-0000	49	12.24%	4.08%	2.04%	4.08%	2.04%	4.08%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	42.86%	0.00%	100%
Road 5	5	-	70	68.56399	N	0000-0100	193	30.57%	18.13%	6.22%	9.33%	5.18%	3.11%	6.22%	0.00%	0.00%	0.00%	0.52%	6.22%	3.11%	0.00%	4.66%	2.59%	4.15%	0.00%	100%
Road 5	5	-	70	69.09226	N	0100-0200	122	49.18%	13.11%	4.92%	6.56%	4.10%	1.64%	4.10%	0.00%	0.00%	0.00%	0.00%	4.10%	2.46%	0.00%	4.10%	3.28%	2.46%	0.00%	100%
Road 5	5	-	70	69.36012	N	0200-0300	86	37.21%	29.07%	3.49%	3.49%	1.16%	2.33%	5.81%	0.00%	0.00%	0.00%	0.00%	3.49%	1.16%	0.00%	4.65%	4.65%	3.49%	0.00%	100%
Road 5	5	-	70	69.53125	N	0300-0400	63	55.56%	22.22%	1.59%	1.59%	1.59%	3.17%	1.59%	0.00%	0.00%	0.00%	0.00%	4.76%	1.59%	0.00%	3.17%	1.59%	1.59%	0.00%	100%
Road 5	5	-	70	69.26339	N	0400-0500	99	45.45%	17.17%	4.04%	5.05%	4.04%	2.02%	5.05%	0.00%	0.00%	0.00%	1.01%	5.05%	3.03%	0.00%	4.04%	1.01%	3.03%	0.00%	100%
Road 5	5	-	70	68.3631	N	0500-0600	220	50.91%	20.45%	1.82%	3.18%	1.82%	1.82%	4.55%	0.00%	0.00%	0.00%	0.45%	4.55%	1.82%	0.00%	3.18%	2.27%	3.18%	0.00%	100%
Road 5	5	-	70	67.1131	N	0600-0700	388	42.27%	13.40%	3.61%	5.15%	2.84%	3.09%	5.93%	0.00%	0.26%	0.77%	0.52%	6.96%	3.09%	0.00%	3.09%	4.64%	4.12%	0.26%	100%
Road 5	5	-	70	65.29018	N	0700-0800	633	42.18%	18.48%	3.95%	5.85%	3.79%	2.21%	3.95%	0.00%	0.00%	0.00%	0.47%	5.06%	2.53%	0.00%	2.21%	6.48%	2.69%	0.16%	100%
Road 5	5	-	70	61.60714	N	0800-0900	843	47.33%	14.00%	4.15%	7.00%	4.39%	2.85%	2.61%	0.00%	0.12%	0.59%	0.47%	5.46%	2.73%	0.00%	2.14%	3.32%	2.73%	0.12%	100%
Road 5	5	-	70	62.14286	N	0900-1000	816	37.25%	12.62%	8.21%	13.11%	7.48%	2.82%	5.51%	0.00%	0.12%	0.12%	0.25%	3.68%	1.72%	0.00%	2.70%	1.35%	2.94%	0.12%	100%
Road 5	5	-	70	63.76984	N	1000-1100	734	34.88%	12.53%	7.08%	9.95%	6.54%	4.50%	8.72%	0.00%	0.41%	0.54%	0.27%	3.13%	1.91%	0.00%	2.59%	2.18%	4.63%	0.14%	100%
Road 5	5	-	70	64.46429	N	1100-1200	699	31.90%	15.74%	6.58%	10.87%	7.58%	4.58%	5.87%	0.00%	0.29%	0.29%	0.29%	2.86%	1.00%	0.00%	3.58%	2.43%	6.15%	0.00%	100%
Road 5	5	-	70	64.30556	N	1200-1300	707	36.35%	14.99%	6.08%	9.62%	6.51%	3.68%	6.51%	0.00%	0.14%	0.42%	0.28%	3.39%	1.56%	0.00%	3.39%	2.69%	4.24%	0.14%	100%
Road 5	5	-	70	62.91667	N	1300-1400	777	34.23%	15.44%	6.18%	9.52%	6.69%	5.15%	8.62%	0.00%	0.26%	0.51%	0.26%	2.57%	1.16%	0.00%	2.83%	1.54%	5.02%	0.00%	100%
Road 5	5	-	70	62.57937	N	1400-1500	794	38.41%	14.23%	5.92%	8.69%	5.67%	3.90%	7.30%	0.00%	0.50%	0.76%	0.38%	3.53%	1.89%	0.00%	2.77%	1.26%	4.66%	0.13%	100%
Road 5	5	-	70	63.05556	N	1500-1600	770	30.52%	14.03%	7.92%	10.26%	6.75%	4.03%	7.66%	0.00%	0.52%	1.04%	0.52%	4.42%	2.47%	0.00%	2.73%	2.47%	4.55%	0.13%	100%
Road 5	5	-	70	61.40873	N	1600-1700	853	33.53%	18.05%	5.51%	9.61%	4.81%	3.52%	7.85%	0.00%	0.35%	0.82%	0.59%	4.57%	2.46%	0.00%	2.58%	0.59%	5.04%	0.12%	100%
Road 5	5	-	70	61.44841	N	1700-1800	851	48.30%	15.75%	4.23%	5.52%	3.64%	2.70%	3.88%	0.00%	0.24%	0.24%	0.47%	4.58%	2.23%	0.00%	2.47%	3.17%	2.47%	0.12%	100%
Road 5	5	-	70	60.09921	N	1800-1900	919	42.87%	21.98%	3.70%	5.22%	3.16%	2.07%	3.48%	0.00%	0.11%	0.11%	0.65%	4.24%	2.61%	0.00%	2.72%	4.46%	2.50%	0.11%	100%
Road 5	5	-	70	64.72222	N	1900-2000	686	40.67%	22.30%	3.35%	4.52%	2.19%	2.62%	7.00%	0.15%	0.00%	0.15%	0.44%	4.52%	2.33%	0.00%	2.92%	2.33%	4.37%	0.15%	100%
Road 5	5	-	70	65.53571	N	2000-2100	600	44.00%	20.83%	3.83%	4.00%	3.33%	2.33%	7.67%	0.00%	0.00%	0.00%	0.33%	4.00%	1.33%	0.00%	2.83%	1.17%	4.33%	0.00%	100%
Road 5	5	-	70	65.6994	N	2100-2200	578	43.60%	21.28%	2.60%	2.42%	1.56%	3.11%	9.00%	0.00%	0.00%	0.00%	0.35%	3.63%	1.38%	0.00%	3.11%	2.42%	5.54%	0.00%	100%
Road 5	5	-	70	66.2872	N	2200-2300	499	41.88%	23.85%	3.01%	4.21%	2.40%	3.01%	5.81%	0.00%	0.20%	0.60%	0.40%	4.41%	2.00%	0.00%	3.21%	1.00%	4.01%	0.00%	100%
Road 5	5	-	70	66.62946	N	2300-0000	453	39.51%	27.37%	4.19%	5.74%	3.75%	1.77%	3.97%	0.00%	0.00%	0.00%	0.44%	4.42%	2.21%	0.00%	3.09%	1.10%	2.43%	0.00%	100%
Road 6	6	-	70	68.88393	N	0000-0100	150	44.67%	26.00%	3.33%	4.00%	2.00%	2.00%	2.67%	0.00%	0.00%	0.00%	0.67%	4.00%	2.00%	0.00%	4.00%	2.00%	2.67%	0.00%	100%
Road 6	6	-	70	69.15179	N	0100-0200	114	38.60%	20.18%	7.02%	6.14%	3.51%	4.39%	4.39%	0.00%	0.00%	0.00%	0.00%	3.51%	0.88%	0.00%	3.51%	2.63%	5.26%	0.00%	100%
Road 6	6	-	70	69.4122	N	0200-0300	79	41.77%	22.78%	6.33%	5.06%	3.80%	2.53%	2.53%	0.00%	0.00%	0.00%	0.00%	5.06%	1.27%	0.00%	3.80%	1.27%	3.80%	0.00%	100%
Road 6	6	-	70	69.53869	N	0300-0400	62	35.48%	19.35%	9.68%	9.68%	4.84%	3.23%	3.23%	0.00%	0.00%	0.00%	0.00%	3.23%	1.61%	0.00%	4.84%	1.61%	3.23%	0.00%	100%
Road 6	6	-	70	69.33036	N	0400-0500	90	37.78%	20.00%	5.56%	6.67%	3.33%	3.33%	4.44%	0.00%	0.00%	1.11%	0.00%	4.44%	1.11%	0.00%	4.44%	3.33%	4.44%	0.00%	100%
Road 6	6	-	70	68.79464	N	0500-0600	162	37.65%	24.07%	5.56%	6.17%	3.09%	3.09%	3.70%	0.00%	0.00%	0.00%	0.62%	3.70%	1.85%	0.00%	3.70%	3.09%	3.70%	0.00%	100%
Road 6	6	-	70	67.84226	N	0600-0700	290	32.41%	26.55%	6.21%	6.55%	3.79%	3.45%	3.79%	0.00%	0.00%	0.00%	0.34%	3.79%	2.07%	0.00%	4.83%	2.76%	3.45%	0.00%	100%
Road 6	6	-	70	66.5625	N	0700-0800	462	37.45%	24.46%	5.84%	6.06%	3.68%	2.60%	2.60%	0.00%	0.22%	0.22%	0.43%	4.98%	2.16%	0.00%	3.46%	3.46%	2.38%	0.00%	100%
Road 6	6	-	70	65.0744	N	0800-0900	662	42.15%	27.95%	5.29%	3.78%	1.21%	2.27%	0.30%	0.00%	0.15%	0.60%	0.45%	5.89%	3.63%	0.00%	3.17%	2.42%	0.60%	0.15%	100%
Road 6	6	-	70	65.29018	N	0900-1000	633	41.23%	26.07%	5.53%	6.32%	3.16%	4.11%	2.69%	0.00%	0.00%	0.32%	0.00%	3.48%	1.11%	0.00%	2.84%	1.58%	1.58%	0.00%	100%
Road 6	6	-	70	66.01935	N	1000-1100	535	34.95%	23.55%	6.73%	5.61%	5.42%	4.30%	4.11%	0.00%	0.19%	0.19%	0.37%	3.55%	1.68%	0.00%	3.36%	0.56%	5.42%	0.00%	100%
Road 6	6	-	70	66.04167	N	1100-1200	532	29.14%	18.42%	8.65%	10.34%	7.14%	6.39%	7.14%	0.00%	0.19%	0.38%	0.19%	2.26%	1.13%	0.00%	3.01%	0.94%	4.70%	0.00%	100%
Road 6	6	-	70	66.10863	N	1200-1300	523	37.86%	13.58%	8.22%	9.18%	6.88%	5.35%	3.44%	0.00%	0.19%	0.19%	0.19%	4.02%	1.72%	0.00%	3.06%	0.96%	5.16%	0.00%	100%
Road 6	6	-	70	66.12351	N	1300-1400	521	28.21%	17.08%	8.45%	8.64%	5.76%	4.61%	6.72%	0.19%	0.38%	0.58%	0.58%	5.57%	2.69%	0.00%	3.26%	0.96%	6.14%	0.19%	100%
Road 6	6	-	70	65.72917	N	1400-1500	574	30.14%	17.60%	8.01%	8.54%	5.40%	4.88%	6.27%	0.17%	0.52%	0.87%	0.70%	5.75%	3.14%	0.00%	3.14%	1.22%	3.48%	0.17%	100%
Road 6	6	-	70	65.81845	N	1500-1600	562	35.77%	17.26%	6.23%	8.19%	4.45%	3.91%	4.63%	0.18%	0.00%	0.36%	0.36%	5.34%	2.49%	0.00%	3.02%	2.85%	4.80%	0.18%	100%
Road 6	6	-	70	65.71429	N	1600-1700	576	35.59%	14.41%	7.64%	8.85%	4.69%	4.34%	4.34%	0.00%	0.35%	0.69%	0.52%	5.56%	2.60%	0.00%	2.60%	2.60%	5.03%	0.17%	100%
Road 6	6	-	70	65.46131	N	1700-1800	610	47.05%	15.90%	5.08%	7.05%	2.46%	3.11%	2.62%	0.00%	0.16%	0.33%	0.49%	5.25%	2.46%	0.00%	2.30%	2.79%	2.79%	0.16%	100%
Road 6	6	-	70	64.6627	N	1800-1900	689	48.91%	16.26%	4.50%	3.05%	1.89%	1.89%	3.19%	0.00%	0.29%	0.44%	0.44%	6.24%	2.47%	0.00%	2.76%	4.79%	2.76%	0.15%	100%
Road 6	6	-	70	66.10119	N	1900-2000	524	39.50%	20.04%	4.20%	3.44%	2.10%	3.44%	4.01%	0.00%	0.38%	0.38%	0.57%	6.30%	2.10%	0.00%	3.44%	5.73%	4.20%	0.19%	100%
Road 6	6	-	70	66.88988	N	2000-2100	418	46.41%	22.01%	3.59%	3.35%	1.44%	1.91%	4.07%	0.00%	0.00%	0.00%	0.48%	5.74%	1.91%	0.00%	3.83%	3.35%	1.91%	0.00%	100%
Road 6	6	-	70	67.32143	N	2100-2200	360	41.39%	20.56%	2.22%	2.22%	1.11%	2.50%	6.94%	0.00%	0.00%	0.00%	0.56%	7.50%	2.78%	0.00%	3.89%	2.50%	5.56%	0.28%	100%
Road 6	6	-	70	67.16518	N	2200-2300	381	33.33%	33.86%	3.67%	3.67%	1.84%	2.62%	2.62%	0.00%	0.52%	1.05%	0.52%	5.51%	2.36%	0.00%	2.89%	2.89%	2.62%	0.00%	100%
Road 6	6	-	70	67.34375	N	2300-0000	357	49.58%	23.25%	5.04%	5.32%	3.08%	1.40%	1.40%	0.00%	0.00%	0.00%	0.28%	3.08%	1.12%	0.00%	2.52%	2.24%	1.68%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2028)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 7	7	-	70	68.61607	N	0000-0100	186	38.71%	20.97%	2.69%	3.76%	2.15%	2.15%	6.45%	0.00%	0.00%	0.00%	0.54%	3.23%	1.61%	0.00%	3.23%	2.15%	12.37%	0.00%	100%
Road 7	7	-	70	68.92113	N	0100-0200	145	32.41%	15.86%	5.52%	6.21%	3.45%	4.14%	10.34%	0.00%	0.00%	0.00%	0.00%	2.76%	0.69%	0.00%	2.76%	2.07%	13.79%	0.00%	100%
Road 7	7	-	70	69.3006	N	0200-0300	94	37.23%	19.15%	5.32%	5.32%	3.19%	2.13%	7.45%	0.00%	0.00%	0.00%	0.00%	4.26%	1.06%	0.00%	3.19%	1.06%	10.64%	0.00%	100%
Road 7	7	-	70	69.43452	N	0300-0400	76	31.58%	15.79%	7.89%	10.53%	5.26%	2.63%	6.58%	0.00%	0.00%	0.00%	0.00%	2.63%	1.32%	0.00%	3.95%	1.32%	10.53%	0.00%	100%
Road 7	7	-	70	69.17411	N	0400-0500	111	33.33%	16.22%	4.50%	6.31%	3.60%	3.60%	9.91%	0.00%	0.00%	0.90%	0.00%	3.60%	0.90%	0.00%	3.60%	2.70%	10.81%	0.00%	100%
Road 7	7	-	70	68.52679	N	0500-0600	198	33.84%	19.70%	4.55%	6.06%	3.54%	3.54%	9.60%	0.00%	0.00%	0.00%	0.51%	3.03%	1.52%	0.00%	3.03%	3.03%	8.08%	0.00%	100%
Road 7	7	-	70	67.36607	N	0600-0700	354	28.53%	22.03%	5.37%	6.78%	4.52%	3.95%	9.04%	0.00%	0.00%	0.00%	0.28%	3.11%	1.69%	0.00%	3.95%	2.54%	8.19%	0.00%	100%
Road 7	7	-	70	65.79613	N	0700-0800	565	32.92%	20.18%	4.96%	6.37%	4.25%	3.19%	6.19%	0.00%	0.18%	0.18%	0.35%	4.07%	1.77%	0.00%	2.83%	3.36%	9.20%	0.00%	100%
Road 7	7	-	70	61.36905	N	0800-0900	855	34.50%	21.75%	4.80%	5.61%	2.81%	2.81%	5.96%	0.23%	0.12%	0.47%	0.35%	4.56%	2.81%	0.00%	2.46%	1.87%	8.77%	0.12%	100%
Road 7	7	-	70	62.61905	N	0900-1000	792	34.60%	20.83%	5.18%	6.57%	4.04%	5.18%	7.45%	0.00%	0.00%	0.25%	0.13%	2.78%	1.14%	0.00%	2.27%	1.26%	8.33%	0.00%	100%
Road 7	7	-	70	64.54365	N	1000-1100	695	28.92%	18.13%	5.61%	6.62%	5.47%	4.60%	11.37%	0.29%	0.14%	0.14%	0.29%	3.02%	1.29%	0.00%	2.59%	0.72%	10.79%	0.00%	100%
Road 7	7	-	70	64.56349	N	1100-1200	694	24.93%	14.12%	7.35%	8.93%	6.34%	6.34%	13.26%	0.00%	0.14%	0.29%	0.14%	2.02%	0.86%	0.00%	2.31%	0.86%	12.10%	0.00%	100%
Road 7	7	-	70	64.58333	N	1200-1300	693	31.02%	10.53%	6.64%	8.51%	6.35%	5.34%	10.39%	0.00%	0.14%	0.14%	0.14%	3.03%	1.44%	0.00%	2.31%	0.87%	13.13%	0.00%	100%
Road 7	7	-	70	64.80159	N	1300-1400	682	24.34%	13.34%	6.89%	8.80%	6.01%	4.99%	12.02%	0.15%	0.29%	0.44%	0.44%	4.25%	2.20%	0.00%	2.49%	1.03%	12.17%	0.15%	100%
Road 7	7	-	70	64.16667	N	1400-1500	714	27.17%	14.29%	7.00%	8.26%	5.32%	4.48%	10.36%	0.14%	0.42%	0.70%	0.56%	4.62%	2.80%	0.00%	2.52%	1.12%	10.08%	0.14%	100%
Road 7	7	-	70	64.4246	N	1500-1600	701	31.38%	14.12%	5.42%	7.56%	4.42%	4.14%	9.99%	0.29%	0.00%	0.29%	0.29%	4.28%	2.14%	0.00%	2.43%	2.57%	10.56%	0.14%	100%
Road 7	7	-	70	63.94841	N	1600-1700	725	30.48%	11.45%	6.48%	8.83%	5.24%	4.41%	10.34%	0.00%	0.28%	0.55%	0.41%	4.41%	2.07%	0.00%	2.07%	2.62%	10.21%	0.14%	100%
Road 7	7	-	70	63.11508	N	1700-1800	767	41.98%	12.78%	4.30%	7.17%	2.74%	3.13%	6.91%	0.00%	0.13%	0.26%	0.39%	4.17%	2.22%	0.00%	1.83%	3.65%	8.21%	0.13%	100%
Road 7	7	-	70	62.51984	N	1800-1900	797	45.17%	14.30%	4.02%	4.02%	2.13%	1.88%	5.14%	0.00%	0.25%	0.38%	0.38%	5.40%	2.13%	0.00%	2.38%	4.52%	7.78%	0.13%	100%
Road 7	7	-	70	65.52083	N	1900-2000	602	36.38%	17.61%	3.65%	3.99%	2.16%	3.16%	7.64%	0.00%	0.33%	0.33%	0.50%	5.48%	1.99%	0.00%	2.99%	4.98%	8.64%	0.17%	100%
Road 7	7	-	70	66.30952	N	2000-2100	496	40.73%	18.95%	3.02%	3.02%	2.02%	3.02%	6.85%	0.00%	0.00%	0.00%	0.40%	4.84%	1.61%	0.00%	3.23%	3.43%	8.87%	0.00%	100%
Road 7	7	-	70	66.91964	N	2100-2200	414	37.68%	19.08%	1.93%	2.66%	1.69%	2.42%	9.66%	0.00%	0.00%	0.00%	0.48%	6.52%	2.90%	0.00%	3.38%	2.42%	8.94%	0.24%	100%
Road 7	7	-	70	66.67411	N	2200-2300	447	30.43%	29.31%	3.36%	3.80%	2.01%	2.91%	6.49%	0.00%	0.45%	0.89%	0.45%	4.70%	2.01%	0.00%	2.46%	3.13%	7.61%	0.00%	100%
Road 7	7	-	70	66.94196	N	2300-0000	411	46.23%	20.44%	4.62%	5.84%	3.41%	1.46%	3.65%	0.00%	0.00%	0.00%	0.24%	2.68%	0.97%	0.00%	2.19%	2.19%	6.08%	0.00%	100%
Road 8	8	-	50	45	N	0000-0100	36	13.89%	0.00%	0.00%	2.78%	2.78%	2.78%	22.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.78%	52.78%	0.00%	100%
Road 8	8	-	50	45	N	0100-0200	30	10.00%	0.00%	0.00%	6.67%	3.33%	3.33%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.67%	0.00%	100%
Road 8	8	-	50	45	N	0200-0300	15	13.33%	0.00%	0.00%	6.67%	0.00%	0.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.67%	0.00%	100%
Road 8	8	-	50	45	N	0300-0400	14	14.29%	0.00%	0.00%	14.29%	7.14%	0.00%	21.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	42.86%	0.00%	100%
Road 8	8	-	50	45	N	0400-0500	21	14.29%	0.00%	0.00%	4.76%	4.76%	4.76%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	38.10%	0.00%	100%
Road 8	8	-	50	45	N	0500-0600	34	14.71%	0.00%	0.00%	5.88%	5.88%	5.88%	35.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.94%	29.41%	0.00%	100%
Road 8	8	-	50	39.93333	N	0600-0700	62	11.29%	1.61%	1.61%	8.06%	6.45%	6.45%	33.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.61%	29.03%	0.00%	100%
Road 8	8	-	50	38.6	N	0700-0800	102	13.73%	0.98%	0.98%	7.84%	6.86%	4.90%	22.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.94%	39.22%	0.00%	100%
Road 8	8	-	50	35.6	N	0800-0900	192	8.85%	0.52%	2.60%	11.98%	7.29%	4.69%	26.04%	1.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.98%	0.00%	100%
Road 8	8	-	50	36.73333	N	0900-1000	158	7.59%	0.00%	3.16%	6.96%	7.59%	9.49%	27.85%	0.00%	0.00%	0.00%	0.63%	0.00%	1.27%	0.00%	0.00%	0.00%	35.44%	0.00%	100%
Road 8	8	-	50	36.66667	N	1000-1100	160	8.75%	0.00%	1.25%	10.00%	5.63%	5.63%	36.25%	1.25%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	0.00%	1.25%	28.75%	0.00%	100%
Road 8	8	-	50	36.7	N	1100-1200	159	11.32%	0.00%	2.52%	4.40%	3.14%	5.66%	34.59%	0.00%	0.00%	0.00%	0.00%	0.63%	0.00%	0.00%	0.00%	0.63%	37.11%	0.00%	100%
Road 8	8	-	50	36.33333	N	1200-1300	170	10.59%	1.18%	1.18%	6.47%	4.12%	5.29%	32.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.59%	0.00%	0.00%	0.59%	37.65%	0.00%	100%
Road 8	8	-	50	36.6	N	1300-1400	162	12.35%	0.62%	1.23%	9.88%	6.79%	6.17%	29.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.62%	0.00%	0.00%	1.23%	31.48%	0.00%	100%
Road 8	8	-	50	37.36667	N	1400-1500	139	15.11%	0.72%	2.16%	7.19%	5.04%	2.88%	27.34%	0.00%	0.00%	0.00%	0.00%	0.00%	1.44%	0.00%	0.00%	0.72%	37.41%	0.00%	100%
Road 8	8	-	50	37.36667	N	1500-1600	139	13.67%	1.44%	1.44%	5.04%	4.32%	5.04%	32.37%	0.72%	0.00%	0.00%	0.00%	0.00%	0.72%	0.00%	0.00%	1.44%	33.81%	0.00%	100%
Road 8	8	-	50	37.03333	N	1600-1700	149	10.74%	0.00%	1.34%	8.72%	7.38%	4.70%	34.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.68%	30.20%	0.00%	100%
Road 8	8	-	50	36.8	N	1700-1800	156	21.79%	0.64%	0.64%	7.69%	3.85%	3.21%	24.36%	0.00%	0.00%	0.00%	0.00%	0.00%	1.28%	0.00%	0.00%	7.05%	29.49%	0.00%	100%
Road 8	8	-	50	38.43333	N	1800-1900	107	21.50%	1.87%	0.93%	9.35%	2.80%	1.87%	18.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.80%	40.19%	0.00%	100%
Road 8	8	-	50	45	N	1900-2000	77	14.29%	1.30%	0.00%	7.79%	2.60%	1.30%	32.47%	0.00%	0.00%	0.00%	0.00%	0.00%	1.30%	0.00%	0.00%	0.00%	38.96%	0.00%	100%
Road 8	8	-	50	45	N	2000-2100	77	10.39%	2.60%	0.00%	1.30%	5.19%	7.79%	23.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.90%	45.45%	0.00%	100%
Road 8	8	-	50	45	N	2100-2200	54	12.96%	9.26%	0.00%	5.56%	5.56%	1.85%	27.78%	0.00%	0.00%	0.00%	0.00%	0.00%	3.70%	0.00%	0.00%	1.85%	31.48%	0.00%	100%
Road 8	8	-	50	39.86667	N	2200-2300	64	14.06%	3.13%	1.56%	4.69%	3.13%	4.69%	29.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.13%	35.94%	0.00%	100%
Road 8	8	-	50	40.58333	N	2300-0000	53	26.42%	1.89%	1.89%	9.43%	3.77%	1.89%	16.98%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.89%	35.85%	0.00%	100%
Road 9	9	-	50	35	Y	0000-0100	14	28.57%	7.14%	0.00%	21.43%	7.14%	7.14%	21.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.14%	0.00%	100%
Road 9	9	-	50	35	Y	0100-0200	11	27.27%	9.09%	0.00%	18.18%	9.09%	9.09%	18.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.09%	0.00%	100%
Road 9	9	-	50	35	Y	0200-0300	5	40.00%	20.00%	0.00%	20.00%	0.00%	0.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
Road 9	9	-	50	35	Y	0300-0400	4	50.00%	0.00%	0.00%	25.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
Road 9	9	-	50	35	Y	0400-0500	10	30.00%	10.00%	0.00%	10.00%	10.00%	10.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	100%
Road 9	9	-	50	35	Y	0500-0600	17	35.29%	11.76%	0.00%	11.76%	5.88%	5.88%	17.65%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.88%	5.88%	0.00%	100%
Road 9	9	-	50	35	Y	0600-0700	32	25.00%	9.38%	0.00%	15.63%	6.25%	6.25%	18.75%	9.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.13%	6.25%	0.00%	100%
Road 9	9	-	50	32.95833	Y	0700-0800	49	30.61%	8.16%	2.04%	16.33%	6.12%	4.08%	12.24%	10.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.12%	4.08%	0.00%	100%
Road 9	9	-	50	30.20833	Y	0800-0900	115	16.52%	7.83%	3.48%	18.26%	9.57%	3.48%	28.70%	4.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.74%	6.09%	0.00%	100%
Road 9	9	-	50	31.375	Y	0900-1000	87	25.29%	5.75%	4.60%	10.34%	8.05%	6.90%	18.39%	6.90%	0.00%	0.00%	1.15%	1.15%	0.00%	0.00%	0.00%	1.15%	10.34%	0.00%	100%
Road 9	9	-	50	31.95833	Y	1000-1100	73	21.92%	5.48%	1.37%	13.70%	4.11%	12.33%	23.29%	4.11%	0.00%	0.00%	0.00%	1.37%	0.00%	0.00%	0.00%	0.00%	12.33%	0.00%	100%
Road 9	9	-	50	31.83333	Y	1100-1200	76	27.63%	2.63%	1.32%	19.74%	0.00%	9.21%	22.37%	5.26%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.95%	7.89%	0.00%	100%
Road 9	9	-	50	31.91667	Y	1200-1300	74	14.86%	9.46%	1.35%	18.92%	10.81%	9.46%	25.68%	2.70%	0.00%	0.00%	0.00%	0.00%	1.35%	0.00%	0.00%	1.35%	4.05%	0.00%	100%
Road 9	9	-	50	32.45833	Y	1300-1400	61	11.48%	0.00%	3.28%	22.95%	16.39%	16.39%	14.75%	4.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.84%	0.00%	100%
Road 9	9	-	50	32.16667	Y	1400-1500	68	27.94%	8.82%	1.47%	17.65%	11.76%	0.00%	17.65%	5.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.47%	7.35%	0.00%	100%
Road 9	9	-	50	35	Y	1500-1600	57	38.60%	5.26%	0.00%	10.53%	5.26%	3.51%	19.30%	8.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.75%	7.02%	0.00%	100%
Road 9	9	-	50	35	Y	1600-1700	80	28.75%	3.75%	0.00%	28.75%	6.25%	1.25%	18.75%	5.00%	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	0.00%	1.25%	5.00%	0.00%	100%
Road 9	9	-	50	35	Y	1700-1800	69	40.58%	1.45%	0.00%	20.29%	4.35%	2.90%	7.25%	8.70%	0.00%	0.00%	0.00%	0.00%	1.45%	0.00%	0.00%	5.80%	7.25%	0.00%	100%
Road 9	9	-	50	35	Y	1800-1900	44	40.91%	11.36%	0.00%	15.91%	4.55%	4.55%	9.09%	4.55%	0.00%	0.00%	0.00%	0.00%	2.27%	0.00%	0.00%	4.55%	2.27%	0.00%	100%
Road 9	9	-	50	35	Y	1900-2000	43	25.58%	18.60%	0.00%	18.60%	4.65%	2.33%	13.95%	0.00%	0.00%	0.00%	0.00%	2.33%	0.00%	0.00%	0.00%	11.63%	2.33%	0.00%	100%
Road 9	9	-	50	35	Y	2000-2100	29	34.48%	20.69%	0.00%	3.45%	6.90%	13.79%	6.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.90%	6.90%	0.00%	100%
Road 9	9	-	50	35	Y	2100-2200	28	57.14%	14.29%	0.00%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
Road 9	9	-	50	35	Y	2200-2300	33	33.33%	15.15%	0.00%	12.12%	6.06%	6.06%	18.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.03%	6.06%	0.00%	100%
Road 9	9	-	50	35	Y	2300-0000	30	40.00%	13.33%	0.00%	16.67%	6.67%	3.33%	13.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.33%	3.33%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2028)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 10	10	-	50	35	Y	0000-0100	45	13.33%	4.44%	0.00%	6.67%	2.22%	2.22%	24.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.22%	44.44%	0.00%	100%
Road 10	10	-	50	35	Y	0100-0200	34	14.71%	2.94%	0.00%	8.82%	2.94%	2.94%	23.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.94%	41.18%	0.00%	100%
Road 10	10	-	50	35	Y	0200-0300	19	15.79%	5.26%	0.00%	5.26%	0.00%	5.26%	31.58%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.84%	0.00%	100%
Road 10	10	-	50	35	Y	0300-0400	12	16.67%	8.33%	0.00%	8.33%	0.00%	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	100%
Road 10	10	-	50	35	Y	0400-0500	23	13.04%	4.35%	0.00%	8.70%	4.35%	4.35%	30.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	34.78%	0.00%	100%
Road 10	10	-	50	35	Y	0500-0600	41	19.51%	4.88%	0.00%	7.32%	4.88%	4.88%	31.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.44%	24.39%	0.00%	100%
Road 10	10	-	50	31.58333	Y	0600-0700	82	13.41%	3.66%	1.22%	7.32%	4.88%	6.10%	31.71%	3.66%	0.00%	0.00%	0.00%	0.00%	1.22%	0.00%	0.00%	2.44%	24.39%	0.00%	100%
Road 10	10	-	50	29.85	Y	0700-0800	129	15.50%	3.88%	0.78%	8.53%	4.65%	4.65%	22.48%	3.88%	0.00%	0.00%	0.00%	0.00%	0.78%	0.00%	0.00%	3.10%	31.78%	0.00%	100%
Road 10	10	-	50	27.86667	Y	0800-0900	248	11.29%	3.23%	2.42%	9.68%	2.02%	4.44%	31.45%	2.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.81%	31.85%	0.00%	100%
Road 10	10	-	50	28.7	Y	0900-1000	198	8.59%	3.03%	2.53%	8.59%	4.55%	5.56%	28.79%	3.03%	0.00%	0.00%	0.00%	0.51%	1.01%	0.00%	0.00%	1.01%	32.83%	0.00%	100%
Road 10	10	-	50	28.41667	Y	1000-1100	215	11.63%	1.86%	1.40%	8.37%	5.58%	7.44%	33.49%	2.33%	0.00%	0.00%	0.00%	0.47%	0.00%	0.00%	0.00%	0.93%	26.51%	0.00%	100%
Road 10	10	-	50	28.41667	Y	1100-1200	215	12.56%	0.93%	1.40%	8.84%	2.33%	6.51%	34.42%	1.86%	0.00%	0.00%	0.00%	0.47%	0.00%	0.00%	0.00%	0.93%	29.77%	0.00%	100%
Road 10	10	-	50	28.3	Y	1200-1300	222	10.81%	3.15%	0.90%	8.56%	4.95%	5.86%	33.78%	0.90%	0.00%	0.00%	0.00%	0.00%	0.90%	0.00%	0.00%	0.90%	29.28%	0.00%	100%
Road 10	10	-	50	28.8	Y	1300-1400	192	10.42%	0.52%	1.04%	11.46%	6.77%	6.77%	29.69%	1.56%	0.00%	0.00%	0.00%	0.00%	0.52%	0.00%	0.00%	1.04%	30.21%	0.00%	100%
Road 10	10	-	50	28.98333	Y	1400-1500	181	12.71%	3.87%	1.10%	11.60%	6.08%	2.21%	27.62%	2.21%	0.00%	0.00%	0.00%	0.00%	1.10%	0.00%	0.00%	1.10%	30.39%	0.00%	100%
Road 10	10	-	50	28.91667	Y	1500-1600	185	15.14%	2.70%	1.08%	8.65%	3.78%	5.41%	31.35%	1.62%	0.00%	0.00%	0.00%	0.00%	0.54%	0.00%	0.00%	0.54%	29.19%	0.00%	100%
Road 10	10	-	50	28.56667	Y	1600-1700	206	14.08%	0.97%	0.97%	15.05%	6.31%	2.91%	32.52%	1.94%	0.00%	0.00%	0.00%	0.00%	0.49%	0.00%	0.00%	1.46%	23.30%	0.00%	100%
Road 10	10	-	50	28.75	Y	1700-1800	195	23.59%	1.03%	0.51%	11.79%	3.59%	3.59%	23.08%	2.56%	0.00%	0.00%	0.00%	0.00%	1.54%	0.00%	0.00%	2.56%	26.15%	0.00%	100%
Road 10	10	-	50	29.98333	Y	1800-1900	121	19.83%	2.48%	0.83%	9.09%	4.13%	3.31%	19.01%	1.65%	0.00%	0.00%	0.00%	0.00%	0.83%	0.00%	0.00%	2.48%	36.36%	0.00%	100%
Road 10	10	-	50	35	Y	1900-2000	109	16.51%	9.17%	0.00%	5.50%	1.83%	1.83%	28.44%	0.92%	0.00%	0.00%	0.00%	0.92%	0.92%	0.00%	0.00%	4.59%	29.36%	0.00%	100%
Road 10	10	-	50	35	Y	2000-2100	72	11.11%	5.56%	0.00%	0.00%	2.78%	5.56%	27.78%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%	45.83%	0.00%	100%
Road 10	10	-	50	35	Y	2100-2200	74	21.62%	10.81%	0.00%	10.81%	4.05%	1.35%	24.32%	0.00%	0.00%	0.00%	0.00%	0.00%	2.70%	0.00%	0.00%	1.35%	22.97%	0.00%	100%
Road 10	10	-	50	35	Y	2200-2300	77	20.78%	6.49%	0.00%	6.49%	2.60%	5.19%	20.78%	0.00%	0.00%	0.00%	0.00%	0.00%	1.30%	0.00%	0.00%	1.30%	35.06%	0.00%	100%
Road 10	10	-	50	32	Y	2300-0000	72	23.61%	5.56%	1.39%	9.72%	2.78%	2.78%	22.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%	30.56%	0.00%	100%
Road 11	11	-	50	35	Y	0000-0100	44	9.09%	2.27%	0.00%	6.82%	2.27%	2.27%	6.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	70.45%	0.00%	100%
Road 11	11	-	50	35	Y	0100-0200	31	9.68%	3.23%	0.00%	6.45%	3.23%	3.23%	6.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	67.74%	0.00%	100%
Road 11	11	-	50	35	Y	0200-0300	15	13.33%	6.67%	0.00%	6.67%	0.00%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	66.67%	0.00%	100%
Road 11	11	-	50	35	Y	0300-0400	14	14.29%	0.00%	0.00%	7.14%	0.00%	0.00%	7.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	71.43%	0.00%	100%
Road 11	11	-	50	35	Y	0400-0500	20	15.00%	5.00%	0.00%	5.00%	5.00%	5.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	55.00%	0.00%	100%
Road 11	11	-	50	35	Y	0500-0600	27	22.22%	7.41%	0.00%	7.41%	3.70%	3.70%	11.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.70%	40.74%	0.00%	100%
Road 11	11	-	50	35	Y	0600-0700	52	15.38%	5.77%	0.00%	9.62%	3.85%	3.85%	11.54%	5.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.92%	42.31%	0.00%	100%
Road 11	11	-	50	30.45833	Y	0700-0800	109	13.76%	3.67%	0.92%	7.34%	2.75%	1.83%	5.50%	4.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.75%	56.88%	0.00%	100%
Road 11	11	-	50	28.58333	Y	0800-0900	205	11.22%	4.39%	1.95%	10.24%	5.37%	1.95%	16.10%	2.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.98%	45.37%	0.00%	100%
Road 11	11	-	50	29.55	Y	0900-1000	147	14.97%	3.40%	2.72%	6.12%	4.76%	4.08%	10.88%	4.08%	0.00%	0.00%	0.68%	0.68%	0.00%	0.00%	0.00%	0.68%	46.94%	0.00%	100%
Road 11	11	-	50	29.98333	Y	1000-1100	121	13.22%	3.31%	0.83%	8.26%	2.48%	7.44%	14.05%	2.48%	0.00%	0.00%	0.00%	0.83%	0.00%	0.00%	0.00%	0.00%	47.11%	0.00%	100%
Road 11	11	-	50	29.73333	Y	1100-1200	136	15.44%	1.47%	0.74%	11.03%	0.00%	5.15%	12.50%	2.94%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.21%	48.53%	0.00%	100%
Road 11	11	-	50	29.26667	Y	1200-1300	164	9.15%	4.27%	0.61%	8.54%	4.88%	4.27%	11.59%	1.22%	0.00%	0.00%	0.00%	0.00%	0.61%	0.00%	0.00%	0.61%	54.27%	0.00%	100%
Road 11	11	-	50	29.98333	Y	1300-1400	121	5.79%	0.00%	1.65%	11.57%	8.26%	8.26%	7.44%	2.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	54.55%	0.00%	100%
Road 11	11	-	50	30.16667	Y	1400-1500	116	16.38%	5.17%	0.86%	10.34%	6.90%	0.00%	10.34%	3.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.86%	45.69%	0.00%	100%
Road 11	11	-	50	35	Y	1500-1600	117	18.80%	2.56%	0.00%	5.13%	2.56%	1.71%	9.40%	4.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.85%	54.70%	0.00%	100%
Road 11	11	-	50	35	Y	1600-1700	140	16.43%	2.14%	0.00%	16.43%	3.57%	0.71%	10.71%	2.86%	0.00%	0.00%	0.00%	0.00%	0.71%	0.00%	0.00%	0.71%	45.71%	0.00%	100%
Road 11	11	-	50	35	Y	1700-1800	143	20.98%	0.70%	0.00%	9.79%	2.10%	1.40%	3.50%	4.20%	0.00%	0.00%	0.00%	0.00%	0.70%	0.00%	0.00%	2.80%	53.85%	0.00%	100%
Road 11	11	-	50	35	Y	1800-1900	118	16.95%	4.24%	0.00%	5.93%	1.69%	1.69%	3.39%	1.69%	0.00%	0.00%	0.00%	0.00%	0.85%	0.00%	0.00%	1.69%	61.86%	0.00%	100%
Road 11	11	-	50	35	Y	1900-2000	91	12.09%	8.79%	0.00%	8.79%	2.20%	1.10%	6.59%	0.00%	0.00%	0.00%	0.00%	1.10%	0.00%	0.00%	0.00%	5.49%	53.85%	0.00%	100%
Road 11	11	-	50	35	Y	2000-2100	81	17.28%	7.41%	0.00%	1.23%	2.47%	4.94%	2.47%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.47%	61.73%	0.00%	100%
Road 11	11	-	50	35	Y	2100-2200	58	27.59%	6.90%	0.00%	13.79%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	51.72%	0.00%	100%
Road 11	11	-	50	35	Y	2200-2300	63	17.46%	7.94%	0.00%	6.35%	3.17%	3.17%	9.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.59%	50.79%	0.00%	100%
Road 11	11	-	50	35	Y	2300-0000	60	20.00%	6.67%	0.00%	8.33%	3.33%	1.67%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.67%	51.67%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0000-0100	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0100-0200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0200-0300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0300-0400	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0400-0500	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0500-0600	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0600-0700	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0700-0800	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0800-0900	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0900-1000	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1000-1100	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1100-1200	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1200-1300	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1300-1400	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1400-1500	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1500-1600	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1600-1700	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1700-1800	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1800-1900	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1900-2000	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	2000-2100	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	2100-2200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	2200-2300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	2300-0000	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2028)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Haul Road 2	HR2	-	8	8	N	0000-0100	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0100-0200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0200-0300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0300-0400	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0400-0500	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0500-0600	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0600-0700	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0700-0800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0800-0900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0900-1000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1000-1100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1100-1200	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1200-1300	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1300-1400	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1400-1500	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1500-1600	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1600-1700	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1700-1800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1800-1900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1900-2000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	2000-2100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	2100-2200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	2200-2300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	2300-0000	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0000-0100	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0100-0200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0200-0300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0300-0400	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0400-0500	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0500-0600	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0600-0700	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0700-0800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0800-0900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0900-1000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1000-1100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1100-1200	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1200-1300	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1300-1400	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1400-1500	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1500-1600	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1600-1700	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1700-1800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1800-1900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1900-2000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	2000-2100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	2100-2200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	2200-2300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	2300-0000	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons

Traffic Data and Road Segments (Year 2028)

Road ID	Segment ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Road height (mAG)	Physical Road width (m)	Road elevation (m)	Barrier 1 width (m)	Barrier 1 height (m)	Barrier 1 DCL (m)	Barrier 2 width (m)	Barrier 2 height (m)	Barrier 2 DCL (m)
1	101	828242.3	824610.5	828289.6	824616.5	0	8.8							
1	102	828289.6	824616.5	828345.2	824613.2	0	8.8							
1	103	828345.2	824613.2	828393.7	824604.3	0	8.8							
2	201	828243.6	824599.7	828289.2	824602.8	0	6							
2	202	828289.2	824602.8	828319.6	824603.4	0	6							
2	203	828319.6	824603.4	828361.2	824598.3	0	6							
2	204	828361.2	824598.3	828391.9	824591.4	0	6							
3	301	827622.1	824564.9	827684.2	824567.6	0	14.5							
3	302	827684.2	824567.6	827744.3	824569.4	0	9.5							
3	303	827744.3	824569.4	827964.2	824571.3	15	8.8	20						
3	304	827964.2	824571.3	828081.5	824573.3	0	10.7							
3	305	828081.5	824573.3	828242.6	824603.5	0	14.6							
4	401	827377.9	824531.6	827454.6	824530.9	0	6							
4	402	827454.6	824530.9	827480.4	824531.6	0	6							
4	403	827480.4	824531.6	827514.3	824536.6	0	6							
4	404	827514.3	824536.6	827566.9	824551.5	0	6							
4	405	827566.9	824551.5	827622.4	824561.6	0	6							
5	501	827368.6	824570.9	827455.4	824571.3	12	8.8	25						
5	502	827455.4	824571.3	827555.4	824571.4	25	8.8	20						
5	503	827555.4	824571.4	827622.4	824570.1	10	8.8	25						
6	601	827366.9	824580.9	827460.9	824580.1	10	8.8	25						
6	602	827460.9	824580.1	827610.6	824580.7	30	8.8	22						
6	603	827610.6	824580.7	827733.2	824581.3	0	8.8							
6	604	827733.2	824581.3	828037.8	824582.2	15	8.8	20						
7	701	828037.6	824586.5	828080.8	824587.4	0	17.7							
7	702	828080.8	824587.4	828201.9	824614.1	0	14.9		1	5	7.5			
7	703	828201.9	824614.1	828267.3	824626.1	0	14.9		1	5	7.5			
7	704	828267.3	824626.1	828346.3	824627.8	0	15.5		1	5	7.75			
7	705	828346.3	824627.8	828395.2	824618.9	0	17.7		1	5	8.85			
8	801	827738.6	824652.6	827741.8	824624.8	0	7.75							
8	802	827741.8	824624.8	827761.8	824604.4	0	7.75							
8	803	827761.8	824604.4	827791.9	824599.8	0	7.75							
8	804	827791.9	824599.8	827913.9	824595.7	0	7.75							
8	805	827913.9	824595.7	828037.8	824592.1	0	7.75							
9	901	827882.4	824651.4	827956.1	824648.4	0	10.5							
9	902	827956.1	824648.4	827974.8	824648.9	0	12.4							
9	903	827974.8	824648.9	828037.8	824627.1	0	8							
9	904	828037.8	824627.1	828058.9	824623.6	0	7.9							
9	905	828058.9	824623.6	828088	824624.9	0	7.9							
9	906	828088	824624.9	828155.8	824654.4	0	7.9							
9	907	828155.8	824654.4	828269.5	824708.4	0	10.15							
9	908	828269.5	824708.4	828357.8	824774.9	0	5.5							
9	909	828357.8	824774.9	828400.6	824792.5	0	10.5							
10	1001	827359.4	824666.1	827665.9	824660.6	0	10.2							
10	1002	827665.9	824660.6	827700.1	824659.6	0	10.5							
10	1003	827700.1	824659.6	827738.6	824652.6	0	10.5							
11	1101	827738.6	824652.6	827818.3	824648.1	0	10							
11	1102	827818.3	824648.1	827882.4	824651.4	0	10							
HR1	HR1	827867.4	824736.8	827898.8	824735.9	0	7.3							
HR2	HR2	827878.3	824733.2	827876.4	824656.6	0	3.65							
HR3	HR3	827882	824733.1	827880.4	824656.6	0	3.65							

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 1	1	0000-0100	0.101331508	3.40434E-07	0.001010861	0.604914749	2.03228E-06	0.0060345	0.706246257	2.37271E-06	0.007045362	0.029061453	9.76351E-08	0.000289911	0.031578268	1.06091E-07	0.000315018
Road 1	1	0100-0200	0.078726147	1.61058E-07	0.000478233	0.479193211	9.80331E-07	0.002910927	0.557919358	1.14139E-06	0.00338916	0.023159725	4.73801E-08	0.000140687	0.025161835	5.1476E-08	0.000152849
Road 1	1	0200-0300	0.076392987	1.10403E-07	0.000327822	0.496621039	7.17714E-07	0.00213113	0.573014026	8.28117E-07	0.002458952	0.022881039	3.30676E-08	9.81885E-05	0.024866104	3.59364E-08	0.000106707
Road 1	1	0300-0400	0.064440545	6.65208E-08	0.000197522	0.402483636	4.15477E-07	0.001233687	0.466924182	4.81998E-07	0.001431209	0.018418909	1.90135E-08	5.64574E-05	0.020009636	2.06556E-08	6.13333E-05
Road 1	1	0400-0500	0.083398953	1.34615E-07	0.000399718	0.484238721	7.81617E-07	0.002320877	0.567637674	9.16232E-07	0.002720594	0.022962674	3.70644E-08	0.000110056	0.024948372	4.02695E-08	0.000119573
Road 1	1	0500-0600	0.068870266	2.43011E-07	0.000721579	0.414597713	1.46292E-06	0.00434389	0.483467979	1.70593E-06	0.005065469	0.019296011	6.80865E-08	0.000202171	0.020965798	7.39784E-08	0.000219666
Road 1	1	0600-0700	0.092274392	5.83642E-07	0.001733026	0.497897181	3.14924E-06	0.009351121	0.590171573	3.73288E-06	0.011084148	0.023371128	1.47824E-07	0.000438939	0.025431068	1.60853E-07	0.000477627
Road 1	1	0700-0800	0.077299466	8.15358E-07	0.002421068	0.433546655	4.57307E-06	0.013578952	0.510846121	5.38843E-06	0.01600002	0.019362616	2.04238E-07	0.000606449	0.021047758	2.22013E-07	0.000659229
Road 1	1	0800-0900	0.08288598	1.07963E-06	0.003205787	0.449685764	5.85739E-06	0.017392528	0.532571744	6.93703E-06	0.020598315	0.021000821	2.73547E-07	0.00081225	0.022812939	2.97151E-07	0.000882338
Road 1	1	0900-1000	0.087897997	1.17791E-06	0.003497609	0.491172871	6.58216E-06	0.019544596	0.579070868	7.76007E-06	0.023042205	0.022414048	3.00368E-07	0.000891893	0.024364874	3.26511E-07	0.000969519
Road 1	1	1000-1100	0.101848187	1.32854E-06	0.003944866	0.548463597	7.15432E-06	0.021243532	0.650311784	8.48286E-06	0.025188398	0.026393381	3.44283E-07	0.00102229	0.028678158	3.74086E-07	0.001110785
Road 1	1	1100-1200	0.091999228	1.1638E-06	0.003455717	0.531163027	6.71929E-06	0.019951789	0.623162255	7.8831E-06	0.023407506	0.025052047	3.16912E-07	0.000941016	0.027219807	3.44335E-07	0.001022443
Road 1	1	1200-1300	0.095157076	1.19125E-06	0.003537212	0.541955517	6.78462E-06	0.020145757	0.637112594	7.97587E-06	0.023682968	0.025994558	3.2542E-07	0.000966279	0.028243733	3.53577E-07	0.001049886
Road 1	1	1300-1400	0.099402341	1.32275E-06	0.003927688	0.554626135	7.38044E-06	0.02191496	0.654028477	8.70319E-06	0.025842648	0.026341382	3.50526E-07	0.001040828	0.028635867	3.81059E-07	0.00113149
Road 1	1	1400-1500	0.094287945	1.36088E-06	0.004040886	0.514735176	7.42927E-06	0.022059939	0.609023121	8.79014E-06	0.026100825	0.024361001	3.51607E-07	0.001044036	0.026485488	3.8227E-07	0.001135085
Road 1	1	1500-1600	0.101530251	1.36441E-06	0.004051376	0.55229486	7.42198E-06	0.022038302	0.653825112	8.78639E-06	0.026089679	0.025715307	3.45574E-07	0.001026122	0.027956578	3.75693E-07	0.001115555
Road 1	1	1600-1700	0.097171417	1.37696E-06	0.004088647	0.53625947	7.59902E-06	0.022563997	0.633430887	8.97598E-06	0.026652644	0.025039272	3.54817E-07	0.001053568	0.027222464	3.85754E-07	0.00114543
Road 1	1	1700-1800	0.077476478	1.10224E-06	0.003272903	0.438163325	6.23363E-06	0.018509698	0.515639802	7.33587E-06	0.021782602	0.020100778	2.85968E-07	0.000849134	0.021854222	3.10914E-07	0.000923206
Road 1	1	1800-1900	0.069086512	1.00362E-06	0.002980083	0.418953127	6.08614E-06	0.018071762	0.488039638	7.08977E-06	0.021051845	0.018688953	2.71495E-07	0.000806158	0.020320517	2.95197E-07	0.000876536
Road 1	1	1900-2000	0.083350624	9.27682E-07	0.002754594	0.483580034	5.38219E-06	0.015981486	0.566930658	6.30987E-06	0.018736081	0.022596054	2.51491E-07	0.000746761	0.024556981	2.73316E-07	0.000811566
Road 1	1	2000-2100	0.075660338	7.14286E-07	0.00212095	0.452489125	4.27181E-06	0.012684409	0.528149463	4.9861E-06	0.014805359	0.021362803	2.0168E-07	0.000598853	0.023212704	2.19144E-07	0.000650711
Road 1	1	2100-2200	0.079596841	6.85716E-07	0.002036117	0.480805251	4.14207E-06	0.012299175	0.560402092	4.82779E-06	0.014335292	0.023158867	1.99511E-07	0.000592412	0.025194139	2.17044E-07	0.000644475
Road 1	1	2200-2300	0.077524736	6.32944E-07	0.001879419	0.468442161	3.82456E-06	0.011356365	0.545966897	4.4575E-06	0.013235784	0.021963908	1.79322E-07	0.000532467	0.023893609	1.95077E-07	0.000579249
Road 1	1	2300-0000	0.067946154	4.97354E-07	0.001476807	0.424642692	3.10831E-06	0.009229589	0.492588846	3.60566E-06	0.010706396	0.018573718	1.35956E-07	0.000403699	0.020208974	1.47926E-07	0.000439241
Road 2	2	0000-0100	0.167772115	2.01948E-07	0.000476018	0.714830192	8.60444E-07	0.002028182	0.882602308	1.06239E-06	0.0025042	0.02753	3.3138E-08	7.81106E-05	0.029925192	3.60211E-08	8.49065E-05
Road 2	2	0100-0200	0.118771765	9.34778E-08	0.00022034	0.59121	4.65304E-07	0.001096784	0.709981765	5.58782E-07	0.001317124	0.024328235	1.91472E-08	4.51326E-05	0.026453235	2.08197E-08	4.90748E-05
Road 2	2	0200-0300	0.123898261	6.59644E-08	0.000155487	0.683987826	3.6416E-07	0.000858374	0.807886087	4.30125E-07	0.001013861	0.027973478	1.48933E-08	3.51055E-05	0.030403043	1.61868E-08	3.81545E-05
Road 2	2	0300-0400	0.107362	3.72785E-08	8.78704E-05	0.396989333	1.37844E-07	0.000324916	0.504351333	1.75122E-07	0.000412786	0.014837333	5.15185E-09	1.21436E-05	0.016128	5.6E-09	1.32E-05
Road 2	2	0400-0500	0.145105185	9.06907E-08	0.00021377	0.704312222	4.40195E-07	0.001037599	0.849417407	5.30886E-07	0.001251369	0.029534815	1.84593E-08	4.3511E-05	0.032092222	2.00576E-08	4.72785E-05
Road 2	2	0500-0600	0.115097895	1.51865E-07	0.000357967	0.516823509	6.8192E-07	0.001607377	0.631921404	8.33785E-07	0.001965344	0.019796667	2.61206E-08	6.15698E-05	0.021522281	2.83975E-08	6.69366E-05
Road 2	2	0600-0700	0.161577212	3.88982E-07	0.000916883	0.659473077	1.58762E-06	0.003742235	0.821050288	1.9766E-06	0.004659118	0.025222212	6.07201E-08	0.000143126	0.027416923	6.60037E-08	0.00015558
Road 2	2	0700-0800	0.132126625	4.89358E-07	0.001153482	0.55729775	2.06407E-06	0.00486528	0.689424375	2.55342E-06	0.006018763	0.01990725	7.37306E-08	0.000173793	0.021648125	8.01782E-08	0.000188991
Road 2	2	0800-0900	0.148749375	1.04675E-06	0.002467342	0.6311525	4.44144E-06	0.010469079	0.779901875	5.4882E-06	0.012936421	0.022734079	1.59981E-07	0.000377096	0.024745493	1.74135E-07	0.000410459
Road 2	2	0900-1000	0.173418016	1.01161E-06	0.002384489	0.74237754	4.33054E-06	0.010207654	0.915795556	5.34214E-06	0.012592144	0.026635198	1.55372E-07	0.000366233	0.028972262	1.69005E-07	0.000398367
Road 2	2	1000-1100	0.193055668	8.35681E-07	0.001969812	0.81732984	3.53798E-06	0.008339491	1.010385508	4.37366E-06	0.010309303	0.03064631	1.32659E-07	0.000312695	0.033308984	1.44185E-07	0.000339863
Road 2	2	1100-1200	0.22839459	9.67505E-07	0.002280539	0.934890929	3.9603E-06	0.009334964	1.163285519	4.92781E-06	0.011615503	0.036251639	1.53566E-07	0.000361976	0.039400546	1.66905E-07	0.000393418
Road 2	2	1200-1300	0.176527895	7.76396E-07	0.001830069	0.776653	3.41583E-06	0.008051582	0.953180895	4.19223E-06	0.009881651	0.028837421	1.26831E-07	0.000298958	0.031347158	1.37869E-07	0.000324977
Road 2	2	1300-1400	0.195013677	1.00667E-06	0.002372851	0.80077417	4.13363E-06	0.009743512	0.995787848	5.14029E-06	0.012116363	0.030425426	1.57057E-07	0.000370205	0.03306565	1.70686E-07	0.00040233
Road 2	2	1400-1500	0.167439455	6.39526E-07	0.001507448	0.726255455	2.77389E-06	0.006538437	0.893694909	3.41342E-06	0.008045885	0.027471879	1.04927E-07	0.000247328	0.02985897	1.14045E-07	0.000268819
Road 2	2	1500-1600	0.209629016	8.88012E-07	0.002093163	0.828109617	3.50796E-06	0.008268743	1.037738634	4.39598E-06	0.010361906	0.03210918	1.36018E-07	0.000320613	0.034895191	1.4782E-07	0.000348431
Road 2	2	1600-1700	0.17597819	9.00259E-07	0.002122031	0.74367638	3.80446E-06	0.008967613	0.91965457	4.70471E-06	0.011089644	0.026893077	1.37578E-07	0.00032429	0.029220769	1.49486E-07	0.000352358
Road 2	2	1700-1800	0.135665135	6.97168E-07	0.001643319	0.541628514	2.78337E-06	0.006560774	0.677293649	3.48054E-06	0.008204093	0.019805631	1.01779E-07	0.000239907	0.021516982	1.10573E-07	0.000260636
Road 2	2	1800-1900	0.14959932	8.65737E-07	0.002040658	0.67767364	3.92172E-06	0.009244027	0.82727296	4.78746E-06	0.011284685	0.02604136	1.50702E-07	0.000355226	0.02832264	1.63904E-07	0.000386344
Road 2	2	1900-2000	0.127866391	5.00218E-07	0.001179081	0.585764083	2.29153E-06	0.005401446	0.713630473	2.79175E-06	0.006580527	0.022251006	8.70468E-08	0.000205181	0.024179408	9.45907E-08	0.000222963
Road 2	2	2000-2100	0.12156068	4.13644E-07	0.000975014	0.524665782	1.78532E-06	0.004208242	0.646226463	2.19897E-06	0.005183256	0.019367959	6.59049E-08	0.000155347	0.021051701	7.16343E-08	0.000168852
Road 2	2	2100-2200	0.094595621	3.35026E-07	0.000789702	0.442540588	1.56733E-06	0.00369441	0.537136209	1.90236E-06	0.004484112	0.015661373	5.54674E-08	0.000130744	0.017022092	6.02866E-08	0.000142104
Road 2	2	2200-2300	0.13717136	3.96908E-07	0.000935565	0.59125688	1.71081E-06	0.004032615	0.72842824	2.10772E-06	0.004968181	0.02236192	6.47046E-08	0.000152518	0.02430048	7.03139E-08	0.000165739
Road 2	2	2300-0000	0.122605135	3.15027E-07	0.000742561	0.56238036	1.44501E-06	0.003406071	0.684985495	1.76003E-06	0.004148632	0.020350541	5.22896E-08	0.000123254	0.022114595	5.68222E-08	0.000133938
Road 3	3	0000-0100	0.105944	3.90838E-07	0.005544671	0.589696696	2.17545E-06	0.030862287	0.695640696	2.56629E-06	0.036406958	0.027639609	1.01965E-07	0.001446543	0.030030565	1.10786E-07	0.001571676
Road 3	3	0100-0200	0.079634789	1.81377E-07	0.002573136	0.468523592	1.06712E-06	0.015138798	0.54815838	1.24849E-06	0.017711934	0.022343944	5.08909E-08	0.000721971	0.024275423	5.52901E-08	0.00078438
Road 3	3	0200-0300	0.078477273	1.24615E-07	0.001767871	0.498187879	7.9108E-07	0.011222766	0.576665152	9.15696E-07	0.012990638	0.022849394	3.62829E-08	0.000514732	0.02483202	3.94312E-08	0.000559395
Road 3	3	0300-0400	0.065676	7.3739E-08	0.001046107	0.369914	4.15328E-07	0.005892104	0.43559	4.89067E-07	0.006938211	0.016289	1.82888E-08	0.000259456	0.017692	1.9864E-08	0.000281804
Road 3	3	0400-0500	0.087251681	1.58141E-07	0.002243488	0.488535133	8.85455E-07	0.012561625	0.575786814	1.0436E-06	0.014805113	0.023123451	4.19105E-08	0.00059457	0.025122212	4.55332E-08	0.000645963
Road 3	3	0500-0600	0.070762967	2.79212E-07	0.003961072	0.401203821	1.58304E-06	0.022458034	0.471966789	1.86225E-06	0.026419106	0.018306057	7.22308E-08	0.001024711	0.019887927	7.84724E-08	0.001113259
Road 3	3	0600-0700	0.097958604	6.97618E-07	0.009896853	0.49523723	3.52686E-06	0.0500343	0.593195833	4.22448E-06	0.059931153	0.022843356	1.6268E-07	0.002307887	0.024857027	1.77021E-07	0.00251133
Road 3	3	0700-0800	0.080471032	9.38353E-07	0.013312069	0.429446176	5.00767E-06	0.071041926	0.509917208	5.94602E-06	0.084353994	0.018831884	2.19594E-07	0.003115299	0.020474856	2.38752E-07	0.003387091
Road 3	3	0800-0900	0.08892344	1.42201E-06	0.020173581	0.445269348	7.12049E-06	0.101015852	0.534192788	8.54251E-06	0.121189433	0.019833601	3.17168E-07	0.004499542	0.021551535	3.4464E-07	0.00488928
Road 3	3	0900-1000	0.09595314	1.48518E-06	0.021069687	0.49838085	7.71402E-06	0.109436006	0.59433399	9.1992E-06	0.130505692	0.02199914	3.40506E-07	0.004830639	0.023905534	3.70014E-07	0.005249251
Road 3	3	1000-1100	0.109030205	1.53719E-06	0.02180757	0.553280796	7.80058E-06	0.110663919	0.662311001	9.33777E-06	0.132471489	0.025930557	3.65589E-07	0.005186475	0.02820934	3.97717E-07	0.005642264
Road 3	3	1100-1200	0.107536897	1.47302E-06	0.020897144	0.561667541	7.6936E-06	0.109146238	0.669204438	9.16661E-06	0.130043382	0.025939496	3.55313E-07	0.005040702	0.028219941	3.8655E-07	0.00548385
Road 3	3	1200-1300	0.101379637	1.38868E-06	0.019700633	0.541265211	7.41413E-06	0.105181548	0.642644848	8.80281E-06	0.124882181	0.025189824	3.45045E-07	0.004895021	0.027406206	3.75404E-07	0.00532572
Road 3	3	1300-1400	0.108106224	1.6074E-06	0.022803526	0.554160054	8.23962E-06	0.116892467	0.662266278	9.84701E-06	0.139695993	0.025689752	3.81972E-07	0.005418901	0.02791972	4.15129E-07	0.005889282

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 3	3	1400-1500	0.099236103	1.48665E-06	0.021090562	0.51652349	7.73801E-06	0.109776284	0.615759593	9.22466E-06	0.130866846	0.024070246	3.60595E-07	0.005115628	0.026156221	3.91845E-07	0.005558959
Road 3	3	1500-1600	0.110129587	1.58095E-06	0.022428417	0.558030547	8.01075E-06	0.113645589	0.668160134	9.59171E-06	0.136074005	0.025750536	3.69659E-07	0.00524422	0.028012369	4.02129E-07	0.005704853
Road 3	3	1600-1700	0.104127039	1.63007E-06	0.023125169	0.537188986	8.40948E-06	0.11930221	0.641316025	1.00395E-05	0.142427379	0.024283945	3.80155E-07	0.005393127	0.026388617	4.13103E-07	0.005860545
Road 3	3	1700-1800	0.082797497	1.30015E-06	0.018444695	0.430150306	6.75453E-06	0.095824045	0.512947804	8.05468E-06	0.11426874	0.01916714	3.00976E-07	0.00426984	0.020825781	3.27021E-07	0.004639333
Road 3	3	1800-1900	0.078362639	1.29084E-06	0.018312645	0.43769518	7.20999E-06	0.102285431	0.516057819	8.50082E-06	0.120598076	0.019075433	3.14222E-07	0.004457757	0.020751821	3.41837E-07	0.004849514
Road 3	3	1900-2000	0.083479526	1.01762E-06	0.014436607	0.46584775	5.67871E-06	0.080561801	0.549327276	6.69633E-06	0.094998408	0.021457092	2.61563E-07	0.003710702	0.023327329	2.84362E-07	0.004034133
Road 3	3	2000-2100	0.077909476	8.11012E-07	0.011505528	0.432734407	4.50462E-06	0.063905421	0.510643883	5.31563E-06	0.075410949	0.019943267	2.07603E-07	0.002945185	0.02166641	2.2554E-07	0.003199656
Road 3	3	2100-2200	0.076598618	7.55594E-07	0.01071933	0.439127106	4.33169E-06	0.061452129	0.515725724	5.08729E-06	0.072171459	0.02036865	2.00923E-07	0.002850421	0.022134163	2.18339E-07	0.003097489
Road 3	3	2200-2300	0.082554423	7.45489E-07	0.010575973	0.459738739	4.15156E-06	0.058896714	0.542293162	4.89705E-06	0.069472687	0.02104595	1.90051E-07	0.002696178	0.022868366	2.06507E-07	0.002929646
Road 3	3	2300-0000	0.072037829	5.80038E-07	0.008228789	0.422534163	3.40218E-06	0.048265534	0.494571992	3.98222E-06	0.056494323	0.018316713	1.47484E-07	0.002092295	0.019900817	1.60238E-07	0.002273245
Road 4	4	0000-0100	0.283915143	2.30024E-07	0.000898994	1.403126	1.13679E-06	0.004442885	1.687041143	1.36682E-06	0.005341879	0.065353429	5.29484E-08	0.000206936	0.071049714	5.75634E-08	0.000224973
Road 4	4	0100-0200	0.268011	1.24079E-07	0.000484934	1.3262955	6.14026E-07	0.002399776	1.5943065	7.38105E-07	0.00288471	0.062396	2.8887E-08	0.000112898	0.067833	3.14042E-08	0.000122736
Road 4	4	0200-0300	0.290278462	8.73523E-08	0.000341396	1.388837692	4.17937E-07	0.00163341	1.679116154	5.0529E-07	0.001974806	0.066256923	1.99384E-08	7.79247E-05	0.072022308	2.16734E-08	8.47053E-05
Road 4	4	0300-0400	0.263768571	4.27403E-08	0.00016704	1.354341429	2.19453E-07	0.000857683	1.61811	2.62194E-07	0.001024723	0.064771429	1.04954E-08	4.10187E-05	0.070427143	1.14118E-08	4.46004E-05
Road 4	4	0400-0500	0.270545714	8.76769E-08	0.000342664	1.295015714	4.19681E-07	0.001640225	1.565561429	5.07358E-07	0.00198289	0.06161	1.99662E-08	7.80332E-05	0.066970714	2.17035E-08	8.48229E-05
Road 4	4	0500-0600	0.249702917	1.38724E-07	0.00054217	1.151735833	6.39853E-07	0.002500717	1.40143875	7.78577E-07	0.003042886	0.054404167	3.02245E-08	0.000118126	0.059127917	3.28488E-08	0.000128382
Road 4	4	0600-0700	0.278279434	3.41408E-07	0.001334312	1.289990943	1.58263E-06	0.00618533	1.568270377	1.92404E-06	0.007519642	0.059383208	7.28544E-08	0.000284734	0.064556604	7.92014E-08	0.00030954
Road 4	4	0700-0800	0.278380326	5.92847E-07	0.002317004	1.338858152	2.85127E-06	0.011143529	1.617238478	3.44412E-06	0.013460533	0.060218043	1.28242E-07	0.000501204	0.06547837	1.39445E-07	0.000544987
Road 4	4	0800-0900	0.285260323	1.0235E-06	0.004000124	1.375829935	4.93643E-06	0.019292869	1.661090258	5.95993E-06	0.023292993	0.062363677	2.23759E-07	0.000874508	0.067778452	2.43187E-07	0.000950438
Road 4	4	0900-1000	0.289781959	9.92772E-07	0.003880015	1.326713649	4.54522E-06	0.017763939	1.616495608	5.53799E-06	0.021643955	0.05895	2.01958E-07	0.000789307	0.064073108	2.1951E-07	0.000857902
Road 4	4	1000-1100	0.323084722	1.07695E-06	0.004209003	1.482325	4.94108E-06	0.019311068	1.805409722	6.01803E-06	0.023520071	0.066186458	2.20622E-07	0.000862248	0.071936875	2.3979E-07	0.000937161
Road 4	4	1100-1200	0.300374452	1.07773E-06	0.004212065	1.369479935	4.91364E-06	0.019203825	1.669854387	5.99138E-06	0.02341589	0.061772194	2.21636E-07	0.000866214	0.06713329	2.40872E-07	0.000941391
Road 4	4	1200-1300	0.307891419	1.05481E-06	0.004122491	1.465089392	5.01929E-06	0.019616712	1.772980811	6.0741E-06	0.023739202	0.065637568	2.24869E-07	0.00087885	0.071341824	2.44412E-07	0.000955226
Road 4	4	1300-1400	0.316702133	1.09966E-06	0.004297765	1.472107467	5.11148E-06	0.01997704	1.7888096	6.21114E-06	0.024274805	0.065523933	2.27514E-07	0.000889184	0.071213733	2.4727E-07	0.000966397
Road 4	4	1400-1500	0.287179	9.30673E-07	0.003637316	1.378125286	4.46615E-06	0.01745489	1.665304286	5.39682E-06	0.021092206	0.062004286	2.0094E-07	0.000785326	0.067392	2.184E-07	0.000853565
Road 4	4	1500-1600	0.32230184	9.32586E-07	0.003644796	1.49802144	4.33455E-06	0.016940585	1.82032328	5.26714E-06	0.020585381	0.06813688	1.97155E-07	0.000770535	0.07406856	2.14319E-07	0.000837615
Road 4	4	1600-1700	0.302124032	8.67208E-07	0.003389279	1.418381613	4.07128E-06	0.015911647	1.720505645	4.93849E-06	0.019300926	0.063601452	1.8256E-07	0.000713492	0.069138226	1.98452E-07	0.000775604
Road 4	4	1700-1800	0.290498976	8.54013E-07	0.003337711	1.386684724	4.0766E-06	0.015932423	1.677183701	4.93061E-06	0.019270133	0.062012362	1.82305E-07	0.000712496	0.067415039	1.98188E-07	0.00077457
Road 4	4	1800-1900	0.32093717	7.87485E-07	0.0030777	1.545416415	3.79199E-06	0.014820121	1.866353585	4.57948E-06	0.017897821	0.07162434	1.75745E-07	0.000686858	0.07785783	1.9104E-07	0.000746635
Road 4	4	1900-2000	0.289001216	4.95048E-07	0.001934781	1.39541	2.39029E-06	0.009341872	1.684411216	2.88533E-06	0.011276653	0.064756622	1.10926E-07	0.000433527	0.070419595	1.20626E-07	0.000471439
Road 4	4	2000-2100	0.252343061	2.86222E-07	0.001118633	1.224503878	1.3889E-06	0.00542821	1.476846939	1.67513E-06	0.006546843	0.056802653	6.44289E-08	0.000251805	0.061768776	7.00618E-08	0.00027382
Road 4	4	2100-2200	0.21090973	1.8064E-07	0.00070599	1.046270811	8.96112E-07	0.003502242	1.257180541	1.07675E-06	0.004208233	0.046458649	3.9791E-08	0.000155514	0.050506486	4.32579E-08	0.000169063
Road 4	4	2200-2300	0.284256349	4.14541E-07	0.001620135	1.352735079	1.97274E-06	0.007709987	1.636991429	2.38728E-06	0.009330122	0.062423651	9.10345E-08	0.000355787	0.067882698	9.89956E-08	0.000386901
Road 4	4	2300-0000	0.264182857	2.99652E-07	0.001171119	1.291926327	1.46538E-06	0.005727092	1.556109184	1.76503E-06	0.006898212	0.059772245	6.77972E-08	0.00026497	0.064977959	7.37019E-08	0.000288046
Road 5	5	0000-0100	0.089717979	3.24992E-07	0.001604148	0.507908964	1.83984E-06	0.00908136	0.597626943	2.16483E-06	0.010685509	0.022048446	7.98677E-08	0.000394224	0.023959119	8.67889E-08	0.000428387
Road 5	5	0100-0200	0.060465328	1.38453E-07	0.000683398	0.37637418	8.61818E-07	0.004253901	0.436839508	1.00027E-06	0.004937299	0.016575738	3.7955E-08	0.000187344	0.018009918	4.12389E-08	0.000203554
Road 5	5	0200-0300	0.058036279	9.36772E-08	0.000462387	0.409981047	6.61756E-07	0.003266404	0.468017326	7.55433E-07	0.003728792	0.017064767	2.75445E-08	0.000135959	0.018547674	2.99381E-08	0.000147773
Road 5	5	0300-0400	0.051708571	6.11419E-08	0.000301794	0.29395381	3.47581E-07	0.001715645	0.345662381	4.08722E-07	0.002017439	0.011434127	1.35201E-08	6.67346E-05	0.012420794	1.46867E-08	7.24933E-05
Road 5	5	0400-0500	0.071424141	1.32714E-07	0.00065507	0.414981212	7.7108E-07	0.003806023	0.486405354	9.03794E-07	0.004461093	0.018360101	3.41151E-08	0.000168391	0.019946566	3.70629E-08	0.000182941
Road 5	5	0500-0600	0.057954636	2.39302E-07	0.001181187	0.345353773	1.42601E-06	0.007038735	0.403308409	1.66531E-06	0.008219922	0.014679227	6.06124E-08	0.000299181	0.015945682	6.58418E-08	0.000324993
Road 5	5	0600-0700	0.084906082	6.1831E-07	0.003051956	0.433652088	3.15798E-06	0.015587659	0.51855817	3.77629E-06	0.018639615	0.018808892	1.36972E-07	0.000676087	0.02047482	1.49103E-07	0.000735969
Road 5	5	0700-0800	0.065844376	7.82273E-07	0.00386127	0.356237441	4.23233E-06	0.020890604	0.422081817	5.0146E-06	0.024751873	0.014195766	1.68655E-07	0.000832473	0.015430142	1.8332E-07	0.00090486
Road 5	5	0800-0900	0.070389348	1.11371E-06	0.005497209	0.350433345	5.54458E-06	0.027367853	0.420822693	6.65829E-06	0.032865061	0.014042337	2.22179E-07	0.001096667	0.015289146	2.41906E-07	0.001194039
Road 5	5	0900-1000	0.077422868	1.18576E-06	0.005852847	0.416673309	6.38148E-06	0.031498768	0.494096176	7.56724E-06	0.037351614	0.017117426	2.62159E-07	0.001294006	0.018623027	2.85218E-07	0.001407823
Road 5	5	1000-1100	0.088338052	1.21697E-06	0.006006917	0.461164169	6.35313E-06	0.031358793	0.549502221	7.57009E-06	0.03736571	0.020298283	2.79635E-07	0.001380267	0.022065995	3.03987E-07	0.00150047
Road 5	5	1100-1200	0.087190172	1.14388E-06	0.00564615	0.476172346	6.24708E-06	0.030835363	0.563362518	7.39096E-06	0.036481514	0.020369256	2.67232E-07	0.001319046	0.022143104	2.90504E-07	0.001433915
Road 5	5	1200-1300	0.081043607	1.07541E-06	0.005308183	0.445634809	5.91336E-06	0.029188128	0.526678416	6.98877E-06	0.034496311	0.019191061	2.54656E-07	0.001256973	0.020861301	2.76819E-07	0.001366371
Road 5	5	1300-1400	0.088847825	1.2957E-06	0.006395515	0.466348494	6.80092E-06	0.033569071	0.555196319	8.09661E-06	0.039964586	0.020244389	2.95231E-07	0.001457248	0.022009897	3.20978E-07	0.001584334
Road 5	5	1400-1500	0.083405894	1.24295E-06	0.006135147	0.439541121	6.55022E-06	0.03233164	0.522947015	7.79317E-06	0.038466787	0.01922267	2.86464E-07	0.001413976	0.020898161	3.11433E-07	0.001537221
Road 5	5	1500-1600	0.093109117	1.34561E-06	0.006641874	0.478442571	6.91443E-06	0.034129369	0.571551688	8.26004E-06	0.040771244	0.020631688	2.98168E-07	0.001471747	0.022433455	3.24207E-07	0.001600275
Road 5	5	1600-1700	0.088663705	1.41948E-06	0.007006524	0.46570789	7.45587E-06	0.036801909	0.554371594	8.87536E-06	0.043808433	0.020049308	3.20985E-07	0.001584368	0.021812802	3.49218E-07	0.001723726
Road 5	5	1700-1800	0.065498425	1.04616E-06	0.005163785	0.345867603	5.52427E-06	0.027267616	0.411366028	6.57043E-06	0.032431401	0.014233866	2.27346E-07	0.001122174	0.015501598	2.47595E-07	0.00122212
Road 5	5	1800-1900	0.061306627	1.05745E-06	0.005219521	0.355615919	6.13384E-06	0.030276414	0.416922546	7.19129E-06	0.035495935	0.014269053	2.4612E-07	0.001214838	0.0155037	2.67416E-07	0.001319953
Road 5	5	1900-2000	0.0711157	9.15641E-07	0.004519572	0.407215612	5.24305E-06	0.025879523	0.478331312	6.1587E-06	0.030399095	0.01771102	2.28036E-07	0.001125578	0.019244402	2.47779E-07	0.001223028
Road 5	5	2000-2100	0.06896805	7.76667E-07	0.003833601	0.3894741	4.38597E-06	0.021648986	0.45844215	5.16264E-06	0.025482587	0.01728705	1.94674E-07	0.000960904	0.018784467	2.11537E-07	0.001044138
Road 5	5	2100-2200	0.071429758	7.74895E-07	0.003824853	0.414653201	4.4983E-06	0.022203456	0.486082958	5.2732E-06	0.026028309	0.01893526	2.05416E-07	0.001013927	0.020580052	2.2326E-07	0.001102001
Road 5	5	2200-2300	0.069087956	6.47051E-07	0.003193821	0.397029078	3.71842E-06	0.018353994	0.466117034	4.36547E-06	0.021547815	0.01692998	1.5856E-07	0.000782645	0.018395431	1.72285E-07	0.00085039
Road 5	5	2300-0000	0.060544768	5.14767E-07	0.002540871	0.366817196	3.11877E-06	0.015394146	0.427361965	3.63354E-06	0.017935017	0.014645254	1.24518E-07	0.000614615	0.015942605	1.35548E-07	0.00066906
Road 6	6	0000-0100	0.0538884	1.51713E-07	0.001979438	0.356982067	1.00502E-06	0.01311273	0.410870467	1.15673E-06	0.015092168	0.0144748	4.07511E-08	0.000531691	0.015725933	4.42735E-08	0.000577648
Road 6	6	0100-0200	0.071313246	1.52585E-07	0.001990813	0.410162982	8.77601E-07	0.011450297	0.481476228	1.03019E-06	0.01344111	0.01691614	3.61944E-08	0.000472239	0.018382456	3.93318E-08	0.000513173
Road 6	6	0200-0300	0.065112152	9.65439E-08	0.001259635	0.381336456	5.6542E-07	0.007377188	0.446448608	6.61964E-07	0.008636823	0.015256582	2.26214E-08	0.000295148	0.016573797	2.45745E-08	0.00032063
Road 6	6	0300-0400	0.066753871	7.76791E-08	0.0010135	0.435249839	5.06484E-07	0.006608239	0.50200371	5.84163E-07	0.007621739	0.017635323	2.05216E-08	0.000267751	0.01917371	2.23117E-08	0.000291107

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 6	6	0400-0500	0.072254	1.22051E-07	0.001592428	0.433598778	7.3243E-07	0.009556217	0.505852778	8.54481E-07	0.011148645	0.018071333	3.05259E-08	0.00039828	0.019637444	3.31714E-08	0.000432796
Road 6	6	0500-0600	0.064723148	1.96793E-07	0.002567616	0.401009506	1.21929E-06	0.01590835	0.465732654	1.41608E-06	0.018475966	0.016091235	4.89261E-08	0.000638351	0.017485988	5.31669E-08	0.000693682
Road 6	6	0600-0700	0.069400552	3.77743E-07	0.004928518	0.449846	2.44849E-06	0.031946061	0.519246552	2.82623E-06	0.036874579	0.018143034	9.87515E-08	0.001288438	0.019715621	1.07311E-07	0.001400116
Road 6	6	0700-0800	0.064702035	5.61042E-07	0.007320072	0.382443874	3.31624E-06	0.043267832	0.447145909	3.87728E-06	0.050587904	0.014680584	1.27298E-07	0.00166089	0.015987208	1.38628E-07	0.001808715
Road 6	6	0800-0900	0.054826631	6.81217E-07	0.00888802	0.334418157	4.15512E-06	0.054212981	0.389244789	4.83634E-06	0.063101001	0.011901767	1.47879E-07	0.001929412	0.012929985	1.60654E-07	0.002096097
Road 6	6	0900-1000	0.057619384	6.84555E-07	0.008931569	0.334528863	3.97441E-06	0.051855252	0.392148246	4.65897E-06	0.060786822	0.012182291	1.44733E-07	0.001888374	0.013234455	1.57234E-07	0.00205147
Road 6	6	1000-1100	0.077215327	7.75342E-07	0.010116091	0.429421533	4.31195E-06	0.056259135	0.50663686	5.08729E-06	0.066375226	0.017896187	1.79701E-07	0.002344605	0.01944628	1.95266E-07	0.002547685
Road 6	6	1100-1200	0.088969361	8.88358E-07	0.011590644	0.470997782	4.70291E-06	0.061360084	0.559967143	5.59126E-06	0.072950727	0.019611748	1.95823E-07	0.002554956	0.021314774	2.12828E-07	0.002776821
Road 6	6	1200-1300	0.085496119	8.39236E-07	0.010949733	0.433019598	4.25055E-06	0.055458062	0.518515717	5.08978E-06	0.066407795	0.017943652	1.76136E-07	0.002298095	0.019497189	1.91386E-07	0.002497061
Road 6	6	1300-1400	0.099391593	9.71904E-07	0.012680688	0.512250038	5.00905E-06	0.065354451	0.611641631	5.98096E-06	0.078035139	0.021953225	2.1467E-07	0.002800861	0.023853973	2.33257E-07	0.003043364
Road 6	6	1400-1500	0.094144756	1.01425E-06	0.013233157	0.47789324	5.14847E-06	0.067173539	0.572037997	6.16272E-06	0.080406696	0.020028885	2.15777E-07	0.002815296	0.021764181	2.34471E-07	0.003059213
Road 6	6	1500-1600	0.082752473	8.72877E-07	0.011388663	0.435406317	4.59269E-06	0.059922026	0.51815879	5.46556E-06	0.071310689	0.018249146	1.92493E-07	0.002511507	0.019831566	2.09184E-07	0.002729284
Road 6	6	1600-1700	0.086761997	9.37968E-07	0.012237916	0.436053264	4.71409E-06	0.061505999	0.52281526	5.65206E-06	0.073743915	0.018092222	1.95592E-07	0.002551936	0.019659288	2.12533E-07	0.002772974
Road 6	6	1700-1800	0.065195885	7.46424E-07	0.009738801	0.34113718	3.90566E-06	0.050958231	0.406333066	4.65209E-06	0.060697031	0.013440623	1.53881E-07	0.002007727	0.014600361	1.67159E-07	0.002180966
Road 6	6	1800-1900	0.063759666	8.2452E-07	0.010757732	0.340830319	4.40751E-06	0.057505965	0.404589985	5.23203E-06	0.068263696	0.014061597	1.8184E-07	0.002372517	0.015281263	1.97612E-07	0.002578303
Road 6	6	1900-2000	0.075746469	7.44954E-07	0.009719617	0.405224466	3.98532E-06	0.051997492	0.480970935	4.73027E-06	0.061717108	0.016820057	1.65422E-07	0.002158312	0.01828563	1.79836E-07	0.002346371
Road 6	6	2000-2100	0.059964665	4.70444E-07	0.006138004	0.358041722	2.80896E-06	0.036649273	0.418006388	3.2794E-06	0.042787277	0.014799976	1.16111E-07	0.001514931	0.016116531	1.2644E-07	0.001649694
Road 6	6	2100-2200	0.083896556	5.66869E-07	0.007396088	0.454818861	3.0731E-06	0.040095572	0.538715417	3.63997E-06	0.04749166	0.020486972	1.38425E-07	0.001806075	0.022288833	1.506E-07	0.001964922
Road 6	6	2200-2300	0.063172047	4.51737E-07	0.005893935	0.369536089	2.64252E-06	0.03447762	0.432708136	3.09425E-06	0.040371556	0.01360084	9.72583E-08	0.001268955	0.014806509	1.0588E-07	0.001381443
Road 6	6	2300-0000	0.042405378	2.84135E-07	0.003707188	0.274848599	1.84161E-06	0.024027976	0.317253978	2.12574E-06	0.027735164	0.010031092	6.72128E-08	0.000876944	0.01093521	7.32708E-08	0.000955984
Road 7	7	0000-0100	0.07864442	2.12376E-07	0.001935082	0.47281771	1.27682E-06	0.011633896	0.551462131	1.4892E-06	0.013568978	0.022183978	5.99069E-08	0.000545847	0.024101129	6.50841E-08	0.000593019
Road 7	7	0100-0200	0.096619793	2.03404E-07	0.001853329	0.535001931	1.12628E-06	0.010262233	0.631621724	1.32969E-06	0.012115562	0.025355172	5.33776E-08	0.000486355	0.027550897	5.8E-08	0.000528472
Road 7	7	0200-0300	0.08296617	1.13228E-07	0.001031686	0.477380319	6.51503E-07	0.005936232	0.560346489	7.64731E-07	0.006967918	0.02182	2.97788E-08	0.000271332	0.023704681	3.23509E-08	0.000294768
Road 7	7	0300-0400	0.084522237	9.32629E-08	0.000849773	0.5170225	5.70489E-07	0.005198063	0.601544737	6.63752E-07	0.006047836	0.023260921	2.56664E-08	0.000233862	0.025273421	2.7887E-08	0.000254095
Road 7	7	0400-0500	0.093701441	1.51006E-07	0.001375903	0.529459009	8.53257E-07	0.007774524	0.62316045	1.00426E-06	0.009150427	0.024682703	3.97777E-08	0.000362438	0.026821171	4.3224E-08	0.000393839
Road 7	7	0500-0600	0.084486414	2.42871E-07	0.002212945	0.485126111	1.39458E-06	0.012706863	0.569612525	1.63745E-06	0.014919808	0.021951667	6.3104E-08	0.000574978	0.023855657	6.85774E-08	0.000624849
Road 7	7	0600-0700	0.089517881	4.60084E-07	0.004192099	0.529404944	2.72092E-06	0.024791897	0.618922825	3.181E-06	0.028983996	0.023607006	1.2133E-07	0.00110551	0.025684915	1.3201E-07	0.001202818
Road 7	7	0700-0800	0.085186	6.98781E-07	0.006367005	0.473668336	3.8855E-06	0.035403101	0.558854336	4.58428E-06	0.041770106	0.020724071	1.7E-07	0.001548966	0.022522265	1.8475E-07	0.001683368
Road 7	7	0800-0900	0.084324444	1.04675E-06	0.009537578	0.466847623	5.79516E-06	0.052803143	0.551172067	6.84191E-06	0.062340721	0.020242959	2.51284E-07	0.002289595	0.022024947	2.73404E-07	0.002491148
Road 7	7	0900-1000	0.085592354	9.84203E-07	0.00896765	0.455190982	5.23411E-06	0.0476911	0.540783336	6.21832E-06	0.05665875	0.019767109	2.27296E-07	0.002071032	0.021491376	2.47123E-07	0.002251686
Road 7	7	1000-1100	0.101655205	1.02574E-06	0.009346154	0.540001799	5.44884E-06	0.04964763	0.641657004	6.47459E-06	0.058993784	0.025171554	2.53991E-07	0.002314266	0.027347468	2.75947E-07	0.002514319
Road 7	7	1100-1200	0.112745347	1.13601E-06	0.010350864	0.581636488	5.86051E-06	0.053398569	0.694381835	6.99652E-06	0.063749433	0.027253876	2.74607E-07	0.002502109	0.029611282	2.9836E-07	0.002718537
Road 7	7	1200-1300	0.110157504	1.10834E-06	0.010098708	0.559429336	5.62863E-06	0.051285782	0.66958684	6.73697E-06	0.06138449	0.026401371	2.65634E-07	0.00242035	0.028680693	2.88567E-07	0.002629307
Road 7	7	1300-1400	0.117709003	1.16552E-06	0.010619708	0.599364765	5.93472E-06	0.054074696	0.717073768	7.10023E-06	0.064694404	0.028007258	2.77319E-07	0.002526815	0.03042717	3.0128E-07	0.00274514
Road 7	7	1400-1500	0.109402502	1.1341E-06	0.010333417	0.56015374	5.80671E-06	0.052908318	0.669556242	6.9408E-06	0.063241736	0.025775042	2.67191E-07	0.002434535	0.028020196	2.90465E-07	0.002646597
Road 7	7	1500-1600	0.101576085	1.03379E-06	0.009419503	0.528054118	5.37429E-06	0.048968292	0.629630203	6.40808E-06	0.058387795	0.024513381	2.49486E-07	0.002273211	0.026649586	2.71227E-07	0.002471309
Road 7	7	1600-1700	0.105720587	1.11281E-06	0.010139489	0.53051834	5.58422E-06	0.05088115	0.636238927	6.69704E-06	0.061020639	0.024463186	2.57499E-07	0.002346224	0.026595697	2.79946E-07	0.00255075
Road 7	7	1700-1800	0.081673038	9.09491E-07	0.008286909	0.427194785	4.75714E-06	0.04334508	0.508867823	5.66663E-06	0.05163199	0.019097536	2.12665E-07	0.001937721	0.020765619	2.31241E-07	0.002106972
Road 7	7	1800-1900	0.0756044	8.74842E-07	0.007971203	0.402904165	4.66213E-06	0.042479421	0.478508564	5.53697E-06	0.050450624	0.017985345	2.08114E-07	0.00189625	0.019555094	2.26278E-07	0.002061753
Road 7	7	1900-2000	0.087779917	7.67213E-07	0.006990531	0.471438621	4.12046E-06	0.037543967	0.559218538	4.88768E-06	0.044534498	0.021380864	1.86873E-07	0.001702708	0.023239502	2.03118E-07	0.001850725
Road 7	7	2000-2100	0.081183334	5.84619E-07	0.005326808	0.450218228	3.24212E-06	0.029540868	0.531401562	3.82674E-06	0.034867677	0.020609919	1.48417E-07	0.001352311	0.022398569	1.61297E-07	0.001469672
Road 7	7	2100-2200	0.093323599	5.6094E-07	0.005111052	0.505837198	3.04043E-06	0.027703179	0.599160797	3.60137E-06	0.032814231	0.023952657	1.43972E-07	0.001311815	0.026053043	1.56597E-07	0.001426847
Road 7	7	2200-2300	0.078549826	5.09773E-07	0.004644845	0.442661244	2.87279E-06	0.026175653	0.52121107	3.38256E-06	0.030820499	0.018704049	1.21386E-07	0.001106017	0.020350895	1.32073E-07	0.001203399
Road 7	7	2300-0000	0.05535159	3.30291E-07	0.003009473	0.336557484	2.00829E-06	0.018298672	0.391909074	2.33858E-06	0.021308145	0.014049878	8.38376E-08	0.000763894	0.015299611	9.12949E-08	0.000831842
Road 8	8	0000-0100	0.249021111	1.81106E-07	0.001089696	1.2342025	8.97602E-07	0.005400769	1.483223611	1.07871E-06	0.006490466	0.0587825	4.27509E-08	0.000257227	0.063909167	4.64794E-08	0.000279661
Road 8	8	0100-0200	0.258222	1.56498E-07	0.000941632	1.275670333	7.73134E-07	0.004651858	1.533892333	9.29632E-07	0.00559349	0.060614	3.67358E-08	0.000221035	0.065882333	3.99287E-08	0.000240246
Road 8	8	0200-0300	0.244548667	7.41057E-08	0.000445885	1.270458	3.84987E-07	0.002316425	1.515006667	4.59093E-07	0.002762311	0.061048667	1.84996E-08	0.00011131	0.066351333	2.01065E-08	0.000120978
Road 8	8	0300-0400	0.222701429	6.29863E-08	0.000378981	1.133204286	3.20502E-07	0.001928426	1.355905714	3.83488E-07	0.002307407	0.052202143	1.47642E-08	8.88348E-05	0.056739286	1.60475E-08	9.65559E-05
Road 8	8	0400-0500	0.252276667	1.07026E-07	0.000643966	1.210332381	5.13474E-07	0.003089518	1.462609048	6.20501E-07	0.003733484	0.05746619	2.43796E-08	0.000146689	0.062455714	2.64964E-08	0.000159426
Road 8	8	0500-0600	0.239966176	1.64825E-07	0.000991735	1.132133529	7.77627E-07	0.004678895	1.372099706	9.42452E-07	0.00567063	0.053295882	3.66073E-08	0.000220262	0.057924412	3.97865E-08	0.000239391
Road 8	8	0600-0700	0.268897742	3.36801E-07	0.002026495	1.253930806	1.57058E-06	0.009450004	1.522828548	1.90738E-06	0.011476499	0.056429194	7.0679E-08	0.000425268	0.061365645	7.6862E-08	0.00046247
Road 8	8	0700-0800	0.266068725	5.48263E-07	0.003298836	1.253116667	2.58218E-06	0.015536686	1.519185392	3.13044E-06	0.018835522	0.056004412	1.15403E-07	0.000694367	0.060898137	1.25487E-07	0.000755042
Road 8	8	0800-0900	0.294566094	1.14256E-06	0.006874652	1.392158021	5.39989E-06	0.032490506	1.686724115	6.54245E-06	0.039365158	0.060607708	2.35084E-07	0.001414477	0.06585625	2.55442E-07	0.001536968
Road 8	8	0900-1000	0.313183734	9.99657E-07	0.006014825	1.40647462	4.48935E-06	0.027011935	1.719658354	5.48901E-06	0.03302676	0.062361646	1.99053E-07	0.001197682	0.067777152	2.16339E-07	0.001301689
Road 8	8	1000-1100	0.296703688	9.59042E-07	0.005770449	1.373206875	4.43865E-06	0.02670685	1.669910563	5.39769E-06	0.032477299	0.06119575	1.97804E-07	0.001190167	0.066515938	2.15001E-07	0.001293637
Road 8	8	1100-1200	0.308358931	9.90486E-07	0.005959645	1.440195975	4.62608E-06	0.027834629	1.748554906	5.61657E-06	0.033794273	0.065189182	2.09396E-07	0.00125991	0.070850503	2.2758E-07	0.001369326
Road 8	8	1200-1300	0.310975882	1.068E-06	0.006426024	1.464866294	5.03085E-06	0.030270084	1.775842176	6.09885E-06	0.036696108	0.065540529	2.25089E-07	0.001354333	0.071213353	2.44571E-07	0.001471557
Road 8	8	1300-1400	0.285341975	9.33846E-07	0.005618849	1.32616358	4.34017E-06	0.026114326	1.611505556	5.27402E-06	0.031733176	0.058504136	1.91468E-07	0.001152042	0.063588148	2.08107E-07	0.001252154
Road 8	8	1400-1500	0.277849496	7.80224E-07	0.004694519	1.344303669	3.77491E-06	0.02271323	1.622153165	4.55514E-06	0.027407749	0.060468561	1.69801E-07	0.001021671	0.065720647	1.84549E-07	0.00111041
Road 8	8	1500-1600	0.286540216	8.04628E-07	0.004841357	1.352258777	3.79725E-06	0.022847639	1.638798993	4.60188E-06	0.027688996	0.061339424	1.72246E-07	0.001036385	0.066668993	1.87212E-07	0.001126433
Road 8	8	1600-1700	0.286724966	8.63071E-07	0.005193002	1.340587315	4.0353E-06	0.024279967	1.627312282	4.89837E-06	0.029472969	0.060337181	1.81621E-07	0.001092793	0.065585772	1.9742E-07	0.001187853
Road 8	8	1700-1800	0.235300705	7.41554E-07	0.004461846	1.144606923	3.60725E-06	0.021704395	1.379907628	4.3488E-06	0.026166241	0.050976923	1.60655E-07	0.00096664	0.055421474	1.74662E-07	0.001050919

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 8	8	1800-1900	0.236285981	5.1076E-07	0.003073183	1.177952897	2.54628E-06	0.015320693	1.414238879	3.05704E-06	0.018393876	0.052339346	1.13138E-07	0.000680736	0.056900654	1.22997E-07	0.000740061
Road 8	8	1900-2000	0.234546364	3.6485E-07	0.002195261	1.197120519	1.86219E-06	0.011204573	1.431666883	2.22704E-06	0.013399834	0.057075195	8.87836E-08	0.000534201	0.062028961	9.64895E-08	0.000580566
Road 8	8	2000-2100	0.258020909	4.01366E-07	0.002414973	1.202383247	1.87037E-06	0.01125383	1.460404156	2.27174E-06	0.013668804	0.056335584	8.76331E-08	0.000527279	0.06124987	9.52776E-08	0.000573274
Road 8	8	2100-2200	0.213654444	2.33078E-07	0.001402402	1.088684259	1.18766E-06	0.00714599	1.302338704	1.42073E-06	0.008548392	0.050966296	5.55996E-08	0.000334537	0.055395	6.04309E-08	0.000363606
Road 8	8	2200-2300	0.257474219	3.32896E-07	0.002002998	1.239769531	1.60293E-06	0.009644676	1.49724375	1.93583E-06	0.011647674	0.056676719	7.3279E-08	0.000440911	0.061639375	7.96954E-08	0.000479518
Road 8	8	2300-0000	0.201486038	2.15733E-07	0.001298038	1.009959057	1.08137E-06	0.006506484	1.211445094	1.2971E-06	0.007804522	0.045511509	4.87295E-08	0.0002932	0.049482264	5.2981E-08	0.000318781
Road 9	9	0000-0100	0.214429475	5.69474E-08	0.000620492	0.971471733	2.58E-07	0.002811135	1.185901208	3.14947E-07	0.003431627	0.035406028	9.403E-09	0.000102454	0.038465224	1.02155E-08	0.000111306
Road 9	9	0100-0200	0.233054732	4.86309E-08	0.000529876	1.000629176	2.08798E-07	0.002275042	1.233683908	2.57429E-07	0.002804918	0.035178244	7.34054E-09	7.99817E-05	0.038218841	7.97502E-09	8.68948E-05
Road 9	9	0200-0300	0.092816104	8.80349E-09	9.59217E-05	0.666777671	6.3243E-08	0.000689088	0.759593775	7.20465E-08	0.00078501	0.023685396	2.24653E-09	2.44779E-05	0.025722272	2.43972E-09	2.65829E-05
Road 9	9	0300-0400	0.112061466	8.50311E-09	9.26488E-05	0.680548081	5.16393E-08	0.000562655	0.792609547	6.01424E-08	0.000655304	0.029606746	2.24653E-09	2.44779E-05	0.03215284	2.43972E-09	2.65829E-05
Road 9	9	0400-0500	0.251499443	4.77088E-08	0.000519829	1.037362226	1.96785E-07	0.002144144	1.288861669	2.44494E-07	0.002663973	0.037618026	7.13604E-09	7.77534E-05	0.040873683	7.75363E-09	8.44826E-05
Road 9	9	0500-0600	0.180903484	5.83388E-08	0.000635652	0.913265153	2.94515E-07	0.003208997	1.094168637	3.52854E-07	0.003844649	0.036759626	1.18544E-08	0.000129165	0.040531658	1.30709E-08	0.000142419
Road 9	9	0600-0700	0.213033808	1.29318E-07	0.001409036	1.110919187	6.74363E-07	0.007347778	1.323952995	8.03681E-07	0.008756814	0.035977858	2.18397E-08	0.000237963	0.039406887	2.39212E-08	0.000260643
Road 9	9	0700-0800	0.17936983	1.66727E-07	0.001816641	1.027270935	9.54866E-07	0.010404103	1.206640765	1.12159E-06	0.012220744	0.03293523	3.06139E-08	0.000333565	0.036399511	3.3834E-08	0.000368651
Road 9	9	0800-0900	0.279093789	6.08849E-07	0.006633941	1.341939381	2.92747E-06	0.031897328	1.62103317	3.53632E-06	0.038531269	0.045959781	1.00262E-07	0.001092444	0.050135738	1.09372E-07	0.001191705
Road 9	9	0900-1000	0.286672638	4.73115E-07	0.005155005	1.249362048	2.06191E-06	0.022466278	1.536034686	2.53502E-06	0.027621283	0.04070789	6.7183E-08	0.000732017	0.044363985	7.32169E-08	0.000797762
Road 9	9	1000-1100	0.296060196	4.09981E-07	0.004467108	1.259349596	1.74394E-06	0.019001712	1.555409792	2.15392E-06	0.02346882	0.044561932	6.1709E-08	0.000672373	0.048460942	6.71083E-08	0.000731204
Road 9	9	1100-1200	0.209161939	3.01549E-07	0.003285639	1.099027187	1.58447E-06	0.017264166	1.308189127	1.88602E-06	0.020549805	0.042605117	6.14238E-08	0.000669266	0.046726997	6.73663E-08	0.000734015
Road 9	9	1200-1300	0.306040141	4.29607E-07	0.004680947	1.375129584	1.93035E-06	0.021032888	1.681169726	2.35996E-06	0.025713835	0.042686885	5.99222E-08	0.000652905	0.046553617	6.53501E-08	0.000712047
Road 9	9	1300-1400	0.349554476	4.04488E-07	0.004407256	1.341453397	1.55227E-06	0.016913325	1.691007874	1.95676E-06	0.021320581	0.040222091	4.65432E-08	0.000507129	0.043735709	5.0609E-08	0.000551429
Road 9	9	1400-1500	0.225001584	2.90239E-07	0.003162409	1.099058629	1.41772E-06	0.015447327	1.324060213	1.70796E-06	0.018609736	0.035403748	4.56688E-08	0.000497602	0.038648243	4.9854E-08	0.000543203
Road 9	9	1500-1600	0.188686558	2.04022E-07	0.002223	0.972823141	1.05189E-06	0.011461259	1.161509699	1.25591E-06	0.013684258	0.034812067	3.76414E-08	0.000410136	0.037999778	4.10882E-08	0.000447692
Road 9	9	1600-1700	0.197802352	3.00181E-07	0.003270732	1.080282284	1.63941E-06	0.017862852	1.278084636	1.93959E-06	0.021133585	0.033122354	5.02658E-08	0.00054769	0.03610725	5.47956E-08	0.000597046
Road 9	9	1700-1800	0.169834321	2.22298E-07	0.002422134	1.010148898	1.3222E-06	0.014406486	1.179983219	1.54449E-06	0.01682862	0.031412032	4.11156E-08	0.00044799	0.034704742	4.54255E-08	0.00049495
Road 9	9	1800-1900	0.169469023	1.4145E-07	0.001541227	0.980347675	8.18265E-07	0.008915719	1.149816698	9.59716E-07	0.010456946	0.027514505	2.29655E-08	0.000250229	0.030341147	2.53248E-08	0.000275936
Road 9	9	1900-2000	0.176828834	1.44239E-07	0.001571611	0.953854685	7.78058E-07	0.008477626	1.130683519	9.22297E-07	0.010049237	0.036161745	2.94971E-08	0.000321397	0.040462238	3.3005E-08	0.000359618
Road 9	9	2000-2100	0.189262659	1.04118E-07	0.001134453	0.845814387	4.65301E-07	0.005069868	1.035077046	5.69419E-07	0.006204321	0.031637223	1.74043E-08	0.000189636	0.035065317	1.92902E-08	0.000210184
Road 9	9	2100-2200	0.0229898	1.22111E-08	0.000133051	0.339911157	1.80545E-07	0.001967193	0.362900958	1.92756E-07	0.002100244	0.008624852	4.58111E-09	4.99153E-05	0.009337531	4.95965E-09	5.40398E-05
Road 9	9	2200-2300	0.182845553	1.14462E-07	0.001247159	0.894503043	5.5996E-07	0.006101257	1.077348596	6.74422E-07	0.007348416	0.033924875	2.1237E-08	0.000231396	0.037163224	2.32642E-08	0.000253484
Road 9	9	2300-0000	0.147109161	8.37187E-08	0.000912188	0.763949072	4.34757E-07	0.004737064	0.911058233	5.18476E-07	0.005649252	0.027973486	1.59195E-08	0.000173457	0.030719409	1.74822E-08	0.000190484
Road 10	10	0000-0100	0.303718045	2.33515E-07	0.001895133	1.508611084	1.1599E-06	0.009413398	1.812329128	1.39342E-06	0.011308531	0.067028313	5.15351E-08	0.000418242	0.073091303	5.61967E-08	0.000456073
Road 10	10	0100-0200	0.29815082	1.732E-07	0.001405632	1.469413471	8.53602E-07	0.006927548	1.76756429	1.0268E-06	0.00833318	0.065088553	3.78108E-08	0.00030686	0.071052151	4.12751E-08	0.000334975
Road 10	10	0200-0300	0.297718258	9.66477E-08	0.00078436	1.446660461	4.69627E-07	0.003811332	1.744378719	5.66274E-07	0.004595693	0.064341593	2.08871E-08	0.000169513	0.069943517	2.27056E-08	0.000184271
Road 10	10	0300-0400	0.270443862	5.54486E-08	0.000450003	1.420353309	2.91213E-07	0.002363384	1.690797171	3.46661E-07	0.002813386	0.061292249	1.25666E-08	0.000101987	0.06663178	1.36614E-08	0.000110871
Road 10	10	0400-0500	0.315598019	1.24021E-07	0.001006511	1.478819107	5.81133E-07	0.004716279	1.794417125	7.05154E-07	0.005722791	0.062832204	2.46912E-08	0.000200386	0.06830162	2.68405E-08	0.000217829
Road 10	10	0500-0600	0.287198299	2.01186E-07	0.00163276	1.354157193	9.48605E-07	0.007698561	1.641355492	1.14979E-06	0.009331321	0.058595869	4.10472E-08	0.000333125	0.063937306	4.47889E-08	0.000363492
Road 10	10	0600-0700	0.349301985	4.89381E-07	0.003971655	1.677215382	2.34982E-06	0.019070378	2.026517367	2.8392E-06	0.023042033	0.063662673	8.91931E-08	0.000723861	0.069486936	9.7353E-08	0.000790085
Road 10	10	0700-0800	0.345429214	7.61345E-07	0.006178818	1.679690404	3.70213E-06	0.030045232	2.025119618	4.46347E-06	0.03622405	0.064369047	1.41873E-07	0.001151393	0.070294257	1.54932E-07	0.001257379
Road 10	10	0800-0900	0.368110162	1.55978E-06	0.012658612	1.767274265	7.48838E-06	0.06077322	2.135384428	9.04816E-06	0.073431832	0.07106163	3.01106E-07	0.002443675	0.077368566	3.2783E-07	0.002660559
Road 10	10	0900-1000	0.402251167	1.3608E-06	0.011043815	1.870110207	6.32652E-06	0.051343918	2.272361374	7.68732E-06	0.062387733	0.070537883	2.38627E-07	0.001936619	0.07681785	2.59872E-07	0.002109036
Road 10	10	1000-1100	0.402915942	1.48008E-06	0.01201184	1.774023686	6.51674E-06	0.052887676	2.176939628	7.99682E-06	0.064899516	0.070351297	2.5843E-07	0.002097332	0.076604718	2.81402E-07	0.002283761
Road 10	10	1100-1200	0.392253897	1.44091E-06	0.01169398	1.786850931	6.56386E-06	0.053270086	2.179104828	8.00477E-06	0.064964066	0.073003051	2.68171E-07	0.002176387	0.07949012	2.92001E-07	0.002369781
Road 10	10	1200-1300	0.409355315	1.55269E-06	0.012601145	1.876617527	7.11805E-06	0.057767737	2.285972842	8.67075E-06	0.070368883	0.072994422	2.7687E-07	0.00224698	0.079475461	3.01452E-07	0.002446485
Road 10	10	1300-1400	0.399953922	1.31203E-06	0.010647994	1.79744407	5.89643E-06	0.047853447	2.197397993	7.20846E-06	0.058501441	0.06957901	2.28251E-07	0.001852406	0.075772457	2.48568E-07	0.002017294
Road 10	10	1400-1500	0.370623444	1.14616E-06	0.009301823	1.778790857	5.50093E-06	0.044643689	2.149414301	6.64708E-06	0.053945512	0.06669193	2.06245E-07	0.001673819	0.072642419	2.24647E-07	0.001823163
Road 10	10	1500-1600	0.366740565	1.15921E-06	0.009407783	1.705365131	5.39041E-06	0.043746743	2.072105697	6.54962E-06	0.053154526	0.068075408	2.15176E-07	0.001746299	0.074085938	2.34175E-07	0.001900484
Road 10	10	1600-1700	0.353926836	1.2457E-06	0.010109678	1.672919434	5.88809E-06	0.0477858	2.02684627	7.13379E-06	0.057895478	0.065124157	2.29214E-07	0.001860227	0.070972036	2.49797E-07	0.002027268
Road 10	10	1700-1800	0.328453795	1.09431E-06	0.008881074	1.624273977	5.41161E-06	0.043918805	1.952727773	6.50592E-06	0.052799879	0.06098908	2.03198E-07	0.001649086	0.06657939	2.21823E-07	0.001800243
Road 10	10	1800-1900	0.334489521	6.91513E-07	0.005612088	1.622621149	3.35456E-06	0.02722445	1.95711067	4.04607E-06	0.032836538	0.064101546	1.32522E-07	0.0010755	0.069941046	1.44594E-07	0.001173476
Road 10	10	1900-2000	0.291512876	5.42896E-07	0.004405963	1.483883521	2.7635E-06	0.022427606	1.775396397	3.30639E-06	0.026833569	0.06141291	1.14372E-07	0.000928203	0.067220859	1.25188E-07	0.001015985
Road 10	10	2000-2100	0.338010138	4.1581E-07	0.003374573	1.586251743	1.95136E-06	0.015836574	1.924261881	2.36717E-06	0.019211147	0.07065763	8.69209E-08	0.000705421	0.076955671	9.46685E-08	0.000768298
Road 10	10	2100-2200	0.278172269	3.51705E-07	0.002854317	1.461829375	1.84825E-06	0.014999784	1.740001644	2.19996E-06	0.017854101	0.051275527	6.48298E-08	0.000526137	0.05586737	7.06354E-08	0.000573253
Road 10	10	2200-2300	0.294013585	3.86804E-07	0.003139169	1.44524255	1.90136E-06	0.015430787	1.739256135	2.28816E-06	0.018569956	0.057643477	7.58356E-08	0.000615457	0.062788495	8.26044E-08	0.00067039
Road 10	10	2300-0000	0.270403843	3.32643E-07	0.002699616	1.33142109	1.63787E-06	0.013292435	1.601824933	1.97052E-06	0.015992051	0.056580086	6.96031E-08	0.000564875	0.061681215	7.58784E-08	0.000615803
Road 11	11	0000-0100	0.339728601	2.59515E-07	0.000785734	1.649596785	1.26011E-06	0.003815237	1.989325385	1.51962E-06	0.004600971	0.071361009	5.45119E-08	0.000165046	0.07758439	5.92659E-08	0.000179439
Road 11	11	0100-0200	0.339561356	1.8275E-07	0.000553313	1.62319745	8.73596E-07	0.00264499	1.962758806	1.05635E-06	0.003198303	0.069347119	3.73222E-08	0.000113001	0.075393782	4.05765E-08	0.000122854
Road 11	11	0200-0300	0.297098701	7.73695E-08	0.000234252	1.53646589	4.00121E-07	0.001211449	1.833564592	4.77491E-07	0.001445701	0.066655132	1.73581E-08	5.25552E-05	0.072467424	1.88717E-08	5.7138E-05
Road 11	11	0300-0400	0.31818899	7.73376E-08	0.000234155	1.607299452	3.90663E-07	0.001182812	1.925488442	4.68001E-07	0.001416968	0.071416213	1.73581E-08	5.25552E-05	0.077643668	1.88717E-08	5.7138E-05
Road 11	11	0400-0500	0.326069722	1.13219E-07	0.000342793	1.507681113	5.235E-07	0.001585005	1.833750835	6.36719E-07	0.001927797	0.062879013	2.1833E-08	6.61038E-05	0.068356841	2.3735E-08	7.18626E-05
Road 11	11	0500-0600	0.262287379	1.22947E-07	0.000372248	1.307611393	6.12943E-07	0.00185581	1.569898772	7.3589E-07	0.002228058	0.055789394	2.61513E-08	7.91783E-05	0.061016229	2.86014E-08	8.65965E-05
Road 11	11	0600-0700	0.285459266	2.57706E-07	0.000780259	1.445834884	1.30527E-06	0.003951965	1.731294151	1.56297E-06	0.004732223	0.056040221	5.05919E-08	0.000153177	0.061111931	5.51705E-08	0.00016704
Road 11	11	0700-0800	0.342957997	6.49E-07	0.001964981	1.726904916	3.26793E-06	0.00989432	2.069862913	3.91693E-06	0.011859301	0.068937856	1.30455E-07	0.00039498	0.075228404	1.42359E-07	0.000431022

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 11	11	0800-0900	0.362913923	1.29162E-06	0.003910646	1.742030146	6.19993E-06	0.018771568	2.104944069	7.49155E-06	0.022682214	0.06812238	2.42449E-07	0.000734065	0.074189179	2.64041E-07	0.000799439
Road 11	11	0900-1000	0.363589899	9.27912E-07	0.002809443	1.671651553	4.26619E-06	0.012916776	2.035241452	5.19411E-06	0.015726218	0.064206234	1.6386E-07	0.000496119	0.069877461	1.78333E-07	0.00053994
Road 11	11	1000-1100	0.373045829	7.83655E-07	0.002372677	1.689157594	3.5484E-06	0.010743519	2.062203422	4.33206E-06	0.013116196	0.066514967	1.39728E-07	0.000423054	0.072316932	1.51916E-07	0.000459956
Road 11	11	1100-1200	0.330080123	7.79356E-07	0.002359659	1.641146748	3.87493E-06	0.011732143	1.971226871	4.65429E-06	0.014091802	0.067538742	1.59466E-07	0.000482817	0.073650896	1.73898E-07	0.000526512
Road 11	11	1200-1300	0.401900229	1.1443E-06	0.0034646	1.881947903	5.35832E-06	0.016223422	2.283848132	6.50262E-06	0.019688022	0.072699406	2.06991E-07	0.000626709	0.079123046	2.25281E-07	0.000682084
Road 11	11	1300-1400	0.417118786	8.76239E-07	0.002652993	1.831316175	3.84704E-06	0.011647688	2.248434961	4.72327E-06	0.014300681	0.069261385	1.45497E-07	0.000440522	0.075303952	1.58191E-07	0.000478954
Road 11	11	1400-1500	0.331071657	6.66742E-07	0.002018696	1.605255075	3.23281E-06	0.00978798	1.936326733	3.89955E-06	0.011806676	0.06171668	1.24291E-07	0.000376315	0.067182246	1.35298E-07	0.000409641
Road 11	11	1500-1600	0.295803234	6.0085E-07	0.001819197	1.48051786	3.0073E-06	0.009105222	1.776321093	3.60815E-06	0.010924419	0.062159725	1.26262E-07	0.000382284	0.067661431	1.37437E-07	0.000416119
Road 11	11	1600-1700	0.28349161	6.89042E-07	0.002086216	1.458927766	3.546E-06	0.010736256	1.742419376	4.23505E-06	0.012822472	0.056701345	1.37816E-07	0.000417265	0.061707	1.49982E-07	0.000454102
Road 11	11	1700-1800	0.283031061	7.02664E-07	0.002127459	1.48122194	3.67734E-06	0.011133897	1.764253	4.38E-06	0.013261356	0.059670747	1.48141E-07	0.000448527	0.065147679	1.61738E-07	0.000489695
Road 11	11	1800-1900	0.306915618	6.28751E-07	0.001903672	1.57040974	3.21716E-06	0.009740607	1.877325359	3.84591E-06	0.011644278	0.064204447	1.3153E-07	0.000398234	0.069970351	1.43342E-07	0.000433997
Road 11	11	1900-2000	0.293775383	4.64124E-07	0.001405231	1.488688258	2.35192E-06	0.007120921	1.782463641	2.81604E-06	0.008526153	0.063578847	1.00446E-07	0.00030412	0.069672486	1.10073E-07	0.000333268
Road 11	11	2000-2100	0.303728363	4.27118E-07	0.001293187	1.471189147	2.06886E-06	0.006263896	1.77491751	2.49598E-06	0.007557083	0.064037192	9.00523E-08	0.000272652	0.069867112	9.82506E-08	0.000297474
Road 11	11	2100-2200	0.217033007	2.1854E-07	0.000661675	1.180738145	1.18894E-06	0.003599752	1.397771152	1.40748E-06	0.004261427	0.049753377	5.00989E-08	0.000151685	0.054080187	5.44557E-08	0.000164876
Road 11	11	2200-2300	0.285526708	3.12295E-07	0.000945537	1.405902971	1.53771E-06	0.004655721	1.691429679	1.85E-06	0.005601257	0.059741601	6.53424E-08	0.000197837	0.065104546	7.12081E-08	0.000215597
Road 11	11	2300-0000	0.272100119	2.83438E-07	0.000858165	1.362254519	1.41902E-06	0.004296359	1.634354638	1.70245E-06	0.005154524	0.058056743	6.04758E-08	0.000183103	0.063279704	6.59164E-08	0.000199575
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.45365	2.73242E-06	0.001500041	6.36873	1.19713E-05	0.006571979	7.82238	1.47037E-05	0.00807202	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	0800-0900	1.45165	2.72867E-06	0.001497977	6.36013	1.19551E-05	0.006563105	7.81178	1.46838E-05	0.008061082	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	0900-1000	1.44485	2.71588E-06	0.00149096	6.33046	1.18994E-05	0.006532488	7.77531	1.46152E-05	0.008023448	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1000-1100	1.44835	2.72246E-06	0.001494572	6.34575	1.19281E-05	0.006548266	7.7941	1.46506E-05	0.008042838	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1100-1200	1.45315	2.73148E-06	0.001499525	6.36673	1.19675E-05	0.006569915	7.81988	1.4699E-05	0.008069441	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1200-1300	1.45515	2.73524E-06	0.001501589	6.37552	1.19841E-05	0.006578986	7.83067	1.47193E-05	0.008080575	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1300-1400	1.45775	2.74013E-06	0.001504272	6.38671	1.20051E-05	0.006590533	7.84446	1.47452E-05	0.008094805	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1400-1500	1.45215	2.72961E-06	0.001498493	6.36233	1.19593E-05	0.006565375	7.81448	1.46889E-05	0.008063868	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1500-1600	1.44665	2.71927E-06	0.001492818	6.33825	1.1914E-05	0.006540526	7.7849	1.46333E-05	0.008033344	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1600-1700	1.44745	2.72077E-06	0.001493643	6.34165	1.19204E-05	0.006544035	7.7891	1.46412E-05	0.008037678	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1700-1800	1.45255	2.73036E-06	0.001498906	6.36423	1.19628E-05	0.006567336	7.81678	1.46932E-05	0.008066242	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1800-1900	1.45255	2.73036E-06	0.001498906	6.36423	1.19628E-05	0.006567336	7.81678	1.46932E-05	0.008066242	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	1900-2000	1.45005	2.72566E-06	0.001496326	6.35294	1.19416E-05	0.006555685	7.80299	1.46673E-05	0.008052012	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	2000-2100	1.44745	2.72077E-06	0.001493643	6.34165	1.19204E-05	0.006544035	7.7891	1.46412E-05	0.008037678	0.22195	4.17199E-07	0.000229033	0.24124	4.53459E-07	0.000248939
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.45365	1.88297E-06	0.00182948	6.36873	8.24965E-06	0.008015314	7.82238	1.01326E-05	0.009844794	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	0800-0900	1.45165	1.88038E-06	0.001826962	6.36013	8.23851E-06	0.008004491	7.81178	1.01189E-05	0.009831453	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	0900-1000	1.44485	1.87157E-06	0.001818404	6.33046	8.20008E-06	0.00796715	7.77531	1.00716E-05	0.009785554	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	1000-1100	1.44835	1.8761E-06	0.001822809	6.34575	8.21988E-06	0.007986393	7.7941	1.0096E-05	0.009809202	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	1100-1200	1.45315	1.88232E-06	0.00182885	6.36673	8.24706E-06	0.008012797	7.81988	1.01294E-05	0.009841647	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	1200-1300	1.45515	1.88491E-06	0.001831367	6.37552	8.25845E-06	0.00802386	7.83067	1.01434E-05	0.009855227	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	1300-1400	1.45775	1.88828E-06	0.00183464	6.38671	8.27294E-06	0.008037943	7.84446	1.01612E-05	0.009872582	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	1400-1500	1.45215	1.88102E-06	0.001827592	6.36233	8.24136E-06	0.008007259	7.81448	1.01224E-05	0.009834851	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	1500-1600	1.44665	1.8739E-06	0.00182067	6.33825	8.21017E-06	0.007976954	7.7849	1.00841E-05	0.009797623	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	1600-1700	1.44745	1.87494E-06	0.001821677	6.34165	8.21457E-06	0.007981233	7.7891	1.00895E-05	0.009802909	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	1700-1800	1.45255	1.88154E-06	0.001828095	6.36423	8.24382E-06	0.008009651	7.81678	1.01254E-05	0.009837746	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	1800-1900	1.45255	1.88154E-06	0.001828095	6.36423	8.24382E-06	0.008009651	7.81678	1.01254E-05	0.009837746	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	1900-2000	1.45005	1.8783E-06	0.001824949	6.35294	8.2292E-06	0.007995442	7.80299	1.01075E-05	0.00982039	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	2000-2100	1.44745	1.87494E-06	0.001821677	6.34165	8.21457E-06	0.007981233	7.7891	1.00895E-05	0.009802909	0.22195	2.875E-07	0.000279333	0.24124	3.12487E-07	0.000303611
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2028

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.45365	1.88297E-06	0.001826929	6.36873	8.24965E-06	0.008004139	7.82238	1.01326E-05	0.009831068	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	0800-0900	1.45165	1.88038E-06	0.001824415	6.36013	8.23851E-06	0.007993331	7.81178	1.01189E-05	0.009817746	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	0900-1000	1.44485	1.87157E-06	0.001815869	6.33046	8.20008E-06	0.007956042	7.77531	1.00716E-05	0.009771911	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	1000-1100	1.44835	1.8761E-06	0.001820268	6.34575	8.21988E-06	0.007975258	7.7941	1.0096E-05	0.009795526	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	1100-1200	1.45315	1.88232E-06	0.0018263	6.36673	8.24706E-06	0.008001625	7.81988	1.01294E-05	0.009827926	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	1200-1300	1.45515	1.88491E-06	0.001828814	6.37552	8.25845E-06	0.008012673	7.83067	1.01434E-05	0.009841487	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	1300-1400	1.45775	1.88828E-06	0.001832082	6.38671	8.27294E-06	0.008026736	7.84446	1.01612E-05	0.009858818	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	1400-1500	1.45215	1.88102E-06	0.001825044	6.36233	8.24136E-06	0.007996096	7.81448	1.01224E-05	0.009821139	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	1500-1600	1.44665	1.8739E-06	0.001818131	6.33825	8.21017E-06	0.007965832	7.7849	1.00841E-05	0.009783963	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	1600-1700	1.44745	1.87494E-06	0.001819137	6.34165	8.21457E-06	0.007970105	7.7891	1.00895E-05	0.009789242	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	1700-1800	1.45255	1.88154E-06	0.001825546	6.36423	8.24382E-06	0.007998483	7.81678	1.01254E-05	0.00982403	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	1800-1900	1.45255	1.88154E-06	0.001825546	6.36423	8.24382E-06	0.007998483	7.81678	1.01254E-05	0.00982403	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	1900-2000	1.45005	1.8783E-06	0.001822404	6.35294	8.2292E-06	0.007984294	7.80299	1.01075E-05	0.009806699	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	2000-2100	1.44745	1.87494E-06	0.001819137	6.34165	8.21457E-06	0.007970105	7.7891	1.00895E-05	0.009789242	0.22195	2.875E-07	0.000278944	0.24124	3.12487E-07	0.000303187
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.099355866	3.33797E-07	2.71549E-06	0.08905257	2.99182E-07	2.43389E-06	0.592254078	1.98974E-06	1.61868E-05	0.526676983	1.76943E-06	1.43946E-05	0.615729553	2.06861E-06	1.68285E-05
Road 1	1	0100-0200	0.077171651	1.57877E-07	1.28436E-06	0.06883633	1.40825E-07	1.14563E-06	0.469047798	9.59576E-07	7.80629E-06	0.414786789	8.48569E-07	6.90324E-06	0.483623119	9.89394E-07	8.04887E-06
Road 1	1	0200-0300	0.074258312	1.07318E-07	8.73046E-07	0.067170779	9.70749E-08	7.89719E-07	0.48107987	6.95254E-07	5.656E-06	0.429173377	6.20239E-07	5.04574E-06	0.496344156	7.17314E-07	5.83546E-06
Road 1	1	0300-0400	0.062911091	6.4942E-08	5.28313E-07	0.056470909	5.82939E-08	4.7423E-07	0.391095636	4.03721E-07	3.28433E-06	0.346363636	3.57545E-07	2.90868E-06	0.402834545	4.15839E-07	3.38291E-06
Road 1	1	0400-0500	0.081531628	1.31601E-07	1.0706E-06	0.073242442	1.18222E-07	9.61751E-07	0.472334419	7.62402E-07	6.20225E-06	0.419899651	6.77766E-07	5.51373E-06	0.493142093	7.95988E-07	6.47548E-06
Road 1	1	0500-0600	0.066996011	2.36397E-07	1.92313E-06	0.060377021	2.13042E-07	1.73313E-06	0.402022287	1.41855E-06	1.15401E-05	0.357120426	1.26011E-06	1.02512E-05	0.417497447	1.47315E-06	1.19843E-05
Road 1	1	0600-0700	0.088953947	5.6264E-07	4.57716E-06	0.080876884	5.11552E-07	4.16155E-06	0.478224065	3.0248E-06	2.46072E-05	0.430803205	2.72486E-06	2.21672E-05	0.511680089	3.23641E-06	2.63287E-05
Road 1	1	0700-0800	0.07440032	7.84778E-07	6.38429E-06	0.068338167	7.20834E-07	5.86409E-06	0.414920961	4.37661E-06	3.56043E-05	0.376904306	3.9756E-06	3.23421E-05	0.445242473	4.69644E-06	3.82062E-05
Road 1	1	0800-0900	0.079589813	1.0367E-06	8.4337E-06	0.073411282	9.56221E-07	7.779E-06	0.429608559	5.59588E-06	4.55233E-05	0.393717349	5.12838E-06	4.17201E-05	0.467128631	6.0846E-06	4.94991E-05
Road 1	1	0900-1000	0.085115168	1.14062E-06	9.27911E-06	0.077448277	1.03788E-06	8.44328E-06	0.474235868	6.35519E-06	5.17004E-05	0.428604748	5.74369E-06	4.67258E-05	0.506053025	6.78157E-06	5.5169E-05
Road 1	1	1000-1100	0.098085827	1.27946E-06	1.04086E-05	0.090466417	1.18007E-06	9.60005E-06	0.526896504	6.87299E-06	5.59128E-05	0.48369882	6.30951E-06	5.13288E-05	0.574165237	7.48958E-06	6.09288E-05
Road 1	1	1100-1200	0.088997789	1.12584E-06	9.15884E-06	0.081345059	1.02903E-06	8.37129E-06	0.512710964	6.48587E-06	5.27635E-05	0.465638234	5.89039E-06	4.79192E-05	0.546983294	6.91942E-06	5.62905E-05
Road 1	1	1200-1300	0.091678096	1.1477E-06	9.33668E-06	0.083171349	1.0412E-06	8.47034E-06	0.520613328	6.51744E-06	5.30203E-05	0.469957976	5.8833E-06	4.78615E-05	0.553129325	6.9245E-06	5.63318E-05
Road 1	1	1300-1400	0.096037094	1.27797E-06	1.03965E-05	0.087045994	1.15833E-06	9.42315E-06	0.534746446	7.1159E-06	5.78889E-05	0.481742468	6.41057E-06	5.2151E-05	0.568788463	7.5689E-06	6.15741E-05
Road 1	1	1400-1500	0.091438518	1.31975E-06	1.07364E-05	0.082715501	1.19385E-06	9.71213E-06	0.498144317	7.18981E-06	5.84902E-05	0.448067191	6.46704E-06	5.26103E-05	0.530782692	7.66088E-06	6.23224E-05
Road 1	1	1500-1600	0.098622891	1.32534E-06	1.07818E-05	0.089135335	1.19784E-06	9.7446E-06	0.535542193	7.19685E-06	5.85474E-05	0.48135852	6.46871E-06	5.26239E-05	0.570493855	7.66655E-06	6.23685E-05
Road 1	1	1600-1700	0.094128053	1.33383E-06	1.08509E-05	0.085406305	1.21024E-06	9.84551E-06	0.51778106	7.33718E-06	5.9689E-05	0.466835748	6.61526E-06	5.38161E-05	0.552242053	7.8255E-06	6.36616E-05
Road 1	1	1700-1800	0.075231293	1.0703E-06	8.70701E-06	0.06729277	9.57356E-07	7.78823E-06	0.424330145	6.03683E-06	4.91105E-05	0.375938668	5.34838E-06	4.35098E-05	0.443231438	6.30573E-06	5.12981E-05
Road 1	1	1800-1900	0.067223398	9.76556E-07	7.94443E-06	0.060252842	8.75295E-07	7.12065E-06	0.406977674	5.91218E-06	4.80964E-05	0.360192351	5.23252E-06	4.25674E-05	0.420445194	6.10782E-06	4.9688E-05
Road 1	1	1900-2000	0.080372327	8.94534E-07	7.27717E-06	0.072982901	8.12291E-07	6.60811E-06	0.464057825	5.16491E-06	4.20173E-05	0.417923153	4.65143E-06	3.78401E-05	0.490906054	5.46373E-06	4.44482E-05
Road 1	1	2000-2100	0.07330833	6.92081E-07	5.63018E-06	0.065904394	6.22183E-07	5.06155E-06	0.437041889	4.12598E-06	3.35654E-05	0.388997674	3.67241E-06	2.98756E-05	0.454902068	4.29459E-06	3.49371E-05
Road 1	1	2100-2200	0.075979346	6.54552E-07	5.32488E-06	0.06900305	5.94452E-07	4.83595E-06	0.456456623	3.93231E-06	3.19899E-05	0.410905773	3.5399E-06	2.87976E-05	0.479908824	4.13435E-06	3.36335E-05
Road 1	1	2200-2300	0.075640161	6.17558E-07	5.02392E-06	0.068300552	5.57634E-07	4.53644E-06	0.455689471	3.72044E-06	3.02663E-05	0.407263425	3.32507E-06	2.70499E-05	0.475563977	3.8827E-06	3.15864E-05
Road 1	1	2300-0000	0.066214795	4.8468E-07	3.94295E-06	0.059510949	4.35609E-07	3.54375E-06	0.411383026	3.01125E-06	2.4497E-05	0.364579615	2.66866E-06	2.17099E-05	0.424090564	3.10427E-06	2.52537E-05
Road 2	2	0000-0100	0.164530192	1.98046E-07	1.27896E-06	0.147472692	1.77513E-07	1.14636E-06	0.700139231	8.4276E-07	5.44246E-06	0.623733077	7.5079E-07	4.84853E-06	0.771205769	9.28303E-07	5.99489E-06
Road 2	2	0100-0200	0.116430294	9.1635E-08	5.9177E-07	0.103832647	8.17201E-08	5.27741E-07	0.578770294	4.55514E-07	2.94166E-06	0.512346176	4.03235E-07	2.60405E-06	0.616178824	4.84956E-07	3.1318E-06
Road 2	2	0200-0300	0.120502609	6.41565E-08	4.14316E-07	0.109171739	5.81238E-08	3.75358E-07	0.66373087	3.53375E-07	2.28206E-06	0.595907391	3.17266E-07	2.04887E-06	0.70507913	3.75389E-07	2.42423E-06
Road 2	2	0300-0400	0.104881333	3.64171E-08	2.35178E-07	0.094192	3.27056E-08	2.11209E-07	0.386032667	1.34039E-07	8.65612E-07	0.342581333	1.18952E-07	7.68179E-07	0.436773333	1.51657E-07	9.79389E-07
Road 2	2	0400-0500	0.141868519	8.86678E-08	5.72608E-07	0.127530741	7.97067E-08	5.14738E-07	0.687696296	4.2981E-07	2.77567E-06	0.614234444	3.83897E-07	2.47917E-06	0.741765185	4.63603E-07	2.9939E-06
Road 2	2	0500-0600	0.112011404	1.47793E-07	9.54432E-07	0.101030351	1.33304E-07	8.60864E-07	0.501564561	6.61787E-07	4.27375E-06	0.447192632	5.90046E-07	3.81046E-06	0.548222982	7.2335E-07	4.67132E-06
Road 2	2	0600-0700	0.155807692	3.75093E-07	2.42231E-06	0.14171625	3.41169E-07	2.20323E-06	0.634185	1.52674E-06	9.85955E-06	0.572967308	1.37937E-06	8.90781E-06	0.714683558	1.72053E-06	1.1111E-05
Road 2	2	0700-0800	0.12718125	4.71042E-07	3.04194E-06	0.116878313	4.32883E-07	2.79551E-06	0.53389475	1.97739E-06	1.27698E-05	0.48598175	1.79993E-06	1.16238E-05	0.602860063	2.23282E-06	1.44193E-05
Road 2	2	0800-0900	0.142827993	1.00509E-06	6.49075E-06	0.131765855	9.27241E-07	5.98803E-06	0.603411941	4.24623E-06	2.74218E-05	0.553319803	3.89373E-06	2.51453E-05	0.685085658	4.82097E-06	3.11334E-05
Road 2	2	0900-1000	0.167926111	9.79569E-07	6.32596E-06	0.152795714	8.91308E-07	5.75598E-06	0.717345873	4.18452E-06	2.70232E-05	0.649454325	3.78848E-06	2.44657E-05	0.80225004	4.67979E-06	3.02216E-05
Road 2	2	1000-1100	0.185953743	8.04939E-07	5.19822E-06	0.171518556	7.42453E-07	4.79469E-06	0.785603797	3.40065E-06	2.1961E-05	0.722020802	3.12541E-06	2.01836E-05	0.893539358	3.86787E-06	2.49783E-05
Road 2	2	1100-1200	0.220973989	9.3607E-07	6.04505E-06	0.202026284	8.55806E-07	5.52671E-06	0.903710383	3.82822E-06	2.47223E-05	0.824107869	3.49101E-06	2.25446E-05	1.026134153	4.34682E-06	2.80713E-05
Road 2	2	1200-1300	0.170070158	7.47994E-07	4.83047E-06	0.154349368	6.78851E-07	4.38396E-06	0.746329	3.28247E-06	2.11978E-05	0.674053789	2.96459E-06	1.9145E-05	0.828403158	3.64344E-06	2.3529E-05
Road 2	2	1300-1400	0.188397937	9.72517E-07	6.28042E-06	0.170681525	8.81064E-07	5.68983E-06	0.772324664	3.98677E-06	2.57462E-05	0.696363004	3.59465E-06	2.32139E-05	0.867044529	4.47572E-06	2.89037E-05
Road 2	2	1400-1500	0.162387818	6.20231E-07	4.00539E-06	0.146926	5.61176E-07	3.62402E-06	0.703412485	2.68664E-06	1.73501E-05	0.634024242	2.42162E-06	1.56386E-05	0.780950242	2.9828E-06	1.92626E-05
Road 2	2	1500-1600	0.203632842	8.62611E-07	5.57066E-06	0.183981421	7.79366E-07	5.03307E-06	0.803554645	3.40395E-06	2.19824E-05	0.723769454	3.06597E-06	1.97997E-05	0.907750874	3.84533E-06	2.48328E-05
Road 2	2	1600-1700	0.170527828	8.72376E-07	5.63372E-06	0.154761584	7.9172E-07	5.11285E-06	0.718917738	3.6778E-06	2.37509E-05	0.649634525	3.32336E-06	2.14619E-05	0.804396109	4.11508E-06	2.65748E-05
Road 2	2	1700-1800	0.131770946	6.77156E-07	4.37301E-06	0.117950901	6.06137E-07	3.91437E-06	0.525130315	2.69859E-06	1.74272E-05	0.467044685	2.40009E-06	1.54996E-05	0.584995586	3.00623E-06	1.94139E-05
Road 2	2	1800-1900	0.14563452	8.42792E-07	5.44267E-06	0.1306954	7.56339E-07	4.88436E-06	0.6589642	3.81345E-06	2.46269E-05	0.58711864	3.39768E-06	2.19419E-05	0.71781404	4.15402E-06	2.68262E-05
Road 2	2	1900-2000	0.123298639	4.82349E-07	3.11496E-06	0.1306954	7.56339E-07	2.82947E-06	0.562533254	2.20065E-06	1.42116E-05	0.507117751	1.98386E-06	1.28116E-05	0.61911574	2.422E-06	1.56411E-05
Road 2	2	2000-2100	0.117771769	4.00751E-07	2.58801E-06	0.105876803	3.60275E-07	2.32662E-06	0.506650136	1.72402E-06	1.11335E-05	0.450672041	1.53354E-06	9.90343E-06	0.556548844	1.89381E-06	1.22301E-05
Road 2	2	2100-2200	0.090272026	3.19713E-07	2.06468E-06	0.081943399	2.90216E-07	1.87419E-06	0.418907386	1.48363E-06	9.58114E-06	0.375167712	1.32872E-06	8.58074E-06	0.457111111	1.61894E-06	1.04549E-05
Road 2	2	2200-2300	0.13386392	3.87338E-07	2.50139E-06	0.12097336	3.50039E-07	2.26052E-06	0.57554448	1.66535E-06	1.07547E-05	0.51546488	1.49151E-06	9.63201E-06	0.63643824	1.84155E-06	1.18925E-05
Road 2	2	2300-0000	0.119517658	3.07094E-07	1.98318E-06	0.107486667	2.76181E-07	1.78355E-06	0.545674865	1.40208E-06	9.0545E-06	0.485253784	1.24683E-06	8.05192E-06	0.59274045	1.52301E-06	9.83547E-06
Road 3	3	0000-0100	0.10346413	3.81689E-07	1.48353E-05	0.092663304	3.41844E-07	1.32866E-05	0.574287478	2.1186E-06	8.23447E-05	0.510419348	1.88299E-06	7.3187E-05	0.603082652	2.22483E-06	8.64736E-05
Road 3	3	0100-0200	0.077952676	1.77546E-07	6.90078E-06	0.070437042	1.60429E-07	6.23546E-06	0.457794718	1.04268E-06	4.05264E-05	0.410623592	9.35243E-07	3.63505E-05	0.481060634	1.09567E-06	4.2586E-05
Road 3	3	0200-0300	0.076169394	1.20951E-07	4.70104E-06	0.069033939	1.0962E-07	4.26066E-06	0.48189596	7.6521E-07	2.97418E-05	0.431138687	6.84612E-07	2.66091E-05	0.500172626	7.94232E-07	3.08698E-05
Road 3	3	0300-0400	0.064292286	7.21854E-08	2.80566E-06	0.057551429	6.46169E-08	2.5115E-06	0.360767286	4.05058E-07	1.57436E-05	0.317729143	3.56736E-07	1.38654E-05	0.375280571	4.21353E-07	1.63769E-05
Road 3	3	0400-0500	0.085301416	1.54606E-07	6.00915E-06	0.076640796	1.38909E-07	5.39905E-06	0.476623628	8.63866E-07	3.35763E-05	0.424120531	7.68705E-07	2.98777E-05	0.500761327	9.07615E-07	3.52767E-05
Road 3	3	0500-0600	0.068738943	2.71225E-07	1.05418E-05	0.062051138	2.44837E-07	9.5162E-06	0.388435041	1.53266E-06	5.95706E-05	0.34565935	1.36388E-06	5.30105E-05	0.407710488	1.60872E-06	6.25267E-05
Road 3	3	0600-0700	0.09431027	6.71636E-07	2.61048E-05	0.085879752	6.11598E-07	2.37713E-05	0.475029707	3.38295E-06	0.000131487	0.428900653	3.05444E-06	0.000118718	0.514780405	3.66604E-06	0.00014249
Road 3	3	0700-0800	0.077318735	9.01595E-07	3.50427E-05	0.070983177	8.27717E-07	3.21713E-05	0.410368212	4.7852E-06	0.000185989	0.372596561	4.34476E-06	0.00016887	0.443579739	5.17247E-06	0.000201041
Road 3	3	0800-0900	0.0855968	1.36882E-06	5.32024E-05	0.078491956	1.2552E-06	4.87864E-05	0.426408385	6.81888E-06	0.000265033	0.388000221	6.20468E-06	0.00024116	0.466492177	7.45988E-06	0.000289947
Road 3	3	0900-1000	0.092712104	1.43501E-06	5.57754E-05	0.085399834	1.32183E-06	5.13763E-05	0.480212591	7.43281E-06	0.000288895	0.439573326	6.80379E-06	0.000264446	0.524973161	8.12562E-06	0.000315823
Road 3	3	1000-1100	0.105486166	1.48722E-06	5.78047E-05	0.096757622	1.36416E-06	5.30216E-05	0.534391809	7.53426E-06	0.000292838	0.487442901	6.87234E-06	0.000267111	0.584200523	8.23651E-06	0.000320132
Road 3	3	1100-1200	0.104075656	1.42561E-06	5.54097E-05	0.094616288	1.29603E-06	5.03735E-05	0.542497201	7.43101E-06	0.000288825	0.489914356	6.71074E-06	0.00026083	0.584530644	8.00677E-06	0.000311203
Road 3	3	1200-1300	0.097921475	1.34131E-06	5.21332E-05	0.089336101	1.22371E-06	4.75624E-05	0.5217274	7.14651E-06	0.000277767	0.473199052	6.48178E-06	0.00025193	0.562535152	7.70548E-06	0.000299493

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.104424013	1.55265E-06	6.03474E-05	0.094334358	1.40263E-06	5.45165E-05	0.534321694	7.94465E-06	0.000308789	0.479792859	7.13388E-06	0.000277276	0.574127217	8.5365E-06	0.000331793
Road 3	3	1400-1500	0.096205128	1.44124E-06	5.60175E-05	0.086668073	1.29837E-06	5.04644E-05	0.499848822	7.48821E-06	0.000291048	0.447754315	6.70778E-06	0.000260715	0.534422388	8.00615E-06	0.000311179
Road 3	3	1500-1600	0.106960693	1.53546E-06	5.96796E-05	0.097370045	1.39779E-06	5.43284E-05	0.541077721	7.76739E-06	0.000301899	0.490067665	7.03512E-06	0.000273437	0.587437709	8.4329E-06	0.000327766
Road 3	3	1600-1700	0.101289621	1.58565E-06	6.16302E-05	0.091425133	1.43122E-06	5.56281E-05	0.521549795	8.16465E-06	0.00031734	0.46731915	7.3157E-06	0.000284343	0.558744283	8.74692E-06	0.000339971
Road 3	3	1700-1800	0.080230776	1.25984E-06	4.89669E-05	0.072560368	1.1394E-06	4.42854E-05	0.415818509	6.52948E-06	0.000253785	0.372815975	5.85423E-06	0.000227539	0.445376343	6.99362E-06	0.000271824
Road 3	3	1800-1900	0.075943194	1.25098E-06	4.86226E-05	0.068031032	1.12065E-06	4.35568E-05	0.42261777	6.96162E-06	0.000270581	0.374230925	6.16456E-06	0.000239601	0.442261957	7.28521E-06	0.000283158
Road 3	3	1900-2000	0.080888171	9.86032E-07	3.83246E-05	0.073089474	8.90965E-07	3.46296E-05	0.449911579	5.48445E-06	0.000213167	0.402595724	4.90767E-06	0.000190749	0.475685197	5.79863E-06	0.000225378
Road 3	3	2000-2100	0.075618706	7.87166E-07	3.05952E-05	0.067803344	7.0581E-07	2.74331E-05	0.418712219	4.35866E-06	0.00016941	0.371550401	3.86772E-06	0.000150328	0.439353744	4.57353E-06	0.000177762
Road 3	3	2100-2200	0.073249675	7.22559E-07	2.8084E-05	0.066202081	6.53039E-07	2.5382E-05	0.417554878	4.1189E-06	0.000160091	0.373601984	3.68533E-06	0.00014324	0.439804065	4.33837E-06	0.000168622
Road 3	3	2200-2300	0.080334565	7.25443E-07	2.81961E-05	0.072393073	6.53729E-07	2.54088E-05	0.44535698	4.02169E-06	0.000156313	0.397104352	3.58596E-06	0.000139377	0.469497425	4.23969E-06	0.000164786
Road 3	3	2300-0000	0.070180319	5.65082E-07	2.19633E-05	0.063202052	5.08894E-07	1.97794E-05	0.409370259	3.29619E-06	0.000128115	0.363778526	2.92909E-06	0.000113846	0.426980578	3.43799E-06	0.000133626
Road 4	4	0000-0100	0.277322571	2.24683E-07	2.40581E-06	0.248405143	2.01254E-07	2.15494E-06	1.370132571	1.11006E-06	1.18861E-05	1.226346286	9.93568E-07	1.06387E-05	1.474751429	1.19482E-06	1.27936E-05
Road 4	4	0100-0200	0.2623785	1.21472E-07	1.30067E-06	0.237284	1.09854E-07	1.17627E-06	1.298471	6.01144E-07	6.4368E-06	1.1738095	5.4343E-07	5.81882E-06	1.4110935	6.53284E-07	6.99509E-06
Road 4	4	0200-0300	0.282035385	8.48718E-08	9.08771E-07	0.256176923	7.70903E-08	8.2545E-07	1.349129231	4.05988E-07	4.34715E-06	1.225297692	3.68724E-07	3.94814E-06	1.481474615	4.45814E-07	4.77359E-06
Road 4	4	0300-0400	0.258332857	4.18595E-08	4.48214E-07	0.23197	3.75877E-08	4.02474E-07	1.326211429	2.14895E-07	2.30101E-06	1.19066	1.92931E-07	2.06582E-06	1.42263	2.30519E-07	2.4683E-06
Road 4	4	0400-0500	0.264553571	8.5735E-08	9.18014E-07	0.237919286	7.71035E-08	8.25591E-07	1.266232143	4.10353E-07	4.39389E-06	1.138498571	3.68958E-07	3.95065E-06	1.376417857	4.46061E-07	4.77624E-06
Road 4	4	0500-0600	0.242717917	1.34843E-07	1.44385E-06	0.219530833	1.21962E-07	1.30591E-06	1.119122917	6.21735E-07	6.65728E-06	1.010783333	5.61546E-07	6.0128E-06	1.230314167	6.83508E-07	7.31871E-06
Road 4	4	0600-0700	0.268013396	3.28813E-07	3.52079E-06	0.244238113	2.99644E-07	3.20846E-06	1.241892075	1.52362E-06	1.63143E-05	1.130841698	1.38738E-06	1.48554E-05	1.375079811	1.68702E-06	1.80639E-05
Road 4	4	0700-0800	0.267622609	5.69937E-07	6.10265E-06	0.24604837	5.23992E-07	5.61068E-06	1.28665837	2.74011E-06	2.93399E-05	1.181387826	2.51592E-06	2.69394E-05	1.427436196	3.03991E-06	3.25501E-05
Road 4	4	0800-0900	0.274760516	9.85831E-07	1.05559E-05	0.252115032	9.04579E-07	9.68585E-06	1.324324452	4.75163E-06	5.08784E-05	1.214529161	4.35769E-06	4.66603E-05	1.466644194	5.26227E-06	5.63461E-05
Road 4	4	0900-1000	0.279998649	9.59255E-07	1.02713E-05	0.25768	8.82793E-07	9.45257E-06	1.281443986	4.39013E-06	4.70077E-05	1.178526014	4.03754E-06	4.32323E-05	1.436206014	4.92034E-06	5.26849E-05
Road 4	4	1000-1100	0.312619653	1.04207E-06	1.1158E-05	0.28669625	9.55654E-07	1.02327E-05	1.434033611	4.78011E-06	5.11834E-05	1.314830764	4.38277E-06	4.69288E-05	1.601527014	5.33842E-06	5.71616E-05
Road 4	4	1100-1200	0.290734387	1.04314E-06	1.11695E-05	0.264286258	9.48249E-07	1.01535E-05	1.325231484	4.75488E-06	5.09133E-05	1.204072839	4.32017E-06	4.62585E-05	1.468359097	5.26842E-06	5.6412E-05
Road 4	4	1200-1300	0.297367838	1.01876E-06	1.09085E-05	0.271306689	9.29477E-07	9.95244E-06	1.415047635	4.84785E-06	5.19087E-05	1.29042277	4.42089E-06	4.73371E-05	1.561729459	5.35037E-06	5.72895E-05
Road 4	4	1300-1400	0.306021467	1.06257E-06	1.13776E-05	0.276392933	9.59698E-07	1.0276E-05	1.422006733	4.93752E-06	5.28689E-05	1.283988067	4.45829E-06	4.77375E-05	1.560381	5.41799E-06	5.80135E-05
Road 4	4	1400-1500	0.278439857	9.02351E-07	9.662E-06	0.250741	8.12587E-07	8.70083E-06	1.335823143	4.32906E-06	4.63537E-05	1.202044714	3.89552E-06	4.17115E-05	1.452785714	4.7081E-06	5.04124E-05
Road 4	4	1500-1600	0.31304352	9.05797E-07	9.69889E-06	0.28483232	8.24168E-07	8.82484E-06	1.45477816	4.20943E-06	4.50728E-05	1.32331632	3.82904E-06	4.09997E-05	1.60814864	4.65321E-06	4.98246E-05
Road 4	4	1600-1700	0.293984839	8.43845E-07	9.03554E-06	0.265344839	7.61638E-07	8.1553E-06	1.379952581	3.96098E-06	4.24124E-05	1.245045403	3.57374E-06	3.82661E-05	1.510390242	4.33538E-06	4.64214E-05
Road 4	4	1700-1800	0.281675906	8.28075E-07	8.86668E-06	0.254921575	7.49422E-07	8.0245E-06	1.344238268	3.95181E-06	4.23143E-05	1.215903543	3.57453E-06	3.82746E-05	1.470825118	4.32395E-06	4.62991E-05
Road 4	4	1800-1900	0.311157642	7.63489E-07	8.17511E-06	0.279155377	6.84965E-07	7.33481E-06	1.498109717	3.67592E-06	3.93602E-05	1.343674906	3.29698E-06	3.53027E-05	1.622830283	3.98194E-06	4.2637E-05
Road 4	4	1900-2000	0.280145676	4.79879E-07	5.13834E-06	0.253456622	4.34162E-07	4.64882E-06	1.352344865	2.31652E-06	2.48043E-05	1.222877027	2.09474E-06	2.24296E-05	1.476333649	2.5289E-06	2.70784E-05
Road 4	4	2000-2100	0.245033265	2.77931E-07	2.97597E-06	0.219862857	2.49381E-07	2.67027E-06	1.188390816	1.34794E-06	1.44332E-05	1.064879592	1.20785E-06	1.29331E-05	1.284742449	1.45723E-06	1.56034E-05
Road 4	4	2100-2200	0.201909459	1.72932E-07	1.85168E-06	0.18281	1.56573E-07	1.67652E-06	1.000331081	8.56765E-07	9.17388E-06	0.903933243	7.74202E-07	8.28983E-06	1.086743243	9.30775E-07	9.96635E-06
Road 4	4	2200-2300	0.276829365	4.03709E-07	4.32275E-06	0.249744921	3.64211E-07	3.89982E-06	1.316922222	1.92051E-06	2.0564E-05	1.187186349	1.73131E-06	1.85382E-05	1.43693127	2.09552E-06	2.2438E-05
Road 4	4	2300-0000	0.25761898	2.92207E-07	3.12883E-06	0.232249388	2.63431E-07	2.82071E-06	1.259201837	1.42826E-06	1.52932E-05	1.134255102	1.28654E-06	1.37757E-05	1.36650449	1.54997E-06	1.65964E-05
Road 5	5	0000-0100	0.08759487	3.17301E-07	4.29092E-06	0.078449793	2.84174E-07	3.84294E-06	0.49415399	1.79001E-06	2.42066E-05	0.437997306	1.58659E-06	2.14557E-05	0.516447098	1.87076E-06	2.52987E-05
Road 5	5	0100-0200	0.059179262	1.35508E-07	1.8325E-06	0.05345377	1.22398E-07	1.65521E-06	0.36744123	8.41363E-07	1.13779E-05	0.328400738	7.51969E-07	1.0169E-05	0.381854508	8.74367E-07	1.18242E-05
Road 5	5	0200-0300	0.056302442	9.08786E-08	1.22897E-06	0.050961395	8.22575E-08	1.11238E-06	0.395896163	6.39022E-07	8.64161E-06	0.352049767	5.68248E-07	7.68453E-06	0.403011163	6.50506E-07	8.79691E-06
Road 5	5	0300-0400	0.050569365	5.97949E-08	8.08617E-07	0.04524381	5.34977E-08	7.2346E-07	0.286285714	3.38514E-07	4.57778E-06	0.250138095	2.95771E-07	3.99977E-06	0.295381905	3.49269E-07	4.72323E-06
Road 5	5	0400-0500	0.069824646	1.29742E-07	1.75452E-06	0.062709697	1.16521E-07	1.57574E-06	0.404553636	7.51704E-07	1.01654E-05	0.35869697	6.66498E-07	9.01317E-06	0.421406667	7.83019E-07	1.05889E-05
Road 5	5	0500-0600	0.056287455	2.32418E-07	3.14303E-06	0.050771818	2.09643E-07	2.83505E-06	0.333995273	1.37911E-06	1.865E-05	0.295888091	1.22176E-06	1.65221E-05	0.346659909	1.4314E-06	1.93571E-05
Road 5	5	0600-0700	0.081731031	5.95188E-07	8.04884E-06	0.074403402	5.41827E-07	7.32722E-06	0.415500232	3.02579E-06	4.09183E-05	0.374182423	2.7249E-06	3.68494E-05	0.448585825	3.26673E-06	4.41766E-05
Road 5	5	0700-0800	0.063246445	7.51408E-07	1.01614E-05	0.058024044	6.89362E-07	9.32237E-06	0.339688673	4.03572E-06	5.45757E-05	0.307134013	3.64895E-06	4.93454E-05	0.365158057	4.33831E-06	5.86678E-05
Road 5	5	0800-0900	0.067709348	1.0713E-06	1.44874E-05	0.062079122	9.8222E-07	1.32828E-05	0.334780308	5.29692E-06	7.16312E-05	0.303488754	4.80182E-06	6.49359E-05	0.365567877	5.78404E-06	7.82187E-05
Road 5	5	0900-1000	0.074818248	1.14587E-06	1.54957E-05	0.068919877	1.05553E-06	1.42741E-05	0.401114326	6.14319E-06	8.30755E-05	0.3665719	5.61416E-06	7.59214E-05	0.435491777	6.66969E-06	9.01955E-05
Road 5	5	1000-1100	0.085476035	1.17754E-06	1.59241E-05	0.07838985	1.07992E-06	1.4604E-05	0.44510406	6.13188E-06	8.29225E-05	0.405153215	5.5815E-06	7.54797E-05	0.483543065	6.66142E-06	9.00837E-05
Road 5	5	1100-1200	0.084395722	1.10722E-06	1.49731E-05	0.076722961	1.00656E-06	1.36119E-05	0.45958166	6.02942E-06	8.1537E-05	0.413943019	5.43067E-06	7.344E-05	0.49066598	6.43723E-06	8.70518E-05
Road 5	5	1200-1300	0.078286832	1.03883E-06	1.40483E-05	0.071402801	9.47481E-07	1.2813E-05	0.42915239	5.69465E-06	7.70098E-05	0.388312786	5.15272E-06	6.96813E-05	0.459715587	6.1002E-06	8.24942E-05
Road 5	5	1300-1400	0.085829755	1.25168E-06	1.69268E-05	0.077540335	1.1308E-06	1.5292E-05	0.449309434	6.55243E-06	8.86097E-05	0.402583925	5.87102E-06	7.93948E-05	0.48012426	7.00181E-06	9.46868E-05
Road 5	5	1400-1500	0.080869887	1.20516E-06	1.62975E-05	0.072836839	1.08544E-06	1.46787E-05	0.425087065	6.33482E-06	8.56669E-05	0.380230869	5.66635E-06	7.66272E-05	0.453067708	6.7518E-06	9.13058E-05
Road 5	5	1500-1600	0.090438247	1.30701E-06	1.76749E-05	0.082314208	1.1896E-06	1.60872E-05	0.463631351	6.70038E-06	9.06105E-05	0.419351013	6.06044E-06	8.19565E-05	0.501665221	7.25004E-06	9.80437E-05
Road 5	5	1600-1700	0.086260023	1.381E-06	1.86756E-05	0.077849672	1.24635E-06	1.68547E-05	0.4518583	7.23414E-06	9.78287E-05	0.404052732	6.46879E-06	8.74786E-05	0.481902403	7.71514E-06	0.000104333
Road 5	5	1700-1800	0.06346611	1.01369E-06	1.37084E-05	0.057370024	9.16327E-07	1.23917E-05	0.333968954	5.33423E-06	7.21357E-05	0.298344266	4.76522E-06	6.4441E-05	0.355714289	5.68155E-06	7.68326E-05
Road 5	5	1800-1900	0.059397388	1.02452E-06	1.38547E-05	0.053194657	9.17528E-07	1.24079E-05	0.342865974	5.91392E-06	7.99751E-05	0.302242437	5.21323E-06	7.04995E-05	0.355437095	6.13076E-06	8.29074E-05
Road 5	5	1900-2000	0.068884023	8.86908E-07	1.19938E-05	0.062223397	8.0115E-07	1.08341E-05	0.392959082	5.0595E-06	6.84205E-05	0.350697187	4.51536E-06	6.1062E-05	0.412920583	5.31651E-06	7.18961E-05
Road 5	5	2000-2100	0.06693775	7.53803E-07	1.01938E-05	0.059998617	6.7566E-07	9.13708E-06	0.3766258	4.24128E-06	5.73556E-05	0.333577517	3.7565E-06	5.07999E-05	0.393576133	4.43216E-06	5.9937E-05
Road 5	5	2100-2200	0.068297007	7.4091E-07	1.00195E-05	0.061723806	6.69601E-07	9.05514E-06	0.393996765	4.27421E-06	5.7801E-05	0.352088564	3.81958E-06	5.16529E-05	0.41381237	4.48918E-06	6.0708E-05
Road 5	5	2200-2300	0.067207435	6.29439E-07	8.51202E-06	0.060538337	5.66979E-07	7.66736E-06	0.384030561	3.59668E-06	4.86386E-05	0.341262325	3.19613E-06	4.32219E-05	0.401800661	3.76311E-06	5.08893E-05
Road 5	5	2300-0000	0.058963841	5.01325E-07	6.77952E-06	0.053084172	4.51335E-07	6.10349E-06	0.354823775	3.0168E-06	4.07968E-05	0.314113267	2.67067E-06	3.6116E-05	0.367197439	3.12201E-06	4.22195E-05
Road 6	6	0000-0100	0.052557467	1.47966E-07	5.28918E-06	0.046935733	1.32139E-07	4.72343E-06	0.3458766	9.73752E-07	3.48077E-05	0.303005	8.53055E-07	3.04932E-05	0.349940733	9.85194E-07	3.52167E-05
Road 6	6	0100-0200	0.069799825	1.49346E-07	5.33853E-06	0.063025877	1.34853E-07	4.82044E-06	0.400124211	8.56122E-07	3.06029E-05	0.35652114	7.62827E-07	2.7268E-05	0.419547018	8.97679E-07	3.20884E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.063211013	9.3725E-08	3.35029E-06	0.05733519	8.50128E-08	3.03886E-06	0.368700253	5.46684E-07	1.95417E-05	0.329347595	4.88334E-07	1.7456E-05	0.386682785	5.73347E-07	2.04948E-05
Road 6	6	0300-0400	0.065345968	7.60407E-08	2.71815E-06	0.058685806	6.82905E-08	2.44111E-06	0.424968548	4.9452E-07	1.76771E-05	0.376151613	4.37714E-07	1.56465E-05	0.434837419	5.06005E-07	1.80876E-05
Road 6	6	0400-0500	0.070631889	1.19311E-07	4.26487E-06	0.063428111	1.07142E-07	3.8299E-06	0.422497667	7.13678E-07	2.55111E-05	0.373739222	6.31316E-07	2.2567E-05	0.437167333	7.38458E-07	2.63969E-05
Road 6	6	0500-0600	0.062882654	1.91197E-07	6.83453E-06	0.056766049	1.72599E-07	6.16973E-06	0.387900864	1.17943E-06	4.21598E-05	0.343883272	1.04559E-06	3.73756E-05	0.400649321	1.21819E-06	4.35454E-05
Road 6	6	0600-0700	0.066771966	3.63436E-07	1.29914E-05	0.060729172	3.30545E-07	1.18157E-05	0.42979969	2.33938E-06	8.36232E-05	0.384435966	2.09246E-06	7.47971E-05	0.445165138	2.42301E-06	8.66127E-05
Road 6	6	0700-0800	0.062148939	5.38904E-07	1.92636E-05	0.057015216	4.94389E-07	1.76724E-05	0.364418442	3.15993E-06	0.000112955	0.329099307	2.85368E-06	0.000102007	0.386114524	3.34807E-06	0.00011968
Road 6	6	0800-0900	0.052677689	6.54516E-07	2.33963E-05	0.048189909	5.98756E-07	2.14031E-05	0.31734645	3.94301E-06	0.000140946	0.284653625	3.5368E-06	0.000126426	0.332843535	4.13556E-06	0.000147829
Road 6	6	0900-1000	0.055596145	6.60517E-07	2.36108E-05	0.051071374	6.0676E-07	2.16892E-05	0.320178878	3.80393E-06	0.000135975	0.289048515	3.43408E-06	0.000122754	0.340119889	4.04084E-06	0.000144444
Road 6	6	1000-1100	0.074696654	7.50051E-07	2.68113E-05	0.068400318	6.86828E-07	2.45513E-05	0.413619664	4.15328E-06	0.000148463	0.374113009	3.75658E-06	0.000134282	0.442513327	4.44341E-06	0.000158834
Road 6	6	1100-1200	0.086124492	8.59952E-07	3.07398E-05	0.078271335	7.81538E-07	2.79368E-05	0.454474211	4.53792E-06	0.000162212	0.409074417	4.0846E-06	0.000146008	0.487345752	4.86614E-06	0.000173945
Road 6	6	1200-1300	0.08258304	8.10641E-07	2.89771E-05	0.075373346	7.3987E-07	2.64473E-05	0.417215966	4.09542E-06	0.000146395	0.377970249	3.71018E-06	0.000132624	0.453343595	4.45005E-06	0.000159071
Road 6	6	1300-1400	0.096023512	9.38969E-07	3.35643E-05	0.086742303	8.48212E-07	3.03201E-05	0.493573109	4.82642E-06	0.000172525	0.442381382	4.32584E-06	0.000154631	0.529123685	5.17405E-06	0.000184951
Road 6	6	1400-1500	0.091292369	9.83518E-07	3.51568E-05	0.082241986	8.86015E-07	3.16715E-05	0.462060557	4.9779E-06	0.00017794	0.412983606	4.44919E-06	0.00015904	0.495225592	5.3352E-06	0.000190712
Road 6	6	1500-1600	0.080372456	8.47773E-07	3.03044E-05	0.073104004	7.71105E-07	2.75639E-05	0.421567331	4.44671E-06	0.000158952	0.380382473	4.01229E-06	0.000143423	0.453486477	4.7834E-06	0.000170987
Road 6	6	1600-1700	0.084411701	9.12559E-07	3.26203E-05	0.076179549	8.23563E-07	2.9439E-05	0.423165017	4.57476E-06	0.000163529	0.378628906	4.09329E-06	0.000146318	0.454808455	4.91685E-06	0.000175757
Road 6	6	1700-1800	0.063181951	7.23367E-07	2.58574E-05	0.057135852	6.54145E-07	2.3383E-05	0.329438541	3.77173E-06	0.000134824	0.294413443	3.37072E-06	0.00012049	0.351549295	4.02487E-06	0.000143873
Road 6	6	1800-1900	0.061769405	7.98782E-07	2.85532E-05	0.05533328	7.15552E-07	2.55781E-05	0.328951872	4.2539E-06	0.00015206	0.290755559	3.75996E-06	0.000134403	0.346088839	4.47551E-06	0.000159981
Road 6	6	1900-2000	0.073376221	7.21643E-07	2.57958E-05	0.066278149	6.51835E-07	2.33004E-05	0.391004771	3.84547E-06	0.00013746	0.348883664	3.43121E-06	0.000122652	0.415161813	4.08305E-06	0.000145952
Road 6	6	2000-2100	0.058210526	4.56682E-07	1.63245E-05	0.052131124	4.08987E-07	1.46196E-05	0.345904019	2.71374E-06	9.70051E-05	0.305409761	2.39605E-06	8.56489E-05	0.357540885	2.80503E-06	0.000100269
Road 6	6	2100-2200	0.080228361	5.42084E-07	1.93773E-05	0.072523944	4.90027E-07	1.75165E-05	0.432536472	2.92254E-06	0.000104469	0.387104667	2.61557E-06	9.34961E-05	0.459628611	3.1056E-06	0.000111013
Road 6	6	2200-2300	0.061432598	4.39298E-07	1.57031E-05	0.055260551	3.95163E-07	1.41255E-05	0.356155249	2.54683E-06	9.10389E-05	0.313892415	2.24461E-06	8.02358E-05	0.369152966	2.63978E-06	9.43613E-05
Road 6	6	2300-0000	0.041279384	2.7659E-07	9.88699E-06	0.037150196	2.48923E-07	8.89799E-06	0.265445098	1.7786E-06	6.35778E-05	0.234103557	1.5686E-06	5.60711E-05	0.271253754	1.81752E-06	6.49691E-05
Road 7	7	0000-0100	0.076868651	2.0758E-07	5.18189E-06	0.06875572	1.85672E-07	4.63498E-06	0.460541323	1.24367E-06	3.10461E-05	0.407028208	1.09916E-06	2.74387E-05	0.475783928	1.28483E-06	3.20736E-05
Road 7	7	0100-0200	0.094633431	1.99222E-07	4.97323E-06	0.085108988	1.79171E-07	4.47269E-06	0.522954591	1.10092E-06	2.74826E-05	0.466257601	9.81563E-07	2.4503E-05	0.55136659	1.16073E-06	2.89757E-05
Road 7	7	0200-0300	0.08061143	1.10014E-07	2.74631E-06	0.073125106	9.97973E-08	2.49127E-06	0.462570067	6.31291E-07	1.57591E-05	0.415254255	5.66717E-07	1.41471E-05	0.488379362	6.66514E-07	1.66384E-05
Road 7	7	0300-0400	0.082709048	9.12622E-08	2.2782E-06	0.074357632	8.20471E-08	2.04816E-06	0.50469481	5.56887E-07	1.39017E-05	0.449359079	4.95828E-07	1.23775E-05	0.523716711	5.77876E-07	1.44257E-05
Road 7	7	0400-0500	0.091606216	1.47629E-07	3.68531E-06	0.082321532	1.32666E-07	3.31178E-06	0.516516216	8.32398E-07	2.07794E-05	0.459469099	7.40463E-07	1.84844E-05	0.541790631	8.7313E-07	2.17962E-05
Road 7	7	0500-0600	0.082137898	2.3612E-07	5.89433E-06	0.074179646	2.13243E-07	5.32323E-06	0.470260434	1.35185E-06	3.37465E-05	0.419342374	1.20548E-06	3.00926E-05	0.49352202	1.41872E-06	3.54158E-05
Road 7	7	0600-0700	0.086211948	4.43093E-07	1.10611E-05	0.078441893	4.03158E-07	1.00641E-05	0.507263396	2.60712E-06	6.50822E-05	0.455983333	2.34356E-06	5.8503E-05	0.534425226	2.74672E-06	6.85671E-05
Road 7	7	0700-0800	0.081906012	6.71875E-07	1.67722E-05	0.075232283	6.17131E-07	1.54056E-05	0.452948399	3.71554E-06	9.27519E-05	0.411529799	3.37578E-06	8.42705E-05	0.486762081	3.99291E-06	9.96761E-05
Road 7	7	0800-0900	0.081037479	1.00595E-06	2.51118E-05	0.074441024	9.24066E-07	2.30677E-05	0.445470904	5.5298E-06	0.000138042	0.404728799	5.02406E-06	0.000125417	0.479169823	5.94812E-06	0.000148485
Road 7	7	0900-1000	0.08272809	9.51267E-07	2.37467E-05	0.075746648	8.7099E-07	2.17427E-05	0.437704222	5.03304E-06	0.000125641	0.396493298	4.55917E-06	0.000113812	0.472239945	5.43016E-06	0.000135554
Road 7	7	1000-1100	0.098173599	9.90613E-07	2.47289E-05	0.090151769	9.09669E-07	2.27083E-05	0.519928551	5.2463E-06	0.000130965	0.473873215	4.78158E-06	0.000119364	0.564024984	5.69125E-06	0.000142072
Road 7	7	1100-1200	0.109113696	1.09942E-06	2.74451E-05	0.09938627	1.00141E-06	2.49984E-05	0.561793623	5.66058E-06	0.000141306	0.508684564	5.12545E-06	0.000127948	0.608070834	6.12686E-06	0.000152946
Road 7	7	1200-1300	0.106322145	1.06975E-06	2.67044E-05	0.096829074	9.74234E-07	2.43201E-05	0.538913708	5.42222E-06	0.000135356	0.488715307	4.91715E-06	0.000122748	0.585544381	5.89138E-06	0.000147068
Road 7	7	1300-1400	0.113727346	1.12609E-06	2.81109E-05	0.102853734	1.01842E-06	2.54232E-05	0.578018959	5.72336E-06	0.000142874	0.519970899	5.14858E-06	0.000128525	0.622824633	6.16701E-06	0.000153949
Road 7	7	1400-1500	0.106074109	1.09959E-06	2.74494E-05	0.09568853	9.91933E-07	2.47619E-05	0.542118138	5.61974E-06	0.000140287	0.486404023	5.0422E-06	0.00012587	0.582092553	6.03413E-06	0.000150632
Road 7	7	1500-1600	0.098639968	1.00391E-06	2.50609E-05	0.089518063	9.11073E-07	2.27433E-05	0.511796622	5.20882E-06	0.000130029	0.461734618	4.69932E-06	0.00011731	0.551252681	5.61039E-06	0.000140054
Road 7	7	1600-1700	0.102698742	1.081E-06	2.69854E-05	0.092872167	9.7757E-07	2.44033E-05	0.514363455	5.41418E-06	0.000135156	0.462536442	4.86865E-06	0.000121537	0.55540861	5.84622E-06	0.000145941
Road 7	7	1700-1800	0.079218318	8.82156E-07	2.20215E-05	0.071379525	7.94865E-07	1.98424E-05	0.413332462	4.60277E-06	0.0001149	0.369347248	4.11296E-06	0.000102673	0.440726773	4.90783E-06	0.000122515
Road 7	7	1800-1900	0.073374598	8.4904E-07	2.11948E-05	0.065779262	7.61152E-07	1.90008E-05	0.390099701	4.51397E-06	0.000112683	0.34623251	4.00636E-06	0.000100012	0.412011772	4.76752E-06	0.000119013
Road 7	7	1900-2000	0.08490456	7.42082E-07	1.85248E-05	0.076861196	6.71781E-07	1.67699E-05	0.454402649	3.97156E-06	9.91432E-05	0.407761395	3.56391E-06	8.89669E-05	0.484622591	4.23569E-06	0.000105737
Road 7	7	2000-2100	0.078741633	5.67036E-07	1.41551E-05	0.070640599	5.08698E-07	1.26988E-05	0.43533252	3.13492E-06	7.82579E-05	0.386639969	2.78428E-06	6.95047E-05	0.457280568	3.29298E-06	8.22035E-05
Road 7	7	2100-2200	0.089199332	5.3615E-07	1.33841E-05	0.080785612	4.85578E-07	1.21216E-05	0.481205776	2.89238E-06	7.22033E-05	0.4322466	2.5981E-06	6.48571E-05	0.513032212	3.08368E-06	7.69787E-05
Road 7	7	2200-2300	0.076496174	4.96445E-07	1.23929E-05	0.068927497	4.47326E-07	1.11667E-05	0.428610895	2.7816E-06	6.94379E-05	0.380545985	2.46967E-06	6.1651E-05	0.449473482	2.917E-06	7.28177E-05
Road 7	7	2300-0000	0.053922933	3.21766E-07	8.03232E-06	0.048534574	2.89613E-07	7.22967E-06	0.325933619	1.94489E-06	4.85508E-05	0.289062068	1.72487E-06	4.30585E-05	0.337596642	2.01449E-06	5.02881E-05
Road 8	8	0000-0100	0.243280833	1.76932E-07	2.91665E-06	0.217834722	1.58425E-07	2.61158E-06	1.205282778	8.76569E-07	1.44499E-05	1.078891389	7.84648E-07	1.29346E-05	1.296726111	9.43074E-07	1.55462E-05
Road 8	8	0100-0200	0.252797333	1.53211E-07	2.52562E-06	0.228633667	1.38566E-07	2.28421E-06	1.248924667	7.56924E-07	1.24776E-05	1.129111333	6.8431E-07	1.12806E-05	1.357745	8.22876E-07	1.35648E-05
Road 8	8	0200-0300	0.237639333	7.20119E-08	1.18709E-06	0.215919333	6.54301E-08	1.07859E-06	1.234190667	3.73997E-07	6.1652E-06	1.121142667	3.3974E-07	5.60049E-06	1.337062	4.0517E-07	6.67908E-06
Road 8	8	0300-0400	0.218142143	6.16968E-08	1.01705E-06	0.196060714	5.54515E-08	9.14097E-07	1.109811429	3.13886E-07	5.17429E-06	0.997083571	2.82003E-07	4.64872E-06	1.193144286	3.37455E-07	5.56282E-06
Road 8	8	0400-0500	0.246701429	1.04661E-07	1.7253E-06	0.221920952	9.41483E-08	1.552E-06	1.183478571	5.02082E-07	8.27663E-06	1.064325238	4.51532E-07	7.44333E-06	1.28624619	5.4568E-07	8.99533E-06
Road 8	8	0500-0600	0.233273824	1.60228E-07	2.64131E-06	0.21107	1.44977E-07	2.3899E-06	1.100382353	7.55818E-07	1.24594E-05	0.99494	6.83393E-07	1.12655E-05	1.20601	8.28371E-07	1.36554E-05
Road 8	8	0600-0700	0.259014677	3.24422E-07	5.34798E-06	0.236125323	2.95753E-07	4.87538E-06	1.207318065	1.5122E-06	2.4928E-05	1.099738226	1.37745E-06	2.27067E-05	1.335863548	1.6732E-06	2.75821E-05
Road 8	8	0700-0800	0.255800294	5.27104E-07	8.68911E-06	0.235215784	4.84687E-07	7.98988E-06	1.204559804	2.48212E-06	4.09169E-05	1.106566961	2.2802E-06	3.75882E-05	1.341782745	2.76489E-06	4.55781E-05
Road 8	8	0800-0900	0.283704635	1.10043E-06	1.81402E-05	0.260477552	1.01034E-06	1.6655E-05	1.340460313	5.19936E-06	8.57095E-05	1.229941979	4.77068E-06	7.86429E-05	1.490419531	5.78102E-06	9.5298E-05
Road 8	8	0900-1000	0.302642595	9.66011E-07	1.59243E-05	0.278581899	8.89211E-07	1.46583E-05	1.359052911	4.33799E-06	7.15101E-05	1.251004304	3.9931E-06	6.58248E-05	1.529586203	4.88232E-06	8.04831E-05
Road 8	8	1000-1100	0.287107875	9.28025E-07	1.52982E-05	0.263324875	8.51151E-07	1.40309E-05	1.328390188	4.29379E-06	7.07815E-05	1.217706438	3.93602E-06	6.48838E-05	1.481031313	4.78717E-06	7.89147E-05
Road 8	8	1100-1200	0.298470755	9.58724E-07	1.58042E-05	0.271308491	8.71476E-07	1.4366E-05	1.393746541	4.47688E-06	7.37997E-05	1.266592327	4.06845E-06	6.70668E-05	1.537900818	4.93992E-06	8.14328E-05
Road 8	8	1200-1300	0.300390176	1.03164E-06	1.70062E-05	0.274037294	9.41138E-07	1.55143E-05	1.414768412	4.8588E-06	8.00955E-05	1.290143235	4.43079E-06	7.304E-05	1.564180529	5.37193E-06	8.85543E-05
Road 8	8	1300-1400	0.275728395	9.02384E-07	1.48755E-05	0.24906858	8.15134E-07	1.34372E-05	1.281072716	4.1926E-06	6.91135E-05	1.156839568	3.78602E-06	6.24111E-05	1.405908148	4.60115E-06	7.58483E-05
Road 8	8	1400-1500	0.269407266	7.56517E-07	1.24709E-05	0.242639928	6.81353E-07	1.12318E-05	1.303269137	3.65969E-06	6.03285E-05	1.173363525	3.2949E-06	5.43152E-05	1.416003453	3.97625E-06	6.5547E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.278293741	7.81471E-07	1.28823E-05	0.253202878	7.11014E-07	1.17208E-05	1.313009209	3.68704E-06	6.07794E-05	1.193746187	3.35214E-06	5.52587E-05	1.446949065	4.06315E-06	6.69795E-05
Road 8	8	1600-1700	0.278993624	8.39799E-07	1.38438E-05	0.251755436	7.57809E-07	1.24922E-05	1.304175503	3.9257E-06	6.47137E-05	1.176479195	3.54132E-06	5.83773E-05	1.428234631	4.29913E-06	7.08696E-05
Road 8	8	1700-1800	0.228134936	7.18971E-07	1.1852E-05	0.206377564	6.50402E-07	1.07216E-05	1.109180577	3.4956E-06	5.76236E-05	1.00223609	3.15856E-06	5.20677E-05	1.208613654	3.80896E-06	6.27893E-05
Road 8	8	1800-1900	0.229115421	4.9526E-07	8.16417E-06	0.205616822	4.44465E-07	7.32683E-06	1.141695981	2.46791E-06	4.06825E-05	1.023453458	2.21231E-06	3.64692E-05	1.22907028	2.65678E-06	4.3796E-05
Road 8	8	1900-2000	0.227359481	3.5367E-07	5.83012E-06	0.205728961	3.20023E-07	5.27546E-06	1.160276104	1.80487E-06	2.97527E-05	1.049517532	1.63258E-06	2.69125E-05	1.255246494	1.95261E-06	3.2188E-05
Road 8	8	2000-2100	0.250536364	3.89723E-07	6.42444E-06	0.224804416	3.49696E-07	5.7646E-06	1.167047922	1.81541E-06	2.99263E-05	1.046065844	1.62721E-06	2.6824E-05	1.27087026	1.97691E-06	3.25886E-05
Road 8	8	2100-2200	0.204482037	2.23071E-07	3.67725E-06	0.185061296	2.01885E-07	3.328E-06	1.040523333	1.13512E-06	1.8712E-05	0.939548519	1.02496E-06	1.68961E-05	1.124609815	1.22685E-06	2.02241E-05
Road 8	8	2200-2300	0.2507425	3.24192E-07	5.34419E-06	0.226202813	2.92464E-07	4.82116E-06	1.206712188	1.56019E-06	2.57192E-05	1.087314063	1.40582E-06	2.31744E-05	1.313516875	1.69828E-06	2.79956E-05
Road 8	8	2300-0000	0.196495472	2.10389E-07	3.46819E-06	0.177204151	1.89734E-07	3.12769E-06	0.98441283	1.05402E-06	1.73751E-05	0.886886415	9.49596E-07	1.56537E-05	1.064090566	1.13933E-06	1.87814E-05
Road 9	9	0000-0100	0.67199903	1.75729E-07	5.32768E-06	0.653494969	1.7089E-07	5.18098E-06	3.674944839	9.61003E-07	2.91354E-05	3.583520695	9.37096E-07	2.84105E-05	4.237015665	1.10799E-06	3.35915E-05
Road 9	9	0100-0200	0.699075458	1.43636E-07	4.3547E-06	0.680332287	1.39785E-07	4.23794E-06	3.649293027	7.49803E-07	2.27323E-05	3.559764202	7.31408E-07	2.21746E-05	4.240096489	8.71193E-07	2.64125E-05
Road 9	9	0200-0300	0.348846352	3.25799E-08	9.87747E-07	0.340658873	3.18153E-08	9.64564E-07	2.406427876	2.24744E-07	6.81372E-06	2.341835062	2.18712E-07	6.63083E-06	2.682493935	2.50527E-07	7.59539E-06
Road 9	9	0300-0400	0.43297304	3.23494E-08	9.80759E-07	0.422204813	3.15449E-08	9.56367E-07	2.86538045	2.14086E-07	6.49058E-06	2.798638193	2.09099E-07	6.3394E-06	3.220843006	2.40644E-07	7.29577E-06
Road 9	9	0400-0500	0.763859433	1.42679E-07	4.32568E-06	0.743299365	1.38838E-07	4.20925E-06	3.950735467	7.37945E-07	2.23727E-05	3.855613575	7.20177E-07	2.18341E-05	4.59891294	8.59016E-07	2.60433E-05
Road 9	9	0500-0600	0.556854194	1.76822E-07	5.36083E-06	0.542458723	1.72251E-07	5.22224E-06	3.133986059	9.95158E-07	3.01708E-05	3.052098869	9.69156E-07	2.93825E-05	3.594557592	1.14141E-06	3.46048E-05
Road 9	9	0600-0700	0.610642407	3.64992E-07	1.10657E-05	0.595921506	3.56193E-07	1.07989E-05	3.456602951	2.06607E-06	6.26384E-05	3.366940485	2.01248E-06	6.10136E-05	3.962861991	2.36867E-06	7.18125E-05
Road 9	9	0700-0800	0.437948682	4.00835E-07	1.21524E-05	0.427399019	3.91179E-07	1.18596E-05	2.54811256	2.33217E-06	7.0706E-05	2.476318023	2.26646E-06	6.87138E-05	2.903717042	2.65764E-06	8.05734E-05
Road 9	9	0800-0900	0.765116515	1.64351E-06	4.98272E-05	0.747216824	1.60506E-06	4.86615E-05	4.455664546	9.57098E-06	0.000290169	4.360064376	9.36562E-06	0.000283944	5.1072812	1.09707E-05	0.000332605
Road 9	9	0900-1000	0.740121412	1.20273E-06	3.64639E-05	0.7225231	1.17413E-06	3.55969E-05	3.943992319	6.40916E-06	0.000194311	3.855605327	6.26553E-06	0.000189956	4.578128427	7.43966E-06	0.000225553
Road 9	9	1000-1100	0.907167409	1.23696E-06	3.75018E-05	0.887063389	1.20955E-06	3.66707E-05	4.717678843	6.43276E-06	0.000195026	4.623817942	6.30478E-06	0.000191146	5.510881331	7.51432E-06	0.000227817
Road 9	9	1100-1200	0.712927032	1.01206E-06	3.06832E-05	0.695629195	9.87501E-07	2.99387E-05	4.000172657	5.67856E-06	0.000172161	3.90508808	5.54358E-06	0.000168068	4.600717275	6.53108E-06	0.000198007
Road 9	9	1200-1300	0.80408843	1.11143E-06	3.36959E-05	0.783872465	1.08349E-06	3.28487E-05	4.229920759	5.84669E-06	0.000177258	4.130918761	5.70985E-06	0.000173109	4.914791226	6.79333E-06	0.000205958
Road 9	9	1300-1400	0.869635737	9.90862E-07	3.00406E-05	0.844559704	9.62291E-07	2.91744E-05	3.950319184	4.50099E-06	0.000136459	3.844161875	4.38003E-06	0.000132792	4.688721578	5.34232E-06	0.000161967
Road 9	9	1400-1500	0.543671722	6.90545E-07	2.09357E-05	0.527957051	6.70585E-07	2.03305E-05	3.27121116	4.15493E-06	0.000125968	3.180055421	4.03915E-06	0.000122457	3.708012472	4.70973E-06	0.000142788
Road 9	9	1500-1600	0.570089047	6.06965E-07	1.84017E-05	0.556456831	5.92451E-07	1.79617E-05	3.36755152	3.58538E-06	0.0001087	3.289386852	3.50216E-06	0.000106177	3.845843683	4.09461E-06	0.000124139
Road 9	9	1600-1700	0.517227056	7.72889E-07	2.34322E-05	0.503909498	7.52989E-07	2.28288E-05	3.182473973	4.75555E-06	0.000144177	3.100696172	4.63335E-06	0.000140472	3.60460567	5.38634E-06	0.000163301
Road 9	9	1700-1800	0.391491166	5.04565E-07	1.52972E-05	0.380657442	4.90602E-07	1.48739E-05	2.349407787	3.02798E-06	9.18013E-05	2.277242077	2.93497E-06	8.89815E-05	2.657899519	3.42558E-06	0.000103855
Road 9	9	1800-1900	0.371813663	3.05579E-07	9.26445E-06	0.361058765	2.9674E-07	8.99647E-06	2.094572199	1.72145E-06	5.21903E-05	2.025414731	1.66461E-06	5.04671E-05	2.386473495	1.96135E-06	5.94635E-05
Road 9	9	1900-2000	0.413348278	3.31994E-07	1.00653E-05	0.402188338	3.23031E-07	9.79353E-06	2.428126221	1.95023E-06	5.91264E-05	2.357897169	1.89382E-06	5.74162E-05	2.760085507	2.21685E-06	6.72098E-05
Road 9	9	2000-2100	0.540603347	2.92835E-07	8.87806E-06	0.524973204	2.84368E-07	8.62137E-06	2.442890253	1.32327E-06	4.01184E-05	2.369529069	1.28353E-06	3.89136E-05	2.894502273	1.5679E-06	4.7535E-05
Road 9	9	2100-2200	0.022087974	1.15521E-08	3.50232E-07	0.020396961	1.06677E-08	3.23419E-07	0.32322911	1.6905E-07	5.12519E-06	0.293068419	1.53276E-07	4.64695E-06	0.31346538	1.63943E-07	4.97037E-06
Road 9	9	2200-2300	0.570517713	3.51665E-07	1.06617E-05	0.555823807	3.42608E-07	1.03871E-05	3.182486897	1.96167E-06	5.94733E-05	3.104814738	1.9138E-06	5.80218E-05	3.660638545	2.2564E-06	6.84088E-05
Road 9	9	2300-0000	0.402643876	2.25626E-07	6.84044E-06	0.391494232	2.19378E-07	6.65102E-06	2.308271554	1.29346E-06	3.92148E-05	2.243525647	1.25718E-06	3.81148E-05	2.635019879	1.47656E-06	4.47658E-05
Road 10	10	0000-0100	1.218683261	9.38552E-07	2.08336E-05	1.188819713	9.15553E-07	2.03231E-05	7.60560748	5.85735E-06	0.000130019	7.454931083	5.74131E-06	0.000127443	8.643750796	6.65686E-06	0.000147767
Road 10	10	0100-0200	1.168978372	6.80206E-07	1.5099E-05	1.142310088	6.64688E-07	1.47545E-05	7.224559172	4.20383E-06	9.33151E-05	7.090467914	4.1258E-06	9.15831E-05	8.232778002	4.79049E-06	0.000106338
Road 10	10	0200-0300	1.243674433	4.04404E-07	8.97681E-06	1.217196784	3.95794E-07	8.78569E-06	7.584972506	2.46639E-06	5.47481E-05	7.454702347	2.42403E-06	5.38078E-05	8.671899131	2.81983E-06	6.25935E-05
Road 10	10	0300-0400	1.129723379	2.32011E-07	5.15009E-06	1.102723268	2.26466E-07	5.027E-06	7.263006741	1.4916E-06	3.311E-05	7.118244349	1.46187E-06	3.24501E-05	8.220967618	1.68834E-06	3.74771E-05
Road 10	10	0400-0500	1.210147022	4.76344E-07	1.05737E-05	1.180970906	4.6486E-07	1.03188E-05	7.317571082	2.88038E-06	6.39376E-05	7.175229372	2.82435E-06	6.26939E-05	8.356200277	3.28921E-06	7.30127E-05
Road 10	10	0500-0600	1.069228146	7.50255E-07	1.66539E-05	1.044596198	7.32972E-07	1.62702E-05	6.400405502	4.49103E-06	9.96903E-05	6.278623349	4.40558E-06	9.77935E-05	7.323219548	5.13855E-06	0.000114064
Road 10	10	0600-0700	1.143099967	1.60418E-06	3.5609E-05	1.11713054	1.56773E-06	3.48E-05	6.739431424	9.45784E-06	0.000209942	6.609865794	9.27601E-06	0.000205906	7.726996334	1.08437E-05	0.000240706
Road 10	10	0700-0800	1.096795916	2.42142E-06	5.37498E-05	1.0728993	2.36866E-06	5.25787E-05	6.535195482	1.44279E-05	0.000320265	6.414798594	1.41621E-05	0.000314365	7.487697894	1.65308E-05	0.000366944
Road 10	10	0800-0900	1.232353031	5.23048E-06	0.000116104	1.204237979	5.11115E-06	0.000113455	7.405906584	3.14329E-05	0.000697736	7.268004811	3.08476E-05	0.000684744	8.472242791	3.59588E-05	0.0007982
Road 10	10	0900-1000	1.260173807	4.27022E-06	9.47888E-05	1.232724086	4.17721E-06	9.27241E-05	7.400824151	2.50784E-05	0.000556681	7.268914511	2.46314E-05	0.000546759	8.501638598	2.88086E-05	0.000639483
Road 10	10	1000-1100	1.263894924	4.65055E-06	0.000103231	1.234190431	4.54125E-06	0.000100805	7.220770722	2.65691E-05	0.000589771	7.083828239	2.60652E-05	0.000578586	8.31801867	3.06065E-05	0.000679391
Road 10	10	1100-1200	1.295586009	4.76716E-06	0.00010582	1.262673784	4.64606E-06	0.000103131	7.574063939	2.78691E-05	0.000618627	7.419569618	2.73006E-05	0.000606008	8.682243402	3.19466E-05	0.00070914
Road 10	10	1200-1300	1.288977566	4.89726E-06	0.000108708	1.257289293	4.77687E-06	0.000106035	7.542159707	2.86552E-05	0.000636078	7.39368032	2.80911E-05	0.000623556	8.650969613	3.28679E-05	0.000729591
Road 10	10	1300-1400	1.250955596	4.11053E-06	9.12441E-05	1.217231063	3.99972E-06	8.87842E-05	7.214391847	2.37059E-05	0.000526214	7.057772654	2.31912E-05	0.00051479	8.275003717	2.71909E-05	0.000603575
Road 10	10	1400-1500	1.140963515	3.53431E-06	7.84534E-05	1.109684898	3.43742E-06	7.63027E-05	6.90337861	2.13843E-05	0.000474681	6.748073701	2.09032E-05	0.000464002	7.857758599	2.43406E-05	0.000540305
Road 10	10	1500-1600	1.210926408	3.83393E-06	8.51042E-05	1.181175415	3.73974E-06	8.30133E-05	7.148537455	2.26331E-05	0.000502401	7.007553506	2.21867E-05	0.000492493	8.188728921	2.59265E-05	0.000575506
Road 10	10	1600-1700	1.105959409	3.89907E-06	8.65502E-05	1.07601004	3.79349E-06	8.42064E-05	6.631781264	2.33804E-05	0.00051899	6.484648066	2.28617E-05	0.000507476	7.560658106	2.66552E-05	0.000591682
Road 10	10	1700-1800	1.003944825	3.35042E-06	7.43714E-05	0.977618185	3.26256E-06	7.24211E-05	6.021783231	2.00962E-05	0.000446089	5.890390459	1.96577E-05	0.000436355	6.868008645	2.29203E-05	0.000508776
Road 10	10	1800-1900	1.085848234	2.24859E-06	4.99133E-05	1.055843876	2.18645E-06	4.85341E-05	6.551616734	1.35672E-05	0.000301159	6.403759018	1.3261E-05	0.000294362	7.459602894	1.54474E-05	0.000342896
Road 10	10	1900-2000	1.056256157	1.97038E-06	4.37378E-05	1.03259655	1.92625E-06	4.27581E-05	6.585946768	1.22857E-05	0.000272713	6.462712843	1.20558E-05	0.00026761	7.495309393	1.39821E-05	0.000310368
Road 10	10	2000-2100	1.3544113	1.66893E-06	3.70463E-05	1.321929377	1.6289E-06	3.61578E-05	8.187344895	1.00886E-05	0.000223943	8.032878597	9.89825E-06	0.000219718	9.354807974	1.15272E-05	0.000255876
Road 10	10	2100-2200	0.898926932	1.13844E-06	2.52707E-05	0.878946127	1.11314E-06	2.4709E-05	5.614041058	7.10988E-06	0.000157822	5.506882093	6.97417E-06	0.00015481	6.385828221	8.0873E-06	0.000179519
Road 10	10	2200-2300	1.077963012	1.42053E-06	3.15323E-05	1.052892131	1.38749E-06	3.0799E-05	6.480603461	8.54006E-06	0.000189569	6.356899059	8.37705E-06	0.000185951	7.40979119	9.76453E-06	0.00021675
Road 10	10	2300-0000	0.983819818	1.21228E-06	2.69097E-05	0.959194394	1.18194E-06	2.62362E-05	6.027099696	7.4267E-06	0.000164855	5.903141834	7.27395E-06	0.000161465	6.862336228	8.45589E-06	0.000187701
Road 11	11	0000-0100	1.364455672	1.04229E-06	8.6459E-06	1.33089096	1.01665E-06	8.43322E-06	8.487078241	6.48318E-06	5.37785E-05	8.321207538	6.35648E-06	5.27275E-05	9.652098498	7.37313E-06	6.11607E-05
Road 11	11	0100-0200	1.337404878	7.19784E-07	5.97067E-06	1.306808254	7.03317E-07	5.83407E-06	8.222019572	4.42505E-06	3.67061E-05	8.072147203	4.34438E-06	3.6037E-05	9.378955457	5.0477E-06	4.18711E-05
Road 11	11	0200-0300	1.240695089	3.23098E-07	2.68012E-06	1.214260699	3.16214E-07	2.62302E-06	7.954143385	2.07139E-06	1.71824E-05	7.815574046	2.03531E-06	1.6883E-05	9.029834745	2.35152E-06	1.9506E-05
Road 11	11	0300-0400	1.331676718	3.23671E-07	2.68488E-06	1.299959669	3.15962E-07	2.62093E-06	8.497427074	2.06535E-06	1.71322E-05	8.337070583	2.02637E-06	1.68089E-05	9.637030252	2.34233E-06	1.94298E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	1.227195522	4.2611E-07	3.53461E-06	1.197180488	4.15688E-07	3.44816E-06	7.348979503	2.55173E-06	2.11668E-05	7.204028557	2.5014E-06	2.07493E-05	8.401209045	2.91709E-06	2.41975E-05
Road 11	11	0500-0600	0.975845022	4.57427E-07	3.7944E-06	0.953052386	4.46743E-07	3.70577E-06	5.949267168	2.78872E-06	2.31327E-05	5.830004302	2.73281E-06	2.26689E-05	6.783056688	3.17956E-06	2.63747E-05
Road 11	11	0600-0700	1.023948954	9.24398E-07	7.66796E-06	1.001744624	9.04353E-07	7.50168E-06	6.250594274	5.6429E-06	4.68083E-05	6.130595505	5.53457E-06	4.59097E-05	7.132340129	6.43892E-06	5.34113E-05
Road 11	11	0700-0800	1.163989314	2.20269E-06	1.82715E-05	1.138845352	2.15511E-06	1.78768E-05	7.212847338	1.36493E-05	0.000113222	7.08208233	1.34019E-05	0.000111169	8.220927682	1.5557E-05	0.000129046
Road 11	11	0800-0900	1.172836579	4.17416E-06	3.4625E-05	1.146224014	4.07944E-06	3.38393E-05	7.149577453	2.54455E-05	0.000211073	7.01613383	2.49706E-05	0.000207133	8.162357844	2.90501E-05	0.000240973
Road 11	11	0900-1000	1.155454945	2.94882E-06	2.44607E-05	1.130502421	2.88514E-06	2.39324E-05	6.831711177	1.74351E-05	0.000144626	6.709601789	1.71235E-05	0.000142041	7.840104211	2.00086E-05	0.000165973
Road 11	11	1000-1100	1.250827195	2.62761E-06	2.17962E-05	1.222787227	2.5687E-06	2.13076E-05	7.242438272	1.52141E-05	0.000126203	7.109773329	1.49355E-05	0.000123891	8.332560556	1.75042E-05	0.000145198
Road 11	11	1100-1200	1.177769748	2.78085E-06	2.30673E-05	1.149120177	2.7132E-06	2.25062E-05	7.117390683	1.6805E-05	0.000139398	6.972461412	1.64628E-05	0.00013656	8.121581589	1.9176E-05	0.000159066
Road 11	11	1200-1300	1.298774361	3.6979E-06	3.06744E-05	1.26741744	3.60862E-06	2.99338E-05	7.748996422	2.20631E-05	0.000183015	7.597519048	2.16318E-05	0.000179438	8.864936488	2.52404E-05	0.000209372
Road 11	11	1300-1400	1.315153774	2.76274E-06	2.29171E-05	1.279827359	2.68853E-06	2.23015E-05	7.477392253	1.57077E-05	0.000130297	7.315171754	1.53669E-05	0.00012747	8.594999113	1.80555E-05	0.000149772
Road 11	11	1400-1500	1.049246761	2.11307E-06	1.75281E-05	1.020668604	2.05551E-06	1.70506E-05	6.495975252	1.30822E-05	0.000108518	6.34905697	1.27863E-05	0.000106063	7.369725575	1.48418E-05	0.000123114
Road 11	11	1500-1600	1.141766608	2.31921E-06	1.92381E-05	1.117378967	2.26968E-06	1.88271E-05	7.13764294	1.44983E-05	0.000120265	7.012198072	1.42435E-05	0.000118151	8.129577039	1.65132E-05	0.000136978
Road 11	11	1600-1700	1.018118633	2.47459E-06	2.0527E-05	0.994159334	2.41636E-06	2.00439E-05	6.415194184	1.55925E-05	0.000129341	6.287422525	1.52819E-05	0.000126765	7.281581859	1.76983E-05	0.000146809
Road 11	11	1700-1800	1.037755062	2.57637E-06	2.13712E-05	1.014093806	2.51763E-06	2.08839E-05	6.534261945	1.62222E-05	0.000134565	6.408720243	1.59105E-05	0.000131979	7.422814049	1.84282E-05	0.000152863
Road 11	11	1800-1900	1.167351147	2.39145E-06	1.98373E-05	1.138993941	2.33336E-06	1.93554E-05	7.32593832	1.5008E-05	0.000124493	7.179979053	1.4709E-05	0.000122012	8.318972994	1.70423E-05	0.000141368
Road 11	11	1900-2000	1.084279049	1.71301E-06	1.42096E-05	1.059457757	1.6738E-06	1.38843E-05	6.802986785	1.07478E-05	8.91537E-05	6.672863166	1.05422E-05	8.74484E-05	7.732320923	1.2216E-05	0.000101333
Road 11	11	2000-2100	1.192382247	1.67679E-06	1.39091E-05	1.163216334	1.63577E-06	1.35689E-05	7.231725986	1.01696E-05	8.43578E-05	7.089088679	9.96903E-06	8.26939E-05	8.252305013	1.16048E-05	9.62628E-05
Road 11	11	2100-2200	0.879550572	8.85659E-07	7.34661E-06	0.860012788	8.65985E-07	7.18342E-06	5.68762027	5.72712E-06	4.75069E-05	5.580545254	5.6193E-06	4.66125E-05	6.440558042	6.48528E-06	5.3796E-05
Road 11	11	2200-2300	1.102052903	1.20537E-06	9.99865E-06	1.076223436	1.17712E-06	9.7643E-06	6.775837679	7.41107E-06	6.14754E-05	6.645602976	7.26863E-06	6.02939E-05	7.721826412	8.44575E-06	7.00582E-05
Road 11	11	2300-0000	1.044312467	1.08783E-06	9.0236E-06	1.019677922	1.06216E-06	8.81074E-06	6.51650341	6.78802E-06	5.63072E-05	6.390089593	6.65634E-06	5.52149E-05	7.409767515	7.71851E-06	6.40256E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.696471612	5.06856E-06	7.62336E-06	2.583451612	4.85611E-06	7.30383E-06	14.93658354	2.80763E-05	4.22281E-05	14.44149354	2.71457E-05	4.08284E-05	17.02494515	3.20018E-05	4.81323E-05
Haul Road 1	HR1	0800-0900	2.696671612	5.06893E-06	7.62392E-06	2.581451612	4.85235E-06	7.29818E-06	14.93747354	2.8078E-05	4.22306E-05	14.43260354	2.7129E-05	4.08033E-05	17.01405515	3.19813E-05	4.81015E-05
Haul Road 1	HR1	0900-1000	2.694881612	5.06557E-06	7.61886E-06	2.583551612	4.8563E-06	7.30412E-06	14.92947354	2.80629E-05	4.2208E-05	14.44189354	2.71464E-05	4.08296E-05	17.02544515	3.20027E-05	4.81337E-05
Haul Road 1	HR1	1000-1100	2.699971612	5.07513E-06	7.63325E-06	2.583451612	4.85611E-06	7.30383E-06	14.95206354	2.81054E-05	4.22719E-05	14.44159354	2.71459E-05	4.08287E-05	17.02504515	3.2002E-05	4.81325E-05
Haul Road 1	HR1	1100-1200	2.705171612	5.08491E-06	7.64795E-06	2.576851612	4.84371E-06	7.28517E-06	14.97444354	2.81475E-05	4.23352E-05	14.41252354	2.70912E-05	4.07465E-05	16.98937515	3.19349E-05	4.80317E-05
Haul Road 1	HR1	1200-1300	2.704271612	5.08322E-06	7.64541E-06	2.580651612	4.85085E-06	7.29592E-06	14.97075354	2.81405E-05	4.23247E-05	14.42920354	2.71226E-05	4.07937E-05	17.00985515	3.19734E-05	4.80896E-05
Haul Road 1	HR1	1300-1400	2.706971612	5.08829E-06	7.65304E-06	2.570361612	4.83151E-06	7.26683E-06	14.98284354	2.81632E-05	4.23589E-05	14.38423354	2.7038E-05	4.06665E-05	16.95459515	3.18695E-05	4.79334E-05
Haul Road 1	HR1	1400-1500	2.706671612	5.08773E-06	7.6522E-06	2.566361612	4.82399E-06	7.25552E-06	14.98134354	2.81604E-05	4.23547E-05	14.36634354	2.70044E-05	4.0616E-05	16.93270515	3.18284E-05	4.78715E-05
Haul Road 1	HR1	1500-1600	2.703771612	5.08228E-06	7.644E-06	2.576851612	4.84371E-06	7.28517E-06	14.96845354	2.81362E-05	4.23182E-05	14.41252354	2.70912E-05	4.07465E-05	16.98937515	3.19349E-05	4.80317E-05
Haul Road 1	HR1	1600-1700	2.706971612	5.08829E-06	7.65304E-06	2.569261612	4.82944E-06	7.26372E-06	14.98284354	2.81632E-05	4.23589E-05	14.37913354	2.70284E-05	4.06521E-05	16.94839515	3.18579E-05	4.79158E-05
Haul Road 1	HR1	1700-1800	2.706971612	5.08829E-06	7.65304E-06	2.572761612	4.83602E-06	7.27361E-06	14.98284354	2.81632E-05	4.23589E-05	14.39462354	2.70576E-05	4.06959E-05	16.96738515	3.18936E-05	4.79695E-05
Haul Road 1	HR1	1800-1900	2.706971612	5.08829E-06	7.65304E-06	2.562061612	4.81591E-06	7.24336E-06	14.98284354	2.81632E-05	4.23589E-05	14.34776354	2.69695E-05	4.05634E-05	16.90982515	3.17854E-05	4.78068E-05
Haul Road 1	HR1	1900-2000	2.704271612	5.08322E-06	7.64541E-06	2.570161612	4.83113E-06	7.26626E-06	14.97075354	2.81405E-05	4.23247E-05	14.38333354	2.70363E-05	4.0664E-05	16.95349515	3.18675E-05	4.79303E-05
Haul Road 1	HR1	2000-2100	2.704271612	5.08322E-06	7.64541E-06	2.560161612	4.81233E-06	7.23799E-06	14.97075354	2.81405E-05	4.23247E-05	14.33937354	2.69537E-05	4.05397E-05	16.89953515	3.1766E-05	4.77777E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.696471612	3.49284E-06	6.95438E-06	2.583451612	3.34644E-06	6.66289E-06	14.93658354	1.93479E-05	3.85224E-05	14.44149354	1.87066E-05	3.72456E-05	17.02494515	2.2053E-05	4.39084E-05
Haul Road 2	HR2	0800-0900	2.696671612	3.4931E-06	6.95489E-06	2.581451612	3.34385E-06	6.65773E-06	14.93747354	1.93491E-05	3.85247E-05	14.43260354	1.86951E-05	3.72226E-05	17.01405515	2.20389E-05	4.38804E-05
Haul Road 2	HR2	0900-1000	2.694881612	3.49078E-06	6.95028E-06	2.583551612	3.34657E-06	6.66315E-06	14.92947354	1.93387E-05	3.85041E-05	14.44189354	1.87071E-05	3.72466E-05	17.02544515	2.20537E-05	4.39097E-05
Haul Road 2	HR2	1000-1100	2.699971612	3.49737E-06	6.9634E-06	2.583451612	3.34644E-06	6.66289E-06	14.95206354	1.9368E-05	3.85623E-05	14.44159354	1.87067E-05	3.72458E-05	17.02504515	2.20532E-05	4.39087E-05
Haul Road 2	HR2	1100-1200	2.705171612	3.50411E-06	6.97681E-06	2.576851612	3.33789E-06	6.64587E-06	14.97444354	1.93969E-05	3.86201E-05	14.41252354	1.86691E-05	3.71708E-05	16.98937515	2.2007E-05	4.38167E-05
Haul Road 2	HR2	1200-1300	2.704271612	3.50294E-06	6.97449E-06	2.580651612	3.34281E-06	6.65567E-06	14.97075354	1.93922E-05	3.86106E-05	14.42920354	1.86907E-05	3.72139E-05	17.00985515	2.20335E-05	4.38695E-05
Haul Road 2	HR2	1300-1400	2.706971612	3.50644E-06	6.98146E-06	2.570361612	3.32948E-06	6.62913E-06	14.98284354	1.94078E-05	3.86417E-05	14.38423354	1.86324E-05	3.70979E-05	16.95459515	2.19619E-05	4.3727E-05
Haul Road 2	HR2	1400-1500	2.706671612	3.50605E-06	6.98068E-06	2.566361612	3.3243E-06	6.61881E-06	14.98134354	1.94059E-05	3.86379E-05	14.36634354	1.86093E-05	3.70517E-05	16.93270515	2.19336E-05	4.36706E-05
Haul Road 2	HR2	1500-1600	2.703771612	3.50229E-06	6.9732E-06	2.576851612	3.33789E-06	6.64587E-06	14.96845354	1.93892E-05	3.86046E-05	14.41252354	1.86691E-05	3.71708E-05	16.98937515	2.2007E-05	4.38167E-05
Haul Road 2	HR2	1600-1700	2.706971612	3.50644E-06	6.98146E-06	2.569261612	3.32806E-06	6.62629E-06	14.98284354	1.94078E-05	3.86417E-05	14.37913354	1.86258E-05	3.70847E-05	16.94839515	2.19539E-05	4.3711E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	2.706971612	3.50644E-06	6.98146E-06	2.572761612	3.33259E-06	6.63532E-06	14.98284354	1.94078E-05	3.86417E-05	14.39462354	1.86459E-05	3.71247E-05	16.96738515	2.19785E-05	4.376E-05
Haul Road 2	HR2	1800-1900	2.706971612	3.50644E-06	6.98146E-06	2.562061612	3.31873E-06	6.60772E-06	14.98284354	1.94078E-05	3.86417E-05	14.34776354	1.85852E-05	3.70038E-05	16.90982515	2.19039E-05	4.36115E-05
Haul Road 2	HR2	1900-2000	2.704271612	3.50294E-06	6.97449E-06	2.570161612	3.32922E-06	6.62861E-06	14.97075354	1.93922E-05	3.86106E-05	14.38333354	1.86313E-05	3.70956E-05	16.95349515	2.19605E-05	4.37242E-05
Haul Road 2	HR2	2000-2100	2.704271612	3.50294E-06	6.97449E-06	2.560161612	3.31627E-06	6.60282E-06	14.97075354	1.93922E-05	3.86106E-05	14.33937354	1.85743E-05	3.69822E-05	16.89953515	2.18906E-05	4.3585E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.696471612	3.49284E-06	6.43273E-06	2.583451612	3.34644E-06	6.16311E-06	14.93658354	1.93479E-05	3.56329E-05	14.44149354	1.87066E-05	3.44518E-05	17.02494515	2.2053E-05	4.06149E-05
Haul Road 3	HR3	0800-0900	2.696671612	3.4931E-06	6.43321E-06	2.581451612	3.34385E-06	6.15834E-06	14.93747354	1.93491E-05	3.5635E-05	14.43260354	1.86951E-05	3.44306E-05	17.01405515	2.20389E-05	4.05889E-05
Haul Road 3	HR3	0900-1000	2.694881612	3.49078E-06	6.42894E-06	2.583551612	3.34657E-06	6.16335E-06	14.92947354	1.93387E-05	3.56159E-05	14.44189354	1.87071E-05	3.44527E-05	17.02544515	2.20537E-05	4.06161E-05
Haul Road 3	HR3	1000-1100	2.699971612	3.49737E-06	6.44108E-06	2.583451612	3.34644E-06	6.16311E-06	14.95206354	1.9368E-05	3.56698E-05	14.44159354	1.87067E-05	3.4452E-05	17.02504515	2.20532E-05	4.06151E-05
Haul Road 3	HR3	1100-1200	2.705171612	3.50411E-06	6.45349E-06	2.576851612	3.33789E-06	6.14737E-06	14.97444354	1.93969E-05	3.57232E-05	14.41252354	1.86691E-05	3.43827E-05	16.98937515	2.2007E-05	4.053E-05
Haul Road 3	HR3	1200-1300	2.704271612	3.50294E-06	6.45134E-06	2.580651612	3.34281E-06	6.15643E-06	14.97075354	1.93922E-05	3.57144E-05	14.42920354	1.86907E-05	3.44225E-05	17.00985515	2.20335E-05	4.05789E-05
Haul Road 3	HR3	1300-1400	2.706971612	3.50644E-06	6.45778E-06	2.570361612	3.32948E-06	6.13188E-06	14.98284354	1.94078E-05	3.57432E-05	14.38423354	1.86324E-05	3.43152E-05	16.95459515	2.19619E-05	4.04471E-05
Haul Road 3	HR3	1400-1500	2.706671612	3.50605E-06	6.45707E-06	2.566361612	3.3243E-06	6.12234E-06	14.98134354	1.94059E-05	3.57397E-05	14.36634354	1.86093E-05	3.42725E-05	16.93270515	2.19336E-05	4.03949E-05
Haul Road 3	HR3	1500-1600	2.703771612	3.50229E-06	6.45015E-06	2.576851612	3.33789E-06	6.14737E-06	14.96845354	1.93892E-05	3.57089E-05	14.41252354	1.86691E-05	3.43827E-05	16.98937515	2.2007E-05	4.053E-05
Haul Road 3	HR3	1600-1700	2.706971612	3.50644E-06	6.45778E-06	2.569261612	3.32806E-06	6.12926E-06	14.98284354	1.94078E-05	3.57432E-05	14.37913354	1.86258E-05	3.4303E-05	16.94839515	2.19539E-05	4.04323E-05
Haul Road 3	HR3	1700-1800	2.706971612	3.50644E-06	6.45778E-06	2.572761612	3.33259E-06	6.13761E-06	14.98284354	1.94078E-05	3.57432E-05	14.39462354	1.86459E-05	3.434E-05	16.96738515	2.19785E-05	4.04776E-05
Haul Road 3	HR3	1800-1900	2.706971612	3.50644E-06	6.45778E-06	2.562061612	3.31873E-06	6.11208E-06	14.98284354	1.94078E-05	3.57432E-05	14.34776354	1.85852E-05	3.42282E-05	16.90982515	2.19039E-05	4.03403E-05
Haul Road 3	HR3	1900-2000	2.704271612	3.50294E-06	6.45134E-06	2.570161612	3.32922E-06	6.13141E-06	14.97075354	1.93922E-05	3.57144E-05	14.38333354	1.86313E-05	3.4313E-05	16.95349515	2.19605E-05	4.04444E-05
Haul Road 3	HR3	2000-2100	2.704271612	3.50294E-06	6.45134E-06	2.560161612	3.31627E-06	6.10755E-06	14.97075354	1.93922E-05	3.57144E-05	14.33937354	1.85743E-05	3.42082E-05	16.89953515	2.18906E-05	4.03157E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.092324581	3.10175E-07	2.52332E-06	0.084590279	2.8419E-07	2.31193E-06	0.546881173	1.83731E-06	1.49468E-05	0.49905352	1.67663E-06	1.36396E-05	0.583643799	1.96082E-06	1.59515E-05
Road 1	1	0100-0200	0.07218	1.47666E-07	1.20128E-06	0.065536422	1.34074E-07	1.09071E-06	0.436117523	8.92207E-07	7.25824E-06	0.394068532	8.06184E-07	6.55842E-06	0.459604954	9.40258E-07	7.64914E-06
Road 1	1	0200-0300	0.069815195	1.00897E-07	8.20809E-07	0.063126104	9.12295E-08	7.42166E-07	0.447380649	6.46552E-07	5.2598E-06	0.400761818	5.79179E-07	4.71171E-06	0.463887922	6.70409E-07	5.45387E-06
Road 1	1	0300-0400	0.058831455	6.07307E-08	4.94053E-07	0.052923455	5.46319E-08	4.44439E-07	0.361789455	3.73469E-07	3.03822E-06	0.322614182	3.33029E-07	2.70924E-06	0.375537636	3.87661E-07	3.15368E-06
Road 1	1	0400-0500	0.076590349	1.23626E-07	1.00571E-06	0.068695116	1.10882E-07	9.0204E-07	0.44009686	7.10367E-07	5.77894E-06	0.392185465	6.33032E-07	5.14981E-06	0.460880581	7.43914E-07	6.05185E-06
Road 1	1	0500-0600	0.062889521	2.21907E-07	1.80525E-06	0.056427287	1.99105E-07	1.61975E-06	0.372989521	1.3161E-06	1.07067E-05	0.331706862	1.17044E-06	9.52168E-06	0.388134149	1.36954E-06	1.11414E-05
Road 1	1	0600-0700	0.083845341	5.30328E-07	4.3143E-06	0.075632285	4.7838E-07	3.89169E-06	0.447346053	2.8295E-06	2.30184E-05	0.401135163	2.53721E-06	2.06406E-05	0.476767448	3.01559E-06	2.45323E-05
Road 1	1	0700-0800	0.069750125	7.35728E-07	5.98525E-06	0.064357936	6.78851E-07	5.52255E-06	0.385193861	4.06304E-06	3.30535E-05	0.352862811	3.72201E-06	3.02791E-05	0.417220747	4.40086E-06	3.58017E-05
Road 1	1	0800-0900	0.074720648	9.73276E-07	7.91774E-06	0.069506527	9.05359E-07	7.36523E-06	0.401242133	5.22639E-06	4.25175E-05	0.371550504	4.83964E-06	3.93712E-05	0.441057032	5.745E-06	4.67364E-05
Road 1	1	0900-1000	0.080570476	1.07972E-06	8.78366E-06	0.074144734	9.93606E-07	8.08313E-06	0.447248627	5.99353E-06	4.87583E-05	0.409753221	5.49106E-06	4.46706E-05	0.483897955	6.48467E-06	5.27537E-05
Road 1	1	1000-1100	0.093145971	1.21502E-06	9.8844E-06	0.08556541	1.11614E-06	9.07997E-06	0.498844806	6.50708E-06	5.2936E-05	0.45676246	5.95814E-06	4.84704E-05	0.542327871	7.07428E-06	5.75504E-05
Road 1	1	1100-1200	0.084760089	1.07223E-06	8.72273E-06	0.077055445	9.74763E-07	7.92984E-06	0.486522018	6.15458E-06	5.00684E-05	0.440258813	5.56934E-06	4.53074E-05	0.517314258	6.5441E-06	5.32372E-05
Road 1	1	1200-1300	0.087085397	1.0902E-06	8.86895E-06	0.07970045	9.97752E-07	8.11686E-06	0.49290075	6.17051E-06	5.0198E-05	0.44979045	5.63082E-06	4.58076E-05	0.5294909	6.62857E-06	5.39244E-05
Road 1	1	1300-1400	0.091272116	1.21456E-06	9.88065E-06	0.083484556	1.11093E-06	9.03761E-06	0.506167814	6.7356E-06	5.47951E-05	0.461422496	6.14018E-06	4.99512E-05	0.544907052	7.25111E-06	5.89888E-05
Road 1	1	1400-1500	0.086522952	1.2488E-06	1.01592E-05	0.079321053	1.14486E-06	9.31357E-06	0.469675917	6.77892E-06	5.51475E-05	0.429111482	6.19344E-06	5.03846E-05	0.508432536	7.3383E-06	5.96982E-05
Road 1	1	1500-1600	0.092838282	1.2476E-06	1.01494E-05	0.085102821	1.14365E-06	9.30375E-06	0.502247179	6.74942E-06	5.49075E-05	0.458972221	6.16787E-06	5.01765E-05	0.544075042	7.31152E-06	5.94803E-05
Road 1	1	1600-1700	0.088540715	1.25466E-06	1.02068E-05	0.080438066	1.13984E-06	9.27278E-06	0.484941563	6.87183E-06	5.59033E-05	0.438917404	6.21964E-06	5.05977E-05	0.51935547	7.35949E-06	5.98705E-05
Road 1	1	1700-1800	0.070420277	1.00185E-06	8.1502E-06	0.064427282	9.16589E-07	7.45659E-06	0.394525778	5.61281E-06	4.5661E-05	0.359272507	5.11127E-06	4.1581E-05	0.423699789	6.02786E-06	4.90375E-05
Road 1	1	1800-1900	0.062727713	9.11247E-07	7.41313E-06	0.057372804	8.33456E-07	6.78029E-06	0.376139186	5.46418E-06	4.44519E-05	0.341843928	4.96598E-06	4.03989E-05	0.399216731	5.79943E-06	4.71792E-05
Road 1	1	1900-2000	0.074140742	8.25178E-07	6.71294E-06	0.069636408	7.75045E-07	6.3051E-06	0.424964621	4.72981E-06	3.84777E-05	0.397773895	4.42718E-06	3.60157E-05	0.467410304	5.20222E-06	4.23208E-05
Road 1	1	2000-2100	0.067330378	6.35645E-07	5.17107E-06	0.062621113	5.91187E-07	4.80939E-06	0.398462942	3.76177E-06	3.06025E-05	0.368695507	3.48074E-06	2.83163E-05	0.43131662	4.07193E-06	3.31257E-05
Road 1	1	2100-2200	0.070012048	6.03144E-07	4.90667E-06	0.065481765	5.64117E-07	4.58917E-06	0.417752593	3.59888E-06	2.92774E-05	0.388954488	3.35079E-06	2.72592E-05	0.454436253	3.91491E-06	3.18483E-05
Road 1	1	2200-2300	0.067982322	5.55036E-07	4.5153E-06	0.063679862	5.19909E-07	4.22953E-06	0.405079609	3.30724E-06	2.69049E-05	0.377786322	3.0844E-06	2.50921E-05	0.441466184	3.60431E-06	2.93216E-05
Road 1	1	2300-0000	0.059201718	4.33346E-07	3.52533E-06	0.056496385	4.13543E-07	3.36424E-06	0.362645821	2.6545E-06	2.15948E-05	0.344458897	2.52138E-06	2.05118E-05	0.400955282	2.93492E-06	2.3876E-05
Road 2	2	0000-0100	0.152916346	1.84066E-07	1.18868E-06	0.140093269	1.68631E-07	1.089E-06	0.647445577	7.79333E-07	5.03285E-06	0.591336538	7.11794E-07	4.5967E-06	0.731429808	8.80425E-07	5.6857E-06
Road 2	2	0100-0200	0.108892353	8.57023E-08	5.53457E-07	0.098852059	7.78002E-08	5.02426E-07	0.53852	4.23835E-07	2.73709E-06	0.486805	3.83134E-07	2.47424E-06	0.585657059	4.60934E-07	2.97667E-06
Road 2	2	0200-0300	0.113418696	6.0385E-08	3.8996E-07	0.102695652	5.46759E-08	3.53092E-07	0.620362609	3.30286E-07	2.13295E-06	0.55815	2.97163E-07	1.91905E-06	0.660845652	3.51839E-07	2.27214E-06
Road 2	2	0300-0400	0.098108	3.40653E-08	2.1999E-07	0.08833	3.06701E-08	1.98065E-07	0.357729333	1.24212E-07	8.02146E-07	0.319404	1.10904E-07	7.16208E-07	0.407734	1.41574E-07	9.14273E-07
Road 2	2	0400-0500	0.133358148	8.33488E-08	5.38259E-07	0.119653704	7.47836E-08	4.82945E-07	0.643177407	4.01986E-07	2.59599E-06	0.57482963	3.59269E-07	2.32012E-06	0.694483333	4.34052E-07	2.80307E-06
Road 2	2	0500-0600	0.105234737	1.38851E-07	8.96689E-07	0.094465789	1.24642E-07	8.04928E-07	0.466720351	6.15812E-07	3.97685E-06	0.416045439	5.48949E-07	3.54506E-06	0.510511228	6.73591E-07	4.34999E-06
Road 2	2	0600-0700	0.146905385	3.53661E-07	2.28391E-06	0.132549231	3.191E-07	2.06072E-06	0.594673462	1.43162E-06	9.24527E-06	0.534256346	1.28617E-06	8.30598E-06	0.666805577	1.60527E-06	1.03667E-05
Road 2	2	0700-0800	0.119279875	4.41777E-07	2.85295E-06	0.11010175	4.07784E-07	2.63343E-06	0.49655125	1.83908E-06	1.18766E-05	0.455460875	1.68689E-06	1.08938E-05	0.565562625	2.09468E-06	1.35272E-05
Road 2	2	0800-0900	0.134080559	9.4353E-07	6.09322E-06	0.124736151	8.77773E-07	5.66857E-06	0.563853224	3.96786E-06	2.5624E-05	0.522175099	3.67457E-06	2.373E-05	0.64691125	4.55234E-06	2.93986E-05
Road 2	2	0900-1000	0.158944405	9.27176E-07	5.98761E-06	0.146253492	8.53145E-07	5.50953E-06	0.67716381	3.95012E-06	2.55095E-05	0.62105369	3.62281E-06	2.33958E-05	0.767307183	4.47596E-06	2.89053E-05
Road 2	2	1000-1100	0.176591658	7.64413E-07	4.9365E-06	0.162225561	7.02226E-07	4.53491E-06	0.744302995	3.22187E-06	2.08065E-05	0.682169733	2.95291E-06	1.90696E-05	0.844395294	3.65514E-06	2.36045E-05
Road 2	2	1100-1200	0.210496557	8.91687E-07	5.75843E-06	0.191331585	8.10502E-07	5.23414E-06	0.85957388	3.64125E-06	2.35148E-05	0.779967486	3.30403E-06	2.13371E-05	0.971299071	4.11453E-06	2.65712E-05
Road 2	2	1200-1300	0.161564947	7.10587E-07	4.5889E-06	0.147898316	6.50479E-07	4.20073E-06	0.706825105	3.10872E-06	2.00758E-05	0.645281105	2.83804E-06	1.83278E-05	0.793179421	3.48852E-06	2.25285E-05
Road 2	2	1300-1400	0.179019596	9.24106E-07	5.96778E-06	0.16361	8.44561E-07	5.45409E-06	0.731574888	3.77642E-06	2.43877E-05	0.666996323	3.44306E-06	2.22349E-05	0.830606323	4.28762E-06	2.7689E-05
Road 2	2	1400-1500	0.153700182	5.87049E-07	3.79111E-06	0.140878545	5.38078E-07	3.47485E-06	0.664119636	2.53657E-06	1.63809E-05	0.607432303	2.32005E-06	1.49827E-05	0.748310848	2.85813E-06	1.84575E-05
Road 2	2	1500-1600	0.191663224	8.11907E-07	5.24321E-06	0.175597158	7.43849E-07	4.8037E-06	0.754700055	3.19699E-06	2.06459E-05	0.690362896	2.92445E-06	1.88858E-05	0.865960055	3.6683E-06	2.36895E-05
Road 2	2	1600-1700	0.160463484	8.2089E-07	5.30122E-06	0.145785882	7.45803E-07	4.81632E-06	0.674411403	3.45011E-06	2.22805E-05	0.611109593	3.12628E-06	2.01892E-05	0.756895475	3.87208E-06	2.50055E-05
Road 2	2	1700-1800	0.123420135	6.34242E-07	4.09588E-06	0.112963378	5.80506E-07	3.74885E-06	0.489582432	2.51591E-06	1.62475E-05	0.446691351	2.2955E-06	1.48241E-05	0.55965473	2.876E-06	1.85729E-05
Road 2	2	1800-1900	0.13601476	7.87122E-07	5.08316E-06	0.12450604	7.20521E-07	4.65305E-06	0.61200488	3.54169E-06	2.28719E-05	0.55830176	3.23091E-06	2.08649E-05	0.6828078	3.95143E-06	2.5518E-05
Road 2	2	1900-2000	0.113758047	4.45026E-07	2.87393E-06	0.106878876	4.18114E-07	2.70014E-06	0.51562645	2.01715E-06	1.30266E-05	0.482894497	1.8891E-06	1.21996E-05	0.589773373	2.30722E-06	1.48998E-05
Road 2	2	2000-2100	0.108184762	3.68129E-07	2.37734E-06	0.100601769	3.42325E-07	2.2107E-06	0.461671224	1.57096E-06	1.01451E-05	0.426969184	1.45288E-06	9.38257E-06	0.527570952	1.79521E-06	1.15933E-05
Road 2	2	2100-2200	0.083155882	2.9451E-07	1.90192E-06	0.07776	2.754E-07	1.77851E-06	0.381798105	1.3522E-06	8.73239E-06	0.35447	1.25541E-06	8.10734E-06	0.43223	1.53081E-06	9.88585E-06
Road 2	2	2200-2300	0.12038672	3.48341E-07	2.24955E-06	0.11279136	3.26364E-07	2.10763E-06	0.51278288	1.48375E-06	9.58189E-06	0.4786808	1.38507E-06	8.94466E-06	0.59147216	1.71144E-06	1.10523E-05
Road 2	2	2300-0000	0.106949099	2.748E-07	1.77463E-06	0.102066036	2.62253E-07	1.6936E-06	0.482694775	1.24026E-06	8.00946E-06	0.45896973	1.1793E-06	7.61579E-06	0.561035766	1.44155E-06	9.30939E-06
Road 3	3	0000-0100	0.09694787	3.5765E-07	1.3901E-05	0.08823613	3.25512E-07	1.26518E-05	0.535412478	1.97519E-06	7.67706E-05	0.484945783	1.78901E-06	6.95344E-05	0.573181913	2.11452E-06	8.21862E-05
Road 3	3	0100-0200	0.072844789	1.65912E-07	6.4486E-06	0.066083099	1.50512E-07	5.85002E-06	0.425252254	9.68561E-07	3.76456E-05	0.383861479	8.74289E-07	3.39814E-05	0.449944577	1.0248E-06	3.98314E-05
Road 3	3	0200-0300	0.071593434	1.13684E-07	4.41862E-06	0.064694646	1.0273E-07	3.99284E-06	0.448238485	7.11765E-07	2.76645E-05	0.401520303	6.3758E-07	2.47811E-05	0.466214949	7.4031E-07	2.8774E-05
Road 3	3	0300-0400	0.059825429	6.71701E-08	2.61073E-06	0.053933143	6.05544E-08	2.3536E-06	0.331204714	3.71866E-07	1.44535E-05	0.295750429	3.32059E-07	1.29063E-05	0.349683571	3.92614E-07	1.52599E-05
Road 3	3	0400-0500	0.080436372	1.45788E-07	5.66643E-06	0.071887699	1.30294E-07	5.06421E-06	0.446517965	8.093E-07	3.14555E-05	0.396288053	7.1826E-07	2.7917E-05	0.468175752	8.48554E-07	3.29812E-05
Road 3	3	0500-0600	0.065027967	2.56583E-07	9.97273E-06	0.057997886	2.28844E-07	8.89459E-06	0.363851626	1.43566E-06	5.58005E-05	0.321059065	1.26681E-06	4.92378E-05	0.379056951	1.49566E-06	5.81324E-05
Road 3	3	0600-0700	0.089590968	6.38028E-07	2.47985E-05	0.081574077	5.80935E-07	2.25795E-05	0.44861232	3.19482E-06	0.000124175	0.406101126	2.89207E-06	0.000112408	0.487675203	3.47301E-06	0.000134987
Road 3	3	0700-0800	0.072603439	8.46611E-07	3.29056E-05	0.066799959	7.78938E-07	3.02754E-05	0.381726506	4.45122E-06	0.000173008	0.348660138	4.06564E-06	0.000158021	0.415460096	4.84458E-06	0.000188297
Road 3	3	0800-0900	0.080805737	1.2922E-06	5.02246E-05	0.074254203	1.18743E-06	4.61525E-05	0.400786048	6.40914E-06	0.000249107	0.365862849	5.85067E-06	0.000227401	0.440117051	7.0381E-06	0.000273553
Road 3	3	0900-1000	0.087887202	1.36033E-06	5.28727E-05	0.080824383	1.25101E-06	4.86237E-05	0.453622373	7.02124E-06	0.000272898	0.415152808	6.4258E-06	0.000249755	0.495977192	7.67682E-06	0.000298379
Road 3	3	1000-1100	0.100485961	1.41673E-06	5.50647E-05	0.091460614	1.28948E-06	5.01189E-05	0.507621536	7.15684E-06	0.000278168	0.459978623	6.48513E-06	0.000252061	0.551439238	7.77461E-06	0.00030218
Road 3	3	1100-1200	0.098641733	1.35117E-06	5.25167E-05	0.090535562	1.24014E-06	4.8201E-05	0.51198185	7.01301E-06	0.000272578	0.468018478	6.41081E-06	0.000249172	0.55855404	7.65095E-06	0.000297373
Road 3	3	1200-1300	0.092540351	1.2676E-06	4.92683E-05	0.084618806	1.15909E-06	4.50509E-05	0.490983091	6.72538E-06	0.000261399	0.447455117	6.12914E-06	0.000238224	0.532073923	7.28823E-06	0.000283275
Road 3	3	1300-1400	0.099007778	1.47211E-06	5.72174E-05	0.090072017	1.33925E-06	5.20533E-05	0.504480518	7.50095E-06	0.000291543	0.457477573	6.80208E-06	0.00026438	0.54754959	8.14133E-06	0.000316433

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.091017206	1.36352E-06	5.29967E-05	0.083312066	1.24809E-06	4.85102E-05	0.47113758	7.05808E-06	0.00027433	0.429980139	6.44151E-06	0.000250365	0.513292206	7.6896E-06	0.000298875
Road 3	3	1500-1600	0.100658782	1.445E-06	5.61634E-05	0.092155173	1.32292E-06	5.14187E-05	0.507312972	7.28268E-06	0.000283059	0.46308657	6.64779E-06	0.000258383	0.555241743	7.97072E-06	0.000309802
Road 3	3	1600-1700	0.094841086	1.4847E-06	5.77065E-05	0.087373156	1.36779E-06	5.31626E-05	0.485619508	7.60218E-06	0.000295478	0.445871076	6.97993E-06	0.000271293	0.533244232	8.34773E-06	0.000324455
Road 3	3	1700-1800	0.075085945	1.17905E-06	4.58269E-05	0.068643902	1.0779E-06	4.18951E-05	0.386526496	6.06952E-06	0.000235907	0.351712942	5.52285E-06	0.000214659	0.420356844	6.60075E-06	0.000256554
Road 3	3	1800-1900	0.070631091	1.16348E-06	4.52215E-05	0.064776407	1.06704E-06	4.14731E-05	0.389679649	6.41904E-06	0.000249492	0.35507628	5.84904E-06	0.000227337	0.419852687	6.91607E-06	0.00026881
Road 3	3	1900-2000	0.074854961	9.12486E-07	3.54661E-05	0.069514763	8.47389E-07	3.29359E-05	0.413282474	5.03794E-06	0.000195812	0.38196075	4.65612E-06	0.000180972	0.451475513	5.50351E-06	0.000213908
Road 3	3	2000-2100	0.069462974	7.23087E-07	2.81046E-05	0.064598182	6.72446E-07	2.61363E-05	0.381639353	3.97274E-06	0.00015441	0.353078906	3.67543E-06	0.000142855	0.417677088	4.34788E-06	0.000168991
Road 3	3	2100-2200	0.067342667	6.6429E-07	2.58193E-05	0.062982813	6.21283E-07	2.41477E-05	0.380973951	3.75805E-06	0.000146066	0.354491057	3.49681E-06	0.000135912	0.41747387	4.1181E-06	0.00016006
Road 3	3	2200-2300	0.072024085	6.50397E-07	2.52793E-05	0.068755329	6.20879E-07	2.4132E-05	0.395019361	3.56713E-06	0.000138645	0.375779751	3.39339E-06	0.000131893	0.44453508	4.01427E-06	0.000156025
Road 3	3	2300-0000	0.062880159	5.06302E-07	1.96787E-05	0.059811614	4.81594E-07	1.87184E-05	0.361857629	2.91363E-06	0.000113245	0.342708486	2.75944E-06	0.000107252	0.4025201	3.24103E-06	0.000125971
Road 4	4	0000-0100	0.259887143	2.10557E-07	2.25455E-06	0.236466571	1.91582E-07	2.05138E-06	1.283497714	1.03987E-06	1.11345E-05	1.167395714	9.45807E-07	1.01273E-05	1.403862286	1.13739E-06	1.21787E-05
Road 4	4	0100-0200	0.245402	1.13612E-07	1.21651E-06	0.2226685	1.03087E-07	1.10381E-06	1.2140405	5.62056E-07	6.01826E-06	1.1014005	5.09908E-07	5.45988E-06	1.324069	6.12995E-07	6.56369E-06
Road 4	4	0200-0300	0.265536154	7.99067E-08	8.55607E-07	0.240351538	7.2328E-08	7.74458E-07	1.270216154	3.82241E-07	4.09288E-06	1.149573846	3.45937E-07	3.70414E-06	1.389925385	4.18265E-07	4.4786E-06
Road 4	4	0300-0400	0.240955714	3.90438E-08	4.18064E-07	0.217642857	3.52662E-08	3.77616E-07	1.237042857	2.00447E-07	2.1463E-06	1.117025714	1.81E-07	1.93807E-06	1.334668571	2.16266E-07	2.31568E-06
Road 4	4	0400-0500	0.249663571	8.09095E-08	8.66345E-07	0.223220714	7.234E-08	7.74587E-07	1.194832857	3.87214E-07	4.14613E-06	1.068097857	3.46143E-07	3.70635E-06	1.291318571	4.18483E-07	4.48094E-06
Road 4	4	0500-0600	0.229896667	1.2772E-07	1.36758E-06	0.20533625	1.14076E-07	1.22147E-06	1.05909875	5.88388E-07	6.30021E-06	0.944949167	5.24972E-07	5.62118E-06	1.150285417	6.39047E-07	6.84265E-06
Road 4	4	0600-0700	0.254770755	3.12566E-07	3.34682E-06	0.232090189	2.8474E-07	3.04888E-06	1.17972566	1.44735E-06	1.54976E-05	1.074084528	1.31774E-06	1.41098E-05	1.306174717	1.60248E-06	1.71587E-05
Road 4	4	0700-0800	0.25162413	5.35866E-07	5.73783E-06	0.2317075	4.93451E-07	5.28367E-06	1.208552391	2.57377E-06	2.75588E-05	1.111862065	2.36785E-06	2.5354E-05	1.343569565	2.86131E-06	3.06377E-05
Road 4	4	0800-0900	0.259524581	9.31165E-07	9.97052E-06	0.238523871	8.55815E-07	9.1637E-06	1.250476065	4.48666E-06	4.80413E-05	1.148693613	4.12147E-06	4.4131E-05	1.387217484	4.97728E-06	5.32947E-05
Road 4	4	0900-1000	0.265317432	9.08958E-07	9.73274E-06	0.243690946	8.34867E-07	8.9394E-06	1.213755338	4.15824E-06	4.45246E-05	1.114106216	3.81685E-06	4.08692E-05	1.357797162	4.65171E-06	4.98086E-05
Road 4	4	1000-1100	0.297782986	9.9261E-07	1.06284E-05	0.270880417	9.02935E-07	9.66824E-06	1.36586875	4.5529E-06	4.87505E-05	1.2420725	4.14024E-06	4.4332E-05	1.512952917	5.04318E-06	5.40002E-05
Road 4	4	1100-1200	0.275553161	9.88675E-07	1.05863E-05	0.252767677	9.06921E-07	9.71093E-06	1.255715871	4.50546E-06	4.82426E-05	1.151456194	4.13138E-06	4.42371E-05	1.404223871	5.0383E-06	5.3948E-05
Road 4	4	1200-1300	0.281115405	9.63081E-07	1.03123E-05	0.256888649	8.80081E-07	9.42354E-06	1.337069324	4.5807E-06	4.90482E-05	1.221539865	4.18491E-06	4.48102E-05	1.478428514	5.06499E-06	5.42337E-05
Road 4	4	1300-1400	0.290112067	1.00733E-06	1.07861E-05	0.263827533	9.16068E-07	9.80887E-06	1.34791	4.68024E-06	5.01141E-05	1.225267067	4.2544E-06	4.55543E-05	1.4890946	5.17047E-06	5.53632E-05
Road 4	4	1400-1500	0.263364214	8.53495E-07	9.13887E-06	0.240994714	7.81001E-07	8.36263E-06	1.262987214	4.09301E-06	4.38263E-05	1.155026071	3.74314E-06	4.008E-05	1.396020786	4.52414E-06	4.84426E-05
Road 4	4	1500-1600	0.294494	8.52124E-07	9.12418E-06	0.26946168	7.79692E-07	8.34862E-06	1.36837816	3.95943E-06	4.23959E-05	1.25172392	3.62189E-06	3.87816E-05	1.5211856	4.40158E-06	4.71302E-05
Road 4	4	1600-1700	0.275269032	7.90124E-07	8.46032E-06	0.253476935	7.27573E-07	7.79054E-06	1.291819758	3.708E-06	3.97037E-05	1.189348468	3.41387E-06	3.65543E-05	1.442825403	4.14144E-06	4.43448E-05
Road 4	4	1700-1800	0.263731339	7.75321E-07	8.30181E-06	0.241165748	7.08983E-07	7.59149E-06	1.258151024	3.69873E-06	3.96045E-05	1.149810945	3.38023E-06	3.61941E-05	1.390976693	4.08921E-06	4.37856E-05
Road 4	4	1800-1900	0.289794434	7.1107E-07	7.61383E-06	0.265738491	6.52044E-07	6.98181E-06	1.395027736	3.42298E-06	3.66519E-05	1.279152358	3.13866E-06	3.36075E-05	1.544890849	3.7907E-06	4.05893E-05
Road 4	4	1900-2000	0.259443108	4.44416E-07	4.75862E-06	0.241148649	4.13079E-07	4.42307E-06	1.251914595	2.14448E-06	2.29622E-05	1.163363919	1.9928E-06	2.13381E-05	1.404512568	2.40588E-06	2.57611E-05
Road 4	4	2000-2100	0.225242041	2.55483E-07	2.7356E-06	0.20949102	2.37617E-07	2.5443E-06	1.091207347	1.23771E-06	1.32529E-05	1.014169592	1.15033E-06	1.23173E-05	1.223660612	1.38795E-06	1.48616E-05
Road 4	4	2100-2200	0.185951622	1.59264E-07	1.70533E-06	0.174075946	1.49093E-07	1.59642E-06	0.919898378	7.87876E-07	8.43624E-06	0.860196757	7.36743E-07	7.88873E-06	1.034272703	8.85835E-07	9.48515E-06
Road 4	4	2200-2300	0.248520952	3.62426E-07	3.88071E-06	0.237319365	3.46091E-07	3.70579E-06	1.181309048	1.72274E-06	1.84464E-05	1.127753333	1.64464E-06	1.76101E-05	1.365072698	1.99073E-06	2.13159E-05
Road 4	4	2300-0000	0.231093673	2.6212E-07	2.80667E-06	0.219946327	2.49476E-07	2.67129E-06	1.128657959	1.28019E-06	1.37077E-05	1.073671633	1.21782E-06	1.30399E-05	1.293617959	1.4673E-06	1.57112E-05
Road 5	5	0000-0100	0.082067306	2.97278E-07	4.02015E-06	0.074699585	2.7059E-07	3.65924E-06	0.45985886	1.66578E-06	2.25267E-05	0.415840622	1.50633E-06	2.03704E-05	0.490540207	1.77692E-06	2.40296E-05
Road 5	5	0100-0200	0.055281721	1.26584E-07	1.71181E-06	0.050147705	1.14828E-07	1.55284E-06	0.340304836	7.79227E-07	1.05376E-05	0.306467213	7.01745E-07	9.48984E-06	0.356614918	8.16573E-07	1.10427E-05
Road 5	5	0200-0300	0.05287	8.53382E-08	1.15404E-06	0.047731628	7.70443E-08	1.04188E-06	0.366442209	5.9148E-07	7.99869E-06	0.326863023	5.27594E-07	7.13476E-06	0.374594651	6.04639E-07	8.17664E-06
Road 5	5	0300-0400	0.047046032	5.56288E-08	7.52278E-07	0.042384921	5.01173E-08	6.77746E-07	0.261068889	3.08696E-07	4.17456E-06	0.232085556	2.74425E-07	3.71111E-06	0.274470476	3.24543E-07	4.38885E-06
Road 5	5	0400-0500	0.065821616	1.22304E-07	1.65394E-06	0.058818586	1.09291E-07	1.47797E-06	0.378055152	7.02467E-07	9.4996E-06	0.334677576	6.21867E-07	8.40963E-06	0.393496162	7.31158E-07	9.88759E-06
Road 5	5	0500-0600	0.053221818	2.1976E-07	2.97185E-06	0.047444182	1.95903E-07	2.64924E-06	0.311896591	1.28786E-06	1.7416E-05	0.274285409	1.13256E-06	1.53158E-05	0.321729591	1.32846E-06	1.79651E-05
Road 5	5	0600-0700	0.077624974	5.65287E-07	7.64448E-06	0.070667242	5.14619E-07	6.95929E-06	0.391689278	2.85239E-06	3.85734E-05	0.353942655	2.57751E-06	3.48562E-05	0.424609897	3.09213E-06	4.18154E-05
Road 5	5	0700-0800	0.059365434	7.05299E-07	9.53789E-06	0.054593049	6.486E-07	8.77114E-06	0.314828278	3.74036E-06	5.05816E-05	0.286752117	3.4068E-06	4.60707E-05	0.341345166	4.0554E-06	5.48419E-05
Road 5	5	0800-0900	0.063936999	1.01162E-06	1.36803E-05	0.058754781	9.29622E-07	1.25715E-05	0.31395841	4.96747E-06	6.71761E-05	0.285741601	4.52102E-06	6.11387E-05	0.344496382	5.45065E-06	7.37101E-05
Road 5	5	0900-1000	0.070948309	1.0866E-06	1.46942E-05	0.065250074	9.99325E-07	1.35141E-05	0.378520662	5.79716E-06	7.83961E-05	0.346090797	5.30049E-06	7.16795E-05	0.41134087	6.29982E-06	8.51936E-05
Road 5	5	1000-1100	0.081421499	1.12169E-06	1.51688E-05	0.074103692	1.02087E-06	1.38055E-05	0.422332698	5.81817E-06	7.86802E-05	0.382154264	5.26466E-06	7.1195E-05	0.456257956	6.28554E-06	8.50005E-05
Road 5	5	1100-1200	0.07999269	1.04945E-06	1.4192E-05	0.073411488	9.63112E-07	1.30244E-05	0.43299	5.68056E-06	7.68192E-05	0.395287296	5.18592E-06	7.01302E-05	0.468698784	6.14903E-06	8.31545E-05
Road 5	5	1200-1300	0.073985021	9.81746E-07	1.32763E-05	0.067629208	8.97407E-07	1.21358E-05	0.403126591	5.3493E-06	7.23395E-05	0.366996676	4.86987E-06	6.58562E-05	0.434625884	5.76728E-06	7.7992E-05
Road 5	5	1300-1400	0.081357902	1.18647E-06	1.60448E-05	0.07403816	1.07972E-06	1.46013E-05	0.423559344	6.17691E-06	8.35315E-05	0.383750927	5.59637E-06	7.56807E-05	0.457789086	6.67609E-06	9.0282E-05
Road 5	5	1400-1500	0.07648796	1.13985E-06	1.54145E-05	0.070041725	1.04379E-06	1.41154E-05	0.400285428	5.96521E-06	8.06687E-05	0.365050516	5.44013E-06	7.35679E-05	0.435092242	6.48392E-06	8.76833E-05
Road 5	5	1500-1600	0.085091519	1.22974E-06	1.663E-05	0.077928377	1.12622E-06	1.523E-05	0.434270896	6.27606E-06	8.48724E-05	0.396116195	5.72465E-06	7.74155E-05	0.474044571	6.85087E-06	9.26456E-05
Road 5	5	1600-1700	0.080763916	1.29301E-06	1.74856E-05	0.074404689	1.1912E-06	1.61088E-05	0.420043681	6.7248E-06	9.09407E-05	0.385357456	6.16948E-06	8.3431E-05	0.459762145	7.36068E-06	9.95399E-05
Road 5	5	1700-1800	0.059384172	9.48497E-07	1.28267E-05	0.054286428	8.67075E-07	1.17256E-05	0.309556322	4.9443E-06	6.68627E-05	0.281147756	4.49055E-06	6.07266E-05	0.335434183	5.35763E-06	7.24522E-05
Road 5	5	1800-1900	0.05523827	9.52777E-07	1.28846E-05	0.050645843	8.73565E-07	1.18134E-05	0.315044157	5.43404E-06	7.34855E-05	0.286432427	4.94053E-06	6.68117E-05	0.33707827	5.81409E-06	7.86251E-05
Road 5	5	1900-2000	0.063704913	8.20225E-07	1.10921E-05	0.059184213	7.62019E-07	1.03049E-05	0.360284825	4.6388E-06	6.27314E-05	0.332460204	4.28055E-06	5.78867E-05	0.391644417	5.04257E-06	6.81916E-05
Road 5	5	2000-2100	0.061465733	6.92182E-07	9.3605E-06	0.057163517	6.43733E-07	8.70533E-06	0.342810283	3.86048E-06	5.22059E-05	0.316851783	3.56815E-06	4.82528E-05	0.3740153	4.21188E-06	5.69581E-05
Road 5	5	2100-2200	0.062793893	6.8121E-07	9.21213E-06	0.058719394	6.37008E-07	8.61438E-06	0.359142128	3.8961E-06	5.26877E-05	0.333981678	3.62315E-06	4.89965E-05	0.392701073	4.26016E-06	5.76109E-05
Road 5	5	2200-2300	0.060227655	5.64069E-07	7.62801E-06	0.057488838	5.38418E-07	7.28113E-06	0.339436112	3.17903E-06	4.29906E-05	0.322544489	3.02083E-06	4.08512E-05	0.380033327	3.55925E-06	4.81324E-05
Road 5	5	2300-0000	0.052807152	4.4898E-07	6.07164E-06	0.050222914	4.27008E-07	5.77451E-06	0.31242181	2.65629E-06	3.59215E-05	0.295530751	2.51268E-06	3.39794E-05	0.345753664	2.93968E-06	3.97539E-05
Road 6	6	0000-0100	0.049151	1.38376E-07	4.94637E-06	0.0446444	1.25688E-07	4.49284E-06	0.319392533	8.99191E-07	3.21424E-05	0.2866962	8.0714E-07	2.8852E-05	0.3313406	9.32828E-07	3.33448E-05
Road 6	6	0100-0200	0.065179737	1.39461E-07	4.98517E-06	0.059121228	1.26498E-07	4.5218E-06	0.369647982	7.90913E-07	2.8272E-05	0.332262281	7.10922E-07	2.54126E-05	0.391383509	8.3742E-07	2.99344E-05
Road 6	6	0200-0300	0.059448228	8.81458E-08	3.15086E-06	0.053771772	7.97292E-08	2.84999E-06	0.342442152	5.0775E-07	1.815E-05	0.306586076	4.54585E-07	1.62496E-05	0.360357848	5.34314E-07	1.90996E-05
Road 6	6	0300-0400	0.060940806	7.09146E-08	2.53491E-06	0.055107742	6.41269E-08	2.29228E-06	0.391615	4.55708E-07	1.62897E-05	0.351006613	4.08454E-07	1.46006E-05	0.406114355	4.72581E-07	1.68928E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.066575333	1.12458E-07	4.01993E-06	0.059492444	1.00494E-07	3.59225E-06	0.394209667	6.65895E-07	2.3803E-05	0.348312222	5.88365E-07	2.10317E-05	0.407804667	6.88859E-07	2.46239E-05
Road 6	6	0500-0600	0.059460556	1.80792E-07	6.46259E-06	0.053078272	1.61387E-07	5.76892E-06	0.362389321	1.10186E-06	3.9387E-05	0.318953333	9.69791E-07	3.46661E-05	0.372031605	1.13118E-06	4.0435E-05
Road 6	6	0600-0700	0.063362207	3.44877E-07	1.2328E-05	0.057672862	3.1391E-07	1.1221E-05	0.403195517	2.19457E-06	7.8447E-05	0.36278069	1.97459E-06	7.05838E-05	0.420453552	2.2885E-06	8.18048E-05
Road 6	6	0700-0800	0.058344416	5.05914E-07	1.80844E-05	0.05367	4.65382E-07	1.66355E-05	0.337332338	2.92507E-06	0.000104559	0.307159199	2.66343E-06	9.52068E-05	0.360829199	3.12881E-06	0.000111842
Road 6	6	0800-0900	0.049656465	6.16978E-07	2.20545E-05	0.045537387	5.65799E-07	2.0225E-05	0.295751148	3.67469E-06	0.000131355	0.266953142	3.31687E-06	0.000118565	0.312490529	3.88267E-06	0.00013879
Road 6	6	0900-1000	0.052645245	6.25459E-07	2.23576E-05	0.048285829	5.73666E-07	2.05062E-05	0.299972385	3.56386E-06	0.000127394	0.271869779	3.22998E-06	0.000115459	0.320155608	3.80365E-06	0.000135965
Road 6	6	1000-1100	0.071087364	7.13809E-07	2.55158E-05	0.064627888	6.48947E-07	2.31972E-05	0.391132336	3.92747E-06	0.000140391	0.352387888	3.53843E-06	0.000126485	0.417015776	4.18738E-06	0.000149682
Road 6	6	1100-1200	0.08160938	8.14868E-07	2.91282E-05	0.074903759	7.47913E-07	2.67349E-05	0.427957707	4.27315E-06	0.000152748	0.390648195	3.90062E-06	0.000139431	0.465551955	4.64853E-06	0.000166166
Road 6	6	1200-1300	0.078069388	7.66334E-07	2.73933E-05	0.071408489	7.0095E-07	2.50561E-05	0.392211262	3.84997E-06	0.000137621	0.357421893	3.50848E-06	0.000125414	0.428830382	4.20943E-06	0.00015047
Road 6	6	1300-1400	0.09102691	8.90109E-07	3.18178E-05	0.082830173	8.09957E-07	2.89527E-05	0.465387274	4.5508E-06	0.000162673	0.421680307	4.12341E-06	0.000147395	0.50451048	4.93337E-06	0.000176348
Road 6	6	1400-1500	0.086370209	9.3049E-07	3.32612E-05	0.079063031	8.51768E-07	3.04472E-05	0.434892456	4.68522E-06	0.000167477	0.396461289	4.27119E-06	0.000152678	0.475524321	5.12295E-06	0.000183125
Road 6	6	1500-1600	0.075603612	7.97471E-07	2.85063E-05	0.069184324	7.2976E-07	2.60859E-05	0.394174537	4.15777E-06	0.000148623	0.359025302	3.78702E-06	0.00013537	0.428209626	4.51678E-06	0.000161456
Road 6	6	1600-1700	0.079013542	8.542E-07	3.05342E-05	0.072799757	7.87024E-07	2.81329E-05	0.393624444	4.2554E-06	0.000152113	0.361119635	3.904E-06	0.000139552	0.433919392	4.69102E-06	0.000167685
Road 6	6	1700-1800	0.05913	6.76976E-07	2.41992E-05	0.054063344	6.18968E-07	2.21256E-05	0.305439082	3.49696E-06	0.000125002	0.277555607	3.17772E-06	0.000113591	0.331618951	3.79669E-06	0.000135716
Road 6	6	1800-1900	0.057437634	7.42765E-07	2.65508E-05	0.052653324	6.80896E-07	2.43393E-05	0.302943454	3.91757E-06	0.000140037	0.275726792	3.56561E-06	0.000127456	0.328380116	4.24651E-06	0.000151795
Road 6	6	1900-2000	0.067859294	6.67385E-07	2.38563E-05	0.063028531	6.19875E-07	2.2158E-05	0.358428473	3.52508E-06	0.000126007	0.330559027	3.25099E-06	0.00011621	0.393587557	3.87087E-06	0.000138368
Road 6	6	2000-2100	0.053411555	4.19032E-07	1.49787E-05	0.04964823	3.89508E-07	1.39233E-05	0.314111077	2.46431E-06	8.80891E-05	0.289792895	2.27353E-06	8.12693E-05	0.339441124	2.66303E-06	9.51926E-05
Road 6	6	2100-2200	0.073779222	4.98508E-07	1.78196E-05	0.068996	4.66189E-07	1.66644E-05	0.394738278	2.66715E-06	9.53398E-05	0.367328861	2.48195E-06	8.87197E-05	0.436324861	2.94814E-06	0.000105384
Road 6	6	2200-2300	0.054970131	3.93086E-07	1.40512E-05	0.05245315	3.75087E-07	1.34078E-05	0.312144121	2.23211E-06	7.97889E-05	0.295728399	2.11472E-06	7.55928E-05	0.348181549	2.48981E-06	8.90007E-05
Road 6	6	2300-0000	0.03695591	2.47621E-07	8.85146E-06	0.035142829	2.35473E-07	8.4172E-06	0.232821793	1.56001E-06	5.57641E-05	0.219930392	1.47363E-06	5.26764E-05	0.255073221	1.70911E-06	6.10936E-05
Road 7	7	0000-0100	0.07173756	1.93724E-07	4.83599E-06	0.06536871	1.76525E-07	4.40665E-06	0.426150631	1.1508E-06	2.87278E-05	0.385662151	1.04146E-06	2.59983E-05	0.45103086	1.21799E-06	3.0405E-05
Road 7	7	0100-0200	0.088450516	1.86206E-07	4.6483E-06	0.080261083	1.68965E-07	4.21792E-06	0.485578372	1.02224E-06	2.55184E-05	0.438244232	9.2259E-07	2.30308E-05	0.518505315	1.09155E-06	2.72488E-05
Road 7	7	0200-0300	0.07586136	1.03532E-07	2.58449E-06	0.068664236	9.37093E-08	2.33929E-06	0.431686262	5.89143E-07	1.47069E-05	0.388030968	5.29564E-07	1.32196E-05	0.456695204	6.23273E-07	1.55589E-05
Road 7	7	0300-0400	0.077265519	8.52557E-08	2.12826E-06	0.069802237	7.70207E-08	1.92269E-06	0.46787937	5.16264E-07	1.28876E-05	0.420110526	4.63555E-07	1.15719E-05	0.489912763	5.40576E-07	1.34945E-05
Road 7	7	0400-0500	0.086278155	1.39043E-07	3.47096E-06	0.077222523	1.24449E-07	3.10665E-06	0.482981632	7.78355E-07	1.94303E-05	0.429210811	6.917E-07	1.72671E-05	0.506433333	8.16149E-07	2.03737E-05
Road 7	7	0500-0600	0.077526553	2.22864E-07	5.56341E-06	0.069373889	1.99428E-07	4.97837E-06	0.439850925	1.26443E-06	3.15643E-05	0.390006263	1.12114E-06	2.79874E-05	0.459380152	1.32057E-06	3.29658E-05
Road 7	7	0600-0700	0.08164613	4.19627E-07	1.04753E-05	0.07410358	3.80861E-07	9.50754E-06	0.476125234	2.44708E-06	6.10872E-05	0.428687817	2.20328E-06	5.50009E-05	0.502791396	2.58414E-06	6.45085E-05
Road 7	7	0700-0800	0.076894779	6.30768E-07	1.5746E-05	0.070839409	5.81096E-07	1.4506E-05	0.421178088	3.45492E-06	8.62462E-05	0.38533415	3.1609E-06	7.89063E-05	0.456173559	3.74199E-06	9.34123E-05
Road 7	7	0800-0900	0.076329033	9.47502E-07	2.36527E-05	0.070427497	8.74244E-07	2.1824E-05	0.416697372	5.17263E-06	0.000129126	0.381136426	4.7312E-06	0.000118106	0.451563923	5.60544E-06	0.00013993
Road 7	7	0900-1000	0.078311452	9.00481E-07	2.2479E-05	0.071945875	8.27285E-07	2.06517E-05	0.411796166	4.73513E-06	0.000118204	0.375444235	4.31713E-06	0.00010777	0.44739011	5.14441E-06	0.000128421
Road 7	7	1000-1100	0.093382651	9.4227E-07	2.35221E-05	0.085205947	8.59764E-07	2.14625E-05	0.492423186	4.96876E-06	0.000124036	0.446956594	4.50998E-06	0.000112584	0.53216254	5.36974E-06	0.000134046
Road 7	7	1100-1200	0.103598668	1.04385E-06	2.60579E-05	0.094742424	9.54615E-07	2.38303E-05	0.531399298	5.35433E-06	0.000133661	0.484309671	4.87986E-06	0.000121817	0.579052095	5.83447E-06	0.000145647
Road 7	7	1200-1300	0.100681753	1.013E-06	2.52877E-05	0.092097879	9.26632E-07	2.31318E-05	0.508755017	5.11878E-06	0.000127781	0.464334472	4.67185E-06	0.000116625	0.55643235	5.59848E-06	0.000139756
Road 7	7	1300-1400	0.107914422	1.06853E-06	2.66741E-05	0.098357334	9.73902E-07	2.43118E-05	0.546461915	5.41089E-06	0.000135073	0.496629385	4.91746E-06	0.000122756	0.594986719	5.89137E-06	0.000147068
Road 7	7	1400-1500	0.100358648	1.04034E-06	2.59704E-05	0.091919752	9.52865E-07	2.37866E-05	0.511088523	5.29808E-06	0.000132257	0.466639286	4.83731E-06	0.000120755	0.558559039	5.79017E-06	0.000144542
Road 7	7	1500-1600	0.092801659	9.44492E-07	2.35776E-05	0.084963825	8.64722E-07	2.15863E-05	0.479515067	4.88028E-06	0.000121828	0.437519935	4.45287E-06	0.000111158	0.52248376	5.31759E-06	0.000132744
Road 7	7	1600-1700	0.096329901	1.01397E-06	2.53119E-05	0.088302441	9.29469E-07	2.32026E-05	0.480435918	5.05706E-06	0.000126241	0.439074611	4.62169E-06	0.000115372	0.527377053	5.55116E-06	0.000138575
Road 7	7	1700-1800	0.074156183	8.25785E-07	2.06143E-05	0.067815621	7.55178E-07	1.88517E-05	0.384500268	4.2817E-06	0.000106885	0.35010925	3.89873E-06	9.7325E-05	0.417924871	4.65391E-06	0.000116177
Road 7	7	1800-1900	0.068366221	7.91087E-07	1.97481E-05	0.062619301	7.24588E-07	1.80881E-05	0.360673058	4.17346E-06	0.000104183	0.328716139	3.80368E-06	9.49522E-05	0.39133544	4.52826E-06	0.00011304
Road 7	7	1900-2000	0.078469218	6.85836E-07	1.71207E-05	0.073183071	6.39634E-07	1.59673E-05	0.417141572	3.6459E-06	9.10135E-05	0.387217481	3.38435E-06	8.44845E-05	0.460400552	4.02399E-06	0.000100452
Road 7	7	2000-2100	0.072303649	5.20674E-07	1.29977E-05	0.06722498	4.84102E-07	1.20848E-05	0.3967825	2.85732E-06	7.1328E-05	0.366955565	2.64253E-06	6.59661E-05	0.434180544	3.12663E-06	7.80509E-05
Road 7	7	2100-2200	0.08210413	4.93503E-07	1.23194E-05	0.076790628	4.61565E-07	1.15222E-05	0.440155942	2.64564E-06	6.60439E-05	0.409979831	2.46426E-06	6.15161E-05	0.486770459	2.92583E-06	7.30382E-05
Road 7	7	2200-2300	0.068583605	4.45094E-07	1.1111E-05	0.065015573	4.21939E-07	1.0533E-05	0.37847552	2.45623E-06	6.13156E-05	0.356777229	2.31542E-06	5.78003E-05	0.421792802	2.73735E-06	6.83333E-05
Road 7	7	2300-0000	0.04828399	2.88117E-07	7.19235E-06	0.045983219	2.74388E-07	6.84963E-06	0.287528418	1.71572E-06	4.283E-05	0.272487183	1.62597E-06	4.05895E-05	0.318470401	1.90036E-06	4.74391E-05
Road 8	8	0000-0100	0.227961667	1.6579E-07	2.73299E-06	0.207378611	1.50821E-07	2.48622E-06	1.129108056	8.21169E-07	1.35367E-05	1.026901667	7.46838E-07	1.23113E-05	1.234280278	8.97658E-07	1.47976E-05
Road 8	8	0100-0200	0.236444	1.43299E-07	2.36224E-06	0.214562333	1.30038E-07	2.14362E-06	1.167793667	7.07754E-07	1.16671E-05	1.059528	6.42138E-07	1.05854E-05	1.274090333	7.72176E-07	1.2729E-05
Road 8	8	0200-0300	0.223774	6.78103E-08	1.11783E-06	0.202628667	6.14026E-08	1.0122E-06	1.162142	3.52164E-07	5.8053E-06	1.052039333	3.188E-07	5.25529E-06	1.254668	3.80202E-07	6.26749E-06
Road 8	8	0300-0400	0.203592143	5.75816E-08	9.49211E-07	0.184065	5.20588E-08	8.5817E-07	1.035642857	2.92909E-07	4.8285E-06	0.935864286	2.64689E-07	4.3633E-06	1.119929286	3.16748E-07	5.22147E-06
Road 8	8	0400-0500	0.232851905	9.87857E-08	1.62844E-06	0.208247619	8.83475E-08	1.45637E-06	1.116866667	4.73822E-07	7.81078E-06	0.998662857	4.23675E-07	6.98413E-06	1.206910476	5.12023E-07	8.4405E-06
Road 8	8	0500-0600	0.220996765	1.51796E-07	2.5023E-06	0.197467647	1.35634E-07	2.23588E-06	1.042128824	7.15806E-07	1.17998E-05	0.930534412	6.39155E-07	1.05362E-05	1.128002059	7.74789E-07	1.27721E-05
Road 8	8	0600-0700	0.246234839	3.08415E-07	5.08411E-06	0.224420968	2.81093E-07	4.63371E-06	1.14716	1.43685E-06	2.36859E-05	1.044790484	1.30863E-06	2.15722E-05	1.269211452	1.58972E-06	2.62059E-05
Road 8	8	0700-0800	0.240532353	4.95642E-07	8.17048E-06	0.221527157	4.5648E-07	7.5249E-06	1.131908824	2.33242E-06	3.8449E-05	1.041773725	2.14669E-06	3.53873E-05	1.263300882	2.60317E-06	4.29122E-05
Road 8	8	0800-0900	0.268082708	1.03984E-06	1.71413E-05	0.246500885	9.56125E-07	1.57614E-05	1.26615474	4.91115E-06	8.09584E-05	1.163608646	4.51339E-06	7.44016E-05	1.410109531	5.46952E-06	9.01629E-05
Road 8	8	0900-1000	0.286813228	9.15485E-07	1.50914E-05	0.263492089	8.41045E-07	1.38643E-05	1.287941835	4.11101E-06	6.77684E-05	1.183095127	3.77634E-06	6.22516E-05	1.446587215	4.61739E-06	7.61159E-05
Road 8	8	1000-1100	0.27349425	8.84022E-07	1.45728E-05	0.24881475	8.0425E-07	1.32578E-05	1.265129938	4.08931E-06	6.74107E-05	1.150128938	3.71759E-06	6.1283E-05	1.398943688	4.52184E-06	7.45408E-05
Road 8	8	1100-1200	0.282875786	9.08631E-07	1.49784E-05	0.259484151	8.33495E-07	1.37398E-05	1.320851824	4.24274E-06	6.99399E-05	1.211240063	3.89065E-06	6.41359E-05	1.470724214	4.72414E-06	7.78757E-05
Road 8	8	1200-1300	0.283916882	9.75068E-07	1.60736E-05	0.259461706	8.91081E-07	1.46891E-05	1.336856412	4.59122E-06	7.56846E-05	1.221301588	4.19437E-06	6.91426E-05	1.480763294	5.08545E-06	8.38317E-05
Road 8	8	1300-1400	0.261414568	8.55539E-07	1.41032E-05	0.23775679	7.78113E-07	1.28269E-05	1.214366481	3.97429E-06	6.55147E-05	1.104005	3.61311E-06	5.95607E-05	1.34176179	4.39122E-06	7.23876E-05
Road 8	8	1400-1500	0.254837986	7.15606E-07	1.17965E-05	0.233215396	6.54888E-07	1.07956E-05	1.232599424	3.46124E-06	5.70572E-05	1.12759482	3.16638E-06	5.21965E-05	1.360810216	3.82127E-06	6.29921E-05
Road 8	8	1500-1600	0.261809928	7.35183E-07	1.21192E-05	0.239504245	6.72547E-07	1.10867E-05	1.234578705	3.4668E-06	5.71488E-05	1.128912014	3.17008E-06	5.22575E-05	1.368416259	3.84262E-06	6.33442E-05
Road 8	8	1600-1700	0.261202081	7.86245E-07	1.29609E-05	0.240536577	7.24039E-07	1.19355E-05	1.220753624	3.67459E-06	6.05743E-05	1.123719799	3.38251E-06	5.57594E-05	1.364256376	4.10655E-06	6.76949E-05
Road 8	8	1700-1800	0.213539808	6.72974E-07	1.10937E-05	0.195237244	6.15293E-07	1.01429E-05	1.037379551	3.26932E-06	5.38935E-05	0.947202179	2.98512E-06	4.92086E-05	1.142439423	3.60042E-06	5.93515E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.213427009	4.61347E-07	7.60514E-06	0.195779159	4.23199E-07	6.97628E-06	1.062673738	2.29709E-06	3.78667E-05	0.974170841	2.10578E-06	3.4713E-05	1.16995	2.52898E-06	4.16893E-05
Road 8	8	1900-2000	0.210603506	3.27605E-07	5.40045E-06	0.195771558	3.04534E-07	5.02012E-06	1.074341299	1.6712E-06	2.75491E-05	0.998503506	1.55323E-06	2.56044E-05	1.194275065	1.85776E-06	3.06245E-05
Road 8	8	2000-2100	0.230296883	3.5824E-07	5.90545E-06	0.214203636	3.33206E-07	5.49277E-06	1.071849481	1.66732E-06	2.74852E-05	0.996318831	1.54983E-06	2.55484E-05	1.210522468	1.88303E-06	3.10411E-05
Road 8	8	2100-2200	0.188250926	2.05365E-07	3.38536E-06	0.176177037	1.92193E-07	3.16823E-06	0.956273333	1.04321E-06	1.71969E-05	0.893758333	9.75009E-07	1.60727E-05	1.06993537	1.1672E-06	1.92409E-05
Road 8	8	2200-2300	0.225095	2.91032E-07	4.79755E-06	0.214943281	2.77906E-07	4.58118E-06	1.0819125	1.39884E-06	2.30593E-05	1.032625156	1.33511E-06	2.20088E-05	1.247568438	1.61302E-06	2.659E-05
Road 8	8	2300-0000	0.176332642	1.88801E-07	3.11231E-06	0.167861321	1.7973E-07	2.96279E-06	0.882521698	9.44922E-07	1.55767E-05	0.839566226	8.98929E-07	1.48185E-05	1.007427547	1.07866E-06	1.77813E-05
Road 9	9	0000-0100	0.198786283	5.27929E-08	1.57596E-06	0.184130342	4.89007E-08	1.45977E-06	0.892211378	2.3695E-07	7.07337E-06	0.821149569	2.18078E-07	6.51E-06	1.005279911	2.66979E-07	7.96977E-06
Road 9	9	0100-0200	0.216754196	4.52295E-08	1.35018E-06	0.200474425	4.18324E-08	1.24877E-06	0.921094472	1.92202E-07	5.73756E-06	0.845429949	1.76413E-07	5.26624E-06	1.045904375	2.18246E-07	6.51501E-06
Road 9	9	0200-0300	0.084895684	8.05225E-09	2.40373E-07	0.077123016	7.31502E-09	2.18366E-07	0.601859259	5.70856E-08	1.7041E-06	0.544852885	5.16786E-08	1.54269E-06	0.621975901	5.89936E-08	1.76106E-06
Road 9	9	0300-0400	0.102623326	7.78695E-09	2.32454E-07	0.093035372	7.05943E-09	2.10736E-07	0.621094053	4.7128E-08	1.40685E-06	0.563019132	4.27213E-08	1.2753E-06	0.656054504	4.97807E-08	1.48604E-06
Road 9	9	0400-0500	0.235100765	4.4598E-08	1.33133E-06	0.214968405	4.07789E-08	1.21732E-06	0.959489397	1.82013E-07	5.43339E-06	0.869723118	1.64984E-07	4.92506E-06	1.084691522	2.05763E-07	6.14238E-06
Road 9	9	0500-0600	0.168306087	5.42763E-08	1.62024E-06	0.15350346	4.95027E-08	1.47774E-06	0.838983141	2.7056E-07	8.07668E-06	0.760755572	2.45333E-07	7.3236E-06	0.914259032	2.94835E-07	8.80134E-06
Road 9	9	0600-0700	0.198058011	1.20227E-07	3.589E-06	0.183887133	1.11625E-07	3.33221E-06	1.015617251	6.16512E-07	1.84039E-05	0.936482496	5.68475E-07	1.69699E-05	1.120369629	6.801E-07	2.03021E-05
Road 9	9	0700-0800	0.16615779	1.54447E-07	4.61049E-06	0.156576142	1.4554E-07	4.34463E-06	0.933237317	8.6746E-07	2.58952E-05	0.87233347	8.10849E-07	2.42052E-05	1.028909613	9.56389E-07	2.85499E-05
Road 9	9	0800-0900	0.257782227	5.62357E-07	1.67873E-05	0.241523028	5.26887E-07	1.57285E-05	1.226204456	2.67499E-06	7.9853E-05	1.138503206	2.48367E-06	7.41417E-05	1.380026234	3.01055E-06	8.98702E-05
Road 9	9	0900-1000	0.268139983	4.42529E-07	1.32103E-05	0.251773938	4.15519E-07	1.2404E-05	1.156594651	1.90881E-06	5.69811E-05	1.073918608	1.77236E-06	5.2908E-05	1.325692545	2.18788E-06	6.5312E-05
Road 9	9	1000-1100	0.27561026	3.81663E-07	1.13933E-05	0.254964617	3.53073E-07	1.05398E-05	1.165275288	1.61366E-06	4.81706E-05	1.069543659	1.48109E-06	4.42132E-05	1.324508276	1.83417E-06	5.4753E-05
Road 9	9	1100-1200	0.192975328	2.78213E-07	8.30512E-06	0.177408383	2.5577E-07	7.63517E-06	1.012495724	1.45972E-06	4.3575E-05	0.928608374	1.33877E-06	3.99647E-05	1.106016757	1.59454E-06	4.75999E-05
Road 9	9	1200-1300	0.285729864	4.01096E-07	1.19734E-05	0.267354675	3.75302E-07	1.12034E-05	1.276003956	1.7912E-06	5.34705E-05	1.188350254	1.66816E-06	4.97974E-05	1.455704929	2.04346E-06	6.10008E-05
Road 9	9	1300-1400	0.327023707	3.78417E-07	1.12964E-05	0.30487201	3.52784E-07	1.05312E-05	1.24691593	1.44287E-06	4.30723E-05	1.154574156	1.33602E-06	3.98825E-05	1.459446166	1.6888E-06	5.04137E-05
Road 9	9	1400-1500	0.211390142	2.72681E-07	8.14E-06	0.198630998	2.56223E-07	7.64868E-06	1.021420506	1.31757E-06	3.93318E-05	0.948703031	1.22377E-06	3.65317E-05	1.147334029	1.47999E-06	4.41804E-05
Road 9	9	1500-1600	0.175587181	1.89858E-07	5.66759E-06	0.163783181	1.77095E-07	5.28658E-06	0.899278137	9.72367E-07	2.90268E-05	0.832214289	8.99853E-07	2.68621E-05	0.995997469	1.07695E-06	3.21487E-05
Road 9	9	1600-1700	0.185155726	2.80988E-07	8.38799E-06	0.174434864	2.64719E-07	7.90231E-06	1.002576543	1.52149E-06	4.54191E-05	0.937755897	1.42312E-06	4.24825E-05	1.112190761	1.68784E-06	5.03849E-05
Road 9	9	1700-1800	0.159345826	2.0857E-07	6.22616E-06	0.150501558	1.96993E-07	5.88059E-06	0.940165824	1.23059E-06	3.67354E-05	0.881463788	1.15376E-06	3.44417E-05	1.031965346	1.35075E-06	4.03223E-05
Road 9	9	1800-1900	0.159176556	1.3286E-07	3.96609E-06	0.15114769	1.26158E-07	3.76604E-06	0.913540286	7.62503E-07	2.2762E-05	0.863638789	7.20852E-07	2.15187E-05	1.014786478	8.4701E-07	2.52847E-05
Road 9	9	1900-2000	0.164031311	1.338E-07	3.99416E-06	0.156625966	1.2776E-07	3.81384E-06	0.872000523	7.1129E-07	2.12332E-05	0.823922906	6.72073E-07	2.00625E-05	0.980548872	7.99833E-07	2.38764E-05
Road 9	9	2000-2100	0.17228941	9.47803E-08	2.82935E-06	0.162441865	8.93629E-08	2.66764E-06	0.765879348	4.21327E-07	1.25773E-05	0.718524716	3.95277E-07	1.17997E-05	0.880966581	4.84639E-07	1.44673E-05
Road 9	9	2100-2200	0.020690184	1.09896E-08	3.2806E-07	0.019642201	1.0433E-08	3.11443E-07	0.29881674	1.58717E-07	4.73798E-06	0.279546469	1.48482E-07	4.43244E-06	0.29918867	1.58915E-07	4.74388E-06
Road 9	9	2200-2300	0.163462938	1.02328E-07	3.05467E-06	0.15666272	9.80711E-08	2.92759E-06	0.789778709	4.94403E-07	1.47588E-05	0.753541709	4.71718E-07	1.40816E-05	0.910204429	5.69789E-07	1.70092E-05
Road 9	9	2300-0000	0.132478811	7.53927E-08	2.2506E-06	0.127624572	7.26301E-08	2.16813E-06	0.676216572	3.8483E-07	1.14878E-05	0.648006927	3.68776E-07	1.10086E-05	0.775631499	4.41406E-07	1.31767E-05
Road 10	10	0000-0100	0.278806908	2.14362E-07	4.76628E-06	0.254643085	1.95784E-07	4.3532E-06	1.381416021	1.06211E-06	2.36157E-05	1.260381579	9.69052E-07	2.15466E-05	1.515024664	1.16484E-06	2.58998E-05
Road 10	10	0100-0200	0.274022903	1.59184E-07	3.5394E-06	0.249960041	1.45205E-07	3.22859E-06	1.346998184	7.82489E-07	1.73984E-05	1.227046218	7.12808E-07	1.58491E-05	1.47700626	8.58013E-07	1.90777E-05
Road 10	10	0200-0300	0.272274012	8.83878E-08	1.96528E-06	0.246562573	8.00411E-08	1.77969E-06	1.320970518	4.28824E-07	9.53478E-06	1.19565401	3.88143E-07	8.63024E-06	1.442216583	4.68184E-07	1.04099E-05
Road 10	10	0300-0400	0.246979099	5.06377E-08	1.12591E-06	0.223209013	4.57642E-08	1.01755E-06	1.293045805	2.65111E-07	5.89466E-06	1.167768008	2.39425E-07	5.32355E-06	1.390977021	2.8519E-07	6.34111E-06
Road 10	10	0400-0500	0.292664759	1.15009E-07	2.55718E-06	0.263754089	1.03648E-07	2.30457E-06	1.366351432	5.36936E-07	1.19386E-05	1.226579023	4.8201E-07	1.07173E-05	1.490333112	5.85657E-07	1.30219E-05
Road 10	10	0500-0600	0.266143132	1.86437E-07	4.14537E-06	0.240069889	1.68172E-07	3.73926E-06	1.24902552	8.74959E-07	1.94544E-05	1.122777957	7.86521E-07	1.74881E-05	1.362847847	9.54693E-07	2.12273E-05
Road 10	10	0600-0700	0.323420406	4.53121E-07	1.0075E-05	0.298685174	4.18466E-07	9.30446E-06	1.546745941	2.16703E-06	4.81833E-05	1.426750562	1.99892E-06	4.44453E-05	1.725435736	2.41738E-06	5.37497E-05
Road 10	10	0700-0800	0.315818694	6.96081E-07	1.54772E-05	0.293817648	6.4759E-07	1.4399E-05	1.52852018	3.36894E-06	7.49074E-05	1.419651838	3.12899E-06	6.95721E-05	1.713469486	3.77658E-06	8.39711E-05
Road 10	10	0800-0900	0.336075055	1.42403E-06	3.1663E-05	0.309957398	1.31337E-06	2.92023E-05	1.609034187	6.81788E-06	0.000151594	1.480396974	6.27281E-06	0.000139474	1.790354372	7.58618E-06	0.000168676
Road 10	10	0900-1000	0.372142756	1.25895E-06	2.79923E-05	0.345509234	1.16885E-06	2.59889E-05	1.725473572	5.83722E-06	0.000129789	1.597196989	5.40326E-06	0.00012014	1.942706223	6.57211E-06	0.000146129
Road 10	10	1000-1100	0.373985343	1.37381E-06	3.05462E-05	0.343117203	1.26041E-06	2.80249E-05	1.641624634	6.03038E-06	0.000134084	1.499635021	5.50879E-06	0.000122486	1.842752225	6.76921E-06	0.000150511
Road 10	10	1100-1200	0.361391164	1.32754E-06	2.95175E-05	0.333033623	1.22337E-06	2.72013E-05	1.642798531	6.03469E-06	0.00013418	1.510297098	5.54796E-06	0.000123357	1.843330722	6.77133E-06	0.000150559
Road 10	10	1200-1300	0.376811508	1.42925E-06	3.1779E-05	0.347465031	1.31794E-06	2.93041E-05	1.724534526	6.5412E-06	0.000145442	1.587836653	6.0227E-06	0.000133913	1.935301684	7.34064E-06	0.000163217
Road 10	10	1300-1400	0.369644453	1.2126E-06	2.69618E-05	0.339697026	1.11436E-06	2.47775E-05	1.65729433	5.43668E-06	0.000120883	1.519122728	4.98341E-06	0.000110805	1.858819754	6.09777E-06	0.000135582
Road 10	10	1400-1500	0.343733986	1.063E-06	2.36355E-05	0.318436135	9.84767E-07	2.1896E-05	1.645996847	5.09026E-06	0.00011318	1.52109796	4.70401E-06	0.000104592	1.839534095	5.68878E-06	0.000126488
Road 10	10	1500-1600	0.337458348	1.06666E-06	2.37168E-05	0.310998535	9.8302E-07	2.18572E-05	1.566612732	4.95183E-06	0.000110102	1.441703668	4.55701E-06	0.000101324	1.752702203	5.54003E-06	0.000123181
Road 10	10	1600-1700	0.325803828	1.14672E-06	2.54969E-05	0.30302997	1.06656E-06	2.37146E-05	1.535247316	5.40354E-06	0.000120146	1.423892405	5.01161E-06	0.000111432	1.726922374	6.07817E-06	0.000135146
Road 10	10	1700-1800	0.302089561	1.00647E-06	2.23787E-05	0.279856796	9.32402E-07	2.07317E-05	1.492473732	4.97249E-06	0.000110562	1.381792678	4.60373E-06	0.000102363	1.661649473	5.53613E-06	0.000123094
Road 10	10	1800-1900	0.305283943	6.31134E-07	1.40331E-05	0.282774073	5.84598E-07	1.29984E-05	1.478188213	3.05596E-06	6.79483E-05	1.367848099	2.82785E-06	6.28763E-05	1.650622172	3.41244E-06	7.58747E-05
Road 10	10	1900-2000	0.265313321	4.94104E-07	1.09862E-05	0.249118005	4.63942E-07	1.03156E-05	1.347594127	2.50968E-06	5.58019E-05	1.262483178	2.35117E-06	5.22776E-05	1.511601183	2.81512E-06	6.25932E-05
Road 10	10	2000-2100	0.303056839	3.72811E-07	8.28935E-06	0.28275197	3.47833E-07	7.73396E-06	1.419647731	1.74641E-06	3.88308E-05	1.322760057	1.62722E-06	3.61807E-05	1.605512027	1.97505E-06	4.39147E-05
Road 10	10	2100-2200	0.252030954	3.18653E-07	7.08515E-06	0.239556951	3.02882E-07	6.73448E-06	1.32088743	1.67005E-06	3.71331E-05	1.253787344	1.58521E-06	3.52468E-05	1.493344296	1.8881E-06	4.19813E-05
Road 10	10	2200-2300	0.260898136	3.43237E-07	7.63177E-06	0.250491198	3.29546E-07	7.32735E-06	1.280377237	1.68446E-06	3.74535E-05	1.228979543	1.61684E-06	3.595E-05	1.479470741	1.94639E-06	4.32774E-05
Road 10	10	2300-0000	0.238194686	2.9302E-07	6.51521E-06	0.227281336	2.79595E-07	6.2167E-06	1.168181967	1.43706E-06	3.19526E-05	1.113410814	1.36968E-06	3.04545E-05	1.34069215	1.64928E-06	3.66712E-05
Road 11	11	0000-0100	0.311772691	2.3816E-07	1.97555E-06	0.284596018	2.174E-07	1.80335E-06	1.511173149	1.15437E-06	9.57558E-06	1.377363499	1.05215E-06	8.72769E-06	1.661959517	1.26955E-06	1.0531E-05
Road 11	11	0100-0200	0.311946496	1.67888E-07	1.39264E-06	0.28436884	1.53046E-07	1.26953E-06	1.48745618	8.00541E-07	6.64055E-06	1.352706694	7.28019E-07	6.03898E-06	1.637075535	8.81065E-07	7.30851E-06
Road 11	11	0200-0300	0.271721946	7.07609E-08	5.86968E-07	0.246075877	6.40823E-08	5.31568E-07	1.402657311	3.65275E-07	3.02999E-06	1.269505073	3.306E-07	2.74236E-06	1.51558095	3.94683E-07	3.27392E-06
Road 11	11	0300-0400	0.290703148	7.0657E-08	5.86106E-07	0.262710106	6.38532E-08	5.29667E-07	1.468228366	3.56861E-07	2.96019E-06	1.326598324	3.22437E-07	2.67464E-06	1.58930843	3.8629E-07	3.20431E-06
Road 11	11	0400-0500	0.302477972	1.05027E-07	8.71208E-07	0.272774202	9.47133E-08	7.85654E-07	1.393038309	4.83694E-07	4.01228E-06	1.250876559	4.34332E-07	3.60282E-06	1.523650761	5.29045E-07	4.38847E-06
Road 11	11	0500-0600	0.242786646	1.13806E-07	9.44032E-07	0.218716993	1.02524E-07	8.50442E-07	1.204067249	5.64407E-07	4.6818E-06	1.081638694	5.07018E-07	4.20576E-06	1.300355687	6.09542E-07	5.0562E-06
Road 11	11	0600-0700	0.26338786	2.37781E-07	1.97241E-06	0.242301775	2.18745E-07	1.8145E-06	1.324130038	1.1954E-06	9.9159E-06	1.214247726	1.0962E-06	9.09303E-06	1.456549501	1.31494E-06	1.09075E-05
Road 11	11	0700-0800	0.311837905	5.9011E-07	4.89501E-06	0.28867545	5.46278E-07	4.53142E-06	1.562891454	2.95756E-06	2.45332E-05	1.44441504	2.73335E-06	2.26734E-05	1.733090489	3.27963E-06	2.72048E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.332577765	1.18365E-06	9.8185E-06	0.307832603	1.09558E-06	9.08796E-06	1.588825133	5.65467E-06	4.6906E-05	1.464453634	5.21203E-06	4.32342E-05	1.772286237	6.30762E-06	5.23222E-05
Road 11	11	0900-1000	0.336220114	8.58062E-07	7.11769E-06	0.312001479	7.96254E-07	6.60499E-06	1.537829905	3.92467E-06	3.25555E-05	1.419067487	3.62158E-06	3.00413E-05	1.731068965	4.41783E-06	3.66463E-05
Road 11	11	1000-1100	0.345692258	7.26194E-07	6.02384E-06	0.316655169	6.65196E-07	5.51785E-06	1.560933034	3.27904E-06	2.71999E-05	1.423583572	2.99051E-06	2.48066E-05	1.740238741	3.65571E-06	3.03244E-05
Road 11	11	1100-1200	0.303277805	7.16073E-07	5.93988E-06	0.278619097	6.57851E-07	5.45692E-06	1.506713179	3.55752E-06	2.95099E-05	1.382817736	3.26499E-06	2.70833E-05	1.661436833	3.92284E-06	3.25403E-05
Road 11	11	1200-1300	0.369686061	1.05258E-06	8.73122E-06	0.340532317	9.69571E-07	8.04267E-06	1.726784157	4.91654E-06	4.07831E-05	1.587605231	4.52026E-06	3.7496E-05	1.928137548	5.48984E-06	4.55386E-05
Road 11	11	1300-1400	0.385404572	8.09617E-07	6.71584E-06	0.354010882	7.43669E-07	6.16879E-06	1.686009934	3.54179E-06	2.93794E-05	1.542539539	3.2404E-06	2.68794E-05	1.896550421	3.98407E-06	3.30482E-05
Road 11	11	1400-1500	0.306557862	6.17373E-07	5.12116E-06	0.283454023	5.70845E-07	4.7352E-06	1.479754956	2.98006E-06	2.47199E-05	1.361818006	2.74255E-06	2.27497E-05	1.64527203	3.3134E-06	2.74849E-05
Road 11	11	1500-1600	0.271782764	5.52059E-07	4.57937E-06	0.250130622	5.08078E-07	4.21455E-06	1.357635176	2.7577E-06	2.28753E-05	1.24636123	2.53167E-06	2.10004E-05	1.496491851	3.03975E-06	2.5215E-05
Road 11	11	1600-1700	0.261052546	6.34503E-07	5.26325E-06	0.242854356	5.90271E-07	4.89635E-06	1.339292021	3.25522E-06	2.70023E-05	1.242860674	3.02084E-06	2.50581E-05	1.485715031	3.61111E-06	2.99545E-05
Road 11	11	1700-1800	0.259363224	6.43905E-07	5.34125E-06	0.239381613	5.94298E-07	4.92975E-06	1.355312496	3.36475E-06	2.79109E-05	1.249367251	3.10173E-06	2.57291E-05	1.488748864	3.69603E-06	3.06588E-05
Road 11	11	1800-1900	0.279320186	5.72218E-07	4.7466E-06	0.258109531	5.28766E-07	4.38616E-06	1.427815961	2.92504E-06	2.42634E-05	1.31898534	2.70209E-06	2.2414E-05	1.577094871	3.23085E-06	2.68002E-05
Road 11	11	1900-2000	0.266300155	4.20717E-07	3.48988E-06	0.249342934	3.93927E-07	3.26766E-06	1.344800199	2.1246E-06	1.76237E-05	1.254918524	1.9826E-06	1.64458E-05	1.504261457	2.37652E-06	1.97135E-05
Road 11	11	2000-2100	0.272373269	3.83025E-07	3.17722E-06	0.254143914	3.5739E-07	2.96458E-06	1.317361207	1.85254E-06	1.5367E-05	1.227673229	1.72642E-06	1.43208E-05	1.481817143	2.08381E-06	1.72853E-05
Road 11	11	2100-2200	0.191472847	1.92803E-07	1.59931E-06	0.179287614	1.80533E-07	1.49753E-06	1.040206357	1.04743E-06	8.68852E-06	0.973262088	9.80021E-07	8.12935E-06	1.152549703	1.16055E-06	9.62689E-06
Road 11	11	2200-2300	0.251416718	2.74987E-07	2.28104E-06	0.240681551	2.63245E-07	2.18364E-06	1.232218384	1.34774E-06	1.11796E-05	1.17812558	1.28857E-06	1.06888E-05	1.418807131	1.55182E-06	1.28725E-05
Road 11	11	2300-0000	0.239924405	2.49921E-07	2.07312E-06	0.229065363	2.3861E-07	1.97929E-06	1.195698286	1.24552E-06	1.03317E-05	1.139819307	1.18731E-06	9.84885E-06	1.36888467	1.42592E-06	1.18281E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.31404	0.00000247	3.715E-06	1.20971	2.27389E-06	3.42004E-06	5.75703	1.08215E-05	1.6276E-05	5.30023	9.96284E-06	1.49846E-05	6.50994	1.22367E-05	1.84046E-05
Haul Road 1	HR1	0800-0900	1.32034	2.48184E-06	3.73281E-06	1.21331	2.28066E-06	3.43022E-06	5.78481	1.08737E-05	1.63546E-05	5.31601	9.9925E-06	1.50292E-05	6.52932	1.22732E-05	1.84594E-05
Haul Road 1	HR1	0900-1000	1.32283	2.48652E-06	3.73985E-06	1.2148	2.28346E-06	3.43443E-06	5.79561	1.0894E-05	1.63851E-05	5.32232	1.00044E-05	1.50471E-05	6.53712	1.22878E-05	1.84815E-05
Haul Road 1	HR1	1000-1100	1.33453	2.50852E-06	3.77293E-06	1.21351	2.28103E-06	3.43079E-06	5.84707	1.09907E-05	1.65306E-05	5.31661	9.99363E-06	1.50309E-05	6.53012	1.22747E-05	1.84617E-05
Haul Road 1	HR1	1100-1200	1.33283	2.50532E-06	3.76812E-06	1.2221	2.29718E-06	3.45507E-06	5.83927	1.09761E-05	1.65086E-05	5.35459	1.0065E-05	1.51383E-05	6.57669	1.23622E-05	1.85934E-05
Haul Road 1	HR1	1200-1300	1.32823	2.49667E-06	3.75512E-06	1.21341	2.28085E-06	3.4305E-06	5.81949	1.09389E-05	1.64526E-05	5.31631	9.99306E-06	1.50301E-05	6.52972	1.22739E-05	1.84606E-05
Haul Road 1	HR1	1300-1400	1.33493	2.50927E-06	3.77406E-06	1.21341	2.28085E-06	3.4305E-06	5.84877	1.09939E-05	1.65354E-05	5.31631	9.99306E-06	1.50301E-05	6.52972	1.22739E-05	1.84606E-05
Haul Road 1	HR1	1400-1500	1.33163	2.50306E-06	3.76473E-06	1.218	2.28947E-06	3.44348E-06	5.83408	1.09663E-05	1.64939E-05	5.33651	1.0031E-05	1.50872E-05	6.55451	1.23205E-05	1.85307E-05
Haul Road 1	HR1	1500-1600	1.32153	2.48408E-06	3.73618E-06	1.20881	2.2722E-06	3.4175E-06	5.79021	1.08839E-05	1.63699E-05	5.29613	9.95513E-06	1.4973E-05	6.50494	1.22273E-05	1.83905E-05
Haul Road 1	HR1	1600-1700	1.31824	2.47789E-06	3.72688E-06	1.21351	2.28103E-06	3.43079E-06	5.77552	1.08562E-05	1.63283E-05	5.31661	9.99363E-06	1.50309E-05	6.53012	1.22747E-05	1.84617E-05
Haul Road 1	HR1	1700-1800	1.31824	2.47789E-06	3.72688E-06	1.20481	2.26468E-06	3.40619E-06	5.77552	1.08562E-05	1.63283E-05	5.27884	9.92263E-06	1.49241E-05	6.48365	1.21873E-05	1.83303E-05
Haul Road 1	HR1	1800-1900	1.31154	2.4653E-06	3.70793E-06	1.20261	2.26055E-06	3.39997E-06	5.74614	1.0801E-05	1.62453E-05	5.26895	9.90404E-06	1.48962E-05	6.47156	1.21646E-05	1.82961E-05
Haul Road 1	HR1	1900-2000	1.30145	2.44633E-06	3.67941E-06	1.20951	2.27352E-06	3.41948E-06	5.70196	1.0718E-05	1.61204E-05	5.29933	9.96115E-06	1.49821E-05	6.50884	1.22347E-05	1.84015E-05
Haul Road 1	HR1	2000-2100	1.29205	2.42867E-06	3.65283E-06	1.20191	2.25923E-06	3.39799E-06	5.6608	1.06406E-05	1.6004E-05	5.26595	9.8984E-06	1.48877E-05	6.46786	1.21576E-05	1.82857E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.31404	1.70212E-06	4.53089E-06	1.20971	1.56698E-06	4.17115E-06	5.75703	7.45729E-06	1.98506E-05	5.30023	6.86558E-06	1.82755E-05	6.50994	8.43256E-06	2.24467E-05
Haul Road 2	HR2	0800-0900	1.32034	1.71028E-06	4.55261E-06	1.21331	1.57165E-06	4.18357E-06	5.78481	7.49328E-06	1.99464E-05	5.31601	6.88602E-06	1.83299E-05	6.52932	8.45767E-06	2.25135E-05
Haul Road 2	HR2	0900-1000	1.32283	1.71351E-06	4.5612E-06	1.2148	1.57358E-06	4.1887E-06	5.79561	7.50727E-06	1.99836E-05	5.32232	6.8942E-06	1.83517E-05	6.53712	8.46777E-06	2.25404E-05
Haul Road 2	HR2	1000-1100	1.33453	1.72867E-06	4.60154E-06	1.21351	1.5719E-06	4.18426E-06	5.84707	7.57392E-06	2.0161E-05	5.31661	6.8868E-06	1.8332E-05	6.53012	8.4587E-06	2.25162E-05
Haul Road 2	HR2	1100-1200	1.33283	1.72646E-06	4.59568E-06	1.2221	1.58303E-06	4.21387E-06	5.83927	7.56382E-06	2.01342E-05	5.35459	6.936E-06	1.84629E-05	6.57669	8.51903E-06	2.26768E-05
Haul Road 2	HR2	1200-1300	1.32823	1.72051E-06	4.57982E-06	1.21341	1.57177E-06	4.18391E-06	5.81949	7.5382E-06	2.0066E-05	5.31631	6.88641E-06	1.8331E-05	6.52972	8.45819E-06	2.25149E-05
Haul Road 2	HR2	1300-1400	1.33493	1.72918E-06	4.60292E-06	1.21341	1.57177E-06	4.18391E-06	5.84877	7.57613E-06	2.01669E-05	5.31631	6.88641E-06	1.8331E-05	6.52972	8.45819E-06	2.25149E-05
Haul Road 2	HR2	1400-1500	1.33163	1.72491E-06	4.59154E-06	1.218	1.57772E-06	4.19974E-06	5.83408	7.5571E-06	2.01163E-05	5.33651	6.91258E-06	1.84006E-05	6.55451	8.4903E-06	2.26003E-05
Haul Road 2	HR2	1500-1600	1.32153	1.71183E-06	4.55672E-06	1.20881	1.56582E-06	4.16805E-06	5.79021	7.50027E-06	1.9965E-05	5.29613	6.86027E-06	1.82614E-05	6.50494	8.42609E-06	2.24294E-05
Haul Road 2	HR2	1600-1700	1.31824	1.70756E-06	4.54537E-06	1.21351	1.5719E-06	4.18426E-06	5.77552	7.48124E-06	1.99143E-05	5.31661	6.8868E-06	1.8332E-05	6.53012	8.4587E-06	2.25162E-05
Haul Road 2	HR2	1700-1800	1.31824	1.70756E-06	4.54537E-06	1.20481	1.56063E-06	4.15426E-06	5.77552	7.48124E-06	1.99143E-05	5.27884	6.83788E-06	1.82018E-05	6.48365	8.39851E-06	2.2356E-05
Haul Road 2	HR2	1800-1900	1.31154	1.69889E-06	4.52227E-06	1.20261	1.55778E-06	4.14667E-06	5.74614	7.44319E-06	1.9813E-05	5.26895	6.82506E-06	1.81677E-05	6.47156	8.38285E-06	2.23143E-05
Haul Road 2	HR2	1900-2000	1.30145	1.68582E-06	4.48748E-06	1.20951	1.56672E-06	4.17046E-06	5.70196	7.38596E-06	1.96607E-05	5.29933	6.86442E-06	1.82724E-05	6.50884	8.43114E-06	2.24429E-05
Haul Road 2	HR2	2000-2100	1.29205	1.67364E-06	4.45507E-06	1.20191	1.55688E-06	4.14426E-06	5.6608	7.33264E-06	1.95188E-05	5.26595	6.82118E-06	1.81573E-05	6.46786	8.37806E-06	2.23016E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.31404	1.70212E-06	4.52457E-06	1.20971	1.56698E-06	4.16534E-06	5.75703	7.45729E-06	1.98229E-05	5.30023	6.86558E-06	1.825E-05	6.50994	8.43256E-06	2.24154E-05
Haul Road 3	HR3	0800-0900	1.32034	1.71028E-06	4.54626E-06	1.21331	1.57165E-06	4.17773E-06	5.78481	7.49328E-06	1.99186E-05	5.31601	6.88602E-06	1.83044E-05	6.52932	8.45767E-06	2.24821E-05
Haul Road 3	HR3	0900-1000	1.32283	1.71351E-06	4.55484E-06	1.2148	1.57358E-06	4.18286E-06	5.79561	7.50727E-06	1.99558E-05	5.32232	6.8942E-06	1.83261E-05	6.53712	8.46777E-06	2.2509E-05
Haul Road 3	HR3	1000-1100	1.33453	1.72867E-06	4.59512E-06	1.21351	1.5719E-06	4.17842E-06	5.84707	7.57392E-06	2.01329E-05	5.31661	6.8868E-06	1.83064E-05	6.53012	8.4587E-06	2.24849E-05
Haul Road 3	HR3	1100-1200	1.33283	1.72646E-06	4.58927E-06	1.2221	1.58303E-06	4.208E-06	5.83927	7.56382E-06	2.01061E-05	5.35459	6.936E-06	1.84372E-05	6.57669	8.51903E-06	2.26452E-05
Haul Road 3	HR3	1200-1300	1.32823	1.72051E-06	4.57343E-06	1.21341	1.57177E-06	4.17808E-06	5.81949	7.5382E-06	2.0038E-05	5.31631	6.88641E-06	1.83054E-05	6.52972	8.45819E-06	2.24835E-05
Haul Road 3	HR3	1300-1400	1.33493	1.72918E-06	4.5965E-06	1.21341	1.57177E-06	4.17808E-06	5.84877	7.57613E-06	2.01388E-05	5.31631	6.88641E-06	1.83054E-05	6.52972	8.45819E-06	2.24835E-05
Haul Road 3	HR3	1400-1500	1.33163	1.72491E-06	4.58514E-06	1.218	1.57772E-06	4.19388E-06	5.83408	7.5571E-06	2.00882E-05	5.33651	6.91258E-06	1.8375E-05	6.55451	8.4903E-06	2.25688E-05
Haul Road 3	HR3	1500-1600	1.32153	1.71183E-06	4.55036E-06	1.20881	1.56582E-06	4.16224E-06	5.79021	7.50027E-06	1.99372E-05	5.29613	6.86027E-06	1.82359E-05	6.50494	8.42609E-06	2.23982E-05
Haul Road 3	HR3	1600-1700	1.31824	1.70756E-06	4.53903E-06	1.21351	1.5719E-06	4.17842E-06	5.77552	7.48124E-06	1.98866E-05	5.31661	6.8868E-06	1.83064E-05	6.53012	8.4587E-06	2.24849E-05
Haul Road 3	HR3	1700-1800	1.31824	1.70756E-06	4.53903E-06	1.20481	1.56063E-06	4.14847E-06	5.77552	7.48124E-06	1.98866E-05	5.27884	6.83788E-06	1.81764E-05	6.48365	8.39851E-06	2.23248E-05
Haul Road 3	HR3	1800-1900	1.31154	1.69889E-06	4.51596E-06	1.20261	1.55778E-06	4.14089E-06	5.74614	7.44319E-06	1.97854E-05	5.26895	6.82506E-06	1.81423E-05	6.47156	8.38285E-06	2.22832E-05
Haul Road 3	HR3	1900-2000	1.30145	1.68582E-06	4.48122E-06	1.20951	1.56672E-06	4.16465E-06	5.70196	7.38596E-06	1.96333E-05	5.29933	6.86442E-06	1.82469E-05	6.50884	8.43114E-06	2.24116E-05
Haul Road 3	HR3	2000-2100	1.29205	1.67364E-06	4.44885E-06	1.20191	1.55688E-06	4.13848E-06	5.6608	7.33264E-06	1.94916E-05	5.26595	6.82118E-06	1.8132E-05	6.46786	8.37806E-06	2.22705E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.091301061	3.06736E-07	2.49534E-06	0.083497654	2.8052E-07	2.28207E-06	0.540972458	1.81746E-06	1.47853E-05	0.492328101	1.65403E-06	1.34558E-05	0.575825754	1.93455E-06	1.57378E-05
Road 1	1	0100-0200	0.071158349	1.45575E-07	1.18428E-06	0.064688349	1.32339E-07	1.0766E-06	0.429904037	8.79496E-07	7.15483E-06	0.388752018	7.95307E-07	6.46994E-06	0.453440367	9.27646E-07	7.54654E-06
Road 1	1	0200-0300	0.068567532	9.90935E-08	8.0614E-07	0.062096364	8.97414E-08	7.30059E-07	0.438814545	6.34173E-07	5.15909E-06	0.393715714	5.68996E-07	4.62887E-06	0.455812078	6.58737E-07	5.35893E-06
Road 1	1	0300-0400	0.058558	6.04484E-08	4.91757E-07	0.052219818	5.39056E-08	4.3853E-07	0.360097636	3.71722E-07	3.02402E-06	0.318007091	3.28273E-07	2.67055E-06	0.370226909	3.82179E-07	3.10908E-06
Road 1	1	0400-0500	0.076590349	1.23626E-07	1.00571E-06	0.067791279	1.09423E-07	8.90171E-07	0.44009686	7.10367E-07	5.77894E-06	0.386755698	6.24268E-07	5.07851E-06	0.454546977	7.33691E-07	5.96868E-06
Road 1	1	0500-0600	0.064055426	2.26021E-07	1.83872E-06	0.056756702	2.00268E-07	1.62921E-06	0.380908298	1.34405E-06	1.0934E-05	0.333806915	1.17785E-06	9.58196E-06	0.390563617	1.37811E-06	1.12112E-05
Road 1	1	0600-0700	0.087168249	5.51346E-07	4.48528E-06	0.076312611	4.82683E-07	3.9267E-06	0.466198843	2.94874E-06	2.39885E-05	0.404873947	2.56086E-06	2.0833E-05	0.481186558	3.04354E-06	2.47597E-05
Road 1	1	0700-0800	0.073643915	7.768E-07	6.31938E-06	0.06415331	6.76692E-07	5.50499E-06	0.408251868	4.30626E-06	3.50321E-05	0.351621904	3.70892E-06	3.01727E-05	0.415775214	4.38562E-06	3.56776E-05
Road 1	1	0800-0900	0.078754856	1.02582E-06	8.34523E-06	0.069135634	9.00528E-07	7.32593E-06	0.423798977	5.5202E-06	4.49077E-05	0.369508761	4.81305E-06	3.91548E-05	0.438644395	5.71357E-06	4.64808E-05
Road 1	1	0900-1000	0.083490798	1.11885E-06	9.10203E-06	0.073566947	9.85863E-07	8.02014E-06	0.463585252	6.21246E-06	5.05393E-05	0.406463459	5.44698E-06	4.4312E-05	0.480030406	6.43284E-06	5.23321E-05
Road 1	1	1000-1100	0.095936547	1.25142E-06	1.01805E-05	0.084636806	1.10403E-06	8.98143E-06	0.513727712	6.70122E-06	5.45154E-05	0.451643669	5.89137E-06	4.79272E-05	0.536280475	6.9954E-06	5.69086E-05
Road 1	1	1100-1200	0.08719957	1.10309E-06	8.97378E-06	0.077055445	9.74763E-07	7.92984E-06	0.500866617	6.33604E-06	5.15446E-05	0.440258813	5.56934E-06	4.53074E-05	0.517314258	6.5441E-06	5.32372E-05
Road 1	1	1200-1300	0.089681499	1.1227E-06	9.13335E-06	0.07970045	9.97752E-07	8.11686E-06	0.50823009	6.36241E-06	5.17592E-05	0.44979045	5.63082E-06	4.58076E-05	0.5294909	6.62857E-06	5.39244E-05
Road 1	1	1300-1400	0.09346378	1.24373E-06	1.01179E-05	0.081951128	1.09053E-06	8.87161E-06	0.519048646	6.90701E-06	5.61895E-05	0.452840762	6.02598E-06	4.90222E-05	0.53479189	7.11651E-06	5.78938E-05
Road 1	1	1400-1500	0.088215865	1.27324E-06	1.0358E-05	0.078166359	1.12819E-06	9.17799E-06	0.479546138	6.92138E-06	5.63064E-05	0.422889155	6.10364E-06	4.9654E-05	0.501055514	7.23183E-06	5.8832E-05
Road 1	1	1500-1600	0.094912975	1.27548E-06	1.03762E-05	0.085102821	1.14365E-06	9.30375E-06	0.514308659	6.91151E-06	5.62261E-05	0.458972221	6.16787E-06	5.01765E-05	0.544075042	7.31152E-06	5.94803E-05
Road 1	1	1600-1700	0.090344702	1.28022E-06	1.04148E-05	0.080746901	1.14422E-06	9.30838E-06	0.495667682	7.02382E-06	5.71398E-05	0.440642609	6.24409E-06	5.07966E-05	0.52138951	7.38831E-06	6.0105E-05
Road 1	1	1700-1800	0.07119843	1.01292E-06	8.24026E-06	0.064204974	9.13427E-07	7.43086E-06	0.399521253	5.68388E-06	4.62392E-05	0.357915607	5.09197E-06	4.14239E-05	0.42212058	6.00539E-06	4.88548E-05
Road 1	1	1800-1900	0.06269208	9.1073E-07	7.40892E-06	0.056472661	8.2038E-07	6.67391E-06	0.376409289	5.46811E-06	4.44839E-05	0.336025103	4.88145E-06	3.97113E-05	0.392497765	5.70183E-06	4.63852E-05
Road 1	1	1900-2000	0.076310169	8.49323E-07	6.90937E-06	0.068777218	7.65482E-07	6.22731E-06	0.439236644	4.88665E-06	3.97699E-05	0.392622715	4.36984E-06	3.55493E-05	0.461399933	5.13533E-06	4.17766E-05
Road 1	1	2000-2100	0.068662008	6.48217E-07	5.27334E-06	0.062035825	5.85661E-07	4.76444E-06	0.407212664	3.84437E-06	3.12745E-05	0.364988946	3.44575E-06	2.80317E-05	0.427024771	4.03141E-06	3.27961E-05
Road 1	1	2100-2200	0.07195366	6.19871E-07	5.04274E-06	0.065694989	5.65953E-07	4.60412E-06	0.430435098	3.70814E-06	3.01663E-05	0.390256166	3.362E-06	2.73504E-05	0.455951155	3.92796E-06	3.19545E-05
Road 1	1	2200-2300	0.070191954	5.73076E-07	4.66206E-06	0.063889103	5.21617E-07	4.24343E-06	0.419736759	3.4269E-06	2.78784E-05	0.379063172	3.09483E-06	2.51769E-05	0.442952276	3.61645E-06	2.94203E-05
Road 1	1	2300-0000	0.061155923	4.4765E-07	3.6417E-06	0.055744487	4.0804E-07	3.31946E-06	0.376301923	2.75446E-06	2.2408E-05	0.339616641	2.48593E-06	2.02234E-05	0.395361128	2.89397E-06	2.35429E-05
Road 2	2	0000-0100	0.151220577	1.82025E-07	1.1755E-06	0.138270192	1.66436E-07	1.07483E-06	0.640404615	7.70857E-07	4.97812E-06	0.583465769	7.0232E-07	4.53551E-06	0.721735962	8.68756E-07	5.61034E-06
Road 2	2	0100-0200	0.107327059	8.44704E-08	5.45501E-07	0.097560882	7.6784E-08	4.95864E-07	0.530852353	4.178E-07	2.69811E-06	0.480259706	3.77982E-07	2.44097E-06	0.577820588	4.54766E-07	2.93684E-06
Road 2	2	0200-0300	0.111434783	5.93287E-08	3.83139E-07	0.101021739	5.37847E-08	3.47336E-07	0.608853043	3.24158E-07	2.09338E-06	0.548664783	2.92113E-07	1.88644E-06	0.649686522	3.45898E-07	2.23377E-06
Road 2	2	0300-0400	0.097689333	3.39199E-08	2.19051E-07	0.087163333	3.0265E-08	1.95449E-07	0.356014667	1.23616E-07	7.98301E-07	0.314904667	1.09342E-07	7.06119E-07	0.402068	1.39607E-07	9.01568E-07
Road 2	2	0400-0500	0.133358148	8.33488E-08	5.38259E-07	0.118065556	7.3791E-08	4.76535E-07	0.643177407	4.01986E-07	2.59599E-06	0.567045926	3.54404E-07	2.2887E-06	0.685111481	4.28195E-07	2.76524E-06
Road 2	2	0500-0600	0.107143333	1.4137E-07	9.12952E-07	0.095021053	1.25375E-07	8.0966E-07	0.476321053	6.28479E-07	4.05866E-06	0.418664035	5.52404E-07	3.56737E-06	0.513685088	6.77779E-07	4.37703E-06
Road 2	2	0600-0700	0.152680673	3.67565E-07	2.3737E-06	0.133746058	3.21981E-07	2.07932E-06	0.61922875	1.49074E-06	9.62703E-06	0.539154615	1.29796E-06	8.38213E-06	0.672900673	1.61995E-06	1.04615E-05
Road 2	2	0700-0800	0.12593775	4.66436E-07	3.0122E-06	0.109757375	4.06509E-07	2.62519E-06	0.525904188	1.94779E-06	1.25787E-05	0.453885813	1.68106E-06	1.08561E-05	0.563643188	2.08757E-06	1.34813E-05
Road 2	2	0800-0900	0.141382829	9.94916E-07	6.42507E-06	0.12408273	8.73175E-07	5.63888E-06	0.595474474	4.19038E-06	2.7061E-05	0.519254934	3.65402E-06	2.35973E-05	0.643337664	4.52719E-06	2.92362E-05
Road 2	2	0900-1000	0.16478131	9.61224E-07	6.20749E-06	0.14510373	8.46438E-07	5.46622E-06	0.701918492	4.09452E-06	2.6442E-05	0.616113849	3.594E-06	2.32097E-05	0.761217579	4.44044E-06	2.86759E-05
Road 2	2	1000-1100	0.181870802	7.87265E-07	5.08408E-06	0.160425775	6.94436E-07	4.4846E-06	0.766508984	3.31799E-06	2.14273E-05	0.674592674	2.92011E-06	1.88578E-05	0.835018449	3.61455E-06	2.33424E-05
Road 2	2	1100-1200	0.216614044	9.17601E-07	5.92578E-06	0.191331585	8.10502E-07	5.23414E-06	0.884705464	3.74771E-06	2.42023E-05	0.779967486	3.30403E-06	2.13371E-05	0.971299071	4.11453E-06	2.65712E-05
Road 2	2	1200-1300	0.166404421	7.31871E-07	4.72635E-06	0.147898316	6.50479E-07	4.20073E-06	0.728685895	3.20487E-06	2.06967E-05	0.645281105	2.83804E-06	1.83278E-05	0.793179421	3.48852E-06	2.25285E-05
Road 2	2	1300-1400	0.183322287	9.46316E-07	6.11122E-06	0.160592332	8.28984E-07	5.35349E-06	0.750031928	3.87169E-06	2.5003E-05	0.654517668	3.37864E-06	2.1819E-05	0.81511	4.20763E-06	2.71725E-05
Road 2	2	1400-1500	0.156685455	5.98451E-07	3.86474E-06	0.138869152	5.30403E-07	3.42529E-06	0.677684606	2.58838E-06	1.67155E-05	0.598613091	2.28637E-06	1.47652E-05	0.737482242	2.81677E-06	1.81904E-05
Road 2	2	1500-1600	0.195962404	8.30119E-07	5.36082E-06	0.175597158	7.43849E-07	4.8037E-06	0.772323279	3.27165E-06	2.1128E-05	0.690362896	2.92445E-06	1.88858E-05	0.865960055	3.6683E-06	2.36895E-05
Road 2	2	1600-1700	0.163698054	8.37437E-07	5.40809E-06	0.146339367	7.48634E-07	4.83461E-06	0.688895339	3.52421E-06	2.2759E-05	0.613484253	3.13843E-06	2.02677E-05	0.75982362	3.88706E-06	2.51023E-05
Road 2	2	1700-1800	0.124755045	6.41102E-07	4.14018E-06	0.112561937	5.78443E-07	3.73553E-06	0.49546	2.54611E-06	1.64426E-05	0.445044234	2.28703E-06	1.47694E-05	0.557606171	2.86548E-06	1.8505E-05
Road 2	2	1800-1900	0.13591116	7.86523E-07	5.07929E-06	0.12254616	7.09179E-07	4.57981E-06	0.61203288	3.54186E-06	2.2873E-05	0.5491646	3.17804E-06	2.05234E-05	0.67171076	3.88722E-06	2.51033E-05
Road 2	2	1900-2000	0.117082781	4.58032E-07	2.95793E-06	0.105572604	4.13004E-07	2.66714E-06	0.532637337	2.0837E-06	1.34563E-05	0.476710296	1.86491E-06	1.20434E-05	0.582282899	2.27791E-06	1.47105E-05
Road 2	2	2000-2100	0.110331769	3.75434E-07	2.42452E-06	0.09963932	3.3905E-07	2.18955E-06	0.471837279	1.60556E-06	1.03685E-05	0.422610136	1.43805E-06	9.28678E-06	0.522249456	1.7771E-06	1.14763E-05
Road 2	2	2100-2200	0.085478693	3.02737E-07	1.95505E-06	0.078005948	2.76271E-07	1.78413E-06	0.393999935	1.39542E-06	9.01146E-06	0.35570902	1.2598E-06	8.13568E-06	0.433714967	1.53607E-06	9.91981E-06
Road 2	2	2200-2300	0.12430192	3.5967E-07	2.32271E-06	0.11318984	3.27517E-07	2.11507E-06	0.5309168	1.53622E-06	9.92074E-06	0.48023976	1.38958E-06	8.97379E-06	0.5934296	1.7171E-06	1.10889E-05
Road 2	2	2300-0000	0.110457568	2.83815E-07	1.83285E-06	0.100706847	2.58761E-07	1.67105E-06	0.500331622	1.28557E-06	8.30211E-06	0.452666577	1.1631E-06	7.5112E-06	0.553373423	1.42186E-06	9.18225E-06
Road 3	3	0000-0100	0.095020652	3.5054E-07	1.36246E-05	0.086816304	3.20274E-07	1.24482E-05	0.524385261	1.93451E-06	7.51895E-05	0.476850783	1.75915E-06	6.83737E-05	0.563667087	2.07942E-06	8.08219E-05
Road 3	3	0100-0200	0.07181331	1.63563E-07	6.35729E-06	0.065216761	1.48539E-07	5.77333E-06	0.419272324	9.54941E-07	3.71162E-05	0.37858493	8.62271E-07	3.35143E-05	0.44380169	1.01081E-06	3.92876E-05
Road 3	3	0200-0300	0.070465758	1.11894E-07	4.34903E-06	0.063832929	1.01361E-07	3.93966E-06	0.440766162	6.99899E-07	2.72033E-05	0.395763737	6.28439E-07	2.44259E-05	0.459596667	7.29801E-07	2.83655E-05
Road 3	3	0300-0400	0.059825429	6.71701E-08	2.61073E-06	0.053217571	5.9751E-08	2.32237E-06	0.331204714	3.71866E-07	1.44535E-05	0.291507429	3.27295E-07	1.27212E-05	0.344725	3.87046E-07	1.50435E-05
Road 3	3	0400-0500	0.08075531	1.46367E-07	5.6889E-06	0.072102389	1.30683E-07	5.07933E-06	0.448408496	8.12727E-07	3.15886E-05	0.397519381	7.20492E-07	2.80037E-05	0.46962177	8.51175E-07	3.3083E-05
Road 3	3	0500-0600	0.065826179	2.59732E-07	1.00951E-05	0.058338211	2.30187E-07	8.94678E-06	0.368645976	1.45458E-06	5.65358E-05	0.323111382	1.27491E-06	4.95526E-05	0.381449593	1.5051E-06	5.84993E-05
Road 3	3	0600-0700	0.092552793	6.5912E-07	2.56184E-05	0.081038446	5.7712E-07	2.24312E-05	0.463998153	3.30439E-06	0.000128433	0.403197905	2.8714E-06	0.000111604	0.484236351	3.44852E-06	0.000134035
Road 3	3	0700-0800	0.07652077	8.9229E-07	3.46811E-05	0.066571431	7.76273E-07	3.01718E-05	0.403589697	4.70616E-06	0.000182917	0.347341802	4.05027E-06	0.000157424	0.413913232	4.82654E-06	0.000187596
Road 3	3	0800-0900	0.08488997	1.35751E-06	5.27631E-05	0.07384679	1.18092E-06	4.58992E-05	0.421592899	6.74187E-06	0.00026204	0.363750451	5.81689E-06	0.000226088	0.437597242	6.99781E-06	0.000271987
Road 3	3	0900-1000	0.091081927	1.40978E-06	5.47947E-05	0.080160642	1.24074E-06	4.82244E-05	0.470075855	7.27591E-06	0.000282796	0.411729772	6.37282E-06	0.000247696	0.491890415	7.61356E-06	0.00029592
Road 3	3	1000-1100	0.102870944	1.45035E-06	5.63716E-05	0.090405995	1.27461E-06	4.9541E-05	0.51915463	7.31944E-06	0.000284488	0.454731775	6.41116E-06	0.000249186	0.54513777	7.68577E-06	0.000298727
Road 3	3	1100-1200	0.101491475	1.39021E-06	5.40339E-05	0.089209614	1.22197E-06	4.7495E-05	0.526997459	7.21869E-06	0.000280572	0.461127084	6.31642E-06	0.000245503	0.550336698	7.53839E-06	0.000292998
Road 3	3	1200-1300	0.095553747	1.30887E-06	5.08726E-05	0.084301663	1.15475E-06	4.48821E-05	0.507548267	6.95228E-06	0.000270218	0.445698244	6.10508E-06	0.000237289	0.529999906	7.25982E-06	0.000282171

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.101628188	1.51108E-06	5.87317E-05	0.089725556	1.3341E-06	5.18531E-05	0.518639817	7.71148E-06	0.000299726	0.455700356	6.77566E-06	0.000263353	0.545425912	8.10975E-06	0.000315206
Road 3	3	1400-1500	0.093003105	1.39327E-06	5.41531E-05	0.083003448	1.24347E-06	4.83305E-05	0.482278469	7.22499E-06	0.000280817	0.428303897	6.4164E-06	0.000249389	0.511307345	7.65987E-06	0.00029772
Road 3	3	1500-1600	0.10292219	1.47749E-06	5.74263E-05	0.092155173	1.32292E-06	5.14187E-05	0.519536827	7.45816E-06	0.00028988	0.46308657	6.64779E-06	0.000258383	0.555241743	7.97072E-06	0.000309802
Road 3	3	1600-1700	0.097003084	1.51854E-06	5.9022E-05	0.086391732	1.35243E-06	5.25655E-05	0.497615195	7.78997E-06	0.000302776	0.440735369	6.89954E-06	0.000268168	0.5271271	8.25197E-06	0.000320733
Road 3	3	1700-1800	0.076106742	1.19508E-06	4.64499E-05	0.068643902	1.0779E-06	4.18951E-05	0.392413871	6.16197E-06	0.0002395	0.351712942	5.52285E-06	0.000214659	0.420356844	6.60075E-06	0.000256554
Road 3	3	1800-1900	0.071608004	1.17957E-06	4.5847E-05	0.064984197	1.07046E-06	4.16061E-05	0.396357264	6.52904E-06	0.000253767	0.356353272	5.87007E-06	0.000228155	0.421337468	6.94053E-06	0.000269761
Road 3	3	1900-2000	0.076249224	9.29483E-07	3.61267E-05	0.068655803	8.36918E-07	3.25289E-05	0.422149934	5.14603E-06	0.000200013	0.376926658	4.59476E-06	0.000178587	0.445582461	5.43168E-06	0.000211116
Road 3	3	2000-2100	0.070674422	7.35697E-07	2.85947E-05	0.06375433	6.63661E-07	2.57949E-05	0.389134453	4.05076E-06	0.000157443	0.348257458	3.62524E-06	0.000140904	0.412011787	4.28891E-06	0.000166699
Road 3	3	2100-2200	0.068908	6.79731E-07	2.64194E-05	0.063185008	6.23277E-07	2.42252E-05	0.390804911	3.85503E-06	0.000149835	0.355686504	3.50861E-06	0.000136371	0.418871512	4.13188E-06	0.000160596
Road 3	3	2200-2300	0.074227584	6.70295E-07	2.60527E-05	0.067666092	6.11043E-07	2.37497E-05	0.408362291	3.68762E-06	0.000143329	0.369415897	3.33592E-06	0.000129659	0.437081989	3.94697E-06	0.000153409
Road 3	3	2300-0000	0.064671454	5.20725E-07	2.02393E-05	0.059025637	4.75266E-07	1.84724E-05	0.373538705	3.00768E-06	0.000116901	0.33782261	2.7201E-06	0.000105723	0.396848247	3.19536E-06	0.000124196
Road 4	4	0000-0100	0.254733714	2.06381E-07	2.20985E-06	0.232697429	1.88528E-07	2.01868E-06	1.257840857	1.01908E-06	1.09119E-05	1.148482	9.30483E-07	9.96322E-06	1.381179429	1.11901E-06	1.19819E-05
Road 4	4	0100-0200	0.2418685	1.11976E-07	1.19899E-06	0.2197255	1.01725E-07	1.08923E-06	1.1965565	5.53961E-07	5.93158E-06	1.0868985	5.03194E-07	5.38799E-06	1.306624	6.04919E-07	6.47721E-06
Road 4	4	0200-0300	0.261423077	7.8669E-08	8.42354E-07	0.237162308	7.13683E-08	7.64182E-07	1.250546154	3.76322E-07	4.02949E-06	1.134402308	3.41371E-07	3.65526E-06	1.371564615	4.12739E-07	4.41944E-06
Road 4	4	0300-0400	0.240955714	3.90438E-08	4.18064E-07	0.214758571	3.47988E-08	3.72611E-07	1.237042857	2.00447E-07	2.1463E-06	1.102288571	1.78612E-07	1.9125E-06	1.317047143	2.1341E-07	2.28511E-06
Road 4	4	0400-0500	0.250696429	8.12442E-08	8.69929E-07	0.223849286	7.25438E-08	7.76768E-07	1.199716429	3.88797E-07	4.16307E-06	1.071314286	3.47185E-07	3.71751E-06	1.295163571	4.19729E-07	4.49428E-06
Road 4	4	0500-0600	0.232715417	1.29286E-07	1.38434E-06	0.206540833	1.14745E-07	1.22864E-06	1.072202917	5.95668E-07	6.37816E-06	0.950607917	5.28116E-07	5.65484E-06	1.15714875	6.4286E-07	6.88348E-06
Road 4	4	0600-0700	0.263121887	3.22812E-07	3.45653E-06	0.230538113	2.82836E-07	3.02849E-06	1.218674906	1.49513E-06	1.60093E-05	1.066895472	1.30892E-06	1.40154E-05	1.297433585	1.59176E-06	1.70439E-05
Road 4	4	0700-0800	0.265105543	5.64577E-07	6.04525E-06	0.230945435	4.91828E-07	5.26629E-06	1.273656196	2.71242E-06	2.90434E-05	1.108083587	2.35981E-06	2.52678E-05	1.339029022	2.85164E-06	3.05341E-05
Road 4	4	0800-0900	0.272642452	9.78231E-07	1.04745E-05	0.237201935	8.51072E-07	9.11292E-06	1.313983548	4.71452E-06	5.04811E-05	1.142396903	4.09888E-06	4.38891E-05	1.379598839	4.94995E-06	5.3002E-05
Road 4	4	0900-1000	0.275118986	9.42537E-07	1.00923E-05	0.241736486	8.28171E-07	8.86771E-06	1.258499324	4.31153E-06	4.6166E-05	1.104898716	3.7853E-06	4.05314E-05	1.346635203	4.61347E-06	4.93991E-05
Road 4	4	1000-1100	0.304970139	1.01657E-06	1.0885E-05	0.267797153	8.92657E-07	9.5582E-06	1.3986325	4.66211E-06	4.99199E-05	1.227894514	4.09298E-06	4.38259E-05	1.495691667	4.98564E-06	5.33841E-05
Road 4	4	1100-1200	0.28359529	1.01753E-06	1.08953E-05	0.249053548	8.93595E-07	9.56824E-06	1.29231471	4.63678E-06	4.96487E-05	1.134635613	4.07103E-06	4.35909E-05	1.383689161	4.96463E-06	5.31591E-05
Road 4	4	1200-1300	0.290279392	9.94476E-07	1.06484E-05	0.255895473	8.76679E-07	9.38711E-06	1.38084027	4.73066E-06	5.06539E-05	1.216919595	4.16908E-06	4.46407E-05	1.472815068	5.04576E-06	5.40278E-05
Road 4	4	1300-1400	0.297802133	1.03404E-06	1.1072E-05	0.262804267	9.12515E-07	9.77082E-06	1.383750533	4.80469E-06	5.14466E-05	1.220638267	4.23833E-06	4.53822E-05	1.483442533	5.15084E-06	5.5153E-05
Road 4	4	1400-1500	0.2691905	8.72377E-07	9.34104E-06	0.240089786	7.78069E-07	8.33123E-06	1.291036571	4.18391E-06	4.47996E-05	1.150658643	3.72899E-06	3.99284E-05	1.390748429	4.50706E-06	4.82596E-05
Road 4	4	1500-1600	0.30116576	8.71429E-07	9.33089E-06	0.26946168	7.79692E-07	8.34862E-06	1.39950192	4.04948E-06	4.33602E-05	1.25172392	3.62189E-06	3.87816E-05	1.5211856	4.40158E-06	4.71302E-05
Road 4	4	1600-1700	0.281547419	8.08145E-07	8.65328E-06	0.250595645	7.19302E-07	7.70199E-06	1.321414516	3.79295E-06	4.06133E-05	1.175790323	3.37495E-06	3.61376E-05	1.426385968	4.09426E-06	4.38396E-05
Road 4	4	1700-1800	0.26723378	7.85618E-07	8.41206E-06	0.241165748	7.08983E-07	7.59149E-06	1.275140551	3.74868E-06	4.01393E-05	1.149810945	3.38023E-06	3.61941E-05	1.390976693	4.08921E-06	4.37856E-05
Road 4	4	1800-1900	0.293578679	7.20355E-07	7.71326E-06	0.266638396	6.54252E-07	7.00545E-06	1.413394528	3.46805E-06	3.71344E-05	1.283446604	3.1492E-06	3.37203E-05	1.550085	3.80345E-06	4.07257E-05
Road 4	4	1900-2000	0.264274324	4.52692E-07	4.84724E-06	0.238157838	4.07956E-07	4.36822E-06	1.275426081	2.18476E-06	2.33935E-05	1.148881351	1.96799E-06	2.10724E-05	1.387039189	2.37595E-06	2.54406E-05
Road 4	4	2000-2100	0.229040204	2.59791E-07	2.78173E-06	0.206783469	2.34546E-07	2.51142E-06	1.110162857	1.25921E-06	1.34831E-05	1.000935306	1.13532E-06	1.21565E-05	1.207718776	1.36987E-06	1.46679E-05
Road 4	4	2100-2200	0.190158108	1.62867E-07	1.74391E-06	0.174614865	1.49554E-07	1.60137E-06	0.941091351	8.06027E-07	8.6306E-06	0.862963243	7.39112E-07	7.9141E-06	1.037578108	8.88666E-07	9.51547E-06
Road 4	4	2200-2300	0.255982857	3.73308E-07	3.99723E-06	0.233534762	3.40572E-07	3.6467E-06	1.217184762	1.77506E-06	1.90066E-05	1.109752857	1.61839E-06	1.7329E-05	1.343287619	1.95896E-06	2.09757E-05
Road 4	4	2300-0000	0.237610408	2.69512E-07	2.88582E-06	0.217013061	2.46149E-07	2.63566E-06	1.160581224	1.3164E-06	1.40955E-05	1.059449388	1.20169E-06	1.28672E-05	1.276462449	1.44784E-06	1.55029E-05
Road 5	5	0000-0100	0.080446425	2.91407E-07	3.94075E-06	0.073509482	2.66279E-07	3.60094E-06	0.450265181	1.63103E-06	2.20567E-05	0.408803575	1.48084E-06	2.00257E-05	0.482313057	1.74712E-06	2.36266E-05
Road 5	5	0100-0200	0.054509836	1.24816E-07	1.68791E-06	0.049496721	1.13337E-07	1.53268E-06	0.335560082	7.68362E-07	1.03907E-05	0.30217082	6.91908E-07	9.3568E-06	0.351667541	8.05245E-07	1.08895E-05
Road 5	5	0200-0300	0.052021279	8.39683E-08	1.13552E-06	0.047097791	7.60212E-08	1.02805E-06	0.36015814	5.81336E-07	7.86152E-06	0.322021628	5.1978E-07	7.02908E-06	0.369119419	5.95801E-07	8.05713E-06
Road 5	5	0300-0400	0.047046032	5.56288E-08	7.52278E-07	0.041823333	4.94533E-08	6.68766E-07	0.261068889	3.08696E-07	4.17456E-06	0.228639683	2.70351E-07	3.65601E-06	0.270463016	3.19804E-07	4.32477E-06
Road 5	5	0400-0500	0.066082626	1.22789E-07	1.66049E-06	0.058991919	1.09613E-07	1.48232E-06	0.379676667	7.0548E-07	9.54034E-06	0.335735455	6.23833E-07	8.43621E-06	0.394727374	7.33446E-07	9.91853E-06
Road 5	5	0500-0600	0.053875591	2.22459E-07	3.00836E-06	0.047721591	1.97049E-07	2.66473E-06	0.316085818	1.30516E-06	1.76499E-05	0.2760705	1.13993E-06	1.54155E-05	0.323792091	1.33698E-06	1.80802E-05
Road 5	5	0600-0700	0.080196804	5.84016E-07	7.89775E-06	0.07020482	5.11251E-07	6.91375E-06	0.405277397	2.95134E-06	3.99116E-05	0.351367268	2.55876E-06	3.46025E-05	0.421572088	3.07001E-06	4.15163E-05
Road 5	5	0700-0800	0.062559336	7.43244E-07	1.0051E-05	0.05441425	6.46476E-07	8.74241E-06	0.333275403	3.95952E-06	5.35454E-05	0.285619352	3.39334E-06	4.58887E-05	0.340033602	4.03981E-06	5.46312E-05
Road 5	5	0800-0900	0.067154638	1.06253E-06	1.43687E-05	0.05840261	9.2405E-07	1.24961E-05	0.330438754	5.22823E-06	7.07023E-05	0.284051305	4.49428E-06	6.0777E-05	0.342453915	5.41833E-06	7.32731E-05
Road 5	5	0900-1000	0.073481838	1.1254E-06	1.5219E-05	0.064712047	9.91085E-07	1.34026E-05	0.392177341	6.00632E-06	8.12246E-05	0.343231667	5.2567E-06	7.10874E-05	0.407943713	6.24779E-06	8.449E-05
Road 5	5	1000-1100	0.083336962	1.14807E-06	1.55256E-05	0.073270245	1.00939E-06	1.36502E-05	0.431705995	5.9473E-06	8.04265E-05	0.377773488	5.20431E-06	7.03789E-05	0.451043733	6.2137E-06	8.40291E-05
Road 5	5	1100-1200	0.082278727	1.07945E-06	1.45975E-05	0.07233133	9.48941E-07	1.28327E-05	0.445700758	5.84731E-06	7.90743E-05	0.389459828	5.10947E-06	6.90963E-05	0.461791159	6.05841E-06	8.1929E-05
Road 5	5	1200-1300	0.076372249	1.01342E-06	1.37047E-05	0.067391669	8.94255E-07	1.20932E-05	0.416908883	5.53218E-06	7.48127E-05	0.365538826	4.85052E-06	6.55946E-05	0.432930495	5.74478E-06	7.76877E-05
Road 5	5	1300-1400	0.083502638	1.21775E-06	1.64678E-05	0.073757066	1.07562E-06	1.45459E-05	0.435752844	6.35473E-06	8.59362E-05	0.382242986	5.57438E-06	7.53833E-05	0.456000051	6.65E-06	8.99292E-05
Road 5	5	1400-1500	0.078177254	1.16503E-06	1.57549E-05	0.069779673	1.03988E-06	1.40626E-05	0.409909018	6.10863E-06	8.26081E-05	0.363615718	5.41875E-06	7.32787E-05	0.43339539	6.45863E-06	8.73413E-05
Road 5	5	1500-1600	0.08702174	1.25763E-06	1.70072E-05	0.077928377	1.12622E-06	1.523E-05	0.444924026	6.43002E-06	8.69544E-05	0.396116195	5.72465E-06	7.74155E-05	0.474044571	6.85087E-06	9.26456E-05
Road 5	5	1600-1700	0.082598992	1.32239E-06	1.78829E-05	0.073544045	1.17742E-06	1.59225E-05	0.430654654	6.89468E-06	9.3238E-05	0.380939179	6.09874E-06	8.24745E-05	0.454483224	7.27617E-06	9.8397E-05
Road 5	5	1700-1800	0.060182444	9.61247E-07	1.29991E-05	0.054286428	8.67075E-07	1.17256E-05	0.314522961	5.02363E-06	6.79355E-05	0.281147756	4.49055E-06	6.07266E-05	0.335434183	5.35763E-06	7.24522E-05
Road 5	5	1800-1900	0.055993591	9.65805E-07	1.30608E-05	0.050816268	8.76504E-07	1.18531E-05	0.320904135	5.53511E-06	7.48524E-05	0.287501578	4.95897E-06	6.70611E-05	0.338317845	5.83547E-06	7.89142E-05
Road 5	5	1900-2000	0.064938601	8.36109E-07	1.13069E-05	0.058457566	7.52663E-07	1.01784E-05	0.368186181	4.74054E-06	6.41071E-05	0.327957274	4.22257E-06	5.71026E-05	0.38641484	4.97524E-06	6.72811E-05
Road 5	5	2000-2100	0.062555833	7.04458E-07	9.52651E-06	0.05642675	6.35436E-07	8.59313E-06	0.349645533	3.93745E-06	5.32469E-05	0.312486067	3.51899E-06	4.75879E-05	0.368912817	4.15442E-06	5.61811E-05
Road 5	5	2100-2200	0.064257145	6.97084E-07	9.4268E-06	0.058908062	6.39055E-07	8.64206E-06	0.368520467	3.99784E-06	5.40635E-05	0.335117215	3.63547E-06	4.91631E-05	0.394025277	4.27452E-06	5.78052E-05
Road 5	5	2200-2300	0.062083828	5.81453E-07	7.8631E-06	0.056581383	5.29919E-07	7.1662E-06	0.351256132	3.28973E-06	4.44876E-05	0.316982806	2.96874E-06	4.01468E-05	0.373564188	3.49866E-06	4.7313E-05
Road 5	5	2300-0000	0.054317682	4.61823E-07	6.24531E-06	0.049565519	4.21419E-07	5.69892E-06	0.322865651	2.74509E-06	3.71223E-05	0.29122872	2.4761E-06	3.34848E-05	0.340794238	2.89752E-06	3.91837E-05
Road 6	6	0000-0100	0.048155067	1.35572E-07	4.84614E-06	0.043928733	1.23673E-07	4.42082E-06	0.312353867	8.79375E-07	3.14341E-05	0.28156	7.9268E-07	2.83351E-05	0.325488733	9.16353E-07	3.27559E-05
Road 6	6	0100-0200	0.064272982	1.37521E-07	4.91582E-06	0.058347719	1.24843E-07	4.46263E-06	0.364539912	7.79984E-07	2.78813E-05	0.327556667	7.00853E-07	2.50527E-05	0.385904386	8.25696E-07	2.95153E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.058508481	8.67524E-08	3.10105E-06	0.053070127	7.86888E-08	2.81281E-06	0.33672557	4.99274E-07	1.7847E-05	0.302203924	4.48088E-07	1.60173E-05	0.355274051	5.26776E-07	1.88301E-05
Road 6	6	0300-0400	0.060940806	7.09146E-08	2.53491E-06	0.054389032	6.32905E-08	2.26238E-06	0.391615	4.55708E-07	1.62897E-05	0.346121613	4.02769E-07	1.43974E-05	0.400510645	4.6606E-07	1.66597E-05
Road 6	6	0400-0500	0.066839111	1.12904E-07	4.03586E-06	0.059669889	1.00794E-07	3.60297E-06	0.395919	6.68782E-07	2.39062E-05	0.349421111	5.90238E-07	2.10986E-05	0.409091	6.91032E-07	2.47016E-05
Road 6	6	0500-0600	0.060203765	1.83052E-07	6.54337E-06	0.053385679	1.62321E-07	5.80233E-06	0.367231235	1.11658E-06	3.99133E-05	0.320991049	9.75986E-07	3.48876E-05	0.374376728	1.13831E-06	4.06899E-05
Road 6	6	0600-0700	0.065451448	3.56248E-07	1.27344E-05	0.057293241	3.11844E-07	1.11472E-05	0.417594172	2.27294E-06	8.12484E-05	0.360100621	1.96001E-06	7.00623E-05	0.417393862	2.27185E-06	8.12095E-05
Road 6	6	0700-0800	0.061450758	5.3285E-07	1.90472E-05	0.05347855	4.63722E-07	1.65762E-05	0.357228896	3.09759E-06	0.000110726	0.306007511	2.65344E-06	9.48498E-05	0.359486061	3.11717E-06	0.000111426
Road 6	6	0800-0900	0.052197326	6.48548E-07	2.3183E-05	0.045296949	5.62811E-07	2.01182E-05	0.311801405	3.87411E-06	0.000138484	0.265306586	3.29641E-06	0.000117833	0.310603535	3.85923E-06	0.000137952
Road 6	6	0900-1000	0.05453793	6.47945E-07	2.31614E-05	0.047910284	5.69204E-07	2.03467E-05	0.310804566	3.69255E-06	0.000131994	0.269479494	3.20159E-06	0.000114444	0.317389779	3.77079E-06	0.00013479
Road 6	6	1000-1100	0.072745944	7.30463E-07	2.61111E-05	0.063916093	6.418E-07	2.29418E-05	0.399375009	4.01024E-06	0.00014335	0.348260579	3.49699E-06	0.000125003	0.412176673	4.13879E-06	0.000147945
Road 6	6	1100-1200	0.083956259	8.38302E-07	2.99659E-05	0.073842049	7.37312E-07	2.63559E-05	0.440525658	4.39864E-06	0.000157234	0.38484797	3.8427E-06	0.000137361	0.458690019	4.58001E-06	0.000163717
Road 6	6	1200-1300	0.080584455	7.91022E-07	2.82758E-05	0.071132008	6.98236E-07	2.49591E-05	0.405539771	3.98081E-06	0.000142298	0.35602979	3.49481E-06	0.000124925	0.427161797	4.19305E-06	0.000149884
Road 6	6	1300-1400	0.093419789	9.13508E-07	3.26542E-05	0.082506449	8.06792E-07	2.88395E-05	0.478717102	4.68115E-06	0.000167332	0.42003261	4.1073E-06	0.000146819	0.50253906	4.91409E-06	0.000175659
Road 6	6	1400-1500	0.088270871	9.50966E-07	3.39932E-05	0.078773902	8.48653E-07	3.03359E-05	0.445416272	4.79859E-06	0.00017153	0.394906568	4.25444E-06	0.000152079	0.47368047	5.10309E-06	0.000182415
Road 6	6	1500-1600	0.077315943	8.15532E-07	2.9152E-05	0.069184324	7.2976E-07	2.60859E-05	0.404146495	4.26296E-06	0.000152383	0.359025302	3.78702E-06	0.00013537	0.428209626	4.51678E-06	0.000161456
Road 6	6	1600-1700	0.080838455	8.73929E-07	3.12394E-05	0.071995625	7.78331E-07	2.78222E-05	0.40346401	4.36177E-06	0.000155916	0.356926424	3.85866E-06	0.000137932	0.428922049	4.637E-06	0.000165754
Road 6	6	1700-1800	0.059921492	6.86038E-07	2.45231E-05	0.054063344	6.18968E-07	2.21256E-05	0.310314148	3.55277E-06	0.000126997	0.277555607	3.17772E-06	0.000113591	0.331618951	3.79669E-06	0.000135716
Road 6	6	1800-1900	0.058248491	7.53251E-07	2.69257E-05	0.052832787	6.83217E-07	2.44222E-05	0.308242279	3.98609E-06	0.000142487	0.276731655	3.57861E-06	0.000127921	0.329564441	4.26182E-06	0.000152343
Road 6	6	1900-2000	0.069172176	6.80297E-07	2.43179E-05	0.062247538	6.12194E-07	2.18835E-05	0.366311908	3.60262E-06	0.000128779	0.326072805	3.20687E-06	0.000114633	0.388320344	3.81907E-06	0.000136516
Road 6	6	2000-2100	0.054374761	4.26589E-07	1.52488E-05	0.049008612	3.84489E-07	1.37439E-05	0.320589785	2.51514E-06	8.9906E-05	0.285698708	2.24141E-06	8.01211E-05	0.334707321	2.62589E-06	9.38651E-05
Road 6	6	2100-2200	0.075471778	5.09944E-07	1.82284E-05	0.069220694	4.67707E-07	1.67186E-05	0.404886	2.73572E-06	9.77908E-05	0.368571111	2.49035E-06	8.90198E-05	0.437791806	2.95805E-06	0.000105738
Road 6	6	2200-2300	0.056680105	4.05314E-07	1.44883E-05	0.051598215	3.68974E-07	1.31893E-05	0.323827927	2.31566E-06	8.27755E-05	0.290394882	2.07659E-06	7.42295E-05	0.341993097	2.44556E-06	8.74188E-05
Road 6	6	2300-0000	0.038012885	2.54703E-07	9.10462E-06	0.034684286	2.324E-07	8.30737E-06	0.240871541	1.61395E-06	5.76921E-05	0.216655042	1.45169E-06	5.18919E-05	0.251339328	1.68409E-06	6.01993E-05
Road 7	7	0000-0100	0.070520409	1.90437E-07	4.75394E-06	0.064381272	1.73859E-07	4.34008E-06	0.41870183	1.13069E-06	2.82256E-05	0.379482722	1.02478E-06	2.55818E-05	0.443863994	1.19864E-06	2.99219E-05
Road 7	7	0100-0200	0.087195695	1.83564E-07	4.58235E-06	0.079209629	1.66752E-07	4.16267E-06	0.478739789	1.00784E-06	2.5159E-05	0.43224905	9.09969E-07	2.27158E-05	0.511458679	1.07672E-06	2.68784E-05
Road 7	7	0200-0300	0.07462383	1.01843E-07	2.54232E-06	0.067689894	9.23796E-08	2.3061E-06	0.424300851	5.79063E-07	1.44553E-05	0.382207872	5.21617E-07	1.30213E-05	0.449897766	6.13997E-07	1.53274E-05
Road 7	7	0300-0400	0.077147194	8.51252E-08	2.125E-06	0.068895658	7.60203E-08	1.89772E-06	0.467118763	5.15425E-07	1.28667E-05	0.414373026	4.57224E-07	1.14138E-05	0.483268684	5.33245E-07	1.33115E-05
Road 7	7	0400-0500	0.086499666	1.394E-07	3.47987E-06	0.077010899	1.24108E-07	3.09814E-06	0.484304829	7.80488E-07	1.94835E-05	0.42795788	6.89681E-07	1.72167E-05	0.504968779	8.13789E-07	2.03148E-05
Road 7	7	0500-0600	0.078651162	2.26097E-07	5.64412E-06	0.069778333	2.0059E-07	5.00739E-06	0.446767727	1.28431E-06	3.20607E-05	0.392445354	1.12815E-06	2.81624E-05	0.462223687	1.32875E-06	3.31698E-05
Road 7	7	0600-0700	0.084532345	4.34461E-07	1.08456E-05	0.074025452	3.8046E-07	9.49751E-06	0.494072232	2.53932E-06	6.33898E-05	0.428087062	2.20019E-06	5.49239E-05	0.502112514	2.58065E-06	6.44214E-05
Road 7	7	0700-0800	0.081058218	6.64921E-07	1.65986E-05	0.070612853	5.79237E-07	1.44597E-05	0.445611141	3.65535E-06	9.12494E-05	0.383960343	3.14963E-06	7.8625E-05	0.454573196	3.72886E-06	9.30846E-05
Road 7	7	0800-0900	0.080306862	9.9688E-07	2.48854E-05	0.070056034	8.69633E-07	2.17089E-05	0.439265702	5.45278E-06	0.000136119	0.378933512	4.70385E-06	0.000117423	0.448989545	5.57348E-06	0.000139132
Road 7	7	0900-1000	0.081165809	9.33303E-07	2.32983E-05	0.071348191	8.20413E-07	2.04802E-05	0.426819332	4.90788E-06	0.000122517	0.372314079	4.28114E-06	0.000106871	0.44366227	5.10155E-06	0.000127351
Road 7	7	1000-1100	0.095804417	9.66707E-07	2.41321E-05	0.084266028	8.50279E-07	2.12257E-05	0.504672475	5.09236E-06	0.000127122	0.441811384	4.45806E-06	0.000111288	0.526077412	5.30834E-06	0.000132513
Road 7	7	1100-1200	0.106585227	1.07394E-06	2.68091E-05	0.093870229	9.45827E-07	2.36109E-05	0.546992412	5.51144E-06	0.000137584	0.479681477	4.83322E-06	0.000120653	0.573551706	5.77905E-06	0.000144264
Road 7	7	1200-1300	0.103849668	1.04487E-06	2.60834E-05	0.091869756	9.24337E-07	2.30745E-05	0.525286306	5.28511E-06	0.000131933	0.463180518	4.66024E-06	0.000116335	0.555050274	5.58457E-06	0.000139409
Road 7	7	1300-1400	0.110661877	1.09574E-06	2.73532E-05	0.097470016	9.65116E-07	2.40925E-05	0.561217405	5.55699E-06	0.000138721	0.492086592	4.87248E-06	0.000121633	0.589556608	5.8376E-06	0.000145725
Road 7	7	1400-1500	0.102462101	1.06215E-06	2.65147E-05	0.091209161	9.45499E-07	2.36027E-05	0.522665266	5.41809E-06	0.000135253	0.463076048	4.80037E-06	0.000119833	0.554285209	5.74587E-06	0.000143436
Road 7	7	1500-1600	0.094900358	9.65851E-07	2.41108E-05	0.084963825	8.64722E-07	2.15863E-05	0.491231607	4.99952E-06	0.000124804	0.437519935	4.45287E-06	0.000111158	0.52248376	5.31759E-06	0.000132744
Road 7	7	1600-1700	0.098436497	1.03614E-06	2.58654E-05	0.087768603	9.2385E-07	2.30623E-05	0.491681793	5.17543E-06	0.000129196	0.436425781	4.59381E-06	0.000114676	0.524194384	5.51766E-06	0.000137739
Road 7	7	1700-1800	0.075082999	8.36106E-07	2.08719E-05	0.067732086	7.54248E-07	1.88285E-05	0.389954368	4.34244E-06	0.000108401	0.349642373	3.89353E-06	9.71953E-05	0.417374459	4.64778E-06	0.000116024
Road 7	7	1800-1900	0.068941549	7.97744E-07	1.99143E-05	0.06240463	7.22104E-07	1.80261E-05	0.364561151	4.21845E-06	0.000105306	0.327509401	3.78971E-06	9.46036E-05	0.389914031	4.51182E-06	0.00011263
Road 7	7	1900-2000	0.080255922	7.01452E-07	1.75105E-05	0.072280616	6.31746E-07	1.57704E-05	0.427750453	3.73862E-06	9.33281E-05	0.382111849	3.33973E-06	8.33705E-05	0.454392465	3.97148E-06	9.9141E-05
Road 7	7	2000-2100	0.073635639	5.30266E-07	1.32372E-05	0.066438156	4.78436E-07	1.19433E-05	0.404877941	2.91561E-06	7.27832E-05	0.362373943	2.60953E-06	6.51425E-05	0.428812099	3.08797E-06	7.70858E-05
Road 7	7	2100-2200	0.084122398	5.05634E-07	1.26223E-05	0.077041812	4.63075E-07	1.15599E-05	0.451994382	2.7168E-06	6.78202E-05	0.411348333	2.47249E-06	6.17214E-05	0.488390145	2.93556E-06	7.32813E-05
Road 7	7	2200-2300	0.070738676	4.5908E-07	1.14601E-05	0.064408581	4.17999E-07	1.04346E-05	0.392206252	2.54534E-06	6.35401E-05	0.353169767	2.292E-06	5.72159E-05	0.417578348	2.71E-06	6.76505E-05
Road 7	7	2300-0000	0.049729995	2.96746E-07	7.40774E-06	0.045378132	2.70778E-07	6.75949E-06	0.297452164	1.77494E-06	4.43082E-05	0.268589097	1.60271E-06	4.00088E-05	0.313967229	1.87349E-06	4.67683E-05
Road 8	8	0000-0100	0.223403333	1.62475E-07	2.67834E-06	0.204056667	1.48405E-07	2.4464E-06	1.106586944	8.04791E-07	1.32667E-05	1.010245833	7.34724E-07	1.21117E-05	1.2143025	8.83129E-07	1.45581E-05
Road 8	8	0100-0200	0.233043333	1.41238E-07	2.32826E-06	0.211726	1.28319E-07	2.11529E-06	1.150984667	6.97566E-07	1.14991E-05	1.045581333	6.33686E-07	1.04461E-05	1.257307333	7.62004E-07	1.25614E-05
Road 8	8	0200-0300	0.220312	6.67612E-08	1.10053E-06	0.199952	6.05915E-08	9.98828E-07	1.144196667	3.46726E-07	5.71565E-06	1.038186	3.14602E-07	5.18609E-06	1.238138	3.75193E-07	6.18492E-06
Road 8	8	0300-0400	0.203592143	5.75816E-08	9.49211E-07	0.181647143	5.13749E-08	8.46897E-07	1.035642857	2.92909E-07	4.8285E-06	0.923594286	2.61219E-07	4.30609E-06	1.105241429	3.12594E-07	5.15299E-06
Road 8	8	0400-0500	0.233805238	9.91901E-08	1.63511E-06	0.208837619	8.85978E-08	1.4605E-06	1.121429048	4.75758E-07	7.84269E-06	1.001650952	4.24943E-07	7.00502E-06	1.210488571	5.13541E-07	8.46552E-06
Road 8	8	0500-0600	0.223702353	1.53654E-07	2.53293E-06	0.198625294	1.36429E-07	2.24899E-06	1.054949118	7.24612E-07	1.19449E-05	0.936074412	6.4296E-07	1.0599E-05	1.134699706	7.7939E-07	1.28479E-05
Road 8	8	0600-0700	0.254315645	3.18537E-07	5.25096E-06	0.222941452	2.7924E-07	4.60316E-06	1.184890161	1.4841E-06	2.44649E-05	1.037798065	1.29987E-06	2.14278E-05	1.260739516	1.57911E-06	2.6031E-05
Road 8	8	0700-0800	0.253400196	5.22158E-07	8.60758E-06	0.220799314	4.5498E-07	7.50018E-06	1.192639608	2.45756E-06	4.0512E-05	1.038262059	2.13945E-06	3.5268E-05	1.259061373	2.59443E-06	4.27682E-05
Road 8	8	0800-0900	0.281582552	1.0922E-06	1.80045E-05	0.245173073	9.50974E-07	1.56765E-05	1.330187865	5.15952E-06	8.50527E-05	1.157195573	4.48852E-06	7.39915E-05	1.402368646	5.43949E-06	8.9668E-05
Road 8	8	0900-1000	0.297391899	9.49251E-07	1.5648E-05	0.261381266	8.34308E-07	1.37533E-05	1.335358418	4.26236E-06	7.02633E-05	1.173389684	3.74537E-06	6.17409E-05	1.434770949	4.57967E-06	7.54942E-05
Road 8	8	1000-1100	0.280085813	9.05328E-07	1.4924E-05	0.245987125	7.9511E-07	1.31071E-05	1.295425688	4.18723E-06	6.9025E-05	1.136976063	3.67507E-06	6.05822E-05	1.382963188	4.47018E-06	7.36893E-05
Road 8	8	1100-1200	0.291143962	9.3519E-07	1.54163E-05	0.255667987	8.21237E-07	1.35378E-05	1.359347233	4.36639E-06	7.19783E-05	1.193552264	3.83383E-06	6.31993E-05	1.449220252	4.65507E-06	7.67371E-05
Road 8	8	1200-1300	0.293179471	1.00688E-06	1.6598E-05	0.258477059	8.87699E-07	1.46334E-05	1.380605294	4.74147E-06	7.81614E-05	1.216708353	4.17859E-06	6.88826E-05	1.475185412	5.06629E-06	8.35159E-05
Road 8	8	1300-1400	0.268329753	8.7817E-07	1.44763E-05	0.236840494	7.75114E-07	1.27775E-05	1.246625741	4.07987E-06	6.72551E-05	1.099840185	3.59948E-06	5.9336E-05	1.336680679	4.37459E-06	7.21135E-05
Road 8	8	1400-1500	0.260467842	7.31415E-07	1.20571E-05	0.232338561	6.52425E-07	1.0755E-05	1.259803309	3.53763E-06	5.83165E-05	1.123349209	3.15446E-06	5.2E-05	1.35568777	3.80688E-06	6.2755E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.267726619	7.51798E-07	1.23931E-05	0.239504245	6.72547E-07	1.10867E-05	1.262868561	3.54624E-06	5.84584E-05	1.128912014	3.17008E-06	5.22575E-05	1.368416259	3.84262E-06	6.33442E-05
Road 8	8	1600-1700	0.267156577	8.04168E-07	1.32564E-05	0.237801007	7.15805E-07	1.17998E-05	1.248811946	3.75905E-06	6.19665E-05	1.110875503	3.34385E-06	5.51221E-05	1.34867651	4.05965E-06	6.69218E-05
Road 8	8	1700-1800	0.216408077	6.82013E-07	1.12427E-05	0.195237244	6.15293E-07	1.01429E-05	1.051563974	3.31402E-06	5.46304E-05	0.947202179	2.98512E-06	4.92086E-05	1.142439423	3.60042E-06	5.93515E-05
Road 8	8	1800-1900	0.216208131	4.67359E-07	7.70424E-06	0.196433458	4.24614E-07	6.9996E-06	1.076894673	2.32783E-06	3.83735E-05	0.977445514	2.11286E-06	3.48297E-05	1.173878972	2.53748E-06	4.18293E-05
Road 8	8	1900-2000	0.21452013	3.33698E-07	5.50089E-06	0.193354156	3.00773E-07	4.95813E-06	1.094450649	1.70248E-06	2.80647E-05	0.986137403	1.53399E-06	2.52873E-05	1.179491558	1.83476E-06	3.02454E-05
Road 8	8	2000-2100	0.234193896	3.64302E-07	6.00538E-06	0.211432208	3.28895E-07	5.4217E-06	1.090387273	1.69616E-06	2.79605E-05	0.983326883	1.52962E-06	2.52152E-05	1.194759091	1.85851E-06	3.06369E-05
Road 8	8	2100-2200	0.192537963	2.10041E-07	3.46245E-06	0.176717407	1.92783E-07	3.17795E-06	0.978487593	1.06744E-06	1.75964E-05	0.896658519	9.78173E-07	1.61248E-05	1.073375926	1.17096E-06	1.93028E-05
Road 8	8	2200-2300	0.231852031	2.99768E-07	4.94157E-06	0.211516406	2.73476E-07	4.50815E-06	1.114935469	1.44153E-06	2.37631E-05	1.016052188	1.31368E-06	2.16556E-05	1.227568594	1.58716E-06	2.61637E-05
Road 8	8	2300-0000	0.181286792	1.94105E-07	3.19975E-06	0.165626981	1.77338E-07	2.92335E-06	0.907433962	9.71596E-07	1.60164E-05	0.828463208	8.87041E-07	1.46225E-05	0.994090189	1.06438E-06	1.75459E-05
Road 9	9	0000-0100	0.195936415	5.20361E-08	1.55337E-06	0.181844261	4.82935E-08	1.44165E-06	0.878863692	2.33405E-07	6.96755E-06	0.809718095	2.15042E-07	6.41937E-06	0.991562356	2.63336E-07	7.86102E-06
Road 9	9	0100-0200	0.21429879	4.47171E-08	1.33488E-06	0.198377453	4.13949E-08	1.23571E-06	0.911035784	1.90103E-07	5.67491E-06	0.835375703	1.74315E-07	5.20362E-06	1.033753156	2.1571E-07	6.43932E-06
Road 9	9	0200-0300	0.083655837	7.93465E-09	2.36863E-07	0.076090784	7.21711E-09	2.15443E-07	0.593107932	5.62555E-08	1.67932E-06	0.536680308	5.09034E-08	1.51955E-06	0.612771092	5.81205E-08	1.735E-06
Road 9	9	0300-0400	0.10249871	7.7775E-09	2.32172E-07	0.091885372	6.97217E-09	2.08131E-07	0.620402429	4.70755E-08	1.40528E-06	0.555575935	4.21565E-08	1.25844E-06	0.647461307	4.91287E-08	1.46658E-06
Road 9	9	0400-0500	0.235656809	4.47035E-08	1.33448E-06	0.214695633	4.07272E-08	1.21578E-06	0.961924709	1.82475E-07	5.44718E-06	0.868407805	1.64735E-07	4.91761E-06	1.083103437	2.05462E-07	6.13339E-06
Road 9	9	0500-0600	0.170215262	5.4892E-08	1.63862E-06	0.154226401	4.97358E-08	1.4847E-06	0.848941513	2.73771E-07	8.17255E-06	0.764220867	2.4645E-07	7.35696E-06	0.918447268	2.96186E-07	8.84166E-06
Road 9	9	0600-0700	0.20337871	1.23457E-07	3.68541E-06	0.183507799	1.11395E-07	3.32533E-06	1.043075999	6.3318E-07	1.89015E-05	0.932853856	5.66272E-07	1.69042E-05	1.116361655	6.77667E-07	2.02295E-05
Road 9	9	0700-0800	0.172528371	1.60368E-07	4.78726E-06	0.156192957	1.45184E-07	4.33399E-06	0.967829528	8.99614E-07	2.6855E-05	0.867115123	8.05998E-07	2.40604E-05	1.02330808	9.51182E-07	2.83944E-05
Road 9	9	0800-0900	0.268385519	5.85488E-07	1.74778E-05	0.240457465	5.24563E-07	1.56591E-05	1.277073106	2.78596E-06	8.31657E-05	1.132051795	2.46959E-06	7.37216E-05	1.372509261	2.99416E-06	8.93807E-05
Road 9	9	0900-1000	0.275373532	4.54467E-07	1.35666E-05	0.250264619	4.13029E-07	1.23296E-05	1.185476489	1.95647E-06	5.8404E-05	1.065910329	1.75914E-06	5.25135E-05	1.316174948	2.17217E-06	6.48431E-05
Road 9	9	1000-1100	0.281522353	3.8985E-07	1.16377E-05	0.252561878	3.49745E-07	1.04405E-05	1.187488908	1.64442E-06	4.90889E-05	1.058909447	1.46637E-06	4.37736E-05	1.311471326	1.81611E-06	5.42141E-05
Road 9	9	1100-1200	0.198112977	2.8562E-07	8.52623E-06	0.175694874	2.53299E-07	7.56142E-06	1.035855649	1.49339E-06	4.45804E-05	0.919991193	1.32635E-06	3.95939E-05	1.095686067	1.57965E-06	4.71553E-05
Road 9	9	1200-1300	0.29249475	4.10593E-07	1.22569E-05	0.266816864	3.74547E-07	1.11809E-05	1.306913237	1.83459E-06	5.47658E-05	1.185953558	1.6648E-06	4.9697E-05	1.452770422	2.03934E-06	6.08779E-05
Road 9	9	1300-1400	0.333388212	3.85782E-07	1.15162E-05	0.303090827	3.50723E-07	1.04697E-05	1.273541985	1.47368E-06	4.3992E-05	1.147469611	1.3278E-06	3.96371E-05	1.450560437	1.67852E-06	5.01068E-05
Road 9	9	1400-1500	0.214618494	2.76845E-07	8.26431E-06	0.197716371	2.55043E-07	7.61346E-06	1.040370153	1.34202E-06	4.00615E-05	0.943889892	1.21756E-06	3.63464E-05	1.141606263	1.47261E-06	4.39598E-05
Road 9	9	1500-1600	0.17875473	1.93283E-07	5.76983E-06	0.163783181	1.77095E-07	5.28658E-06	0.917562974	9.92138E-07	2.9617E-05	0.832214289	8.99853E-07	2.68621E-05	0.995997469	1.07695E-06	3.21487E-05
Road 9	9	1600-1700	0.188013202	2.85325E-07	8.51744E-06	0.173583804	2.63427E-07	7.86375E-06	1.020326965	1.54843E-06	4.62232E-05	0.932864674	1.4157E-06	4.2261E-05	1.106448478	1.67912E-06	5.01247E-05
Road 9	9	1700-1800	0.1606993	2.10341E-07	6.27905E-06	0.150414908	1.9688E-07	5.8772E-06	0.95045777	1.24407E-06	3.71375E-05	0.880950832	1.15309E-06	3.44216E-05	1.031365741	1.34997E-06	4.02988E-05
Road 9	9	1800-1900	0.160221966	1.33732E-07	3.99214E-06	0.150953056	1.25996E-07	3.76119E-06	0.92373065	7.71009E-07	2.30159E-05	0.86221781	7.19666E-07	2.14833E-05	1.013170866	8.45662E-07	2.52445E-05
Road 9	9	1900-2000	0.166503228	1.35816E-07	4.05436E-06	0.155278965	1.26661E-07	3.78104E-06	0.88972894	7.25751E-07	2.16649E-05	0.814491978	6.6438E-07	1.98329E-05	0.969770942	7.91041E-07	2.36139E-05
Road 9	9	2000-2100	0.174824181	9.61747E-08	2.87098E-06	0.160795506	8.84572E-08	2.6406E-06	0.779497183	4.28819E-07	1.2801E-05	0.710126002	3.90656E-07	1.16618E-05	0.870921507	4.79113E-07	1.43024E-05
Road 9	9	2100-2200	0.021136598	1.12268E-08	3.35138E-07	0.019670773	1.04482E-08	3.11896E-07	0.30649473	1.62796E-07	4.85973E-06	0.280247897	1.48854E-07	4.44356E-06	0.29991867	1.59303E-07	4.75546E-06
Road 9	9	2200-2300	0.167658395	1.04954E-07	3.13307E-06	0.155300451	9.72183E-08	2.90213E-06	0.812009216	5.08319E-07	1.51742E-05	0.745904872	4.66937E-07	1.39389E-05	0.901205323	5.64156E-07	1.6841E-05
Road 9	9	2300-0000	0.135481365	7.71014E-08	2.30161E-06	0.126382885	7.19235E-08	2.14704E-06	0.693740836	3.94802E-07	1.17855E-05	0.63993882	3.64184E-07	1.08715E-05	0.766321705	4.36108E-07	1.30186E-05
Road 10	10	0000-0100	0.273541574	2.10314E-07	4.67627E-06	0.250757786	1.92797E-07	4.28677E-06	1.355223799	1.04197E-06	2.31679E-05	1.240343892	9.53646E-07	2.1204E-05	1.491101678	1.14644E-06	2.54908E-05
Road 10	10	0100-0200	0.270392028	1.57074E-07	3.4925E-06	0.246856682	1.43402E-07	3.18851E-06	1.329792556	7.72494E-07	1.71762E-05	1.211106136	7.03548E-07	1.56432E-05	1.457962818	8.4695E-07	1.88317E-05
Road 10	10	0200-0300	0.268142433	8.70466E-08	1.93545E-06	0.24330393	7.89833E-08	1.75617E-06	1.300768939	4.22266E-07	9.38896E-06	1.179684223	3.82959E-07	8.51497E-06	1.422988153	4.61942E-07	1.02711E-05
Road 10	10	0300-0400	0.246979099	5.06377E-08	1.12591E-06	0.220265327	4.51606E-08	1.00413E-06	1.293045805	2.65111E-07	5.89466E-06	1.152085128	2.3621E-07	5.25206E-06	1.372350455	2.81371E-07	6.25619E-06
Road 10	10	0400-0500	0.293768672	1.15443E-07	2.56683E-06	0.264441046	1.03918E-07	2.31058E-06	1.371706215	5.39041E-07	1.19854E-05	1.230056849	4.83376E-07	1.07477E-05	1.494497894	5.87294E-07	1.30583E-05
Road 10	10	0500-0600	0.269084107	1.88497E-07	4.19117E-06	0.241357206	1.69074E-07	3.75931E-06	1.263086008	8.84808E-07	1.96735E-05	1.128835274	7.90764E-07	1.75824E-05	1.370192481	9.59838E-07	2.13417E-05
Road 10	10	0600-0700	0.332526138	4.65878E-07	1.03587E-05	0.296967189	4.16059E-07	9.25094E-06	1.589400331	2.22679E-06	4.9512E-05	1.417520376	1.98598E-06	4.41577E-05	1.714487565	2.40204E-06	5.34087E-05
Road 10	10	0700-0800	0.330573888	7.28603E-07	1.62003E-05	0.292965399	6.45712E-07	1.43572E-05	1.598706304	3.52363E-06	7.8347E-05	1.414188212	3.11695E-06	6.93044E-05	1.70715361	3.76266E-06	8.36616E-05
Road 10	10	0800-0900	0.352299077	1.49278E-06	3.31915E-05	0.308332742	1.30648E-06	2.90493E-05	1.685454892	7.1417E-06	0.000158793	1.471895322	6.23679E-06	0.000138673	1.780228065	7.54327E-06	0.000167722
Road 10	10	0900-1000	0.384079524	1.29933E-06	2.88902E-05	0.343040272	1.16049E-06	2.58032E-05	1.779339667	6.01945E-06	0.000133841	1.585208804	5.36271E-06	0.000119238	1.928249076	6.5232E-06	0.000145041
Road 10	10	1000-1100	0.382072014	1.40351E-06	3.12067E-05	0.339583422	1.24743E-06	2.77363E-05	1.675620956	6.15526E-06	0.00013686	1.483799341	5.45062E-06	0.000121193	1.823382763	6.69806E-06	0.000148929
Road 10	10	1100-1200	0.371312638	1.36399E-06	3.03279E-05	0.328438686	1.20649E-06	2.6826E-05	1.687605411	6.19929E-06	0.000137839	1.489266504	5.47071E-06	0.00012164	1.81770519	6.6772E-06	0.000148466
Road 10	10	1200-1300	0.387937949	1.47146E-06	3.27174E-05	0.346277824	1.31344E-06	2.92039E-05	1.775462679	6.73437E-06	0.000149737	1.582446608	6.00226E-06	0.000133458	1.928724432	7.3157E-06	0.000162662
Road 10	10	1300-1400	0.378398929	1.24132E-06	2.76004E-05	0.338559943	1.11063E-06	2.46945E-05	1.697609395	5.56893E-06	0.000123823	1.513953405	4.96645E-06	0.000110428	1.852513348	6.07708E-06	0.000135122
Road 10	10	1400-1500	0.35032529	1.08338E-06	2.40887E-05	0.317399947	9.81562E-07	2.18247E-05	1.678627367	5.19117E-06	0.000115424	1.516198623	4.68886E-06	0.000104255	1.83359857	5.67042E-06	0.00012608
Road 10	10	1500-1600	0.344461103	1.08879E-06	2.42089E-05	0.310998535	9.8302E-07	2.18572E-05	1.600152265	5.05785E-06	0.00011246	1.441703668	4.55701E-06	0.000101324	1.752702203	5.54003E-06	0.000123181
Road 10	10	1600-1700	0.332351038	1.16976E-06	2.60093E-05	0.300011953	1.05594E-06	2.34785E-05	1.567499565	5.51705E-06	0.00012267	1.409449935	4.96077E-06	0.000110301	1.709461887	6.01671E-06	0.00013378
Road 10	10	1700-1800	0.305547941	1.018E-06	2.26349E-05	0.279856796	9.32402E-07	2.07317E-05	1.510435702	5.03233E-06	0.000111892	1.381792678	4.60373E-06	0.000102363	1.661649473	5.53613E-06	0.000123094
Road 10	10	1800-1900	0.308909281	6.38629E-07	1.41997E-05	0.283615643	5.86338E-07	1.3037E-05	1.497627804	3.09615E-06	6.88419E-05	1.371845455	2.83611E-06	6.306E-05	1.655461098	3.42245E-06	7.60971E-05
Road 10	10	1900-2000	0.269642729	5.02166E-07	1.11655E-05	0.246435198	4.58946E-07	1.02045E-05	1.37086997	2.55303E-06	5.67658E-05	1.247987515	2.32418E-06	5.16774E-05	1.494422713	2.78312E-06	6.18819E-05
Road 10	10	2000-2100	0.308005282	3.78899E-07	8.4247E-06	0.279227785	3.43498E-07	7.63756E-06	1.443676126	1.77597E-06	3.94881E-05	1.305889765	1.60647E-06	3.57193E-05	1.58511755	1.94996E-06	4.33568E-05
Road 10	10	2100-2200	0.256425999	3.2421E-07	7.20871E-06	0.240113438	3.03585E-07	6.75013E-06	1.344890198	1.7004E-06	3.78079E-05	1.256755182	1.58897E-06	3.53302E-05	1.49686862	1.89255E-06	4.20803E-05
Road 10	10	2200-2300	0.26785354	3.52388E-07	7.83523E-06	0.247005339	3.2496E-07	7.22538E-06	1.314697471	1.72961E-06	3.84574E-05	1.211557787	1.59392E-06	3.54404E-05	1.458563126	1.91888E-06	4.26658E-05
Road 10	10	2300-0000	0.244498481	3.00775E-07	6.68763E-06	0.224482906	2.76152E-07	6.14016E-06	1.200069186	1.47629E-06	3.28248E-05	1.098867932	1.35179E-06	3.00567E-05	1.323350838	1.62795E-06	3.61969E-05
Road 11	11	0000-0100	0.305837691	2.33626E-07	1.93795E-06	0.280222285	2.14059E-07	1.77563E-06	1.481762467	1.1319E-06	9.38922E-06	1.355468105	1.03543E-06	8.58895E-06	1.63569039	1.24949E-06	1.03646E-05
Road 11	11	0100-0200	0.307722885	1.65615E-07	1.37379E-06	0.280789994	1.5112E-07	1.25355E-06	1.467070095	7.89569E-07	6.54954E-06	1.33519618	7.18595E-07	5.96081E-06	1.615986174	8.69715E-07	7.21435E-06
Road 11	11	0200-0300	0.267591946	6.96854E-08	5.78046E-07	0.242823595	6.32353E-08	5.24542E-07	1.381195977	3.59686E-07	2.98363E-06	1.252520103	3.26177E-07	2.70567E-06	1.495343697	3.89412E-07	3.23021E-06
Road 11	11	0300-0400	0.290703148	7.0657E-08	5.86106E-07	0.259245821	6.30111E-08	5.22682E-07	1.468228366	3.56861E-07	2.96019E-06	1.309050267	3.18172E-07	2.63926E-06	1.568296088	3.81183E-07	3.16194E-06

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	0.303612472	1.05421E-07	8.74476E-07	0.273469202	9.49546E-08	7.87656E-07	1.398472309	4.85581E-07	4.02793E-06	1.254406559	4.35558E-07	3.61299E-06	1.527875761	5.30512E-07	4.40064E-06
Road 11	11	0500-0600	0.245491091	1.15074E-07	9.54548E-07	0.219875882	1.03067E-07	8.54948E-07	1.21747799	5.70693E-07	4.73394E-06	1.087446472	5.09741E-07	4.22834E-06	1.307322354	6.12807E-07	5.08329E-06
Road 11	11	0600-0700	0.271136899	2.44776E-07	2.03044E-06	0.2408048	2.17393E-07	1.80329E-06	1.362573692	1.2301E-06	1.02038E-05	1.205498527	1.0883E-06	9.02751E-06	1.446303326	1.30569E-06	1.08308E-05
Road 11	11	0700-0800	0.327370566	6.19503E-07	5.13883E-06	0.287772735	5.4457E-07	4.51725E-06	1.639563748	3.10265E-06	2.57367E-05	1.438574626	2.7223E-06	2.25817E-05	1.726347361	3.26687E-06	2.7099E-05
Road 11	11	0800-0900	0.347907476	1.23821E-06	1.02711E-05	0.306279077	1.09006E-06	9.0421E-06	1.662352708	5.91636E-06	4.90767E-05	1.456273413	5.18292E-06	4.29927E-05	1.76255249	6.27297E-06	5.20348E-05
Road 11	11	0900-1000	0.347064558	8.85738E-07	7.34727E-06	0.309759536	7.90532E-07	6.55753E-06	1.586433006	4.04871E-06	3.35844E-05	1.407874115	3.59301E-06	2.98043E-05	1.717633651	4.38354E-06	3.63619E-05
Road 11	11	1000-1100	0.353372659	7.42328E-07	6.15767E-06	0.313316963	6.58183E-07	5.45968E-06	1.593702068	3.34788E-06	2.77709E-05	1.408192509	2.95818E-06	2.45384E-05	1.721509472	3.61637E-06	2.9998E-05
Road 11	11	1100-1200	0.311866949	7.36353E-07	6.1081E-06	0.274625262	6.48421E-07	5.3787E-06	1.547182602	3.65307E-06	3.03025E-05	1.363543583	3.21948E-06	2.67058E-05	1.638168846	3.8679E-06	3.20845E-05
Road 11	11	1200-1300	0.380664963	1.08384E-06	8.99052E-06	0.339377439	9.66283E-07	8.0154E-06	1.778715681	5.0644E-06	4.20096E-05	1.582077914	4.50453E-06	3.73654E-05	1.921455353	5.47081E-06	4.53808E-05
Road 11	11	1300-1400	0.394559677	8.28849E-07	6.87537E-06	0.352815097	7.41157E-07	6.14796E-06	1.727840587	3.62967E-06	3.01084E-05	1.53716615	3.22912E-06	2.67858E-05	1.889981247	3.97027E-06	3.29337E-05
Road 11	11	1400-1500	0.312524721	6.2939E-07	5.22084E-06	0.282548334	5.69021E-07	4.72008E-06	1.510682159	3.04235E-06	2.52365E-05	1.357197144	2.73324E-06	2.26725E-05	1.639745478	3.30227E-06	2.73926E-05
Road 11	11	1500-1600	0.277532217	5.63737E-07	4.67625E-06	0.250130622	5.08078E-07	4.21455E-06	1.387463908	2.81829E-06	2.33779E-05	1.24636123	2.53167E-06	2.10004E-05	1.496491851	3.03975E-06	2.5215E-05
Road 11	11	1600-1700	0.266290401	6.47234E-07	5.36886E-06	0.24040859	5.84326E-07	4.84704E-06	1.367329694	3.32337E-06	2.75676E-05	1.230406016	2.99057E-06	2.4807E-05	1.470814606	3.5749E-06	2.96541E-05
Road 11	11	1700-1800	0.262465823	6.51608E-07	5.40514E-06	0.239381613	5.94298E-07	4.92975E-06	1.372620451	3.40772E-06	2.82673E-05	1.249367251	3.10173E-06	2.57291E-05	1.488748864	3.69603E-06	3.06588E-05
Road 11	11	1800-1900	0.282724062	5.79192E-07	4.80444E-06	0.258887073	5.30359E-07	4.39937E-06	1.446949964	2.96424E-06	2.45886E-05	1.322924493	2.71016E-06	2.2481E-05	1.581811566	3.24052E-06	2.68803E-05
Road 11	11	1900-2000	0.270837082	4.27885E-07	3.54934E-06	0.246497211	3.89431E-07	3.23036E-06	1.369288398	2.16329E-06	1.79446E-05	1.239685644	1.95853E-06	1.62462E-05	1.486182855	2.34796E-06	1.94765E-05
Road 11	11	2000-2100	0.27680279	3.89254E-07	3.22889E-06	0.250964618	3.52919E-07	2.92749E-06	1.339858068	1.88418E-06	1.56294E-05	1.211936892	1.70429E-06	1.41372E-05	1.46290151	2.05721E-06	1.70647E-05
Road 11	11	2100-2200	0.195765397	1.97125E-07	1.63517E-06	0.179813476	1.81062E-07	1.50193E-06	1.063977019	1.07137E-06	8.88707E-06	0.976295537	9.83075E-07	8.15469E-06	1.156109013	1.16414E-06	9.65662E-06
Road 11	11	2200-2300	0.258574865	2.82816E-07	2.34598E-06	0.237092484	2.5932E-07	2.15108E-06	1.268353511	1.38726E-06	1.15074E-05	1.159790212	1.26852E-06	1.05225E-05	1.396882697	1.52784E-06	1.26736E-05
Road 11	11	2300-0000	0.246263974	2.56525E-07	2.1279E-06	0.226247581	2.35675E-07	1.95494E-06	1.22820626	1.27938E-06	1.06126E-05	1.124976177	1.17185E-06	9.72059E-06	1.351223757	1.40752E-06	1.16755E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.38439	2.60224E-06	3.91389E-06	1.20571	2.26637E-06	3.40874E-06	6.06563	1.14016E-05	1.71485E-05	5.28264	9.92977E-06	1.49349E-05	6.48835	1.21961E-05	1.83436E-05
Haul Road 1	HR1	0800-0900	1.38739	2.60788E-06	3.92237E-06	1.20671	2.26825E-06	3.41156E-06	6.07842	1.14256E-05	1.71847E-05	5.28674	9.93748E-06	1.49465E-05	6.49345	1.22057E-05	1.8358E-05
Haul Road 1	HR1	0900-1000	1.3717	2.57838E-06	3.87802E-06	1.20481	2.26468E-06	3.40619E-06	6.00997	1.12969E-05	1.69912E-05	5.27884	9.92263E-06	1.49241E-05	6.48365	1.21873E-05	1.83303E-05
Haul Road 1	HR1	1000-1100	1.36681	2.56919E-06	3.86419E-06	1.19961	2.25491E-06	3.39149E-06	5.98827	1.12561E-05	1.69298E-05	5.25586	9.87944E-06	1.48592E-05	6.45547	1.21343E-05	1.82507E-05
Haul Road 1	HR1	1100-1200	1.3717	2.57838E-06	3.87802E-06	1.20421	2.26355E-06	3.4045E-06	6.00997	1.12969E-05	1.69912E-05	5.27595	9.9172E-06	1.4916E-05	6.48016	1.21808E-05	1.83205E-05
Haul Road 1	HR1	1200-1300	1.3717	2.57838E-06	3.87802E-06	1.20881	2.2722E-06	3.4175E-06	6.00997	1.12969E-05	1.69912E-05	5.29613	9.95513E-06	1.4973E-05	6.50494	1.22273E-05	1.83905E-05
Haul Road 1	HR1	1300-1400	1.3704	2.57594E-06	3.87434E-06	1.20881	2.2722E-06	3.4175E-06	6.00397	1.12857E-05	1.69742E-05	5.29613	9.95513E-06	1.4973E-05	6.50494	1.22273E-05	1.83905E-05
Haul Road 1	HR1	1400-1500	1.36101	2.55829E-06	3.84779E-06	1.21341	2.28085E-06	3.4305E-06	5.96279	1.12083E-05	1.68578E-05	5.31631	9.99306E-06	1.50301E-05	6.52972	1.22739E-05	1.84606E-05
Haul Road 1	HR1	1500-1600	1.35161	2.54062E-06	3.82122E-06	1.20881	2.2722E-06	3.4175E-06	5.92163	1.11309E-05	1.67414E-05	5.29613	9.95513E-06	1.4973E-05	6.50494	1.22273E-05	1.83905E-05
Haul Road 1	HR1	1600-1700	1.34842	2.53462E-06	3.8122E-06	1.19961	2.25491E-06	3.39149E-06	5.90793	1.11051E-05	1.67027E-05	5.25586	9.87944E-06	1.48592E-05	6.45547	1.21343E-05	1.82507E-05
Haul Road 1	HR1	1700-1800	1.33593	2.51115E-06	3.77689E-06	1.20481	2.26468E-06	3.40619E-06	5.85296	1.10018E-05	1.65473E-05	5.27884	9.92263E-06	1.49241E-05	6.48365	1.21873E-05	1.83303E-05
Haul Road 1	HR1	1800-1900	1.32863	2.49742E-06	3.75625E-06	1.20671	2.26825E-06	3.41156E-06	5.82139	1.09425E-05	1.6458E-05	5.28674	9.93748E-06	1.49465E-05	6.49345	1.22057E-05	1.8358E-05
Haul Road 1	HR1	1900-2000	1.32573	2.49197E-06	3.74805E-06	1.19452	2.24534E-06	3.3771E-06	5.8085	1.09182E-05	1.64216E-05	5.23337	9.83716E-06	1.47956E-05	6.42789	1.20825E-05	1.81727E-05
Haul Road 1	HR1	2000-2100	1.31404	0.00000247	3.715E-06	1.18642	2.23011E-06	3.3542E-06	5.75703	1.08215E-05	1.6276E-05	5.1978	9.7703E-06	1.4695E-05	6.38422	1.20004E-05	1.80492E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.38439	1.79325E-06	4.77346E-06	1.20571	1.5618E-06	4.15736E-06	6.06563	7.85703E-06	2.09147E-05	5.28264	6.8428E-06	1.82149E-05	6.48835	8.4046E-06	2.23722E-05
Haul Road 2	HR2	0800-0900	1.38739	1.79714E-06	4.7838E-06	1.20671	1.5631E-06	4.16081E-06	6.07842	7.8736E-06	2.09588E-05	5.28674	6.84811E-06	1.8229E-05	6.49345	8.4112E-06	2.23898E-05
Haul Road 2	HR2	0900-1000	1.3717	1.77681E-06	4.7297E-06	1.20481	1.56063E-06	4.15426E-06	6.00997	7.78494E-06	2.07227E-05	5.27884	6.83788E-06	1.82018E-05	6.48365	8.39851E-06	2.2356E-05
Haul Road 2	HR2	1000-1100	1.36681	1.77048E-06	4.71284E-06	1.19961	1.5539E-06	4.13633E-06	5.98827	7.75683E-06	2.06479E-05	5.25586	6.80811E-06	1.81225E-05	6.45547	8.36201E-06	2.22588E-05
Haul Road 2	HR2	1100-1200	1.3717	1.77681E-06	4.7297E-06	1.20421	1.55986E-06	4.15219E-06	6.00997	7.78494E-06	2.07227E-05	5.27595	6.83413E-06	1.81918E-05	6.48016	8.39399E-06	2.2344E-05
Haul Road 2	HR2	1200-1300	1.3717	1.77681E-06	4.7297E-06	1.20881	1.56582E-06	4.16805E-06	6.00997	7.78494E-06	2.07227E-05	5.29613	6.86027E-06	1.82614E-05	6.50494	8.42609E-06	2.24294E-05
Haul Road 2	HR2	1300-1400	1.3704	1.77513E-06	4.72522E-06	1.20881	1.56582E-06	4.16805E-06	6.00397	7.77716E-06	2.07021E-05	5.29613	6.86027E-06	1.82614E-05	6.50494	8.42609E-06	2.24294E-05
Haul Road 2	HR2	1400-1500	1.36101	1.76297E-06	4.69284E-06	1.21341	1.57177E-06	4.18391E-06	5.96279	7.72382E-06	2.05601E-05	5.31631	6.88641E-06	1.8331E-05	6.52972	8.45819E-06	2.25149E-05
Haul Road 2	HR2	1500-1600	1.35161	1.75079E-06	4.66043E-06	1.20881	1.56582E-06	4.16805E-06	5.92163	7.67051E-06	2.04181E-05	5.29613	6.86027E-06	1.82614E-05	6.50494	8.42609E-06	2.24294E-05
Haul Road 2	HR2	1600-1700	1.34842	1.74666E-06	4.64943E-06	1.19961	1.5539E-06	4.13633E-06	5.90793	7.65276E-06	2.03709E-05	5.25586	6.80811E-06	1.81225E-05	6.45547	8.36201E-06	2.22588E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	1.33593	1.73048E-06	4.60637E-06	1.20481	1.56063E-06	4.15426E-06	5.85296	7.58155E-06	2.01814E-05	5.27884	6.83788E-06	1.82018E-05	6.48365	8.39851E-06	2.2356E-05
Haul Road 2	HR2	1800-1900	1.32863	1.72102E-06	4.5812E-06	1.20671	1.5631E-06	4.16081E-06	5.82139	7.54066E-06	2.00725E-05	5.28674	6.84811E-06	1.8229E-05	6.49345	8.4112E-06	2.23898E-05
Haul Road 2	HR2	1900-2000	1.32573	1.71727E-06	4.5712E-06	1.19452	1.54731E-06	4.11878E-06	5.8085	7.52396E-06	2.00281E-05	5.23337	6.77898E-06	1.8045E-05	6.42789	8.32628E-06	2.21638E-05
Haul Road 2	HR2	2000-2100	1.31404	1.70212E-06	4.53089E-06	1.18642	1.53681E-06	4.09085E-06	5.75703	7.45729E-06	1.98506E-05	5.1978	6.7329E-06	1.79223E-05	6.38422	8.26972E-06	2.20132E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.38439	1.79325E-06	4.7668E-06	1.20571	1.5618E-06	4.15156E-06	6.06563	7.85703E-06	2.08855E-05	5.28264	6.8428E-06	1.81895E-05	6.48835	8.4046E-06	2.2341E-05
Haul Road 3	HR3	0800-0900	1.38739	1.79714E-06	4.77713E-06	1.20671	1.5631E-06	4.15501E-06	6.07842	7.8736E-06	2.09295E-05	5.28674	6.84811E-06	1.82036E-05	6.49345	8.4112E-06	2.23586E-05
Haul Road 3	HR3	0900-1000	1.3717	1.77681E-06	4.72311E-06	1.20481	1.56063E-06	4.14847E-06	6.00997	7.78494E-06	2.06938E-05	5.27884	6.83788E-06	1.81764E-05	6.48365	8.39851E-06	2.23248E-05
Haul Road 3	HR3	1000-1100	1.36681	1.77048E-06	4.70627E-06	1.19961	1.5539E-06	4.13056E-06	5.98827	7.75683E-06	2.06191E-05	5.25586	6.80811E-06	1.80973E-05	6.45547	8.36201E-06	2.22278E-05
Haul Road 3	HR3	1100-1200	1.3717	1.77681E-06	4.72311E-06	1.20421	1.55986E-06	4.1464E-06	6.00997	7.78494E-06	2.06938E-05	5.27595	6.83413E-06	1.81664E-05	6.48016	8.39399E-06	2.23128E-05
Haul Road 3	HR3	1200-1300	1.3717	1.77681E-06	4.72311E-06	1.20881	1.56582E-06	4.16224E-06	6.00997	7.78494E-06	2.06938E-05	5.29613	6.86027E-06	1.82359E-05	6.50494	8.42609E-06	2.23982E-05
Haul Road 3	HR3	1300-1400	1.3704	1.77513E-06	4.71863E-06	1.20881	1.56582E-06	4.16224E-06	6.00397	7.77716E-06	2.06732E-05	5.29613	6.86027E-06	1.82359E-05	6.50494	8.42609E-06	2.23982E-05
Haul Road 3	HR3	1400-1500	1.36101	1.76297E-06	4.6863E-06	1.21341	1.57177E-06	4.17808E-06	5.96279	7.72382E-06	2.05314E-05	5.31631	6.88641E-06	1.83054E-05	6.52972	8.45819E-06	2.24835E-05
Haul Road 3	HR3	1500-1600	1.35161	1.75079E-06	4.65393E-06	1.20881	1.56582E-06	4.16224E-06	5.92163	7.67051E-06	2.03897E-05	5.29613	6.86027E-06	1.82359E-05	6.50494	8.42609E-06	2.23982E-05
Haul Road 3	HR3	1600-1700	1.34842	1.74666E-06	4.64295E-06	1.19961	1.5539E-06	4.13056E-06	5.90793	7.65276E-06	2.03425E-05	5.25586	6.80811E-06	1.80973E-05	6.45547	8.36201E-06	2.22278E-05
Haul Road 3	HR3	1700-1800	1.33593	1.73048E-06	4.59994E-06	1.20481	1.56063E-06	4.14847E-06	5.85296	7.58155E-06	2.01532E-05	5.27884	6.83788E-06	1.81764E-05	6.48365	8.39851E-06	2.23248E-05
Haul Road 3	HR3	1800-1900	1.32863	1.72102E-06	4.57481E-06	1.20671	1.5631E-06	4.15501E-06	5.82139	7.54066E-06	2.00445E-05	5.28674	6.84811E-06	1.82036E-05	6.49345	8.4112E-06	2.23586E-05
Haul Road 3	HR3	1900-2000	1.32573	1.71727E-06	4.56482E-06	1.19452	1.54731E-06	4.11303E-06	5.8085	7.52396E-06	2.00001E-05	5.23337	6.77898E-06	1.80198E-05	6.42789	8.32628E-06	2.21329E-05
Haul Road 3	HR3	2000-2100	1.31404	1.70212E-06	4.52457E-06	1.18642	1.53681E-06	4.08514E-06	5.75703	7.45729E-06	1.98229E-05	5.1978	6.7329E-06	1.78973E-05	6.38422	8.26972E-06	2.19825E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.087824916	2.95057E-07	2.40034E-06	0.078050391	2.62219E-07	2.13319E-06	0.518753408	1.74281E-06	1.4178E-05	0.458977207	1.54198E-06	1.25443E-05	0.537027598	1.8042E-06	1.46775E-05
Road 1	1	0100-0200	0.067853486	1.38814E-07	1.12928E-06	0.060461101	1.23691E-07	1.00625E-06	0.408425596	8.35555E-07	6.79737E-06	0.362407431	7.41412E-07	6.03149E-06	0.422868532	8.65103E-07	7.03774E-06
Road 1	1	0200-0300	0.065395584	9.45094E-08	7.68848E-07	0.058160909	8.40539E-08	6.83791E-07	0.415980909	6.01174E-07	4.89064E-06	0.367101429	5.30533E-07	4.31597E-06	0.425262338	6.14587E-07	4.99976E-06
Road 1	1	0300-0400	0.054815818	5.65854E-08	4.60331E-07	0.048705091	5.02774E-08	4.09014E-07	0.334858909	3.45669E-07	2.81207E-06	0.29533	3.04864E-07	2.48011E-06	0.344035091	3.55141E-07	2.88913E-06
Road 1	1	0400-0500	0.071153605	1.1485E-07	9.34322E-07	0.064625233	1.04313E-07	8.48598E-07	0.406663721	6.56402E-07	5.33992E-06	0.36794	5.93897E-07	4.83144E-06	0.432565233	6.9821E-07	5.68004E-06
Road 1	1	0500-0600	0.058798457	2.07472E-07	1.68782E-06	0.052999468	1.8701E-07	1.52136E-06	0.34635617	1.22213E-06	9.94219E-06	0.310351011	1.09508E-06	8.90866E-06	0.363350479	1.28209E-06	1.043E-05
Road 1	1	0600-0700	0.079240415	5.01202E-07	4.07735E-06	0.070149703	4.43702E-07	3.60958E-06	0.421002018	2.66287E-06	2.16628E-05	0.370768991	2.34514E-06	1.90781E-05	0.440918694	2.78884E-06	2.26877E-05
Road 1	1	0700-0800	0.067379039	7.10717E-07	5.78179E-06	0.058975623	6.22078E-07	5.06069E-06	0.37042694	3.90728E-06	3.17863E-05	0.321558594	3.39182E-06	2.75929E-05	0.380534217	4.01389E-06	3.26536E-05
Road 1	1	0800-0900	0.072939697	9.50078E-07	7.72902E-06	0.063609352	8.28545E-07	6.74034E-06	0.390633141	5.0882E-06	4.13933E-05	0.338997824	4.41562E-06	3.59218E-05	0.402607176	5.24417E-06	4.26621E-05
Road 1	1	0900-1000	0.079158137	1.06079E-06	8.62969E-06	0.069114874	9.26202E-07	7.53479E-06	0.438408095	5.87506E-06	4.77945E-05	0.381032437	5.10618E-06	4.15395E-05	0.450147311	6.03238E-06	4.90743E-05
Road 1	1	1000-1100	0.091325827	1.19128E-06	9.69125E-06	0.079337986	1.03491E-06	8.41913E-06	0.48858246	6.37321E-06	5.1847E-05	0.422787568	5.51497E-06	4.48651E-05	0.502125554	6.54987E-06	5.32842E-05
Road 1	1	1100-1200	0.08230997	1.04123E-06	8.47059E-06	0.072401484	9.1589E-07	7.4509E-06	0.471359985	5.96277E-06	4.85081E-05	0.412900371	5.22325E-06	4.24919E-05	0.485301855	6.13914E-06	4.99428E-05
Road 1	1	1200-1300	0.08447904	1.05757E-06	8.60352E-06	0.074603928	9.33949E-07	7.59782E-06	0.4776397	5.97946E-06	4.86438E-05	0.420201949	5.26041E-06	4.27942E-05	0.494805877	6.19436E-06	5.0392E-05
Road 1	1	1300-1400	0.089014161	1.18452E-06	9.63622E-06	0.077847898	1.03593E-06	8.42741E-06	0.492981566	6.56013E-06	5.33677E-05	0.429553865	5.7161E-06	4.65013E-05	0.507401763	6.75202E-06	5.49287E-05
Road 1	1	1400-1500	0.084835787	1.22445E-06	9.96109E-06	0.07289212	1.05207E-06	8.55871E-06	0.459945267	6.63847E-06	5.4005E-05	0.393626697	5.68129E-06	4.62181E-05	0.466518817	6.73335E-06	5.47768E-05
Road 1	1	1500-1600	0.091445126	1.22888E-06	9.99712E-06	0.079603953	1.06975E-06	8.7026E-06	0.494219777	6.64154E-06	5.40299E-05	0.42836993	5.75662E-06	4.6831E-05	0.507973883	6.82638E-06	5.55336E-05
Road 1	1	1600-1700	0.085644927	1.21362E-06	9.87302E-06	0.074968715	1.06234E-06	8.64228E-06	0.468298132	6.63598E-06	5.39847E-05	0.40810751	5.78305E-06	4.7046E-05	0.483076225	6.84539E-06	5.56883E-05
Road 1	1	1700-1800	0.06940285	9.87375E-07	8.03244E-06	0.059655237	8.48699E-07	6.90429E-06	0.38838971	5.52551E-06	4.49509E-05	0.331333338	4.71379E-06	3.83474E-05	0.390988575	5.56249E-06	4.52517E-05
Road 1	1	1800-1900	0.061279858	8.90214E-07	7.24202E-06	0.053573307	7.78261E-07	6.33127E-06	0.366682506	5.32681E-06	4.33344E-05	0.317672248	4.61483E-06	3.75424E-05	0.371245556	5.39309E-06	4.38736E-05
Road 1	1	1900-2000	0.072719798	8.09363E-07	6.58428E-06	0.064082597	7.13232E-07	5.80224E-06	0.4162843	4.63319E-06	3.76917E-05	0.36449828	4.05682E-06	3.30028E-05	0.428580877	4.77005E-06	3.88051E-05
Road 1	1	2000-2100	0.066019503	6.2327E-07	5.07039E-06	0.05767161	5.4446E-07	4.42926E-06	0.389658111	3.67864E-06	2.99263E-05	0.338162545	3.19249E-06	2.59714E-05	0.395834155	3.73695E-06	3.04006E-05
Road 1	1	2100-2200	0.068709978	5.91927E-07	4.81542E-06	0.060407146	5.20399E-07	4.23353E-06	0.408976819	3.52328E-06	2.86624E-05	0.357372549	3.07872E-06	2.50458E-05	0.417779695	3.59912E-06	2.92793E-05
Road 1	1	2200-2300	0.066642437	5.44096E-07	4.42631E-06	0.059976667	4.89674E-07	3.98357E-06	0.396252299	3.23517E-06	2.63186E-05	0.354565241	2.89482E-06	2.35498E-05	0.414541908	3.38449E-06	2.75333E-05
Road 1	1	2300-0000	0.059398744	4.34788E-07	3.53707E-06	0.052304897	3.82862E-07	3.11464E-06	0.363339	2.65958E-06	2.1636E-05	0.317076231	2.32094E-06	1.88812E-05	0.369381128	2.7038E-06	2.19958E-05
Road 2	2	0000-0100	0.145446731	1.75075E-07	1.13062E-06	0.129260577	1.55591E-07	1.00479E-06	0.614522308	7.39703E-07	4.77693E-06	0.544194615	6.55049E-07	4.23024E-06	0.673455192	8.10641E-07	5.23504E-06
Road 2	2	0100-0200	0.102353235	8.05558E-08	5.20221E-07	0.091178824	7.17611E-08	4.63426E-07	0.504520294	3.97076E-07	2.56428E-06	0.447757941	3.52402E-07	2.27578E-06	0.538936765	4.24163E-07	2.7392E-06
Road 2	2	0200-0300	0.106338261	5.66153E-08	3.65616E-07	0.094672174	5.04042E-08	3.25505E-07	0.57879913	3.08157E-07	1.99005E-06	0.512622609	2.72924E-07	1.76252E-06	0.607294783	3.23328E-07	2.08802E-06
Road 2	2	0300-0400	0.091472	3.17611E-08	2.0511E-07	0.081294	2.82271E-08	1.82288E-07	0.331428	1.15079E-07	7.4317E-07	0.292669333	1.01621E-07	6.5626E-07	0.373963333	1.29848E-07	8.38548E-07
Road 2	2	0400-0500	0.123898519	7.74366E-08	5.00078E-07	0.11257963	7.03623E-08	4.54393E-07	0.595742222	3.72339E-07	2.40453E-06	0.539973333	3.37483E-07	2.17943E-06	0.652552963	4.07846E-07	2.63383E-06
Road 2	2	0500-0600	0.098409123	1.29845E-07	8.38529E-07	0.088790351	1.17154E-07	7.56569E-07	0.434193158	5.72894E-07	3.69969E-06	0.389694737	5.14181E-07	3.32053E-06	0.478485088	6.31334E-07	4.0771E-06
Road 2	2	0600-0700	0.138851538	3.34272E-07	2.1587E-06	0.122957212	2.96008E-07	1.91159E-06	0.560405577	1.34912E-06	8.71251E-06	0.494298462	1.18998E-06	7.68476E-06	0.617255673	1.48599E-06	9.59635E-06
Road 2	2	0700-0800	0.115279875	4.26963E-07	2.75728E-06	0.10090275	3.73714E-07	2.41341E-06	0.477918813	1.77007E-06	1.14309E-05	0.415452	1.53871E-06	9.93685E-06	0.51635475	1.91243E-06	1.23503E-05
Road 2	2	0800-0900	0.130916809	9.21266E-07	5.94945E-06	0.11414398	8.03235E-07	5.18722E-06	0.549028947	3.86354E-06	2.49503E-05	0.476271941	3.35154E-06	2.16439E-05	0.590415921	4.15478E-06	2.68312E-05
Road 2	2	0900-1000	0.156169246	9.10987E-07	5.88307E-06	0.136239087	7.94728E-07	5.13228E-06	0.664197778	3.87449E-06	2.50211E-05	0.577745873	3.37018E-06	2.17643E-05	0.71398496	4.16491E-06	2.68966E-05
Road 2	2	1000-1100	0.173176578	7.4963E-07	4.84104E-06	0.150364439	6.50883E-07	4.20334E-06	0.729245882	3.15669E-06	2.03856E-05	0.631727059	2.73456E-06	1.76595E-05	0.782091497	3.38544E-06	2.18629E-05
Road 2	2	1100-1200	0.204409071	8.659E-07	5.59189E-06	0.179702623	7.6124E-07	4.91602E-06	0.833975082	3.53281E-06	2.28145E-05	0.732111311	3.1013E-06	2.00279E-05	0.911813934	3.86255E-06	2.49439E-05
Road 2	2	1200-1300	0.156769947	6.89497E-07	4.45271E-06	0.138405895	6.0873E-07	3.93112E-06	0.685067368	3.01303E-06	1.94578E-05	0.603030579	2.65222E-06	1.71278E-05	0.741436474	3.26095E-06	2.10589E-05
Road 2	2	1300-1400	0.174552556	9.01047E-07	5.81887E-06	0.152470359	7.87058E-07	5.08274E-06	0.712586682	3.6784E-06	2.37547E-05	0.62081139	3.20465E-06	2.06953E-05	0.773281749	3.99171E-06	2.57781E-05
Road 2	2	1400-1500	0.150652727	5.7541E-07	3.71594E-06	0.129461091	4.94469E-07	3.19324E-06	0.650626909	2.48503E-06	1.60481E-05	0.557520424	2.12942E-06	1.37516E-05	0.686981515	2.62389E-06	1.69448E-05
Road 2	2	1500-1600	0.188728689	7.99476E-07	5.16294E-06	0.16408459	6.95081E-07	4.48876E-06	0.742912732	3.14706E-06	2.03234E-05	0.644567596	2.73046E-06	1.7633E-05	0.808652186	3.42554E-06	2.21218E-05
Road 2	2	1600-1700	0.155203846	7.93983E-07	5.12746E-06	0.135850271	6.94975E-07	4.48808E-06	0.651625928	3.33355E-06	2.15277E-05	0.568602715	2.90882E-06	1.87849E-05	0.704452986	3.6038E-06	2.3273E-05
Road 2	2	1700-1800	0.121647658	6.25134E-07	4.03705E-06	0.104558108	5.37313E-07	3.46991E-06	0.482153964	2.47774E-06	1.6001E-05	0.412531486	2.11995E-06	1.36905E-05	0.517089595	2.65727E-06	1.71604E-05
Road 2	2	1800-1900	0.13289212	7.69052E-07	4.96646E-06	0.11627032	6.72861E-07	4.34527E-06	0.59737196	3.45701E-06	2.23251E-05	0.520082	3.00973E-06	1.94366E-05	0.63635232	3.68259E-06	2.37818E-05
Road 2	2	1900-2000	0.111597811	4.36575E-07	2.81936E-06	0.098396746	3.84932E-07	2.48585E-06	0.505177396	1.97627E-06	1.27626E-05	0.442734793	1.73199E-06	1.11851E-05	0.541131538	2.11693E-06	1.36709E-05
Road 2	2	2000-2100	0.106056463	3.60887E-07	2.33057E-06	0.092618163	3.15159E-07	2.03527E-06	0.451389252	1.53598E-06	9.91919E-06	0.391333469	1.33162E-06	8.59948E-06	0.483951633	1.64678E-06	1.06347E-05
Road 2	2	2100-2200	0.081582092	2.88937E-07	1.86592E-06	0.071674248	2.53846E-07	1.63931E-06	0.373303922	1.32212E-06	8.53811E-06	0.324846928	1.1505E-06	7.42981E-06	0.396521176	1.40435E-06	9.06913E-06
Road 2	2	2200-2300	0.11800688	3.41455E-07	2.20508E-06	0.10627088	3.07497E-07	1.98578E-06	0.50183872	1.45208E-06	9.37739E-06	0.44954752	1.30077E-06	8.40027E-06	0.5558184	1.60827E-06	1.03861E-05
Road 2	2	2300-0000	0.107280541	2.75651E-07	1.78013E-06	0.094493243	2.42795E-07	1.56795E-06	0.483798378	1.24309E-06	8.02777E-06	0.423088198	1.0871E-06	7.0204E-06	0.517581441	1.3299E-06	8.58834E-06
Road 3	3	0000-0100	0.091605	3.3794E-07	1.31349E-05	0.081415696	3.0035E-07	1.16739E-05	0.504075913	1.85958E-06	7.22774E-05	0.44606613	1.64558E-06	6.39596E-05	0.527481826	1.94593E-06	7.56335E-05
Road 3	3	0100-0200	0.068825986	1.56759E-07	6.09284E-06	0.060893451	1.38692E-07	5.39061E-06	0.400270775	9.11663E-07	3.54341E-05	0.352520563	8.02907E-07	3.1207E-05	0.413414014	9.41599E-07	3.65976E-05
Road 3	3	0200-0300	0.067614949	1.07367E-07	4.17308E-06	0.060820707	9.65781E-08	3.75375E-06	0.42055798	6.67811E-07	2.59561E-05	0.3759	5.96897E-07	2.31999E-05	0.436720707	6.93476E-07	2.69537E-05
Road 3	3	0300-0400	0.055706857	6.25459E-08	2.431E-06	0.050501286	5.67013E-08	2.20384E-06	0.306111857	3.43693E-07	1.33585E-05	0.275688857	3.09535E-07	1.20308E-05	0.326190143	3.66236E-07	1.42347E-05
Road 3	3	0400-0500	0.074231593	1.34542E-07	5.22933E-06	0.067372832	1.22111E-07	4.74616E-06	0.409680796	7.42534E-07	2.88604E-05	0.37041	6.71357E-07	2.6094E-05	0.437782832	7.93468E-07	3.08401E-05
Road 3	3	0500-0600	0.06103439	2.40825E-07	9.36027E-06	0.054278089	2.14167E-07	8.32412E-06	0.338824837	1.33691E-06	5.19624E-05	0.29917187	1.18045E-06	4.58812E-05	0.353449959	1.39462E-06	5.42053E-05
Road 3	3	0600-0700	0.083916284	5.97615E-07	2.32278E-05	0.074186869	5.28326E-07	2.05347E-05	0.41797482	2.97663E-06	0.000115694	0.367715023	2.6187E-06	0.000101782	0.441901892	3.14703E-06	0.000122317
Road 3	3	0700-0800	0.070157015	8.18084E-07	3.17969E-05	0.062440798	7.28107E-07	2.82997E-05	0.367114924	4.28084E-06	0.000166385	0.324319409	3.78181E-06	0.000146989	0.386760206	4.50992E-06	0.000175289
Road 3	3	0800-0900	0.077726359	1.24296E-06	4.83106E-05	0.068975557	1.10302E-06	4.28715E-05	0.383728445	6.13637E-06	0.000238505	0.338796399	5.41784E-06	0.000210578	0.407771956	6.52086E-06	0.000253449
Road 3	3	0900-1000	0.086327658	1.33619E-06	5.19345E-05	0.07521372	1.16417E-06	4.52484E-05	0.444440269	6.87912E-06	0.000267374	0.385594653	5.9683E-06	0.000231973	0.460808373	7.13247E-06	0.000277221
Road 3	3	1000-1100	0.097388441	1.37306E-06	5.33673E-05	0.084665131	1.19367E-06	4.63951E-05	0.490814937	6.91988E-06	0.000268959	0.425217747	5.99505E-06	0.000233012	0.509882878	7.18872E-06	0.000279407
Road 3	3	1100-1200	0.095447518	1.30742E-06	5.08161E-05	0.08403685	1.15112E-06	4.47411E-05	0.494416838	6.77241E-06	0.000263227	0.433777037	5.94178E-06	0.000230942	0.517813888	7.0929E-06	0.000275683
Road 3	3	1200-1300	0.090406557	1.23837E-06	4.81323E-05	0.078720773	1.0783E-06	4.19108E-05	0.478960012	6.56069E-06	0.000254997	0.41548404	5.69121E-06	0.000221203	0.494204813	6.76951E-06	0.000263114

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.096508803	1.43496E-06	5.57732E-05	0.083794919	1.24592E-06	4.84257E-05	0.491118274	7.30227E-06	0.000283821	0.424856419	6.31705E-06	0.000245528	0.508651338	7.56297E-06	0.000293953
Road 3	3	1400-1500	0.088935557	1.33234E-06	5.17846E-05	0.07758758	1.16233E-06	4.5177E-05	0.459847591	6.88895E-06	0.000267756	0.399742976	5.98853E-06	0.000232759	0.477330557	7.15086E-06	0.000277936
Road 3	3	1500-1600	0.09909143	1.4225E-06	5.52889E-05	0.086063609	1.23548E-06	4.80199E-05	0.499055542	7.16414E-06	0.000278452	0.431774391	6.19829E-06	0.000240912	0.517838	7.43377E-06	0.000288932
Road 3	3	1600-1700	0.091959682	1.43959E-06	5.59533E-05	0.081732162	1.27948E-06	4.97303E-05	0.470246496	7.36152E-06	0.000286124	0.416220338	6.51576E-06	0.000253251	0.4979525	7.79525E-06	0.000302982
Road 3	3	1700-1800	0.074000112	1.162E-06	4.51641E-05	0.063457222	9.96451E-07	3.87296E-05	0.380435792	5.97388E-06	0.00023219	0.324077436	5.0889E-06	0.000197793	0.387534658	6.08535E-06	0.000236522
Road 3	3	1800-1900	0.069377381	1.14283E-06	4.44188E-05	0.060392833	9.94828E-07	3.86665E-05	0.382058608	6.29351E-06	0.000244613	0.329800049	5.43267E-06	0.000211154	0.390192882	6.4275E-06	0.000249821
Road 3	3	1900-2000	0.072425408	8.8287E-07	3.43149E-05	0.063903395	7.78986E-07	3.02772E-05	0.398658263	4.85967E-06	0.000188883	0.349508658	4.26053E-06	0.000165596	0.413412053	5.03952E-06	0.000195873
Road 3	3	2000-2100	0.06790339	7.06852E-07	2.74736E-05	0.059480478	6.19172E-07	2.40657E-05	0.372086703	3.8733E-06	0.000150545	0.323762928	3.37026E-06	0.000130994	0.383243405	3.98944E-06	0.000155059
Road 3	3	2100-2200	0.065903398	6.50092E-07	2.52675E-05	0.05911348	5.83115E-07	2.26642E-05	0.371728293	3.66685E-06	0.000142521	0.331510927	3.27013E-06	0.000127102	0.390624407	3.85325E-06	0.000149766
Road 3	3	2200-2300	0.070791297	6.39264E-07	2.48466E-05	0.063459893	5.7306E-07	2.22734E-05	0.387463268	3.4989E-06	0.000135993	0.345245773	3.11766E-06	0.000121176	0.408705666	3.69072E-06	0.000143449
Road 3	3	2300-0000	0.063085916	5.07959E-07	1.97431E-05	0.055317829	4.45411E-07	1.7312E-05	0.362568327	2.91935E-06	0.000113468	0.315146255	2.53751E-06	9.86267E-05	0.370464084	2.98292E-06	0.000115939
Road 4	4	0000-0100	0.245580857	1.98966E-07	2.13044E-06	0.218081429	1.76686E-07	1.89188E-06	1.212280286	9.82172E-07	1.05167E-05	1.076261429	8.71971E-07	9.3367E-06	1.294342857	1.04866E-06	1.12286E-05
Road 4	4	0100-0200	0.2318565	1.07341E-07	1.14936E-06	0.2050715	9.49405E-08	1.01658E-06	1.1471275	5.31078E-07	5.68655E-06	1.014559	4.69703E-07	5.02938E-06	1.2196305	5.64644E-07	6.04597E-06
Road 4	4	0200-0300	0.251045385	7.55461E-08	8.08915E-07	0.226064615	6.80287E-08	7.28423E-07	1.200793846	3.6135E-07	3.86918E-06	1.081534615	3.25462E-07	3.48491E-06	1.307599231	3.93491E-07	4.21333E-06
Road 4	4	0300-0400	0.224685714	3.64074E-08	3.89835E-07	0.203931429	3.30444E-08	3.53826E-07	1.15363	1.86931E-07	2.00158E-06	1.046847143	1.69628E-07	1.81631E-06	1.250778571	2.02672E-07	2.17013E-06
Road 4	4	0400-0500	0.230463571	7.46873E-08	7.9972E-07	0.209182143	6.77905E-08	7.25872E-07	1.103069286	3.57476E-07	3.8277E-06	1.000966429	3.24387E-07	3.4734E-06	1.210148571	3.92178E-07	4.19927E-06
Road 4	4	0500-0600	0.2160125	1.20007E-07	1.28498E-06	0.192250417	1.06806E-07	1.14363E-06	0.994330833	5.52406E-07	5.91493E-06	0.884392917	4.91329E-07	5.26095E-06	1.076643333	5.98135E-07	6.40458E-06
Road 4	4	0600-0700	0.238682075	2.92828E-07	3.13547E-06	0.2111	2.58988E-07	2.77314E-06	1.10477434	1.35539E-06	1.4513E-05	0.976386415	1.19788E-06	1.28264E-05	1.187486415	1.45687E-06	1.55995E-05
Road 4	4	0700-0800	0.243312283	5.18165E-07	5.54829E-06	0.216582174	4.6124E-07	4.93876E-06	1.16786663	2.48712E-06	2.66311E-05	1.038584783	2.2118E-06	2.3683E-05	1.255166957	2.67304E-06	2.86218E-05
Road 4	4	0800-0900	0.249701419	8.95919E-07	9.59313E-06	0.221504774	7.94751E-07	8.50986E-06	1.202816129	4.31566E-06	4.62103E-05	1.066458839	3.82641E-06	4.09716E-05	1.287963613	4.62117E-06	4.94815E-05
Road 4	4	0900-1000	0.260529595	8.92555E-07	9.5571E-06	0.226523514	7.76053E-07	8.30965E-06	1.191552635	4.08217E-06	4.37102E-05	1.035241081	3.54666E-06	3.79761E-05	1.261764595	4.32271E-06	4.62858E-05
Road 4	4	1000-1100	0.288638333	9.62128E-07	1.03021E-05	0.250616597	8.35389E-07	8.94499E-06	1.323540625	4.4118E-06	4.72397E-05	1.148997292	3.82999E-06	4.10099E-05	1.399613889	4.66538E-06	4.99549E-05
Road 4	4	1100-1200	0.266647548	9.56722E-07	1.02442E-05	0.234482258	8.41314E-07	9.00843E-06	1.21484471	4.35882E-06	4.66724E-05	1.068009419	3.83198E-06	4.10312E-05	1.302491677	4.67329E-06	5.00396E-05
Road 4	4	1200-1300	0.274493446	9.40394E-07	1.00693E-05	0.238808716	8.18141E-07	8.76031E-06	1.305728919	4.47333E-06	4.78985E-05	1.135537432	3.89027E-06	4.16553E-05	1.374346149	4.70841E-06	5.04156E-05
Road 4	4	1300-1400	0.282720667	9.81669E-07	1.05113E-05	0.245264333	8.51612E-07	9.1187E-06	1.3135492	4.56093E-06	4.88366E-05	1.139022133	3.95494E-06	4.23478E-05	1.384286467	4.80655E-06	5.14665E-05
Road 4	4	1400-1500	0.257289071	8.33807E-07	8.92806E-06	0.224321143	7.26967E-07	7.78405E-06	1.233776071	3.99835E-06	4.28126E-05	1.074762357	3.48303E-06	3.72948E-05	1.2990835	4.20999E-06	4.50788E-05
Road 4	4	1500-1600	0.28990656	8.3885E-07	8.98205E-06	0.25146664	7.27623E-07	7.79108E-06	1.34696176	3.89746E-06	4.17323E-05	1.16802952	3.37972E-06	3.61886E-05	1.41949616	4.10734E-06	4.39796E-05
Road 4	4	1600-1700	0.266917016	7.66151E-07	8.20362E-06	0.23702	6.80335E-07	7.28474E-06	1.252487258	3.5951E-06	3.84948E-05	1.111769032	3.19119E-06	3.41699E-05	1.348789032	3.87152E-06	4.14546E-05
Road 4	4	1700-1800	0.259905906	7.64075E-07	8.1814E-06	0.222922047	6.5535E-07	7.01721E-06	1.239692205	3.64447E-06	3.90234E-05	1.062504646	3.12357E-06	3.34458E-05	1.285426693	3.77892E-06	4.0463E-05
Road 4	4	1800-1900	0.284657547	6.98465E-07	7.47887E-06	0.247891604	6.08253E-07	6.51291E-06	1.370303302	3.36232E-06	3.60023E-05	1.192972925	2.9272E-06	3.13432E-05	1.440864528	3.53545E-06	3.78562E-05
Road 4	4	1900-2000	0.251148378	4.30208E-07	4.60648E-06	0.221707838	3.79777E-07	4.0665E-06	1.211611486	2.07545E-06	2.2223E-05	1.069338243	1.83174E-06	1.96135E-05	1.291046081	2.21151E-06	2.368E-05
Road 4	4	2000-2100	0.220189796	2.49752E-07	2.67424E-06	0.192917143	2.18818E-07	2.34301E-06	1.066501633	1.20969E-06	1.29528E-05	0.933284082	1.05859E-06	1.13349E-05	1.126201224	1.2774E-06	1.36779E-05
Road 4	4	2100-2200	0.182001892	1.55881E-07	1.66911E-06	0.163482973	1.4002E-07	1.49928E-06	0.899777027	7.70642E-07	8.25171E-06	0.807353784	6.91484E-07	7.40411E-06	0.970836757	8.31504E-07	8.90339E-06
Road 4	4	2200-2300	0.244309683	3.56285E-07	3.81495E-06	0.219095714	3.19515E-07	3.42123E-06	1.161047302	1.69319E-06	1.813E-05	1.04087873	1.51795E-06	1.62535E-05	1.259974444	1.83746E-06	1.96748E-05
Road 4	4	2300-0000	0.231854898	2.62984E-07	2.81592E-06	0.203461429	2.30778E-07	2.47107E-06	1.132267959	1.28429E-06	1.37516E-05	0.992664694	1.12594E-06	1.20561E-05	1.196126122	1.35672E-06	1.45272E-05
Road 5	5	0000-0100	0.07754829	2.80909E-07	3.79878E-06	0.068935389	2.4971E-07	3.37687E-06	0.432388601	1.56627E-06	2.1181E-05	0.382135596	1.38424E-06	1.87193E-05	0.451070984	1.63395E-06	2.20962E-05
Road 5	5	0100-0200	0.052224918	1.19584E-07	1.61716E-06	0.046214098	1.05821E-07	1.43103E-06	0.319752705	7.32166E-07	9.90122E-06	0.281061557	6.43572E-07	8.70314E-06	0.327275656	7.49392E-07	1.01342E-05
Road 5	5	0200-0300	0.049901744	8.05471E-08	1.08925E-06	0.044853953	7.23994E-08	9.79071E-07	0.342750814	5.53239E-07	7.48155E-06	0.305395698	4.92944E-07	6.66617E-06	0.350249651	5.65343E-07	7.64524E-06
Road 5	5	0300-0400	0.043777619	5.17641E-08	7.00015E-07	0.039673333	4.6911E-08	6.34387E-07	0.240432698	2.84295E-07	3.84458E-06	0.215858413	2.55238E-07	3.45163E-06	0.255531746	3.02149E-07	4.08602E-06
Road 5	5	0400-0500	0.06073202	1.12847E-07	1.52605E-06	0.055124848	1.02428E-07	1.38515E-06	0.346121212	6.43131E-07	8.69718E-06	0.312537172	5.80728E-07	7.85329E-06	0.36766202	6.83156E-07	9.23844E-06
Road 5	5	0500-0600	0.049935909	2.06192E-07	2.78837E-06	0.044395318	1.83314E-07	2.47899E-06	0.289719545	1.19629E-06	1.61776E-05	0.255240545	1.05392E-06	1.42524E-05	0.299635864	1.23724E-06	1.67314E-05
Road 5	5	0600-0700	0.072700052	5.29422E-07	7.15948E-06	0.064268015	4.68018E-07	6.32909E-06	0.364369588	2.65344E-06	3.5883E-05	0.320104253	2.33109E-06	3.15238E-05	0.384372268	2.79911E-06	3.78529E-05
Road 5	5	0700-0800	0.057343476	6.81277E-07	9.21303E-06	0.05103703	6.06352E-07	8.19981E-06	0.302199731	3.59032E-06	4.85526E-05	0.266291564	3.16371E-06	4.27835E-05	0.317328594	3.77006E-06	5.09833E-05
Road 5	5	0800-0900	0.061487177	9.72855E-07	1.31561E-05	0.054579265	8.63557E-07	1.1678E-05	0.299916856	4.74531E-06	6.41717E-05	0.264269964	4.1813E-06	5.65445E-05	0.318849229	5.04486E-06	6.82225E-05
Road 5	5	0900-1000	0.069669436	1.06701E-06	1.44294E-05	0.060772537	9.30751E-07	1.25867E-05	0.370633946	5.67638E-06	7.67627E-05	0.321377512	4.922E-06	6.65611E-05	0.382150049	5.85275E-06	7.91478E-05
Road 5	5	1000-1100	0.078911213	1.0871E-06	1.47011E-05	0.068645027	9.45673E-07	1.27885E-05	0.407963052	5.62021E-06	7.60032E-05	0.353120136	4.86468E-06	6.5786E-05	0.421765163	5.81035E-06	7.85745E-05
Road 5	5	1100-1200	0.077396581	1.01539E-06	1.37314E-05	0.068173705	8.94396E-07	1.20951E-05	0.417801001	5.48129E-06	7.41245E-05	0.366239299	4.80483E-06	6.49766E-05	0.434413004	5.69922E-06	7.70717E-05
Road 5	5	1200-1300	0.072241598	9.58611E-07	1.29635E-05	0.062962405	8.35481E-07	1.12984E-05	0.393106337	5.21633E-06	7.05414E-05	0.340583607	4.51938E-06	6.11164E-05	0.403546011	5.35486E-06	7.24148E-05
Road 5	5	1300-1400	0.0792939	1.15637E-06	1.56378E-05	0.068907529	1.0049E-06	1.35895E-05	0.412199665	6.01125E-06	8.12912E-05	0.356236268	5.19511E-06	7.02545E-05	0.425143797	6.20001E-06	8.38439E-05
Road 5	5	1400-1500	0.074731814	1.11368E-06	1.50606E-05	0.065249937	9.72381E-07	1.31497E-05	0.390568174	5.8204E-06	7.87104E-05	0.339260214	5.05579E-06	6.83704E-05	0.404510151	6.02817E-06	8.15201E-05
Road 5	5	1500-1600	0.083768831	1.21062E-06	1.63715E-05	0.072813052	1.05229E-06	1.42303E-05	0.427094818	6.17235E-06	8.34699E-05	0.369213065	5.33585E-06	7.21577E-05	0.442026117	6.38814E-06	8.6388E-05
Road 5	5	1600-1700	0.078307503	1.25368E-06	1.69538E-05	0.069608792	1.11442E-06	1.50705E-05	0.406582943	6.5093E-06	8.80264E-05	0.359601419	5.75713E-06	7.78548E-05	0.429210211	6.87155E-06	9.29253E-05
Road 5	5	1700-1800	0.058510658	9.34545E-07	1.2638E-05	0.050187955	8.01613E-07	1.08404E-05	0.304545899	4.86427E-06	6.57805E-05	0.258761692	4.133E-06	5.58913E-05	0.308949647	4.93461E-06	6.67317E-05
Road 5	5	1800-1900	0.054221284	9.35236E-07	1.26474E-05	0.04722506	8.14561E-07	1.10155E-05	0.308701251	5.32463E-06	7.2006E-05	0.265631382	4.58174E-06	6.19598E-05	0.312856442	5.3963E-06	7.29752E-05
Road 5	5	1900-2000	0.061650306	7.93771E-07	1.07343E-05	0.054405466	7.00491E-07	9.47287E-06	0.347184898	4.47014E-06	6.04505E-05	0.303839504	3.91205E-06	5.29034E-05	0.358244971	4.61254E-06	6.23762E-05
Road 5	5	2000-2100	0.060082167	6.76601E-07	9.1498E-06	0.052639917	5.92792E-07	8.01644E-06	0.334058467	3.76192E-06	5.08731E-05	0.2903545	3.26976E-06	4.42175E-05	0.342994417	3.86255E-06	5.2234E-05
Road 5	5	2100-2200	0.061448374	6.66613E-07	9.01474E-06	0.055102924	5.97776E-07	8.08383E-06	0.350323685	3.80043E-06	5.1394E-05	0.312180069	3.38664E-06	4.57981E-05	0.367282993	3.98441E-06	5.3882E-05
Road 5	5	2200-2300	0.059192184	5.54371E-07	7.49687E-06	0.053058076	4.96922E-07	6.71996E-06	0.332728717	3.11621E-06	4.21411E-05	0.295908176	2.77136E-06	3.74777E-05	0.348966253	3.26828E-06	4.41976E-05
Road 5	5	2300-0000	0.052981148	4.50459E-07	6.09164E-06	0.046447042	3.94904E-07	5.34037E-06	0.312935519	2.66066E-06	3.59806E-05	0.271353091	2.30711E-06	3.11995E-05	0.317800132	2.70202E-06	3.65399E-05
Road 6	6	0000-0100	0.0463774	1.30567E-07	4.66724E-06	0.041143667	1.15832E-07	4.14054E-06	0.298660267	8.40823E-07	3.0056E-05	0.262254667	7.3833E-07	2.63923E-05	0.303398333	8.54162E-07	3.05328E-05
Road 6	6	0100-0200	0.061566316	1.3173E-07	4.7088E-06	0.054480088	1.16568E-07	4.16682E-06	0.34682886	7.42089E-07	2.65267E-05	0.304418158	6.51345E-07	2.32829E-05	0.358898246	7.67913E-07	2.74498E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.056176456	8.32947E-08	2.97745E-06	0.050586076	7.50056E-08	2.68115E-06	0.321105063	4.76113E-07	1.70191E-05	0.287066582	4.25643E-07	1.5215E-05	0.337652658	5.00649E-07	1.78962E-05
Road 6	6	0300-0400	0.056854839	6.61599E-08	2.36495E-06	0.051699032	6.01603E-08	2.15049E-06	0.362947258	4.22349E-07	1.50972E-05	0.327874355	3.81535E-07	1.36383E-05	0.379573387	4.41696E-07	1.57888E-05
Road 6	6	0400-0500	0.061425556	1.03759E-07	3.70898E-06	0.05576	9.41892E-08	3.36688E-06	0.360339778	6.08682E-07	2.17579E-05	0.324954444	5.4891E-07	1.96213E-05	0.380714444	6.43099E-07	2.29882E-05
Road 6	6	0500-0600	0.055835062	1.69769E-07	6.06855E-06	0.049703765	1.51126E-07	5.40215E-06	0.336757654	1.02393E-06	3.66012E-05	0.296918765	9.02794E-07	3.22712E-05	0.346622531	1.05392E-06	3.76734E-05
Road 6	6	0600-0700	0.059303966	3.22788E-07	1.15384E-05	0.05246631	2.85571E-07	1.0208E-05	0.373695276	2.034E-06	7.27073E-05	0.327458586	1.78234E-06	6.37114E-05	0.379924897	2.06791E-06	7.39194E-05
Road 6	6	0700-0800	0.056359372	4.88702E-07	1.74691E-05	0.050168896	4.35023E-07	1.55503E-05	0.323713528	2.80698E-06	0.000100338	0.28537342	2.47452E-06	8.84541E-05	0.335542316	2.90954E-06	0.000104004
Road 6	6	0800-0900	0.047704955	5.9273E-07	2.11877E-05	0.042307085	5.25662E-07	1.87903E-05	0.280811843	3.48907E-06	0.00012472	0.246022613	3.05681E-06	0.000109269	0.288329698	3.58247E-06	0.000128059
Road 6	6	0900-1000	0.051625308	6.13341E-07	2.19245E-05	0.044922954	5.33713E-07	1.90781E-05	0.292413523	3.47406E-06	0.000124183	0.251479384	2.98773E-06	0.000106799	0.296402338	3.52145E-06	0.000125877
Road 6	6	1000-1100	0.068866131	6.91505E-07	2.47185E-05	0.05984071	6.00878E-07	2.1479E-05	0.376857421	3.78414E-06	0.000135267	0.325140785	3.26483E-06	0.000116705	0.384981495	3.86571E-06	0.000138184
Road 6	6	1100-1200	0.078976372	7.88578E-07	2.81885E-05	0.069586955	6.94825E-07	2.48372E-05	0.412863647	4.12244E-06	0.00014736	0.361960489	3.61417E-06	0.000129192	0.431547444	4.30899E-06	0.000154029
Road 6	6	1200-1300	0.07625065	7.48481E-07	2.67552E-05	0.066485545	6.52627E-07	2.33288E-05	0.382621434	3.75584E-06	0.000134256	0.331935086	3.2583E-06	0.000116471	0.398420631	3.91092E-06	0.0001398
Road 6	6	1300-1400	0.088704184	8.67396E-07	3.10059E-05	0.077090173	7.53828E-07	2.69463E-05	0.452936104	4.42905E-06	0.000158321	0.391480038	3.8281E-06	0.000136839	0.468570211	4.58193E-06	0.000163785
Road 6	6	1400-1500	0.084363293	9.08869E-07	3.24884E-05	0.073658885	7.93547E-07	2.83661E-05	0.424312909	4.57124E-06	0.000163403	0.368402213	3.9689E-06	0.000141872	0.442061098	4.76245E-06	0.000170238
Road 6	6	1500-1600	0.074395783	7.8473E-07	2.80509E-05	0.0646379	6.81804E-07	2.43717E-05	0.38755153	4.08791E-06	0.000146126	0.334365445	3.5269E-06	0.000126072	0.399003345	4.20871E-06	0.000150444
Road 6	6	1600-1700	0.076623455	8.28362E-07	2.96106E-05	0.068130365	7.36544E-07	2.63285E-05	0.380995139	4.11887E-06	0.000147233	0.336961875	3.64283E-06	0.000130216	0.40509224	4.37938E-06	0.000156545
Road 6	6	1700-1800	0.058245443	6.66849E-07	2.38372E-05	0.049983098	5.72254E-07	2.04558E-05	0.300539164	3.44086E-06	0.000122997	0.255558393	2.92588E-06	0.000104588	0.305541492	3.49813E-06	0.000125044
Road 6	6	1800-1900	0.056418737	7.29589E-07	2.60799E-05	0.04908939	6.34808E-07	2.26918E-05	0.296916197	3.83963E-06	0.000137251	0.25590656	3.3093E-06	0.000118294	0.304995951	3.94411E-06	0.000140986
Road 6	6	1900-2000	0.065659905	6.45754E-07	2.30831E-05	0.057916279	5.69597E-07	2.03608E-05	0.345349695	3.39646E-06	0.00012141	0.301932462	2.96946E-06	0.000106146	0.35984874	3.53905E-06	0.000126507
Road 6	6	2000-2100	0.052202608	4.09547E-07	1.46397E-05	0.045702273	3.5855E-07	1.28167E-05	0.30584122	2.39943E-06	8.57699E-05	0.265080239	2.07965E-06	7.43389E-05	0.310782512	2.4382E-06	8.71556E-05
Road 6	6	2100-2200	0.072177917	4.87689E-07	1.74329E-05	0.064750722	4.37505E-07	1.5639E-05	0.385202611	2.60272E-06	9.30367E-05	0.343511917	2.32103E-06	8.29673E-05	0.408262639	2.75853E-06	9.86063E-05
Road 6	6	2200-2300	0.05401378	3.86247E-07	1.38068E-05	0.048385853	3.46002E-07	1.23682E-05	0.305445879	2.18421E-06	7.80768E-05	0.270233255	1.93241E-06	6.90759E-05	0.318619108	2.27841E-06	8.14441E-05
Road 6	6	2300-0000	0.037076667	2.4843E-07	8.88038E-06	0.03250084	2.1777E-07	7.7844E-06	0.2331207	1.56201E-06	5.58357E-05	0.201583081	1.3507E-06	4.8282E-05	0.234083922	1.56847E-06	5.60664E-05
Road 7	7	0000-0100	0.067897903	1.83355E-07	4.57715E-06	0.060256935	1.62721E-07	4.06205E-06	0.401268065	1.08361E-06	2.70504E-05	0.353867634	9.55604E-07	2.3855E-05	0.41412457	1.11833E-06	2.79171E-05
Road 7	7	0100-0200	0.083414766	1.75604E-07	4.38366E-06	0.073986502	1.55756E-07	3.88818E-06	0.456045804	9.60065E-07	2.39664E-05	0.402571609	8.47492E-07	2.11562E-05	0.476558111	1.00325E-06	2.50443E-05
Road 7	7	0200-0300	0.071503925	9.75848E-08	2.43603E-06	0.064154364	8.75545E-08	2.18565E-06	0.404720112	5.52341E-07	1.37882E-05	0.361247704	4.93012E-07	1.23072E-05	0.425402067	5.80566E-07	1.44928E-05
Road 7	7	0300-0400	0.072123192	7.95816E-08	1.98662E-06	0.065089281	7.18203E-08	1.79287E-06	0.434623641	4.79569E-07	1.19716E-05	0.390449072	4.30826E-07	1.07548E-05	0.455538353	5.02647E-07	1.25477E-05
Road 7	7	0400-0500	0.079823021	1.2864E-07	3.21127E-06	0.072479685	1.16806E-07	2.91585E-06	0.44420397	7.15863E-07	1.78703E-05	0.401635139	6.4726E-07	1.61577E-05	0.474114824	7.64066E-07	1.90736E-05
Road 7	7	0500-0600	0.072716778	2.09037E-07	5.21826E-06	0.065048404	1.86993E-07	4.66796E-06	0.40977963	1.17799E-06	2.94064E-05	0.364266899	1.04715E-06	2.61403E-05	0.429315303	1.23414E-06	3.08083E-05
Road 7	7	0600-0700	0.076717493	3.94296E-07	9.84291E-06	0.067888298	3.48917E-07	8.71011E-06	0.444403124	2.28405E-06	5.70172E-05	0.390702892	2.00805E-06	5.01274E-05	0.45859119	2.35697E-06	5.88376E-05
Road 7	7	0700-0800	0.074297469	6.09462E-07	1.52142E-05	0.065766342	5.39481E-07	1.34672E-05	0.405176407	3.32366E-06	8.29695E-05	0.356117945	2.92124E-06	7.29236E-05	0.421884287	3.46072E-06	8.63908E-05
Road 7	7	0800-0900	0.073785927	9.15934E-07	2.28647E-05	0.065066674	8.07698E-07	2.01628E-05	0.400451776	4.97096E-06	0.000124091	0.350596444	4.35209E-06	0.000108642	0.415663118	5.15979E-06	0.000128805
Road 7	7	0900-1000	0.076875067	8.83965E-07	2.20666E-05	0.066939244	7.69716E-07	1.92146E-05	0.402731498	4.6309E-06	0.000115602	0.348204621	4.00391E-06	9.99506E-05	0.415143864	4.77362E-06	0.000119165
Road 7	7	1000-1100	0.090849069	9.16705E-07	2.28839E-05	0.078914437	7.9628E-07	1.98777E-05	0.477774019	4.82094E-06	0.000120346	0.41301584	4.1675E-06	0.000104034	0.491930277	4.96378E-06	0.000123912
Road 7	7	1100-1200	0.100372619	1.01134E-06	2.52465E-05	0.088334175	8.90046E-07	2.22185E-05	0.513907082	5.17808E-06	0.000129262	0.45085632	4.54278E-06	0.000113403	0.539190494	5.43283E-06	0.000135621
Road 7	7	1200-1300	0.09810724	9.87094E-07	2.46411E-05	0.08587379	8.64009E-07	2.15685E-05	0.495343764	4.98384E-06	0.000124413	0.432340917	4.34995E-06	0.000108589	0.518214707	5.21396E-06	0.000130157
Road 7	7	1300-1400	0.105187864	1.04154E-06	2.60001E-05	0.091577557	9.06771E-07	2.2636E-05	0.532152498	5.2692E-06	0.000131536	0.461661287	4.57122E-06	0.000114113	0.553238844	5.47799E-06	0.000136749
Road 7	7	1400-1500	0.098160655	1.01756E-06	2.54016E-05	0.085208059	8.8329E-07	2.20498E-05	0.499441378	5.17734E-06	0.000129243	0.431788483	4.47604E-06	0.000111736	0.516996541	5.35933E-06	0.000133786
Road 7	7	1500-1600	0.091357634	9.29795E-07	2.32107E-05	0.079373725	8.07828E-07	2.0166E-05	0.471664465	4.80038E-06	0.000119833	0.407853379	4.15094E-06	0.000103621	0.487227105	4.95877E-06	0.000123787
Road 7	7	1600-1700	0.093332566	9.82416E-07	2.45243E-05	0.082495728	8.68348E-07	2.16768E-05	0.464850579	4.89301E-06	0.000122145	0.40940087	4.30934E-06	0.000107575	0.491896599	5.17769E-06	0.000129252
Road 7	7	1700-1800	0.073067478	8.13662E-07	2.03116E-05	0.062755843	6.98834E-07	1.74452E-05	0.378521221	4.21512E-06	0.000105223	0.322793642	3.59455E-06	8.97317E-05	0.385549484	4.29338E-06	0.000107177
Road 7	7	1800-1900	0.067009912	7.75393E-07	1.93563E-05	0.058444083	6.76275E-07	1.6882E-05	0.353039649	4.08513E-06	0.000101978	0.305578779	3.53595E-06	8.82688E-05	0.364022861	4.21222E-06	0.000105151
Road 7	7	1900-2000	0.076301572	6.6689E-07	1.66478E-05	0.067289832	5.88126E-07	1.46815E-05	0.404584613	3.53615E-06	8.82737E-05	0.354451807	3.09798E-06	7.73356E-05	0.421741639	3.6861E-06	9.20171E-05
Road 7	7	2000-2100	0.070747708	5.0947E-07	1.2718E-05	0.061886008	4.45655E-07	1.1125E-05	0.387217529	2.78844E-06	6.96085E-05	0.33635996	2.4222E-06	6.04661E-05	0.398245968	2.86786E-06	7.1591E-05
Road 7	7	2100-2200	0.080416089	4.83357E-07	1.20662E-05	0.071636371	4.30584E-07	1.07488E-05	0.430176163	2.58566E-06	6.45464E-05	0.381224773	2.29143E-06	5.72015E-05	0.452861144	2.72201E-06	6.79502E-05
Road 7	7	2200-2300	0.067334899	4.36991E-07	1.09087E-05	0.060420063	3.92115E-07	9.78846E-06	0.370465391	2.40425E-06	6.00179E-05	0.329495178	2.13836E-06	5.33804E-05	0.389915241	2.53048E-06	6.31689E-05
Road 7	7	2300-0000	0.048444793	2.89077E-07	7.2163E-06	0.042551169	2.53909E-07	6.33839E-06	0.288055474	1.71887E-06	4.29085E-05	0.250530077	1.49495E-06	3.73188E-05	0.293081246	1.74886E-06	4.36572E-05
Road 8	8	0000-0100	0.215354167	1.56621E-07	2.58184E-06	0.191217778	1.39067E-07	2.29248E-06	1.066505278	7.7564E-07	1.27861E-05	0.946605278	6.8844E-07	1.13487E-05	1.137823056	8.27508E-07	1.36412E-05
Road 8	8	0100-0200	0.223420667	1.35406E-07	2.23212E-06	0.197636333	1.1978E-07	1.97452E-06	1.103455333	6.68761E-07	1.10243E-05	0.976045667	5.91543E-07	9.75136E-06	1.173682	7.11322E-07	1.17259E-05
Road 8	8	0200-0300	0.211603333	6.41222E-08	1.05703E-06	0.190630667	5.77669E-08	9.52265E-07	1.098766	3.32959E-07	5.48871E-06	0.989942	2.99982E-07	4.9451E-06	1.180572667	3.57749E-07	5.89736E-06
Road 8	8	0300-0400	0.189965714	5.37277E-08	8.85681E-07	0.172597857	4.88156E-08	8.04706E-07	0.966265	2.73287E-07	4.50503E-06	0.87748	2.48176E-07	4.09109E-06	1.050077857	2.96992E-07	4.8958E-06
Road 8	8	0400-0500	0.214986667	9.12065E-08	1.5035E-06	0.195195714	8.28103E-08	1.3651E-06	1.031265714	4.37507E-07	7.21213E-06	0.936026667	3.97102E-07	6.54608E-06	1.131222381	4.79913E-07	7.91118E-06
Road 8	8	0500-0600	0.207701765	1.42664E-07	2.35176E-06	0.184923529	1.27018E-07	2.09385E-06	0.978977353	6.72429E-07	1.10847E-05	0.871129118	5.98351E-07	9.8636E-06	1.056052647	7.25369E-07	1.19574E-05
Road 8	8	0600-0700	0.230797258	2.89079E-07	4.76537E-06	0.204187419	2.5575E-07	4.21594E-06	1.074480484	1.34581E-06	2.21852E-05	0.950095	1.19002E-06	1.9617E-05	1.154282419	1.44577E-06	2.38329E-05
Road 8	8	0700-0800	0.23259951	4.79296E-07	7.90101E-06	0.207090686	4.26732E-07	7.03452E-06	1.094046569	2.2544E-06	3.71629E-05	0.973406667	2.00581E-06	3.3065E-05	1.180497353	2.43254E-06	4.00995E-05
Road 8	8	0800-0900	0.257982813	1.00066E-06	1.64955E-05	0.229008646	8.88276E-07	1.46429E-05	1.218206198	4.72516E-06	7.78925E-05	1.080617813	4.19149E-06	6.90951E-05	1.309626458	5.07976E-06	8.3738E-05
Road 8	8	0900-1000	0.281660316	8.99037E-07	1.48203E-05	0.244960633	7.81895E-07	1.28892E-05	1.264787468	4.0371E-06	6.65501E-05	1.099795506	3.51046E-06	5.78686E-05	1.344756139	4.29235E-06	7.07578E-05
Road 8	8	1000-1100	0.265102563	8.56897E-07	1.41256E-05	0.230226375	7.44166E-07	1.22673E-05	1.225748375	3.96201E-06	6.53123E-05	1.063812625	3.43859E-06	5.66838E-05	1.294039	4.18275E-06	6.89511E-05
Road 8	8	1100-1200	0.273736541	8.79275E-07	1.44945E-05	0.240701132	7.73161E-07	1.27453E-05	1.277911698	4.10481E-06	6.76662E-05	1.123453145	3.60867E-06	5.94875E-05	1.364154277	4.38183E-06	7.22328E-05
Road 8	8	1200-1300	0.277285706	9.52294E-07	1.56982E-05	0.241199765	8.28363E-07	1.36552E-05	1.305425471	4.48328E-06	7.39052E-05	1.135358118	3.89921E-06	6.4277E-05	1.376557882	4.72757E-06	7.79323E-05
Road 8	8	1300-1400	0.254758148	8.33754E-07	1.37441E-05	0.221058148	7.23463E-07	1.1926E-05	1.183439877	3.87308E-06	6.38462E-05	1.026409938	3.35916E-06	5.53745E-05	1.247468086	4.08262E-06	6.73005E-05
Road 8	8	1400-1500	0.248965971	6.99117E-07	1.15247E-05	0.217095612	6.09622E-07	1.00494E-05	1.20422964	3.38157E-06	5.5744E-05	1.049439712	2.94691E-06	4.85787E-05	1.266535324	3.55653E-06	5.86281E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.257678921	7.23583E-07	1.1928E-05	0.223496835	6.27597E-07	1.03457E-05	1.215193165	3.41236E-06	5.62515E-05	1.05318482	2.95743E-06	4.87521E-05	1.276681655	3.58503E-06	5.90978E-05
Road 8	8	1600-1700	0.253285034	7.62414E-07	1.25681E-05	0.22491047	6.77003E-07	1.11601E-05	1.183479262	3.56239E-06	5.87247E-05	1.050300067	3.16151E-06	5.21163E-05	1.275210537	3.83851E-06	6.32764E-05
Road 8	8	1700-1800	0.210417628	6.63134E-07	1.09315E-05	0.180418205	5.68591E-07	9.373E-06	1.022031859	3.22095E-06	5.30961E-05	0.874848718	2.7571E-06	4.54497E-05	1.055266923	3.32569E-06	5.48227E-05
Road 8	8	1800-1900	0.209659813	4.53204E-07	7.4709E-06	0.182685888	3.94897E-07	6.50972E-06	1.043752243	2.25619E-06	3.71925E-05	0.908456075	1.96373E-06	3.23714E-05	1.091141963	2.35863E-06	3.88811E-05
Road 8	8	1900-2000	0.203852727	3.17104E-07	5.22734E-06	0.180048701	2.80076E-07	4.61694E-06	1.03989026	1.61761E-06	2.66656E-05	0.917977403	1.42796E-06	2.35395E-05	1.098026104	1.70804E-06	2.81564E-05
Road 8	8	2000-2100	0.225143766	3.50224E-07	5.77331E-06	0.197258312	3.06846E-07	5.05825E-06	1.047645714	1.62967E-06	2.68645E-05	0.916947273	1.42636E-06	2.3513E-05	1.114205584	1.73321E-06	2.85713E-05
Road 8	8	2100-2200	0.18423963	2.00989E-07	3.31322E-06	0.16539963	1.80436E-07	2.97442E-06	0.935171667	1.02019E-06	1.68174E-05	0.83847963	9.14705E-07	1.50786E-05	1.003879259	1.09514E-06	1.8053E-05
Road 8	8	2200-2300	0.221274688	2.86093E-07	4.71613E-06	0.1984375	2.56566E-07	4.22939E-06	1.063207656	1.37465E-06	2.26606E-05	0.952730938	1.23181E-06	2.0306E-05	1.151168438	1.48838E-06	2.45354E-05
Road 8	8	2300-0000	0.176909057	1.89418E-07	3.12248E-06	0.155333962	1.66317E-07	2.74168E-06	0.885315472	9.47914E-07	1.5626E-05	0.776298113	8.31188E-07	1.37018E-05	0.931632075	9.97505E-07	1.64435E-05
Road 9	9	0000-0100	0.189896057	5.04319E-08	1.50548E-06	0.172405009	4.57867E-08	1.36681E-06	0.848166711	2.25253E-07	6.72419E-06	0.764306301	2.02982E-07	6.05935E-06	0.936711309	2.48768E-07	7.42616E-06
Road 9	9	0100-0200	0.206781779	4.31486E-08	1.28806E-06	0.187944914	3.92179E-08	1.17072E-06	0.8735776	1.82287E-07	5.44158E-06	0.787533606	1.64332E-07	4.9056E-06	0.975478521	2.0355E-07	6.07633E-06
Road 9	9	0200-0300	0.080164337	7.60348E-09	2.26977E-07	0.072351973	6.86249E-09	2.04857E-07	0.56501841	5.35913E-08	1.59979E-06	0.510184733	4.83904E-08	1.44454E-06	0.582536706	5.52528E-08	1.64939E-06
Road 9	9	0300-0400	0.095981527	7.28298E-09	2.17409E-07	0.087050307	6.60529E-09	1.97179E-07	0.58030756	4.40331E-08	1.31446E-06	0.526661192	3.99625E-08	1.19295E-06	0.613711499	4.65678E-08	1.39013E-06
Road 9	9	0400-0500	0.220654314	4.18575E-08	1.24952E-06	0.204374073	3.87692E-08	1.15733E-06	0.893903278	1.69571E-07	5.06199E-06	0.822979981	1.56117E-07	4.66037E-06	1.027354054	1.94886E-07	5.81769E-06
Road 9	9	0500-0600	0.159557723	5.14551E-08	1.53602E-06	0.145657477	4.69724E-08	1.40221E-06	0.79084763	2.55037E-07	7.61329E-06	0.718994696	2.31865E-07	6.92158E-06	0.864652173	2.78838E-07	8.32379E-06
Road 9	9	0600-0700	0.188507224	1.1443E-07	3.41593E-06	0.171843118	1.04314E-07	3.11396E-06	0.957730353	5.81373E-07	1.7355E-05	0.868085324	5.26955E-07	1.57305E-05	1.039928442	6.31269E-07	1.88445E-05
Road 9	9	0700-0800	0.161901102	1.5049E-07	4.49238E-06	0.148713575	1.38232E-07	4.12646E-06	0.90097121	8.37468E-07	2.49999E-05	0.822055351	7.64115E-07	2.28101E-05	0.970768926	9.02346E-07	2.69366E-05
Road 9	9	0800-0900	0.250601243	5.46692E-07	1.63197E-05	0.227131516	4.95492E-07	1.47913E-05	1.184669329	2.58438E-06	7.71482E-05	1.065145137	2.32364E-06	6.93645E-05	1.292276653	2.81913E-06	8.41558E-05
Road 9	9	0900-1000	0.264422239	4.36394E-07	1.30271E-05	0.238883071	3.94245E-07	1.17689E-05	1.134211701	1.87187E-06	5.58784E-05	1.014354456	1.67406E-06	4.99735E-05	1.253237527	2.0683E-06	6.17424E-05
Road 9	9	1000-1100	0.269056811	3.72587E-07	1.11224E-05	0.239117821	3.31128E-07	9.88475E-06	1.132421491	1.56817E-06	4.68125E-05	1.000497924	1.38548E-06	4.1359E-05	1.239615745	1.71661E-06	5.12437E-05
Road 9	9	1100-1200	0.18718393	2.69863E-07	8.05588E-06	0.166052468	2.39398E-07	7.14644E-06	0.978836536	1.41119E-06	4.21264E-05	0.873032252	1.25865E-06	3.75729E-05	1.039084719	1.49805E-06	4.47193E-05
Road 9	9	1200-1300	0.280301947	3.93477E-07	1.1746E-05	0.253982185	3.5653E-07	1.0643E-05	1.248762316	1.75296E-06	5.2329E-05	1.127694685	1.58301E-06	4.72557E-05	1.38167687	1.93954E-06	5.78987E-05
Road 9	9	1300-1400	0.320745235	3.71152E-07	1.10795E-05	0.289166064	3.3461E-07	9.98867E-06	1.219947144	1.41167E-06	4.21407E-05	1.091490906	1.26302E-06	3.77034E-05	1.38065697	1.59763E-06	4.76921E-05
Road 9	9	1400-1500	0.208033476	2.68351E-07	8.01074E-06	0.188732631	2.43454E-07	7.26753E-06	1.000386482	1.29044E-06	3.85219E-05	0.897228791	1.15737E-06	3.45496E-05	1.085961422	1.40083E-06	4.18171E-05
Road 9	9	1500-1600	0.173395015	1.87488E-07	5.59683E-06	0.155429225	1.68062E-07	5.01693E-06	0.883887204	9.55725E-07	2.853E-05	0.790248699	8.54476E-07	2.55076E-05	0.945677924	1.02254E-06	3.05245E-05
Road 9	9	1600-1700	0.18110157	2.74836E-07	8.20433E-06	0.166653407	2.5291E-07	7.54979E-06	0.977305326	1.48314E-06	4.42742E-05	0.893893646	1.35655E-06	4.04955E-05	1.060547053	1.60946E-06	4.80453E-05
Road 9	9	1700-1800	0.157773261	2.06511E-07	6.16472E-06	0.143607274	1.87969E-07	5.61121E-06	0.929056218	1.21605E-06	3.63013E-05	0.842313953	1.10251E-06	3.2912E-05	0.985921226	1.29048E-06	3.85232E-05
Road 9	9	1800-1900	0.157262604	1.31262E-07	3.9184E-06	0.145305874	1.21282E-07	3.62048E-06	0.901036249	7.52067E-07	2.24505E-05	0.829711662	6.92534E-07	2.06733E-05	0.975017535	8.13816E-07	2.42938E-05
Road 9	9	1900-2000	0.160742898	1.31118E-07	3.91409E-06	0.148507416	1.21137E-07	3.61616E-06	0.849386516	6.92844E-07	2.06826E-05	0.77527645	6.32392E-07	1.8878E-05	0.923783866	7.53529E-07	2.24941E-05
Road 9	9	2000-2100	0.169047294	9.29967E-08	2.77611E-06	0.152153849	8.37032E-08	2.49869E-06	0.747669023	4.1131E-07	1.22783E-05	0.67275918	3.701E-07	1.10481E-05	0.824913028	4.53803E-07	1.35468E-05
Road 9	9	2100-2200	0.020267136	1.07649E-08	3.21352E-07	0.01864014	9.90076E-09	2.95555E-07	0.290629696	1.54369E-07	4.60817E-06	0.263089815	1.39741E-07	4.17151E-06	0.281729955	1.49642E-07	4.46706E-06
Road 9	9	2200-2300	0.16095993	1.00761E-07	3.00789E-06	0.147466178	9.2314E-08	2.75573E-06	0.774534593	4.8486E-07	1.44739E-05	0.705958553	4.41931E-07	1.31924E-05	0.853424731	5.34245E-07	1.59481E-05
Road 9	9	2300-0000	0.132692652	7.55144E-08	2.25423E-06	0.120460638	6.85532E-08	2.04643E-06	0.675625625	3.84493E-07	1.14778E-05	0.606925845	3.45397E-07	1.03107E-05	0.727386483	4.1395E-07	1.23571E-05
Road 10	10	0000-0100	0.263973307	2.02957E-07	4.5127E-06	0.235700312	1.8122E-07	4.02936E-06	1.306202691	1.00428E-06	2.23299E-05	1.165310759	8.95956E-07	1.99213E-05	1.401011071	1.07718E-06	2.39507E-05
Road 10	10	0100-0200	0.259644747	1.50831E-07	3.35368E-06	0.231358885	1.34399E-07	2.98833E-06	1.274507395	7.40378E-07	1.64621E-05	1.134418753	6.58999E-07	1.46526E-05	1.365777638	7.93399E-07	1.7641E-05
Road 10	10	0200-0300	0.2574631	8.35798E-08	1.85837E-06	0.231990511	7.53106E-08	1.67451E-06	1.247991905	4.05133E-07	9.00802E-06	1.124946014	3.65189E-07	8.11987E-06	1.356936525	4.405E-07	9.79438E-06
Road 10	10	0300-0400	0.230434013	4.72455E-08	1.05049E-06	0.209249892	4.29021E-08	9.53916E-07	1.204998841	2.47059E-07	5.49328E-06	1.094617463	2.24428E-07	4.99008E-06	1.303867355	2.6733E-07	5.94399E-06
Road 10	10	0400-0500	0.271702785	1.06771E-07	2.37403E-06	0.248404559	9.76158E-08	2.17046E-06	1.264450762	4.96892E-07	1.10483E-05	1.152803722	4.53018E-07	1.00727E-05	1.401208281	5.50634E-07	1.22432E-05
Road 10	10	0500-0600	0.251348422	1.76073E-07	3.91493E-06	0.226231773	1.58478E-07	3.52372E-06	1.176608642	8.2423E-07	1.83265E-05	1.055643036	7.39492E-07	1.64424E-05	1.28187481	8.9797E-07	1.99661E-05
Road 10	10	0600-0700	0.305822311	4.28465E-07	9.52679E-06	0.275760668	3.86348E-07	8.59033E-06	1.458985742	2.04408E-06	4.54495E-05	1.314907152	1.84222E-06	4.09612E-05	1.59066782	2.22857E-06	4.95515E-05
Road 10	10	0700-0800	0.306524082	6.75596E-07	1.50217E-05	0.277087461	6.10716E-07	1.35791E-05	1.4799999	3.262E-06	7.25296E-05	1.336825089	2.94643E-06	6.55131E-05	1.61391255	3.55715E-06	7.90922E-05
Road 10	10	0800-0900	0.323805335	1.37204E-06	3.0507E-05	0.288855369	1.22395E-06	2.72142E-05	1.547160476	6.55571E-06	0.000145764	1.378525259	5.84116E-06	0.000129876	1.667380629	7.06511E-06	0.000157091
Road 10	10	0900-1000	0.366219851	1.23891E-06	2.75468E-05	0.324402355	1.09744E-06	2.44013E-05	1.695065528	5.73435E-06	0.000127502	1.498238826	5.06849E-06	0.000112696	1.822641181	6.16593E-06	0.000137098
Road 10	10	1000-1100	0.363410079	1.33496E-06	2.96824E-05	0.319973638	1.1754E-06	2.61346E-05	1.591424629	5.84598E-06	0.000129984	1.395948561	5.12791E-06	0.000114018	1.715922199	6.30331E-06	0.000140152
Road 10	10	1100-1200	0.350258804	1.28665E-06	2.86082E-05	0.310338384	1.14E-06	2.53477E-05	1.59010292	5.84112E-06	0.000129876	1.406436452	5.16644E-06	0.000114874	1.716774837	6.30644E-06	0.000140222
Road 10	10	1200-1300	0.36886917	1.39913E-06	3.11092E-05	0.325594462	1.23499E-06	2.74596E-05	1.686767739	6.39795E-06	0.000142256	1.487589078	5.64246E-06	0.000125458	1.81318354	6.87745E-06	0.000152918
Road 10	10	1300-1400	0.361262772	1.18511E-06	2.63505E-05	0.318660612	1.04535E-06	2.32431E-05	1.617983071	5.30772E-06	0.000118015	1.423318153	4.66913E-06	0.000103817	1.741978765	5.71448E-06	0.00012706
Road 10	10	1400-1500	0.336891129	1.04184E-06	2.3165E-05	0.299626872	9.26599E-07	2.06026E-05	1.611326481	4.98304E-06	0.000110796	1.430438583	4.42365E-06	9.83584E-05	1.730065456	5.35024E-06	0.000118961
Road 10	10	1500-1600	0.332580655	1.05124E-06	2.3374E-05	0.292090873	9.23256E-07	2.05283E-05	1.542840211	4.87669E-06	0.000108432	1.353654508	4.2787E-06	9.51357E-05	1.645745381	5.20196E-06	0.000115664
Road 10	10	1600-1700	0.317066272	1.11596E-06	2.48131E-05	0.285831687	1.00603E-06	2.23687E-05	1.492061294	5.25154E-06	0.000116766	1.341547058	4.72178E-06	0.000104987	1.627378746	5.72781E-06	0.000127356
Road 10	10	1700-1800	0.298294249	9.9383E-07	2.20975E-05	0.262034058	8.73021E-07	1.94114E-05	1.473145191	4.90809E-06	0.00010913	1.295574733	4.31648E-06	9.59756E-05	1.557608791	5.1895E-06	0.000115387
Road 10	10	1800-1900	0.300433618	6.21107E-07	1.38101E-05	0.26608631	5.50098E-07	1.22313E-05	1.454187695	3.00634E-06	6.68451E-05	1.287060648	2.66083E-06	5.91627E-05	1.553146959	3.21093E-06	7.1394E-05
Road 10	10	1900-2000	0.257898282	4.80294E-07	1.06792E-05	0.231951635	4.31973E-07	9.60479E-06	1.307577466	2.43515E-06	5.41449E-05	1.174542753	2.1874E-06	4.86361E-05	1.406494388	2.61937E-06	5.82409E-05
Road 10	10	2000-2100	0.296489428	3.64732E-07	8.10971E-06	0.261340447	3.21493E-07	7.1483E-06	1.387875227	1.70732E-06	3.79618E-05	1.221693686	1.50289E-06	3.34163E-05	1.483034133	1.82438E-06	4.05646E-05
Road 10	10	2100-2200	0.247784436	3.13284E-07	6.96578E-06	0.228472997	2.88868E-07	6.42289E-06	1.297138162	1.64002E-06	3.64655E-05	1.195434795	1.51144E-06	3.36064E-05	1.423907792	1.80031E-06	4.00292E-05
Road 10	10	2200-2300	0.256925873	3.38011E-07	7.51558E-06	0.233639389	3.07376E-07	6.8344E-06	1.259847985	1.65745E-06	3.6853E-05	1.146286135	1.50805E-06	3.35311E-05	1.379925524	1.81543E-06	4.03655E-05
Road 10	10	2300-0000	0.238872129	2.93853E-07	6.53374E-06	0.211246428	2.59869E-07	5.77811E-06	1.170719829	1.44018E-06	3.20221E-05	1.033016017	1.27078E-06	2.82555E-05	1.244262445	1.53065E-06	3.40336E-05
Road 11	11	0000-0100	0.295151018	2.25463E-07	1.87023E-06	0.263287957	2.01123E-07	1.66833E-06	1.428887135	1.09151E-06	9.05417E-06	1.272263368	9.71868E-07	8.06172E-06	1.535551326	1.17299E-06	9.73005E-06
Road 11	11	0100-0200	0.295530131	1.59053E-07	1.31935E-06	0.263018358	1.41555E-07	1.17421E-06	1.406886049	7.57178E-07	6.28086E-06	1.248867505	6.72134E-07	5.5754E-06	1.511885863	8.13689E-07	6.74961E-06
Road 11	11	0200-0300	0.256941877	6.69119E-08	5.5504E-07	0.23155858	6.03017E-08	5.00208E-07	1.325061073	3.45068E-07	2.86237E-06	1.194360637	3.11031E-07	2.58003E-06	1.425919217	3.71333E-07	3.08024E-06
Road 11	11	0300-0400	0.271244392	6.59275E-08	5.46874E-07	0.246268001	5.98568E-08	4.96517E-07	1.369460466	3.32855E-07	2.76106E-06	1.243667555	3.0228E-07	2.50744E-06	1.489935556	3.62137E-07	3.00396E-06

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	0.280948202	9.75515E-08	8.09197E-07	0.257001743	8.92367E-08	7.40226E-07	1.289297559	4.47673E-07	3.71348E-06	1.175878463	4.08291E-07	3.38681E-06	1.432880206	4.97528E-07	4.12703E-06
Road 11	11	0500-0600	0.229094776	1.07388E-07	8.90794E-07	0.205931687	9.65305E-08	8.00728E-07	1.133346553	5.31256E-07	4.40681E-06	1.016628656	4.76545E-07	3.95298E-06	1.222560343	5.73075E-07	4.75371E-06
Road 11	11	0600-0700	0.248345953	2.24201E-07	1.85977E-06	0.222737864	2.01083E-07	1.668E-06	1.242829681	1.122E-06	9.30707E-06	1.111839099	1.00374E-06	8.32613E-06	1.334576964	1.20483E-06	9.99413E-06
Road 11	11	0700-0800	0.302064716	5.71616E-07	4.7416E-06	0.271053204	5.12931E-07	4.2548E-06	1.510349535	2.85813E-06	2.37084E-05	1.354303234	2.56283E-06	2.12589E-05	1.625356438	3.07576E-06	2.55137E-05
Road 11	11	0800-0900	0.320962881	1.14232E-06	9.4756E-06	0.287851999	1.02447E-06	8.49809E-06	1.528810361	5.44108E-06	4.51342E-05	1.36621478	4.8624E-06	4.0334E-05	1.654066779	5.88687E-06	4.88321E-05
Road 11	11	0900-1000	0.330793279	8.44212E-07	7.00281E-06	0.292802618	7.47257E-07	6.19855E-06	1.509137931	3.85145E-06	3.19481E-05	1.328282212	3.38989E-06	2.81194E-05	1.62108483	4.13714E-06	3.43179E-05
Road 11	11	1000-1100	0.335777368	7.05366E-07	5.85107E-06	0.294817419	6.19321E-07	5.13732E-06	1.512270701	3.17682E-06	2.6352E-05	1.323219798	2.77968E-06	2.30577E-05	1.618037217	3.399E-06	2.8195E-05
Road 11	11	1100-1200	0.293599173	6.9322E-07	5.75032E-06	0.258911471	6.11319E-07	5.07094E-06	1.456774631	3.43961E-06	2.85318E-05	1.287681964	3.04036E-06	2.522E-05	1.546593435	3.65168E-06	3.0291E-05
Road 11	11	1200-1300	0.361746684	1.02997E-06	8.54371E-06	0.318880258	9.07923E-07	7.53129E-06	1.688361274	4.80714E-06	3.98756E-05	1.485514669	4.22959E-06	3.50848E-05	1.804394927	5.13751E-06	4.26161E-05
Road 11	11	1300-1400	0.376559687	7.91037E-07	6.56171E-06	0.331906427	6.97234E-07	5.78361E-06	1.645431238	3.45655E-06	2.86723E-05	1.442737309	3.03075E-06	2.51403E-05	1.774643736	3.72798E-06	3.09239E-05
Road 11	11	1400-1500	0.300264011	6.04698E-07	5.01602E-06	0.266309085	5.36317E-07	4.44879E-06	1.446754809	2.9136E-06	2.41686E-05	1.277057961	2.57185E-06	2.13337E-05	1.543367046	3.10817E-06	2.57825E-05
Road 11	11	1500-1600	0.267790328	5.43949E-07	4.5121E-06	0.23462088	4.76574E-07	3.95322E-06	1.335699262	2.71314E-06	2.25057E-05	1.169522758	2.37559E-06	1.97057E-05	1.404143638	2.85217E-06	2.3659E-05
Road 11	11	1600-1700	0.254030897	6.17436E-07	5.12168E-06	0.229077236	5.56785E-07	4.61858E-06	1.301800187	3.1641E-06	2.62464E-05	1.171928155	2.84844E-06	2.3628E-05	1.401005391	3.40522E-06	2.82466E-05
Road 11	11	1700-1800	0.255931564	6.35386E-07	5.27058E-06	0.223363949	5.54532E-07	4.59989E-06	1.336737845	3.31864E-06	2.75284E-05	1.167841866	2.89933E-06	2.40502E-05	1.391205815	3.45386E-06	2.86501E-05
Road 11	11	1800-1900	0.274754204	5.62865E-07	4.66901E-06	0.24232694	4.96434E-07	4.11796E-06	1.404121484	2.8765E-06	2.38608E-05	1.239170514	2.53858E-06	2.10577E-05	1.481497454	3.03501E-06	2.51757E-05
Road 11	11	1900-2000	0.258527482	4.08438E-07	3.38802E-06	0.231318039	3.6545E-07	3.03144E-06	1.30265874	2.05802E-06	1.70714E-05	1.161909525	1.83566E-06	1.52269E-05	1.393227564	2.20111E-06	1.82584E-05
Road 11	11	2000-2100	0.266424475	3.74659E-07	3.10783E-06	0.234936119	3.30379E-07	2.74052E-06	1.287443947	1.81047E-06	1.5018E-05	1.13468679	1.59565E-06	1.32361E-05	1.369622909	1.92603E-06	1.59766E-05
Road 11	11	2100-2200	0.187337217	1.88638E-07	1.56477E-06	0.168439653	1.69609E-07	1.40692E-06	1.016941216	1.024E-06	8.49419E-06	0.91466944	9.21021E-07	7.63995E-06	1.083109093	1.09063E-06	9.04687E-06
Road 11	11	2200-2300	0.24730282	2.70487E-07	2.24372E-06	0.223319001	2.44255E-07	2.02612E-06	1.210560977	1.32405E-06	1.09831E-05	1.091167517	1.19346E-06	9.89988E-06	1.314486517	1.43772E-06	1.1926E-05
Road 11	11	2300-0000	0.240631326	2.50658E-07	2.07923E-06	0.213031119	2.21907E-07	1.84074E-06	1.198247813	1.24817E-06	1.03537E-05	1.057863196	1.10194E-06	9.14069E-06	1.270894315	1.32385E-06	1.09814E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.27037	2.38791E-06	3.59154E-06	1.13056	2.12511E-06	3.19627E-06	5.56605	1.04625E-05	1.57361E-05	4.95326	9.31064E-06	1.40037E-05	6.08382	1.14358E-05	1.71999E-05
Haul Road 1	HR1	0800-0900	1.27037	2.38791E-06	3.59154E-06	1.12656	2.11759E-06	3.18497E-06	5.56605	1.04625E-05	1.57361E-05	4.93557	9.27739E-06	1.39536E-05	6.06213	1.1395E-05	1.71386E-05
Haul Road 1	HR1	0900-1000	1.29895	2.44164E-06	3.67234E-06	1.12896	2.12211E-06	3.19175E-06	5.69117	1.06977E-05	1.60899E-05	4.94616	9.29729E-06	1.39836E-05	6.07512	1.14194E-05	1.71753E-05
Haul Road 1	HR1	1000-1100	1.29325	2.43092E-06	3.65623E-06	1.12227	2.10953E-06	3.17284E-06	5.66629	1.06509E-05	1.60195E-05	4.91718	9.24282E-06	1.39017E-05	6.03945	1.13523E-05	1.70745E-05
Haul Road 1	HR1	1100-1200	1.28946	2.4238E-06	3.64551E-06	1.13336	2.13038E-06	3.20419E-06	5.6496	1.06195E-05	1.59723E-05	4.96565	9.33393E-06	1.40387E-05	6.09901	1.14643E-05	1.72429E-05
Haul Road 1	HR1	1200-1300	1.29705	2.43806E-06	3.66697E-06	1.12786	2.12004E-06	3.18864E-06	5.68298	1.06823E-05	1.60667E-05	4.94137	9.28829E-06	1.397E-05	6.06923	1.14083E-05	1.71587E-05
Haul Road 1	HR1	1300-1400	1.30085	2.44521E-06	3.67771E-06	1.12786	2.12004E-06	3.18864E-06	5.69967	1.07137E-05	1.61139E-05	4.94137	9.28829E-06	1.397E-05	6.06923	1.14083E-05	1.71587E-05
Haul Road 1	HR1	1400-1500	1.30085	2.44521E-06	3.67771E-06	1.13336	2.13038E-06	3.20419E-06	5.69967	1.07137E-05	1.61139E-05	4.96565	9.33393E-06	1.40387E-05	6.09901	1.14643E-05	1.72429E-05
Haul Road 1	HR1	1500-1600	1.30085	2.44521E-06	3.67771E-06	1.12786	2.12004E-06	3.18864E-06	5.69967	1.07137E-05	1.61139E-05	4.94137	9.28829E-06	1.397E-05	6.06923	1.14083E-05	1.71587E-05
Haul Road 1	HR1	1600-1700	1.27806	2.40237E-06	3.61328E-06	1.13416	2.13188E-06	3.20645E-06	5.59954	1.05255E-05	1.58308E-05	4.96894	9.34011E-06	1.4048E-05	6.1031	1.1472E-05	1.72544E-05
Haul Road 1	HR1	1700-1800	1.29895	2.44164E-06	3.67234E-06	1.11327	2.09261E-06	3.14739E-06	5.69117	1.06977E-05	1.60899E-05	4.87771	9.16863E-06	1.37901E-05	5.99098	1.12612E-05	1.69375E-05
Haul Road 1	HR1	1800-1900	1.28826	2.42154E-06	3.64212E-06	1.12167	2.1084E-06	3.17114E-06	5.6442	1.06094E-05	1.59571E-05	4.91408	9.23699E-06	1.38929E-05	6.03575	1.13454E-05	1.7064E-05
Haul Road 1	HR1	1900-2000	1.25968	2.36782E-06	3.56132E-06	1.11177	2.08979E-06	3.14315E-06	5.51918	1.03744E-05	1.56036E-05	4.87121	9.15641E-06	1.37717E-05	5.98298	1.12462E-05	1.69148E-05
Haul Road 1	HR1	2000-2100	1.26327	2.37457E-06	3.57147E-06	1.10688	2.0806E-06	3.12933E-06	5.53478	1.04037E-05	1.56477E-05	4.84982	9.1162E-06	1.37112E-05	5.9567	1.11968E-05	1.68405E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.27037	1.64556E-06	4.38031E-06	1.13056	1.46446E-06	3.89824E-06	5.56605	7.20991E-06	1.91921E-05	4.95326	6.41614E-06	1.70791E-05	6.08382	7.8806E-06	2.09774E-05
Haul Road 2	HR2	0800-0900	1.27037	1.64556E-06	4.38031E-06	1.12656	1.45927E-06	3.88445E-06	5.56605	7.20991E-06	1.91921E-05	4.93557	6.39323E-06	1.70181E-05	6.06213	7.8525E-06	2.09026E-05
Haul Road 2	HR2	0900-1000	1.29895	1.68258E-06	4.47886E-06	1.12896	1.46238E-06	3.89272E-06	5.69117	7.37198E-06	1.96235E-05	4.94616	6.40694E-06	1.70547E-05	6.07512	7.86933E-06	2.09474E-05
Haul Road 2	HR2	1000-1100	1.29325	1.67519E-06	4.4592E-06	1.12227	1.45372E-06	3.86965E-06	5.66629	7.33975E-06	1.95377E-05	4.91718	6.3694E-06	1.69547E-05	6.03945	7.82312E-06	2.08244E-05
Haul Road 2	HR2	1100-1200	1.28946	1.67028E-06	4.44614E-06	1.13336	1.46808E-06	3.90789E-06	5.6496	7.31813E-06	1.94802E-05	4.96565	6.43219E-06	1.71219E-05	6.09901	7.90027E-06	2.10298E-05
Haul Road 2	HR2	1200-1300	1.29705	1.68012E-06	4.47231E-06	1.12786	1.46096E-06	3.88893E-06	5.68298	7.36137E-06	1.95953E-05	4.94137	6.40074E-06	1.70381E-05	6.06923	7.8617E-06	2.09271E-05
Haul Road 2	HR2	1300-1400	1.30085	1.68504E-06	4.48541E-06	1.12786	1.46096E-06	3.88893E-06	5.69967	7.38299E-06	1.96528E-05	4.94137	6.40074E-06	1.70381E-05	6.06923	7.8617E-06	2.09271E-05
Haul Road 2	HR2	1400-1500	1.30085	1.68504E-06	4.48541E-06	1.13336	1.46808E-06	3.90789E-06	5.69967	7.38299E-06	1.96528E-05	4.96565	6.43219E-06	1.71219E-05	6.09901	7.90027E-06	2.10298E-05
Haul Road 2	HR2	1500-1600	1.30085	1.68504E-06	4.48541E-06	1.12786	1.46096E-06	3.88893E-06	5.69967	7.38299E-06	1.96528E-05	4.94137	6.40074E-06	1.70381E-05	6.06923	7.8617E-06	2.09271E-05
Haul Road 2	HR2	1600-1700	1.27806	1.65552E-06	4.40683E-06	1.13416	1.46912E-06	3.91065E-06	5.59954	7.25329E-06	1.93076E-05	4.96894	6.43645E-06	1.71332E-05	6.1031	7.90557E-06	2.10439E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	1.29895	1.68258E-06	4.47886E-06	1.11327	1.44206E-06	3.83862E-06	5.69117	7.37198E-06	1.96235E-05	4.87771	6.31828E-06	1.68186E-05	5.99098	7.76034E-06	2.06573E-05
Haul Road 2	HR2	1800-1900	1.28826	1.66873E-06	4.442E-06	1.12167	1.45294E-06	3.86759E-06	5.6442	7.31114E-06	1.94615E-05	4.91408	6.36539E-06	1.6944E-05	6.03575	7.81833E-06	2.08116E-05
Haul Road 2	HR2	1900-2000	1.25968	1.63171E-06	4.34345E-06	1.11177	1.44012E-06	3.83345E-06	5.51918	7.1492E-06	1.90305E-05	4.87121	6.30986E-06	1.67962E-05	5.98298	7.74997E-06	2.06297E-05
Haul Road 2	HR2	2000-2100	1.26327	1.63636E-06	4.35583E-06	1.10688	1.43378E-06	3.81659E-06	5.53478	7.1694E-06	1.90843E-05	4.84982	6.28215E-06	1.67225E-05	5.9567	7.71593E-06	2.05391E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.27037	1.64556E-06	4.37421E-06	1.13056	1.46446E-06	3.8928E-06	5.56605	7.20991E-06	1.91653E-05	4.95326	6.41614E-06	1.70553E-05	6.08382	7.8806E-06	2.09481E-05
Haul Road 3	HR3	0800-0900	1.27037	1.64556E-06	4.37421E-06	1.12656	1.45927E-06	3.87903E-06	5.56605	7.20991E-06	1.91653E-05	4.93557	6.39323E-06	1.69944E-05	6.06213	7.8525E-06	2.08734E-05
Haul Road 3	HR3	0900-1000	1.29895	1.68258E-06	4.47261E-06	1.12896	1.46238E-06	3.88729E-06	5.69117	7.37198E-06	1.95961E-05	4.94616	6.40694E-06	1.70309E-05	6.07512	7.86933E-06	2.09182E-05
Haul Road 3	HR3	1000-1100	1.29325	1.67519E-06	4.45299E-06	1.12227	1.45372E-06	3.86426E-06	5.66629	7.33975E-06	1.95105E-05	4.91718	6.3694E-06	1.69311E-05	6.03945	7.82312E-06	2.07954E-05
Haul Road 3	HR3	1100-1200	1.28946	1.67028E-06	4.43994E-06	1.13336	1.46808E-06	3.90245E-06	5.6496	7.31813E-06	1.9453E-05	4.96565	6.43219E-06	1.7098E-05	6.09901	7.90027E-06	2.10004E-05
Haul Road 3	HR3	1200-1300	1.29705	1.68012E-06	4.46607E-06	1.12786	1.46096E-06	3.88351E-06	5.68298	7.36137E-06	1.95679E-05	4.94137	6.40074E-06	1.70144E-05	6.06923	7.8617E-06	2.08979E-05
Haul Road 3	HR3	1300-1400	1.30085	1.68504E-06	4.47916E-06	1.12786	1.46096E-06	3.88351E-06	5.69967	7.38299E-06	1.96254E-05	4.94137	6.40074E-06	1.70144E-05	6.06923	7.8617E-06	2.08979E-05
Haul Road 3	HR3	1400-1500	1.30085	1.68504E-06	4.47916E-06	1.13336	1.46808E-06	3.90245E-06	5.69967	7.38299E-06	1.96254E-05	4.96565	6.43219E-06	1.7098E-05	6.09901	7.90027E-06	2.10004E-05
Haul Road 3	HR3	1500-1600	1.30085	1.68504E-06	4.47916E-06	1.12786	1.46096E-06	3.88351E-06	5.69967	7.38299E-06	1.96254E-05	4.94137	6.40074E-06	1.70144E-05	6.06923	7.8617E-06	2.08979E-05
Haul Road 3	HR3	1600-1700	1.27806	1.65552E-06	4.40068E-06	1.13416	1.46912E-06	3.9052E-06	5.59954	7.25329E-06	1.92806E-05	4.96894	6.43645E-06	1.71093E-05	6.1031	7.90557E-06	2.10145E-05
Haul Road 3	HR3	1700-1800	1.29895	1.68258E-06	4.47261E-06	1.11327	1.44206E-06	3.83327E-06	5.69117	7.37198E-06	1.95961E-05	4.87771	6.31828E-06	1.67952E-05	5.99098	7.76034E-06	2.06285E-05
Haul Road 3	HR3	1800-1900	1.28826	1.66873E-06	4.4358E-06	1.12167	1.45294E-06	3.86219E-06	5.6442	7.31114E-06	1.94344E-05	4.91408	6.36539E-06	1.69204E-05	6.03575	7.81833E-06	2.07826E-05
Haul Road 3	HR3	1900-2000	1.25968	1.63171E-06	4.3374E-06	1.11177	1.44012E-06	3.82811E-06	5.51918	7.1492E-06	1.90039E-05	4.87121	6.30986E-06	1.67728E-05	5.98298	7.74997E-06	2.06009E-05
Haul Road 3	HR3	2000-2100	1.26327	1.63636E-06	4.34976E-06	1.10688	1.43378E-06	3.81127E-06	5.53478	7.1694E-06	1.90576E-05	4.84982	6.28215E-06	1.66992E-05	5.9567	7.71593E-06	2.05104E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.087481844	2.93905E-07	2.39096E-06	0.076666257	2.57569E-07	2.09536E-06	0.516621397	1.73565E-06	1.41197E-05	0.450553352	1.51368E-06	1.2314E-05	0.527219609	1.77125E-06	1.44094E-05
Road 1	1	0100-0200	0.067782385	1.38669E-07	1.12809E-06	0.059129541	1.20967E-07	9.84084E-07	0.407928257	8.34538E-07	6.78909E-06	0.354089266	7.24394E-07	5.89306E-06	0.413218807	8.45361E-07	6.87714E-06
Road 1	1	0200-0300	0.065784675	9.50717E-08	7.73422E-07	0.056593247	8.17883E-08	6.6536E-07	0.418505584	6.04822E-07	4.92032E-06	0.35658013	5.15328E-07	4.19227E-06	0.413173377	5.97116E-07	4.85763E-06
Road 1	1	0300-0400	0.054933091	5.67065E-08	4.61315E-07	0.047591273	4.91276E-08	3.99661E-07	0.335429818	3.46258E-07	2.81686E-06	0.288216	2.9752E-07	2.42037E-06	0.335807273	3.46648E-07	2.82003E-06
Road 1	1	0400-0500	0.072785116	1.17483E-07	9.55746E-07	0.062132209	1.00288E-07	8.15862E-07	0.416422791	6.72154E-07	5.46807E-06	0.35313407	5.69999E-07	4.63702E-06	0.415266279	6.70287E-07	5.45289E-06
Road 1	1	0500-0600	0.060528245	2.13576E-07	1.73747E-06	0.052304149	1.84557E-07	1.5014E-06	0.357151915	1.26022E-06	1.02521E-05	0.30606234	1.07995E-06	8.78555E-06	0.358366489	1.26451E-06	1.02869E-05
Road 1	1	0600-0700	0.081332878	5.14437E-07	4.18502E-06	0.069205401	4.37729E-07	3.56099E-06	0.432569674	2.73604E-06	2.22581E-05	0.365619763	2.31257E-06	1.88131E-05	0.434825163	2.7503E-06	2.23741E-05
Road 1	1	0700-0800	0.068983381	7.2764E-07	5.91946E-06	0.057958737	6.11352E-07	4.97344E-06	0.37986774	4.00686E-06	3.25964E-05	0.315763915	3.33069E-06	2.70957E-05	0.373722651	3.94204E-06	3.20691E-05
Road 1	1	0800-0900	0.074669092	9.72604E-07	7.91228E-06	0.062564957	8.14941E-07	6.62967E-06	0.400353127	5.21481E-06	4.24233E-05	0.333282017	4.34117E-06	3.53161E-05	0.395846974	5.15611E-06	4.19458E-05
Road 1	1	0900-1000	0.078222087	1.04825E-06	8.52764E-06	0.068096555	9.12555E-07	7.42377E-06	0.433118305	5.80418E-06	4.72178E-05	0.375229384	5.02841E-06	4.09069E-05	0.443325938	5.94097E-06	4.83306E-05
Road 1	1	1000-1100	0.091333108	1.19138E-06	9.69202E-06	0.07817495	1.01974E-06	8.29571E-06	0.488693727	6.37466E-06	5.18588E-05	0.41635846	5.4311E-06	4.41828E-05	0.49453341	6.45084E-06	5.24785E-05
Road 1	1	1100-1200	0.082832611	1.04784E-06	8.52437E-06	0.071	8.98161E-07	7.30667E-06	0.474690237	6.0049E-06	4.88508E-05	0.404773991	5.12045E-06	4.16556E-05	0.475773991	6.01861E-06	4.89623E-05
Road 1	1	1200-1300	0.086437256	1.08209E-06	8.80295E-06	0.072452864	9.07021E-07	7.37875E-06	0.488962024	6.1212E-06	4.97969E-05	0.407993643	5.10758E-06	4.15509E-05	0.480446507	6.0146E-06	4.89297E-05
Road 1	1	1300-1400	0.090146643	1.19959E-06	9.75881E-06	0.075203413	1.00074E-06	8.14114E-06	0.499619986	6.64847E-06	5.40863E-05	0.414679055	5.51816E-06	4.4891E-05	0.489882468	6.51889E-06	5.30322E-05
Road 1	1	1400-1500	0.085654746	1.23627E-06	1.00572E-05	0.071013914	1.02496E-06	8.33818E-06	0.464785787	6.70834E-06	5.45733E-05	0.383256255	5.53161E-06	4.50004E-05	0.454270169	6.55656E-06	5.33386E-05
Road 1	1	1500-1600	0.092312961	1.24054E-06	1.0092E-05	0.078025237	1.04854E-06	8.53001E-06	0.499158659	6.70791E-06	5.45699E-05	0.41977074	5.64106E-06	4.58909E-05	0.497795978	6.6896E-06	5.44209E-05
Road 1	1	1600-1700	0.08872498	1.25727E-06	1.02281E-05	0.073388556	1.03995E-06	8.46012E-06	0.485900225	6.88541E-06	5.60138E-05	0.399375351	5.65932E-06	4.60394E-05	0.472763907	6.69926E-06	5.44995E-05
Road 1	1	1700-1800	0.069263325	9.8539E-07	8.0163E-06	0.058664921	8.3461E-07	6.78967E-06	0.387558113	5.51368E-06	4.48546E-05	0.325863166	4.63597E-06	3.77143E-05	0.384528087	5.47058E-06	4.45039E-05
Road 1	1	1800-1900	0.060864871	8.84186E-07	7.19298E-06	0.052436667	7.61749E-07	6.19694E-06	0.364092571	5.28918E-06	4.30283E-05	0.310673256	4.51316E-06	3.67152E-05	0.363109922	5.27491E-06	4.29122E-05
Road 1	1	1900-2000	0.073341248	8.16279E-07	6.64055E-06	0.062710304	6.97958E-07	5.67799E-06	0.420167572	4.67641E-06	3.80433E-05	0.356266577	3.9652E-06	3.22575E-05	0.41897688	4.66316E-06	3.79355E-05
Road 1	1	2000-2100	0.064776879	6.11538E-07	4.97496E-06	0.056395964	5.32417E-07	4.33129E-06	0.382035149	3.60668E-06	2.93408E-05	0.330244871	3.11774E-06	2.53633E-05	0.386640835	3.65016E-06	2.96946E-05
Road 1	1	2100-2200	0.067275251	5.79567E-07	4.71486E-06	0.060133769	5.18044E-07	4.21437E-06	0.400190153	3.44758E-06	2.80466E-05	0.355671786	3.06406E-06	2.49266E-05	0.415805556	3.58211E-06	2.9141E-05
Road 1	1	2200-2300	0.066352276	5.41727E-07	4.40703E-06	0.058421494	4.76977E-07	3.88028E-06	0.39438423	3.21992E-06	2.61945E-05	0.344877954	2.81573E-06	2.29064E-05	0.403299448	3.2927E-06	2.67866E-05
Road 1	1	2300-0000	0.05824541	4.26346E-07	3.46839E-06	0.051157974	3.74467E-07	3.04635E-06	0.355898769	2.60511E-06	2.1193E-05	0.309689179	2.26687E-06	1.84413E-05	0.360847154	2.64134E-06	2.14877E-05
Road 2	2	0000-0100	0.144879615	1.74392E-07	1.12621E-06	0.126959231	1.52821E-07	9.86905E-07	0.612004231	7.36672E-07	4.75735E-06	0.534311154	6.43152E-07	4.15341E-06	0.661270385	7.95974E-07	5.14032E-06
Road 2	2	0100-0200	0.102245882	8.04713E-08	5.19676E-07	0.089158824	7.01713E-08	4.53159E-07	0.503893235	3.96583E-07	2.56109E-06	0.437528235	3.44351E-07	2.22378E-06	0.526687059	4.14522E-07	2.67694E-06
Road 2	2	0200-0300	0.106939565	5.69354E-08	3.67683E-07	0.092142174	4.90572E-08	3.16806E-07	0.582236087	3.09987E-07	2.00186E-06	0.498359565	2.6533E-07	1.71348E-06	0.590501739	3.14388E-07	2.03028E-06
Road 2	2	0300-0400	0.091642667	3.18204E-08	2.05493E-07	0.079422667	2.75773E-08	1.78092E-07	0.332016	1.15283E-07	7.44489E-07	0.285696667	9.92002E-08	6.40625E-07	0.365119333	1.26778E-07	8.18717E-07
Road 2	2	0400-0500	0.126762593	7.92266E-08	5.11638E-07	0.108221111	6.76382E-08	4.36801E-07	0.609794074	3.81121E-07	2.46124E-06	0.518595926	3.24122E-07	2.09315E-06	0.626817037	3.91761E-07	2.52995E-06
Road 2	2	0500-0600	0.101320351	1.33687E-07	8.63335E-07	0.087604386	1.15589E-07	7.46463E-07	0.447520351	5.90478E-07	3.81325E-06	0.384382105	5.07171E-07	3.27526E-06	0.471986491	6.2276E-07	4.02172E-06
Road 2	2	0600-0700	0.142541538	3.43156E-07	2.21607E-06	0.121300962	2.92021E-07	1.88584E-06	0.575633558	1.38578E-06	8.94926E-06	0.487496538	1.1736E-06	7.57901E-06	0.6087975	1.46562E-06	9.46485E-06
Road 2	2	0700-0800	0.11803125	4.37153E-07	2.82309E-06	0.09913325	3.6716E-07	2.37108E-06	0.48995175	1.81464E-06	1.17187E-05	0.40799025	1.51108E-06	9.75837E-06	0.5071235	1.87824E-06	1.21295E-05
Road 2	2	0800-0900	0.134022566	9.43122E-07	6.09059E-06	0.112241053	7.89844E-07	5.10074E-06	0.562592664	3.95899E-06	2.55667E-05	0.468207796	3.2948E-06	2.12775E-05	0.580448849	4.08464E-06	2.63782E-05
Road 2	2	0900-1000	0.154341468	9.00325E-07	5.81421E-06	0.134184167	7.82741E-07	5.05486E-06	0.656223611	3.82797E-06	2.47207E-05	0.569009603	3.31922E-06	2.14352E-05	0.70319377	4.10196E-06	2.64901E-05
Road 2	2	1000-1100	0.173184652	7.49665E-07	4.84126E-06	0.148104278	6.411E-07	4.14016E-06	0.729454385	3.15759E-06	2.03914E-05	0.622204011	2.69334E-06	1.73933E-05	0.770308289	3.33444E-06	2.15335E-05
Road 2	2	1100-1200	0.205726776	8.71481E-07	5.62794E-06	0.176194317	7.46379E-07	4.82004E-06	0.839578361	3.55655E-06	2.29678E-05	0.71780082	3.04068E-06	1.96364E-05	0.893995137	3.78706E-06	2.44565E-05
Road 2	2	1200-1300	0.160352684	7.05255E-07	4.55447E-06	0.134429632	5.91241E-07	3.81818E-06	0.701272737	3.0843E-06	1.99181E-05	0.585550737	2.57534E-06	1.66313E-05	0.719980368	3.16658E-06	2.04495E-05
Road 2	2	1300-1400	0.176798161	9.12639E-07	5.89373E-06	0.147234753	7.60031E-07	4.90821E-06	0.722088206	3.72745E-06	2.40715E-05	0.599222466	3.09321E-06	1.99756E-05	0.74645722	3.85324E-06	2.48838E-05
Road 2	2	1400-1500	0.152186848	5.81269E-07	3.75378E-06	0.126137636	4.81776E-07	3.11126E-06	0.657266424	2.51039E-06	1.62119E-05	0.542929636	2.07369E-06	1.33917E-05	0.669067273	2.55547E-06	1.65029E-05
Road 2	2	1500-1600	0.190565574	8.07257E-07	5.21319E-06	0.160814426	6.81228E-07	4.3993E-06	0.750206393	3.17796E-06	2.05229E-05	0.631645738	2.67572E-06	1.72795E-05	0.792460164	3.35695E-06	2.16789E-05
Road 2	2	1600-1700	0.160784118	8.2253E-07	5.31182E-06	0.133012579	6.80458E-07	4.39433E-06	0.675704706	3.45673E-06	2.23232E-05	0.556496109	2.84689E-06	1.83849E-05	0.689508688	3.52735E-06	2.27793E-05
Road 2	2	1700-1800	0.121415721	6.23942E-07	4.02936E-06	0.102869685	5.28636E-07	3.41388E-06	0.481166712	2.47266E-06	1.59682E-05	0.40575464	2.08513E-06	1.34656E-05	0.508624324	2.61376E-06	1.68794E-05
Road 2	2	1800-1900	0.13203708	7.64103E-07	4.93451E-06	0.11384284	6.58813E-07	4.25455E-06	0.59331616	3.43354E-06	2.21735E-05	0.50895184	2.94532E-06	1.90206E-05	0.62279468	3.60414E-06	2.32752E-05
Road 2	2	1900-2000	0.112583787	4.40432E-07	2.84427E-06	0.096240947	3.76498E-07	2.43139E-06	0.509847988	1.99454E-06	1.28806E-05	0.432827219	1.69324E-06	1.09348E-05	0.529068166	2.06973E-06	1.33661E-05
Road 2	2	2000-2100	0.104046735	3.54048E-07	2.28641E-06	0.09055034	3.08123E-07	1.98983E-06	0.442510748	1.50577E-06	9.72409E-06	0.382129252	1.3003E-06	8.39722E-06	0.472679592	1.60842E-06	1.0387E-05
Road 2	2	2100-2200	0.079889608	2.82942E-07	1.82721E-06	0.071362484	2.52742E-07	1.63218E-06	0.365000719	1.29271E-06	8.3482E-06	0.323216209	1.14472E-06	7.39252E-06	0.394578693	1.39747E-06	9.0247E-06
Road 2	2	2200-2300	0.1175056	3.40005E-07	2.19572E-06	0.10350976	2.99507E-07	1.93419E-06	0.4994896	1.44528E-06	9.33349E-06	0.43737344	1.26555E-06	8.17279E-06	0.5408832	1.56506E-06	1.0107E-05
Road 2	2	2300-0000	0.105221261	2.7036E-07	1.74596E-06	0.092441802	2.37524E-07	1.53391E-06	0.474038108	1.21801E-06	7.86582E-06	0.413346667	1.06207E-06	6.85875E-06	0.505788468	1.2996E-06	8.39266E-06
Road 3	3	0000-0100	0.091249217	3.36627E-07	1.30839E-05	0.079633826	2.93777E-07	1.14184E-05	0.50198913	1.85189E-06	7.19782E-05	0.435828478	1.60781E-06	6.24917E-05	0.515462304	1.90159E-06	7.391E-05
Road 3	3	0100-0200	0.06855669	1.56146E-07	6.069E-06	0.059796972	1.36195E-07	5.29354E-06	0.398608451	9.07877E-07	3.52869E-05	0.345909859	7.8785E-07	3.06217E-05	0.405706831	9.24044E-07	3.59153E-05
Road 3	3	0200-0300	0.067614949	1.07367E-07	4.17308E-06	0.059548081	9.45573E-08	3.67521E-06	0.42055798	6.67811E-07	2.59561E-05	0.367490303	5.83544E-07	2.26809E-05	0.427038384	6.78101E-07	2.63561E-05
Road 3	3	0300-0400	0.056683	6.36419E-08	2.4736E-06	0.049419286	5.54864E-08	2.15662E-06	0.311735	3.50006E-07	1.36039E-05	0.269405	3.02479E-07	1.17566E-05	0.318824286	3.57966E-07	1.39132E-05
Road 3	3	0400-0500	0.076166283	1.38049E-07	5.36562E-06	0.066221947	1.20025E-07	4.66508E-06	0.420696372	7.62499E-07	2.96364E-05	0.363820796	6.59414E-07	2.56298E-05	0.430042743	7.79439E-07	3.02948E-05
Road 3	3	0500-0600	0.062855569	2.48011E-07	9.63957E-06	0.053542642	2.11265E-07	8.21133E-06	0.349495528	1.37901E-06	5.35988E-05	0.294959065	1.16383E-06	4.52351E-05	0.348501707	1.37509E-06	5.34464E-05
Road 3	3	0600-0700	0.086367207	6.15069E-07	2.39062E-05	0.0731725	5.21102E-07	2.02539E-05	0.430706059	3.0673E-06	0.000119218	0.362500653	2.58157E-06	0.000100339	0.435673153	3.10267E-06	0.000120593
Road 3	3	0700-0800	0.071822545	8.37505E-07	3.25517E-05	0.060043164	7.00149E-07	2.7213E-05	0.376419959	4.38934E-06	0.000170603	0.311329972	3.63034E-06	0.000141102	0.371373136	4.33049E-06	0.000168315
Road 3	3	0800-0900	0.080017874	1.2796E-06	4.97349E-05	0.06817011	1.09014E-06	4.23709E-05	0.395554002	6.32548E-06	0.000245855	0.33481679	5.3542E-06	0.000208104	0.402986901	6.44434E-06	0.000250475
Road 3	3	0900-1000	0.085529078	1.32383E-06	5.14541E-05	0.073707886	1.14086E-06	4.43425E-05	0.440306456	6.81514E-06	0.000264887	0.37765657	5.84543E-06	0.000227197	0.451364456	6.98629E-06	0.00027154
Road 3	3	1000-1100	0.097625916	1.3764E-06	5.34974E-05	0.083379022	1.17554E-06	4.56903E-05	0.4920776	6.93769E-06	0.00026965	0.418602753	5.90178E-06	0.000229387	0.501981775	7.07732E-06	0.000275078
Road 3	3	1100-1200	0.096620995	1.32349E-06	5.14408E-05	0.082377857	1.12839E-06	4.38578E-05	0.500878841	6.86093E-06	0.000266667	0.425057939	5.82235E-06	0.0002263	0.507435796	6.95074E-06	0.000270158
Road 3	3	1200-1300	0.092087459	1.26139E-06	4.90272E-05	0.077952763	1.06778E-06	4.15019E-05	0.488324625	6.68896E-06	0.000259983	0.411402693	5.6353E-06	0.00021903	0.489355457	6.70308E-06	0.000260532

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.09770822	1.45279E-06	5.64663E-05	0.082545933	1.22735E-06	4.77039E-05	0.497541381	7.39778E-06	0.000287533	0.418410787	6.22121E-06	0.000241803	0.500956721	7.44856E-06	0.000289507
Road 3	3	1400-1500	0.090041542	1.34891E-06	5.24286E-05	0.076068276	1.13957E-06	4.42924E-05	0.465874368	6.97924E-06	0.000271265	0.39169455	5.86795E-06	0.000228073	0.467762827	7.00753E-06	0.000272365
Road 3	3	1500-1600	0.100846145	1.44769E-06	5.62679E-05	0.084335698	1.21067E-06	4.70558E-05	0.508259128	7.29626E-06	0.000283587	0.422913989	6.0711E-06	0.000235968	0.507249687	7.28177E-06	0.000283024
Road 3	3	1600-1700	0.094973986	1.48678E-06	5.77874E-05	0.078415379	1.22756E-06	4.77122E-05	0.486299416	7.61282E-06	0.000295891	0.398852859	6.24388E-06	0.000242684	0.477268238	7.47144E-06	0.000290396
Road 3	3	1700-1800	0.074280123	1.1664E-06	4.5335E-05	0.062423534	9.80219E-07	3.80987E-05	0.38199523	5.99836E-06	0.000233141	0.318583228	5.00262E-06	0.000194439	0.381006762	5.98284E-06	0.000232538
Road 3	3	1800-1900	0.068920925	1.13531E-06	4.41266E-05	0.059130331	9.74031E-07	3.78582E-05	0.379373145	6.24927E-06	0.000242893	0.322425725	5.3112E-06	0.000206433	0.381556056	6.28523E-06	0.000244291
Road 3	3	1900-2000	0.073255947	8.92994E-07	3.47084E-05	0.062802947	7.65572E-07	2.97558E-05	0.403483697	4.91849E-06	0.000191169	0.343216921	4.18383E-06	0.000162615	0.406019868	4.94941E-06	0.000192371
Road 3	3	2000-2100	0.066816965	6.95542E-07	2.7034E-05	0.057869507	6.02402E-07	2.34139E-05	0.365876163	3.80865E-06	0.000148033	0.314579076	3.27466E-06	0.000127278	0.372448582	3.87707E-06	0.000150692
Road 3	3	2100-2200	0.065417008	6.45295E-07	2.5081E-05	0.05757413	5.6793E-07	2.2074E-05	0.368894114	3.63889E-06	0.000141435	0.322415691	3.18041E-06	0.000123615	0.379989821	3.74834E-06	0.000145689
Road 3	3	2200-2300	0.070264476	6.34507E-07	2.46617E-05	0.061801083	5.5808E-07	2.16912E-05	0.384401155	3.47125E-06	0.000134919	0.335666998	3.03116E-06	0.000117814	0.397468082	3.58924E-06	0.000139505
Road 3	3	2300-0000	0.061684183	4.96672E-07	1.93044E-05	0.054107689	4.35667E-07	1.69333E-05	0.353998227	2.85034E-06	0.000110786	0.307672131	2.47733E-06	9.62876E-05	0.361779821	2.913E-06	0.000113221
Road 4	4	0000-0100	0.244590857	1.98164E-07	2.12186E-06	0.213221429	1.72749E-07	1.84972E-06	1.207481143	9.78283E-07	1.0475E-05	1.052218286	8.52492E-07	9.12812E-06	1.265439714	1.02524E-06	1.09778E-05
Road 4	4	0100-0200	0.230978	1.06934E-07	1.14501E-06	0.2013515	9.32183E-08	9.98142E-07	1.142553	5.2896E-07	5.66388E-06	0.996078	4.61147E-07	4.93777E-06	1.1974295	5.54366E-07	5.93591E-06
Road 4	4	0200-0300	0.251045385	7.55461E-08	8.08915E-07	0.22132	6.66009E-08	7.13135E-07	1.200793846	3.6135E-07	3.86918E-06	1.058723077	3.18597E-07	3.4114E-06	1.280043077	3.85198E-07	4.12454E-06
Road 4	4	0300-0400	0.228585714	3.70394E-08	3.96602E-07	0.19961	3.23442E-08	3.46328E-07	1.173514286	1.90153E-07	2.03608E-06	1.02442	1.65994E-07	1.77739E-06	1.22403	1.98338E-07	2.12372E-06
Road 4	4	0400-0500	0.236526429	7.66521E-08	8.20758E-07	0.205545	6.66118E-08	7.13251E-07	1.131825714	3.66795E-07	3.92749E-06	0.983654286	3.18777E-07	3.41333E-06	1.189199286	3.85389E-07	4.12658E-06
Road 4	4	0500-0600	0.222442083	1.23579E-07	1.32323E-06	0.1896475	1.0536E-07	1.12815E-06	1.024191667	5.68995E-07	6.09256E-06	0.87239875	4.84666E-07	5.1896E-06	1.06204625	5.90026E-07	6.31775E-06
Road 4	4	0600-0700	0.245689623	3.01425E-07	3.22753E-06	0.208166415	2.55389E-07	2.7346E-06	1.137437736	1.39547E-06	1.49421E-05	0.962847736	1.18127E-06	1.26486E-05	1.171014151	1.43666E-06	1.53832E-05
Road 4	4	0700-0800	0.249127391	5.30549E-07	5.6809E-06	0.208292065	4.43585E-07	4.74972E-06	1.195997826	2.54703E-06	2.72725E-05	0.99864087	2.12674E-06	2.27722E-05	1.206932935	2.57032E-06	2.75219E-05
Road 4	4	0800-0900	0.257092774	9.22439E-07	9.87709E-06	0.218894	7.85384E-07	8.40956E-06	1.238566258	4.44393E-06	4.75837E-05	1.053983742	3.78165E-06	4.04924E-05	1.272877742	4.56704E-06	4.89019E-05
Road 4	4	0900-1000	0.258149054	8.844E-07	9.46978E-06	0.22188777	7.60171E-07	8.13959E-06	1.180424459	4.04405E-06	4.33019E-05	1.013939189	3.47368E-06	3.71947E-05	1.235826959	4.23385E-06	4.53343E-05
Road 4	4	1000-1100	0.289259861	9.642E-07	1.03242E-05	0.246709167	8.22364E-07	8.80553E-06	1.326665139	4.42222E-06	4.73512E-05	1.131166944	3.77056E-06	4.03735E-05	1.377876111	4.59292E-06	4.91791E-05
Road 4	4	1100-1200	0.269933806	9.68513E-07	1.03704E-05	0.229770065	8.24406E-07	8.8274E-06	1.229956645	4.41304E-06	4.7253E-05	1.046696774	3.75551E-06	4.02124E-05	1.276466839	4.57992E-06	4.90398E-05
Road 4	4	1200-1300	0.279690946	9.582E-07	1.026E-05	0.236450608	8.10062E-07	8.67381E-06	1.330347365	4.55767E-06	4.88016E-05	1.124201892	3.85143E-06	4.12395E-05	1.3606525	4.66149E-06	4.99133E-05
Road 4	4	1300-1400	0.286286333	9.9405E-07	1.06439E-05	0.241561067	8.38754E-07	8.98102E-06	1.330017867	4.61812E-06	4.94489E-05	1.121719267	3.89486E-06	4.17045E-05	1.363280333	4.73361E-06	5.06855E-05
Road 4	4	1400-1500	0.260534429	8.44325E-07	9.04067E-06	0.219820214	7.1238E-07	7.62787E-06	1.249306929	4.04868E-06	4.33516E-05	1.053265857	3.41336E-06	3.65488E-05	1.273086071	4.12574E-06	4.41767E-05
Road 4	4	1500-1600	0.29512208	8.53941E-07	9.14364E-06	0.24634032	7.1279E-07	7.63226E-06	1.37123008	3.96768E-06	4.24842E-05	1.14421608	3.31081E-06	3.54508E-05	1.3905564	4.0236E-06	4.3083E-05
Road 4	4	1600-1700	0.27569379	7.91343E-07	8.47337E-06	0.227263226	6.5233E-07	6.98487E-06	1.293771532	3.7136E-06	3.97637E-05	1.065833145	3.05934E-06	3.27581E-05	1.293096371	3.71167E-06	3.97429E-05
Road 4	4	1700-1800	0.260917323	7.67049E-07	8.21323E-06	0.219180079	6.44349E-07	6.89942E-06	1.244517638	3.65865E-06	3.91753E-05	1.04472622	3.0713E-06	3.28862E-05	1.263906299	3.71565E-06	3.97856E-05
Road 4	4	1800-1900	0.282763962	6.93819E-07	7.42912E-06	0.242575755	5.95209E-07	6.37325E-06	1.361199811	3.33998E-06	3.57631E-05	1.167544528	2.86481E-06	3.06752E-05	1.410120283	3.46002E-06	3.70484E-05
Road 4	4	1900-2000	0.254017162	4.35122E-07	4.6591E-06	0.217898243	3.73252E-07	3.99662E-06	1.225597838	2.0994E-06	2.24795E-05	1.050708649	1.79983E-06	1.92718E-05	1.268606892	2.17308E-06	2.32684E-05
Road 4	4	2000-2100	0.216677143	2.45768E-07	2.63158E-06	0.187676122	2.12873E-07	2.27936E-06	1.049294898	1.19017E-06	1.27439E-05	0.907704898	1.02957E-06	1.10242E-05	1.09538102	1.24245E-06	1.33036E-05
Road 4	4	2100-2200	0.180660811	1.54733E-07	1.65681E-06	0.159275676	1.36417E-07	1.46069E-06	0.89329973	7.65095E-07	8.19231E-06	0.786298649	6.7345E-07	7.21102E-06	0.945574324	8.09867E-07	8.67171E-06
Road 4	4	2200-2300	0.242462698	3.53591E-07	3.78611E-06	0.213336984	3.11116E-07	3.3313E-06	1.152451429	1.68066E-06	1.79958E-05	1.013379048	1.47784E-06	1.58241E-05	1.226716032	1.78896E-06	1.91554E-05
Road 4	4	2300-0000	0.226740816	2.57183E-07	2.75381E-06	0.198882245	2.25584E-07	2.41546E-06	1.107154082	1.2558E-06	1.34466E-05	0.970517755	1.10082E-06	1.17871E-05	1.1694	1.3264E-06	1.42026E-05
Road 5	5	0000-0100	0.077249845	2.79828E-07	3.78416E-06	0.067415699	2.44205E-07	3.30243E-06	0.430582332	1.55973E-06	2.10925E-05	0.373320052	1.3523E-06	1.82875E-05	0.440735751	1.59651E-06	2.15899E-05
Road 5	5	0100-0200	0.05202377	1.19123E-07	1.61093E-06	0.045382869	1.03917E-07	1.40529E-06	0.318390984	7.29048E-07	9.85906E-06	0.27572623	6.31355E-07	8.53793E-06	0.321109098	7.35272E-07	9.94323E-06
Road 5	5	0200-0300	0.049901744	8.05471E-08	1.08925E-06	0.043919186	7.08906E-08	9.58667E-07	0.342750814	5.53239E-07	7.48155E-06	0.298396977	4.81647E-07	6.5134E-06	0.342316163	5.52537E-07	7.47207E-06
Road 5	5	0300-0400	0.044553016	5.26809E-08	7.12414E-07	0.038819048	4.59009E-08	6.20726E-07	0.244957143	2.89645E-07	3.91693E-06	0.210815397	2.49275E-07	3.37099E-06	0.249634444	2.95176E-07	3.99172E-06
Road 5	5	0400-0500	0.062316566	1.15791E-07	1.56586E-06	0.05418697	1.00685E-07	1.36159E-06	0.355526465	6.60607E-07	8.93351E-06	0.306929697	5.70309E-07	7.71239E-06	0.361116667	6.70994E-07	9.07398E-06
Road 5	5	0500-0600	0.051426864	2.12348E-07	2.87162E-06	0.043792818	1.80826E-07	2.44535E-06	0.2989755	1.23451E-06	1.66945E-05	0.251606682	1.03892E-06	1.40495E-05	0.2953995	1.21974E-06	1.64948E-05
Road 5	5	0600-0700	0.074818582	5.4485E-07	7.36811E-06	0.063392706	4.61644E-07	6.24289E-06	0.375572371	2.73502E-06	3.69862E-05	0.315529716	2.29778E-06	3.10733E-05	0.378922423	2.75942E-06	3.73162E-05
Road 5	5	0700-0800	0.058698136	6.97371E-07	9.43068E-06	0.049062543	5.82894E-07	7.88258E-06	0.310052938	3.68362E-06	4.98143E-05	0.255477409	3.03523E-06	4.1046E-05	0.304539953	3.61813E-06	4.89286E-05
Road 5	5	0800-0900	0.06330331	1.00159E-06	1.35447E-05	0.053951483	8.53624E-07	1.15437E-05	0.309283535	4.89351E-06	6.61758E-05	0.261144757	4.13185E-06	5.58758E-05	0.31509624	4.98548E-06	6.74195E-05
Road 5	5	0900-1000	0.069025564	1.05715E-06	1.4296E-05	0.059561373	9.12201E-07	1.23359E-05	0.367186863	5.62358E-06	7.60488E-05	0.31479087	4.82112E-06	6.51969E-05	0.374352243	5.73332E-06	7.75328E-05
Road 5	5	1000-1100	0.07908921	1.08955E-06	1.47343E-05	0.067576894	9.30958E-07	1.25895E-05	0.40910767	5.63598E-06	7.62164E-05	0.347673351	4.78964E-06	6.47713E-05	0.415250245	5.7206E-06	7.73608E-05
Road 5	5	1100-1200	0.078335007	1.02771E-06	1.38979E-05	0.066826352	8.7672E-07	1.1856E-05	0.423388698	5.55459E-06	7.51158E-05	0.358865579	4.70809E-06	6.36684E-05	0.425691931	5.58481E-06	7.55244E-05
Road 5	5	1200-1300	0.073599236	9.76627E-07	1.32071E-05	0.062364158	8.27542E-07	1.1191E-05	0.400904484	5.31981E-06	7.19408E-05	0.337277765	4.47551E-06	6.05232E-05	0.399641924	5.30306E-06	7.17142E-05
Road 5	5	1300-1400	0.080291673	1.17092E-06	1.58346E-05	0.067871454	9.89792E-07	1.33851E-05	0.417676525	6.09112E-06	8.23713E-05	0.350848172	5.11654E-06	6.91919E-05	0.418719627	6.10633E-06	8.2577E-05
Road 5	5	1400-1500	0.075675038	1.12774E-06	1.52506E-05	0.063966096	9.53248E-07	1.2891E-05	0.395756877	5.89773E-06	7.97561E-05	0.33243636	4.9541E-06	6.69952E-05	0.396402456	5.90735E-06	7.98862E-05
Road 5	5	1500-1600	0.085267701	1.23228E-06	1.66644E-05	0.071352	1.03118E-06	1.39448E-05	0.435046221	6.28727E-06	8.50239E-05	0.361604013	5.22588E-06	7.06706E-05	0.432956013	6.25706E-06	8.46154E-05
Road 5	5	1600-1700	0.080873376	1.29476E-06	1.75093E-05	0.066767151	1.06893E-06	1.44553E-05	0.420613306	6.73392E-06	9.1064E-05	0.344555451	5.51625E-06	7.45973E-05	0.411322603	6.58518E-06	8.90526E-05
Road 5	5	1700-1800	0.05873215	9.38083E-07	1.26859E-05	0.049334512	7.87982E-07	1.0656E-05	0.305833502	4.88484E-06	6.60586E-05	0.254370482	4.06286E-06	5.49428E-05	0.303704994	4.85084E-06	6.55989E-05
Road 5	5	1800-1900	0.053876464	9.29288E-07	1.25669E-05	0.046202655	7.96926E-07	1.0777E-05	0.306480903	5.28634E-06	7.14881E-05	0.259633983	4.4783E-06	6.05608E-05	0.305836638	5.27522E-06	7.13378E-05
Road 5	5	1900-2000	0.062352668	8.02814E-07	1.08566E-05	0.053461356	6.88335E-07	9.30848E-06	0.351443455	4.52497E-06	6.1192E-05	0.298341676	3.84126E-06	5.19461E-05	0.351803032	4.5296E-06	6.12546E-05
Road 5	5	2000-2100	0.059134667	6.65931E-07	9.00551E-06	0.05121895	5.7679E-07	7.80004E-06	0.328434333	3.69858E-06	5.00167E-05	0.282027567	3.17599E-06	4.29495E-05	0.333246517	3.75278E-06	5.07495E-05
Road 5	5	2100-2200	0.060990986	6.61651E-07	8.94764E-06	0.053669187	5.82222E-07	7.8735E-06	0.347606834	3.77096E-06	5.09954E-05	0.303547907	3.29299E-06	4.45318E-05	0.357217093	3.87522E-06	5.24053E-05
Road 5	5	2200-2300	0.058757956	5.50304E-07	7.44187E-06	0.051669639	4.83918E-07	6.54411E-06	0.330047415	3.0911E-06	4.18015E-05	0.287576573	2.69333E-06	3.64224E-05	0.339246212	3.17725E-06	4.29665E-05
Road 5	5	2300-0000	0.051807395	4.4048E-07	5.95669E-06	0.045433355	3.86286E-07	5.22382E-06	0.305411965	2.59669E-06	3.51155E-05	0.264819514	2.25156E-06	3.04483E-05	0.31025287	2.63785E-06	3.56721E-05
Road 6	6	0000-0100	0.0461996	1.30066E-07	4.64935E-06	0.0402216	1.13236E-07	4.04775E-06	0.2973464	8.37124E-07	2.99238E-05	0.255915133	7.20482E-07	2.57543E-05	0.296136733	8.33718E-07	2.9802E-05
Road 6	6	0100-0200	0.061330175	1.31224E-07	4.69074E-06	0.053494737	1.14459E-07	4.09146E-06	0.34534386	7.38911E-07	2.64131E-05	0.298589386	6.38874E-07	2.28371E-05	0.352084123	7.53333E-07	2.69286E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.056176456	8.32947E-08	2.97745E-06	0.049542278	7.3458E-08	2.62582E-06	0.321105063	4.76113E-07	1.70191E-05	0.280666835	4.16154E-07	1.48758E-05	0.330209114	4.89612E-07	1.75016E-05
Road 6	6	0300-0400	0.057824032	6.72877E-08	2.40526E-06	0.050617097	5.89013E-08	2.10548E-06	0.369440806	4.29905E-07	1.53674E-05	0.320633226	3.73109E-07	1.33371E-05	0.371250323	4.32011E-07	1.54426E-05
Road 6	6	0400-0500	0.063021556	1.06455E-07	3.80535E-06	0.054813333	9.25901E-08	3.30972E-06	0.370199556	6.25337E-07	2.23533E-05	0.319066222	5.38963E-07	1.92658E-05	0.373879556	6.31553E-07	2.25755E-05
Road 6	6	0500-0600	0.057466049	1.74728E-07	6.24581E-06	0.049034259	1.49091E-07	5.32939E-06	0.347473272	1.05651E-06	3.77658E-05	0.29271642	8.90016E-07	3.18145E-05	0.341750679	1.03911E-06	3.71439E-05
Road 6	6	0600-0700	0.061051931	3.32302E-07	1.18785E-05	0.05175169	2.81681E-07	1.0069E-05	0.385441172	2.09793E-06	7.49926E-05	0.322704621	1.75646E-06	6.27864E-05	0.37445631	2.03814E-06	7.28554E-05
Road 6	6	0700-0800	0.057696104	5.00293E-07	1.78834E-05	0.048255952	4.18436E-07	1.49574E-05	0.332169091	2.8803E-06	0.000102959	0.273811039	2.37426E-06	8.48703E-05	0.322066991	2.7927E-06	9.98276E-05
Road 6	6	0800-0900	0.049119335	6.10304E-07	2.18159E-05	0.041778293	5.19092E-07	1.85554E-05	0.290152613	3.60512E-06	0.000128869	0.243123263	3.02079E-06	0.000107981	0.284901556	3.53988E-06	0.000126536
Road 6	6	0900-1000	0.051148183	6.07673E-07	2.17218E-05	0.044002828	5.22781E-07	1.86873E-05	0.289588294	3.44049E-06	0.000122984	0.24614158	2.92432E-06	0.000104532	0.290144408	3.4471E-06	0.00012322
Road 6	6	1000-1100	0.069024131	6.93091E-07	2.47752E-05	0.058897701	5.91409E-07	2.11405E-05	0.37812228	3.79684E-06	0.000135721	0.320103626	3.21425E-06	0.000114897	0.379001327	3.80566E-06	0.000136037
Road 6	6	1100-1200	0.07994703	7.9827E-07	2.85349E-05	0.068210695	6.81083E-07	2.43459E-05	0.418455771	4.17827E-06	0.000149356	0.354704868	3.54172E-06	0.000126602	0.422915564	4.22281E-06	0.000150948
Road 6	6	1200-1300	0.077683327	7.62545E-07	2.72579E-05	0.065814799	6.46042E-07	2.30934E-05	0.39016088	3.82984E-06	0.000136901	0.328741683	3.22695E-06	0.00011535	0.394556482	3.87299E-06	0.000138444
Road 6	6	1300-1400	0.089830653	8.78412E-07	3.13997E-05	0.07591737	7.4236E-07	2.65364E-05	0.458922898	4.48759E-06	0.000160413	0.385565451	3.77026E-06	0.000134772	0.461482821	4.51262E-06	0.000161308
Road 6	6	1400-1500	0.085434077	9.20405E-07	3.29007E-05	0.072198153	7.7781E-07	2.78036E-05	0.429952909	4.632E-06	0.000165575	0.360983554	3.88897E-06	0.000139015	0.433181707	4.66678E-06	0.000166819
Road 6	6	1500-1600	0.075753772	7.99054E-07	2.8563E-05	0.063300801	6.677E-07	2.38676E-05	0.394844431	4.16484E-06	0.000148876	0.327449448	3.45395E-06	0.000123465	0.390750249	4.12165E-06	0.000147332
Road 6	6	1600-1700	0.079130694	8.55467E-07	3.05795E-05	0.065336372	7.06339E-07	2.52488E-05	0.394093646	4.26047E-06	0.000152295	0.322894479	3.49075E-06	0.00012478	0.388230851	4.19709E-06	0.000150029
Road 6	6	1700-1800	0.058483311	6.69572E-07	2.39345E-05	0.049166377	5.62903E-07	2.01215E-05	0.301798574	3.45528E-06	0.000123512	0.251234967	2.87638E-06	0.000102819	0.300401344	3.43928E-06	0.00012294
Road 6	6	1800-1900	0.056044819	7.24754E-07	2.5907E-05	0.048047039	6.21329E-07	2.221E-05	0.294775022	3.81194E-06	0.000136261	0.250138462	3.23471E-06	0.000115628	0.298185501	3.85604E-06	0.000137838
Road 6	6	1900-2000	0.066410401	6.53135E-07	2.33469E-05	0.056910592	5.59706E-07	2.00072E-05	0.349568645	3.43795E-06	0.000122893	0.296441927	2.91546E-06	0.000104216	0.353352519	3.47516E-06	0.000124223
Road 6	6	2000-2100	0.051375861	4.03061E-07	1.44078E-05	0.04446299	3.48828E-07	1.24692E-05	0.300547464	2.3579E-06	8.42853E-05	0.257384785	2.01927E-06	7.21808E-05	0.301847775	2.3681E-06	8.465E-05
Road 6	6	2100-2200	0.071663472	4.84213E-07	1.73086E-05	0.063066694	4.26126E-07	1.52323E-05	0.382216861	2.58255E-06	9.23156E-05	0.334090417	2.25737E-06	8.06917E-05	0.397157111	2.68349E-06	9.5924E-05
Road 6	6	2200-2300	0.053623543	3.83457E-07	1.3707E-05	0.047104593	3.3684E-07	1.20407E-05	0.302840026	2.16558E-06	7.74107E-05	0.262303806	1.87571E-06	6.7049E-05	0.309408399	2.21255E-06	7.90897E-05
Road 6	6	2300-0000	0.036257087	2.42939E-07	8.68408E-06	0.031797983	2.13061E-07	7.61606E-06	0.227384762	1.52358E-06	5.44618E-05	0.196651317	1.31765E-06	4.71007E-05	0.2284493	1.53071E-06	5.47168E-05
Road 7	7	0000-0100	0.067631452	1.82636E-07	4.55919E-06	0.059007863	1.59348E-07	3.97785E-06	0.399571237	1.07902E-06	2.6936E-05	0.346143199	9.34745E-07	2.33343E-05	0.405151062	1.09409E-06	2.73121E-05
Road 7	7	0100-0200	0.083174345	1.75098E-07	4.37102E-06	0.072542621	1.52716E-07	3.8123E-06	0.454634552	9.57094E-07	2.38922E-05	0.394405862	8.30301E-07	2.0727E-05	0.466948483	9.83018E-07	2.45393E-05
Road 7	7	0200-0300	0.071651809	9.77866E-08	2.44107E-06	0.062692323	8.55592E-08	2.13584E-06	0.405567021	5.53496E-07	1.38171E-05	0.352588884	4.81195E-07	1.20122E-05	0.415281207	5.66754E-07	1.4148E-05
Road 7	7	0300-0400	0.072953277	8.04976E-08	2.00948E-06	0.063698393	7.02856E-08	1.75456E-06	0.439843279	4.85329E-07	1.21154E-05	0.381734272	4.2121E-07	1.05148E-05	0.445432664	4.91496E-07	1.22693E-05
Road 7	7	0400-0500	0.081807297	1.31838E-07	3.2911E-06	0.070689488	1.13921E-07	2.84383E-06	0.455680991	7.34359E-07	1.8332E-05	0.391272381	6.3056E-07	1.57408E-05	0.461961869	7.44481E-07	1.85847E-05
Road 7	7	0500-0600	0.074849008	2.15167E-07	5.37127E-06	0.064183805	1.84508E-07	4.60592E-06	0.422489794	1.21452E-06	3.03185E-05	0.359221622	1.03265E-06	2.57782E-05	0.423405427	1.21716E-06	3.03842E-05
Road 7	7	0600-0700	0.078873559	4.05377E-07	1.01195E-05	0.066967875	3.44187E-07	8.59202E-06	0.457627712	2.35201E-06	5.87139E-05	0.385181057	1.97967E-06	4.9419E-05	0.452148932	2.32386E-06	5.8011E-05
Road 7	7	0700-0800	0.076062336	6.23939E-07	1.55756E-05	0.063739349	5.22854E-07	1.30521E-05	0.415474655	3.40814E-06	8.50783E-05	0.344719885	2.82774E-06	7.05896E-05	0.408459234	3.35059E-06	8.36417E-05
Road 7	7	0800-0900	0.075833041	9.41345E-07	2.3499E-05	0.064197698	7.96911E-07	1.98935E-05	0.412221673	5.11707E-06	0.000127739	0.345810823	4.29269E-06	0.000107159	0.41000852	5.0896E-06	0.000127053
Road 7	7	0900-1000	0.076098384	8.75034E-07	2.18437E-05	0.065679835	7.55234E-07	1.88531E-05	0.398502449	4.58227E-06	0.000114388	0.341634544	3.92836E-06	9.80647E-05	0.40731438	4.68359E-06	0.000116918
Road 7	7	1000-1100	0.090988364	9.18111E-07	2.2919E-05	0.077715514	7.84182E-07	1.95757E-05	0.478755911	4.83085E-06	0.000120594	0.406634828	4.10312E-06	0.000102427	0.484350342	4.8873E-06	0.000122003
Road 7	7	1100-1200	0.101401614	1.02171E-06	2.55053E-05	0.086618835	8.72763E-07	2.1787E-05	0.51951768	5.23461E-06	0.000130673	0.441879806	4.45234E-06	0.000111145	0.528498641	5.3251E-06	0.000132932
Road 7	7	1200-1300	0.100104199	1.00719E-06	2.51427E-05	0.084451541	8.49699E-07	2.12113E-05	0.505645166	5.08749E-06	0.000127	0.425151779	4.27761E-06	0.000106783	0.50960332	5.12731E-06	0.000127994
Road 7	7	1300-1400	0.106545902	1.05498E-06	2.63358E-05	0.089583045	8.87022E-07	2.2143E-05	0.539117603	5.33817E-06	0.000133258	0.451463042	4.47024E-06	0.000111592	0.541046087	5.35726E-06	0.000133735
Road 7	7	1400-1500	0.099309279	1.02947E-06	2.56988E-05	0.083332425	8.63846E-07	2.15644E-05	0.505511226	5.24027E-06	0.000130814	0.422174206	4.37637E-06	0.000109249	0.505506632	5.24022E-06	0.000130813
Road 7	7	1500-1600	0.092730273	9.43765E-07	2.35595E-05	0.077769701	7.91503E-07	1.97585E-05	0.47901151	4.87515E-06	0.0001217	0.399509585	4.06602E-06	0.000101501	0.477279285	4.85752E-06	0.00012126
Road 7	7	1600-1700	0.096486377	1.01561E-06	2.5353E-05	0.079694653	8.38864E-07	2.09408E-05	0.481142284	5.06449E-06	0.000126426	0.395258071	4.16048E-06	0.000103859	0.474952724	4.99934E-06	0.0001248
Road 7	7	1700-1800	0.073198824	8.15124E-07	2.03482E-05	0.061707616	6.87161E-07	1.71538E-05	0.379192906	4.2226E-06	0.00010541	0.317386159	3.53433E-06	8.82285E-05	0.379093775	4.2215E-06	0.000105382
Road 7	7	1800-1900	0.066561782	7.70207E-07	1.92269E-05	0.057186153	6.61719E-07	1.65187E-05	0.350557039	4.05641E-06	0.000101261	0.2988573	3.45817E-06	8.63272E-05	0.356043453	4.11989E-06	0.000102846
Road 7	7	1900-2000	0.077095566	6.7383E-07	1.6821E-05	0.066022741	5.77051E-07	1.44051E-05	0.409050868	3.57518E-06	8.92482E-05	0.34749711	3.03719E-06	7.58182E-05	0.41351985	3.61424E-06	9.02233E-05
Road 7	7	2000-2100	0.069547016	5.00823E-07	1.25022E-05	0.060312062	4.3432E-07	1.08421E-05	0.38027494	2.73844E-06	6.83605E-05	0.327347059	2.3573E-06	5.88458E-05	0.387659121	2.79162E-06	6.96879E-05
Road 7	7	2100-2200	0.079450022	4.7755E-07	1.19212E-05	0.070314143	4.22637E-07	1.05504E-05	0.424770558	2.55317E-06	6.37354E-05	0.373871892	2.24723E-06	5.60982E-05	0.444186035	2.66987E-06	6.66486E-05
Road 7	7	2200-2300	0.066910014	4.34233E-07	1.08399E-05	0.058834523	3.81825E-07	9.53159E-06	0.367851885	2.38729E-06	5.95945E-05	0.320157625	2.07776E-06	5.18677E-05	0.378992148	2.45959E-06	6.13993E-05
Road 7	7	2300-0000	0.047421989	2.82974E-07	7.06394E-06	0.041625566	2.48386E-07	6.20051E-06	0.281505733	1.67978E-06	4.19329E-05	0.244601695	1.45957E-06	3.64357E-05	0.286227261	1.70796E-06	4.26362E-05
Road 8	8	0000-0100	0.214531944	1.56023E-07	2.57198E-06	0.186958889	1.3597E-07	2.24142E-06	1.062201111	7.7251E-07	1.27345E-05	0.925407778	6.73024E-07	1.10945E-05	1.112366667	8.08994E-07	1.3336E-05
Road 8	8	0100-0200	0.222565667	1.34888E-07	2.22358E-06	0.194056	1.1761E-07	1.93875E-06	1.099064	6.66099E-07	1.09804E-05	0.958277333	5.80774E-07	9.57384E-06	1.152333333	6.98384E-07	1.15126E-05
Road 8	8	0200-0300	0.211603333	6.41222E-08	1.05703E-06	0.186646	5.65594E-08	9.3236E-07	1.098766	3.32959E-07	5.48871E-06	0.969132667	2.93677E-07	4.84115E-06	1.155778667	3.50236E-07	5.77351E-06
Road 8	8	0300-0400	0.193236429	5.46527E-08	9.0093E-07	0.168963571	4.77877E-08	7.87762E-07	0.982797143	2.77963E-07	4.58211E-06	0.858847143	2.42906E-07	4.00422E-06	1.027810714	2.90694E-07	4.79198E-06
Road 8	8	0400-0500	0.22062619	9.3599E-08	1.54294E-06	0.191811429	8.13745E-08	1.34143E-06	1.058097619	4.4889E-07	7.39978E-06	0.919885238	3.90254E-07	6.4332E-06	1.111696667	4.71629E-07	7.77462E-06
Road 8	8	0500-0600	0.213862353	1.46895E-07	2.42151E-06	0.182428235	1.25304E-07	2.06559E-06	1.008211176	6.92509E-07	1.14157E-05	0.859350588	5.90261E-07	9.73023E-06	1.041778824	7.15565E-07	1.17958E-05
Road 8	8	0600-0700	0.237580323	2.97575E-07	4.90542E-06	0.201343387	2.52188E-07	4.15722E-06	1.106144355	1.38547E-06	2.2839E-05	0.936980161	1.17359E-06	1.93462E-05	1.138323548	1.42578E-06	2.35034E-05
Road 8	8	0700-0800	0.238154804	4.90743E-07	8.08972E-06	0.199178627	4.10429E-07	6.76576E-06	1.120303333	2.3085E-06	3.80548E-05	0.936110294	1.92895E-06	3.17981E-05	1.135288922	2.33938E-06	3.85639E-05
Road 8	8	0800-0900	0.265612344	1.03025E-06	1.69833E-05	0.226327031	8.77875E-07	1.44714E-05	1.254169323	4.86466E-06	8.0192E-05	1.067968229	4.14242E-06	6.82863E-05	1.29429526	5.0203E-06	8.27577E-05
Road 8	8	0900-1000	0.279092468	8.90841E-07	1.46852E-05	0.239957025	7.65923E-07	1.2626E-05	1.253110823	3.99983E-06	6.59357E-05	1.077270316	3.43856E-06	5.66834E-05	1.317227342	4.20448E-06	6.93093E-05
Road 8	8	1000-1100	0.265674688	8.58746E-07	1.41561E-05	0.226641875	7.3258E-07	1.20763E-05	1.228561063	3.97111E-06	6.54622E-05	1.047271	3.38512E-06	5.58024E-05	1.273912875	4.1177E-06	6.78787E-05
Road 8	8	1100-1200	0.277102453	8.90087E-07	1.46727E-05	0.235868742	7.57639E-07	1.24894E-05	1.293763019	4.15572E-06	6.85055E-05	1.101003082	3.53656E-06	5.82988E-05	1.336871824	4.29419E-06	7.07882E-05
Road 8	8	1200-1300	0.282479941	9.70133E-07	1.59923E-05	0.238805824	8.20141E-07	1.35197E-05	1.330130765	4.56813E-06	7.53038E-05	1.124020059	3.86027E-06	6.36351E-05	1.362825882	4.68041E-06	7.71548E-05
Road 8	8	1300-1400	0.257962593	8.44241E-07	1.3917E-05	0.21772858	7.12566E-07	1.17464E-05	1.198259321	3.92158E-06	6.46457E-05	1.010842716	3.30821E-06	5.45346E-05	1.228571296	4.02078E-06	6.6281E-05
Road 8	8	1400-1500	0.252103453	7.07927E-07	1.16699E-05	0.212749065	5.97417E-07	9.84819E-06	1.219326259	3.42397E-06	5.64428E-05	1.028481583	2.88806E-06	4.76086E-05	1.241230647	3.48548E-06	5.74568E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.262340216	7.36673E-07	1.21438E-05	0.21894964	6.14828E-07	1.01352E-05	1.237109353	3.4739E-06	5.7266E-05	1.031663381	2.89699E-06	4.77559E-05	1.250613022	3.51182E-06	5.78911E-05
Road 8	8	1600-1700	0.261628322	7.87528E-07	1.29821E-05	0.215591879	6.48953E-07	1.06978E-05	1.222497383	3.67984E-06	6.06608E-05	1.00692396	3.03094E-06	4.9964E-05	1.222515839	3.6799E-06	6.06617E-05
Road 8	8	1700-1800	0.211253141	6.65767E-07	1.09749E-05	0.1774075	5.59102E-07	9.21659E-06	1.025862115	3.23302E-06	5.32951E-05	0.860096923	2.71061E-06	4.46834E-05	1.037504423	3.26971E-06	5.39E-05
Road 8	8	1800-1900	0.20826243	4.50183E-07	7.4211E-06	0.178776449	3.86446E-07	6.37042E-06	1.036753645	2.24106E-06	3.69431E-05	0.88910028	1.92189E-06	3.16817E-05	1.067876729	2.30834E-06	3.80521E-05
Road 8	8	1900-2000	0.206230649	3.20803E-07	5.28832E-06	0.176911818	2.75196E-07	4.53651E-06	1.051874156	1.63625E-06	2.69729E-05	0.902072727	1.40322E-06	2.31316E-05	1.078984545	1.67842E-06	2.76681E-05
Road 8	8	2000-2100	0.221553117	3.44638E-07	5.68123E-06	0.191891948	2.98499E-07	4.92064E-06	1.030768571	1.60342E-06	2.64317E-05	0.891855584	1.38733E-06	2.28696E-05	1.083747532	1.68583E-06	2.77903E-05
Road 8	8	2100-2200	0.182882222	1.99508E-07	3.28881E-06	0.161117222	1.75764E-07	2.89741E-06	0.928378519	1.01278E-06	1.66952E-05	0.816465926	8.9069E-07	1.46827E-05	0.977583148	1.06645E-06	1.75801E-05
Road 8	8	2200-2300	0.219599219	2.83926E-07	4.68042E-06	0.193224063	2.49825E-07	4.11827E-06	1.055277031	1.3644E-06	2.24916E-05	0.927481406	1.19917E-06	1.97678E-05	1.120705469	1.44899E-06	2.38861E-05
Road 8	8	2300-0000	0.173021132	1.85255E-07	3.05386E-06	0.151853019	1.6259E-07	2.68024E-06	0.86567	9.26879E-07	1.52793E-05	0.759020566	8.12689E-07	1.33969E-05	0.910873585	9.75279E-07	1.60771E-05
Road 9	9	0000-0100	0.189277183	5.02675E-08	1.50057E-06	0.169486816	4.50117E-08	1.34368E-06	0.844634044	2.24315E-07	6.69618E-06	0.750339317	1.99272E-07	5.94862E-06	0.919826133	2.44284E-07	7.2923E-06
Road 9	9	0100-0200	0.206250892	4.30378E-08	1.28475E-06	0.185115127	3.86274E-08	1.1531E-06	0.870530143	1.81651E-07	5.4226E-06	0.774633011	1.6164E-07	4.82525E-06	0.959748138	2.00268E-07	5.97834E-06
Road 9	9	0200-0300	0.080285631	7.61499E-09	2.2732E-07	0.07081942	6.71713E-09	2.00518E-07	0.565803219	5.36657E-08	1.60201E-06	0.499308208	4.73587E-08	1.41374E-06	0.570127628	5.40759E-08	1.61426E-06
Road 9	9	0300-0400	0.097160099	7.37241E-09	2.20079E-07	0.085268884	6.47011E-09	1.93144E-07	0.587062954	4.45457E-08	1.32977E-06	0.515872405	3.91439E-08	1.16851E-06	0.601141288	4.5614E-08	1.36166E-06
Road 9	9	0400-0500	0.225067982	4.26948E-08	1.27451E-06	0.20065755	3.80642E-08	1.13628E-06	0.911995523	1.73003E-07	5.16444E-06	0.806654142	1.5302E-07	4.56792E-06	1.007311691	1.91084E-07	5.7042E-06
Road 9	9	0500-0600	0.163266014	5.26509E-08	1.57172E-06	0.144125823	4.64785E-08	1.38746E-06	0.806934344	2.60225E-07	7.76815E-06	0.711182738	2.29346E-07	6.84638E-06	0.855308561	2.75825E-07	8.23384E-06
Road 9	9	0600-0700	0.192562922	1.16892E-07	3.48942E-06	0.170081464	1.03245E-07	3.08204E-06	0.97558311	5.9221E-07	1.76785E-05	0.859279353	5.2161E-07	1.55709E-05	1.029360817	6.24855E-07	1.8653E-05
Road 9	9	0700-0800	0.164596491	1.52995E-07	4.56717E-06	0.145424296	1.35174E-07	4.03519E-06	0.912347434	8.48043E-07	2.53155E-05	0.804265029	7.47578E-07	2.23165E-05	0.949689325	8.82753E-07	2.63517E-05
Road 9	9	0800-0900	0.256127715	5.58748E-07	1.66796E-05	0.224818688	4.90446E-07	1.46407E-05	1.209362018	2.63825E-06	7.87562E-05	1.05380117	2.29889E-06	6.86258E-05	1.278619858	2.78933E-06	8.32664E-05
Road 9	9	0900-1000	0.262389216	4.33039E-07	1.29269E-05	0.235642352	3.88896E-07	1.16092E-05	1.120611895	1.84942E-06	5.52084E-05	0.999903297	1.65021E-06	4.92615E-05	1.235545649	2.0391E-06	6.08708E-05
Road 9	9	1000-1100	0.269393493	3.73054E-07	1.11363E-05	0.236099701	3.26949E-07	9.75998E-06	1.132077536	1.56769E-06	4.67983E-05	0.98751366	1.3675E-06	4.08222E-05	1.223613361	1.69445E-06	5.05822E-05
Road 9	9	1100-1200	0.188897838	2.72334E-07	8.12964E-06	0.163017523	2.35022E-07	7.01582E-06	0.984485228	1.41933E-06	4.23695E-05	0.858454871	1.23763E-06	3.69455E-05	1.021472394	1.47266E-06	4.39613E-05
Road 9	9	1200-1300	0.284363056	3.99178E-07	1.19161E-05	0.251214225	3.52645E-07	1.0527E-05	1.265963378	1.77711E-06	5.30498E-05	1.115527446	1.56593E-06	4.67458E-05	1.366741671	1.91858E-06	5.72729E-05
Road 9	9	1300-1400	0.32376235	3.74643E-07	1.11837E-05	0.284865498	3.29633E-07	9.84012E-06	1.230674964	1.42408E-06	4.25113E-05	1.074234553	1.24305E-06	3.71073E-05	1.359100051	1.57269E-06	4.69474E-05
Road 9	9	1400-1500	0.209643361	2.70428E-07	8.07274E-06	0.186003899	2.39934E-07	7.16245E-06	1.006369599	1.29816E-06	3.87523E-05	0.883409599	1.13955E-06	3.40174E-05	1.069413498	1.37948E-06	4.11799E-05
Road 9	9	1500-1600	0.175410899	1.89667E-07	5.6619E-06	0.15309227	1.65535E-07	4.9415E-06	0.891931683	9.64424E-07	2.87897E-05	0.77862491	8.41908E-07	2.51324E-05	0.931717179	1.00744E-06	3.00739E-05
Road 9	9	1600-1700	0.185266815	2.81157E-07	8.39302E-06	0.162768349	2.47014E-07	7.37379E-06	0.999487575	1.5168E-06	4.52791E-05	0.872160428	1.32357E-06	3.95109E-05	1.034928777	1.57059E-06	4.68847E-05
Road 9	9	1700-1800	0.157900652	2.06678E-07	6.1697E-06	0.142219951	1.86153E-07	5.557E-06	0.924803207	1.21049E-06	3.61351E-05	0.834567912	1.09238E-06	3.26093E-05	0.976787863	1.27853E-06	3.81663E-05
Road 9	9	1800-1900	0.156531885	1.30652E-07	3.90019E-06	0.143586752	1.19847E-07	3.57765E-06	0.893134462	7.45471E-07	2.22536E-05	0.82023053	6.84621E-07	2.04371E-05	0.963817282	8.04468E-07	2.40148E-05
Road 9	9	1900-2000	0.16179665	1.31977E-07	3.93975E-06	0.14683979	1.19777E-07	3.57555E-06	0.852123243	6.95076E-07	2.07492E-05	0.765992827	6.24819E-07	1.86519E-05	0.912832616	7.44596E-07	2.22275E-05
Road 9	9	2000-2100	0.166674502	9.16914E-08	2.73715E-06	0.149109514	8.20285E-08	2.44869E-06	0.733934506	4.03754E-07	1.20527E-05	0.660188066	3.63184E-07	1.08417E-05	0.809297581	4.45213E-07	1.32904E-05
Road 9	9	2100-2200	0.020076397	1.06636E-08	3.18328E-07	0.018386453	9.76601E-09	2.91532E-07	0.28666282	1.52262E-07	4.54527E-06	0.258754976	1.37438E-07	4.10277E-06	0.27714143	1.47204E-07	4.3943E-06
Road 9	9	2200-2300	0.160087887	1.00215E-07	2.9916E-06	0.144398656	9.03938E-08	2.69841E-06	0.768813413	4.81278E-07	1.4367E-05	0.690826298	4.32458E-07	1.29096E-05	0.835224954	5.22852E-07	1.5608E-05
Road 9	9	2300-0000	0.130512665	7.42737E-08	2.2172E-06	0.118533152	6.74563E-08	2.01369E-06	0.661341235	3.76364E-07	1.12351E-05	0.596579975	3.39509E-07	1.01349E-05	0.715113127	4.06965E-07	1.21486E-05
Road 10	10	0000-0100	0.262973563	2.02189E-07	4.49561E-06	0.230720858	1.77391E-07	3.94424E-06	1.300562336	9.99445E-07	2.22335E-05	1.140635385	8.76984E-07	1.94995E-05	1.371356243	1.05438E-06	2.34437E-05
Road 10	10	0100-0200	0.258679035	1.5027E-07	3.34121E-06	0.227449099	1.32128E-07	2.93783E-06	1.268978195	7.37166E-07	1.63907E-05	1.115128347	6.47793E-07	1.44035E-05	1.342577446	7.79921E-07	1.73413E-05
Road 10	10	0200-0300	0.2574631	8.35798E-08	1.85837E-06	0.227125472	7.37313E-08	1.63939E-06	1.247991905	4.05133E-07	9.00802E-06	1.101446385	3.5756E-07	7.95025E-06	1.328571857	4.31292E-07	9.58964E-06
Road 10	10	0300-0400	0.234325679	4.80434E-08	1.06823E-06	0.204780246	4.19857E-08	9.3354E-07	1.225380508	2.51238E-07	5.58619E-06	1.071468508	2.19681E-07	4.88455E-06	1.276248755	2.61667E-07	5.81809E-06
Road 10	10	0400-0500	0.278236948	1.09339E-07	2.43112E-06	0.244450831	9.60621E-08	2.13591E-06	1.29538746	5.0905E-07	1.13186E-05	1.133799246	4.4555E-07	9.90667E-06	1.378250077	5.41612E-07	1.20426E-05
Road 10	10	0500-0600	0.258092816	1.80797E-07	4.01998E-06	0.223493444	1.5656E-07	3.48107E-06	1.20759186	8.45934E-07	1.88091E-05	1.042531404	7.30307E-07	1.62382E-05	1.266024848	8.86867E-07	1.97192E-05
Road 10	10	0600-0700	0.313437481	4.39134E-07	9.76402E-06	0.272574715	3.81884E-07	8.49108E-06	1.493444708	2.09236E-06	4.65229E-05	1.30003835	1.82139E-06	4.0498E-05	1.572613064	2.20327E-06	4.89891E-05
Road 10	10	0700-0800	0.312858344	6.89557E-07	1.53321E-05	0.268003054	5.90693E-07	1.31339E-05	1.508889607	3.32567E-06	7.39454E-05	1.293639837	2.85125E-06	6.33967E-05	1.561642891	3.44195E-06	7.65306E-05
Road 10	10	0800-0900	0.332949274	1.41079E-06	3.13685E-05	0.285622674	1.21025E-06	2.69097E-05	1.589094758	6.73339E-06	0.000149715	1.36323077	5.77635E-06	0.000128435	1.648853444	6.98661E-06	0.000155345
Road 10	10	0900-1000	0.363232444	1.2288E-06	2.73221E-05	0.318662658	1.07803E-06	2.39696E-05	1.679059662	5.6802E-06	0.000126298	1.471805217	4.97907E-06	0.000110708	1.790467875	6.05709E-06	0.000134678
Road 10	10	1000-1100	0.364136492	1.33763E-06	2.97417E-05	0.315527591	1.15907E-06	2.57715E-05	1.59352976	5.85371E-06	0.000130155	1.37618145	5.0553E-06	0.000112403	1.691709042	6.21436E-06	0.000138174
Road 10	10	1100-1200	0.354330733	1.30161E-06	2.89408E-05	0.304534431	1.11868E-06	2.48736E-05	1.607634969	5.90552E-06	0.000131308	1.379960586	5.06918E-06	0.000112712	1.684495017	6.18786E-06	0.000137585
Road 10	10	1200-1300	0.37505742	1.4226E-06	3.16311E-05	0.322698381	1.224E-06	2.72153E-05	1.714602105	6.50353E-06	0.000144604	1.474502289	5.59282E-06	0.000124355	1.79720067	6.81682E-06	0.00015157
Road 10	10	1300-1400	0.36522091	1.19809E-06	2.66392E-05	0.31443707	1.0315E-06	2.2935E-05	1.63537487	5.36477E-06	0.000119284	1.404166961	4.6063E-06	0.00010242	1.718604031	5.6378E-06	0.000125355
Road 10	10	1400-1500	0.340443264	1.05282E-06	2.34092E-05	0.294599966	9.11053E-07	2.0257E-05	1.62752143	5.03313E-06	0.00011191	1.40627547	4.34892E-06	9.66969E-05	1.700875436	5.25997E-06	0.000116954
Road 10	10	1500-1600	0.338022561	1.06844E-06	2.37564E-05	0.28669844	9.06211E-07	2.01493E-05	1.56778878	4.95555E-06	0.000110185	1.328731337	4.19992E-06	9.3384E-05	1.615429777	5.10614E-06	0.000113533
Road 10	10	1600-1700	0.32618662	1.14806E-06	2.55268E-05	0.275687513	9.70324E-07	2.15749E-05	1.535095061	5.403E-06	0.000120134	1.292969208	4.5508E-06	0.000101186	1.568656721	5.52113E-06	0.000122761
Road 10	10	1700-1800	0.299206892	9.9687E-07	2.21651E-05	0.258410058	8.60947E-07	1.91429E-05	1.475725968	4.91669E-06	0.000109321	1.278078146	4.25818E-06	9.46795E-05	1.536488204	5.11913E-06	0.000113822
Road 10	10	1800-1900	0.298603081	6.17323E-07	1.3726E-05	0.261143572	5.3988E-07	1.20041E-05	1.443814215	2.9849E-06	6.63683E-05	1.263422518	2.61196E-06	5.80761E-05	1.52456609	3.15184E-06	7.00802E-05
Road 10	10	1900-2000	0.26040562	4.84964E-07	1.0783E-05	0.228573353	4.25681E-07	9.4649E-06	1.318685655	2.45584E-06	5.46049E-05	1.15760918	2.15586E-06	4.79349E-05	1.386182533	2.58154E-06	5.73998E-05
Road 10	10	2000-2100	0.291953896	3.59153E-07	7.98565E-06	0.254634128	3.13243E-07	6.96487E-06	1.365602126	1.67992E-06	3.73526E-05	1.189950042	1.46384E-06	3.2548E-05	1.44458417	1.77708E-06	3.95129E-05
Road 10	10	2100-2200	0.246413843	3.11551E-07	6.92725E-06	0.224087703	2.83323E-07	6.29961E-06	1.289174236	1.62996E-06	3.62416E-05	1.172560161	1.48252E-06	3.29633E-05	1.396647864	1.76584E-06	3.92629E-05
Road 10	10	2200-2300	0.255267287	3.35829E-07	7.46706E-06	0.228374017	3.00448E-07	6.68038E-06	1.251070904	1.64591E-06	3.65962E-05	1.120573587	1.47422E-06	3.27789E-05	1.348947605	1.77467E-06	3.94593E-05
Road 10	10	2300-0000	0.233886517	2.8772E-07	6.39737E-06	0.206862527	2.54476E-07	5.6582E-06	1.14490321	1.40843E-06	3.13159E-05	1.011399822	1.24419E-06	2.76643E-05	1.218262349	1.49867E-06	3.33225E-05
Road 11	11	0000-0100	0.294006376	2.24588E-07	1.86298E-06	0.257671532	1.96832E-07	1.63274E-06	1.423194923	1.08716E-06	9.0181E-06	1.244541885	9.50692E-07	7.88607E-06	1.502213416	1.14752E-06	9.51881E-06
Road 11	11	0100-0200	0.294398704	1.58444E-07	1.3143E-06	0.258524722	1.39137E-07	1.15415E-06	1.401278438	7.5416E-07	6.25582E-06	1.226831068	6.60274E-07	5.47702E-06	1.485355791	7.9941E-07	6.63117E-06
Road 11	11	0200-0300	0.256941877	6.69119E-08	5.5504E-07	0.226682197	5.90318E-08	4.89674E-07	1.325061073	3.45068E-07	2.86237E-06	1.169424807	3.04538E-07	2.52617E-06	1.396107004	3.6357E-07	3.01584E-06
Road 11	11	0300-0400	0.275829392	6.70419E-08	5.56118E-07	0.240983001	5.85723E-08	4.85862E-07	1.392940466	3.38562E-07	2.8084E-06	1.217265341	2.95863E-07	2.45421E-06	1.458248342	3.54435E-07	2.94007E-06

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	0.287668991	9.98851E-08	8.28555E-07	0.252924956	8.78212E-08	7.28484E-07	1.320632761	4.58553E-07	3.80373E-06	1.156562315	4.01584E-07	3.33117E-06	1.409487271	4.89405E-07	4.05966E-06
Road 11	11	0500-0600	0.235282178	1.10289E-07	9.14852E-07	0.203405705	9.53464E-08	7.90906E-07	1.162411286	5.4488E-07	4.51983E-06	1.004059178	4.70653E-07	3.9041E-06	1.207464883	5.65999E-07	4.69501E-06
Road 11	11	0600-0700	0.254834875	2.30059E-07	1.90836E-06	0.220029438	1.98638E-07	1.64772E-06	1.273378068	1.14958E-06	9.53584E-06	1.098402265	9.91613E-07	8.22551E-06	1.318431703	1.19025E-06	9.87323E-06
Road 11	11	0700-0800	0.308718331	5.84207E-07	4.84604E-06	0.261494351	4.94842E-07	4.10475E-06	1.542076369	2.91817E-06	2.42064E-05	1.307156808	2.47361E-06	2.05188E-05	1.568651159	2.96845E-06	2.46236E-05
Road 11	11	0800-0900	0.329587516	1.17301E-06	9.73022E-06	0.284798679	1.01361E-06	8.40795E-06	1.569090535	5.58444E-06	4.63234E-05	1.351508746	4.81006E-06	3.98998E-05	1.636307425	5.82366E-06	4.83078E-05
Road 11	11	0900-1000	0.328089264	8.37311E-07	6.94556E-06	0.28765806	7.34127E-07	6.08965E-06	1.493742822	3.81216E-06	3.16221E-05	1.304009951	3.32794E-06	2.76055E-05	1.591668011	4.06207E-06	3.36952E-05
Road 11	11	1000-1100	0.336486632	7.06856E-07	5.86342E-06	0.290641386	6.10549E-07	5.06455E-06	1.514407716	3.18131E-06	2.63892E-05	1.304106934	2.73953E-06	2.27246E-05	1.59474832	3.35008E-06	2.77892E-05
Road 11	11	1100-1200	0.297051145	7.01371E-07	5.81793E-06	0.253919338	5.99532E-07	4.97316E-06	1.472066819	3.47571E-06	2.88313E-05	1.263438142	2.98312E-06	2.47452E-05	1.51735748	3.58265E-06	2.97184E-05
Road 11	11	1200-1300	0.367950611	1.04764E-06	8.69024E-06	0.316058307	8.99888E-07	7.46465E-06	1.716607066	4.88756E-06	4.05427E-05	1.472130188	4.19148E-06	3.47687E-05	1.788188495	5.09137E-06	4.22333E-05
Road 11	11	1300-1400	0.380799229	7.99943E-07	6.63559E-06	0.32747651	6.87928E-07	5.70642E-06	1.663675929	3.49487E-06	2.89903E-05	1.422775531	2.98882E-06	2.47925E-05	1.750252041	3.67674E-06	3.04989E-05
Road 11	11	1400-1500	0.3035457	6.11307E-07	5.07084E-06	0.261759085	5.27154E-07	4.37278E-06	1.461338175	2.94297E-06	2.44122E-05	1.254484237	2.52639E-06	2.09566E-05	1.516243322	3.05355E-06	2.53294E-05
Road 11	11	1500-1600	0.272206221	5.52919E-07	4.58651E-06	0.230246008	4.67687E-07	3.8795E-06	1.356967418	2.75634E-06	2.28641E-05	1.147800273	2.33147E-06	1.93397E-05	1.378046281	2.79916E-06	2.32192E-05
Road 11	11	1600-1700	0.261319867	6.35152E-07	5.26864E-06	0.220977093	5.37097E-07	4.45526E-06	1.338710472	3.25381E-06	2.69906E-05	1.130163753	2.74693E-06	2.2786E-05	1.351140846	3.28402E-06	2.72412E-05
Road 11	11	1700-1800	0.256775731	6.37481E-07	5.28796E-06	0.220123669	5.46488E-07	4.53316E-06	1.338613244	3.32329E-06	2.7567E-05	1.151301177	2.85827E-06	2.37095E-05	1.371424846	3.40475E-06	2.82427E-05
Road 11	11	1800-1900	0.273076989	5.59429E-07	4.64051E-06	0.237655796	4.86864E-07	4.03858E-06	1.394004662	2.85577E-06	2.36889E-05	1.215800109	2.4907E-06	2.06606E-05	1.453455906	2.97757E-06	2.46992E-05
Road 11	11	1900-2000	0.261171725	4.12615E-07	3.42268E-06	0.227785835	3.5987E-07	2.98515E-06	1.314575227	2.07685E-06	1.72276E-05	1.143946501	1.80728E-06	1.49915E-05	1.371732335	2.16715E-06	1.79767E-05
Road 11	11	2000-2100	0.262354124	3.68935E-07	3.06035E-06	0.228932203	3.21936E-07	2.67048E-06	1.266387263	1.78086E-06	1.47724E-05	1.105701663	1.55489E-06	1.2898E-05	1.334633866	1.87683E-06	1.55684E-05
Road 11	11	2100-2200	0.185990028	1.87282E-07	1.55352E-06	0.164142914	1.65283E-07	1.37103E-06	1.00923864	1.01625E-06	8.42985E-06	0.891472868	8.97664E-07	7.44619E-06	1.055615782	1.06295E-06	8.81723E-06
Road 11	11	2200-2300	0.245600262	2.68625E-07	2.22827E-06	0.217898943	2.38327E-07	1.97694E-06	1.201292752	1.31391E-06	1.0899E-05	1.064140892	1.1639E-06	9.65468E-06	1.282039835	1.40223E-06	1.16316E-05
Road 11	11	2300-0000	0.235604747	2.45422E-07	2.03579E-06	0.208665437	2.1736E-07	1.80302E-06	1.171853677	1.22068E-06	1.01256E-05	1.035786015	1.07894E-06	8.94993E-06	1.244451452	1.2963E-06	1.07529E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.30085	2.44521E-06	3.67771E-06	1.08729	2.04378E-06	3.07394E-06	5.69967	1.07137E-05	1.61139E-05	4.76348	8.95391E-06	1.34671E-05	5.85077	1.09977E-05	1.65411E-05
Haul Road 1	HR1	0800-0900	1.30814	2.45891E-06	3.69832E-06	1.11327	2.09261E-06	3.14739E-06	5.73125	1.0773E-05	1.62032E-05	4.87771	9.16863E-06	1.37901E-05	5.99098	1.12612E-05	1.69375E-05
Haul Road 1	HR1	0900-1000	1.28696	2.4191E-06	3.63844E-06	1.10568	2.07835E-06	3.12593E-06	5.63871	1.05991E-05	1.59415E-05	4.84432	9.10586E-06	1.36957E-05	5.95	1.11842E-05	1.68216E-05
Haul Road 1	HR1	1000-1100	1.29625	2.43656E-06	3.66471E-06	1.10478	2.07665E-06	3.12339E-06	5.67938	1.06755E-05	1.60565E-05	4.84043	9.09855E-06	1.36847E-05	5.94521	1.11752E-05	1.68081E-05
Haul Road 1	HR1	1100-1200	1.30545	2.45385E-06	3.69072E-06	1.11067	2.08773E-06	3.14004E-06	5.71975	1.07514E-05	1.61707E-05	4.86622	9.14703E-06	1.37576E-05	5.97689	1.12348E-05	1.68976E-05
Haul Road 1	HR1	1200-1300	1.32153	2.48408E-06	3.73618E-06	1.11657	2.09882E-06	3.15672E-06	5.79031	1.0884E-05	1.63701E-05	4.8919	9.1953E-06	1.38302E-05	6.00847	1.12941E-05	1.69869E-05
Haul Road 1	HR1	1300-1400	1.31724	2.47602E-06	3.72405E-06	1.11067	2.08773E-06	3.14004E-06	5.77132	1.08483E-05	1.63164E-05	4.86622	9.14703E-06	1.37576E-05	5.97689	1.12348E-05	1.68976E-05
Haul Road 1	HR1	1400-1500	1.31724	2.47602E-06	3.72405E-06	1.11067	2.08773E-06	3.14004E-06	5.77132	1.08483E-05	1.63164E-05	4.86622	9.14703E-06	1.37576E-05	5.97689	1.12348E-05	1.68976E-05
Haul Road 1	HR1	1500-1600	1.32433	2.48934E-06	3.74409E-06	1.10478	2.07665E-06	3.12339E-06	5.8024	1.09068E-05	1.64043E-05	4.84043	9.09855E-06	1.36847E-05	5.94521	1.11752E-05	1.68081E-05
Haul Road 1	HR1	1600-1700	1.32034	2.48184E-06	3.73281E-06	1.08719	2.04359E-06	3.07366E-06	5.78451	1.08731E-05	1.63537E-05	4.76308	8.95316E-06	1.3466E-05	5.85027	1.09967E-05	1.65397E-05
Haul Road 1	HR1	1700-1800	1.30405	2.45122E-06	3.68676E-06	1.09458	2.05748E-06	3.09455E-06	5.71346	1.07396E-05	1.61529E-05	4.79586	9.01477E-06	1.35587E-05	5.89044	1.10723E-05	1.66532E-05
Haul Road 1	HR1	1800-1900	1.27966	2.40538E-06	3.6178E-06	1.09768	2.06331E-06	3.10332E-06	5.60683	1.05392E-05	1.58514E-05	4.80915	9.03976E-06	1.35962E-05	5.90683	1.11031E-05	1.66996E-05
Haul Road 1	HR1	1900-2000	1.27427	2.39524E-06	3.60257E-06	1.09248	2.05353E-06	3.08862E-06	5.58284	1.04941E-05	1.57836E-05	4.78637	8.99694E-06	1.35318E-05	5.87885	1.10505E-05	1.66205E-05
Haul Road 1	HR1	2000-2100	1.24319	2.33682E-06	3.5147E-06	1.07679	2.02404E-06	3.04426E-06	5.44673	1.02382E-05	1.53988E-05	4.71792	8.86827E-06	1.33383E-05	5.79471	1.08923E-05	1.63826E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.30085	1.68504E-06	4.48541E-06	1.08729	1.40841E-06	3.74904E-06	5.69967	7.38299E-06	1.96528E-05	4.76348	6.17031E-06	1.64248E-05	5.85077	7.57872E-06	2.01738E-05
Haul Road 2	HR2	0800-0900	1.30814	1.69448E-06	4.51055E-06	1.11327	1.44206E-06	3.83862E-06	5.73125	7.4239E-06	1.97617E-05	4.87771	6.31828E-06	1.68186E-05	5.99098	7.76034E-06	2.06573E-05
Haul Road 2	HR2	0900-1000	1.28696	1.66705E-06	4.43752E-06	1.10568	1.43223E-06	3.81245E-06	5.63871	7.30403E-06	1.94426E-05	4.84432	6.27503E-06	1.67035E-05	5.95	7.70725E-06	2.0516E-05
Haul Road 2	HR2	1000-1100	1.29625	1.67908E-06	4.46955E-06	1.10478	1.43106E-06	3.80935E-06	5.67938	7.35671E-06	1.95828E-05	4.84043	6.26999E-06	1.66901E-05	5.94521	7.70105E-06	2.04994E-05
Haul Road 2	HR2	1100-1200	1.30545	1.691E-06	4.50127E-06	1.11067	1.43869E-06	3.82966E-06	5.71975	7.409E-06	1.9722E-05	4.86622	6.30339E-06	1.6779E-05	5.97689	7.74209E-06	2.06087E-05
Haul Road 2	HR2	1200-1300	1.32153	1.71183E-06	4.55672E-06	1.11657	1.44633E-06	3.85E-06	5.79031	7.5004E-06	1.99653E-05	4.8919	6.33666E-06	1.68676E-05	6.00847	7.78299E-06	2.07176E-05
Haul Road 2	HR2	1300-1400	1.31724	1.70627E-06	4.54192E-06	1.11067	1.43869E-06	3.82966E-06	5.77132	7.4758E-06	1.98999E-05	4.86622	6.30339E-06	1.6779E-05	5.97689	7.74209E-06	2.06087E-05
Haul Road 2	HR2	1400-1500	1.31724	1.70627E-06	4.54192E-06	1.11067	1.43869E-06	3.82966E-06	5.77132	7.4758E-06	1.98999E-05	4.86622	6.30339E-06	1.6779E-05	5.97689	7.74209E-06	2.06087E-05
Haul Road 2	HR2	1500-1600	1.32433	1.71545E-06	4.56637E-06	1.10478	1.43106E-06	3.80935E-06	5.8024	7.51606E-06	2.0007E-05	4.84043	6.26999E-06	1.66901E-05	5.94521	7.70105E-06	2.04994E-05
Haul Road 2	HR2	1600-1700	1.32034	1.71028E-06	4.55261E-06	1.08719	1.40828E-06	3.7487E-06	5.78451	7.49289E-06	1.99453E-05	4.76308	6.16979E-06	1.64234E-05	5.85027	7.57807E-06	2.01721E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	1.30405	1.68918E-06	4.49644E-06	1.09458	1.41785E-06	3.77418E-06	5.71346	7.40085E-06	1.97004E-05	4.79586	6.21225E-06	1.65364E-05	5.89044	7.6301E-06	2.03106E-05
Haul Road 2	HR2	1800-1900	1.27966	1.65759E-06	4.41234E-06	1.09768	1.42187E-06	3.78487E-06	5.60683	7.26273E-06	1.93327E-05	4.80915	6.22947E-06	1.65822E-05	5.90683	7.65133E-06	2.03671E-05
Haul Road 2	HR2	1900-2000	1.27427	1.65061E-06	4.39376E-06	1.09248	1.41513E-06	3.76694E-06	5.58284	7.23166E-06	1.925E-05	4.78637	6.19996E-06	1.65037E-05	5.87885	7.61509E-06	2.02706E-05
Haul Road 2	HR2	2000-2100	1.24319	1.61035E-06	4.28659E-06	1.07679	1.39481E-06	3.71284E-06	5.44673	7.05535E-06	1.87807E-05	4.71792	6.1113E-06	1.62677E-05	5.79471	7.5061E-06	1.99805E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.30085	1.68504E-06	4.47916E-06	1.08729	1.40841E-06	3.74381E-06	5.69967	7.38299E-06	1.96254E-05	4.76348	6.17031E-06	1.64019E-05	5.85077	7.57872E-06	2.01457E-05
Haul Road 3	HR3	0800-0900	1.30814	1.69448E-06	4.50426E-06	1.11327	1.44206E-06	3.83327E-06	5.73125	7.4239E-06	1.97341E-05	4.87771	6.31828E-06	1.67952E-05	5.99098	7.76034E-06	2.06285E-05
Haul Road 3	HR3	0900-1000	1.28696	1.66705E-06	4.43133E-06	1.10568	1.43223E-06	3.80714E-06	5.63871	7.30403E-06	1.94155E-05	4.84432	6.27503E-06	1.66802E-05	5.95	7.70725E-06	2.04874E-05
Haul Road 3	HR3	1000-1100	1.29625	1.67908E-06	4.46332E-06	1.10478	1.43106E-06	3.80404E-06	5.67938	7.35671E-06	1.95555E-05	4.84043	6.26999E-06	1.66668E-05	5.94521	7.70105E-06	2.04709E-05
Haul Road 3	HR3	1100-1200	1.30545	1.691E-06	4.49499E-06	1.11067	1.43869E-06	3.82432E-06	5.71975	7.409E-06	1.96945E-05	4.86622	6.30339E-06	1.67556E-05	5.97689	7.74209E-06	2.05799E-05
Haul Road 3	HR3	1200-1300	1.32153	1.71183E-06	4.55036E-06	1.11657	1.44633E-06	3.84463E-06	5.79031	7.5004E-06	1.99375E-05	4.8919	6.33666E-06	1.6844E-05	6.00847	7.78299E-06	2.06887E-05
Haul Road 3	HR3	1300-1400	1.31724	1.70627E-06	4.53559E-06	1.11067	1.43869E-06	3.82432E-06	5.77132	7.4758E-06	1.98721E-05	4.86622	6.30339E-06	1.67556E-05	5.97689	7.74209E-06	2.05799E-05
Haul Road 3	HR3	1400-1500	1.31724	1.70627E-06	4.53559E-06	1.11067	1.43869E-06	3.82432E-06	5.77132	7.4758E-06	1.98721E-05	4.86622	6.30339E-06	1.67556E-05	5.97689	7.74209E-06	2.05799E-05
Haul Road 3	HR3	1500-1600	1.32433	1.71545E-06	4.56E-06	1.10478	1.43106E-06	3.80404E-06	5.8024	7.51606E-06	1.99791E-05	4.84043	6.26999E-06	1.66668E-05	5.94521	7.70105E-06	2.04709E-05
Haul Road 3	HR3	1600-1700	1.32034	1.71028E-06	4.54626E-06	1.08719	1.40828E-06	3.74347E-06	5.78451	7.49289E-06	1.99175E-05	4.76308	6.16979E-06	1.64005E-05	5.85027	7.57807E-06	2.0144E-05
Haul Road 3	HR3	1700-1800	1.30405	1.68918E-06	4.49017E-06	1.09458	1.41785E-06	3.76892E-06	5.71346	7.40085E-06	1.96729E-05	4.79586	6.21225E-06	1.65134E-05	5.89044	7.6301E-06	2.02823E-05
Haul Road 3	HR3	1800-1900	1.27966	1.65759E-06	4.40619E-06	1.09768	1.42187E-06	3.77959E-06	5.60683	7.26273E-06	1.93057E-05	4.80915	6.22947E-06	1.65591E-05	5.90683	7.65133E-06	2.03387E-05
Haul Road 3	HR3	1900-2000	1.27427	1.65061E-06	4.38763E-06	1.09248	1.41513E-06	3.76168E-06	5.58284	7.23166E-06	1.92231E-05	4.78637	6.19996E-06	1.64807E-05	5.87885	7.61509E-06	2.02424E-05
Haul Road 3	HR3	2000-2100	1.24319	1.61035E-06	4.28062E-06	1.07679	1.39481E-06	3.70766E-06	5.44673	7.05535E-06	1.87545E-05	4.71792	6.1113E-06	1.6245E-05	5.79471	7.5061E-06	1.99527E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.080428324	2.70208E-07	2.19818E-06	0.070187709	2.35803E-07	1.91829E-06	0.473604078	1.59112E-06	1.2944E-05	0.411327039	1.3819E-06	1.12419E-05	0.481514749	1.6177E-06	1.31602E-05
Road 1	1	0100-0200	0.062951743	1.28786E-07	1.0477E-06	0.055639083	1.13826E-07	9.25993E-07	0.377916055	7.73139E-07	6.2896E-06	0.332585596	6.80402E-07	5.53517E-06	0.388224679	7.94228E-07	6.46117E-06
Road 1	1	0200-0300	0.059978571	8.66807E-08	7.05161E-07	0.053450649	7.72466E-08	6.28413E-07	0.379505584	5.4846E-07	4.4618E-06	0.335749351	4.85223E-07	3.94736E-06	0.3892	5.6247E-07	4.57578E-06
Road 1	1	0300-0400	0.050653091	5.22883E-08	4.25373E-07	0.044947636	4.63986E-08	3.7746E-07	0.308034545	3.17979E-07	2.5868E-06	0.271481091	2.80245E-07	2.27984E-06	0.316428727	3.26644E-07	2.6573E-06
Road 1	1	0400-0500	0.0655	1.05724E-07	8.60084E-07	0.058125	9.38204E-08	7.63243E-07	0.373181163	6.02357E-07	4.90026E-06	0.329632907	5.32065E-07	4.32843E-06	0.387757907	6.25886E-07	5.09167E-06
Road 1	1	0500-0600	0.054281383	1.91533E-07	1.55815E-06	0.047804096	1.68678E-07	1.37222E-06	0.318323032	1.12321E-06	9.1375E-06	0.278503777	9.82709E-07	7.99448E-06	0.326307872	1.15139E-06	9.3667E-06
Road 1	1	0600-0700	0.074226677	4.69489E-07	3.81936E-06	0.064856231	4.10221E-07	3.3372E-06	0.393299614	2.48765E-06	2.02374E-05	0.341877656	2.1624E-06	1.75915E-05	0.406733887	2.57262E-06	2.09287E-05
Road 1	1	0700-0800	0.063876886	6.73776E-07	5.48127E-06	0.054580018	5.75713E-07	4.68351E-06	0.35007573	3.69262E-06	3.004E-05	0.296358416	3.126E-06	2.54305E-05	0.350938434	3.70172E-06	3.0114E-05
Road 1	1	0800-0900	0.070096599	9.13045E-07	7.42776E-06	0.058597853	7.63268E-07	6.2093E-06	0.374865403	4.88282E-06	3.97225E-05	0.311387867	4.05599E-06	3.29961E-05	0.36998572	4.81926E-06	3.92054E-05
Road 1	1	0900-1000	0.07577479	1.01545E-06	8.26084E-06	0.063698165	8.53613E-07	6.94427E-06	0.419038221	5.61549E-06	4.56828E-05	0.350312787	4.69451E-06	3.81905E-05	0.414010952	5.54812E-06	4.51348E-05
Road 1	1	1000-1100	0.088477295	1.15412E-06	9.38897E-06	0.073385698	9.57265E-07	7.78749E-06	0.472773281	6.16699E-06	5.01694E-05	0.390430691	5.09289E-06	4.14314E-05	0.463816388	6.05016E-06	4.92189E-05
Road 1	1	1100-1200	0.078374525	9.9145E-07	8.06559E-06	0.066323412	8.39001E-07	6.8254E-06	0.448184807	5.66961E-06	4.61231E-05	0.377369362	4.77378E-06	3.88354E-05	0.443692774	5.61278E-06	4.56608E-05
Road 1	1	1200-1300	0.081050615	1.01465E-06	8.25436E-06	0.069188486	8.66155E-07	7.0463E-06	0.45772036	5.7301E-06	4.66152E-05	0.389113508	4.87122E-06	3.96281E-05	0.458301994	5.73738E-06	4.66744E-05
Road 1	1	1300-1400	0.085317151	1.13532E-06	9.236E-06	0.072207913	9.60875E-07	7.81686E-06	0.472420606	6.28653E-06	5.11418E-05	0.397904683	5.29494E-06	4.30751E-05	0.470112595	6.25582E-06	5.0892E-05
Road 1	1	1400-1500	0.081064434	1.17002E-06	9.51827E-06	0.067343784	9.71985E-07	7.90724E-06	0.439393498	6.34185E-06	5.15919E-05	0.363003719	5.2393E-06	4.26225E-05	0.430347503	6.21128E-06	5.05297E-05
Road 1	1	1500-1600	0.086892263	1.1677E-06	9.49938E-06	0.073765852	9.91298E-07	8.06435E-06	0.469229134	6.30571E-06	5.12979E-05	0.396140447	5.32351E-06	4.33075E-05	0.469906299	6.31481E-06	5.13719E-05
Road 1	1	1600-1700	0.081971748	1.16157E-06	9.44958E-06	0.069586384	9.86068E-07	8.02181E-06	0.447953258	6.34769E-06	5.16394E-05	0.378124689	5.35819E-06	4.35896E-05	0.447711073	6.34425E-06	5.16114E-05
Road 1	1	1700-1800	0.066292084	9.43119E-07	7.67242E-06	0.055653047	7.91761E-07	6.44109E-06	0.370438496	5.27013E-06	4.28733E-05	0.308521069	4.38924E-06	3.57072E-05	0.364174116	5.18101E-06	4.21482E-05
Road 1	1	1800-1900	0.056432158	8.19791E-07	6.66913E-06	0.048429884	7.03542E-07	5.72342E-06	0.336298398	4.88542E-06	3.97436E-05	0.285725478	4.15074E-06	3.37669E-05	0.334155362	4.85428E-06	3.94903E-05
Road 1	1	1900-2000	0.067197976	7.47905E-07	6.08432E-06	0.060056796	6.68425E-07	5.43774E-06	0.383577892	4.26918E-06	3.47304E-05	0.340695565	3.7919E-06	3.08477E-05	0.400752361	4.46033E-06	3.62854E-05
Road 1	1	2000-2100	0.061512823	5.80724E-07	4.72427E-06	0.053632048	5.06324E-07	4.11902E-06	0.362127117	3.41873E-06	2.78119E-05	0.313359563	2.95833E-06	2.40665E-05	0.36699161	3.46465E-06	2.81855E-05
Road 1	1	2100-2200	0.063654183	5.48372E-07	4.46109E-06	0.056036253	4.82745E-07	3.9272E-06	0.377743464	3.25421E-06	2.64735E-05	0.330663181	2.84862E-06	2.31739E-05	0.386699434	3.33136E-06	2.71011E-05
Road 1	1	2200-2300	0.061325954	5.00691E-07	4.07319E-06	0.054394069	4.44096E-07	3.61278E-06	0.36314108	2.96483E-06	2.41194E-05	0.320139586	2.61375E-06	2.12633E-05	0.374533655	3.05785E-06	2.4876E-05
Road 1	1	2300-0000	0.052389897	3.83485E-07	3.1197E-06	0.047355385	3.46633E-07	2.81991E-06	0.318136077	2.3287E-06	1.89443E-05	0.285502436	2.08983E-06	1.7001E-05	0.332857821	2.43646E-06	1.9821E-05
Road 2	2	0000-0100	0.133166923	1.60294E-07	1.03516E-06	0.116209808	1.39882E-07	9.03345E-07	0.561417885	6.75781E-07	4.36413E-06	0.488042885	5.87459E-07	3.79375E-06	0.604252692	7.27341E-07	4.6971E-06
Road 2	2	0100-0200	0.094945882	7.47259E-08	4.82573E-07	0.083888824	6.60236E-08	4.26374E-07	0.466894118	3.67463E-07	2.37304E-06	0.410975294	3.23453E-07	2.08883E-06	0.494864118	3.89476E-07	2.5152E-06
Road 2	2	0200-0300	0.097565217	5.19444E-08	3.35452E-07	0.087068696	4.6356E-08	2.99363E-07	0.52930913	2.81808E-07	1.81989E-06	0.469898261	2.50177E-07	1.61562E-06	0.556966957	2.96533E-07	1.91498E-06
Road 2	2	0300-0400	0.084498	2.93396E-08	1.89472E-07	0.075036667	2.60544E-08	1.68257E-07	0.305156	1.05957E-07	6.8426E-07	0.269198	9.34715E-08	6.0363E-07	0.344234667	1.19526E-07	7.71887E-07
Road 2	2	0400-0500	0.114042593	7.12766E-08	4.60297E-07	0.101264815	6.32905E-08	4.08724E-07	0.54744963	3.42156E-07	2.20961E-06	0.484527407	3.0283E-07	1.95564E-06	0.585792222	3.6612E-07	2.36437E-06
Road 2	2	0500-0600	0.090892982	1.19928E-07	7.74485E-07	0.080140175	1.05741E-07	6.82862E-07	0.399529123	5.27156E-07	3.40433E-06	0.350220877	4.62097E-07	2.98418E-06	0.430361053	5.67838E-07	3.66704E-06
Road 2	2	0600-0700	0.130083269	3.13163E-07	2.02238E-06	0.113704038	2.73732E-07	1.76773E-06	0.523916538	1.26128E-06	8.14523E-06	0.456140192	1.09812E-06	7.09152E-06	0.569844231	1.37185E-06	8.85926E-06
Road 2	2	0700-0800	0.109262563	4.04676E-07	2.61336E-06	0.093357813	3.4577E-07	2.23295E-06	0.451914563	1.67376E-06	1.0809E-05	0.383125813	1.41898E-06	9.16366E-06	0.476483625	1.76475E-06	1.13966E-05
Road 2	2	0800-0900	0.125769605	8.85045E-07	5.71554E-06	0.105091414	7.39532E-07	4.77583E-06	0.526711151	3.70649E-06	2.39361E-05	0.437376349	3.07783E-06	1.98763E-05	0.542467763	3.81737E-06	2.46522E-05
Road 2	2	0900-1000	0.149440437	8.71736E-07	5.62959E-06	0.125476825	7.31948E-07	4.72685E-06	0.635030278	3.70434E-06	2.39223E-05	0.531401032	3.09984E-06	2.00185E-05	0.656877857	3.83179E-06	2.47453E-05
Road 2	2	1000-1100	0.167722246	7.2602E-07	4.68857E-06	0.139066096	6.01976E-07	3.8875E-06	0.705904973	3.05565E-06	1.97331E-05	0.583702246	2.52667E-06	1.6317E-05	0.722768342	3.12865E-06	2.02045E-05
Road 2	2	1100-1200	0.19461459	8.24409E-07	5.32395E-06	0.16455541	6.97075E-07	4.50164E-06	0.79356071	3.36161E-06	2.1709E-05	0.669891749	2.83774E-06	1.83258E-05	0.834447158	3.53481E-06	2.28275E-05
Road 2	2	1200-1300	0.150360368	6.61307E-07	4.27066E-06	0.128360474	5.64548E-07	3.6458E-06	0.656592526	2.88779E-06	1.86491E-05	0.558592684	2.45677E-06	1.58656E-05	0.686953158	3.02132E-06	1.95114E-05
Road 2	2	1300-1400	0.167241435	8.63306E-07	5.57515E-06	0.14134722	7.2964E-07	4.71194E-06	0.682626682	3.52374E-06	2.2756E-05	0.574870269	2.9675E-06	1.91638E-05	0.716217489	3.69714E-06	2.38758E-05
Road 2	2	1400-1500	0.143986303	5.49948E-07	3.55151E-06	0.119579273	4.56726E-07	2.94949E-06	0.621535152	2.37392E-06	1.53305E-05	0.514413758	1.96477E-06	1.26883E-05	0.63399303	2.4215E-06	1.56378E-05
Road 2	2	1500-1600	0.179241694	7.59288E-07	4.90341E-06	0.151879945	6.4338E-07	4.15489E-06	0.705326557	2.98784E-06	1.92952E-05	0.596245792	2.52576E-06	1.63111E-05	0.748125738	3.16914E-06	2.0466E-05
Road 2	2	1600-1700	0.14850914	7.59734E-07	4.90629E-06	0.126077511	6.4498E-07	4.16522E-06	0.623269638	3.18849E-06	2.05909E-05	0.52708724	2.69644E-06	1.74134E-05	0.653164751	3.34142E-06	2.15786E-05
Road 2	2	1700-1800	0.116172027	5.96995E-07	3.85534E-06	0.097578964	5.01447E-07	3.2383E-06	0.460146036	2.36464E-06	1.52706E-05	0.384459279	1.97569E-06	1.27588E-05	0.482038243	2.47714E-06	1.59971E-05
Road 2	2	1800-1900	0.12242168	7.08459E-07	4.57516E-06	0.10514988	6.08506E-07	3.92967E-06	0.54919512	3.17821E-06	2.05246E-05	0.46915428	2.71501E-06	1.75333E-05	0.57430416	3.32352E-06	2.1463E-05
Road 2	2	1900-2000	0.103147929	4.03519E-07	2.60588E-06	0.09218426	3.60628E-07	2.3289E-06	0.46572787	1.82194E-06	1.17659E-05	0.413991124	1.61955E-06	1.04589E-05	0.506175385	1.98018E-06	1.27878E-05
Road 2	2	2000-2100	0.098808435	3.36223E-07	2.1713E-06	0.086073197	2.92888E-07	1.89144E-06	0.419255442	1.42663E-06	9.21306E-06	0.362469524	1.2334E-06	7.9652E-06	0.448542721	1.52629E-06	9.85664E-06
Road 2	2	2100-2200	0.075549739	2.67572E-07	1.72795E-06	0.06648183	2.35456E-07	1.52055E-06	0.344050523	1.21851E-06	7.86903E-06	0.299980784	1.06243E-06	6.86108E-06	0.366462614	1.29789E-06	8.38164E-06
Road 2	2	2200-2300	0.10862488	3.14308E-07	2.02977E-06	0.09634944	2.78789E-07	1.80039E-06	0.46026064	1.33177E-06	8.60046E-06	0.4062328	1.17544E-06	7.59089E-06	0.50258224	1.45423E-06	9.39128E-06
Road 2	2	2300-0000	0.094677027	2.43267E-07	1.571E-06	0.085567027	2.1986E-07	1.41983E-06	0.424324234	1.09028E-06	7.04091E-06	0.381457297	9.80133E-07	6.32961E-06	0.467024324	1.19999E-06	7.74944E-06
Road 3	3	0000-0100	0.084243826	3.10784E-07	1.20794E-05	0.074930609	2.76426E-07	1.0744E-05	0.462297391	1.70546E-06	6.62869E-05	0.409434043	1.51044E-06	5.87071E-05	0.484364652	1.78687E-06	6.94511E-05
Road 3	3	0100-0200	0.063417676	1.44441E-07	5.61406E-06	0.055955704	1.27446E-07	4.95349E-06	0.367703592	8.37488E-07	3.2551E-05	0.323047183	7.35778E-07	2.85978E-05	0.379002887	8.63223E-07	3.35513E-05
Road 3	3	0200-0300	0.061658687	9.79088E-08	3.80547E-06	0.054650303	8.67801E-08	3.37292E-06	0.381526162	6.05831E-07	2.35471E-05	0.335762525	5.33163E-07	2.07227E-05	0.390412828	6.19943E-07	2.40956E-05
Road 3	3	0300-0400	0.051619571	5.79568E-08	2.25264E-06	0.045540857	5.11318E-08	1.98737E-06	0.282336571	3.16999E-07	1.23209E-05	0.247192714	2.7754E-07	1.07873E-05	0.292733571	3.28672E-07	1.27747E-05
Road 3	3	0400-0500	0.068543363	1.24233E-07	4.82861E-06	0.060828407	1.1025E-07	4.28513E-06	0.377149115	6.83571E-07	2.65687E-05	0.333293097	6.04084E-07	2.34792E-05	0.394121504	7.14333E-07	2.77643E-05
Road 3	3	0500-0600	0.055796504	2.20158E-07	8.55699E-06	0.04914565	1.93915E-07	7.53701E-06	0.308145285	1.21586E-06	4.72573E-05	0.269636626	1.06391E-06	4.13516E-05	0.318782276	1.25783E-06	4.88886E-05
Road 3	3	0600-0700	0.078204955	5.56941E-07	2.16469E-05	0.068515225	4.87935E-07	1.89648E-05	0.388490631	2.76666E-06	0.000107533	0.338678378	2.41192E-06	9.37452E-05	0.407193604	2.89985E-06	0.00011271
Road 3	3	0700-0800	0.065997593	7.69582E-07	2.99117E-05	0.056146231	6.54707E-07	2.54468E-05	0.34410696	4.01255E-06	0.000155958	0.290130509	3.38314E-06	0.000131494	0.34627674	4.03785E-06	0.000156941
Road 3	3	0800-0900	0.074261314	1.18754E-06	4.61569E-05	0.064079318	1.02472E-06	3.98283E-05	0.365985176	5.85263E-06	0.000227477	0.314061916	5.0223E-06	0.000195204	0.378141234	6.04702E-06	0.000235032
Road 3	3	0900-1000	0.082223368	1.27267E-06	4.94654E-05	0.068805109	1.06498E-06	4.1393E-05	0.422832725	6.54468E-06	0.000254375	0.351841627	5.44586E-06	0.000211667	0.420646736	6.51084E-06	0.00025306
Road 3	3	1000-1100	0.094188931	1.32795E-06	5.1614E-05	0.079705381	1.12375E-06	4.36772E-05	0.474304573	6.68711E-06	0.000259911	0.399764403	5.63618E-06	0.000219064	0.479469784	6.75993E-06	0.000262742
Road 3	3	1100-1200	0.091058817	1.2473E-06	4.84796E-05	0.076855515	1.05275E-06	4.09177E-05	0.471140375	6.45358E-06	0.000250834	0.395936171	5.42345E-06	0.000210796	0.472791686	6.4762E-06	0.000251713
Road 3	3	1200-1300	0.085979309	1.17773E-06	4.57752E-05	0.072800211	9.97201E-07	3.87587E-05	0.455179016	6.23494E-06	0.000242336	0.383600948	5.25448E-06	0.000204228	0.456401159	6.25168E-06	0.000242987

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.092737875	1.37889E-06	5.35939E-05	0.077502082	1.15235E-06	4.4789E-05	0.472007346	7.01812E-06	0.000272777	0.39232069	5.83328E-06	0.000226725	0.469822772	6.98564E-06	0.000271514
Road 3	3	1400-1500	0.086460814	1.29526E-06	5.03437E-05	0.071872024	1.07671E-06	4.1849E-05	0.447062355	6.69741E-06	0.000260312	0.369654197	5.53777E-06	0.000215239	0.441526221	6.61448E-06	0.000257088
Road 3	3	1500-1600	0.093566581	1.34319E-06	5.22063E-05	0.07960124	1.14271E-06	4.44142E-05	0.470901821	6.75998E-06	0.000262744	0.398718302	5.72376E-06	0.000222468	0.478319542	6.86647E-06	0.000266882
Road 3	3	1600-1700	0.088780338	1.38982E-06	5.40188E-05	0.074236178	1.16214E-06	4.51694E-05	0.453784355	7.10381E-06	0.000276107	0.377287244	5.90628E-06	0.000229562	0.451523422	7.06842E-06	0.000274732
Road 3	3	1700-1800	0.070256813	1.10322E-06	4.28795E-05	0.059141021	9.28675E-07	3.60953E-05	0.360777732	5.66519E-06	0.000220192	0.301387109	4.7326E-06	0.000183944	0.360528131	5.66127E-06	0.000220039
Road 3	3	1800-1900	0.063347089	1.04349E-06	4.05579E-05	0.056010954	9.22647E-07	3.5861E-05	0.347271977	5.72048E-06	0.000222341	0.304835823	5.02144E-06	0.000195171	0.360846777	5.94409E-06	0.000231032
Road 3	3	1900-2000	0.068132618	8.30541E-07	3.2281E-05	0.059824013	7.29258E-07	2.83444E-05	0.374249553	4.56212E-06	0.000177318	0.326245895	3.97696E-06	0.000154574	0.386069908	4.70622E-06	0.000182919
Road 3	3	2000-2100	0.063178028	6.57662E-07	2.55617E-05	0.054988783	5.72415E-07	2.22483E-05	0.345237042	3.5938E-06	0.000139682	0.298134869	3.10349E-06	0.000120625	0.353123652	3.6759E-06	0.000142873
Road 3	3	2100-2200	0.061221854	6.03912E-07	2.34726E-05	0.053591512	5.28644E-07	2.05471E-05	0.344228748	3.39558E-06	0.000131978	0.299173317	2.95114E-06	0.000114704	0.352764829	3.47979E-06	0.000135251
Road 3	3	2200-2300	0.065148384	5.88307E-07	2.2866E-05	0.057453393	5.1882E-07	2.01652E-05	0.355135755	3.20697E-06	0.000124647	0.311196465	2.81019E-06	0.000109225	0.368649858	3.32901E-06	0.00012939
Road 3	3	2300-0000	0.056537211	4.55229E-07	1.76936E-05	0.050022251	4.02772E-07	1.56547E-05	0.322763606	2.59885E-06	0.000101011	0.283316255	2.28122E-06	8.86653E-05	0.333338506	2.68399E-06	0.00010432
Road 4	4	0000-0100	0.225691143	1.82852E-07	1.9579E-06	0.200583143	1.62509E-07	1.74008E-06	1.113997429	9.02544E-07	9.66406E-06	0.989594286	8.01755E-07	8.58485E-06	1.190177429	9.64264E-07	1.03249E-05
Road 4	4	0100-0200	0.2136125	9.88947E-08	1.05892E-06	0.188386	8.72157E-08	9.33869E-07	1.0565945	4.89164E-07	5.23776E-06	0.931839	4.31407E-07	4.61932E-06	1.120225	5.18623E-07	5.55319E-06
Road 4	4	0200-0300	0.229056923	6.89292E-08	7.38064E-07	0.203256154	6.1165E-08	6.5493E-07	1.095576154	3.29687E-07	3.53015E-06	0.97219	2.92557E-07	3.13258E-06	1.175446154	3.53722E-07	3.78751E-06
Road 4	4	0300-0400	0.208244286	3.37433E-08	3.61309E-07	0.184025714	2.9819E-08	3.19289E-07	1.069204286	1.73251E-07	1.8551E-06	0.944644286	1.53067E-07	1.63898E-06	1.12867	1.82886E-07	1.95827E-06
Road 4	4	0400-0500	0.212729286	6.894E-08	7.38181E-07	0.188767857	6.11748E-08	6.55034E-07	1.017912143	3.29879E-07	3.5322E-06	0.903231429	2.92714E-07	3.13426E-06	1.091999286	3.53889E-07	3.78929E-06
Road 4	4	0500-0600	0.197559167	1.09755E-07	1.17521E-06	0.174161667	9.67565E-08	1.03603E-06	0.9088925	5.0494E-07	5.40669E-06	0.800756667	4.44865E-07	4.76342E-06	0.974918333	5.41621E-07	5.79945E-06
Road 4	4	0600-0700	0.222481698	2.72952E-07	2.92266E-06	0.194941321	2.39164E-07	2.56087E-06	1.029359245	1.26287E-06	1.35223E-05	0.90128717	1.10575E-06	1.18399E-05	1.096228491	1.34491E-06	1.44007E-05
Road 4	4	0700-0800	0.228893913	4.87459E-07	5.21951E-06	0.19476337	4.14774E-07	4.44122E-06	1.098157283	2.33867E-06	2.50415E-05	0.933468261	1.98794E-06	2.1286E-05	1.12823163	2.40272E-06	2.57273E-05
Road 4	4	0800-0900	0.238553806	8.55922E-07	9.16485E-06	0.205695806	7.38029E-07	7.9025E-06	1.148805677	4.12187E-06	4.41353E-05	0.990256581	3.553E-06	3.80441E-05	1.195952387	4.29103E-06	4.59466E-05
Road 4	4	0900-1000	0.248053919	8.49814E-07	9.09945E-06	0.206893784	7.08803E-07	7.58956E-06	1.134005743	3.88502E-06	4.15992E-05	0.945016824	3.23756E-06	3.46664E-05	1.151910608	3.94636E-06	4.2256E-05
Road 4	4	1000-1100	0.279056736	9.30189E-07	9.96007E-06	0.235758889	7.85863E-07	8.41469E-06	1.279645	4.26548E-06	4.5673E-05	1.080958125	3.60319E-06	3.85815E-05	1.316717014	4.38906E-06	4.69962E-05
Road 4	4	1100-1200	0.254216903	9.12121E-07	9.76661E-06	0.214264452	7.68773E-07	8.2317E-06	1.158383355	4.15624E-06	4.45032E-05	0.975843935	3.50129E-06	3.74904E-05	1.190108387	4.27006E-06	4.57221E-05
Road 4	4	1200-1300	0.261033649	8.94282E-07	9.57559E-06	0.220717027	7.5616E-07	8.09664E-06	1.241368919	4.25284E-06	4.55376E-05	1.049224662	3.59457E-06	3.84891E-05	1.269941689	4.35073E-06	4.65857E-05
Road 4	4	1300-1400	0.2716666	9.43287E-07	1.01003E-05	0.226687333	7.87109E-07	8.42803E-06	1.261894867	4.38158E-06	4.69161E-05	1.052459267	3.65437E-06	3.91295E-05	1.2791466	4.44148E-06	4.75575E-05
Road 4	4	1400-1500	0.250120571	8.10576E-07	8.67931E-06	0.207571714	6.72686E-07	7.20284E-06	1.199187571	3.88626E-06	4.16124E-05	0.994441643	3.22273E-06	3.45076E-05	1.202013357	3.89541E-06	4.17104E-05
Road 4	4	1500-1600	0.27360328	7.91676E-07	8.47693E-06	0.23237696	6.72387E-07	7.19964E-06	1.27117184	3.67816E-06	3.93842E-05	1.07931056	3.12301E-06	3.34398E-05	1.31168752	3.79539E-06	4.06395E-05
Road 4	4	1600-1700	0.257586129	7.39368E-07	7.91684E-06	0.215135403	6.17518E-07	6.61213E-06	1.208578306	3.46907E-06	3.71453E-05	1.008735726	2.89545E-06	3.10032E-05	1.223871129	3.51296E-06	3.76153E-05
Road 4	4	1700-1800	0.246775748	7.25475E-07	7.76808E-06	0.207678504	6.10536E-07	6.53737E-06	1.176866142	3.45977E-06	3.70457E-05	0.98970126	2.90954E-06	3.11541E-05	1.197379764	3.52007E-06	3.76915E-05
Road 4	4	1800-1900	0.259832925	6.37553E-07	6.82665E-06	0.229835849	5.63949E-07	6.03853E-06	1.250657547	3.06874E-06	3.28588E-05	1.106342358	2.71464E-06	2.90672E-05	1.336178208	3.27859E-06	3.51057E-05
Road 4	4	1900-2000	0.236363243	4.04881E-07	4.3353E-06	0.20747527	3.55397E-07	3.80545E-06	1.140063514	1.95289E-06	2.09107E-05	1.000440135	1.71372E-06	1.83498E-05	1.207915405	2.06911E-06	2.21552E-05
Road 4	4	2000-2100	0.204905306	2.32416E-07	2.48861E-06	0.178202653	2.02128E-07	2.1643E-06	0.991701224	1.12485E-06	1.20444E-05	0.861542041	9.77212E-07	1.04636E-05	1.039744694	1.17934E-06	1.26279E-05
Road 4	4	2100-2200	0.169203243	1.44919E-07	1.55174E-06	0.148321622	1.27035E-07	1.36023E-06	0.836082162	7.16089E-07	7.66758E-06	0.731834595	6.26803E-07	6.71154E-06	0.880156216	7.53838E-07	8.07177E-06
Road 4	4	2200-2300	0.22486381	3.27926E-07	3.5113E-06	0.198310635	2.89203E-07	3.09666E-06	1.068356349	1.55802E-06	1.66826E-05	0.94194	1.37366E-06	1.47086E-05	1.140250635	1.66287E-06	1.78053E-05
Road 4	4	2300-0000	0.207843878	2.35749E-07	2.5243E-06	0.18388102	2.08569E-07	2.23327E-06	1.014386939	1.15058E-06	1.23199E-05	0.896753061	1.01715E-06	1.08912E-05	1.080634082	1.22572E-06	1.31245E-05
Road 5	5	0000-0100	0.07133228	2.58392E-07	3.49428E-06	0.063465648	2.29896E-07	3.10893E-06	0.396251347	1.43537E-06	1.94108E-05	0.350511036	1.26968E-06	1.71701E-05	0.413976684	1.49958E-06	2.02791E-05
Road 5	5	0100-0200	0.048133361	1.10215E-07	1.49046E-06	0.042473607	9.72556E-08	1.31521E-06	0.293367787	6.71751E-07	9.08421E-06	0.257279426	5.89116E-07	7.96672E-06	0.299753033	6.86371E-07	9.28193E-06
Road 5	5	0200-0300	0.045489651	7.34255E-08	9.92947E-07	0.040293023	6.50375E-08	8.79515E-07	0.310209535	5.00714E-07	6.77124E-06	0.272048256	4.39117E-07	5.93826E-06	0.312341279	5.04154E-07	6.81778E-06
Road 5	5	0300-0400	0.040566667	4.79673E-08	6.48671E-07	0.035763175	4.22875E-08	5.71862E-07	0.221323492	2.617E-07	3.53902E-06	0.193037778	2.28254E-07	3.08672E-06	0.228800952	2.70542E-07	3.65859E-06
Road 5	5	0400-0500	0.056089697	1.04221E-07	1.4094E-06	0.04977899	9.24947E-08	1.25082E-06	0.318364848	5.91556E-07	7.99973E-06	0.280931919	5.22002E-07	7.05913E-06	0.330710909	6.14497E-07	8.30995E-06
Road 5	5	0500-0600	0.045643909	1.8847E-07	2.54871E-06	0.040191318	1.65955E-07	2.24424E-06	0.263073227	1.08626E-06	1.46897E-05	0.229706318	9.48487E-07	1.28266E-05	0.269897636	1.11444E-06	1.50708E-05
Road 5	5	0600-0700	0.067749665	4.93372E-07	6.67196E-06	0.059360206	4.32278E-07	5.84577E-06	0.338414381	2.46443E-06	3.33269E-05	0.294615412	2.14547E-06	2.90136E-05	0.353975619	2.57775E-06	3.48594E-05
Road 5	5	0700-0800	0.053921264	6.40619E-07	8.66321E-06	0.045884739	5.4514E-07	7.37203E-06	0.282977678	3.36195E-06	4.54643E-05	0.237804487	2.82527E-06	3.82066E-05	0.283689226	3.37041E-06	4.55786E-05
Road 5	5	0800-0900	0.058757248	9.29661E-07	1.2572E-05	0.050718138	8.02466E-07	1.08519E-05	0.285877865	4.52318E-06	6.11678E-05	0.244752313	3.87249E-06	5.23684E-05	0.295470451	4.67495E-06	6.32203E-05
Road 5	5	0900-1000	0.066395502	1.01687E-06	1.37513E-05	0.055613174	8.51733E-07	1.15181E-05	0.352567377	5.39968E-06	7.30209E-05	0.29325239	4.49125E-06	6.07361E-05	0.348865564	5.34299E-06	7.22542E-05
Road 5	5	1000-1100	0.076321213	1.05142E-06	1.42186E-05	0.064627984	8.90333E-07	1.20401E-05	0.394158556	5.43004E-06	7.34314E-05	0.331915068	4.57255E-06	6.18355E-05	0.396543052	5.46289E-06	7.38756E-05
Road 5	5	1100-1200	0.073846595	9.68821E-07	1.31015E-05	0.062385021	8.18452E-07	1.10681E-05	0.39802804	5.22188E-06	7.06164E-05	0.334135222	4.38364E-06	5.92808E-05	0.396520243	5.2021E-06	7.03489E-05
Road 5	5	1200-1300	0.068742037	9.12174E-07	1.23355E-05	0.058243324	7.72861E-07	1.04515E-05	0.373492008	4.95606E-06	6.70217E-05	0.314348685	4.17126E-06	5.64087E-05	0.372592008	4.94412E-06	6.68602E-05
Road 5	5	1300-1400	0.076244402	1.1119E-06	1.50364E-05	0.063749138	9.29675E-07	1.25722E-05	0.396193102	5.77782E-06	7.81345E-05	0.328856422	4.79582E-06	6.48548E-05	0.39260556	5.7255E-06	7.7427E-05
Road 5	5	1400-1500	0.072681549	1.08313E-06	1.46474E-05	0.060444068	9.00762E-07	1.21812E-05	0.37973131	5.65891E-06	7.65265E-05	0.313688816	4.67472E-06	6.32171E-05	0.374132884	5.57548E-06	7.53982E-05
Road 5	5	1500-1600	0.07913761	1.14369E-06	1.54664E-05	0.067369377	9.73619E-07	1.31664E-05	0.402975896	5.82379E-06	7.87562E-05	0.340861169	4.92611E-06	6.66167E-05	0.408230545	5.89973E-06	7.97831E-05
Road 5	5	1600-1700	0.075600211	1.21034E-06	1.63677E-05	0.063251125	1.01264E-06	1.36941E-05	0.392378839	6.28189E-06	8.49512E-05	0.325855311	5.21687E-06	7.05486E-05	0.389106436	6.2295E-06	8.42427E-05
Road 5	5	1700-1800	0.055554054	8.87322E-07	1.19994E-05	0.046769777	7.47017E-07	1.01021E-05	0.288698425	4.61116E-06	6.23575E-05	0.240489483	3.84115E-06	5.19446E-05	0.28725926	4.58817E-06	6.20467E-05
Road 5	5	1800-1900	0.049513036	8.54026E-07	1.15491E-05	0.043804233	7.55557E-07	1.02175E-05	0.28017235	4.83255E-06	6.53515E-05	0.24521556	4.2296E-06	5.71977E-05	0.289019793	4.98516E-06	6.74152E-05
Road 5	5	1900-2000	0.058019475	7.47023E-07	1.01021E-05	0.050917507	6.55582E-07	8.86556E-06	0.325682726	4.19329E-06	5.67066E-05	0.283447434	3.64949E-06	4.93528E-05	0.334364942	4.30507E-06	5.82183E-05
Road 5	5	2000-2100	0.055919483	6.29724E-07	8.51587E-06	0.048635183	5.47694E-07	7.40656E-06	0.309807	3.48882E-06	4.71799E-05	0.267290717	3.01003E-06	4.07052E-05	0.3159259	3.55772E-06	4.81118E-05
Road 5	5	2100-2200	0.057075381	6.19174E-07	8.3732E-06	0.049948478	5.41858E-07	7.32765E-06	0.324260675	3.51769E-06	4.75704E-05	0.281553789	3.05439E-06	4.13051E-05	0.331502266	3.59625E-06	4.86328E-05
Road 5	5	2200-2300	0.054473928	5.10182E-07	6.89929E-06	0.048035491	4.49882E-07	6.08384E-06	0.304594409	2.85271E-06	3.85778E-05	0.266387936	2.49489E-06	3.37388E-05	0.314423427	2.94477E-06	3.98227E-05
Road 5	5	2300-0000	0.047480265	4.03689E-07	5.45916E-06	0.042005342	3.5714E-07	4.82967E-06	0.278070574	2.36423E-06	3.19719E-05	0.243594834	2.0711E-06	2.80079E-05	0.285600177	2.42824E-06	3.28376E-05
Road 6	6	0000-0100	0.042615533	1.19976E-07	4.28866E-06	0.0378354	1.06519E-07	3.80761E-06	0.272632467	7.67546E-07	2.74367E-05	0.239601067	6.74553E-07	2.41125E-05	0.277436467	7.81071E-07	2.79201E-05
Road 6	6	0100-0200	0.056738421	1.214E-07	4.33955E-06	0.050065088	1.07121E-07	3.82915E-06	0.317949649	6.80298E-07	2.43179E-05	0.278431754	5.95744E-07	2.12954E-05	0.328496842	7.02865E-07	2.51246E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.051283418	7.60396E-08	2.71811E-06	0.045516962	6.74895E-08	2.41248E-06	0.291419494	4.32097E-07	1.54457E-05	0.256521899	3.80353E-07	1.35961E-05	0.302038861	4.47843E-07	1.60086E-05
Road 6	6	0300-0400	0.0528	6.14414E-08	2.19628E-06	0.046772581	5.44276E-08	1.94556E-06	0.33551629	3.90428E-07	1.39562E-05	0.294947097	3.43219E-07	1.22687E-05	0.341719677	3.97647E-07	1.42143E-05
Road 6	6	0400-0500	0.056733222	9.58331E-08	3.42565E-06	0.050364556	8.50753E-08	3.0411E-06	0.331108333	5.59305E-07	1.99929E-05	0.291776	4.92865E-07	1.76179E-05	0.342140556	5.7794E-07	2.0659E-05
Road 6	6	0500-0600	0.051076481	1.553E-07	5.55135E-06	0.045044938	1.36961E-07	4.8958E-06	0.305962284	9.30291E-07	3.32541E-05	0.267393148	8.1302E-07	2.90622E-05	0.312438086	9.49981E-07	3.3958E-05
Road 6	6	0600-0700	0.055298586	3.00987E-07	1.07591E-05	0.048480103	2.63874E-07	9.43244E-06	0.346682931	1.88698E-06	6.74517E-05	0.301009138	1.63838E-06	5.85653E-05	0.349489241	1.90225E-06	6.79977E-05
Road 6	6	0700-0800	0.05301513	4.59703E-07	1.64325E-05	0.045147749	3.91484E-07	1.3994E-05	0.303230281	2.62936E-06	9.3989E-05	0.254938571	2.21062E-06	7.90206E-05	0.30008632	2.6021E-06	9.30145E-05
Road 6	6	0800-0900	0.045557326	5.66046E-07	2.02339E-05	0.039275906	4.88E-07	1.7444E-05	0.267251994	3.32059E-06	0.000118697	0.227253716	2.82361E-06	0.000100933	0.266529622	3.31161E-06	0.000118377
Road 6	6	0900-1000	0.049168673	5.84155E-07	2.08812E-05	0.041078088	4.88034E-07	1.74452E-05	0.277440521	3.29617E-06	0.000117825	0.228397393	2.71351E-06	9.69968E-05	0.269475482	3.20154E-06	0.000114442
Road 6	6	1000-1100	0.066597645	6.68726E-07	2.39043E-05	0.056307439	5.65399E-07	2.02107E-05	0.363871589	3.65374E-06	0.000130606	0.305234262	3.06495E-06	0.000109559	0.361541701	3.63035E-06	0.00012977
Road 6	6	1100-1200	0.075374079	7.52609E-07	2.69027E-05	0.063699812	6.36042E-07	2.27359E-05	0.393360357	3.9277E-06	0.000140399	0.330285865	3.2979E-06	0.000117887	0.393985677	3.93394E-06	0.000140622
Road 6	6	1200-1300	0.072565182	7.12305E-07	2.5462E-05	0.061500019	6.03688E-07	2.15794E-05	0.363697553	3.57008E-06	0.000127616	0.306566195	3.00927E-06	0.000107569	0.368066214	3.61296E-06	0.000129149
Road 6	6	1300-1400	0.085289347	8.34004E-07	2.98123E-05	0.071291536	6.97126E-07	2.49194E-05	0.435380806	4.25738E-06	0.000152184	0.361421228	3.53417E-06	0.000126332	0.432712764	4.23129E-06	0.000151252
Road 6	6	1400-1500	0.082061498	8.84071E-07	3.1602E-05	0.068249652	7.35272E-07	2.6283E-05	0.412508101	4.44406E-06	0.000158857	0.340566986	3.66902E-06	0.000131153	0.408816638	4.40429E-06	0.000157436
Road 6	6	1500-1600	0.070290783	7.41431E-07	2.65031E-05	0.059764057	6.30394E-07	2.2534E-05	0.365462135	3.85491E-06	0.000137797	0.308436566	3.2534E-06	0.000116296	0.368200623	3.8838E-06	0.00013883
Road 6	6	1600-1700	0.073990608	7.99898E-07	2.85931E-05	0.061909219	6.69289E-07	2.39244E-05	0.367604253	3.9741E-06	0.000142058	0.305291267	3.30045E-06	0.000117978	0.367200486	3.96973E-06	0.000141902
Road 6	6	1700-1800	0.055351672	6.33718E-07	2.26529E-05	0.046625689	5.33815E-07	1.90817E-05	0.284934787	3.2622E-06	0.000116611	0.237565721	2.71988E-06	9.72246E-05	0.28419141	3.25369E-06	0.000116306
Road 6	6	1800-1900	0.051499434	6.65974E-07	2.38059E-05	0.045549347	5.8903E-07	2.10554E-05	0.269602322	3.48641E-06	0.000124625	0.236311103	3.0559E-06	0.000109236	0.28186045	3.64493E-06	0.000130291
Road 6	6	1900-2000	0.061770954	6.07507E-07	2.17159E-05	0.054194885	5.32998E-07	1.90525E-05	0.323726546	3.1838E-06	0.000113808	0.281502729	2.76853E-06	9.89638E-05	0.335697615	3.30153E-06	0.000118016
Road 6	6	2000-2100	0.04856701	3.81025E-07	1.36201E-05	0.04220878	3.31142E-07	1.1837E-05	0.283235789	2.22208E-06	7.94304E-05	0.243695718	1.91188E-06	6.83419E-05	0.285904498	2.24302E-06	8.01789E-05
Road 6	6	2100-2200	0.067067917	4.53162E-07	1.61987E-05	0.058693972	3.96581E-07	1.41762E-05	0.356671528	2.40994E-06	8.61457E-05	0.310028389	2.09479E-06	7.48801E-05	0.368722361	2.49137E-06	8.90563E-05
Road 6	6	2200-2300	0.049682336	3.55273E-07	1.26996E-05	0.043755223	3.12889E-07	1.11845E-05	0.278630682	1.99246E-06	7.12224E-05	0.242353018	1.73304E-06	6.19492E-05	0.286108241	2.04593E-06	7.31338E-05
Road 6	6	2300-0000	0.033233725	2.22681E-07	7.95994E-06	0.029403866	1.97019E-07	7.04264E-06	0.206700196	1.38498E-06	4.95076E-05	0.180676611	1.21061E-06	4.32746E-05	0.210080476	1.40763E-06	5.03172E-05
Road 7	7	0000-0100	0.06229374	1.68222E-07	4.19936E-06	0.054949865	1.4839E-07	3.70429E-06	0.366628188	9.90064E-07	2.47152E-05	0.321337941	8.67759E-07	2.16621E-05	0.376287806	1.01615E-06	2.53664E-05
Road 7	7	0100-0200	0.077043273	1.62191E-07	4.04882E-06	0.068014581	1.43184E-07	3.57434E-06	0.419954761	8.84087E-07	2.20697E-05	0.36903658	7.76894E-07	1.93938E-05	0.437051161	9.20078E-07	2.29681E-05
Road 7	7	0200-0300	0.065410213	8.92684E-08	2.22843E-06	0.058177778	7.9398E-08	1.98203E-06	0.368763936	5.0327E-07	1.25632E-05	0.32620873	4.45192E-07	1.11135E-05	0.384386508	5.2459E-07	1.30955E-05
Road 7	7	0300-0400	0.066871974	7.37874E-08	1.84197E-06	0.059333985	6.54699E-08	1.63434E-06	0.401775789	4.43324E-07	1.10668E-05	0.354612234	3.91284E-07	9.76771E-06	0.413946219	4.56753E-07	1.14021E-05
Road 7	7	0400-0500	0.073631802	1.18662E-07	2.9622E-06	0.065365315	1.0534E-07	2.62964E-06	0.408375586	6.58123E-07	1.64289E-05	0.360775135	5.81412E-07	1.45139E-05	0.42614045	6.86752E-07	1.71436E-05
Road 7	7	0500-0600	0.066753182	1.91894E-07	4.7903E-06	0.058872323	1.69239E-07	4.22476E-06	0.374464293	1.07647E-06	2.68721E-05	0.328201768	9.43475E-07	2.35522E-05	0.387074091	1.11271E-06	2.7777E-05
Road 7	7	0600-0700	0.071646996	3.68235E-07	9.19236E-06	0.062745625	3.22486E-07	8.05031E-06	0.413656339	2.12602E-06	5.30724E-05	0.359841477	1.84943E-06	4.61679E-05	0.422587103	2.17192E-06	5.42182E-05
Road 7	7	0700-0800	0.070092859	5.74972E-07	1.43532E-05	0.059773667	4.90323E-07	1.22401E-05	0.381170046	3.12674E-06	7.80536E-05	0.322207074	2.64307E-06	6.59795E-05	0.38198074	3.13339E-06	7.82196E-05
Road 7	7	0800-0900	0.070636289	8.76836E-07	2.18887E-05	0.060254385	7.47961E-07	1.86716E-05	0.382580044	4.74912E-06	0.000118553	0.323613519	4.01714E-06	0.000100281	0.383867903	4.7651E-06	0.000118952
Road 7	7	0900-1000	0.073341759	8.43336E-07	2.10524E-05	0.06132301	7.05136E-07	1.76025E-05	0.383293381	4.40738E-06	0.000110023	0.317896058	3.6554E-06	9.12507E-05	0.379219069	4.36053E-06	0.000108853
Road 7	7	1000-1100	0.087909764	8.87046E-07	2.21436E-05	0.073810963	7.44783E-07	1.85922E-05	0.461764142	4.65939E-06	0.000116314	0.385575522	3.89062E-06	9.71225E-05	0.459386485	4.6354E-06	0.000115715
Road 7	7	1100-1200	0.095700638	9.6427E-07	2.40713E-05	0.08085421	8.14679E-07	2.0337E-05	0.489412178	4.93127E-06	0.000123101	0.411827945	4.14954E-06	0.000103586	0.492682155	4.96422E-06	0.000123923
Road 7	7	1200-1300	0.093613036	9.41876E-07	2.35123E-05	0.079506693	7.99947E-07	1.99693E-05	0.472283082	4.75182E-06	0.000118621	0.39980803	4.02262E-06	0.000100418	0.479314723	4.82257E-06	0.000120387
Road 7	7	1300-1400	0.101014927	1.00022E-06	2.49687E-05	0.084782325	8.39487E-07	2.09563E-05	0.510903622	5.0588E-06	0.000126284	0.426816776	4.2262E-06	0.0001055	0.511599101	5.06569E-06	0.000126456
Road 7	7	1400-1500	0.09487076	9.83456E-07	2.45503E-05	0.078851411	8.17395E-07	2.04048E-05	0.482562751	5.00238E-06	0.000124876	0.398924588	4.13536E-06	0.000103232	0.477775999	4.95276E-06	0.000123637
Road 7	7	1500-1600	0.086454437	8.79893E-07	2.1965E-05	0.07343051	7.47341E-07	1.86561E-05	0.445888072	4.53804E-06	0.000113284	0.376615702	3.83302E-06	9.56846E-05	0.450046212	4.58036E-06	0.000114341
Road 7	7	1600-1700	0.089809524	9.45333E-07	2.35986E-05	0.07550707	7.94786E-07	1.98404E-05	0.4471198	4.70637E-06	0.000117486	0.374009277	3.93681E-06	9.82757E-05	0.449516348	4.7316E-06	0.000118116
Road 7	7	1700-1800	0.06954456	7.74431E-07	1.93323E-05	0.05851417	6.516E-07	1.6266E-05	0.359694973	4.00548E-06	9.99897E-05	0.300385691	3.34502E-06	8.35026E-05	0.358899861	3.99662E-06	9.97687E-05
Road 7	7	1800-1900	0.06135921	7.10007E-07	1.77241E-05	0.053723451	6.21651E-07	1.55184E-05	0.322107261	3.7272E-06	9.30432E-05	0.279902069	3.23883E-06	8.08519E-05	0.33362552	3.86049E-06	9.63703E-05
Road 7	7	1900-2000	0.071329664	6.23435E-07	1.5563E-05	0.062994976	5.50588E-07	1.37445E-05	0.37714367	3.29631E-06	8.22866E-05	0.330942236	2.8925E-06	7.22062E-05	0.393937212	3.44309E-06	8.59506E-05
Road 7	7	2000-2100	0.065848526	4.7419E-07	1.18373E-05	0.057287403	4.12539E-07	1.02983E-05	0.35928249	2.58727E-06	6.45867E-05	0.310312146	2.23463E-06	5.57835E-05	0.367599549	2.64716E-06	6.60819E-05
Road 7	7	2100-2200	0.074644879	4.48668E-07	1.12002E-05	0.065470806	3.93525E-07	9.82367E-06	0.398154106	2.39318E-06	5.97416E-05	0.347300306	2.08752E-06	5.21112E-05	0.412771112	2.48104E-06	6.19349E-05
Road 7	7	2200-2300	0.061943356	4.02E-07	1.00352E-05	0.054699409	3.54989E-07	8.86167E-06	0.338746913	2.1984E-06	5.48793E-05	0.296453727	1.92393E-06	4.80275E-05	0.351153136	2.27892E-06	5.68892E-05
Road 7	7	2300-0000	0.043182507	2.57676E-07	6.43243E-06	0.038510777	2.29799E-07	5.73654E-06	0.25475259	1.52014E-06	3.79478E-05	0.225249061	1.34409E-06	3.35529E-05	0.263759838	1.57389E-06	3.92895E-05
Road 8	8	0000-0100	0.197879722	1.43913E-07	2.37234E-06	0.175856389	1.27896E-07	2.10831E-06	0.979808333	7.12588E-07	1.17467E-05	0.870190278	6.32866E-07	1.04326E-05	1.046046667	7.60761E-07	1.25409E-05
Road 8	8	0100-0200	0.205855333	1.24761E-07	2.05664E-06	0.181575667	1.10046E-07	1.81406E-06	1.016450333	6.16031E-07	1.0155E-05	0.896538667	5.43357E-07	8.95703E-06	1.078114333	6.53403E-07	1.07711E-05
Road 8	8	0200-0300	0.193150667	5.85305E-08	9.64853E-07	0.171482	5.19642E-08	8.56611E-07	1.002758667	3.03866E-07	5.00912E-06	0.890178	2.69751E-07	4.44674E-06	1.06166	3.21715E-07	5.30335E-06
Road 8	8	0300-0400	0.1762	4.98343E-08	8.215E-07	0.155925714	4.41002E-08	7.26975E-07	0.896082143	2.53437E-07	4.17782E-06	0.792524286	2.24148E-07	3.695E-06	0.94845	2.68248E-07	4.42198E-06
Road 8	8	0400-0500	0.198495714	8.42103E-08	1.38818E-06	0.176205714	7.47539E-08	1.23229E-06	0.951840952	4.03811E-07	6.65668E-06	0.84487	3.5843E-07	5.90858E-06	1.021075714	4.33184E-07	7.14087E-06
Road 8	8	0500-0600	0.190013529	1.30514E-07	2.15148E-06	0.167585294	1.15109E-07	1.89753E-06	0.895086176	6.14807E-07	1.01349E-05	0.789049706	5.41974E-07	8.93423E-06	0.956635	6.57083E-07	1.08318E-05
Road 8	8	0600-0700	0.215146774	2.69477E-07	4.44222E-06	0.188607258	2.36235E-07	3.89425E-06	1.001440968	1.25433E-06	2.06772E-05	0.877330161	1.09888E-06	1.81146E-05	1.065937419	1.33511E-06	2.20088E-05
Road 8	8	0700-0800	0.218838431	4.5094E-07	7.43357E-06	0.186266471	3.83822E-07	6.32716E-06	1.02900402	2.12037E-06	3.49535E-05	0.875260392	1.80357E-06	2.97311E-05	1.061526863	2.18739E-06	3.60583E-05
Road 8	8	0800-0900	0.246526927	9.56226E-07	1.5763E-05	0.21274026	8.25174E-07	1.36027E-05	1.163634271	4.51349E-06	7.44032E-05	1.003667448	3.89301E-06	6.41749E-05	1.216407708	4.71819E-06	7.77775E-05
Road 8	8	0900-1000	0.268199114	8.5607E-07	1.4112E-05	0.223772342	7.14263E-07	1.17744E-05	1.204080253	3.84333E-06	6.33558E-05	1.004447152	3.20611E-06	5.28516E-05	1.228219494	3.92038E-06	6.46259E-05
Road 8	8	1000-1100	0.25631225	8.28484E-07	1.36572E-05	0.216594438	7.00103E-07	1.15409E-05	1.184967563	3.8302E-06	6.31394E-05	1.000706813	3.23461E-06	5.33213E-05	1.21730125	3.93471E-06	6.48622E-05
Road 8	8	1100-1200	0.260965723	8.38254E-07	1.38183E-05	0.219938931	7.06471E-07	1.16459E-05	1.218496352	3.91396E-06	6.45201E-05	1.026465283	3.29713E-06	5.4352E-05	1.246404214	4.0036E-06	6.59979E-05
Road 8	8	1200-1300	0.263669118	9.0553E-07	1.49273E-05	0.222928882	7.65614E-07	1.26209E-05	1.241149882	4.26253E-06	7.02663E-05	1.049105059	3.60299E-06	5.93939E-05	1.272033941	4.3686E-06	7.20148E-05
Road 8	8	1300-1400	0.244813889	8.01209E-07	1.32076E-05	0.204346235	6.68769E-07	1.10244E-05	1.136965802	3.72098E-06	6.13389E-05	0.948530617	3.10428E-06	5.11729E-05	1.152876852	3.77305E-06	6.21973E-05
Road 8	8	1400-1500	0.242031079	6.79643E-07	1.12037E-05	0.200902662	5.64151E-07	9.29982E-06	1.170521151	3.28692E-06	5.41836E-05	0.971179065	2.72715E-06	4.4956E-05	1.172081727	3.2913E-06	5.42558E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.243226547	6.83E-07	1.1259E-05	0.206545971	5.79998E-07	9.56105E-06	1.146499065	3.21946E-06	5.30716E-05	0.972884101	2.73194E-06	4.5035E-05	1.179430072	3.31193E-06	5.4596E-05
Road 8	8	1600-1700	0.244414161	7.35711E-07	1.21279E-05	0.204103826	6.14373E-07	1.01277E-05	1.141879262	3.43717E-06	5.66605E-05	0.952865973	2.86822E-06	4.72816E-05	1.156969799	3.4826E-06	5.74093E-05
Road 8	8	1700-1800	0.199785769	6.29628E-07	1.03792E-05	0.168103526	5.29781E-07	8.73324E-06	0.9696725	3.05594E-06	5.0376E-05	0.814446026	2.56674E-06	4.23117E-05	0.982549551	3.09652E-06	5.1045E-05
Road 8	8	1800-1900	0.19144215	4.13824E-07	6.82174E-06	0.16945215	3.66291E-07	6.03816E-06	0.952492991	2.05892E-06	3.39406E-05	0.84246972	1.8211E-06	3.00201E-05	1.011921869	2.18739E-06	3.60582E-05
Road 8	8	1900-2000	0.191906753	2.98522E-07	4.92102E-06	0.168481299	2.62082E-07	4.32032E-06	0.978582597	1.52224E-06	2.50935E-05	0.85896974	1.33618E-06	2.20263E-05	1.027451039	1.59826E-06	2.63467E-05
Road 8	8	2000-2100	0.209504026	3.25895E-07	5.37226E-06	0.182194416	2.83414E-07	4.67197E-06	0.974251558	1.5155E-06	2.49825E-05	0.846535325	1.31683E-06	2.17075E-05	1.02872974	1.60025E-06	2.63795E-05
Road 8	8	2100-2200	0.171220926	1.86786E-07	3.0791E-06	0.149996667	1.63633E-07	2.69742E-06	0.868524259	9.47481E-07	1.56189E-05	0.759510926	8.28557E-07	1.36585E-05	0.909507593	9.9219E-07	1.63559E-05
Road 8	8	2200-2300	0.203662031	2.63321E-07	4.34074E-06	0.17961875	2.32234E-07	3.8283E-06	0.977976094	1.26445E-06	2.0844E-05	0.8618825	1.11435E-06	1.83697E-05	1.04150125	1.34659E-06	2.2198E-05
Road 8	8	2300-0000	0.158657358	1.69876E-07	2.80033E-06	0.140451887	1.50383E-07	2.479E-06	0.793251698	8.4934E-07	1.40011E-05	0.70146	7.51058E-07	1.23809E-05	0.841911887	9.01441E-07	1.48599E-05
Road 9	9	0000-0100	0.177040944	4.70179E-08	1.40356E-06	0.160452778	4.26125E-08	1.27206E-06	0.786019738	2.08748E-07	6.23149E-06	0.707867594	1.87993E-07	5.61191E-06	0.868320373	2.30605E-07	6.88397E-06
Road 9	9	0100-0200	0.193971026	4.04754E-08	1.20826E-06	0.176058188	3.67376E-08	1.09668E-06	0.814684054	1.69998E-07	5.07473E-06	0.734127177	1.53188E-07	4.57293E-06	0.910185365	1.89926E-07	5.66961E-06
Road 9	9	0200-0300	0.073516046	6.9729E-09	2.08153E-07	0.065862844	6.24701E-09	1.86484E-07	0.517421667	4.90768E-08	1.46503E-06	0.465910603	4.4191E-08	1.31918E-06	0.531773447	5.0438E-08	1.50566E-06
Road 9	9	0300-0400	0.089185504	6.7673E-09	2.02016E-07	0.079496341	6.0321E-09	1.80069E-07	0.538843313	4.08869E-08	1.22054E-06	0.481610966	3.65441E-08	1.09091E-06	0.561107307	4.25762E-08	1.27097E-06
Road 9	9	0400-0500	0.206865639	3.92419E-08	1.17144E-06	0.188640528	3.57846E-08	1.06823E-06	0.833153678	1.58047E-07	4.71798E-06	0.75523391	1.43266E-07	4.27673E-06	0.943874437	1.79051E-07	5.34497E-06
Road 9	9	0500-0600	0.148644355	4.79357E-08	1.43096E-06	0.134779786	4.34645E-08	1.29749E-06	0.733048695	2.36398E-07	7.05688E-06	0.666213124	2.14844E-07	6.41347E-06	0.80099291	2.58309E-07	7.71096E-06
Road 9	9	0600-0700	0.178816663	1.08547E-07	3.24033E-06	0.162157759	9.84349E-08	2.93845E-06	0.902890957	5.48083E-07	1.63612E-05	0.81990234	4.97707E-07	1.48574E-05	0.982060099	5.96142E-07	1.77959E-05
Road 9	9	0700-0800	0.155161755	1.44226E-07	4.30538E-06	0.13929237	1.29475E-07	3.86504E-06	0.856811047	7.96421E-07	2.37745E-05	0.771740983	7.17347E-07	2.1414E-05	0.911033353	8.46821E-07	2.52791E-05
Road 9	9	0800-0900	0.241884909	5.27677E-07	1.57521E-05	0.214199365	4.6728E-07	1.39491E-05	1.138067822	2.48272E-06	7.41134E-05	1.001735294	2.18531E-06	6.52351E-05	1.215934659	2.65259E-06	7.91842E-05
Road 9	9	0900-1000	0.255191921	4.2116E-07	1.25724E-05	0.224452129	3.70428E-07	1.10579E-05	1.087985208	1.79558E-06	5.3601E-05	0.950018539	1.56788E-06	4.68039E-05	1.174470667	1.93831E-06	5.78618E-05
Road 9	9	1000-1100	0.26159916	3.6226E-07	1.08141E-05	0.22660291	3.13798E-07	9.3674E-06	1.098190466	1.52076E-06	4.53974E-05	0.946641216	1.3109E-06	3.91326E-05	1.173244127	1.6247E-06	4.85E-05
Road 9	9	1100-1200	0.178900032	2.5792E-07	7.69936E-06	0.153003211	2.20585E-07	6.58483E-06	0.935568583	1.34881E-06	4.02643E-05	0.810015634	1.1678E-06	3.48608E-05	0.963018845	1.38838E-06	4.14457E-05
Road 9	9	1200-1300	0.270483943	3.79695E-07	1.13345E-05	0.240429309	3.37505E-07	1.00751E-05	1.202535091	1.68807E-06	5.03918E-05	1.067285138	1.49821E-06	4.47242E-05	1.307714447	1.83572E-06	5.47993E-05
Road 9	9	1300-1400	0.311072093	3.59958E-07	1.07454E-05	0.273448285	3.16422E-07	9.44573E-06	1.179610728	1.36499E-06	4.07473E-05	1.028501741	1.19014E-06	3.55276E-05	1.301950026	1.50656E-06	4.49733E-05
Road 9	9	1400-1500	0.203176356	2.62086E-07	7.82371E-06	0.179291525	2.31276E-07	6.90398E-06	0.972199958	1.25408E-06	3.74365E-05	0.849482294	1.09578E-06	3.2711E-05	1.02877382	1.32706E-06	3.9615E-05
Road 9	9	1500-1600	0.165877448	1.79359E-07	5.35418E-06	0.146663684	1.58584E-07	4.734E-06	0.842702269	9.11193E-07	2.72007E-05	0.747160838	8.07886E-07	2.41168E-05	0.893824522	9.6647E-07	2.88508E-05
Road 9	9	1600-1700	0.176377526	2.67667E-07	7.99032E-06	0.157183051	2.38538E-07	7.12076E-06	0.948468061	1.43938E-06	4.29678E-05	0.841300168	1.27674E-06	3.81129E-05	0.998483219	1.51528E-06	4.52336E-05
Road 9	9	1700-1800	0.15272492	1.99903E-07	5.96746E-06	0.137905243	1.80506E-07	5.38841E-06	0.893783654	1.16988E-06	3.49231E-05	0.810706507	1.06114E-06	3.1677E-05	0.94861175	1.24165E-06	3.70654E-05
Road 9	9	1800-1900	0.149242103	1.24568E-07	3.71856E-06	0.138978961	1.16001E-07	3.46284E-06	0.85130454	7.10557E-07	2.12114E-05	0.795665408	6.64117E-07	1.9825E-05	0.934644369	7.80118E-07	2.32879E-05
Road 9	9	1900-2000	0.153948784	1.25576E-07	3.74865E-06	0.142797923	1.1648E-07	3.47713E-06	0.805177619	6.56782E-07	1.96061E-05	0.744616023	6.07382E-07	1.81314E-05	0.887413946	7.23862E-07	2.16085E-05
Road 9	9	2000-2100	0.159546556	8.77701E-08	2.62009E-06	0.143419637	7.88984E-08	2.35525E-06	0.702928285	3.86697E-07	1.15436E-05	0.637757317	3.50845E-07	1.04733E-05	0.781176954	4.29743E-07	1.28286E-05
Road 9	9	2100-2200	0.01914175	1.01672E-08	3.03508E-07	0.017534577	9.31354E-09	2.78025E-07	0.270764512	1.43817E-07	4.29319E-06	0.245631253	1.30468E-07	3.89469E-06	0.26316583	1.39781E-07	4.17271E-06
Road 9	9	2200-2300	0.150379498	9.41378E-08	2.81017E-06	0.136413777	8.53952E-08	2.54919E-06	0.719830188	4.50615E-07	1.34516E-05	0.652765638	4.08632E-07	1.21984E-05	0.789179414	4.94027E-07	1.47476E-05
Road 9	9	2300-0000	0.121832034	6.93337E-08	2.06973E-06	0.112132609	6.38138E-08	1.90495E-06	0.61380552	3.49312E-07	1.04276E-05	0.563717108	3.20807E-07	9.57664E-06	0.675849717	3.84621E-07	1.14816E-05
Road 10	10	0000-0100	0.243502413	1.87218E-07	4.16274E-06	0.217709919	1.67388E-07	3.72181E-06	1.203617608	9.25409E-07	2.05762E-05	1.076691099	8.2782E-07	1.84063E-05	1.294401018	9.95208E-07	2.21282E-05
Road 10	10	0100-0200	0.240302414	1.39595E-07	3.10385E-06	0.213749956	1.2417E-07	2.76089E-06	1.178181989	6.84422E-07	1.52179E-05	1.048425999	6.09045E-07	1.35419E-05	1.262175955	7.33215E-07	1.63028E-05
Road 10	10	0200-0300	0.234960592	7.62748E-08	1.69595E-06	0.208674743	6.77417E-08	1.50622E-06	1.139080094	3.69777E-07	8.22189E-06	1.012770216	3.28774E-07	7.31018E-06	1.22144496	3.96515E-07	8.8164E-06
Road 10	10	0300-0400	0.213651686	4.38046E-08	9.73983E-07	0.188990749	3.87484E-08	8.6156E-07	1.116946528	2.29006E-07	5.09187E-06	0.989654415	2.02907E-07	4.51158E-06	1.178645164	2.41656E-07	5.37314E-06
Road 10	10	0400-0500	0.252232452	9.912E-08	2.2039E-06	0.226115012	8.88566E-08	1.9757E-06	1.17096144	4.60154E-07	1.02314E-05	1.046332411	4.11178E-07	9.14242E-06	1.272447423	5.00035E-07	1.11181E-05
Road 10	10	0500-0600	0.231769298	1.62357E-07	3.60997E-06	0.207172288	1.45127E-07	3.22685E-06	1.08169238	7.5774E-07	1.68481E-05	0.965537968	6.76372E-07	1.50389E-05	1.172710256	8.21499E-07	1.82658E-05
Road 10	10	0600-0700	0.288119692	4.03663E-07	8.97533E-06	0.258212482	3.61763E-07	8.04368E-06	1.372895201	1.92346E-06	4.27676E-05	1.232646845	1.72697E-06	3.83987E-05	1.490859327	2.08873E-06	4.64424E-05
Road 10	10	0700-0800	0.290577384	6.40448E-07	1.42402E-05	0.253214759	5.58099E-07	1.24092E-05	1.40094036	3.08775E-06	6.86551E-05	1.223578761	2.69683E-06	5.99633E-05	1.47679352	3.25493E-06	7.23724E-05
Road 10	10	0800-0900	0.309948441	1.31333E-06	2.92015E-05	0.269299973	1.14109E-06	2.53718E-05	1.47898285	6.26682E-06	0.000139341	1.285676901	5.44774E-06	0.000121129	1.554976874	6.58883E-06	0.000146501
Road 10	10	0900-1000	0.350815654	1.1868E-06	2.63881E-05	0.300267929	1.0158E-06	2.25859E-05	1.621208492	5.48449E-06	0.000121946	1.38629644	4.68979E-06	0.000104276	1.686564369	5.70559E-06	0.000126862
Road 10	10	1000-1100	0.352436166	1.29465E-06	2.87861E-05	0.303058052	1.11326E-06	2.4753E-05	1.541263388	5.66171E-06	0.000125886	1.320500337	4.85076E-06	0.000107855	1.623558389	5.96402E-06	0.000132608
Road 10	10	1100-1200	0.334907359	1.23026E-06	2.73544E-05	0.285337996	1.04817E-06	2.33057E-05	1.518629182	5.57857E-06	0.000124038	1.292134897	4.74656E-06	0.000105538	1.577472892	5.79473E-06	0.000128844
Road 10	10	1200-1300	0.352492615	1.33701E-06	2.97281E-05	0.303716249	1.152E-06	2.56144E-05	1.610806964	6.10983E-06	0.00013585	1.387541256	5.26298E-06	0.000117021	1.691257505	6.41498E-06	0.000142635
Road 10	10	1300-1400	0.348608997	1.1436E-06	2.54275E-05	0.297543775	9.76078E-07	2.17028E-05	1.559608883	5.11622E-06	0.000113758	1.327480388	4.35474E-06	9.68262E-05	1.625024163	5.33081E-06	0.000118529
Road 10	10	1400-1500	0.328721955	1.01658E-06	2.26033E-05	0.280837297	8.68492E-07	1.93107E-05	1.57065144	4.85725E-06	0.000108	1.340289511	4.14486E-06	9.21597E-05	1.621126808	5.01335E-06	0.00011147
Road 10	10	1500-1600	0.315376711	9.96859E-07	2.21649E-05	0.272032853	8.59856E-07	1.91186E-05	1.461913644	4.62089E-06	0.000102744	1.260911628	3.98556E-06	8.86176E-05	1.532944481	4.84541E-06	0.000107736
Road 10	10	1600-1700	0.307253338	1.08142E-06	2.40452E-05	0.263046378	9.25832E-07	2.05856E-05	1.44407832	5.08265E-06	0.000113011	1.23272712	4.33877E-06	9.64713E-05	1.495773498	5.2646E-06	0.000117057
Road 10	10	1700-1800	0.285339596	9.50669E-07	2.11378E-05	0.247180748	8.23534E-07	1.8311E-05	1.408000015	4.69105E-06	0.000104304	1.224220197	4.07875E-06	9.06897E-05	1.471400945	4.90228E-06	0.000109001
Road 10	10	1800-1900	0.277224233	5.73125E-07	1.27433E-05	0.249311671	5.15419E-07	1.14602E-05	1.340405741	2.77111E-06	6.16149E-05	1.206891871	2.49509E-06	5.54776E-05	1.456203542	3.01051E-06	6.69378E-05
Road 10	10	1900-2000	0.244752644	4.55813E-07	1.01349E-05	0.21945216	4.08695E-07	9.0872E-06	1.238525872	2.30656E-06	5.12856E-05	1.112502745	2.07186E-06	4.60671E-05	1.331954905	2.48055E-06	5.51543E-05
Road 10	10	2000-2100	0.276754058	3.40454E-07	7.5699E-06	0.242400239	2.98193E-07	6.63024E-06	1.29378313	1.59157E-06	3.53881E-05	1.133070258	1.39387E-06	3.09922E-05	1.375470497	1.69206E-06	3.76225E-05
Road 10	10	2100-2200	0.234432567	2.96403E-07	6.59042E-06	0.21270973	2.68938E-07	5.97975E-06	1.22582854	1.54987E-06	3.44608E-05	1.114142243	1.40866E-06	3.1321E-05	1.326851973	1.67759E-06	3.73008E-05
Road 10	10	2200-2300	0.238927264	3.14332E-07	6.98908E-06	0.214544076	2.82254E-07	6.27583E-06	1.171554886	1.5413E-06	3.42702E-05	1.054376289	1.38714E-06	3.08425E-05	1.268920366	1.66939E-06	3.71184E-05
Road 10	10	2300-0000	0.215522805	2.6513E-07	5.89508E-06	0.192278446	2.36535E-07	5.25929E-06	1.053744822	1.29628E-06	2.88225E-05	0.940247186	1.15666E-06	2.57181E-05	1.132525632	1.3932E-06	3.09774E-05
Road 11	11	0000-0100	0.272106986	2.0786E-07	1.72421E-06	0.242986509	1.85615E-07	1.53969E-06	1.315334612	1.00477E-06	8.33464E-06	1.172649839	8.95774E-07	7.43052E-06	1.415636349	1.08139E-06	8.97021E-06
Road 11	11	0100-0200	0.273343842	1.47112E-07	1.22031E-06	0.242735654	1.30639E-07	1.08366E-06	1.298803311	6.99009E-07	5.79833E-06	1.150687595	6.19294E-07	5.13709E-06	1.393423249	7.49933E-07	6.22075E-06
Road 11	11	0200-0300	0.234498682	6.10674E-08	5.06559E-07	0.208269932	5.4237E-08	4.499E-07	1.209400556	3.14948E-07	2.61252E-06	1.075292865	2.80024E-07	2.32282E-06	1.283562798	3.34261E-07	2.77272E-06
Road 11	11	0300-0400	0.25147443	6.11223E-08	5.07014E-07	0.222338734	5.40407E-08	4.48272E-07	1.269655232	3.08597E-07	2.55984E-06	1.123337043	2.73033E-07	2.26483E-06	1.345675777	3.27074E-07	2.71311E-06

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	0.26092782	9.05999E-08	7.51534E-07	0.234080264	8.12779E-08	6.74207E-07	1.194271839	4.14678E-07	3.43979E-06	1.067761955	3.70751E-07	3.07541E-06	1.301842219	4.52029E-07	3.74961E-06
Road 11	11	0500-0600	0.211031631	9.89211E-08	8.20558E-07	0.188387273	8.83065E-08	7.3251E-07	1.041356586	4.88136E-07	4.04913E-06	0.930686041	4.36259E-07	3.6188E-06	1.119073314	5.24566E-07	4.35131E-06
Road 11	11	0600-0700	0.233281903	2.10602E-07	1.74696E-06	0.207807448	1.87604E-07	1.55619E-06	1.164061022	1.05089E-06	8.7172E-06	1.037781516	9.36886E-07	7.77155E-06	1.245588965	1.12449E-06	9.32774E-06
Road 11	11	0700-0800	0.285273387	5.3984E-07	4.47802E-06	0.245912149	4.65355E-07	3.86015E-06	1.424330298	2.69535E-06	2.23581E-05	1.230583623	2.32871E-06	1.93168E-05	1.476495773	2.79406E-06	2.3177E-05
Road 11	11	0800-0900	0.307781923	1.0954E-06	9.08647E-06	0.269325606	9.58537E-07	7.95114E-06	1.46306382	5.20708E-06	4.31932E-05	1.27684606	4.54433E-06	3.76956E-05	1.546171666	5.50287E-06	4.56467E-05
Road 11	11	0900-1000	0.316776483	8.0844E-07	6.70608E-06	0.270931164	6.91439E-07	5.73554E-06	1.440809402	3.67707E-06	3.05016E-05	1.225894392	3.12858E-06	2.59519E-05	1.496825556	3.82002E-06	3.16874E-05
Road 11	11	1000-1100	0.325463905	6.837E-07	5.67135E-06	0.278870304	5.85821E-07	4.85944E-06	1.463788708	3.07497E-06	2.55071E-05	1.250269587	2.62643E-06	2.17865E-05	1.52913989	3.21226E-06	2.66459E-05
Road 11	11	1100-1200	0.280203752	6.61592E-07	5.48796E-06	0.237249318	5.60172E-07	4.64667E-06	1.390493217	3.28311E-06	2.72337E-05	1.183076362	2.79337E-06	2.31713E-05	1.42032568	3.35355E-06	2.78179E-05
Road 11	11	1200-1300	0.345528855	9.83797E-07	8.16068E-06	0.297176465	8.46127E-07	7.0187E-06	1.610951348	4.58674E-06	3.80474E-05	1.383724889	3.93977E-06	3.26807E-05	1.680901354	4.7859E-06	3.96994E-05
Road 11	11	1300-1400	0.363354113	7.63296E-07	6.3316E-06	0.309727246	6.50642E-07	5.39713E-06	1.584873342	3.32933E-06	2.76171E-05	1.342753927	2.82072E-06	2.33981E-05	1.652481173	3.47136E-06	2.87952E-05
Road 11	11	1400-1500	0.292831671	5.8973E-07	4.89186E-06	0.249192425	5.01846E-07	4.16285E-06	1.408121383	2.8358E-06	2.35232E-05	1.193036728	2.40264E-06	1.99301E-05	1.442229153	2.90449E-06	2.4093E-05
Road 11	11	1500-1600	0.253674384	5.15276E-07	4.27426E-06	0.218237265	4.43294E-07	3.67716E-06	1.264081562	2.56767E-06	2.1299E-05	1.088703866	2.21143E-06	1.8344E-05	1.306941132	2.65472E-06	2.20212E-05
Road 11	11	1600-1700	0.246228736	5.98473E-07	4.96438E-06	0.210881571	5.12559E-07	4.25172E-06	1.260100012	3.06274E-06	2.54057E-05	1.078495129	2.62134E-06	2.17442E-05	1.2893767	3.1339E-06	2.5996E-05
Road 11	11	1700-1800	0.244317935	6.06553E-07	5.03141E-06	0.210034349	5.21439E-07	4.32538E-06	1.274268719	3.16355E-06	2.62419E-05	1.100347059	2.73176E-06	2.26602E-05	1.310381409	3.2532E-06	2.69856E-05
Road 11	11	1800-1900	0.252839356	5.1797E-07	4.2966E-06	0.226499356	4.64009E-07	3.84899E-06	1.291886296	2.64657E-06	2.19535E-05	1.159969099	2.37633E-06	1.97118E-05	1.386468455	2.84033E-06	2.35608E-05
Road 11	11	1900-2000	0.244745842	3.86664E-07	3.20741E-06	0.218223197	3.44762E-07	2.85983E-06	1.229791283	1.9429E-06	1.61165E-05	1.096030661	1.73158E-06	1.43636E-05	1.314253858	2.07634E-06	1.72234E-05
Road 11	11	2000-2100	0.248726613	3.49772E-07	2.90139E-06	0.218004055	3.06568E-07	2.54301E-06	1.200457284	1.68814E-06	1.40033E-05	1.053903634	1.48205E-06	1.22937E-05	1.271907688	1.78862E-06	1.48367E-05
Road 11	11	2100-2200	0.174287396	1.75498E-07	1.45577E-06	0.152984915	1.54047E-07	1.27783E-06	0.94550873	9.52075E-07	7.89754E-06	0.832022412	8.378E-07	6.94962E-06	0.985007327	9.91848E-07	8.22746E-06
Road 11	11	2200-2300	0.228765451	2.50212E-07	2.07553E-06	0.203661545	2.22755E-07	1.84777E-06	1.117715813	1.2225E-06	1.01408E-05	0.994637996	1.08789E-06	9.0241E-06	1.198299541	1.31064E-06	1.08719E-05
Road 11	11	2300-0000	0.21726127	2.26314E-07	1.87729E-06	0.194109196	2.02197E-07	1.67724E-06	1.078976015	1.12393E-06	9.32312E-06	0.963334843	1.00347E-06	8.3239E-06	1.157444039	1.20567E-06	1.00011E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.19502	2.24628E-06	3.37851E-06	1.01653	1.91077E-06	2.87389E-06	5.23567	9.84148E-06	1.48021E-05	4.45399	8.37216E-06	1.25921E-05	5.47052	1.02829E-05	1.5466E-05
Haul Road 1	HR1	0800-0900	1.21341	2.28085E-06	3.4305E-06	1.04602	1.9662E-06	2.95727E-06	5.31631	9.99306E-06	1.50301E-05	4.58269	8.61408E-06	1.2956E-05	5.62871	1.05803E-05	1.59133E-05
Haul Road 1	HR1	0900-1000	1.23639	2.32404E-06	3.49547E-06	1.03063	1.93727E-06	2.91376E-06	5.41725	1.01828E-05	1.53154E-05	4.51564	8.48805E-06	1.27664E-05	5.54627	1.04253E-05	1.56802E-05
Haul Road 1	HR1	1000-1100	1.25028	2.35015E-06	3.53474E-06	1.05561	1.98423E-06	2.98438E-06	5.47761	1.02963E-05	1.54861E-05	4.62497	8.69355E-06	1.30755E-05	5.68058	1.06778E-05	1.60599E-05
Haul Road 1	HR1	1100-1200	1.2294	2.3109E-06	3.47571E-06	1.03532	1.94609E-06	2.92702E-06	5.38637	1.01248E-05	1.52281E-05	4.53623	8.52675E-06	1.28247E-05	5.57155	1.04728E-05	1.57517E-05
Haul Road 1	HR1	1200-1300	1.23309	2.31784E-06	3.48614E-06	1.04202	1.95868E-06	2.94596E-06	5.40276	1.01556E-05	1.52745E-05	4.56511	8.58103E-06	1.29063E-05	5.60713	1.05397E-05	1.58523E-05
Haul Road 1	HR1	1300-1400	1.24968	2.34902E-06	3.53305E-06	1.04202	1.95868E-06	2.94596E-06	5.47512	1.02916E-05	1.5479E-05	4.56511	8.58103E-06	1.29063E-05	5.60713	1.05397E-05	1.58523E-05
Haul Road 1	HR1	1400-1500	1.26437	2.37664E-06	3.57458E-06	1.04861	1.97107E-06	2.96459E-06	5.53967	1.04129E-05	1.56615E-05	4.5942	8.63571E-06	1.29885E-05	5.64281	1.06068E-05	1.59531E-05
Haul Road 1	HR1	1500-1600	1.2275	2.30733E-06	3.47034E-06	1.04202	1.95868E-06	2.94596E-06	5.37807	1.01092E-05	1.52047E-05	4.56511	8.58103E-06	1.29063E-05	5.60713	1.05397E-05	1.58523E-05
Haul Road 1	HR1	1600-1700	1.23309	2.31784E-06	3.48614E-06	1.02873	1.9337E-06	2.90838E-06	5.40276	1.01556E-05	1.52745E-05	4.50715	8.47209E-06	1.27424E-05	5.53588	1.04058E-05	1.56508E-05
Haul Road 1	HR1	1700-1800	1.23309	2.31784E-06	3.48614E-06	1.03692	1.9491E-06	2.93154E-06	5.40276	1.01556E-05	1.52745E-05	4.54293	8.53934E-06	1.28436E-05	5.57985	1.04884E-05	1.57751E-05
Haul Road 1	HR1	1800-1900	1.17583	2.21021E-06	3.32426E-06	1.04012	1.95511E-06	2.94059E-06	5.15163	9.68352E-06	1.45645E-05	4.55692	8.56564E-06	1.28831E-05	5.59704	1.05208E-05	1.58237E-05
Haul Road 1	HR1	1900-2000	1.18532	2.22805E-06	3.35109E-06	1.04012	1.95511E-06	2.94059E-06	5.1931	9.76147E-06	1.46817E-05	4.55692	8.56564E-06	1.28831E-05	5.59704	1.05208E-05	1.58237E-05
Haul Road 1	HR1	2000-2100	1.17553	2.20964E-06	3.32341E-06	1.02243	1.92186E-06	2.89057E-06	5.15023	9.68088E-06	1.45605E-05	4.47967	8.42043E-06	1.26647E-05	5.5021	1.03423E-05	1.55553E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.19502	1.54795E-06	4.1205E-06	1.01653	1.31675E-06	3.50506E-06	5.23567	6.78196E-06	1.80529E-05	4.45399	5.76942E-06	1.53576E-05	5.47052	7.08617E-06	1.88627E-05
Haul Road 2	HR2	0800-0900	1.21341	1.57177E-06	4.18391E-06	1.04602	1.35495E-06	3.60674E-06	5.31631	6.88641E-06	1.8331E-05	4.58269	5.93613E-06	1.58014E-05	5.62871	7.29108E-06	1.94081E-05
Haul Road 2	HR2	0900-1000	1.23639	1.60154E-06	4.26315E-06	1.03063	1.33501E-06	3.55367E-06	5.41725	7.01716E-06	1.8679E-05	4.51564	5.84927E-06	1.55702E-05	5.54627	7.18429E-06	1.91239E-05
Haul Road 2	HR2	1000-1100	1.25028	1.61953E-06	4.31104E-06	1.05561	1.36737E-06	3.63981E-06	5.47761	7.09535E-06	1.88871E-05	4.62497	5.99089E-06	1.59472E-05	5.68058	7.35826E-06	1.9587E-05
Haul Road 2	HR2	1100-1200	1.2294	1.59249E-06	4.23905E-06	1.03532	1.34109E-06	3.56985E-06	5.38637	6.97716E-06	1.85725E-05	4.53623	5.87595E-06	1.56412E-05	5.57155	7.21703E-06	1.9211E-05
Haul Road 2	HR2	1200-1300	1.23309	1.59727E-06	4.25177E-06	1.04202	1.34977E-06	3.59295E-06	5.40276	6.99839E-06	1.8629E-05	4.56511	5.91335E-06	1.57408E-05	5.60713	7.26312E-06	1.93337E-05
Haul Road 2	HR2	1300-1400	1.24968	1.61876E-06	4.30897E-06	1.04202	1.34977E-06	3.59295E-06	5.47512	7.09212E-06	1.88785E-05	4.56511	5.91335E-06	1.57408E-05	5.60713	7.26312E-06	1.93337E-05
Haul Road 2	HR2	1400-1500	1.26437	1.63778E-06	4.35962E-06	1.04861	1.3583E-06	3.61567E-06	5.53967	7.17574E-06	1.91011E-05	4.5942	5.95104E-06	1.58411E-05	5.64281	7.30934E-06	1.94567E-05
Haul Road 2	HR2	1500-1600	1.2275	1.59003E-06	4.23249E-06	1.04202	1.34977E-06	3.59295E-06	5.37807	6.96641E-06	1.85439E-05	4.56511	5.91335E-06	1.57408E-05	5.60713	7.26312E-06	1.93337E-05
Haul Road 2	HR2	1600-1700	1.23309	1.59727E-06	4.25177E-06	1.02873	1.33255E-06	3.54712E-06	5.40276	6.99839E-06	1.8629E-05	4.50715	5.83828E-06	1.55409E-05	5.53588	7.17083E-06	1.9088E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	1.23309	1.59727E-06	4.25177E-06	1.03692	1.34316E-06	3.57536E-06	5.40276	6.99839E-06	1.8629E-05	4.54293	5.88462E-06	1.56643E-05	5.57985	7.22778E-06	1.92397E-05
Haul Road 2	HR2	1800-1900	1.17583	1.5231E-06	4.05433E-06	1.04012	1.34731E-06	3.5864E-06	5.15163	6.6731E-06	1.77631E-05	4.55692	5.90275E-06	1.57125E-05	5.59704	7.25005E-06	1.92989E-05
Haul Road 2	HR2	1900-2000	1.18532	1.53539E-06	4.08705E-06	1.04012	1.34731E-06	3.5864E-06	5.1931	6.72681E-06	1.79061E-05	4.55692	5.90275E-06	1.57125E-05	5.59704	7.25005E-06	1.92989E-05
Haul Road 2	HR2	2000-2100	1.17553	1.52271E-06	4.0533E-06	1.02243	1.32439E-06	3.5254E-06	5.15023	6.67128E-06	1.77583E-05	4.47967	5.80268E-06	1.54462E-05	5.5021	7.12707E-06	1.89716E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.19502	1.54795E-06	4.11476E-06	1.01653	1.31675E-06	3.50017E-06	5.23567	6.78196E-06	1.80277E-05	4.45399	5.76942E-06	1.53362E-05	5.47052	7.08617E-06	1.88364E-05
Haul Road 3	HR3	0800-0900	1.21341	1.57177E-06	4.17808E-06	1.04602	1.35495E-06	3.60171E-06	5.31631	6.88641E-06	1.83054E-05	4.58269	5.93613E-06	1.57794E-05	5.62871	7.29108E-06	1.93811E-05
Haul Road 3	HR3	0900-1000	1.23639	1.60154E-06	4.2572E-06	1.03063	1.33501E-06	3.54872E-06	5.41725	7.01716E-06	1.8653E-05	4.51564	5.84927E-06	1.55485E-05	5.54627	7.18429E-06	1.90972E-05
Haul Road 3	HR3	1000-1100	1.25028	1.61953E-06	4.30503E-06	1.05561	1.36737E-06	3.63473E-06	5.47761	7.09535E-06	1.88608E-05	4.62497	5.99089E-06	1.59249E-05	5.68058	7.35826E-06	1.95597E-05
Haul Road 3	HR3	1100-1200	1.2294	1.59249E-06	4.23314E-06	1.03532	1.34109E-06	3.56487E-06	5.38637	6.97716E-06	1.85466E-05	4.53623	5.87595E-06	1.56194E-05	5.57155	7.21703E-06	1.91843E-05
Haul Road 3	HR3	1200-1300	1.23309	1.59727E-06	4.24584E-06	1.04202	1.34977E-06	3.58794E-06	5.40276	6.99839E-06	1.86031E-05	4.56511	5.91335E-06	1.57188E-05	5.60713	7.26312E-06	1.93068E-05
Haul Road 3	HR3	1300-1400	1.24968	1.61876E-06	4.30296E-06	1.04202	1.34977E-06	3.58794E-06	5.47512	7.09212E-06	1.88522E-05	4.56511	5.91335E-06	1.57188E-05	5.60713	7.26312E-06	1.93068E-05
Haul Road 3	HR3	1400-1500	1.26437	1.63778E-06	4.35355E-06	1.04861	1.3583E-06	3.61063E-06	5.53967	7.17574E-06	1.90745E-05	4.5942	5.95104E-06	1.5819E-05	5.64281	7.30934E-06	1.94296E-05
Haul Road 3	HR3	1500-1600	1.2275	1.59003E-06	4.22659E-06	1.04202	1.34977E-06	3.58794E-06	5.37807	6.96641E-06	1.85181E-05	4.56511	5.91335E-06	1.57188E-05	5.60713	7.26312E-06	1.93068E-05
Haul Road 3	HR3	1600-1700	1.23309	1.59727E-06	4.24584E-06	1.02873	1.33255E-06	3.54218E-06	5.40276	6.99839E-06	1.86031E-05	4.50715	5.83828E-06	1.55193E-05	5.53588	7.17083E-06	1.90614E-05
Haul Road 3	HR3	1700-1800	1.23309	1.59727E-06	4.24584E-06	1.03692	1.34316E-06	3.57038E-06	5.40276	6.99839E-06	1.86031E-05	4.54293	5.88462E-06	1.56425E-05	5.57985	7.22778E-06	1.92128E-05
Haul Road 3	HR3	1800-1900	1.17583	1.5231E-06	4.04868E-06	1.04012	1.34731E-06	3.5814E-06	5.15163	6.6731E-06	1.77384E-05	4.55692	5.90275E-06	1.56906E-05	5.59704	7.25005E-06	1.9272E-05
Haul Road 3	HR3	1900-2000	1.18532	1.53539E-06	4.08136E-06	1.04012	1.34731E-06	3.5814E-06	5.1931	6.72681E-06	1.78812E-05	4.55692	5.90275E-06	1.56906E-05	5.59704	7.25005E-06	1.9272E-05
Haul Road 3	HR3	2000-2100	1.17553	1.52271E-06	4.04765E-06	1.02243	1.32439E-06	3.52049E-06	5.15023	6.67128E-06	1.77335E-05	4.47967	5.80268E-06	1.54246E-05	5.5021	7.12707E-06	1.89451E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.079971397	2.68673E-07	2.18569E-06	0.07265514	2.44093E-07	1.98573E-06	0.470936872	1.58216E-06	1.28711E-05	0.426416872	1.43259E-06	1.16544E-05	0.499072011	1.67669E-06	1.36401E-05
Road 1	1	0100-0200	0.060125413	1.23004E-07	1.00066E-06	0.055957248	1.14477E-07	9.31288E-07	0.36065	7.37816E-07	6.00224E-06	0.334661927	6.8465E-07	5.56973E-06	0.390619174	7.99127E-07	6.50102E-06
Road 1	1	0200-0300	0.056953506	8.23089E-08	6.69595E-07	0.053444156	7.72372E-08	6.28336E-07	0.359701688	5.19839E-07	4.22897E-06	0.336041429	4.85645E-07	3.9508E-06	0.389485584	5.62883E-07	4.57913E-06
Road 1	1	0300-0400	0.047420545	4.89514E-08	3.98227E-07	0.044695091	4.6138E-08	3.75339E-07	0.287498545	2.9678E-07	2.41435E-06	0.269993091	2.78709E-07	2.26734E-06	0.314688182	3.24847E-07	2.64268E-06
Road 1	1	0400-0500	0.062567209	1.00991E-07	8.21574E-07	0.058438488	9.43264E-08	7.67359E-07	0.356088488	5.74767E-07	4.67582E-06	0.331686395	5.3538E-07	4.35539E-06	0.390124884	6.29706E-07	5.12275E-06
Road 1	1	0500-0600	0.052845957	1.86468E-07	1.51695E-06	0.047805691	1.68684E-07	1.37227E-06	0.309905266	1.09351E-06	8.89586E-06	0.278595479	9.83032E-07	7.99711E-06	0.32640117	1.15172E-06	9.36938E-06
Road 1	1	0600-0700	0.070453383	4.45623E-07	3.62521E-06	0.064904777	4.10528E-07	3.3397E-06	0.372880237	2.3585E-06	1.91867E-05	0.342087626	2.16373E-06	1.76023E-05	0.406992404	2.57426E-06	2.0942E-05
Road 1	1	0700-0800	0.062651655	6.60853E-07	5.37613E-06	0.054719199	5.77181E-07	4.69545E-06	0.343336317	3.62153E-06	2.94617E-05	0.297425641	3.13726E-06	2.55221E-05	0.35214484	3.71444E-06	3.02175E-05
Road 1	1	0800-0900	0.068938847	8.97965E-07	7.30508E-06	0.05885268	7.66587E-07	6.2363E-06	0.368808285	4.80392E-06	3.90806E-05	0.313067378	4.07787E-06	3.31741E-05	0.371920058	4.84445E-06	3.94104E-05
Road 1	1	0900-1000	0.073788249	9.88829E-07	8.04427E-06	0.064036779	8.58151E-07	6.98118E-06	0.407881975	5.46599E-06	4.44666E-05	0.352461569	4.7233E-06	3.84248E-05	0.416498347	5.58145E-06	4.54059E-05
Road 1	1	1000-1100	0.08665364	1.13034E-06	9.19545E-06	0.073436374	9.57926E-07	7.79287E-06	0.462940432	6.03873E-06	4.9126E-05	0.390947986	5.09964E-06	4.14863E-05	0.46438436	6.05757E-06	4.92792E-05
Road 1	1	1100-1200	0.077960148	9.86208E-07	8.02294E-06	0.067256068	8.50799E-07	6.92138E-06	0.446052018	5.64263E-06	4.59036E-05	0.383259926	4.8483E-06	3.94416E-05	0.450515994	5.69909E-06	4.6363E-05
Road 1	1	1200-1300	0.08069931	1.01026E-06	8.21858E-06	0.069284318	8.67354E-07	7.05606E-06	0.455945232	5.70787E-06	4.64344E-05	0.389976732	4.88203E-06	3.9716E-05	0.459261049	5.74938E-06	4.67721E-05
Road 1	1	1300-1400	0.084581467	1.12553E-06	9.15636E-06	0.072796812	9.68711E-07	7.88061E-06	0.468121241	6.22932E-06	5.06764E-05	0.401525487	5.34312E-06	4.34671E-05	0.474322299	6.31183E-06	5.13477E-05
Road 1	1	1400-1500	0.080665826	1.16426E-06	9.47147E-06	0.069136398	9.97858E-07	8.11773E-06	0.436942367	6.30647E-06	5.13041E-05	0.373274356	5.38754E-06	4.38284E-05	0.442410754	6.3854E-06	5.19461E-05
Road 1	1	1500-1600	0.087229874	1.17223E-06	9.53629E-06	0.07383486	9.92225E-07	8.0719E-06	0.470915279	6.32837E-06	5.14822E-05	0.396908268	5.33383E-06	4.33915E-05	0.470743128	6.32605E-06	5.14634E-05
Road 1	1	1600-1700	0.083030358	1.17658E-06	9.57161E-06	0.069621457	9.86565E-07	8.02585E-06	0.453881669	6.43169E-06	5.23228E-05	0.378593921	5.36484E-06	4.36437E-05	0.448215377	6.3514E-06	5.16696E-05
Road 1	1	1700-1800	0.064083654	9.11701E-07	7.41682E-06	0.055254499	7.86091E-07	6.39496E-06	0.357456082	5.08543E-06	4.13707E-05	0.306413245	4.35926E-06	3.54632E-05	0.361667744	5.14535E-06	4.18582E-05
Road 1	1	1800-1900	0.056172532	8.1602E-07	6.63844E-06	0.049910891	7.25057E-07	5.89845E-06	0.334699819	4.86219E-06	3.95547E-05	0.295357868	4.29067E-06	3.49052E-05	0.34526876	5.01573E-06	4.08037E-05
Road 1	1	1900-2000	0.067507487	7.5135E-07	6.11235E-06	0.05991774	6.66877E-07	5.42515E-06	0.385383592	4.28927E-06	3.48939E-05	0.340118516	3.78548E-06	3.07954E-05	0.400036256	4.45236E-06	3.62206E-05
Road 1	1	2000-2100	0.060199423	5.68324E-07	4.6234E-06	0.053430417	5.0442E-07	4.10353E-06	0.35408994	3.34285E-06	2.71946E-05	0.312484632	2.95007E-06	2.39993E-05	0.36591505	3.45449E-06	2.81028E-05
Road 1	1	2100-2200	0.064202048	5.53092E-07	4.49949E-06	0.055825316	4.80928E-07	3.91242E-06	0.381404096	3.28574E-06	2.673E-05	0.329545447	2.83899E-06	2.30956E-05	0.385370763	3.31992E-06	2.7008E-05
Road 1	1	2200-2300	0.064039954	5.22849E-07	4.25345E-06	0.055664851	4.54471E-07	3.69719E-06	0.380572391	3.10715E-06	2.52771E-05	0.328115448	2.67887E-06	2.1793E-05	0.383780299	3.13334E-06	2.54902E-05
Road 1	1	2300-0000	0.054116513	3.96123E-07	3.22252E-06	0.048473051	3.54814E-07	2.88646E-06	0.329442333	2.41146E-06	1.96176E-05	0.292779205	2.14309E-06	1.74344E-05	0.341252256	2.49791E-06	2.03208E-05
Road 2	2	0000-0100	0.132388462	1.59356E-07	1.02911E-06	0.120273462	1.44774E-07	9.34934E-07	0.558203269	6.71911E-07	4.33914E-06	0.505798846	6.08832E-07	3.93178E-06	0.626072308	7.53606E-07	4.86671E-06
Road 2	2	0100-0200	0.090667941	7.1359E-08	4.6083E-07	0.084355	6.63905E-08	4.28743E-07	0.445545588	3.50661E-07	2.26453E-06	0.41352	3.25456E-07	2.10176E-06	0.497875	3.91846E-07	2.5305E-06
Road 2	2	0200-0300	0.092737826	4.93743E-08	3.18854E-07	0.087080435	4.63623E-08	2.99403E-07	0.502188696	2.67369E-07	1.72664E-06	0.470082174	2.50275E-07	1.61625E-06	0.557162609	2.96638E-07	1.91566E-06
Road 2	2	0300-0400	0.079108	2.74681E-08	1.77386E-07	0.074591333	2.58998E-08	1.67258E-07	0.284933333	9.89352E-08	6.38914E-07	0.267702	9.29521E-08	6.00275E-07	0.342293333	1.18852E-07	7.67534E-07
Road 2	2	0400-0500	0.108947037	6.80919E-08	4.39731E-07	0.101805185	6.36282E-08	4.10905E-07	0.52259963	3.26625E-07	2.10931E-06	0.487361111	3.04601E-07	1.96708E-06	0.589166296	3.68229E-07	2.37799E-06
Road 2	2	0500-0600	0.088529123	1.16809E-07	7.54343E-07	0.080089474	1.05674E-07	6.8243E-07	0.389006667	5.13273E-07	3.31466E-06	0.350306667	4.6221E-07	2.98491E-06	0.43039614	5.67884E-07	3.66734E-06
Road 2	2	0600-0700	0.123504519	2.97326E-07	1.9201E-06	0.113721346	2.73774E-07	1.768E-06	0.49689875	1.19624E-06	7.72519E-06	0.456388942	1.09871E-06	7.09539E-06	0.570110288	1.37249E-06	8.86339E-06
Road 2	2	0700-0800	0.107197125	3.97026E-07	2.56396E-06	0.093575875	3.46577E-07	2.23816E-06	0.44314975	1.6413E-06	1.05993E-05	0.384436375	1.42384E-06	9.19501E-06	0.47801225	1.77042E-06	1.14332E-05
Road 2	2	0800-0900	0.123732171	8.70708E-07	5.62295E-06	0.105535428	7.42657E-07	4.796E-06	0.518087632	3.6458E-06	2.35442E-05	0.439635658	3.09373E-06	1.9979E-05	0.545171086	3.83639E-06	2.4775E-05
Road 2	2	0900-1000	0.145497619	8.48736E-07	5.48105E-06	0.126121746	7.3571E-07	4.75114E-06	0.618139206	3.60581E-06	2.3286E-05	0.534559563	3.11826E-06	2.01374E-05	0.66068131	3.85397E-06	2.48886E-05
Road 2	2	1000-1100	0.164267968	7.11067E-07	4.592E-06	0.139155722	6.02364E-07	3.89001E-06	0.691275561	2.99233E-06	1.93242E-05	0.584417914	2.52977E-06	1.6337E-05	0.723573636	3.13214E-06	2.0227E-05
Road 2	2	1100-1200	0.193548525	8.19893E-07	5.29479E-06	0.166875574	7.06903E-07	4.56511E-06	0.789487978	3.34436E-06	2.15975E-05	0.67967235	2.87917E-06	1.85934E-05	0.846547923	3.58607E-06	2.31585E-05
Road 2	2	1200-1300	0.149735316	6.58558E-07	4.2529E-06	0.128567579	5.65459E-07	3.65168E-06	0.654036579	2.87655E-06	1.85765E-05	0.559772263	2.46196E-06	1.58991E-05	0.688339842	3.02742E-06	1.95508E-05
Road 2	2	1300-1400	0.165756682	8.55642E-07	5.52565E-06	0.142516233	7.35674E-07	4.75091E-06	0.676456726	3.49189E-06	2.25503E-05	0.57996426	2.9938E-06	1.93336E-05	0.722480493	3.72947E-06	2.40846E-05
Road 2	2	1400-1500	0.143290606	5.47291E-07	3.53435E-06	0.122775879	4.68936E-07	3.02834E-06	0.618221818	2.36126E-06	1.52488E-05	0.528676	2.01925E-06	1.30401E-05	0.651451879	2.48818E-06	1.60685E-05
Road 2	2	1500-1600	0.179951913	7.62296E-07	4.92284E-06	0.152054262	6.44119E-07	4.15966E-06	0.707984208	2.9991E-06	1.93679E-05	0.597140546	2.52955E-06	1.63356E-05	0.749194809	3.17367E-06	2.04953E-05
Road 2	2	1600-1700	0.150461176	7.6972E-07	4.97078E-06	0.126122398	6.45209E-07	4.1667E-06	0.631490905	3.23054E-06	2.08625E-05	0.52758543	2.69899E-06	1.74298E-05	0.653707828	3.3442E-06	2.15965E-05
Road 2	2	1700-1800	0.112291802	5.77055E-07	3.72657E-06	0.096857883	4.97742E-07	3.21437E-06	0.444310586	2.28326E-06	1.47451E-05	0.381751892	1.96178E-06	1.2669E-05	0.478609775	2.45952E-06	1.58834E-05
Road 2	2	1800-1900	0.12188852	7.05373E-07	4.55523E-06	0.10836404	6.27107E-07	4.04979E-06	0.54666464	3.16357E-06	2.043E-05	0.48425768	2.80242E-06	1.80977E-05	0.59262172	3.42952E-06	2.21475E-05
Road 2	2	1900-2000	0.103601834	4.05294E-07	2.61735E-06	0.091936213	3.59658E-07	2.32264E-06	0.467910769	1.83048E-06	1.18211E-05	0.413269231	1.61672E-06	1.04406E-05	0.505205444	1.97638E-06	1.27633E-05
Road 2	2	2000-2100	0.096673265	3.28958E-07	2.12438E-06	0.085747823	2.91781E-07	1.88429E-06	0.409891905	1.39477E-06	9.0073E-06	0.361455034	1.22995E-06	7.9429E-06	0.447202857	1.52173E-06	9.8272E-06
Road 2	2	2100-2200	0.076231373	2.69986E-07	1.74354E-06	0.066258627	2.34666E-07	1.51545E-06	0.347558954	1.23094E-06	7.94928E-06	0.299046928	1.05912E-06	6.83972E-06	0.365305556	1.29379E-06	8.35517E-06
Road 2	2	2200-2300	0.11341632	3.28172E-07	2.1193E-06	0.09858224	2.8525E-07	1.84211E-06	0.48201376	1.39472E-06	9.00694E-06	0.41623792	1.20439E-06	7.77785E-06	0.51482016	1.48964E-06	9.61996E-06
Road 2	2	2300-0000	0.097743514	2.51147E-07	1.62188E-06	0.087586036	2.25047E-07	1.45333E-06	0.439136396	1.12834E-06	7.28669E-06	0.390936396	1.00449E-06	6.48689E-06	0.478522432	1.22954E-06	7.94023E-06
Road 3	3	0000-0100	0.083028304	3.06299E-07	1.19051E-05	0.075361783	2.78017E-07	1.08058E-05	0.455492565	1.68036E-06	6.53112E-05	0.412010304	1.51995E-06	5.90765E-05	0.487372087	1.79796E-06	6.98823E-05
Road 3	3	0100-0200	0.06049007	1.37773E-07	5.3549E-06	0.056253451	1.28124E-07	4.97985E-06	0.350528239	7.98369E-07	3.10306E-05	0.324987324	7.40196E-07	2.87696E-05	0.381240775	8.6832E-07	3.37494E-05
Road 3	3	0200-0300	0.058275556	9.25367E-08	3.59667E-06	0.054653636	8.67854E-08	3.37313E-06	0.359685556	5.7115E-07	2.21992E-05	0.335879495	5.33348E-07	2.07299E-05	0.390533131	6.20134E-07	2.4103E-05
Road 3	3	0300-0400	0.048068857	5.39702E-08	2.09769E-06	0.04554	5.11309E-08	1.98733E-06	0.261932714	2.9409E-07	1.14305E-05	0.247310857	2.77673E-07	1.07924E-05	0.292850857	3.28804E-07	1.27798E-05
Road 3	3	0400-0500	0.065128673	1.18044E-07	4.58806E-06	0.060820354	1.10235E-07	4.28456E-06	0.358015664	6.48892E-07	2.52208E-05	0.333302389	6.041E-07	2.34799E-05	0.394122743	7.14335E-07	2.77644E-05
Road 3	3	0500-0600	0.05408313	2.13397E-07	8.29422E-06	0.050251382	1.98278E-07	7.70658E-06	0.29846187	1.17765E-06	4.57723E-05	0.275960122	1.08886E-06	4.23214E-05	0.326211504	1.28714E-06	5.0028E-05
Road 3	3	0600-0700	0.075985	5.41132E-07	2.10324E-05	0.068928356	4.90877E-07	1.90792E-05	0.377227635	2.68645E-06	0.000104416	0.340811847	2.42711E-06	9.43358E-05	0.409740203	2.91799E-06	0.000113415
Road 3	3	0700-0800	0.064953343	7.57405E-07	2.94384E-05	0.056608239	6.60095E-07	2.56562E-05	0.338615695	3.94851E-06	0.000153469	0.2928526	3.41488E-06	0.000132728	0.349460839	4.07498E-06	0.000158384
Road 3	3	0800-0900	0.073578134	1.17662E-06	4.57323E-05	0.063916169	1.02211E-06	3.97269E-05	0.362661775	5.79948E-06	0.000225411	0.313432808	5.01224E-06	0.000194813	0.377348977	6.03435E-06	0.00023454
Road 3	3	0900-1000	0.08066001	1.24847E-06	4.85249E-05	0.06952687	1.07615E-06	4.18272E-05	0.414677845	6.41845E-06	0.000249469	0.356085005	5.51154E-06	0.00021422	0.425611876	6.58769E-06	0.000256047
Road 3	3	1000-1100	0.092536485	1.30465E-06	5.07085E-05	0.079682924	1.12343E-06	4.36649E-05	0.465904516	6.56868E-06	0.000255308	0.399862935	5.63757E-06	0.000219118	0.479545859	6.761E-06	0.000262783
Road 3	3	1100-1200	0.09092219	1.24543E-06	4.84068E-05	0.07689411	1.05328E-06	4.09383E-05	0.470772354	6.44853E-06	0.000250638	0.39634322	5.42902E-06	0.000211012	0.47323733	6.4823E-06	0.000251951
Road 3	3	1200-1300	0.085979309	1.17773E-06	4.57752E-05	0.072852623	9.97919E-07	3.87866E-05	0.455179016	6.23494E-06	0.000242336	0.384169122	5.26226E-06	0.000204531	0.457021745	6.26018E-06	0.000243318

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.09152069	1.36079E-06	5.28905E-05	0.078064779	1.16072E-06	4.51142E-05	0.465588015	6.92267E-06	0.000269067	0.395630992	5.8825E-06	0.000228638	0.473695771	7.04322E-06	0.000273752
Road 3	3	1400-1500	0.084687762	1.2687E-06	4.93113E-05	0.071936906	1.07768E-06	4.18868E-05	0.437607056	6.55577E-06	0.000254806	0.370369208	5.54848E-06	0.000215655	0.442306113	6.62616E-06	0.000257542
Road 3	3	1500-1600	0.094769687	1.36046E-06	5.28775E-05	0.079657777	1.14352E-06	4.44457E-05	0.476970648	6.8471E-06	0.00026613	0.399289218	5.73196E-06	0.000222787	0.478946994	6.87548E-06	0.000267232
Road 3	3	1600-1700	0.088419928	1.38418E-06	5.37996E-05	0.075649549	1.18426E-06	4.60294E-05	0.451800645	7.07276E-06	0.0002749	0.384878863	6.02513E-06	0.000234182	0.460528412	7.20939E-06	0.000280211
Road 3	3	1700-1800	0.068499448	1.07563E-06	4.18069E-05	0.058683524	9.21491E-07	3.5816E-05	0.351245271	5.51551E-06	0.000214374	0.2991738	4.69784E-06	0.000182593	0.357857324	5.61933E-06	0.000218409
Road 3	3	1800-1900	0.06463036	1.06463E-06	4.13795E-05	0.056185813	9.25528E-07	3.59729E-05	0.354693817	5.84274E-06	0.000227092	0.306195794	5.04385E-06	0.000196042	0.362381607	5.96937E-06	0.000232015
Road 3	3	1900-2000	0.067304789	8.20449E-07	3.18888E-05	0.059638684	7.26999E-07	2.82566E-05	0.369556579	4.50492E-06	0.000175095	0.325573316	3.96876E-06	0.000154256	0.385212	4.69576E-06	0.000182512
Road 3	3	2000-2100	0.061820863	6.43535E-07	2.50126E-05	0.054765747	5.70093E-07	2.21581E-05	0.337420077	3.51243E-06	0.000136519	0.29717319	3.09347E-06	0.000120236	0.351938937	3.66357E-06	0.000142394
Road 3	3	2100-2200	0.061483268	6.06491E-07	2.35728E-05	0.054847919	5.41038E-07	2.10288E-05	0.34594187	3.41248E-06	0.000132635	0.306656244	3.02496E-06	0.000117572	0.361504163	3.56599E-06	0.000138601
Road 3	3	2200-2300	0.067735115	6.11666E-07	2.37739E-05	0.058797815	5.3096E-07	2.06371E-05	0.370414192	3.34494E-06	0.000130009	0.318983606	2.88051E-06	0.000111958	0.377781421	3.41147E-06	0.000132595
Road 3	3	2300-0000	0.057229721	4.60805E-07	1.79103E-05	0.051213625	4.12365E-07	1.60276E-05	0.327213705	2.63468E-06	0.000102403	0.29052012	2.33923E-06	9.09198E-05	0.341733745	2.75159E-06	0.000106947
Road 4	4	0000-0100	0.222369429	1.8016E-07	1.92908E-06	0.201689714	1.63406E-07	1.74968E-06	1.097667143	8.89314E-07	9.5224E-06	0.995157143	8.06262E-07	8.63311E-06	1.196846857	9.69668E-07	1.03828E-05
Road 4	4	0100-0200	0.2037465	9.43271E-08	1.01001E-06	0.189396	8.76833E-08	9.38876E-07	1.0077865	4.66568E-07	4.99581E-06	0.936772	4.33691E-07	4.64378E-06	1.126168	5.21374E-07	5.58265E-06
Road 4	4	0200-0300	0.216523846	6.51576E-08	6.97681E-07	0.203156154	6.1135E-08	6.54607E-07	1.035786154	3.11695E-07	3.3375E-06	0.971747692	2.92424E-07	3.13115E-06	1.174903846	3.53559E-07	3.78576E-06
Road 4	4	0300-0400	0.194088571	3.14495E-08	3.36748E-07	0.18394	2.98051E-08	3.1914E-07	0.996115714	1.61408E-07	1.72828E-06	0.944222857	1.52999E-07	1.63825E-06	1.128162857	1.82804E-07	1.95739E-06
Road 4	4	0400-0500	0.202130714	6.55053E-08	7.01403E-07	0.188675	6.11447E-08	6.54711E-07	0.967255714	3.13463E-07	3.35642E-06	0.902824286	2.92582E-07	3.13284E-06	1.091499286	3.53727E-07	3.78756E-06
Road 4	4	0500-0600	0.191545833	1.06414E-07	1.13944E-06	0.177972083	9.88734E-08	1.05869E-06	0.881187917	4.89549E-07	5.24188E-06	0.818334583	4.5463E-07	4.86799E-06	0.996306667	5.53504E-07	5.92668E-06
Road 4	4	0600-0700	0.216135472	2.65166E-07	2.83929E-06	0.196000566	2.40464E-07	2.57478E-06	1.000007358	1.22686E-06	1.31367E-05	0.90641566	1.11204E-06	1.19072E-05	1.102416226	1.3525E-06	1.4482E-05
Road 4	4	0700-0800	0.225212826	4.7962E-07	5.13557E-06	0.19630913	4.18066E-07	4.47647E-06	1.080521413	2.30111E-06	2.46393E-05	0.940750761	2.00345E-06	2.14521E-05	1.137059891	2.42152E-06	2.59286E-05
Road 4	4	0800-0900	0.236271548	8.47734E-07	9.07717E-06	0.205151032	7.36074E-07	7.88157E-06	1.137963226	4.08297E-06	4.37187E-05	0.987615613	3.54353E-06	3.79426E-05	1.192766645	4.2796E-06	4.58242E-05
Road 4	4	0900-1000	0.243212162	8.33227E-07	8.92184E-06	0.209134257	7.16478E-07	7.67175E-06	1.111883041	3.80923E-06	4.07876E-05	0.955511149	3.27351E-06	3.50514E-05	1.164645405	3.98999E-06	4.27231E-05
Road 4	4	1000-1100	0.274101667	9.13672E-07	9.78322E-06	0.235665833	7.85553E-07	8.41137E-06	1.256837083	4.18946E-06	4.48589E-05	1.080545486	3.60182E-06	3.85668E-05	1.316211319	4.38737E-06	4.69781E-05
Road 4	4	1100-1200	0.253878065	9.10905E-07	9.75359E-06	0.214314516	7.68953E-07	8.23362E-06	1.156631548	4.14995E-06	4.44359E-05	0.976188452	3.50253E-06	3.75036E-05	1.190502968	4.27148E-06	4.57372E-05
Road 4	4	1200-1300	0.261033649	8.94282E-07	9.57559E-06	0.2208775	7.5671E-07	8.10253E-06	1.241368919	4.25284E-06	4.55376E-05	1.049928446	3.59698E-06	3.85149E-05	1.270805946	4.35369E-06	4.66174E-05
Road 4	4	1300-1400	0.268047667	9.30721E-07	9.96577E-06	0.228355267	7.929E-07	8.49004E-06	1.245139	4.3234E-06	4.62931E-05	1.060264933	3.68148E-06	3.94197E-05	1.2886202	4.47438E-06	4.79097E-05
Road 4	4	1400-1500	0.244989786	7.93948E-07	8.50126E-06	0.207801857	6.73432E-07	7.21083E-06	1.174444429	3.80607E-06	4.07538E-05	0.995554357	3.22633E-06	3.45462E-05	1.203356214	3.89977E-06	4.1757E-05
Road 4	4	1500-1600	0.27718128	8.02029E-07	8.58779E-06	0.23251984	6.728E-07	7.20406E-06	1.28769648	3.72597E-06	3.98962E-05	1.08007376	3.12521E-06	3.34635E-05	1.3125936	3.79801E-06	4.06675E-05
Road 4	4	1600-1700	0.256496774	7.36241E-07	7.88336E-06	0.219245	6.29314E-07	6.73843E-06	1.203451129	3.45435E-06	3.69877E-05	1.028180968	2.95126E-06	3.16008E-05	1.247425968	3.58057E-06	3.83393E-05
Road 4	4	1700-1800	0.240557953	7.07196E-07	7.57235E-06	0.206091181	6.0587E-07	6.4874E-06	1.147017874	3.37202E-06	3.61062E-05	0.981903465	2.88661E-06	3.09086E-05	1.187994646	3.49248E-06	3.7396E-05
Road 4	4	1800-1900	0.265150472	6.50601E-07	6.96636E-06	0.230552925	5.65709E-07	6.05737E-06	1.276431415	3.13198E-06	3.3536E-05	1.109571132	2.72256E-06	2.9152E-05	1.340124057	3.28827E-06	3.52094E-05
Road 4	4	1900-2000	0.233459865	3.99908E-07	4.28205E-06	0.206837568	3.54305E-07	3.79375E-06	1.125951892	1.92871E-06	2.06519E-05	0.997405135	1.70852E-06	1.82941E-05	1.204242703	2.06282E-06	2.20878E-05
Road 4	4	2000-2100	0.200416735	2.27325E-07	2.4341E-06	0.177476327	2.01304E-07	2.15548E-06	0.969832449	1.10004E-06	1.17788E-05	0.857977551	9.73169E-07	1.04203E-05	1.035453878	1.17447E-06	1.25758E-05
Road 4	4	2100-2200	0.169877027	1.45497E-07	1.55792E-06	0.15170973	1.29937E-07	1.39131E-06	0.83951973	7.19033E-07	7.6991E-06	0.748896486	6.41416E-07	6.86801E-06	0.900606216	7.71353E-07	8.25932E-06
Road 4	4	2200-2300	0.23371254	3.40831E-07	3.64947E-06	0.202939524	2.95953E-07	3.16894E-06	1.110819048	1.61994E-06	1.73457E-05	0.963925238	1.40572E-06	1.50519E-05	1.166864762	1.70168E-06	1.82208E-05
Road 4	4	2300-0000	0.21030102	2.38536E-07	2.55414E-06	0.188145714	2.13406E-07	2.28506E-06	1.026540408	1.16436E-06	1.24675E-05	0.91787898	1.04111E-06	1.11478E-05	1.106024694	1.25452E-06	1.34329E-05
Road 5	5	0000-0100	0.070287306	2.54607E-07	3.4431E-06	0.063829223	2.31213E-07	3.12674E-06	0.390425855	1.41427E-06	1.91254E-05	0.352787668	1.27793E-06	1.72817E-05	0.416616891	1.50914E-06	2.04084E-05
Road 5	5	0100-0200	0.045914262	1.05134E-07	1.42175E-06	0.042702951	9.77808E-08	1.32231E-06	0.27959082	6.40204E-07	8.6576E-06	0.258912131	5.92854E-07	8.01728E-06	0.301615082	6.90635E-07	9.33959E-06
Road 5	5	0200-0300	0.042984419	6.93818E-08	9.38263E-07	0.040306047	6.50586E-08	8.79799E-07	0.292116279	4.71509E-07	6.3763E-06	0.272249884	4.39442E-07	5.94266E-06	0.31255593	5.04501E-07	6.82246E-06
Road 5	5	0300-0400	0.037762698	4.46518E-08	6.03835E-07	0.035770159	4.22958E-08	5.71974E-07	0.20498254	2.42378E-07	3.27772E-06	0.19320127	2.28447E-07	3.08934E-06	0.228971429	2.70743E-07	3.66131E-06
Road 5	5	0400-0500	0.053296566	9.90308E-08	1.33921E-06	0.049777778	9.24925E-08	1.25079E-06	0.302106869	5.61347E-07	7.5912E-06	0.281000202	5.22129E-07	7.06085E-06	0.33077798	6.14621E-07	8.31164E-06
Road 5	5	0500-0600	0.044236409	1.82658E-07	2.47012E-06	0.0411045	1.69726E-07	2.29523E-06	0.254730909	1.05182E-06	1.42239E-05	0.235203818	9.71187E-07	1.31335E-05	0.276308318	1.14091E-06	1.54288E-05
Road 5	5	0600-0700	0.065830851	4.79399E-07	6.483E-06	0.059720928	4.34905E-07	5.8813E-06	0.328549665	2.39259E-06	3.23555E-05	0.296532629	2.15943E-06	2.92024E-05	0.356253557	2.59434E-06	3.50837E-05
Road 5	5	0700-0800	0.053082148	6.30649E-07	8.52839E-06	0.046259447	5.49591E-07	7.43223E-06	0.278419889	3.3078E-06	4.47321E-05	0.240176935	2.85345E-06	3.85878E-05	0.286436382	3.40304E-06	4.602E-05
Road 5	5	0800-0900	0.058217438	9.2112E-07	1.24565E-05	0.050587663	8.00402E-07	1.0824E-05	0.283303132	4.48244E-06	6.06169E-05	0.244334093	3.86587E-06	5.22789E-05	0.294921756	4.66627E-06	6.31029E-05
Road 5	5	0900-1000	0.065139265	9.97628E-07	1.34911E-05	0.056230699	8.61191E-07	1.1646E-05	0.345794767	5.29596E-06	7.16182E-05	0.296870956	4.54667E-06	6.14855E-05	0.353101654	5.40786E-06	7.31315E-05
Road 5	5	1000-1100	0.074980204	1.03295E-06	1.39687E-05	0.064605967	8.9003E-07	1.2036E-05	0.387213501	5.33436E-06	7.21376E-05	0.332098243	4.57508E-06	6.18696E-05	0.39670421	5.46511E-06	7.39057E-05
Road 5	5	1100-1200	0.073746724	9.67511E-07	1.30838E-05	0.062415923	8.18858E-07	1.10736E-05	0.397815508	5.21909E-06	7.05787E-05	0.334594678	4.38967E-06	5.93623E-05	0.397010601	5.20853E-06	7.04359E-05
Road 5	5	1200-1300	0.068742037	9.12174E-07	1.23355E-05	0.058298175	7.73589E-07	1.04614E-05	0.373492008	4.95606E-06	6.70217E-05	0.314913041	4.17874E-06	5.65099E-05	0.373211216	4.95233E-06	6.69713E-05
Road 5	5	1300-1400	0.075230064	1.09711E-06	1.48364E-05	0.064216628	9.36492E-07	1.26644E-05	0.390777735	5.69884E-06	7.70665E-05	0.331764015	4.83823E-06	6.54282E-05	0.395980644	5.77472E-06	7.80926E-05
Road 5	5	1400-1500	0.071198237	1.06102E-06	1.43484E-05	0.06051903	9.01879E-07	1.21963E-05	0.371635227	5.53826E-06	7.48949E-05	0.314351096	4.68459E-06	6.33505E-05	0.374870126	5.58647E-06	7.55468E-05
Road 5	5	1500-1600	0.080149935	1.15832E-06	1.56642E-05	0.067406481	9.74155E-07	1.31737E-05	0.408139961	5.89842E-06	7.97654E-05	0.341441299	4.93449E-06	6.67301E-05	0.408847779	5.90865E-06	7.99038E-05
Road 5	5	1600-1700	0.075288148	1.20535E-06	1.63001E-05	0.064444455	1.03174E-06	1.39524E-05	0.390662415	6.25441E-06	8.45796E-05	0.332496659	5.32319E-06	7.19865E-05	0.396941114	6.35493E-06	8.59389E-05
Road 5	5	1700-1800	0.054164806	8.65132E-07	1.16993E-05	0.046410928	7.41286E-07	1.00245E-05	0.280930811	4.48709E-06	6.06798E-05	0.238788472	3.81398E-06	5.15772E-05	0.285199401	4.55527E-06	6.16017E-05
Road 5	5	1800-1900	0.050541143	8.71759E-07	1.1789E-05	0.043931153	7.57746E-07	1.02471E-05	0.286206931	4.93664E-06	6.67591E-05	0.246470261	4.25124E-06	5.74903E-05	0.290401415	5.00899E-06	6.77375E-05
Road 5	5	1900-2000	0.057299373	7.37751E-07	9.97674E-06	0.050771283	6.53699E-07	8.8401E-06	0.32160258	4.14075E-06	5.59962E-05	0.282948499	3.64307E-06	4.92659E-05	0.333719781	4.29677E-06	5.8106E-05
Road 5	5	2000-2100	0.0547215	6.16233E-07	8.33344E-06	0.048485083	5.46003E-07	7.3837E-06	0.302757217	3.40943E-06	4.61063E-05	0.266408333	3.00009E-06	4.05708E-05	0.314893417	3.5461E-06	4.79545E-05
Road 5	5	2100-2200	0.057317163	6.21797E-07	8.40867E-06	0.051128651	5.54661E-07	7.50079E-06	0.325904118	3.53552E-06	4.78115E-05	0.288670484	3.1316E-06	4.23492E-05	0.339799135	3.68626E-06	4.985E-05
Road 5	5	2200-2300	0.056642545	5.30492E-07	7.17395E-06	0.049163086	4.60443E-07	6.22665E-06	0.318012204	2.97838E-06	4.02772E-05	0.273194629	2.55864E-06	3.46009E-05	0.322357715	3.01908E-06	4.08276E-05
Road 5	5	2300-0000	0.04807011	4.08704E-07	5.52698E-06	0.043008587	3.6567E-07	4.94502E-06	0.282039956	2.39797E-06	3.24283E-05	0.249929161	2.12496E-06	2.87362E-05	0.292937748	2.49063E-06	3.36813E-05
Road 6	6	0000-0100	0.0419684	1.18154E-07	4.22354E-06	0.038062733	1.07159E-07	3.83049E-06	0.2685548	7.56066E-07	2.70263E-05	0.2414148	6.79659E-07	2.4295E-05	0.279477533	7.86817E-07	2.81255E-05
Road 6	6	0100-0200	0.054127018	1.15812E-07	4.13982E-06	0.050337982	1.07705E-07	3.85002E-06	0.302968333	6.48243E-07	2.31721E-05	0.280288421	5.99716E-07	2.14374E-05	0.330626404	7.07421E-07	2.52874E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.048498101	7.19097E-08	2.57048E-06	0.045520253	6.74944E-08	2.41265E-06	0.274835949	4.07508E-07	1.45668E-05	0.256668354	3.80571E-07	1.36039E-05	0.302188608	4.48065E-07	1.60165E-05
Road 6	6	0300-0400	0.049282903	5.73487E-08	2.04998E-06	0.046773871	5.44291E-08	1.94562E-06	0.311923226	3.62974E-07	1.29748E-05	0.295032097	3.43318E-07	1.22722E-05	0.341805968	3.97747E-07	1.42178E-05
Road 6	6	0400-0500	0.053913444	9.107E-08	3.25538E-06	0.050364222	8.50747E-08	3.04108E-06	0.314047444	5.30486E-07	1.89627E-05	0.291867778	4.9302E-07	1.76235E-05	0.342232	5.78095E-07	2.06645E-05
Road 6	6	0500-0600	0.049526358	1.50587E-07	5.38287E-06	0.046050741	1.40019E-07	5.00512E-06	0.296351605	9.01069E-07	3.22096E-05	0.273784568	8.32453E-07	2.97568E-05	0.319835309	9.72472E-07	3.47619E-05
Road 6	6	0600-0700	0.053746103	2.92537E-07	1.0457E-05	0.048767379	2.65438E-07	9.48833E-06	0.336534552	1.83174E-06	6.54772E-05	0.303183759	1.65021E-06	5.89884E-05	0.351951138	1.91565E-06	6.84767E-05
Road 6	6	0700-0800	0.052178268	4.52447E-07	1.61731E-05	0.045515931	3.94676E-07	1.41081E-05	0.298477208	2.58815E-06	9.25158E-05	0.257557965	2.23333E-06	7.98325E-05	0.303073896	2.62801E-06	9.39405E-05
Road 6	6	0800-0900	0.045147009	5.60948E-07	2.00516E-05	0.039197387	4.87025E-07	1.74092E-05	0.265021254	3.29287E-06	0.000117707	0.22708574	2.82152E-06	0.000100858	0.266283127	3.30855E-06	0.000118267
Road 6	6	0900-1000	0.048227662	5.72975E-07	2.04815E-05	0.041521706	4.93304E-07	1.76336E-05	0.27207278	3.2324E-06	0.000115545	0.231763112	2.75349E-06	9.84262E-05	0.273284818	3.2468E-06	0.00011606
Road 6	6	1000-1100	0.065431626	6.57018E-07	2.34857E-05	0.056314318	5.65468E-07	2.02132E-05	0.357472748	3.58949E-06	0.00012831	0.305604991	3.06867E-06	0.000109692	0.361919308	3.63414E-06	0.000129906
Road 6	6	1100-1200	0.075280489	7.51675E-07	2.68693E-05	0.063702895	6.36072E-07	2.2737E-05	0.393229662	3.92639E-06	0.000140353	0.330820977	3.30324E-06	0.000118078	0.394523872	3.93931E-06	0.000140815
Road 6	6	1200-1300	0.072565182	7.12305E-07	2.5462E-05	0.061559771	6.04275E-07	2.16004E-05	0.363697553	3.57008E-06	0.000127616	0.307089216	3.01441E-06	0.000107753	0.368648987	3.61868E-06	0.000129353
Road 6	6	1300-1400	0.084178714	8.23144E-07	2.94241E-05	0.071822534	7.02319E-07	2.5105E-05	0.429357159	4.19848E-06	0.000150079	0.364626372	3.56551E-06	0.000127453	0.436448906	4.26783E-06	0.000152558
Road 6	6	1400-1500	0.08039676	8.66136E-07	3.09609E-05	0.068306132	7.35881E-07	2.63047E-05	0.403663432	4.34878E-06	0.000155451	0.341361707	3.67758E-06	0.000131459	0.40966784	4.41346E-06	0.000157763
Road 6	6	1500-1600	0.071182242	7.50834E-07	2.68393E-05	0.059824537	6.31032E-07	2.25568E-05	0.370178327	3.90466E-06	0.000139576	0.309039146	3.25976E-06	0.000116523	0.368863683	3.89079E-06	0.00013908
Road 6	6	1600-1700	0.073689653	7.96645E-07	2.84768E-05	0.063091076	6.82066E-07	2.43811E-05	0.365983299	3.95658E-06	0.000141432	0.311504271	3.36761E-06	0.000120379	0.374595347	4.04968E-06	0.00014476
Road 6	6	1700-1800	0.053944721	6.1761E-07	2.20771E-05	0.046269574	5.29738E-07	1.8936E-05	0.277348311	3.17535E-06	0.000113506	0.235888426	2.70067E-06	9.65382E-05	0.282158	3.23041E-06	0.000115474
Road 6	6	1800-1900	0.052547562	6.79528E-07	2.42904E-05	0.045697576	5.90947E-07	2.11239E-05	0.275401147	3.5614E-06	0.000127306	0.237402235	3.07001E-06	0.00010974	0.283099811	3.66096E-06	0.000130864
Road 6	6	1900-2000	0.06100521	5.99976E-07	2.14467E-05	0.054026011	5.31337E-07	1.89931E-05	0.319639332	3.1436E-06	0.000112371	0.280963263	2.76323E-06	9.87742E-05	0.334989275	3.29456E-06	0.000117767
Road 6	6	2000-2100	0.047526364	3.72861E-07	1.33283E-05	0.042059665	3.29973E-07	1.17952E-05	0.276682727	2.17067E-06	7.75927E-05	0.242942081	1.90596E-06	6.81305E-05	0.285001746	2.23594E-06	7.99257E-05
Road 6	6	2100-2200	0.067346139	4.55041E-07	1.62659E-05	0.060074222	4.05907E-07	1.45095E-05	0.358450417	2.42196E-06	8.65753E-05	0.31775975	2.14703E-06	7.67475E-05	0.377833972	2.55293E-06	9.1257E-05
Road 6	6	2200-2300	0.05168937	3.69626E-07	1.32126E-05	0.044805328	3.20398E-07	1.14529E-05	0.291633281	2.08544E-06	7.45461E-05	0.24888084	1.77972E-06	6.36179E-05	0.293686168	2.10012E-06	7.50708E-05
Road 6	6	2300-0000	0.033648627	2.25461E-07	8.05932E-06	0.030113361	2.01773E-07	7.21257E-06	0.20975563	1.40546E-06	5.02394E-05	0.185476303	1.24277E-06	4.44242E-05	0.215589664	1.44455E-06	5.16367E-05
Road 7	7	0000-0100	0.061567066	1.66259E-07	4.15037E-06	0.055848506	1.50816E-07	3.76487E-06	0.362394446	9.78631E-07	2.44298E-05	0.327018521	8.83099E-07	2.2045E-05	0.382867028	1.03392E-06	2.58099E-05
Road 7	7	0100-0200	0.073524098	1.54783E-07	3.86388E-06	0.068390007	1.43974E-07	3.59407E-06	0.400482486	8.43094E-07	2.10464E-05	0.371319506	7.817E-07	1.95138E-05	0.439709513	9.25674E-07	2.31078E-05
Road 7	7	0200-0300	0.061965727	8.45675E-08	2.11108E-06	0.058170981	7.93887E-08	1.9818E-06	0.348751772	4.75958E-07	1.18815E-05	0.326319214	4.45343E-07	1.11172E-05	0.384490195	5.24732E-07	1.3099E-05
Road 7	7	0300-0400	0.062509983	6.89743E-08	1.72182E-06	0.059209605	6.53326E-08	1.63092E-06	0.374579312	4.13316E-07	1.03177E-05	0.353909868	3.90509E-07	9.74837E-06	0.413119474	4.55841E-07	1.13793E-05
Road 7	7	0400-0500	0.070106252	1.12981E-07	2.82037E-06	0.065484368	1.05532E-07	2.63443E-06	0.388328844	6.25816E-07	1.56224E-05	0.361563566	5.82682E-07	1.45457E-05	0.427047934	6.88215E-07	1.71801E-05
Road 7	7	0500-0600	0.064831644	1.8637E-07	4.65241E-06	0.059711262	1.71651E-07	4.28496E-06	0.363464867	1.04485E-06	2.60827E-05	0.333133279	9.57652E-07	2.39061E-05	0.392844541	1.1293E-06	2.81911E-05
Road 7	7	0600-0700	0.06905195	3.54898E-07	8.85941E-06	0.063009294	3.23841E-07	8.08413E-06	0.398292944	2.04706E-06	5.11012E-05	0.36150274	1.85797E-06	4.6381E-05	0.424512034	2.18181E-06	5.44652E-05
Road 7	7	0700-0800	0.068913056	5.65294E-07	1.41116E-05	0.060138177	4.93314E-07	1.23147E-05	0.374677755	3.07348E-06	7.67241E-05	0.324586254	2.66258E-06	6.64667E-05	0.384724431	3.15589E-06	7.87814E-05
Road 7	7	0800-0900	0.069816834	8.66664E-07	2.16348E-05	0.060245145	7.47847E-07	1.86687E-05	0.378166481	4.69433E-06	0.000117186	0.323961486	4.02146E-06	0.000100389	0.384206631	4.76931E-06	0.000119057
Road 7	7	0900-1000	0.071744432	8.24969E-07	2.05939E-05	0.061883341	7.11579E-07	1.77633E-05	0.374818258	4.30993E-06	0.00010759	0.321386775	3.69554E-06	9.22526E-05	0.383270117	4.40712E-06	0.000110016
Road 7	7	1000-1100	0.086265081	8.70451E-07	2.17293E-05	0.073815184	7.44826E-07	1.85933E-05	0.453072789	4.57169E-06	0.000114124	0.385976065	3.89466E-06	9.72234E-05	0.459791249	4.63949E-06	0.000115817
Road 7	7	1100-1200	0.095422896	9.61471E-07	2.40015E-05	0.081264332	8.18811E-07	2.04402E-05	0.48832621	4.92033E-06	0.000122827	0.414370313	4.17515E-06	0.000104225	0.495634645	4.99396E-06	0.000124666
Road 7	7	1200-1300	0.093469157	9.40429E-07	2.34762E-05	0.079579422	8.00679E-07	1.99876E-05	0.471624306	4.74519E-06	0.000118455	0.400440753	4.02899E-06	0.000100577	0.480020176	4.82967E-06	0.000120564
Road 7	7	1300-1400	0.099845024	9.88633E-07	2.46795E-05	0.08542624	8.45863E-07	2.11155E-05	0.504767808	4.99805E-06	0.000124768	0.4304845	4.26252E-06	0.000106406	0.51591074	5.10838E-06	0.000127522
Road 7	7	1400-1500	0.093453286	9.68762E-07	2.41835E-05	0.079644684	8.25618E-07	2.06101E-05	0.4749996	4.92397E-06	0.000122918	0.403387641	4.18163E-06	0.000104387	0.483032326	5.00724E-06	0.000124997
Road 7	7	1500-1600	0.087298088	8.88479E-07	2.21793E-05	0.073496191	7.4801E-07	1.86728E-05	0.450165906	4.58158E-06	0.000114371	0.377265403	3.83963E-06	9.58497E-05	0.450761594	4.58764E-06	0.000114522
Road 7	7	1600-1700	0.089973716	9.47061E-07	2.36417E-05	0.07644683	8.04677E-07	2.00874E-05	0.44796883	4.71531E-06	0.000117709	0.378928675	3.98859E-06	9.95683E-05	0.455375505	4.79327E-06	0.000119656
Road 7	7	1700-1800	0.067601252	7.52791E-07	1.87921E-05	0.058077697	6.46739E-07	1.61447E-05	0.349138018	3.88792E-06	9.70551E-05	0.298225423	3.32097E-06	8.29021E-05	0.35630312	3.9677E-06	9.90468E-05
Road 7	7	1800-1900	0.062064194	7.18164E-07	1.79277E-05	0.054396379	6.29438E-07	1.57128E-05	0.325976326	3.77197E-06	9.41608E-05	0.283899512	3.28509E-06	8.20066E-05	0.338295891	3.91453E-06	9.77194E-05
Road 7	7	1900-2000	0.070871182	6.19428E-07	1.54629E-05	0.062817388	5.49036E-07	1.37057E-05	0.374703627	3.27498E-06	8.17542E-05	0.330248782	2.88644E-06	7.20549E-05	0.39306617	3.43547E-06	8.57606E-05
Road 7	7	2000-2100	0.064428807	4.63966E-07	1.15821E-05	0.057085619	4.11086E-07	1.0262E-05	0.351163116	2.5288E-06	6.31272E-05	0.309286386	2.22724E-06	5.55991E-05	0.366372005	2.63832E-06	6.58612E-05
Road 7	7	2100-2200	0.075073136	4.51242E-07	1.12645E-05	0.066366352	3.98908E-07	9.95804E-06	0.400734914	2.4087E-06	6.01289E-05	0.352372044	2.118E-06	5.28722E-05	0.418738396	2.51691E-06	6.28302E-05
Road 7	7	2200-2300	0.064523627	4.18746E-07	1.04533E-05	0.055993128	3.63385E-07	9.07127E-06	0.354481974	2.30052E-06	5.74285E-05	0.304118024	1.97367E-06	4.92692E-05	0.360111152	2.33705E-06	5.83404E-05
Road 7	7	2300-0000	0.044028759	2.62726E-07	6.55849E-06	0.039424213	2.3525E-07	5.8726E-06	0.260239804	1.55289E-06	3.87651E-05	0.231014576	1.3785E-06	3.44118E-05	0.270438789	1.61375E-06	4.02844E-05
Road 8	8	0000-0100	0.194997222	1.41816E-07	2.33779E-06	0.176817222	1.28594E-07	2.11983E-06	0.965381667	7.02096E-07	1.15738E-05	0.875095	6.36433E-07	1.04914E-05	1.051912222	7.65027E-07	1.26112E-05
Road 8	8	0100-0200	0.19635	0.000000119	1.96167E-06	0.182535333	1.10627E-07	1.82365E-06	0.96955	5.87606E-07	9.68647E-06	0.901290333	5.46237E-07	9.0045E-06	1.083825667	6.56864E-07	1.08282E-05
Road 8	8	0200-0300	0.182619333	5.53392E-08	9.12246E-07	0.171402	5.194E-08	8.56211E-07	0.948212667	2.87337E-07	4.73665E-06	0.889771333	2.69628E-07	4.44471E-06	1.061173333	3.21568E-07	5.30092E-06
Road 8	8	0300-0400	0.16434	4.648E-08	7.66205E-07	0.155854286	4.408E-08	7.26642E-07	0.835321429	2.36253E-07	3.89453E-06	0.792160714	2.24045E-07	3.69331E-06	0.948015	2.68125E-07	4.41995E-06
Road 8	8	0400-0500	0.188631905	8.00257E-08	1.31919E-06	0.17612	7.47176E-08	1.23169E-06	0.904587143	3.83764E-07	6.32621E-06	0.844482381	3.58265E-07	5.90587E-06	1.020602381	4.32983E-07	7.13756E-06
Road 8	8	0500-0600	0.184247647	1.26554E-07	2.08619E-06	0.171235294	1.17616E-07	1.93886E-06	0.867870588	5.96113E-07	9.8267E-06	0.806258235	5.53794E-07	9.12908E-06	0.977493529	6.7141E-07	1.10679E-05
Road 8	8	0600-0700	0.209073548	2.6187E-07	4.31683E-06	0.189666935	2.37563E-07	3.91613E-06	0.972940323	1.21863E-06	2.00887E-05	0.882237097	1.10502E-06	1.82159E-05	1.071904032	1.34259E-06	2.2132E-05
Road 8	8	0700-0800	0.215327059	4.43704E-07	7.3143E-06	0.187741078	3.8686E-07	6.37725E-06	1.012513725	2.08639E-06	3.43934E-05	0.882034412	1.81753E-06	2.99612E-05	1.06977549	2.20439E-06	3.63385E-05
Road 8	8	0800-0900	0.2441925	9.47171E-07	1.56138E-05	0.212193073	8.23052E-07	1.35677E-05	1.152653333	4.4709E-06	7.37011E-05	1.000979219	3.88259E-06	6.4003E-05	1.213172292	4.70564E-06	7.75707E-05
Road 8	8	0900-1000	0.262973101	8.39389E-07	1.3837E-05	0.226192468	7.21988E-07	1.19017E-05	1.180670127	3.7686E-06	6.2124E-05	1.015451392	3.24124E-06	5.34306E-05	1.241643861	3.96323E-06	6.53323E-05
Road 8	8	1000-1100	0.251767125	8.13793E-07	1.34151E-05	0.216511313	6.99835E-07	1.15365E-05	1.163813688	3.76182E-06	6.20122E-05	1.000311938	3.23333E-06	5.33003E-05	1.21682325	3.93317E-06	6.48368E-05
Road 8	8	1100-1200	0.260622264	8.3715E-07	1.38001E-05	0.219979811	7.06602E-07	1.16481E-05	1.216605723	3.90789E-06	6.442E-05	1.026802642	3.29821E-06	5.43698E-05	1.246782453	4.00482E-06	6.60179E-05
Road 8	8	1200-1300	0.263669118	9.0553E-07	1.49273E-05	0.223085118	7.66151E-07	1.26297E-05	1.241149882	4.26253E-06	7.02663E-05	1.049765235	3.60525E-06	5.94313E-05	1.272850353	4.37141E-06	7.2061E-05
Road 8	8	1300-1400	0.241555926	7.90547E-07	1.30319E-05	0.205842593	6.73667E-07	1.11051E-05	1.121894506	3.67165E-06	6.05258E-05	0.955568272	3.12731E-06	5.15526E-05	1.161410864	3.80098E-06	6.26577E-05
Road 8	8	1400-1500	0.237078201	6.65735E-07	1.09744E-05	0.201121942	5.64767E-07	9.30997E-06	1.146441871	3.2193E-06	5.3069E-05	0.972211799	2.73005E-06	4.50038E-05	1.173333741	3.29482E-06	5.43138E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.246379568	6.91854E-07	1.14049E-05	0.206696547	5.80421E-07	9.56802E-06	1.161516475	3.26163E-06	5.37668E-05	0.973565755	2.73385E-06	4.50665E-05	1.180262302	3.31427E-06	5.46345E-05
Road 8	8	1600-1700	0.243394362	7.32642E-07	1.20773E-05	0.207986913	6.26062E-07	1.03204E-05	1.137087718	3.42275E-06	5.64227E-05	0.971286577	2.92367E-06	4.81956E-05	1.17927349	3.54973E-06	5.8516E-05
Road 8	8	1700-1800	0.194734295	6.13708E-07	1.01167E-05	0.166789615	5.2564E-07	8.66498E-06	0.944975	2.9781E-06	4.90929E-05	0.807990705	2.54639E-06	4.19764E-05	0.974780321	3.07203E-06	5.06413E-05
Road 8	8	1800-1900	0.195340935	4.22252E-07	6.96067E-06	0.169974673	3.6742E-07	6.05678E-06	0.972128318	2.10137E-06	3.46403E-05	0.844973458	1.82651E-06	3.01093E-05	1.014948131	2.19393E-06	3.61661E-05
Road 8	8	1900-2000	0.189495065	2.9477E-07	4.85917E-06	0.167990519	2.61319E-07	4.30774E-06	0.966533636	1.5035E-06	2.47846E-05	0.856345065	1.33209E-06	2.1959E-05	1.024335584	1.59341E-06	2.62668E-05
Road 8	8	2000-2100	0.204916234	3.18759E-07	5.25462E-06	0.181454675	2.82263E-07	4.653E-06	0.952787792	1.48211E-06	2.44321E-05	0.842996623	1.31133E-06	2.16168E-05	1.024451299	1.59359E-06	2.62697E-05
Road 8	8	2100-2200	0.171905185	1.87533E-07	3.09141E-06	0.153450926	1.67401E-07	2.75954E-06	0.872129444	9.51414E-07	1.56837E-05	0.777367222	8.48037E-07	1.39796E-05	0.930818148	1.01544E-06	1.67391E-05
Road 8	8	2200-2300	0.211675781	2.73682E-07	4.51154E-06	0.183807344	2.3765E-07	3.91757E-06	1.016986563	1.31489E-06	2.16755E-05	0.882079219	1.14047E-06	1.88002E-05	1.065886563	1.37812E-06	2.27177E-05
Road 8	8	2300-0000	0.160529245	1.7188E-07	2.83337E-06	0.143693585	1.53854E-07	2.53622E-06	0.802723396	8.59482E-07	1.41682E-05	0.717944717	7.68708E-07	1.26719E-05	0.861638302	9.22562E-07	1.52081E-05
Road 9	9	0000-0100	0.175265603	4.65464E-08	1.38949E-06	0.162184285	4.30723E-08	1.28578E-06	0.777660746	2.06528E-07	6.16522E-06	0.716157171	1.90194E-07	5.67763E-06	0.878341456	2.33267E-07	6.96341E-06
Road 9	9	0100-0200	0.186985671	3.90178E-08	1.16475E-06	0.176770314	3.68862E-08	1.10112E-06	0.783091023	1.63405E-07	4.87793E-06	0.737608098	1.53915E-07	4.59461E-06	0.914378412	1.90801E-07	5.69573E-06
Road 9	9	0200-0300	0.069860875	6.62621E-09	1.97804E-07	0.065839952	6.24483E-09	1.86419E-07	0.492766449	4.67383E-08	1.39522E-06	0.466265344	4.42247E-08	1.32018E-06	0.532105296	5.04695E-08	1.5066E-06
Road 9	9	0300-0400	0.083520764	6.33747E-09	1.89184E-07	0.07933557	6.0199E-09	1.79704E-07	0.505457658	3.83536E-08	1.14492E-06	0.480852863	3.64866E-08	1.08919E-06	0.560188433	4.25065E-08	1.26889E-06
Road 9	9	0400-0500	0.199020469	3.77537E-08	1.12701E-06	0.18879533	3.5814E-08	1.06911E-06	0.799620243	1.51686E-07	4.52808E-06	0.756196026	1.43448E-07	4.28218E-06	0.944991356	1.79262E-07	5.35129E-06
Road 9	9	0500-0600	0.145212249	4.68289E-08	1.39792E-06	0.136392593	4.39846E-08	1.31302E-06	0.71619443	2.30962E-07	6.89462E-06	0.674050348	2.17372E-07	6.48891E-06	0.810442942	2.61356E-07	7.80193E-06
Road 9	9	0600-0700	0.17413377	1.05705E-07	3.15547E-06	0.162635853	9.87251E-08	2.94711E-06	0.879686333	5.33997E-07	1.59407E-05	0.822619319	4.99356E-07	1.49066E-05	0.985255172	5.98081E-07	1.78537E-05
Road 9	9	0700-0800	0.153330902	1.42524E-07	4.25458E-06	0.139849578	1.29993E-07	3.8805E-06	0.84691841	7.87225E-07	2.35E-05	0.775408085	7.20755E-07	2.15158E-05	0.915257663	8.50748E-07	2.53963E-05
Road 9	9	0800-0900	0.239676758	5.2286E-07	1.56083E-05	0.214067087	4.66992E-07	1.39405E-05	1.127183799	2.45897E-06	7.34046E-05	1.001566913	2.18494E-06	6.52242E-05	1.215634	2.65193E-06	7.91647E-05
Road 9	9	0900-1000	0.251163733	4.14512E-07	1.23739E-05	0.225954065	3.72907E-07	1.11319E-05	1.069805692	1.76557E-06	5.27054E-05	0.957101323	1.57957E-06	4.71528E-05	1.183055388	1.95248E-06	5.82848E-05
Road 9	9	1000-1100	0.257496316	3.56579E-07	1.06445E-05	0.226609198	3.13806E-07	9.36766E-06	1.080270519	1.49595E-06	4.46566E-05	0.947064086	1.31149E-06	3.91501E-05	1.173673284	1.62529E-06	4.85178E-05
Road 9	9	1100-1200	0.17842421	2.57234E-07	7.67888E-06	0.153583128	2.21421E-07	6.60979E-06	0.933534699	1.34588E-06	4.01767E-05	0.813360449	1.17262E-06	3.50048E-05	0.966943577	1.39404E-06	4.16146E-05
Road 9	9	1200-1300	0.27025226	3.7937E-07	1.13248E-05	0.240590508	3.37732E-07	1.00819E-05	1.201533929	1.68667E-06	5.03499E-05	1.0687353	1.50025E-06	4.4785E-05	1.309325808	1.83798E-06	5.48669E-05
Road 9	9	1300-1400	0.308294141	3.56744E-07	1.06494E-05	0.274907786	3.18111E-07	9.49615E-06	1.168417869	1.35204E-06	4.03607E-05	1.034539587	1.19712E-06	3.57361E-05	1.309447373	1.51523E-06	4.52323E-05
Road 9	9	1400-1500	0.200870854	2.59112E-07	7.73493E-06	0.18025196	2.32515E-07	6.94096E-06	0.960294193	1.23872E-06	3.6978E-05	0.855107091	1.10304E-06	3.29276E-05	1.03535905	1.33555E-06	3.98686E-05
Road 9	9	1500-1600	0.167207245	1.80797E-07	5.3971E-06	0.146755263	1.58683E-07	4.73695E-06	0.849288942	9.18315E-07	2.74133E-05	0.748360538	8.09184E-07	2.41555E-05	0.895115801	9.67866E-07	2.88925E-05
Road 9	9	1600-1700	0.176464604	2.67799E-07	7.99426E-06	0.158577189	2.40653E-07	7.18392E-06	0.948841317	1.43994E-06	4.29847E-05	0.84930007	1.28888E-06	3.84753E-05	1.007877259	1.52953E-06	4.56592E-05
Road 9	9	1700-1800	0.150156412	1.96542E-07	5.8671E-06	0.137331102	1.79754E-07	5.36598E-06	0.879305968	1.15093E-06	3.43574E-05	0.807693611	1.0572E-06	3.15592E-05	0.945024713	1.23695E-06	3.69252E-05
Road 9	9	1800-1900	0.150389318	1.25525E-07	3.74714E-06	0.139754747	1.16649E-07	3.48217E-06	0.857678943	7.15878E-07	2.13702E-05	0.800434098	6.68097E-07	1.99438E-05	0.940188845	7.84746E-07	2.3426E-05
Road 9	9	1900-2000	0.153201319	1.24966E-07	3.73045E-06	0.142581541	1.16304E-07	3.47186E-06	0.801047185	6.53413E-07	1.95055E-05	0.744196004	6.0704E-07	1.81212E-05	0.886777545	7.23343E-07	2.1593E-05
Road 9	9	2000-2100	0.156804952	8.62619E-08	2.57507E-06	0.143008027	7.86719E-08	2.34849E-06	0.691680592	3.80509E-07	1.13588E-05	0.636951005	3.50401E-07	1.04601E-05	0.779959032	4.29073E-07	1.28086E-05
Road 9	9	2100-2200	0.019173148	1.01839E-08	3.04006E-07	0.017710644	9.40706E-09	2.80817E-07	0.27157757	1.44249E-07	4.30609E-06	0.248682384	1.32088E-07	3.94306E-06	0.266393028	1.41495E-07	4.22388E-06
Road 9	9	2200-2300	0.155261706	9.7194E-08	2.90141E-06	0.138867609	8.69313E-08	2.59505E-06	0.743241973	4.65271E-07	1.38891E-05	0.66464484	4.16069E-07	1.24204E-05	0.803512449	5.03E-07	1.50154E-05
Road 9	9	2300-0000	0.123342045	7.0193E-08	2.09538E-06	0.113974696	6.48621E-08	1.93625E-06	0.621688665	3.53798E-07	1.05615E-05	0.573213272	3.26211E-07	9.73796E-06	0.687187969	3.91073E-07	1.16742E-05
Road 10	10	0000-0100	0.24006503	1.84575E-07	4.10398E-06	0.218830808	1.68249E-07	3.74097E-06	1.186925319	9.12575E-07	2.02908E-05	1.082479631	8.32271E-07	1.85053E-05	1.301310439	1.00052E-06	2.22463E-05
Road 10	10	0100-0200	0.229921133	1.33564E-07	2.96976E-06	0.214787309	1.24773E-07	2.77429E-06	1.127358352	6.54898E-07	1.45615E-05	1.05365114	6.1208E-07	1.36094E-05	1.26843845	7.36853E-07	1.63837E-05
Road 10	10	0200-0300	0.22222527	7.21406E-08	1.60402E-06	0.208568428	6.77072E-08	1.50545E-06	1.0778439	3.49898E-07	7.77989E-06	1.012427162	3.28662E-07	7.30771E-06	1.22099559	3.96369E-07	8.81316E-06
Road 10	10	0300-0400	0.199198249	4.08413E-08	9.08093E-07	0.188914082	3.87327E-08	8.61211E-07	1.042307748	2.13703E-07	4.75161E-06	0.989382377	2.02851E-07	4.51034E-06	1.178296459	2.41584E-07	5.37155E-06
Road 10	10	0400-0500	0.240676316	9.45788E-08	2.10293E-06	0.226009795	8.88153E-08	1.97478E-06	1.115885889	4.38511E-07	9.75015E-06	1.045966409	4.11034E-07	9.13922E-06	1.271976204	4.9985E-07	1.1114E-05
Road 10	10	0500-0600	0.225437654	1.57922E-07	3.51135E-06	0.211164971	1.47924E-07	3.28904E-06	1.051663889	7.36704E-07	1.63804E-05	0.984359676	6.89557E-07	1.53321E-05	1.195524646	8.37481E-07	1.86211E-05
Road 10	10	0600-0700	0.281240043	3.94025E-07	8.76102E-06	0.259383458	3.63403E-07	8.08016E-06	1.340575148	1.87818E-06	4.17608E-05	1.238331584	1.73494E-06	3.85758E-05	1.497715042	2.09834E-06	4.66559E-05
Road 10	10	0700-0800	0.286596155	6.31673E-07	1.40451E-05	0.254908142	5.61831E-07	1.24921E-05	1.381747356	3.04545E-06	6.77146E-05	1.231665908	2.71466E-06	6.03596E-05	1.48657405	3.27649E-06	7.28518E-05
Road 10	10	0800-0900	0.307106827	1.30129E-06	2.89338E-05	0.26861803	1.1382E-06	2.53076E-05	1.465595729	6.2101E-06	0.00013808	1.282590464	5.43466E-06	0.000120838	1.551208494	6.57286E-06	0.000146146
Road 10	10	0900-1000	0.344867102	1.16667E-06	2.59406E-05	0.303052747	1.02522E-06	2.27954E-05	1.59358221	5.39104E-06	0.000119868	1.399491542	4.73443E-06	0.000105269	1.702544289	5.75965E-06	0.000128064
Road 10	10	1000-1100	0.346791545	1.27391E-06	2.83251E-05	0.302962273	1.11291E-06	2.47452E-05	1.515832472	5.56829E-06	0.000123809	1.320230138	4.84976E-06	0.000107833	1.623192411	5.96267E-06	0.000132578
Road 10	10	1100-1200	0.334368245	1.22828E-06	2.73103E-05	0.285377251	1.04831E-06	2.33089E-05	1.51651729	5.57081E-06	0.000123865	1.292680118	4.74856E-06	0.000105583	1.578057369	5.79687E-06	0.000128892
Road 10	10	1200-1300	0.352492615	1.33701E-06	2.97281E-05	0.303880753	1.15263E-06	2.56283E-05	1.610806964	6.10983E-06	0.00013585	1.388685373	5.26732E-06	0.000117117	1.692566127	6.41994E-06	0.000142745
Road 10	10	1300-1400	0.344529726	1.13021E-06	2.513E-05	0.299448827	9.82328E-07	2.18418E-05	1.54102758	5.05527E-06	0.000112402	1.336253778	4.38352E-06	9.74662E-05	1.635702605	5.36584E-06	0.000119308
Road 10	10	1400-1500	0.32292969	9.98663E-07	2.2205E-05	0.281090115	8.69274E-07	1.9328E-05	1.542735363	4.77092E-06	0.00010608	1.341861564	4.14972E-06	9.22678E-05	1.622951679	5.01899E-06	0.000111596
Road 10	10	1500-1600	0.319110062	1.00866E-06	2.24272E-05	0.272215285	8.60432E-07	1.91315E-05	1.4792893	4.67582E-06	0.000103965	1.261983668	3.98894E-06	8.8693E-05	1.534198952	4.84938E-06	0.000107824
Road 10	10	1600-1700	0.306149794	1.07754E-06	2.39588E-05	0.267335989	9.4093E-07	2.09213E-05	1.438685456	5.06367E-06	0.000112589	1.253309596	4.41121E-06	9.8082E-05	1.520645585	5.35214E-06	0.000119003
Road 10	10	1700-1800	0.279265032	9.3043E-07	2.06878E-05	0.245616283	8.18322E-07	1.81951E-05	1.378696323	4.59342E-06	0.000102133	1.216794134	4.054E-06	9.01396E-05	1.462410417	4.87233E-06	0.000108335
Road 10	10	1800-1900	0.28218598	5.83382E-07	1.29713E-05	0.249941438	5.16721E-07	1.14891E-05	1.364325442	2.82056E-06	6.27144E-05	1.210139356	2.5018E-06	5.56269E-05	1.460080794	3.01852E-06	6.7116E-05
Road 10	10	1900-2000	0.242189591	4.51039E-07	1.00287E-05	0.218910992	4.07687E-07	9.06479E-06	1.225656336	2.28259E-06	5.07527E-05	1.110200413	2.06757E-06	4.59718E-05	1.329111406	2.47526E-06	5.50366E-05
Road 10	10	2000-2100	0.270943156	3.33306E-07	7.41096E-06	0.24143981	2.97012E-07	6.60397E-06	1.266682542	1.55823E-06	3.46469E-05	1.12882378	1.38864E-06	3.08761E-05	1.37026359	1.68566E-06	3.74801E-05
Road 10	10	2100-2200	0.235097433	2.97243E-07	6.60912E-06	0.21625946	2.73426E-07	6.07954E-06	1.229291044	1.55424E-06	3.45581E-05	1.132403999	1.43174E-06	3.18344E-05	1.348663459	1.70517E-06	3.7914E-05
Road 10	10	2200-2300	0.247111349	3.25099E-07	7.22848E-06	0.218761869	2.87803E-07	6.39921E-06	1.210742245	1.59285E-06	3.54165E-05	1.074782133	1.41398E-06	3.14394E-05	1.293544002	1.70178E-06	3.78387E-05
Road 10	10	2300-0000	0.217856224	2.68E-07	5.9589E-06	0.196450946	2.41668E-07	5.37341E-06	1.06528433	1.31048E-06	2.91381E-05	0.96053538	1.18162E-06	2.6273E-05	1.156986327	1.42329E-06	3.16464E-05
Road 11	11	0000-0100	0.268230146	2.04898E-07	1.69965E-06	0.244228782	1.86564E-07	1.54756E-06	1.296617626	9.90472E-07	8.21604E-06	1.179100257	9.00702E-07	7.47139E-06	1.423329039	1.08727E-06	9.01895E-06
Road 11	11	0100-0200	0.261375332	1.40671E-07	1.16688E-06	0.243950815	1.31293E-07	1.08909E-06	1.240791788	6.67787E-07	5.53935E-06	1.156613142	6.22483E-07	5.16355E-06	1.400563958	7.53776E-07	6.25263E-06
Road 11	11	0200-0300	0.221799266	5.77602E-08	4.79126E-07	0.208195266	5.42175E-08	4.49739E-07	1.144400199	2.98021E-07	2.47211E-06	1.074928568	2.79929E-07	2.32204E-06	1.283123834	3.34147E-07	2.77178E-06
Road 11	11	0300-0400	0.23440802	5.69742E-08	4.72605E-07	0.22225302	5.40198E-08	4.48099E-07	1.183831329	2.87737E-07	2.3868E-06	1.122807961	2.72905E-07	2.26377E-06	1.345060981	3.26925E-07	2.71187E-06

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	0.249051264	8.64761E-08	7.17327E-07	0.233994264	8.1248E-08	6.73959E-07	1.138369455	3.95267E-07	3.27877E-06	1.067401053	3.70625E-07	3.07437E-06	1.301395317	4.51873E-07	3.74833E-06
Road 11	11	0500-0600	0.205190606	9.61831E-08	7.97847E-07	0.192059125	9.00277E-08	7.46787E-07	1.012711964	4.74709E-07	3.93775E-06	0.948632708	4.44672E-07	3.68859E-06	1.140691832	5.34699E-07	4.43537E-06
Road 11	11	0600-0700	0.227377448	2.05271E-07	1.70274E-06	0.208779756	1.88482E-07	1.56347E-06	1.134990441	1.02464E-06	8.49951E-06	1.042992658	9.41591E-07	7.81057E-06	1.251772414	1.13007E-06	9.37404E-06
Road 11	11	0700-0800	0.281075177	5.31896E-07	4.41212E-06	0.247701958	4.68742E-07	3.88825E-06	1.403412129	2.65576E-06	2.20298E-05	1.239366819	2.34533E-06	1.94547E-05	1.487068776	2.81407E-06	2.33429E-05
Road 11	11	0800-0900	0.305136874	1.08599E-06	9.00838E-06	0.26870134	9.56316E-07	7.93272E-06	1.450083966	5.16089E-06	4.281E-05	1.273905868	4.53387E-06	3.76088E-05	1.542607208	5.49018E-06	4.55415E-05
Road 11	11	0900-1000	0.31141357	7.94753E-07	6.59254E-06	0.27345804	6.97888E-07	5.78904E-06	1.415431872	3.6123E-06	2.99643E-05	1.238094824	3.15972E-06	2.62101E-05	1.511552864	3.85761E-06	3.19992E-05
Road 11	11	1000-1100	0.320101551	6.72436E-07	5.57791E-06	0.278766079	5.85602E-07	4.85762E-06	1.439175045	3.02327E-06	2.50782E-05	1.250113707	2.62611E-06	2.17838E-05	1.528879785	3.21171E-06	2.66414E-05
Road 11	11	1100-1200	0.279801103	6.60641E-07	5.48007E-06	0.237325494	5.60352E-07	4.64816E-06	1.3884977	3.2784E-06	2.71946E-05	1.183656387	2.79474E-06	2.31826E-05	1.420981881	3.3551E-06	2.78308E-05
Road 11	11	1200-1300	0.345528855	9.83797E-07	8.16068E-06	0.297351648	8.46626E-07	7.02283E-06	1.610951348	4.58674E-06	3.80474E-05	1.384933635	3.94321E-06	3.27093E-05	1.682285282	4.78984E-06	3.97321E-05
Road 11	11	1300-1400	0.359077997	7.54313E-07	6.25709E-06	0.31172518	6.54839E-07	5.43195E-06	1.565449045	3.28853E-06	2.72786E-05	1.351811758	2.83974E-06	2.35559E-05	1.663536938	3.49458E-06	2.89878E-05
Road 11	11	1400-1500	0.287582878	5.7916E-07	4.80418E-06	0.249447769	5.0236E-07	4.16712E-06	1.382000435	2.7832E-06	2.30868E-05	1.19461447	2.40582E-06	1.99565E-05	1.444062239	2.90818E-06	2.41236E-05
Road 11	11	1500-1600	0.256731735	5.21486E-07	4.32577E-06	0.218375214	4.43575E-07	3.67949E-06	1.279238203	2.59845E-06	2.15544E-05	1.089726844	2.21351E-06	1.83612E-05	1.308102058	2.65708E-06	2.20407E-05
Road 11	11	1600-1700	0.245314521	5.96251E-07	4.94595E-06	0.214330785	5.20943E-07	4.32126E-06	1.255480869	3.05152E-06	2.53126E-05	1.096227272	2.66444E-06	2.21018E-05	1.310558057	3.18538E-06	2.6423E-05
Road 11	11	1700-1800	0.23885297	5.92986E-07	4.91886E-06	0.208597138	5.17871E-07	4.29579E-06	1.246542006	3.09471E-06	2.56709E-05	1.093297679	2.71426E-06	2.2515E-05	1.301894817	3.23213E-06	2.68108E-05
Road 11	11	1800-1900	0.257507956	5.27534E-07	4.37593E-06	0.227073053	4.65184E-07	3.85874E-06	1.315542887	2.69504E-06	2.23555E-05	1.163249378	2.38305E-06	1.97676E-05	1.390322432	2.84823E-06	2.36263E-05
Road 11	11	1900-2000	0.242074296	3.82444E-07	3.1724E-06	0.217644825	3.43849E-07	2.85225E-06	1.216139358	1.92133E-06	1.59376E-05	1.093537553	1.72764E-06	1.43309E-05	1.311182378	2.07149E-06	1.71831E-05
Road 11	11	2000-2100	0.243529487	3.42463E-07	2.84076E-06	0.217144346	3.05359E-07	2.53298E-06	1.175713638	1.65335E-06	1.37147E-05	1.050175615	1.47681E-06	1.22503E-05	1.267319962	1.78217E-06	1.47832E-05
Road 11	11	2100-2200	0.174915605	1.7613E-07	1.46102E-06	0.156461811	1.57548E-07	1.30688E-06	0.949027876	9.55618E-07	7.92693E-06	0.850555861	8.56462E-07	7.10443E-06	1.007017672	1.01401E-06	8.4113E-06
Road 11	11	2200-2300	0.237198212	2.59436E-07	2.15204E-06	0.207988688	2.27488E-07	1.88703E-06	1.158904164	1.26755E-06	1.05144E-05	1.016090853	1.11135E-06	9.21873E-06	1.224079541	1.33884E-06	1.11058E-05
Road 11	11	2300-0000	0.219609529	2.2876E-07	1.89758E-06	0.198230363	2.0649E-07	1.71285E-06	1.090739083	1.13619E-06	9.42476E-06	0.984066509	1.02507E-06	8.50303E-06	1.182296872	1.23156E-06	1.02159E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.17583	2.21021E-06	3.32426E-06	1.02443	1.92562E-06	2.89623E-06	5.15163	9.68352E-06	1.45645E-05	4.48826	8.43658E-06	1.2689E-05	5.51269	1.03622E-05	1.55853E-05
Haul Road 1	HR1	0800-0900	1.20191	2.25923E-06	3.39799E-06	1.04312	1.96075E-06	2.94907E-06	5.26566	9.89786E-06	1.48869E-05	4.5703	8.59079E-06	1.2921E-05	5.61342	1.05515E-05	1.587E-05
Haul Road 1	HR1	0900-1000	1.21231	2.27878E-06	3.4274E-06	1.04202	1.95868E-06	2.94596E-06	5.31132	9.98368E-06	1.5016E-05	4.56511	8.58103E-06	1.29063E-05	5.60713	1.05397E-05	1.58523E-05
Haul Road 1	HR1	1000-1100	1.2279	2.30808E-06	3.47147E-06	1.05521	1.98348E-06	2.98325E-06	5.37987	1.01125E-05	1.52098E-05	4.62317	8.69017E-06	1.30704E-05	5.67838	1.06736E-05	1.60537E-05
Haul Road 1	HR1	1100-1200	1.2275	2.30733E-06	3.47034E-06	1.03562	1.94665E-06	2.92786E-06	5.37807	1.01092E-05	1.52047E-05	4.53743	8.529E-06	1.2828E-05	5.57305	1.04757E-05	1.57559E-05
Haul Road 1	HR1	1200-1300	1.23309	2.31784E-06	3.48614E-06	1.04262	1.95981E-06	2.94765E-06	5.40276	1.01556E-05	1.52745E-05	4.56811	8.58667E-06	1.29148E-05	5.61073	1.05465E-05	1.58624E-05
Haul Road 1	HR1	1300-1400	1.23309	2.31784E-06	3.48614E-06	1.04971	1.97314E-06	2.9677E-06	5.40227	1.01546E-05	1.52731E-05	4.59879	8.64434E-06	1.30015E-05	5.6485	1.06175E-05	1.59692E-05
Haul Road 1	HR1	1400-1500	1.23829	2.32761E-06	3.50084E-06	1.04971	1.97314E-06	2.9677E-06	5.42555	1.01984E-05	1.53389E-05	4.59879	8.64434E-06	1.30015E-05	5.6485	1.06175E-05	1.59692E-05
Haul Road 1	HR1	1500-1600	1.24359	2.33758E-06	3.51583E-06	1.04262	1.95981E-06	2.94765E-06	5.44833	1.02412E-05	1.54033E-05	4.56811	8.58667E-06	1.29148E-05	5.61073	1.05465E-05	1.58624E-05
Haul Road 1	HR1	1600-1700	1.2279	2.30808E-06	3.47147E-06	1.04861	1.97107E-06	2.96459E-06	5.37987	1.01125E-05	1.52098E-05	4.5942	8.63571E-06	1.29885E-05	5.64281	1.06068E-05	1.59531E-05
Haul Road 1	HR1	1700-1800	1.20191	2.25923E-06	3.39799E-06	1.02873	1.9337E-06	2.90838E-06	5.26566	9.89786E-06	1.48869E-05	4.50715	8.47209E-06	1.27424E-05	5.53588	1.04058E-05	1.56508E-05
Haul Road 1	HR1	1800-1900	1.20001	2.25566E-06	3.39262E-06	1.04312	1.96075E-06	2.94907E-06	5.25756	9.88263E-06	1.4864E-05	4.5703	8.59079E-06	1.2921E-05	5.61342	1.05515E-05	1.587E-05
Haul Road 1	HR1	1900-2000	1.17063	2.20043E-06	3.30956E-06	1.03692	1.9491E-06	2.93154E-06	5.12875	9.64051E-06	1.44998E-05	4.54293	8.53934E-06	1.28436E-05	5.57985	1.04884E-05	1.57751E-05
Haul Road 1	HR1	2000-2100	1.14975	2.16118E-06	3.25053E-06	1.01813	1.91378E-06	2.87842E-06	5.0375	9.46898E-06	1.42418E-05	4.46098	8.3853E-06	1.26119E-05	5.47911	1.02991E-05	1.54903E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.17583	1.5231E-06	4.05433E-06	1.02443	1.32698E-06	3.5323E-06	5.15163	6.6731E-06	1.77631E-05	4.48826	5.81381E-06	1.54758E-05	5.51269	7.14079E-06	1.90081E-05
Haul Road 2	HR2	0800-0900	1.20191	1.55688E-06	4.14426E-06	1.04312	1.35119E-06	3.59674E-06	5.26566	6.8208E-06	1.81563E-05	4.5703	5.92008E-06	1.57587E-05	5.61342	7.27127E-06	1.93554E-05
Haul Road 2	HR2	0900-1000	1.21231	1.57035E-06	4.18012E-06	1.04202	1.34977E-06	3.59295E-06	5.31132	6.87995E-06	1.83138E-05	4.56511	5.91335E-06	1.57408E-05	5.60713	7.26312E-06	1.93337E-05
Haul Road 2	HR2	1000-1100	1.2279	1.59054E-06	4.23387E-06	1.05521	1.36685E-06	3.63843E-06	5.37987	6.96874E-06	1.85501E-05	4.62317	5.98856E-06	1.5941E-05	5.67838	7.35541E-06	1.95794E-05
Haul Road 2	HR2	1100-1200	1.2275	1.59003E-06	4.23249E-06	1.03562	1.34148E-06	3.57088E-06	5.37807	6.96641E-06	1.85439E-05	4.53743	5.8775E-06	1.56453E-05	5.57305	7.21898E-06	1.92162E-05
Haul Road 2	HR2	1200-1300	1.23309	1.59727E-06	4.25177E-06	1.04262	1.35054E-06	3.59502E-06	5.40276	6.99839E-06	1.8629E-05	4.56811	5.91724E-06	1.57511E-05	5.61073	7.26778E-06	1.93461E-05
Haul Road 2	HR2	1300-1400	1.23309	1.59727E-06	4.25177E-06	1.04971	1.35973E-06	3.61946E-06	5.40227	6.99776E-06	1.86274E-05	4.59879	5.95698E-06	1.58569E-05	5.6485	7.31671E-06	1.94764E-05
Haul Road 2	HR2	1400-1500	1.23829	1.604E-06	4.2697E-06	1.04971	1.35973E-06	3.61946E-06	5.42555	7.02791E-06	1.87076E-05	4.59879	5.95698E-06	1.58569E-05	5.6485	7.31671E-06	1.94764E-05
Haul Road 2	HR2	1500-1600	1.24359	1.61087E-06	4.28797E-06	1.04262	1.35054E-06	3.59502E-06	5.44833	7.05742E-06	1.87862E-05	4.56811	5.91724E-06	1.57511E-05	5.61073	7.26778E-06	1.93461E-05
Haul Road 2	HR2	1600-1700	1.2279	1.59054E-06	4.23387E-06	1.04861	1.3583E-06	3.61567E-06	5.37987	6.96874E-06	1.85501E-05	4.5942	5.95104E-06	1.58411E-05	5.64281	7.30934E-06	1.94567E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	1.20191	1.55688E-06	4.14426E-06	1.02873	1.33255E-06	3.54712E-06	5.26566	6.8208E-06	1.81563E-05	4.50715	5.83828E-06	1.55409E-05	5.53588	7.17083E-06	1.9088E-05
Haul Road 2	HR2	1800-1900	1.20001	1.55442E-06	4.13771E-06	1.04312	1.35119E-06	3.59674E-06	5.25756	6.81031E-06	1.81284E-05	4.5703	5.92008E-06	1.57587E-05	5.61342	7.27127E-06	1.93554E-05
Haul Road 2	HR2	1900-2000	1.17063	1.51636E-06	4.0364E-06	1.03692	1.34316E-06	3.57536E-06	5.12875	6.64346E-06	1.76842E-05	4.54293	5.88462E-06	1.56643E-05	5.57985	7.22778E-06	1.92397E-05
Haul Road 2	HR2	2000-2100	1.14975	1.48931E-06	3.96441E-06	1.01813	1.31882E-06	3.51057E-06	5.0375	6.52526E-06	1.73696E-05	4.46098	5.77847E-06	1.53817E-05	5.47911	7.09729E-06	1.88923E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.17583	1.5231E-06	4.04868E-06	1.02443	1.32698E-06	3.52737E-06	5.15163	6.6731E-06	1.77384E-05	4.48826	5.81381E-06	1.54542E-05	5.51269	7.14079E-06	1.89816E-05
Haul Road 3	HR3	0800-0900	1.20191	1.55688E-06	4.13848E-06	1.04312	1.35119E-06	3.59173E-06	5.26566	6.8208E-06	1.8131E-05	4.5703	5.92008E-06	1.57367E-05	5.61342	7.27127E-06	1.93284E-05
Haul Road 3	HR3	0900-1000	1.21231	1.57035E-06	4.17429E-06	1.04202	1.34977E-06	3.58794E-06	5.31132	6.87995E-06	1.82882E-05	4.56511	5.91335E-06	1.57188E-05	5.60713	7.26312E-06	1.93068E-05
Haul Road 3	HR3	1000-1100	1.2279	1.59054E-06	4.22797E-06	1.05521	1.36685E-06	3.63335E-06	5.37987	6.96874E-06	1.85243E-05	4.62317	5.98856E-06	1.59187E-05	5.67838	7.35541E-06	1.95521E-05
Haul Road 3	HR3	1100-1200	1.2275	1.59003E-06	4.22659E-06	1.03562	1.34148E-06	3.5659E-06	5.37807	6.96641E-06	1.85181E-05	4.53743	5.8775E-06	1.56235E-05	5.57305	7.21898E-06	1.91894E-05
Haul Road 3	HR3	1200-1300	1.23309	1.59727E-06	4.24584E-06	1.04262	1.35054E-06	3.59E-06	5.40276	6.99839E-06	1.86031E-05	4.56811	5.91724E-06	1.57292E-05	5.61073	7.26778E-06	1.93192E-05
Haul Road 3	HR3	1300-1400	1.23309	1.59727E-06	4.24584E-06	1.04971	1.35973E-06	3.61442E-06	5.40227	6.99776E-06	1.86014E-05	4.59879	5.95698E-06	1.58348E-05	5.6485	7.31671E-06	1.94492E-05
Haul Road 3	HR3	1400-1500	1.23829	1.604E-06	4.26375E-06	1.04971	1.35973E-06	3.61442E-06	5.42555	7.02791E-06	1.86815E-05	4.59879	5.95698E-06	1.58348E-05	5.6485	7.31671E-06	1.94492E-05
Haul Road 3	HR3	1500-1600	1.24359	1.61087E-06	4.28199E-06	1.04262	1.35054E-06	3.59E-06	5.44833	7.05742E-06	1.876E-05	4.56811	5.91724E-06	1.57292E-05	5.61073	7.26778E-06	1.93192E-05
Haul Road 3	HR3	1600-1700	1.2279	1.59054E-06	4.22797E-06	1.04861	1.3583E-06	3.61063E-06	5.37987	6.96874E-06	1.85243E-05	4.5942	5.95104E-06	1.5819E-05	5.64281	7.30934E-06	1.94296E-05
Haul Road 3	HR3	1700-1800	1.20191	1.55688E-06	4.13848E-06	1.02873	1.33255E-06	3.54218E-06	5.26566	6.8208E-06	1.8131E-05	4.50715	5.83828E-06	1.55193E-05	5.53588	7.17083E-06	1.90614E-05
Haul Road 3	HR3	1800-1900	1.20001	1.55442E-06	4.13194E-06	1.04312	1.35119E-06	3.59173E-06	5.25756	6.81031E-06	1.81031E-05	4.5703	5.92008E-06	1.57367E-05	5.61342	7.27127E-06	1.93284E-05
Haul Road 3	HR3	1900-2000	1.17063	1.51636E-06	4.03078E-06	1.03692	1.34316E-06	3.57038E-06	5.12875	6.64346E-06	1.76596E-05	4.54293	5.88462E-06	1.56425E-05	5.57985	7.22778E-06	1.92128E-05
Haul Road 3	HR3	2000-2100	1.14975	1.48931E-06	3.95888E-06	1.01813	1.31882E-06	3.50568E-06	5.0375	6.52526E-06	1.73454E-05	4.46098	5.77847E-06	1.53603E-05	5.47911	7.09729E-06	1.8866E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.094082123	3.16079E-07	2.57135E-06	0.078376536	2.63315E-07	2.1421E-06	0.557257263	1.87217E-06	1.52304E-05	0.461557654	1.55065E-06	1.26148E-05	0.53993419	1.81397E-06	1.47569E-05
Road 1	1	0100-0200	0.072384404	1.48084E-07	1.20468E-06	0.061957706	1.26753E-07	1.03115E-06	0.436882752	8.93773E-07	7.27097E-06	0.371813303	7.60654E-07	6.18803E-06	0.433771009	8.87407E-07	7.21919E-06
Road 1	1	0200-0300	0.069354156	1.0023E-07	8.15388E-07	0.059326104	8.57378E-08	6.9749E-07	0.44314	6.40424E-07	5.20994E-06	0.375562078	5.42761E-07	4.41544E-06	0.434888182	6.28498E-07	5.11293E-06
Road 1	1	0300-0400	0.059367273	6.12838E-08	4.98553E-07	0.049660545	5.12637E-08	4.17038E-07	0.364305091	3.76066E-07	3.05935E-06	0.301934545	3.11682E-07	2.53558E-06	0.351595091	3.62945E-07	2.95261E-06
Road 1	1	0400-0500	0.077206977	1.24621E-07	1.01381E-06	0.064503023	1.04115E-07	8.46993E-07	0.44295	7.14972E-07	5.8164E-06	0.36756314	5.93289E-07	4.82649E-06	0.432066163	6.97404E-07	5.67349E-06
Road 1	1	0500-0600	0.063467287	2.23946E-07	1.82183E-06	0.053106489	1.87388E-07	1.52443E-06	0.375581596	1.32525E-06	1.07811E-05	0.31144484	1.09894E-06	8.94006E-06	0.36455133	1.28633E-06	1.04645E-05
Road 1	1	0600-0700	0.084456914	5.34196E-07	4.34577E-06	0.071551988	4.52572E-07	3.68174E-06	0.449842433	2.84529E-06	2.31468E-05	0.378742789	2.39558E-06	1.94884E-05	0.450294777	2.84815E-06	2.31701E-05
Road 1	1	0700-0800	0.070714413	7.45899E-07	6.068E-06	0.060432153	6.37441E-07	5.18568E-06	0.389990658	4.11364E-06	3.34651E-05	0.330494662	3.48607E-06	2.83597E-05	0.390926815	4.12351E-06	3.35454E-05
Road 1	1	0800-0900	0.076883588	1.00145E-06	8.14694E-06	0.065841383	8.57619E-07	6.97685E-06	0.413062695	5.38036E-06	4.377E-05	0.351686744	4.5809E-06	3.72663E-05	0.417528127	5.43852E-06	4.42432E-05
Road 1	1	0900-1000	0.082493796	1.10549E-06	8.99333E-06	0.070773529	9.48429E-07	7.71561E-06	0.458075896	6.13863E-06	4.99387E-05	0.391215154	5.24264E-06	4.26496E-05	0.461988683	6.19106E-06	5.03652E-05
Road 1	1	1000-1100	0.096249439	1.25551E-06	1.02137E-05	0.081675683	1.0654E-06	8.6672E-06	0.515893453	6.72947E-06	5.47452E-05	0.436286072	5.69104E-06	4.62975E-05	0.517961755	6.75645E-06	5.49647E-05
Road 1	1	1100-1200	0.086798309	1.09801E-06	8.93249E-06	0.073871944	9.34491E-07	7.60222E-06	0.498769362	6.30951E-06	5.13288E-05	0.422948783	5.35037E-06	4.3526E-05	0.496820727	6.28486E-06	5.11282E-05
Road 1	1	1200-1300	0.087818516	1.09938E-06	8.94362E-06	0.076581439	9.58705E-07	7.79921E-06	0.498262024	6.23763E-06	5.0744E-05	0.432854738	5.41881E-06	4.40828E-05	0.509436177	6.37751E-06	5.1882E-05
Road 1	1	1300-1400	0.09162598	1.21927E-06	9.91896E-06	0.079917362	1.06346E-06	8.65144E-06	0.509158829	6.77541E-06	5.51189E-05	0.442520155	5.88864E-06	4.7905E-05	0.522437518	6.95211E-06	5.65564E-05
Road 1	1	1400-1500	0.087253875	1.25935E-06	1.0245E-05	0.075480988	1.08943E-06	8.86268E-06	0.474580286	6.8497E-06	5.57234E-05	0.409006047	5.90326E-06	4.80239E-05	0.484487035	6.99269E-06	5.68866E-05
Road 1	1	1500-1600	0.095543631	1.28396E-06	1.04452E-05	0.079666844	1.0706E-06	8.70947E-06	0.518095196	6.96239E-06	5.66401E-05	0.429809316	5.77597E-06	4.69883E-05	0.509476159	6.84656E-06	5.56978E-05
Road 1	1	1600-1700	0.090983285	1.28927E-06	1.04884E-05	0.076183656	1.07955E-06	8.78234E-06	0.499823219	7.08271E-06	5.76189E-05	0.415977126	5.89457E-06	4.79532E-05	0.492160781	6.97413E-06	5.67355E-05
Road 1	1	1700-1800	0.073398232	1.04422E-06	8.49486E-06	0.060641372	8.62728E-07	7.01842E-06	0.41253314	5.869E-06	4.77452E-05	0.337933549	4.80769E-06	3.91113E-05	0.398574921	5.67042E-06	4.61297E-05
Road 1	1	1800-1900	0.064758282	9.40745E-07	7.6531E-06	0.053205388	7.72916E-07	6.28779E-06	0.389943928	5.66473E-06	4.60834E-05	0.316471111	4.59738E-06	3.74004E-05	0.369676499	5.3703E-06	4.36882E-05
Road 1	1	1900-2000	0.077973272	8.67833E-07	7.05995E-06	0.065139528	7.24995E-07	5.89794E-06	0.448951535	4.99678E-06	4.06495E-05	0.371506863	4.13483E-06	3.36374E-05	0.436646391	4.85982E-06	3.95354E-05
Road 1	1	2000-2100	0.070526024	6.65814E-07	5.4165E-06	0.058843559	5.55524E-07	4.51927E-06	0.418528708	3.9512E-06	3.21436E-05	0.346027078	3.26673E-06	2.65754E-05	0.404870636	3.82226E-06	3.10946E-05
Road 1	1	2100-2200	0.07471342	6.43646E-07	5.23616E-06	0.060921656	5.24832E-07	4.26958E-06	0.4472378	3.85289E-06	3.13439E-05	0.361273181	3.11232E-06	2.53192E-05	0.422194837	3.63715E-06	2.95888E-05
Road 1	1	2200-2300	0.071839057	5.86524E-07	4.77146E-06	0.060047471	4.90252E-07	3.98828E-06	0.429471908	3.50639E-06	2.8525E-05	0.355751103	2.9045E-06	2.36285E-05	0.415798575	3.39475E-06	2.76168E-05
Road 1	1	2300-0000	0.062878641	4.6026E-07	3.74429E-06	0.052582256	3.84893E-07	3.13116E-06	0.386854487	2.83171E-06	2.30363E-05	0.319764615	2.34062E-06	1.90413E-05	0.372346872	2.72551E-06	2.21724E-05
Road 2	2	0000-0100	0.155797692	1.87534E-07	1.21108E-06	0.129785962	1.56224E-07	1.00888E-06	0.659751923	7.94146E-07	5.12852E-06	0.547104231	6.58551E-07	4.25286E-06	0.676890192	8.14775E-07	5.26174E-06
Road 2	2	0100-0200	0.109231176	8.5969E-08	5.55179E-07	0.093394412	7.35049E-08	4.74687E-07	0.539548824	4.24645E-07	2.74232E-06	0.459355588	3.6153E-07	2.33472E-06	0.55275	4.35035E-07	2.80941E-06
Road 2	2	0200-0300	0.112727826	6.00171E-08	3.87585E-07	0.096573913	5.14167E-08	3.32044E-07	0.61526913	3.27574E-07	2.11544E-06	0.523745652	2.78846E-07	1.80076E-06	0.620319565	3.30263E-07	2.1328E-06
Road 2	2	0300-0400	0.099046667	3.43912E-08	2.22095E-07	0.08288	2.87778E-08	1.85844E-07	0.360391333	1.25136E-07	8.08115E-07	0.299074	1.03845E-07	6.70622E-07	0.381954	1.32623E-07	8.56466E-07
Road 2	2	0400-0500	0.134462593	8.40391E-08	5.42716E-07	0.112342222	7.02139E-08	4.53434E-07	0.647945556	4.04966E-07	2.61523E-06	0.539184074	3.3699E-07	2.17625E-06	0.651526296	4.07204E-07	2.62968E-06
Road 2	2	0500-0600	0.106187193	1.40108E-07	9.04804E-07	0.088972281	1.17394E-07	7.58119E-07	0.470265789	6.2049E-07	4.00706E-06	0.390906667	5.1578E-07	3.33085E-06	0.479878947	6.33174E-07	4.08897E-06
Road 2	2	0600-0700	0.147971346	3.56227E-07	2.30048E-06	0.125398077	3.01884E-07	1.94954E-06	0.598357019	1.44049E-06	9.30254E-06	0.504689519	1.21499E-06	7.84631E-06	0.630087596	1.51688E-06	9.79585E-06
Road 2	2	0700-0800	0.12095825	4.47994E-07	2.8931E-06	0.103360438	3.82816E-07	2.47219E-06	0.50287075	1.86248E-06	1.20277E-05	0.426763813	1.58061E-06	1.02074E-05	0.53012425	1.96342E-06	1.26796E-05
Road 2	2	0800-0900	0.138001316	9.7112E-07	6.2714E-06	0.118099868	8.31073E-07	5.36699E-06	0.580248289	4.08323E-06	2.63691E-05	0.493961645	3.47603E-06	2.24478E-05	0.612061513	4.3071E-06	2.78148E-05
Road 2	2	0900-1000	0.162779008	9.49544E-07	6.13206E-06	0.139532262	8.13938E-07	5.25633E-06	0.693559802	4.04577E-06	2.61272E-05	0.592811746	3.45807E-06	2.23319E-05	0.732344008	4.27201E-06	2.75882E-05
Road 2	2	1000-1100	0.182515615	7.90056E-07	5.1021E-06	0.154793262	6.70054E-07	4.32714E-06	0.769736471	3.33196E-06	2.15175E-05	0.651605615	2.82061E-06	1.82152E-05	0.806398877	3.49066E-06	2.25424E-05
Road 2	2	1100-1200	0.215599508	9.13303E-07	5.89802E-06	0.183335246	7.76628E-07	5.01539E-06	0.880766066	3.73102E-06	2.40946E-05	0.748085191	3.16897E-06	2.04649E-05	0.931420437	3.9456E-06	2.54803E-05
Road 2	2	1200-1300	0.162955947	7.16704E-07	4.62841E-06	0.142054579	6.24777E-07	4.03475E-06	0.714417	3.14211E-06	2.02915E-05	0.621039316	2.73142E-06	1.76393E-05	0.763093895	3.3562E-06	2.1674E-05
Road 2	2	1300-1400	0.17966278	9.27426E-07	5.98923E-06	0.156534126	8.08035E-07	5.21821E-06	0.735359776	3.79595E-06	2.45139E-05	0.639038969	3.29874E-06	2.1303E-05	0.795573094	4.10678E-06	2.65212E-05
Road 2	2	1400-1500	0.154970788	5.91902E-07	3.82245E-06	0.134004545	5.11823E-07	3.3053E-06	0.670448788	2.56074E-06	1.6537E-05	0.578465818	2.20942E-06	1.42682E-05	0.712470364	2.72124E-06	1.75735E-05
Road 2	2	1500-1600	0.197251257	8.35578E-07	5.39608E-06	0.164208852	6.95607E-07	4.49216E-06	0.777849672	3.29506E-06	2.12792E-05	0.645958142	2.73635E-06	1.76711E-05	0.810166995	3.43196E-06	2.21632E-05
Road 2	2	1600-1700	0.164834344	8.4325E-07	5.44562E-06	0.138053394	7.06245E-07	4.56086E-06	0.694171403	3.5512E-06	2.29333E-05	0.578863167	2.96131E-06	1.91239E-05	0.716916561	3.66756E-06	2.36847E-05
Road 2	2	1700-1800	0.128574144	6.60728E-07	4.26692E-06	0.106294144	5.46234E-07	3.52752E-06	0.511240315	2.62721E-06	1.69662E-05	0.420196441	2.15934E-06	1.39448E-05	0.526490586	2.70558E-06	1.74723E-05
Road 2	2	1800-1900	0.140371	8.12332E-07	5.24596E-06	0.11542804	6.67986E-07	4.31379E-06	0.63339216	3.66546E-06	2.36712E-05	0.51741456	2.9943E-06	1.93369E-05	0.6328426	3.66228E-06	2.36507E-05
Road 2	2	1900-2000	0.119661361	4.6812E-07	3.02307E-06	0.099946982	3.90996E-07	2.52502E-06	0.544467692	2.12998E-06	1.37552E-05	0.451152485	1.76493E-06	1.13977E-05	0.551099467	2.15592E-06	1.39227E-05
Road 2	2	2000-2100	0.113316259	3.8559E-07	2.4901E-06	0.094459048	3.21423E-07	2.07572E-06	0.484933061	1.65012E-06	1.06563E-05	0.400494694	1.36279E-06	8.80079E-06	0.494953741	1.68422E-06	1.08765E-05
Road 2	2	2100-2200	0.088749935	3.14323E-07	2.02987E-06	0.072300784	2.56065E-07	1.65364E-06	0.40940366	1.44997E-06	9.36377E-06	0.328845359	1.16466E-06	7.52126E-06	0.401146144	1.42073E-06	9.17491E-06
Road 2	2	2200-2300	0.12721528	3.681E-07	2.37715E-06	0.10638976	3.07841E-07	1.98801E-06	0.54327528	1.57198E-06	1.01517E-05	0.45081296	1.30444E-06	8.42392E-06	0.55720272	1.61228E-06	1.04119E-05
Road 2	2	2300-0000	0.113571892	2.91817E-07	1.88452E-06	0.095014414	2.44134E-07	1.5766E-06	0.514373243	1.32165E-06	8.53511E-06	0.42631036	1.09538E-06	7.07386E-06	0.521324775	1.33952E-06	8.65046E-06
Road 3	3	0000-0100	0.097783609	3.60733E-07	1.40208E-05	0.083028304	3.06299E-07	1.19051E-05	0.539515043	1.99032E-06	7.73589E-05	0.455492565	1.68036E-06	6.53112E-05	0.53852087	1.98666E-06	7.72163E-05
Road 3	3	0100-0200	0.072950986	1.66154E-07	6.458E-06	0.062343944	1.41996E-07	5.51901E-06	0.425444085	9.68998E-07	3.76625E-05	0.361569648	8.23517E-07	3.2008E-05	0.423913592	9.65513E-07	3.7527E-05
Road 3	3	0200-0300	0.071849697	1.14091E-07	4.43444E-06	0.060716465	9.64126E-08	3.74732E-06	0.448786667	7.12635E-07	2.76983E-05	0.375676263	5.96542E-07	2.31861E-05	0.436392727	6.92955E-07	2.69334E-05
Road 3	3	0300-0400	0.060316143	6.77211E-08	2.63215E-06	0.050604143	5.68167E-08	2.20832E-06	0.333081429	3.73973E-07	1.45354E-05	0.276735571	3.1071E-07	1.20765E-05	0.327339714	3.67527E-07	1.42848E-05
Road 3	3	0400-0500	0.080292743	1.45528E-07	5.65631E-06	0.067500885	1.22343E-07	4.75518E-06	0.444444336	8.05542E-07	3.13094E-05	0.371480973	6.73298E-07	2.61694E-05	0.438981858	7.95641E-07	3.09246E-05
Road 3	3	0500-0600	0.065020122	2.56552E-07	9.97153E-06	0.05459122	2.15402E-07	8.37214E-06	0.362294837	1.42952E-06	5.55618E-05	0.301492602	1.18961E-06	4.62371E-05	0.356083821	1.40501E-06	5.46092E-05
Road 3	3	0600-0700	0.089791419	6.39455E-07	2.4854E-05	0.075985	5.41132E-07	2.10324E-05	0.448423986	3.19348E-06	0.000124122	0.377227635	2.68645E-06	0.000104416	0.453212635	3.22758E-06	0.000125448
Road 3	3	0700-0800	0.073696506	8.59357E-07	3.3401E-05	0.062613521	7.30121E-07	2.8378E-05	0.386756135	4.50987E-06	0.000175287	0.325818047	3.79928E-06	0.000147669	0.388431568	4.5294E-06	0.000176047
Road 3	3	0800-0900	0.082387763	1.3175E-06	5.12079E-05	0.070164092	1.12202E-06	4.36103E-05	0.407875356	6.52251E-06	0.000253514	0.345527222	5.52548E-06	0.000214761	0.415691314	6.6475E-06	0.000258372
Road 3	3	0900-1000	0.090101523	1.39461E-06	5.42049E-05	0.076955772	1.19113E-06	4.62964E-05	0.464976052	7.19698E-06	0.000279728	0.39552656	6.12203E-06	0.000237948	0.472482332	7.31316E-06	0.000284244
Road 3	3	1000-1100	0.102499716	1.44512E-06	5.61682E-05	0.08709041	1.22787E-06	4.77241E-05	0.517561786	7.29698E-06	0.000283615	0.438435654	6.1814E-06	0.000240256	0.525526064	7.40927E-06	0.00028798
Road 3	3	1100-1200	0.100500925	1.37664E-06	5.35065E-05	0.086575984	1.1859E-06	4.60929E-05	0.52197103	7.14984E-06	0.000277896	0.448184742	6.13913E-06	0.000238613	0.534760726	7.32503E-06	0.000284706
Road 3	3	1200-1300	0.093148244	1.27592E-06	4.9592E-05	0.081121628	1.11119E-06	4.3189E-05	0.495269251	6.78409E-06	0.00026368	0.429638782	5.8851E-06	0.000228739	0.51076041	6.99628E-06	0.000271928

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1300-1400	0.099157745	1.47434E-06	5.7304E-05	0.086347335	1.28387E-06	4.99008E-05	0.506300205	7.52801E-06	0.000292595	0.439322621	6.53214E-06	0.000253888	0.525669957	7.81601E-06	0.000303789
Road 3	3	1400-1500	0.091601478	1.37228E-06	5.33369E-05	0.078622666	1.17784E-06	4.57797E-05	0.475110021	7.1176E-06	0.000276643	0.406252527	6.08605E-06	0.000236549	0.484875193	7.26389E-06	0.000282329
Road 3	3	1500-1600	0.103400212	1.48435E-06	5.7693E-05	0.087588268	1.25736E-06	4.88706E-05	0.522313598	7.49802E-06	0.000291429	0.440492067	6.32344E-06	0.000245776	0.528080335	7.5808E-06	0.000294647
Road 3	3	1600-1700	0.09827166	1.5384E-06	5.97939E-05	0.081318555	1.27301E-06	4.94787E-05	0.504520502	7.89807E-06	0.000306978	0.415199672	6.49979E-06	0.00025263	0.496518227	7.7728E-06	0.000302109
Road 3	3	1700-1800	0.078138131	1.22698E-06	4.76897E-05	0.064456721	1.01215E-06	3.93396E-05	0.403471032	6.33559E-06	0.000246249	0.330176956	5.18468E-06	0.000201515	0.394633677	6.19682E-06	0.000240855
Road 3	3	1800-1900	0.073457595	1.21004E-06	4.70312E-05	0.061109825	1.00664E-06	3.91255E-05	0.406678753	6.69906E-06	0.000260376	0.334707926	5.51352E-06	0.000214297	0.395817751	6.52016E-06	0.000253422
Road 3	3	1900-2000	0.077809987	9.48508E-07	3.68661E-05	0.06491175	7.91278E-07	3.0755E-05	0.430737447	5.25071E-06	0.000204082	0.35593225	4.33884E-06	0.00016864	0.420844	5.13011E-06	0.000199395
Road 3	3	2000-2100	0.072741772	7.57218E-07	2.94312E-05	0.060369122	6.28423E-07	2.44252E-05	0.400928398	4.17353E-06	0.000162215	0.32949923	3.42998E-06	0.000133315	0.389868351	4.0584E-06	0.00015774
Road 3	3	2100-2200	0.071610992	7.06394E-07	2.74558E-05	0.059789512	5.89783E-07	2.29234E-05	0.406436211	4.00922E-06	0.000155828	0.336069837	3.3151E-06	0.00012885	0.39585935	3.90488E-06	0.000151773
Road 3	3	2200-2300	0.076307034	6.89073E-07	2.67825E-05	0.063813801	5.76256E-07	2.23976E-05	0.41985929	3.79144E-06	0.000147364	0.347845009	3.14113E-06	0.000122088	0.41165881	3.71739E-06	0.000144486
Road 3	3	2300-0000	0.067011394	5.39566E-07	2.09716E-05	0.055574203	4.47475E-07	1.73922E-05	0.387104741	3.11691E-06	0.000121147	0.317463805	2.55617E-06	9.9352E-05	0.373038008	3.00365E-06	0.000116744
Road 4	4	0000-0100	0.262188	2.12421E-07	2.27451E-06	0.222369429	1.8016E-07	1.92908E-06	1.294973143	1.04917E-06	1.1234E-05	1.097667143	8.89314E-07	9.5224E-06	1.320036571	1.06947E-06	1.14515E-05
Road 4	4	0100-0200	0.245862	1.13825E-07	1.21879E-06	0.2099875	9.72164E-08	1.04095E-06	1.216629	5.63254E-07	6.03109E-06	1.038889	4.80967E-07	5.14999E-06	1.2488765	5.78184E-07	6.19095E-06
Road 4	4	0200-0300	0.26669	8.02539E-08	8.59325E-07	0.22558	6.78829E-08	7.26861E-07	1.275833077	3.83931E-07	4.11097E-06	1.079219231	3.24765E-07	3.47745E-06	1.304799231	3.92648E-07	4.20431E-06
Road 4	4	0300-0400	0.24307	3.93863E-08	4.21732E-07	0.204258571	3.30975E-08	3.54394E-07	1.247755714	2.02183E-07	2.16489E-06	1.048655714	1.69921E-07	1.81944E-06	1.252914286	2.03019E-07	2.17384E-06
Road 4	4	0400-0500	0.249306429	8.07938E-08	8.65105E-07	0.209500714	6.78938E-08	7.26978E-07	1.193101429	3.86653E-07	4.14012E-06	1.002712143	3.24953E-07	3.47946E-06	1.212212857	3.92847E-07	4.20644E-06
Road 4	4	0500-0600	0.230044583	1.27803E-07	1.36846E-06	0.193295	1.07386E-07	1.14985E-06	1.05931125	5.88506E-07	6.30148E-06	0.88950875	4.94172E-07	5.29138E-06	1.08280375	6.01558E-07	6.44123E-06
Road 4	4	0600-0700	0.255430566	3.13375E-07	3.35549E-06	0.216135472	2.65166E-07	2.83929E-06	1.182654906	1.45094E-06	1.55361E-05	1.000007358	1.22686E-06	1.31367E-05	1.21614283	1.49203E-06	1.5976E-05
Road 4	4	0700-0800	0.255562174	5.44253E-07	5.82763E-06	0.217136957	4.62421E-07	4.95141E-06	1.227002174	2.61306E-06	2.79795E-05	1.041320652	2.21763E-06	2.37454E-05	1.258457609	2.68005E-06	2.86968E-05
Road 4	4	0800-0900	0.264726129	9.49828E-07	1.01704E-05	0.225294065	8.08347E-07	8.65544E-06	1.275386129	4.57604E-06	4.89983E-05	1.085064516	3.89317E-06	4.16864E-05	1.310358581	4.70152E-06	5.03419E-05
Road 4	4	0900-1000	0.272107703	9.32221E-07	9.98183E-06	0.231859257	7.94333E-07	8.50538E-06	1.244706149	4.26427E-06	4.566E-05	1.059860811	3.631E-06	3.88793E-05	1.291720068	4.42534E-06	4.73846E-05
Road 4	4	1000-1100	0.303785069	1.01262E-06	1.08427E-05	0.25778625	8.59288E-07	9.20089E-06	1.393476667	4.64492E-06	4.97359E-05	1.181989861	3.93997E-06	4.21875E-05	1.439776111	4.79925E-06	5.13884E-05
Road 4	4	1100-1200	0.280785935	1.00745E-06	1.07873E-05	0.241531097	8.66605E-07	9.27924E-06	1.279662323	4.59138E-06	4.91626E-05	1.100597419	3.9489E-06	4.22832E-05	1.342128516	4.81551E-06	5.15624E-05
Road 4	4	1200-1300	0.282831554	9.6896E-07	1.03752E-05	0.246016757	8.42835E-07	9.02472E-06	1.345526351	4.60967E-06	4.93584E-05	1.169996149	4.00832E-06	4.29194E-05	1.416012905	4.85116E-06	5.19441E-05
Road 4	4	1300-1400	0.290462333	1.00855E-06	1.07991E-05	0.2526624	8.773E-07	9.39376E-06	1.3496156	4.68617E-06	5.01775E-05	1.173575733	4.07492E-06	4.36325E-05	1.426238133	4.95222E-06	5.30262E-05
Road 4	4	1400-1500	0.265039857	8.58925E-07	9.19701E-06	0.227183143	7.36242E-07	7.88337E-06	1.271272929	4.11987E-06	4.41138E-05	1.089000071	3.52917E-06	3.77888E-05	1.316183214	4.26541E-06	4.56722E-05
Road 4	4	1500-1600	0.302568	8.75486E-07	9.37434E-06	0.25591144	7.40484E-07	7.9288E-06	1.40585152	4.06786E-06	4.35569E-05	1.18895968	3.44028E-06	3.6837E-05	1.44487112	4.18076E-06	4.47658E-05
Road 4	4	1600-1700	0.285162742	8.18523E-07	8.7644E-06	0.235749516	6.76688E-07	7.24569E-06	1.338474194	3.84192E-06	4.11376E-05	1.10586379	3.17424E-06	3.39884E-05	1.341613306	3.85093E-06	4.12341E-05
Road 4	4	1700-1800	0.27434126	8.06513E-07	8.6358E-06	0.226335197	6.65384E-07	7.12465E-06	1.308874646	3.84785E-06	4.12011E-05	1.079046457	3.1722E-06	3.39665E-05	1.305381654	3.83758E-06	4.10912E-05
Road 4	4	1800-1900	0.301238208	7.39149E-07	7.9145E-06	0.250647547	6.15015E-07	6.58532E-06	1.450289434	3.55858E-06	3.81038E-05	1.206454906	2.96028E-06	3.16975E-05	1.457102453	3.5753E-06	3.82828E-05
Road 4	4	1900-2000	0.269673919	4.61941E-07	4.94627E-06	0.225040541	3.85486E-07	4.12762E-06	1.301560946	2.22953E-06	2.38728E-05	1.085367162	1.85919E-06	1.99075E-05	1.310407703	2.24468E-06	2.40351E-05
Road 4	4	2000-2100	0.235856939	2.67523E-07	2.86452E-06	0.195618571	2.21882E-07	2.37582E-06	1.142921633	1.29637E-06	1.3881E-05	0.946773061	1.07389E-06	1.14987E-05	1.142391633	1.29577E-06	1.38745E-05
Road 4	4	2100-2200	0.197604865	1.69245E-07	1.8122E-06	0.165248378	1.41532E-07	1.51547E-06	0.978216757	8.37825E-07	8.97107E-06	0.816434865	6.99261E-07	7.4874E-06	0.981683243	8.40794E-07	9.00286E-06
Road 4	4	2200-2300	0.26321619	3.83857E-07	4.11018E-06	0.220203968	3.21131E-07	3.43853E-06	1.2515	1.8251E-06	1.95424E-05	1.046219683	1.52574E-06	1.63369E-05	1.266423651	1.84687E-06	1.97755E-05
Road 4	4	2300-0000	0.246251633	2.79313E-07	2.99077E-06	0.204266327	2.31691E-07	2.48085E-06	1.202991224	1.3645E-06	1.46105E-05	0.997049796	1.13091E-06	1.21093E-05	1.201316122	1.3626E-06	1.45902E-05
Road 5	5	0000-0100	0.082780829	2.99863E-07	4.0551E-06	0.070287306	2.54607E-07	3.4431E-06	0.463160933	1.67774E-06	2.26884E-05	0.390425855	1.41427E-06	1.91254E-05	0.460713161	1.66887E-06	2.25685E-05
Road 5	5	0100-0200	0.055346311	1.26731E-07	1.71381E-06	0.047313934	1.08339E-07	1.46509E-06	0.340207869	7.79005E-07	1.05346E-05	0.288492131	6.60586E-07	8.93323E-06	0.335806066	7.68925E-07	1.03983E-05
Road 5	5	0200-0300	0.053029767	8.55961E-08	1.15753E-06	0.044787442	7.2292E-08	9.77619E-07	0.366421395	5.91446E-07	7.99823E-06	0.305404651	4.92958E-07	6.66636E-06	0.350192093	5.6525E-07	7.64398E-06
Road 5	5	0300-0400	0.047420476	5.60715E-08	7.58266E-07	0.039759048	4.70124E-08	6.35757E-07	0.262241111	3.10082E-07	4.1933E-06	0.21686746	2.56431E-07	3.46777E-06	0.256626508	3.03444E-07	4.10352E-06
Road 5	5	0400-0500	0.06569202	1.22063E-07	1.65068E-06	0.055232626	1.02628E-07	1.38786E-06	0.375880202	6.98426E-07	9.44495E-06	0.313571515	5.8265E-07	7.87928E-06	0.368804141	6.85278E-07	9.26714E-06
Road 5	5	0500-0600	0.053199773	2.19669E-07	2.97062E-06	0.044652864	1.84377E-07	2.49337E-06	0.310137773	1.2806E-06	1.73178E-05	0.257376682	1.06274E-06	1.43717E-05	0.302029545	1.24712E-06	1.6865E-05
Road 5	5	0600-0700	0.077788582	5.66478E-07	7.66059E-06	0.065830851	4.79399E-07	6.483E-06	0.391175438	2.84865E-06	3.85228E-05	0.328549665	2.39259E-06	3.23555E-05	0.394380515	2.87199E-06	3.88385E-05
Road 5	5	0700-0800	0.060239415	7.15682E-07	9.67831E-06	0.051169242	6.07923E-07	8.22105E-06	0.318727409	3.78668E-06	5.1208E-05	0.267746793	3.181E-06	4.30173E-05	0.318916035	3.78892E-06	5.12383E-05
Road 5	5	0800-0900	0.065171898	1.03115E-06	1.39445E-05	0.055529786	8.78596E-07	1.18814E-05	0.319183333	5.05014E-06	6.8294E-05	0.269818849	4.26909E-06	5.77317E-05	0.325348636	5.14769E-06	6.96132E-05
Road 5	5	0900-1000	0.07270614	1.11352E-06	1.50583E-05	0.062166789	9.52104E-07	1.28755E-05	0.387936691	5.94137E-06	8.03463E-05	0.329933358	5.05303E-06	6.83331E-05	0.392100147	6.00514E-06	8.12086E-05
Road 5	5	1000-1100	0.083042929	1.14402E-06	1.54708E-05	0.070595695	9.72546E-07	1.31519E-05	0.430496621	5.93064E-06	8.02012E-05	0.364470436	5.02105E-06	6.79005E-05	0.435066131	5.99359E-06	8.10525E-05
Road 5	5	1100-1200	0.081478612	1.06895E-06	1.44556E-05	0.070230458	9.21379E-07	1.246E-05	0.441534421	5.79265E-06	7.83351E-05	0.378838999	4.97013E-06	6.7212E-05	0.449069456	5.89151E-06	7.9672E-05
Road 5	5	1200-1300	0.074455728	9.87992E-07	1.33608E-05	0.064869745	8.6079E-07	1.16406E-05	0.407077355	5.40172E-06	7.30485E-05	0.352810736	4.68163E-06	6.33105E-05	0.417680481	5.54242E-06	7.49512E-05
Road 5	5	1300-1400	0.081493037	1.18844E-06	1.60715E-05	0.071011892	1.03559E-06	1.40045E-05	0.425497375	6.20517E-06	8.39137E-05	0.368913707	5.37999E-06	7.27546E-05	0.439925598	6.41558E-06	8.67591E-05
Road 5	5	1400-1500	0.076990756	1.14735E-06	1.55158E-05	0.066109723	9.85194E-07	1.3323E-05	0.403903098	6.01913E-06	8.13978E-05	0.345159899	5.14371E-06	6.95594E-05	0.411269622	6.12891E-06	8.28823E-05
Road 5	5	1500-1600	0.087414974	1.26332E-06	1.70841E-05	0.074104156	1.07095E-06	1.44827E-05	0.447415065	6.46602E-06	8.74412E-05	0.376936571	5.44747E-06	7.36671E-05	0.451040727	6.51842E-06	8.81498E-05
Road 5	5	1600-1700	0.083678898	1.33968E-06	1.81167E-05	0.069264267	1.1089E-06	1.49959E-05	0.436772145	6.99262E-06	9.45625E-05	0.358997948	5.74747E-06	7.77241E-05	0.428622216	6.85638E-06	9.272E-05
Road 5	5	1700-1800	0.061788425	9.86898E-07	1.3346E-05	0.050981081	8.14281E-07	1.10117E-05	0.323573114	5.16818E-06	6.98903E-05	0.263968707	4.21617E-06	5.7016E-05	0.314949788	5.03045E-06	6.80277E-05
Road 5	5	1800-1900	0.057448411	9.90899E-07	1.34001E-05	0.047789782	8.24302E-07	1.11472E-05	0.329246159	5.679E-06	7.67982E-05	0.269952905	4.65628E-06	6.29678E-05	0.317742688	5.48058E-06	7.4115E-05
Road 5	5	1900-2000	0.066244738	8.52926E-07	1.15343E-05	0.055252653	7.11399E-07	9.62038E-06	0.375727157	4.83763E-06	6.54202E-05	0.309728061	3.98787E-06	5.39286E-05	0.364980714	4.69926E-06	6.3549E-05
Road 5	5	2000-2100	0.064388767	7.25099E-07	9.80565E-06	0.053441033	6.01813E-07	8.13844E-06	0.36028995	4.05732E-06	5.48679E-05	0.295676283	3.32969E-06	4.5028E-05	0.349117317	3.9315E-06	5.31664E-05
Road 5	5	2100-2200	0.066777249	7.24423E-07	9.79651E-06	0.055742439	6.04713E-07	8.17765E-06	0.383303529	4.15821E-06	5.62323E-05	0.316566869	3.43423E-06	4.64417E-05	0.372309308	4.03894E-06	5.46194E-05
Road 5	5	2200-2300	0.063819699	5.97711E-07	8.08295E-06	0.053361844	4.99767E-07	6.75844E-06	0.361142024	3.38232E-06	4.57397E-05	0.298356854	2.7943E-06	3.77878E-05	0.351718697	3.29406E-06	4.45462E-05
Road 5	5	2300-0000	0.056278543	4.78494E-07	6.47077E-06	0.0466783	3.96871E-07	5.36696E-06	0.334554967	2.84447E-06	3.84663E-05	0.273546424	2.32576E-06	3.14517E-05	0.320224724	2.72263E-06	3.68187E-05
Road 6	6	0000-0100	0.049570333	1.39556E-07	4.98857E-06	0.0419684	1.18154E-07	4.22354E-06	0.321231533	9.04368E-07	3.23275E-05	0.2685548	7.56066E-07	2.70263E-05	0.3105232	8.74221E-07	3.12498E-05
Road 6	6	0100-0200	0.065267281	1.39648E-07	4.99187E-06	0.05578	1.19349E-07	4.26625E-06	0.369394474	7.90371E-07	2.82526E-05	0.312676491	6.69015E-07	2.39146E-05	0.368456491	7.88364E-07	2.81808E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0200-0300	0.059658481	8.84576E-08	3.162E-06	0.0505	7.4878E-08	2.67659E-06	0.342787722	5.08263E-07	1.81683E-05	0.287008861	4.25557E-07	1.5212E-05	0.337508861	5.00435E-07	1.78885E-05
Road 6	6	0300-0400	0.061427903	7.14814E-08	2.55517E-06	0.051802258	6.02804E-08	2.15478E-06	0.393989355	4.58471E-07	1.63885E-05	0.328997903	3.82843E-07	1.36851E-05	0.380800161	4.43123E-07	1.58399E-05
Road 6	6	0400-0500	0.066428889	1.12211E-07	4.01109E-06	0.055870556	9.43759E-08	3.37356E-06	0.391551889	6.61405E-07	2.36426E-05	0.326081556	5.50813E-07	1.96893E-05	0.381952111	6.45189E-07	2.30629E-05
Road 6	6	0500-0600	0.059450062	1.8076E-07	6.46145E-06	0.049984074	1.51979E-07	5.43262E-06	0.360327963	1.09559E-06	3.9163E-05	0.299363519	9.10227E-07	3.25369E-05	0.349347593	1.06221E-06	3.79695E-05
Road 6	6	0600-0700	0.063472828	3.45479E-07	1.23495E-05	0.053746103	2.92537E-07	1.0457E-05	0.401879483	2.18741E-06	7.81909E-05	0.336534552	1.83174E-06	6.54772E-05	0.390280655	2.12428E-06	7.59342E-05
Road 6	6	0700-0800	0.059204242	5.1337E-07	1.83509E-05	0.050325779	4.36383E-07	1.55989E-05	0.341587727	2.96197E-06	0.000105878	0.287057273	2.48912E-06	8.8976E-05	0.337383052	2.92551E-06	0.000104575
Road 6	6	0800-0900	0.050601103	6.28715E-07	2.2474E-05	0.04304852	5.34875E-07	1.91196E-05	0.300080559	3.72848E-06	0.000133278	0.252083822	3.13212E-06	0.000111961	0.295132341	3.667E-06	0.00013108
Road 6	6	0900-1000	0.053942686	6.40873E-07	2.29086E-05	0.046021438	5.46764E-07	1.95446E-05	0.307424092	3.65239E-06	0.000130558	0.259442291	3.08234E-06	0.000110181	0.305463728	3.6291E-06	0.000129726
Road 6	6	1000-1100	0.072498972	7.27983E-07	2.60225E-05	0.061581346	6.18356E-07	2.21037E-05	0.398713009	4.00359E-06	0.000143112	0.336630168	3.3802E-06	0.000120829	0.398211514	3.99856E-06	0.000142932
Road 6	6	1100-1200	0.083139154	8.30143E-07	2.96743E-05	0.071681805	7.15742E-07	2.55849E-05	0.436528703	4.35873E-06	0.000155807	0.374605526	3.74043E-06	0.000133705	0.446287331	4.45617E-06	0.00015929
Road 6	6	1200-1300	0.078588222	7.71427E-07	2.75754E-05	0.068486272	6.72266E-07	2.40308E-05	0.396051644	3.88767E-06	0.000138968	0.34363088	3.3731E-06	0.000120575	0.412117151	4.04537E-06	0.000144606
Road 6	6	1300-1400	0.091184683	8.91652E-07	3.18729E-05	0.079425086	7.7666E-07	2.77625E-05	0.467469117	4.57116E-06	0.0001634	0.405356603	3.96379E-06	0.000141689	0.484781689	4.74045E-06	0.000169452
Road 6	6	1400-1500	0.086925627	9.36474E-07	3.34751E-05	0.074634111	8.04054E-07	2.87417E-05	0.438954286	4.72897E-06	0.000169042	0.374945592	4.03939E-06	0.000144392	0.449579704	4.84345E-06	0.000173134
Road 6	6	1500-1600	0.077663256	8.19196E-07	2.92829E-05	0.065792046	6.93978E-07	2.48069E-05	0.406562811	4.28844E-06	0.000153294	0.341743505	3.60473E-06	0.000128854	0.407535552	4.2987E-06	0.000153661
Road 6	6	1600-1700	0.081861684	8.84991E-07	3.16348E-05	0.067796354	7.32934E-07	2.61994E-05	0.40905092	4.42217E-06	0.000158075	0.33625599	3.6352E-06	0.000129944	0.404052344	4.36813E-06	0.000156143
Road 6	6	1700-1800	0.061504344	7.0416E-07	2.51709E-05	0.050807246	5.8169E-07	2.0793E-05	0.319265213	3.65525E-06	0.00013066	0.260656803	2.98425E-06	0.000106675	0.311464049	3.56594E-06	0.000127468
Road 6	6	1800-1900	0.059738113	7.72514E-07	2.76143E-05	0.049699231	6.42695E-07	2.29737E-05	0.316233643	4.08943E-06	0.000146181	0.25976103	3.35915E-06	0.000120076	0.309460261	4.00184E-06	0.00014305
Road 6	6	1900-2000	0.070556317	6.9391E-07	2.48045E-05	0.058822538	5.7851E-07	2.06794E-05	0.373619179	3.67448E-06	0.000131348	0.307723225	3.02641E-06	0.000108182	0.366545763	3.60492E-06	0.000128861
Road 6	6	2000-2100	0.055959139	4.39019E-07	1.56931E-05	0.046411507	3.64114E-07	1.30156E-05	0.33033323	2.59158E-06	9.26384E-05	0.270157751	2.11948E-06	7.57628E-05	0.316569258	2.4836E-06	8.87785E-05
Road 6	6	2100-2200	0.078454278	5.30096E-07	1.89488E-05	0.065491333	4.42509E-07	1.58179E-05	0.421085972	2.84518E-06	0.000101703	0.348224972	2.35287E-06	8.41056E-05	0.413716306	2.79538E-06	9.99235E-05
Road 6	6	2200-2300	0.058280525	4.16758E-07	1.48974E-05	0.048645696	3.47861E-07	1.24346E-05	0.332852572	2.3802E-06	8.50824E-05	0.272982887	1.95207E-06	6.97787E-05	0.321628583	2.29993E-06	8.22133E-05
Road 6	6	2300-0000	0.039378095	2.63851E-07	9.4316E-06	0.032667759	2.18889E-07	7.82438E-06	0.249504706	1.67179E-06	5.97599E-05	0.203365098	1.36264E-06	4.87088E-05	0.236032857	1.58153E-06	5.65332E-05
Road 7	7	0000-0100	0.072625083	1.96121E-07	4.89582E-06	0.061121033	1.65055E-07	4.1203E-06	0.430953779	1.16377E-06	2.90515E-05	0.359790521	9.71599E-07	2.42543E-05	0.420911554	1.13665E-06	2.83746E-05
Road 7	7	0100-0200	0.08863221	1.86588E-07	4.65785E-06	0.075773977	1.59519E-07	3.98211E-06	0.48599942	1.02312E-06	2.55405E-05	0.413038861	8.69527E-07	2.17062E-05	0.488812838	1.02905E-06	2.56884E-05
Road 7	7	0200-0300	0.075881474	1.03559E-07	2.58517E-06	0.064521332	8.80553E-08	2.19815E-06	0.431010708	5.88221E-07	1.46839E-05	0.363841784	4.96552E-07	1.23956E-05	0.428363116	5.84607E-07	1.45937E-05
Road 7	7	0300-0400	0.077935813	8.59954E-08	2.14672E-06	0.065602763	7.23869E-08	1.80701E-06	0.471239039	5.19971E-07	1.29802E-05	0.394031184	4.34779E-07	1.08535E-05	0.459633947	5.07166E-07	1.26605E-05
Road 7	7	0400-0500	0.086419387	1.3927E-07	3.47664E-06	0.072519009	1.16869E-07	2.91743E-06	0.482533228	7.77633E-07	1.94122E-05	0.402213604	6.48193E-07	1.6181E-05	0.474732613	7.65062E-07	1.90984E-05
Road 7	7	0500-0600	0.077785942	2.2361E-07	5.58203E-06	0.065329091	1.878E-07	4.68811E-06	0.439907457	1.26459E-06	3.15684E-05	0.366412828	1.05332E-06	2.62943E-05	0.431741919	1.24112E-06	3.09824E-05
Road 7	7	0600-0700	0.081961335	4.21247E-07	1.05157E-05	0.069424237	3.56811E-07	8.90718E-06	0.476527126	2.44915E-06	6.11387E-05	0.400482203	2.05831E-06	5.13821E-05	0.469906441	2.41512E-06	6.02893E-05
Road 7	7	0700-0800	0.078022016	6.40015E-07	1.59769E-05	0.066457335	5.4515E-07	1.36087E-05	0.42676684	3.50077E-06	8.73906E-05	0.360675962	2.95863E-06	7.38569E-05	0.427133297	3.50377E-06	8.74656E-05
Road 7	7	0800-0900	0.078071003	9.69126E-07	2.41925E-05	0.066603226	8.26772E-07	2.06389E-05	0.425585754	5.28296E-06	0.00013188	0.360251352	4.47194E-06	0.000111634	0.426854578	5.29871E-06	0.000132273
Road 7	7	0900-1000	0.08026299	9.22922E-07	2.30391E-05	0.068545082	7.88181E-07	1.96756E-05	0.422054754	4.85309E-06	0.000121149	0.358152446	4.11829E-06	0.000102806	0.426697528	4.90648E-06	0.000122482
Road 7	7	1000-1100	0.095687541	9.65527E-07	2.41027E-05	0.081226998	8.19614E-07	2.04602E-05	0.50474046	5.09304E-06	0.000127139	0.426662002	4.3052E-06	0.000107472	0.507889001	5.12481E-06	0.000127932
Road 7	7	1100-1200	0.105741432	1.06544E-06	2.65969E-05	0.090690353	9.13787E-07	2.28111E-05	0.542882868	5.47003E-06	0.00013655	0.464287869	4.67812E-06	0.000116781	0.554978222	5.5919E-06	0.000139592
Road 7	7	1200-1300	0.101407869	1.0203E-06	2.54701E-05	0.088347378	8.88897E-07	2.21898E-05	0.513399508	5.16551E-06	0.000128948	0.446113942	4.48852E-06	0.000112048	0.534461321	5.37742E-06	0.000134238
Road 7	7	1300-1400	0.108162858	1.07099E-06	2.67355E-05	0.094223769	9.32973E-07	2.32901E-05	0.548741339	5.43346E-06	0.000135637	0.476581373	4.71895E-06	0.0001178	0.570805142	5.65193E-06	0.000141091
Road 7	7	1400-1500	0.101077106	1.04779E-06	2.61563E-05	0.086981623	9.01675E-07	2.25087E-05	0.515723557	5.34613E-06	0.000133457	0.442271692	4.58471E-06	0.000114449	0.529253315	5.48638E-06	0.000136958
Road 7	7	1500-1600	0.095399307	9.70929E-07	2.42376E-05	0.080310154	8.17359E-07	2.04039E-05	0.494269197	5.03044E-06	0.000125576	0.413839245	4.21186E-06	0.000105142	0.4941494	5.02922E-06	0.000125546
Road 7	7	1600-1700	0.099484804	1.04717E-06	2.61409E-05	0.082694129	8.70436E-07	2.17289E-05	0.497302949	5.2346E-06	0.000130673	0.411180881	4.32808E-06	0.000108043	0.49387501	5.19852E-06	0.000129772
Road 7	7	1700-1800	0.077179446	8.59451E-07	2.14547E-05	0.063745405	7.09853E-07	1.77203E-05	0.401427347	4.4702E-06	0.000111591	0.328884098	3.66237E-06	9.14248E-05	0.392629503	4.37223E-06	0.000109145
Road 7	7	1800-1900	0.070879999	8.20175E-07	2.04742E-05	0.058725361	6.7953E-07	1.69633E-05	0.375172951	4.34124E-06	0.000108372	0.307868348	3.56244E-06	8.89301E-05	0.366593709	4.24197E-06	0.000105893
Road 7	7	1900-2000	0.081916463	7.15965E-07	1.78728E-05	0.068351848	5.97408E-07	1.49133E-05	0.436600244	3.81597E-06	9.5259E-05	0.360959704	3.15486E-06	7.87555E-05	0.429311553	3.75226E-06	9.36687E-05
Road 7	7	2000-2100	0.075736754	5.45397E-07	1.36149E-05	0.06293271	4.53192E-07	1.13132E-05	0.416693004	3.0007E-06	7.49072E-05	0.342933206	2.46954E-06	6.16477E-05	0.405865917	2.92273E-06	7.29609E-05
Road 7	7	2100-2200	0.087411775	5.25405E-07	1.31158E-05	0.072373504	4.35015E-07	1.08594E-05	0.469871475	2.82425E-06	7.05026E-05	0.385901282	2.31953E-06	5.79032E-05	0.458274786	2.75455E-06	6.87625E-05
Road 7	7	2200-2300	0.072614251	4.71253E-07	1.1764E-05	0.060653221	3.93628E-07	9.82623E-06	0.402436644	2.61174E-06	6.51975E-05	0.33182877	2.15351E-06	5.37585E-05	0.392481991	2.54713E-06	6.35847E-05
Road 7	7	2300-0000	0.051382959	3.06609E-07	7.65397E-06	0.042761499	2.55164E-07	6.36972E-06	0.307280096	1.83358E-06	4.57722E-05	0.252503107	1.50672E-06	3.76127E-05	0.295264606	1.76188E-06	4.39824E-05
Road 8	8	0000-0100	0.229983333	1.67261E-07	2.75723E-06	0.194997222	1.41816E-07	2.33779E-06	1.139095	8.28433E-07	1.36564E-05	0.965381667	7.02096E-07	1.15738E-05	1.160378889	8.43912E-07	1.39116E-05
Road 8	8	0100-0200	0.236900333	1.43576E-07	2.3668E-06	0.202366333	1.22646E-07	2.02178E-06	1.170255	7.09245E-07	1.16916E-05	0.999436	6.05719E-07	9.98505E-06	1.201802333	7.28365E-07	1.20068E-05
Road 8	8	0200-0300	0.224740667	6.81032E-08	1.12266E-06	0.190224	5.76436E-08	9.50234E-07	1.167248667	3.53712E-07	5.8308E-06	0.987836	2.99344E-07	4.93458E-06	1.17806	3.56988E-07	5.88481E-06
Road 8	8	0300-0400	0.205355	5.80802E-08	9.5743E-07	0.17286	4.88897E-08	8.05928E-07	1.04455	2.95428E-07	4.87002E-06	0.878995714	2.48605E-07	4.09816E-06	1.051855714	2.97495E-07	4.90409E-06
Road 8	8	0400-0500	0.23251381	9.86422E-08	1.62608E-06	0.195487619	8.29341E-08	1.36714E-06	1.115255238	4.73139E-07	7.79951E-06	0.937660476	3.97795E-07	6.55751E-06	1.133148095	4.80729E-07	7.92465E-06
Road 8	8	0500-0600	0.221135	1.51891E-07	2.50386E-06	0.185921765	1.27704E-07	2.10515E-06	1.042458529	7.16032E-07	1.18035E-05	0.876013824	6.01706E-07	9.9189E-06	1.061935588	7.2941E-07	1.20241E-05
Road 8	8	0600-0700	0.24692871	3.09284E-07	5.09844E-06	0.209073548	2.6187E-07	4.31683E-06	1.149955	1.44035E-06	2.37436E-05	0.972940323	1.21863E-06	2.00887E-05	1.182013871	1.4805E-06	2.44055E-05
Road 8	8	0700-0800	0.244293922	5.03394E-07	8.29825E-06	0.207618529	4.2782E-07	7.05245E-06	1.149252549	2.36816E-06	3.90382E-05	0.975917647	2.01098E-06	3.31503E-05	1.183536176	2.4388E-06	4.02027E-05
Road 8	8	0800-0900	0.273438177	1.06061E-06	1.74837E-05	0.232939219	9.03522E-07	1.48942E-05	1.29129724	5.00867E-06	8.2566E-05	1.09925276	4.26377E-06	7.02866E-05	1.332191979	5.16729E-06	8.51808E-05
Road 8	8	0900-1000	0.294150506	9.38905E-07	1.54775E-05	0.250715063	8.00262E-07	1.3192E-05	1.320871772	4.21612E-06	6.95011E-05	1.12560462	3.59284E-06	5.92266E-05	1.376319684	4.3931E-06	7.24186E-05
Road 8	8	1000-1100	0.278997375	9.0181E-07	1.4866E-05	0.236802125	7.65421E-07	1.26177E-05	1.29050775	4.17134E-06	6.87629E-05	1.094365813	3.53734E-06	5.83118E-05	1.331167938	4.30277E-06	7.09295E-05
Road 8	8	1100-1200	0.288246792	9.25884E-07	1.52628E-05	0.247937547	7.96405E-07	1.31284E-05	1.345962138	4.32339E-06	7.12695E-05	1.157589371	3.71832E-06	6.12951E-05	1.405526918	4.51472E-06	7.44235E-05
Road 8	8	1200-1300	0.285688294	9.81152E-07	1.61739E-05	0.248525294	8.53521E-07	1.407E-05	1.345338706	4.62036E-06	7.61648E-05	1.169823706	4.01758E-06	6.62282E-05	1.418349	4.8711E-06	8.02982E-05
Road 8	8	1300-1400	0.261723827	8.56551E-07	1.41199E-05	0.227717654	7.45258E-07	1.22853E-05	1.215913765	3.97935E-06	6.55982E-05	1.057524383	3.46099E-06	5.70531E-05	1.285242037	4.20625E-06	6.93384E-05
Road 8	8	1400-1500	0.256452158	7.20138E-07	1.18712E-05	0.219860144	6.17385E-07	1.01774E-05	1.24054295	3.48354E-06	5.74249E-05	1.063073094	2.9852E-06	4.92098E-05	1.282933237	3.60258E-06	5.93872E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1500-1600	0.268937986	7.552E-07	1.24492E-05	0.227461583	6.38731E-07	1.05292E-05	1.268503813	3.56206E-06	5.87192E-05	1.072197482	3.01082E-06	4.96322E-05	1.299659065	3.64955E-06	6.01614E-05
Road 8	8	1600-1700	0.270635101	8.14639E-07	1.3429E-05	0.223695638	6.73346E-07	1.10999E-05	1.264771879	3.80709E-06	6.27585E-05	1.044779396	3.14489E-06	5.18424E-05	1.268475034	3.81824E-06	6.29422E-05
Road 8	8	1700-1800	0.222136603	7.00067E-07	1.15403E-05	0.183214103	5.77402E-07	9.51826E-06	1.079297564	3.40142E-06	5.60712E-05	0.888605321	2.80045E-06	4.61644E-05	1.071819423	3.37786E-06	5.56827E-05
Road 8	8	1800-1900	0.221811869	4.79472E-07	7.90392E-06	0.184715794	3.99285E-07	6.58206E-06	1.10477271	2.38809E-06	3.93668E-05	0.918841589	1.98618E-06	3.27415E-05	1.103557383	2.38547E-06	3.93235E-05
Road 8	8	1900-2000	0.218917792	3.40539E-07	5.61365E-06	0.182697143	2.84196E-07	4.68486E-06	1.11682	1.73728E-06	2.86383E-05	0.931710779	1.44933E-06	2.38916E-05	1.114407922	1.73352E-06	2.85765E-05
Road 8	8	2000-2100	0.24116013	3.75138E-07	6.18401E-06	0.200020779	3.11143E-07	5.12908E-06	1.122555844	1.7462E-06	2.87854E-05	0.930100779	1.44682E-06	2.38503E-05	1.130121558	1.75797E-06	2.89794E-05
Road 8	8	2100-2200	0.200093889	2.18284E-07	3.59833E-06	0.167190741	1.8239E-07	3.00663E-06	1.017180185	1.10965E-06	1.82922E-05	0.848007963	9.251E-07	1.52499E-05	1.015198704	1.10749E-06	1.82565E-05
Road 8	8	2200-2300	0.23838875	3.0822E-07	5.08089E-06	0.199442344	2.57865E-07	4.25081E-06	1.146203438	1.48196E-06	2.44296E-05	0.957663594	1.23819E-06	2.04111E-05	1.157105938	1.49606E-06	2.46619E-05
Road 8	8	2300-0000	0.187841321	2.01123E-07	3.31544E-06	0.155938679	1.66965E-07	2.75235E-06	0.940401887	1.00689E-06	1.65983E-05	0.779718491	8.3485E-07	1.37622E-05	0.93565717	1.00181E-06	1.65145E-05
Road 9	9	0000-0100	0.200555582	5.32628E-08	1.58999E-06	0.174490408	4.63405E-08	1.38334E-06	0.896896046	2.38194E-07	7.11051E-06	0.774027816	2.05563E-07	6.13642E-06	0.948518224	2.51904E-07	7.51977E-06
Road 9	9	0100-0200	0.216994747	4.52797E-08	1.35168E-06	0.191413111	3.99416E-08	1.19233E-06	0.917634277	1.9148E-07	5.71601E-06	0.802957138	1.67551E-07	5.00168E-06	0.994370249	2.07492E-07	6.194E-06
Road 9	9	0200-0300	0.08468742	8.03249E-09	2.39784E-07	0.072557337	6.88197E-09	2.05439E-07	0.592972313	5.62427E-08	1.67894E-06	0.510817726	4.84504E-08	1.44633E-06	0.583375062	5.53324E-08	1.65177E-06
Road 9	9	0300-0400	0.103308005	7.8389E-09	2.34005E-07	0.08754807	6.64306E-09	1.98307E-07	0.62263418	4.72448E-08	1.41034E-06	0.529130363	4.01499E-08	1.19854E-06	0.616678433	4.67929E-08	1.39685E-06
Road 9	9	0400-0500	0.235088998	4.45958E-08	1.33126E-06	0.204443528	3.87824E-08	1.15772E-06	0.953990158	1.80969E-07	5.40225E-06	0.822608529	1.56047E-07	4.65826E-06	1.027052057	1.94829E-07	5.81598E-06
Road 9	9	0500-0600	0.168038219	5.41899E-08	1.61766E-06	0.146133316	4.71259E-08	1.40679E-06	0.826368045	2.66492E-07	7.95524E-06	0.720573707	2.32375E-07	6.93678E-06	0.866707023	2.79501E-07	8.34357E-06
Road 9	9	0600-0700	0.198267425	1.20355E-07	3.59279E-06	0.174675853	1.06034E-07	3.16529E-06	1.001407467	6.07886E-07	1.81464E-05	0.882365717	5.35624E-07	1.59893E-05	1.05704157	6.41658E-07	1.91546E-05
Road 9	9	0700-0800	0.167351947	1.55557E-07	4.64363E-06	0.14954883	1.39008E-07	4.14963E-06	0.922586755	8.5756E-07	2.55996E-05	0.82681156	7.68536E-07	2.29421E-05	0.97636039	9.07544E-07	2.70917E-05
Road 9	9	0800-0900	0.262149638	5.71885E-07	1.70717E-05	0.2310106	5.03954E-07	1.50439E-05	1.238029777	2.70079E-06	8.06231E-05	1.08465774	2.3662E-06	7.06352E-05	1.31566834	2.87016E-06	8.56791E-05
Road 9	9	0900-1000	0.272907369	4.50397E-07	1.34451E-05	0.24293638	4.00934E-07	1.19686E-05	1.167862826	1.9274E-06	5.75363E-05	1.033395848	1.70548E-06	5.09116E-05	1.276332228	2.10642E-06	6.28802E-05
Road 9	9	1000-1100	0.281020516	3.89155E-07	1.16169E-05	0.244830132	3.39039E-07	1.01209E-05	1.182592964	1.63764E-06	4.88865E-05	1.026234409	1.42112E-06	4.24229E-05	1.271064541	1.76016E-06	5.25438E-05
Road 9	9	1100-1200	0.196306575	2.83015E-07	8.44849E-06	0.170280187	2.45493E-07	7.32839E-06	1.020667924	1.4715E-06	4.39267E-05	0.894501749	1.2896E-06	3.84969E-05	1.064781936	1.5351E-06	4.58253E-05
Road 9	9	1200-1300	0.287047305	4.02946E-07	1.20286E-05	0.259301983	3.63998E-07	1.0866E-05	1.278751099	1.79506E-06	5.35856E-05	1.153958506	1.61988E-06	4.83563E-05	1.413260489	1.98388E-06	5.92222E-05
Road 9	9	1300-1400	0.327418571	3.78874E-07	1.131E-05	0.295259053	3.4166E-07	1.01991E-05	1.245533484	1.44127E-06	4.30245E-05	1.116437406	1.29189E-06	3.85651E-05	1.411696459	1.63355E-06	4.87643E-05
Road 9	9	1400-1500	0.212224441	2.73757E-07	8.17213E-06	0.191185982	2.46619E-07	7.362E-06	1.019949251	1.31568E-06	3.92752E-05	0.912207095	1.17669E-06	3.51264E-05	1.103393078	1.42331E-06	4.24884E-05
Road 9	9	1500-1600	0.17916373	1.93725E-07	5.78303E-06	0.157014538	1.69776E-07	5.0681E-06	0.909814011	9.83759E-07	2.93669E-05	0.799456809	8.64433E-07	2.58048E-05	0.956471347	1.03421E-06	3.08729E-05
Road 9	9	1600-1700	0.189273667	2.87238E-07	8.57454E-06	0.166773624	2.53092E-07	7.55524E-06	1.021075472	1.54956E-06	4.62571E-05	0.895225662	1.35858E-06	4.05558E-05	1.061999286	1.61167E-06	4.81111E-05
Road 9	9	1700-1800	0.163034975	2.13398E-07	6.37031E-06	0.144948077	1.89724E-07	5.6636E-06	0.95206275	1.24617E-06	3.72002E-05	0.850471423	1.11319E-06	3.32307E-05	0.9954195	1.30292E-06	3.88943E-05
Road 9	9	1800-1900	0.162316621	1.35481E-07	4.04433E-06	0.145761941	1.21663E-07	3.63185E-06	0.922968437	7.70373E-07	2.29969E-05	0.833048597	6.95319E-07	2.07565E-05	0.978810539	8.16982E-07	2.43883E-05
Road 9	9	1900-2000	0.167757526	1.3684E-07	4.0849E-06	0.149847147	1.2223E-07	3.64878E-06	0.881063861	7.18683E-07	2.14539E-05	0.783450169	6.39059E-07	1.9077E-05	0.933297316	7.6129E-07	2.27258E-05
Road 9	9	2000-2100	0.178084616	9.79683E-08	2.92452E-06	0.153969849	8.47023E-08	2.52851E-06	0.778492569	4.28266E-07	1.27845E-05	0.68094354	3.74602E-07	1.11825E-05	0.834913389	4.59305E-07	1.3711E-05
Road 9	9	2100-2200	0.02133775	1.13336E-08	3.38328E-07	0.018719894	9.94312E-09	2.96819E-07	0.305883636	1.62471E-07	4.85004E-06	0.264812305	1.40656E-07	4.19882E-06	0.283532199	1.50599E-07	4.49564E-06
Road 9	9	2200-2300	0.170882225	1.06973E-07	3.19331E-06	0.147898707	9.25848E-08	2.76382E-06	0.818521703	5.12396E-07	1.52959E-05	0.707868169	4.43126E-07	1.32281E-05	0.855766876	5.35711E-07	1.59919E-05
Road 9	9	2300-0000	0.1384373	7.87836E-08	2.35183E-06	0.120802876	6.8748E-08	2.05225E-06	0.700525264	3.98663E-07	1.19008E-05	0.608593629	3.46346E-07	1.0339E-05	0.729396505	4.15094E-07	1.23913E-05
Road 10	10	0000-0100	0.280999201	2.16048E-07	4.80376E-06	0.24006503	1.84575E-07	4.10398E-06	1.388298759	1.0674E-06	2.37334E-05	1.186925319	9.12575E-07	2.02908E-05	1.42699035	1.09715E-06	2.43948E-05
Road 10	10	0100-0200	0.274319767	1.59356E-07	3.54323E-06	0.236489956	1.3738E-07	3.05461E-06	1.344342283	7.80946E-07	1.73641E-05	1.159599427	6.73627E-07	1.49779E-05	1.396089384	8.11007E-07	1.80325E-05
Road 10	10	0200-0300	0.273380511	8.8747E-08	1.97326E-06	0.231476849	7.51439E-08	1.6708E-06	1.323799698	4.29743E-07	9.5552E-06	1.122182647	3.64292E-07	8.09992E-06	1.353659496	4.39436E-07	9.77072E-06
Road 10	10	0300-0400	0.248979059	5.10477E-08	1.13503E-06	0.209574915	4.29688E-08	9.55398E-07	1.30002413	2.66542E-07	5.92647E-06	1.095891062	2.24689E-07	4.99588E-06	1.305465978	2.67657E-07	5.95128E-06
Road 10	10	0400-0500	0.292161951	1.14811E-07	2.55279E-06	0.248774142	9.7761E-08	2.17369E-06	1.361516765	5.35036E-07	1.18964E-05	1.154300941	4.53607E-07	1.00858E-05	1.403075083	5.51368E-07	1.22595E-05
Road 10	10	0500-0600	0.265952993	1.86304E-07	4.1424E-06	0.227332532	1.59249E-07	3.54086E-06	1.242959622	8.7071E-07	1.936E-05	1.060511694	7.42903E-07	1.65182E-05	1.287844226	9.02152E-07	2.00591E-05
Road 10	10	0600-0700	0.323976846	4.539E-07	1.00923E-05	0.281240043	3.94025E-07	8.76102E-06	1.541730849	2.16001E-06	4.80271E-05	1.340575148	1.87818E-06	4.17608E-05	1.621815191	2.27221E-06	5.05218E-05
Road 10	10	0700-0800	0.319791715	7.04838E-07	1.56719E-05	0.277682744	6.12028E-07	1.36083E-05	1.539888502	3.394E-06	7.54645E-05	1.339673243	2.95271E-06	6.56527E-05	1.617355987	3.56474E-06	7.92609E-05
Road 10	10	0800-0900	0.342334812	1.45056E-06	3.22527E-05	0.293581505	1.24398E-06	2.76595E-05	1.633216761	6.92035E-06	0.000153872	1.401171296	5.93711E-06	0.00013201	1.694752801	7.18109E-06	0.000159669
Road 10	10	0900-1000	0.380347743	1.2867E-06	2.86095E-05	0.330927777	1.11952E-06	2.48921E-05	1.758770471	5.94986E-06	0.000132293	1.529098966	5.17289E-06	0.000115018	1.860026743	6.29241E-06	0.00013991
Road 10	10	1000-1100	0.38073979	1.39862E-06	3.10979E-05	0.328154831	1.20545E-06	2.68029E-05	1.667759866	6.12639E-06	0.000136218	1.433061207	5.26424E-06	0.000117049	1.761216039	6.46969E-06	0.000143852
Road 10	10	1100-1200	0.367753129	1.35091E-06	3.00371E-05	0.319146554	1.17236E-06	2.60671E-05	1.669202258	6.13169E-06	0.000136336	1.446994757	5.31542E-06	0.000118187	1.766141311	6.48778E-06	0.000144254
Road 10	10	1200-1300	0.378851313	1.43699E-06	3.19511E-05	0.334348231	1.26819E-06	2.81978E-05	1.732406472	6.57106E-06	0.000146105	1.528549247	5.79782E-06	0.000128913	1.862897478	7.06601E-06	0.000157111
Road 10	10	1300-1400	0.369954243	1.21362E-06	2.69844E-05	0.327050233	1.07287E-06	2.3855E-05	1.656989213	5.43567E-06	0.000120861	1.461936226	4.79581E-06	0.000106633	1.788986459	5.86868E-06	0.000130488
Road 10	10	1400-1500	0.345506707	1.06848E-06	2.37574E-05	0.302900722	9.36723E-07	2.08278E-05	1.652004254	5.10884E-06	0.000113594	1.447204216	4.47549E-06	9.95112E-05	1.750104938	5.41222E-06	0.000120339
Road 10	10	1500-1600	0.345789738	1.09299E-06	2.43023E-05	0.296800204	9.38142E-07	2.08593E-05	1.603506418	5.06845E-06	0.000112695	1.376088277	4.34961E-06	9.67123E-05	1.672888481	5.28775E-06	0.000117572
Road 10	10	1600-1700	0.336017658	1.18267E-06	2.62962E-05	0.284536717	1.00147E-06	2.22674E-05	1.58170891	5.56706E-06	0.000123782	1.33565746	4.70105E-06	0.000104526	1.620194177	5.70252E-06	0.000126794
Road 10	10	1700-1800	0.312239494	1.04029E-06	2.31306E-05	0.265385004	8.84186E-07	1.96596E-05	1.537898762	5.12383E-06	0.000113927	1.312122351	4.37161E-06	9.72014E-05	1.577507356	5.2558E-06	0.000116861
Road 10	10	1800-1900	0.315751671	6.52775E-07	1.45143E-05	0.268641588	5.55381E-07	1.23487E-05	1.525194667	3.15314E-06	7.01091E-05	1.299620053	2.68679E-06	5.974E-05	1.568261641	3.24217E-06	7.20888E-05
Road 10	10	1900-2000	0.273954821	5.10197E-07	1.13441E-05	0.234804546	4.37286E-07	9.72292E-06	1.384304776	2.57805E-06	5.73221E-05	1.189356507	2.21499E-06	4.92496E-05	1.424161052	2.65227E-06	5.89725E-05
Road 10	10	2000-2100	0.31654385	3.89403E-07	8.65825E-06	0.264839267	3.25797E-07	7.244E-06	1.480269486	1.82098E-06	4.0489E-05	1.238207342	1.52321E-06	3.3868E-05	1.503046609	1.849E-06	4.1112E-05
Road 10	10	2100-2200	0.263923784	3.3369E-07	7.41949E-06	0.230264595	2.91133E-07	6.47325E-06	1.377934351	1.74218E-06	3.87368E-05	1.204594886	1.52302E-06	3.38639E-05	1.434859481	1.81415E-06	4.03371E-05
Road 10	10	2200-2300	0.27426155	3.60818E-07	8.02268E-06	0.234659401	3.08717E-07	6.86424E-06	1.341284497	1.76459E-06	3.92352E-05	1.150915948	1.51414E-06	3.36665E-05	1.385575349	1.82286E-06	4.05307E-05
Road 10	10	2300-0000	0.252673928	3.10832E-07	6.91125E-06	0.212057752	2.60867E-07	5.8003E-06	1.235924489	1.5204E-06	3.38056E-05	1.036851074	1.2755E-06	2.83604E-05	1.248908826	1.53637E-06	3.41607E-05
Road 11	11	0000-0100	0.314438866	2.40196E-07	1.99245E-06	0.268230146	2.04898E-07	1.69965E-06	1.522919732	1.16334E-06	9.65001E-06	1.296617626	9.90472E-07	8.21604E-06	1.564847772	1.19537E-06	9.91569E-06
Road 11	11	0100-0200	0.312524488	1.68199E-07	1.39522E-06	0.268948235	1.44746E-07	1.20068E-06	1.488523634	8.01115E-07	6.64532E-06	1.277645214	6.87622E-07	5.70388E-06	1.546593449	8.32368E-07	6.90456E-06
Road 11	11	0200-0300	0.272795914	7.10406E-08	5.89288E-07	0.231026599	6.01632E-08	4.99058E-07	1.405580637	3.66037E-07	3.0363E-06	1.191468183	3.10278E-07	2.57378E-06	1.422494782	3.70441E-07	3.07284E-06
Road 11	11	0300-0400	0.293176573	7.12582E-08	5.91093E-07	0.246656591	5.99513E-08	4.97301E-07	1.479821127	3.59679E-07	2.98356E-06	1.245530104	3.02733E-07	2.51119E-06	1.492186695	3.62684E-07	3.0085E-06

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0400-0500	0.301954743	1.04845E-07	8.69701E-07	0.257371764	8.93652E-08	7.41292E-07	1.387723963	4.81849E-07	3.99697E-06	1.177349264	4.08802E-07	3.39104E-06	1.434721028	4.98167E-07	4.13234E-06
Road 11	11	0500-0600	0.242450946	1.13649E-07	9.42727E-07	0.206935791	9.70012E-08	8.04632E-07	1.195089027	5.60198E-07	4.64689E-06	1.021135297	4.78657E-07	3.9705E-06	1.228071088	5.75658E-07	4.77513E-06
Road 11	11	0600-0700	0.263767952	2.38124E-07	1.97526E-06	0.227377448	2.05271E-07	1.70274E-06	1.316497958	1.18851E-06	9.85875E-06	1.134990441	1.02464E-06	8.49951E-06	1.36236789	1.22992E-06	1.02022E-05
Road 11	11	0700-0800	0.316044699	5.98071E-07	4.96105E-06	0.271671416	5.141E-07	4.2645E-06	1.576114942	2.98258E-06	2.47407E-05	1.357446221	2.56878E-06	2.13082E-05	1.629117636	3.08288E-06	2.55727E-05
Road 11	11	0800-0900	0.338476118	1.20465E-06	9.99264E-06	0.292289996	1.04027E-06	8.62911E-06	1.611538893	5.73551E-06	4.75765E-05	1.388133767	4.94041E-06	4.09811E-05	1.680423764	5.98067E-06	4.96102E-05
Road 11	11	0900-1000	0.343639044	8.76995E-07	7.27475E-06	0.298778239	7.62507E-07	6.32506E-06	1.566607459	3.99811E-06	3.31647E-05	1.356549494	3.46203E-06	2.87178E-05	1.655327733	4.22453E-06	3.50429E-05
Road 11	11	1000-1100	0.352135302	7.39729E-07	6.13611E-06	0.302537649	6.35539E-07	5.27185E-06	1.586185259	3.33209E-06	2.764E-05	1.359324864	2.85553E-06	2.36868E-05	1.661862513	3.49107E-06	2.89587E-05
Road 11	11	1100-1200	0.308710662	7.289E-07	6.04629E-06	0.266567627	6.29396E-07	5.22089E-06	1.528425915	3.60878E-06	2.99352E-05	1.324996877	3.12846E-06	2.59509E-05	1.591564503	3.75786E-06	3.11718E-05
Road 11	11	1200-1300	0.371695141	1.0583E-06	8.77867E-06	0.327538965	9.32576E-07	7.7358E-06	1.734833851	4.93946E-06	4.09732E-05	1.527347233	4.3487E-06	3.60728E-05	1.854886197	5.28127E-06	4.38086E-05
Road 11	11	1300-1400	0.385783865	8.10414E-07	6.72245E-06	0.340692618	7.15691E-07	5.93672E-06	1.686280245	3.54236E-06	2.93842E-05	1.482809775	3.11493E-06	2.58386E-05	1.823502392	3.83062E-06	3.17753E-05
Road 11	11	1400-1500	0.308148654	6.20577E-07	5.14774E-06	0.269299062	5.42338E-07	4.49874E-06	1.48428622	2.98919E-06	2.47956E-05	1.293204125	2.60437E-06	2.16035E-05	1.562503187	3.14671E-06	2.61022E-05
Road 11	11	1500-1600	0.278567718	5.65841E-07	4.69369E-06	0.23847641	4.84405E-07	4.01818E-06	1.387748478	2.81886E-06	2.33827E-05	1.189263012	2.41569E-06	2.00383E-05	1.427739422	2.9001E-06	2.40565E-05
Road 11	11	1600-1700	0.269188378	6.54277E-07	5.42728E-06	0.228094714	5.54397E-07	4.59877E-06	1.378585998	3.35073E-06	2.77946E-05	1.1670462	2.83657E-06	2.35296E-05	1.395140914	3.39097E-06	2.81284E-05
Road 11	11	1700-1800	0.268466047	6.66504E-07	5.52871E-06	0.226367566	5.61989E-07	4.66174E-06	1.39728768	3.46896E-06	2.87753E-05	1.183554682	2.93834E-06	2.43738E-05	1.409922248	3.50033E-06	2.90355E-05
Road 11	11	1800-1900	0.289275372	5.92613E-07	4.91577E-06	0.244722915	5.01342E-07	4.15867E-06	1.474483075	3.02064E-06	2.50565E-05	1.251679438	2.5642E-06	2.12703E-05	1.496402353	3.06555E-06	2.5429E-05
Road 11	11	1900-2000	0.27536001	4.35031E-07	3.60861E-06	0.234317483	3.70189E-07	3.07075E-06	1.384516171	2.18734E-06	1.81442E-05	1.177577254	1.86041E-06	1.54322E-05	1.411894737	2.2306E-06	1.8503E-05
Road 11	11	2000-2100	0.284321215	3.99827E-07	3.3166E-06	0.238070598	3.34787E-07	2.77708E-06	1.370545614	1.92733E-06	1.59874E-05	1.149858078	1.61699E-06	1.3413E-05	1.387928676	1.95177E-06	1.61901E-05
Road 11	11	2100-2200	0.203206362	2.04618E-07	1.69732E-06	0.170187673	1.7137E-07	1.42152E-06	1.099894937	1.10753E-06	9.18708E-06	0.923877695	9.30294E-07	7.71686E-06	1.094065369	1.10166E-06	9.13838E-06
Road 11	11	2200-2300	0.265157356	2.90016E-07	2.40571E-06	0.224375513	2.45411E-07	2.0357E-06	1.29603994	1.41754E-06	1.17586E-05	1.096073803	1.19883E-06	9.9444E-06	1.320449316	1.44424E-06	1.19801E-05
Road 11	11	2300-0000	0.254399285	2.64999E-07	2.19819E-06	0.213841529	2.22752E-07	1.84774E-06	1.264521363	1.31721E-06	1.09264E-05	1.061742211	1.10598E-06	9.17421E-06	1.27558374	1.32873E-06	1.10219E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.33453	2.50852E-06	3.77293E-06	1.13336	2.13038E-06	3.20419E-06	5.84707	1.09907E-05	1.65306E-05	4.96565	9.33393E-06	1.40387E-05	6.09901	1.14643E-05	1.72429E-05
Haul Road 1	HR1	0800-0900	1.34692	2.5318E-06	3.80796E-06	1.14595	2.15404E-06	3.23978E-06	5.90123	1.10925E-05	1.66837E-05	5.02081	9.43761E-06	1.41946E-05	6.16676	1.15917E-05	1.74344E-05
Haul Road 1	HR1	0900-1000	1.35681	2.55039E-06	3.83592E-06	1.15554	2.17207E-06	3.2669E-06	5.94441	1.11737E-05	1.68058E-05	5.06259	9.51615E-06	1.43128E-05	6.21813	1.16882E-05	1.75797E-05
Haul Road 1	HR1	1000-1100	1.36171	2.55961E-06	3.84977E-06	1.15454	2.17019E-06	3.26407E-06	5.96579	1.12139E-05	1.68662E-05	5.05829	9.50806E-06	1.43006E-05	6.21283	1.16783E-05	1.75647E-05
Haul Road 1	HR1	1100-1200	1.35821	2.55303E-06	3.83988E-06	1.16774	0.000002195	3.30139E-06	5.9505	1.11852E-05	1.6823E-05	5.11635	9.6172E-06	1.44647E-05	6.28409	1.18122E-05	1.77661E-05
Haul Road 1	HR1	1200-1300	1.33652	2.51226E-06	3.77856E-06	1.16194	2.1841E-06	3.28499E-06	5.85577	1.10071E-05	1.65552E-05	5.09087	9.5693E-06	1.43927E-05	6.25281	1.17534E-05	1.76777E-05
Haul Road 1	HR1	1300-1400	1.33652	2.51226E-06	3.77856E-06	1.16194	2.1841E-06	3.28499E-06	5.85577	1.10071E-05	1.65552E-05	5.09087	9.5693E-06	1.43927E-05	6.25281	1.17534E-05	1.76777E-05
Haul Road 1	HR1	1400-1500	1.34002	2.51883E-06	3.78845E-06	1.14795	2.1578E-06	3.24544E-06	5.87116	1.1036E-05	1.65987E-05	5.02931	9.45359E-06	1.42187E-05	6.17726	1.16114E-05	1.74641E-05
Haul Road 1	HR1	1500-1600	1.35771	2.55209E-06	3.83846E-06	1.14795	2.1578E-06	3.24544E-06	5.94841	1.11812E-05	1.68171E-05	5.02931	9.45359E-06	1.42187E-05	6.17726	1.16114E-05	1.74641E-05
Haul Road 1	HR1	1600-1700	1.36591	2.5675E-06	3.86165E-06	1.12806	2.12041E-06	3.18921E-06	5.98468	1.12494E-05	1.69197E-05	4.94227	9.28998E-06	1.39726E-05	6.07033	1.14104E-05	1.71618E-05
Haul Road 1	HR1	1700-1800	1.3715	2.57801E-06	3.87745E-06	1.13056	2.12511E-06	3.19627E-06	6.00887	1.12949E-05	1.6988E-05	4.95316	9.31045E-06	1.40034E-05	6.08372	1.14356E-05	1.71997E-05
Haul Road 1	HR1	1800-1900	1.36341	2.5628E-06	3.85458E-06	1.13416	2.13188E-06	3.20645E-06	5.97339	1.12282E-05	1.68877E-05	4.96934	9.34086E-06	1.40491E-05	6.1035	1.14727E-05	1.72556E-05
Haul Road 1	HR1	1900-2000	1.35291	2.54306E-06	3.82489E-06	1.12836	2.12098E-06	3.19005E-06	5.92772	1.11423E-05	1.67586E-05	4.94346	9.29222E-06	1.3976E-05	6.07182	1.14132E-05	1.7166E-05
Haul Road 1	HR1	2000-2100	1.35291	2.54306E-06	3.82489E-06	1.12247	2.10991E-06	3.1734E-06	5.92772	1.11423E-05	1.67586E-05	4.91767	9.24374E-06	1.3903E-05	6.04014	1.13536E-05	1.70764E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.33453	1.72867E-06	4.60154E-06	1.13336	1.46808E-06	3.90789E-06	5.84707	7.57392E-06	2.0161E-05	4.96565	6.43219E-06	1.71219E-05	6.09901	7.90027E-06	2.10298E-05
Haul Road 2	HR2	0800-0900	1.34692	1.74472E-06	4.64426E-06	1.14595	1.48439E-06	3.9513E-06	5.90123	7.64408E-06	2.03478E-05	5.02081	6.50364E-06	1.73121E-05	6.16676	7.98803E-06	2.12634E-05
Haul Road 2	HR2	0900-1000	1.35681	1.75753E-06	4.67836E-06	1.15554	1.49681E-06	3.98437E-06	5.94441	7.70001E-06	2.04967E-05	5.06259	6.55776E-06	1.74561E-05	6.21813	8.05457E-06	2.14405E-05
Haul Road 2	HR2	1000-1100	1.36171	1.76387E-06	4.69526E-06	1.15454	1.49552E-06	3.98092E-06	5.96579	7.72771E-06	2.05704E-05	5.05829	6.55219E-06	1.74413E-05	6.21283	8.04771E-06	2.14222E-05
Haul Road 2	HR2	1100-1200	1.35821	1.75934E-06	4.68319E-06	1.16774	1.51262E-06	4.02644E-06	5.9505	7.7079E-06	2.05177E-05	5.11635	6.6274E-06	1.76415E-05	6.28409	8.14001E-06	2.16679E-05
Haul Road 2	HR2	1200-1300	1.33652	1.73124E-06	4.6084E-06	1.16194	1.5051E-06	4.00644E-06	5.85577	7.58519E-06	2.0191E-05	5.09087	6.59439E-06	1.75536E-05	6.25281	8.09949E-06	2.15601E-05
Haul Road 2	HR2	1300-1400	1.33652	1.73124E-06	4.6084E-06	1.16194	1.5051E-06	4.00644E-06	5.85577	7.58519E-06	2.0191E-05	5.09087	6.59439E-06	1.75536E-05	6.25281	8.09949E-06	2.15601E-05
Haul Road 2	HR2	1400-1500	1.34002	1.73578E-06	4.62047E-06	1.14795	1.48698E-06	3.9582E-06	5.87116	7.60513E-06	2.02441E-05	5.02931	6.51465E-06	1.73414E-05	6.17726	8.00163E-06	2.12996E-05
Haul Road 2	HR2	1500-1600	1.35771	1.75869E-06	4.68147E-06	1.14795	1.48698E-06	3.9582E-06	5.94841	7.70519E-06	2.05105E-05	5.02931	6.51465E-06	1.73414E-05	6.17726	8.00163E-06	2.12996E-05
Haul Road 2	HR2	1600-1700	1.36591	1.76931E-06	4.70974E-06	1.12806	1.46122E-06	3.88962E-06	5.98468	7.75218E-06	2.06355E-05	4.94227	6.4019E-06	1.70412E-05	6.07033	7.86312E-06	2.09309E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	1700-1800	1.3715	1.77655E-06	4.72901E-06	1.13056	1.46446E-06	3.89824E-06	6.00887	7.78351E-06	2.07189E-05	4.95316	6.41601E-06	1.70788E-05	6.08372	7.88047E-06	2.0977E-05
Haul Road 2	HR2	1800-1900	1.36341	1.76608E-06	4.70112E-06	1.13416	1.46912E-06	3.91065E-06	5.97339	7.73755E-06	2.05966E-05	4.96934	6.43697E-06	1.71346E-05	6.1035	7.90609E-06	2.10452E-05
Haul Road 2	HR2	1900-2000	1.35291	1.75247E-06	4.66492E-06	1.12836	1.46161E-06	3.89065E-06	5.92772	7.67839E-06	2.04391E-05	4.94346	6.40345E-06	1.70453E-05	6.07182	7.86505E-06	2.0936E-05
Haul Road 2	HR2	2000-2100	1.35291	1.75247E-06	4.66492E-06	1.12247	1.45398E-06	3.87034E-06	5.92772	7.67839E-06	2.04391E-05	4.91767	6.37004E-06	1.69564E-05	6.04014	7.82402E-06	2.08268E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.33453	1.72867E-06	4.59512E-06	1.13336	1.46808E-06	3.90245E-06	5.84707	7.57392E-06	2.01329E-05	4.96565	6.43219E-06	1.7098E-05	6.09901	7.90027E-06	2.10004E-05
Haul Road 3	HR3	0800-0900	1.34692	1.74472E-06	4.63779E-06	1.14595	1.48439E-06	3.9458E-06	5.90123	7.64408E-06	2.03194E-05	5.02081	6.50364E-06	1.72879E-05	6.16676	7.98803E-06	2.12337E-05
Haul Road 3	HR3	0900-1000	1.35681	1.75753E-06	4.67184E-06	1.15554	1.49681E-06	3.97882E-06	5.94441	7.70001E-06	2.04681E-05	5.06259	6.55776E-06	1.74318E-05	6.21813	8.05457E-06	2.14106E-05
Haul Road 3	HR3	1000-1100	1.36171	1.76387E-06	4.68871E-06	1.15454	1.49552E-06	3.97537E-06	5.96579	7.72771E-06	2.05417E-05	5.05829	6.55219E-06	1.7417E-05	6.21283	8.04771E-06	2.13923E-05
Haul Road 3	HR3	1100-1200	1.35821	1.75934E-06	4.67666E-06	1.16774	1.51262E-06	4.02082E-06	5.9505	7.7079E-06	2.04891E-05	5.11635	6.6274E-06	1.76169E-05	6.28409	8.14001E-06	2.16377E-05
Haul Road 3	HR3	1200-1300	1.33652	1.73124E-06	4.60198E-06	1.16194	1.5051E-06	4.00085E-06	5.85577	7.58519E-06	2.01629E-05	5.09087	6.59439E-06	1.75292E-05	6.25281	8.09949E-06	2.153E-05
Haul Road 3	HR3	1300-1400	1.33652	1.73124E-06	4.60198E-06	1.16194	1.5051E-06	4.00085E-06	5.85577	7.58519E-06	2.01629E-05	5.09087	6.59439E-06	1.75292E-05	6.25281	8.09949E-06	2.153E-05
Haul Road 3	HR3	1400-1500	1.34002	1.73578E-06	4.61403E-06	1.14795	1.48698E-06	3.95268E-06	5.87116	7.60513E-06	2.02159E-05	5.02931	6.51465E-06	1.73172E-05	6.17726	8.00163E-06	2.12699E-05
Haul Road 3	HR3	1500-1600	1.35771	1.75869E-06	4.67494E-06	1.14795	1.48698E-06	3.95268E-06	5.94841	7.70519E-06	2.04819E-05	5.02931	6.51465E-06	1.73172E-05	6.17726	8.00163E-06	2.12699E-05
Haul Road 3	HR3	1600-1700	1.36591	1.76931E-06	4.70317E-06	1.12806	1.46122E-06	3.8842E-06	5.98468	7.75218E-06	2.06068E-05	4.94227	6.4019E-06	1.70175E-05	6.07033	7.86312E-06	2.09017E-05
Haul Road 3	HR3	1700-1800	1.3715	1.77655E-06	4.72242E-06	1.13056	1.46446E-06	3.8928E-06	6.00887	7.78351E-06	2.06901E-05	4.95316	6.41601E-06	1.7055E-05	6.08372	7.88047E-06	2.09478E-05
Haul Road 3	HR3	1800-1900	1.36341	1.76608E-06	4.69457E-06	1.13416	1.46912E-06	3.9052E-06	5.97339	7.73755E-06	2.05679E-05	4.96934	6.43697E-06	1.71107E-05	6.1035	7.90609E-06	2.10159E-05
Haul Road 3	HR3	1900-2000	1.35291	1.75247E-06	4.65841E-06	1.12836	1.46161E-06	3.88523E-06	5.92772	7.67839E-06	2.04106E-05	4.94346	6.40345E-06	1.70216E-05	6.07182	7.86505E-06	2.09068E-05
Haul Road 3	HR3	2000-2100	1.35291	1.75247E-06	4.65841E-06	1.12247	1.45398E-06	3.86495E-06	5.92772	7.67839E-06	2.04106E-05	4.91767	6.37004E-06	1.69328E-05	6.04014	7.82402E-06	2.07977E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.094082123	3.16079E-07	2.57135E-06	0.078376536	2.63315E-07	2.1421E-06	0.557257263	1.87217E-06	1.52304E-05	0.461557654	1.55065E-06	1.26148E-05	0.53993419	1.81397E-06	1.47569E-05
Road 1	1	0100-0200	0.072384404	1.48084E-07	1.20468E-06	0.061957706	1.26753E-07	1.03115E-06	0.436882752	8.93773E-07	7.27097E-06	0.371813303	7.60654E-07	6.18803E-06	0.433771009	8.87407E-07	7.21919E-06
Road 1	1	0200-0300	0.069354156	1.0023E-07	8.15388E-07	0.059326104	8.57378E-08	6.9749E-07	0.44314	6.40424E-07	5.20994E-06	0.375562078	5.42761E-07	4.41544E-06	0.434888182	6.28498E-07	5.11293E-06
Road 1	1	0300-0400	0.059367273	6.12838E-08	4.98553E-07	0.049660545	5.12637E-08	4.17038E-07	0.364305091	3.76066E-07	3.05935E-06	0.301934545	3.11682E-07	2.53558E-06	0.351595091	3.62945E-07	2.95261E-06
Road 1	1	0400-0500	0.077206977	1.24621E-07	1.01381E-06	0.064503023	1.04115E-07	8.46993E-07	0.44295	7.14972E-07	5.8164E-06	0.36756314	5.93289E-07	4.82649E-06	0.432066163	6.97404E-07	5.67349E-06
Road 1	1	0500-0600	0.063467287	2.23946E-07	1.82183E-06	0.053106489	1.87388E-07	1.52443E-06	0.375581596	1.32525E-06	1.07811E-05	0.31144484	1.09894E-06	8.94006E-06	0.36455133	1.28633E-06	1.04645E-05
Road 1	1	0600-0700	0.084456914	5.34196E-07	4.34577E-06	0.071551988	4.52572E-07	3.68174E-06	0.449842433	2.84529E-06	2.31468E-05	0.378742789	2.39558E-06	1.94884E-05	0.450294777	2.84815E-06	2.31701E-05
Road 1	1	0700-0800	0.070714413	7.45899E-07	6.068E-06	0.060432153	6.37441E-07	5.18568E-06	0.389990658	4.11364E-06	3.34651E-05	0.330494662	3.48607E-06	2.83597E-05	0.390926815	4.12351E-06	3.35454E-05
Road 1	1	0800-0900	0.076883588	1.00145E-06	8.14694E-06	0.065841383	8.57619E-07	6.97685E-06	0.413062695	5.38036E-06	4.377E-05	0.351686744	4.5809E-06	3.72663E-05	0.417528127	5.43852E-06	4.42432E-05
Road 1	1	0900-1000	0.082493796	1.10549E-06	8.99333E-06	0.070773529	9.48429E-07	7.71561E-06	0.458075896	6.13863E-06	4.99387E-05	0.391215154	5.24264E-06	4.26496E-05	0.461988683	6.19106E-06	5.03652E-05
Road 1	1	1000-1100	0.096249439	1.25551E-06	1.02137E-05	0.081675683	1.0654E-06	8.6672E-06	0.515893453	6.72947E-06	5.47452E-05	0.436286072	5.69104E-06	4.62975E-05	0.517961755	6.75645E-06	5.49647E-05
Road 1	1	1100-1200	0.086798309	1.09801E-06	8.93249E-06	0.073871944	9.34491E-07	7.60222E-06	0.498769362	6.30951E-06	5.13288E-05	0.422948783	5.35037E-06	4.3526E-05	0.496820727	6.28486E-06	5.11282E-05
Road 1	1	1200-1300	0.087818516	1.09938E-06	8.94362E-06	0.076581439	9.58705E-07	7.79921E-06	0.498262024	6.23763E-06	5.0744E-05	0.432854738	5.41881E-06	4.40828E-05	0.509436177	6.37751E-06	5.1882E-05
Road 1	1	1300-1400	0.09162598	1.21927E-06	9.91896E-06	0.079917362	1.06346E-06	8.65144E-06	0.509158829	6.77541E-06	5.51189E-05	0.442520155	5.88864E-06	4.7905E-05	0.522437518	6.95211E-06	5.65564E-05
Road 1	1	1400-1500	0.087253875	1.25935E-06	1.0245E-05	0.075480988	1.08943E-06	8.86268E-06	0.474580286	6.8497E-06	5.57234E-05	0.409006047	5.90326E-06	4.80239E-05	0.484487035	6.99269E-06	5.68866E-05
Road 1	1	1500-1600	0.095543631	1.28396E-06	1.04452E-05	0.079666844	1.0706E-06	8.70947E-06	0.518095196	6.96239E-06	5.66401E-05	0.429809316	5.77597E-06	4.69883E-05	0.509476159	6.84656E-06	5.56978E-05
Road 1	1	1600-1700	0.090983285	1.28927E-06	1.04884E-05	0.076183656	1.07955E-06	8.78234E-06	0.499823219	7.08271E-06	5.76189E-05	0.415977126	5.89457E-06	4.79532E-05	0.492160781	6.97413E-06	5.67355E-05
Road 1	1	1700-1800	0.073398232	1.04422E-06	8.49486E-06	0.060641372	8.62728E-07	7.01842E-06	0.41253314	5.869E-06	4.77452E-05	0.337933549	4.80769E-06	3.91113E-05	0.398574921	5.67042E-06	4.61297E-05
Road 1	1	1800-1900	0.064758282	9.40745E-07	7.6531E-06	0.053205388	7.72916E-07	6.28779E-06	0.389943928	5.66473E-06	4.60834E-05	0.316471111	4.59738E-06	3.74004E-05	0.369676499	5.3703E-06	4.36882E-05
Road 1	1	1900-2000	0.077973272	8.67833E-07	7.05995E-06	0.065139528	7.24995E-07	5.89794E-06	0.448951535	4.99678E-06	4.06495E-05	0.371506863	4.13483E-06	3.36374E-05	0.436646391	4.85982E-06	3.95354E-05
Road 1	1	2000-2100	0.070526024	6.65814E-07	5.4165E-06	0.058843559	5.55524E-07	4.51927E-06	0.418528708	3.9512E-06	3.21436E-05	0.346027078	3.26673E-06	2.65754E-05	0.404870636	3.82226E-06	3.10946E-05
Road 1	1	2100-2200	0.07471342	6.43646E-07	5.23616E-06	0.060921656	5.24832E-07	4.26958E-06	0.4472378	3.85289E-06	3.13439E-05	0.361273181	3.11232E-06	2.53192E-05	0.422194837	3.63715E-06	2.95888E-05
Road 1	1	2200-2300	0.071839057	5.86524E-07	4.77146E-06	0.060047471	4.90252E-07	3.98828E-06	0.429471908	3.50639E-06	2.8525E-05	0.355751103	2.9045E-06	2.36285E-05	0.415798575	3.39475E-06	2.76168E-05
Road 1	1	2300-0000	0.062878641	4.6026E-07	3.74429E-06	0.052582256	3.84893E-07	3.13116E-06	0.386854487	2.83171E-06	2.30363E-05	0.319764615	2.34062E-06	1.90413E-05	0.372346872	2.72551E-06	2.21724E-05
Road 2	2	0000-0100	0.155797692	1.87534E-07	1.21108E-06	0.129785962	1.56224E-07	1.00888E-06	0.659751923	7.94146E-07	5.12852E-06	0.547104231	6.58551E-07	4.25286E-06	0.676890192	8.14775E-07	5.26174E-06
Road 2	2	0100-0200	0.109231176	8.5969E-08	5.55179E-07	0.093394412	7.35049E-08	4.74687E-07	0.539548824	4.24645E-07	2.74232E-06	0.459355588	3.6153E-07	2.33472E-06	0.55275	4.35035E-07	2.80941E-06
Road 2	2	0200-0300	0.112727826	6.00171E-08	3.87585E-07	0.096573913	5.14167E-08	3.32044E-07	0.61526913	3.27574E-07	2.11544E-06	0.523745652	2.78846E-07	1.80076E-06	0.620319565	3.30263E-07	2.1328E-06
Road 2	2	0300-0400	0.099046667	3.43912E-08	2.22095E-07	0.08288	2.87778E-08	1.85844E-07	0.360391333	1.25136E-07	8.08115E-07	0.299074	1.03845E-07	6.70622E-07	0.381954	1.32623E-07	8.56466E-07
Road 2	2	0400-0500	0.134462593	8.40391E-08	5.42716E-07	0.112342222	7.02139E-08	4.53434E-07	0.647945556	4.04966E-07	2.61523E-06	0.539184074	3.3699E-07	2.17625E-06	0.651526296	4.07204E-07	2.62968E-06
Road 2	2	0500-0600	0.106187193	1.40108E-07	9.04804E-07	0.088972281	1.17394E-07	7.58119E-07	0.470265789	6.2049E-07	4.00706E-06	0.390906667	5.1578E-07	3.33085E-06	0.479878947	6.33174E-07	4.08897E-06
Road 2	2	0600-0700	0.147971346	3.56227E-07	2.30048E-06	0.125398077	3.01884E-07	1.94954E-06	0.598357019	1.44049E-06	9.30254E-06	0.504689519	1.21499E-06	7.84631E-06	0.630087596	1.51688E-06	9.79585E-06
Road 2	2	0700-0800	0.12095825	4.47994E-07	2.8931E-06	0.103360438	3.82816E-07	2.47219E-06	0.50287075	1.86248E-06	1.20277E-05	0.426763813	1.58061E-06	1.02074E-05	0.53012425	1.96342E-06	1.26796E-05
Road 2	2	0800-0900	0.138001316	9.7112E-07	6.2714E-06	0.118099868	8.31073E-07	5.36699E-06	0.580248289	4.08323E-06	2.63691E-05	0.493961645	3.47603E-06	2.24478E-05	0.612061513	4.3071E-06	2.78148E-05
Road 2	2	0900-1000	0.162779008	9.49544E-07	6.13206E-06	0.139532262	8.13938E-07	5.25633E-06	0.693559802	4.04577E-06	2.61272E-05	0.592811746	3.45807E-06	2.23319E-05	0.732344008	4.27201E-06	2.75882E-05
Road 2	2	1000-1100	0.182515615	7.90056E-07	5.1021E-06	0.154793262	6.70054E-07	4.32714E-06	0.769736471	3.33196E-06	2.15175E-05	0.651605615	2.82061E-06	1.82152E-05	0.806398877	3.49066E-06	2.25424E-05
Road 2	2	1100-1200	0.215599508	9.13303E-07	5.89802E-06	0.183335246	7.76628E-07	5.01539E-06	0.880766066	3.73102E-06	2.40946E-05	0.748085191	3.16897E-06	2.04649E-05	0.931420437	3.9456E-06	2.54803E-05
Road 2	2	1200-1300	0.162955947	7.16704E-07	4.62841E-06	0.142054579	6.24777E-07	4.03475E-06	0.714417	3.14211E-06	2.02915E-05	0.621039316	2.73142E-06	1.76393E-05	0.763093895	3.3562E-06	2.1674E-05
Road 2	2	1300-1400	0.17966278	9.27426E-07	5.98923E-06	0.156534126	8.08035E-07	5.21821E-06	0.735359776	3.79595E-06	2.45139E-05	0.639038969	3.29874E-06	2.1303E-05	0.795573094	4.10678E-06	2.65212E-05
Road 2	2	1400-1500	0.154970788	5.91902E-07	3.82245E-06	0.134004545	5.11823E-07	3.3053E-06	0.670448788	2.56074E-06	1.6537E-05	0.578465818	2.20942E-06	1.42682E-05	0.712470364	2.72124E-06	1.75735E-05
Road 2	2	1500-1600	0.197251257	8.35578E-07	5.39608E-06	0.164208852	6.95607E-07	4.49216E-06	0.777849672	3.29506E-06	2.12792E-05	0.645958142	2.73635E-06	1.76711E-05	0.810166995	3.43196E-06	2.21632E-05
Road 2	2	1600-1700	0.164834344	8.4325E-07	5.44562E-06	0.138053394	7.06245E-07	4.56086E-06	0.694171403	3.5512E-06	2.29333E-05	0.578863167	2.96131E-06	1.91239E-05	0.716916561	3.66756E-06	2.36847E-05
Road 2	2	1700-1800	0.128574144	6.60728E-07	4.26692E-06	0.106294144	5.46234E-07	3.52752E-06	0.511240315	2.62721E-06	1.69662E-05	0.420196441	2.15934E-06	1.39448E-05	0.526490586	2.70558E-06	1.74723E-05
Road 2	2	1800-1900	0.140371	8.12332E-07	5.24596E-06	0.11542804	6.67986E-07	4.31379E-06	0.63339216	3.66546E-06	2.36712E-05	0.51741456	2.9943E-06	1.93369E-05	0.6328426	3.66228E-06	2.36507E-05
Road 2	2	1900-2000	0.119661361	4.6812E-07	3.02307E-06	0.11542804	6.67986E-07	2.52502E-06	0.544467692	2.12998E-06	1.37552E-05	0.451152485	1.76493E-06	1.13977E-05	0.551099467	2.15592E-06	1.39227E-05
Road 2	2	2000-2100	0.113316259	3.8559E-07	2.4901E-06	0.094459048	3.21423E-07	2.07572E-06	0.484933061	1.65012E-06	1.06563E-05	0.400494694	1.36279E-06	8.80079E-06	0.494953741	1.68422E-06	1.08765E-05
Road 2	2	2100-2200	0.088749935	3.14323E-07	2.02987E-06	0.072300784	2.56065E-07	1.65364E-06	0.40940366	1.44997E-06	9.36377E-06	0.328845359	1.16466E-06	7.52126E-06	0.401146144	1.42073E-06	9.17491E-06
Road 2	2	2200-2300	0.12721528	3.681E-07	2.37715E-06	0.10638976	3.07841E-07	1.98801E-06	0.54327528	1.57198E-06	1.01517E-05	0.45081296	1.30444E-06	8.42392E-06	0.55720272	1.61228E-06	1.04119E-05
Road 2	2	2300-0000	0.113571892	2.91817E-07	1.88452E-06	0.095014414	2.44134E-07	1.5766E-06	0.514373243	1.32165E-06	8.53511E-06	0.42631036	1.09538E-06	7.07386E-06	0.521324775	1.33952E-06	8.65046E-06
Road 3	3	0000-0100	0.097783609	3.60733E-07	1.40208E-05	0.083028304	3.06299E-07	1.19051E-05	0.539515043	1.99032E-06	7.73589E-05	0.455492565	1.68036E-06	6.53112E-05	0.53852087	1.98666E-06	7.72163E-05
Road 3	3	0100-0200	0.072950986	1.66154E-07	6.458E-06	0.062343944	1.41996E-07	5.51901E-06	0.425444085	9.68998E-07	3.76625E-05	0.361569648	8.23517E-07	3.2008E-05	0.423913592	9.65513E-07	3.7527E-05
Road 3	3	0200-0300	0.071849697	1.14091E-07	4.43444E-06	0.060716465	9.64126E-08	3.74732E-06	0.448786667	7.12635E-07	2.76983E-05	0.375676263	5.96542E-07	2.31861E-05	0.436392727	6.92955E-07	2.69334E-05
Road 3	3	0300-0400	0.060316143	6.77211E-08	2.63215E-06	0.050604143	5.68167E-08	2.20832E-06	0.333081429	3.73973E-07	1.45354E-05	0.276735571	3.1071E-07	1.20765E-05	0.327339714	3.67527E-07	1.42848E-05
Road 3	3	0400-0500	0.080292743	1.45528E-07	5.65631E-06	0.067500885	1.22343E-07	4.75518E-06	0.444444336	8.05542E-07	3.13094E-05	0.371480973	6.73298E-07	2.61694E-05	0.438981858	7.95641E-07	3.09246E-05
Road 3	3	0500-0600	0.065020122	2.56552E-07	9.97153E-06	0.05459122	2.15402E-07	8.37214E-06	0.362294837	1.42952E-06	5.55618E-05	0.301492602	1.18961E-06	4.62371E-05	0.356083821	1.40501E-06	5.46092E-05
Road 3	3	0600-0700	0.089791419	6.39455E-07	2.4854E-05	0.075985	5.41132E-07	2.10324E-05	0.448423986	3.19348E-06	0.000124122	0.377227635	2.68645E-06	0.000104416	0.453212635	3.22758E-06	0.000125448
Road 3	3	0700-0800	0.073696506	8.59357E-07	3.3401E-05	0.062613521	7.30121E-07	2.8378E-05	0.386756135	4.50987E-06	0.000175287	0.325818047	3.79928E-06	0.000147669	0.388431568	4.5294E-06	0.000176047
Road 3	3	0800-0900	0.082387763	1.3175E-06	5.12079E-05	0.070164092	1.12202E-06	4.36103E-05	0.407875356	6.52251E-06	0.000253514	0.345527222	5.52548E-06	0.000214761	0.415691314	6.6475E-06	0.000258372
Road 3	3	0900-1000	0.090101523	1.39461E-06	5.42049E-05	0.076955772	1.19113E-06	4.62964E-05	0.464976052	7.19698E-06	0.000279728	0.39552656	6.12203E-06	0.000237948	0.472482332	7.31316E-06	0.000284244
Road 3	3	1000-1100	0.102499716	1.44512E-06	5.61682E-05	0.08709041	1.22787E-06	4.77241E-05	0.517561786	7.29698E-06	0.000283615	0.438435654	6.1814E-06	0.000240256	0.525526064	7.40927E-06	0.00028798
Road 3	3	1100-1200	0.100500925	1.37664E-06	5.35065E-05	0.086575984	1.1859E-06	4.60929E-05	0.52197103	7.14984E-06	0.000277896	0.448184742	6.13913E-06	0.000238613	0.534760726	7.32503E-06	0.000284706
Road 3	3	1200-1300	0.093148244	1.27592E-06	4.9592E-05	0.081121628	1.11119E-06	4.3189E-05	0.495269251	6.78409E-06	0.00026368	0.429638782	5.8851E-06	0.000228739	0.51076041	6.99628E-06	0.000271928
Road 3	3	1300-1400	0.099157745	1.47434E-06	5.7304E-05	0.086347335	1.28387E-06	4.99008E-05	0.506300205	7.52801E-06	0.000292595	0.439322621	6.53214E-06	0.000253888	0.525669957	7.81601E-06	0.000303789

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.091601478	1.37228E-06	5.33369E-05	0.078622666	1.17784E-06	4.57797E-05	0.475110021	7.1176E-06	0.000276643	0.406252527	6.08605E-06	0.000236549	0.484875193	7.26389E-06	0.000282329
Road 3	3	1500-1600	0.103400212	1.48435E-06	5.7693E-05	0.087588268	1.25736E-06	4.88706E-05	0.522313598	7.49802E-06	0.000291429	0.440492067	6.32344E-06	0.000245776	0.528080335	7.5808E-06	0.000294647
Road 3	3	1600-1700	0.09827166	1.5384E-06	5.97939E-05	0.081318555	1.27301E-06	4.94787E-05	0.504520502	7.89807E-06	0.000306978	0.415199672	6.49979E-06	0.00025263	0.496518227	7.7728E-06	0.000302109
Road 3	3	1700-1800	0.078138131	1.22698E-06	4.76897E-05	0.064456721	1.01215E-06	3.93396E-05	0.403471032	6.33559E-06	0.000246249	0.330176956	5.18468E-06	0.000201515	0.394633677	6.19682E-06	0.000240855
Road 3	3	1800-1900	0.073457595	1.21004E-06	4.70312E-05	0.061109825	1.00664E-06	3.91255E-05	0.406678773	6.69906E-06	0.000260376	0.334707926	5.51352E-06	0.000214297	0.395817751	6.52016E-06	0.000253422
Road 3	3	1900-2000	0.077809987	9.48508E-07	3.68661E-05	0.06491175	7.91278E-07	3.0755E-05	0.430737447	5.25071E-06	0.000204082	0.35593225	4.33884E-06	0.00016864	0.420844	5.13011E-06	0.000199395
Road 3	3	2000-2100	0.072741772	7.57218E-07	2.94312E-05	0.060369122	6.28423E-07	2.44252E-05	0.400928398	4.17353E-06	0.000162215	0.32949923	3.42998E-06	0.000133315	0.389868351	4.0584E-06	0.00015774
Road 3	3	2100-2200	0.071610992	7.06394E-07	2.74558E-05	0.059789512	5.89783E-07	2.29234E-05	0.406436211	4.00922E-06	0.000155828	0.336069837	3.3151E-06	0.00012885	0.39585935	3.90488E-06	0.000151773
Road 3	3	2200-2300	0.076307034	6.89073E-07	2.67825E-05	0.063813801	5.76256E-07	2.23976E-05	0.41985929	3.79144E-06	0.000147364	0.347845009	3.14113E-06	0.000122088	0.41165881	3.71739E-06	0.000144486
Road 3	3	2300-0000	0.067011394	5.39566E-07	2.09716E-05	0.055574203	4.47475E-07	1.73922E-05	0.387104741	3.11691E-06	0.000121147	0.317463805	2.55617E-06	9.9352E-05	0.373038008	3.00365E-06	0.000116744
Road 4	4	0000-0100	0.262188	2.12421E-07	2.27451E-06	0.222369429	1.8016E-07	1.92908E-06	1.294973143	1.04917E-06	1.1234E-05	1.097667143	8.89314E-07	9.5224E-06	1.320036571	1.06947E-06	1.14515E-05
Road 4	4	0100-0200	0.245862	1.13825E-07	1.21879E-06	0.2099875	9.72164E-08	1.04095E-06	1.216629	5.63254E-07	6.03109E-06	1.038889	4.80967E-07	5.14999E-06	1.2488765	5.78184E-07	6.19095E-06
Road 4	4	0200-0300	0.26669	8.02539E-08	8.59325E-07	0.22558	6.78829E-08	7.26861E-07	1.275833077	3.83931E-07	4.11097E-06	1.079219231	3.24765E-07	3.47745E-06	1.304799231	3.92648E-07	4.20431E-06
Road 4	4	0300-0400	0.24307	3.93863E-08	4.21732E-07	0.204258571	3.30975E-08	3.54394E-07	1.247755714	2.02183E-07	2.16489E-06	1.048655714	1.69921E-07	1.81944E-06	1.252914286	2.03019E-07	2.17384E-06
Road 4	4	0400-0500	0.249306429	8.07938E-08	8.65105E-07	0.209500714	6.78938E-08	7.26978E-07	1.193101429	3.86653E-07	4.14012E-06	1.002712143	3.24953E-07	3.47946E-06	1.212212857	3.92847E-07	4.20644E-06
Road 4	4	0500-0600	0.230044583	1.27803E-07	1.36846E-06	0.193295	1.07386E-07	1.14985E-06	1.05931125	5.88506E-07	6.30148E-06	0.88950875	4.94172E-07	5.29138E-06	1.08280375	6.01558E-07	6.44123E-06
Road 4	4	0600-0700	0.255430566	3.13375E-07	3.35549E-06	0.216135472	2.65166E-07	2.83929E-06	1.182654906	1.45094E-06	1.55361E-05	1.000007358	1.22686E-06	1.31367E-05	1.21614283	1.49203E-06	1.5976E-05
Road 4	4	0700-0800	0.255562174	5.44253E-07	5.82763E-06	0.217136957	4.62421E-07	4.95141E-06	1.227002174	2.61306E-06	2.79795E-05	1.041320652	2.21763E-06	2.37454E-05	1.258457609	2.68005E-06	2.86968E-05
Road 4	4	0800-0900	0.264726129	9.49828E-07	1.01704E-05	0.225294065	8.08347E-07	8.65544E-06	1.275386129	4.57604E-06	4.89983E-05	1.085064516	3.89317E-06	4.16864E-05	1.310358581	4.70152E-06	5.03419E-05
Road 4	4	0900-1000	0.272107703	9.32221E-07	9.98183E-06	0.231859257	7.94333E-07	8.50538E-06	1.244706149	4.26427E-06	4.566E-05	1.059860811	3.631E-06	3.88793E-05	1.291720068	4.42534E-06	4.73846E-05
Road 4	4	1000-1100	0.303785069	1.01262E-06	1.08427E-05	0.25778625	8.59288E-07	9.20089E-06	1.393476667	4.64492E-06	4.97359E-05	1.181989861	3.93997E-06	4.21875E-05	1.439776111	4.79925E-06	5.13884E-05
Road 4	4	1100-1200	0.280785935	1.00745E-06	1.07873E-05	0.241531097	8.66605E-07	9.27924E-06	1.279662323	4.59138E-06	4.91626E-05	1.100597419	3.9489E-06	4.22832E-05	1.342128516	4.81551E-06	5.15624E-05
Road 4	4	1200-1300	0.282831554	9.6896E-07	1.03752E-05	0.246016757	8.42835E-07	9.02472E-06	1.345526351	4.60967E-06	4.93584E-05	1.169996149	4.00832E-06	4.29194E-05	1.416012905	4.85116E-06	5.19441E-05
Road 4	4	1300-1400	0.290462333	1.00855E-06	1.07991E-05	0.2526624	8.773E-07	9.39376E-06	1.3496156	4.68617E-06	5.01775E-05	1.173575733	4.07492E-06	4.36325E-05	1.426238133	4.95222E-06	5.30262E-05
Road 4	4	1400-1500	0.265039857	8.58925E-07	9.19701E-06	0.227183143	7.36242E-07	7.88337E-06	1.271272929	4.11987E-06	4.41138E-05	1.089000071	3.52917E-06	3.77888E-05	1.316183214	4.26541E-06	4.56722E-05
Road 4	4	1500-1600	0.302568	8.75486E-07	9.37434E-06	0.25591144	7.40484E-07	7.9288E-06	1.40585152	4.06786E-06	4.35569E-05	1.18895968	3.44028E-06	3.6837E-05	1.44487112	4.18076E-06	4.47658E-05
Road 4	4	1600-1700	0.285162742	8.18523E-07	8.7644E-06	0.235749516	6.76688E-07	7.24569E-06	1.338474194	3.84192E-06	4.11376E-05	1.10586379	3.17424E-06	3.39884E-05	1.341613306	3.85093E-06	4.12341E-05
Road 4	4	1700-1800	0.27434126	8.06513E-07	8.6358E-06	0.226335197	6.65384E-07	7.12465E-06	1.308874646	3.84785E-06	4.12011E-05	1.079046457	3.1722E-06	3.39665E-05	1.305381654	3.83758E-06	4.10912E-05
Road 4	4	1800-1900	0.301238208	7.39149E-07	7.9145E-06	0.250647547	6.15015E-07	6.58532E-06	1.450289434	3.55858E-06	3.81038E-05	1.206454906	2.96028E-06	3.16975E-05	1.457102453	3.5753E-06	3.82828E-05
Road 4	4	1900-2000	0.269673919	4.61941E-07	4.94627E-06	0.225040541	3.85486E-07	4.12762E-06	1.301560946	2.22953E-06	2.38728E-05	1.085367162	1.85919E-06	1.99075E-05	1.310407703	2.24468E-06	2.40351E-05
Road 4	4	2000-2100	0.235856939	2.67523E-07	2.86452E-06	0.195618571	2.21882E-07	2.37582E-06	1.142921633	1.29637E-06	1.3881E-05	0.946773061	1.07389E-06	1.14987E-05	1.142391633	1.29577E-06	1.38745E-05
Road 4	4	2100-2200	0.197604865	1.69245E-07	1.8122E-06	0.165248378	1.41532E-07	1.51547E-06	0.978216757	8.37825E-07	8.97107E-06	0.816434865	6.99261E-07	7.4874E-06	0.981683243	8.40794E-07	9.00286E-06
Road 4	4	2200-2300	0.26321619	3.83857E-07	4.11018E-06	0.220203968	3.21131E-07	3.43853E-06	1.2515	1.8251E-06	1.95424E-05	1.046219683	1.52574E-06	1.63369E-05	1.266423651	1.84687E-06	1.97755E-05
Road 4	4	2300-0000	0.246251633	2.79313E-07	2.99077E-06	0.204266327	2.31691E-07	2.48085E-06	1.202991224	1.3645E-06	1.46105E-05	0.997049796	1.13091E-06	1.21093E-05	1.201316122	1.3626E-06	1.45902E-05
Road 5	5	0000-0100	0.082780829	2.99863E-07	4.0551E-06	0.070287306	2.54607E-07	3.4431E-06	0.463160933	1.67774E-06	2.26884E-05	0.390425855	1.41427E-06	1.91254E-05	0.460713161	1.66887E-06	2.25685E-05
Road 5	5	0100-0200	0.055346311	1.26731E-07	1.71381E-06	0.047313934	1.08339E-07	1.46509E-06	0.340207869	7.79005E-07	1.05346E-05	0.288492131	6.60586E-07	8.93323E-06	0.335806066	7.68925E-07	1.03983E-05
Road 5	5	0200-0300	0.053029767	8.55961E-08	1.15753E-06	0.044787442	7.2292E-08	9.77619E-07	0.366421395	5.91446E-07	7.99823E-06	0.305404651	4.92958E-07	6.66636E-06	0.350192093	5.6525E-07	7.64398E-06
Road 5	5	0300-0400	0.047420476	5.60715E-08	7.58266E-07	0.039759048	4.70124E-08	6.35757E-07	0.262241111	3.10082E-07	4.1933E-06	0.21686746	2.56431E-07	3.46777E-06	0.256626508	3.03444E-07	4.10352E-06
Road 5	5	0400-0500	0.06569202	1.22063E-07	1.65068E-06	0.055232626	1.02628E-07	1.38786E-06	0.375880202	6.98426E-07	9.44495E-06	0.313571515	5.8265E-07	7.87928E-06	0.368804141	6.85278E-07	9.26714E-06
Road 5	5	0500-0600	0.053199773	2.19669E-07	2.97062E-06	0.044652864	1.84377E-07	2.49337E-06	0.310137773	1.2806E-06	1.73178E-05	0.257376682	1.06274E-06	1.43717E-05	0.302029545	1.24712E-06	1.6865E-05
Road 5	5	0600-0700	0.077788582	5.66478E-07	7.66059E-06	0.065830851	4.79399E-07	6.483E-06	0.391175438	2.84865E-06	3.85228E-05	0.328549665	2.39259E-06	3.23555E-05	0.394380515	2.87199E-06	3.88385E-05
Road 5	5	0700-0800	0.060239415	7.15682E-07	9.67831E-06	0.051169242	6.07923E-07	8.22105E-06	0.318727409	3.78668E-06	5.1208E-05	0.267746793	3.181E-06	4.30173E-05	0.318916035	3.78892E-06	5.12383E-05
Road 5	5	0800-0900	0.065171898	1.03115E-06	1.39445E-05	0.055529786	8.78596E-07	1.18814E-05	0.319183333	5.05014E-06	6.8294E-05	0.269818849	4.26909E-06	5.77317E-05	0.325348636	5.14769E-06	6.96132E-05
Road 5	5	0900-1000	0.07270614	1.11352E-06	1.50583E-05	0.062166789	9.52104E-07	1.28755E-05	0.387936691	5.94137E-06	8.03463E-05	0.329933358	5.05303E-06	6.83331E-05	0.392100147	6.00514E-06	8.12086E-05
Road 5	5	1000-1100	0.083042929	1.14402E-06	1.54708E-05	0.070595695	9.72546E-07	1.31519E-05	0.430496621	5.93064E-06	8.02012E-05	0.364470436	5.02105E-06	6.79005E-05	0.435066131	5.99359E-06	8.10525E-05
Road 5	5	1100-1200	0.081478612	1.06895E-06	1.44556E-05	0.070230458	9.21379E-07	1.246E-05	0.441534421	5.79265E-06	7.83351E-05	0.378838999	4.97013E-06	6.7212E-05	0.449069456	5.89151E-06	7.9672E-05
Road 5	5	1200-1300	0.074455728	9.87992E-07	1.33608E-05	0.064869745	8.6079E-07	1.16406E-05	0.407077355	5.40172E-06	7.30485E-05	0.352810736	4.68163E-06	6.33105E-05	0.417680481	5.54242E-06	7.49512E-05
Road 5	5	1300-1400	0.081493037	1.18844E-06	1.60715E-05	0.071011892	1.03559E-06	1.40045E-05	0.425497375	6.20517E-06	8.39137E-05	0.368913707	5.37999E-06	7.27546E-05	0.439925598	6.41558E-06	8.67591E-05
Road 5	5	1400-1500	0.076990756	1.14735E-06	1.55158E-05	0.066109723	9.85194E-07	1.3323E-05	0.403903098	6.01913E-06	8.13978E-05	0.345159899	5.14371E-06	6.95594E-05	0.411269622	6.12891E-06	8.28823E-05
Road 5	5	1500-1600	0.087414974	1.26332E-06	1.70841E-05	0.074104156	1.07095E-06	1.44827E-05	0.447415065	6.46602E-06	8.74412E-05	0.376936571	5.44747E-06	7.36671E-05	0.451040727	6.51842E-06	8.81498E-05
Road 5	5	1600-1700	0.083678898	1.33968E-06	1.81167E-05	0.069264267	1.1089E-06	1.49959E-05	0.436772145	6.99262E-06	9.45625E-05	0.358997948	5.74747E-06	7.77241E-05	0.428262216	6.85638E-06	9.272E-05
Road 5	5	1700-1800	0.061788425	9.86898E-07	1.3346E-05	0.050981081	8.14281E-07	1.10117E-05	0.323573114	5.16818E-06	6.98903E-05	0.263968707	4.21617E-06	5.7016E-05	0.314949788	5.03045E-06	6.80277E-05
Road 5	5	1800-1900	0.057448411	9.90899E-07	1.34001E-05	0.047789782	8.24302E-07	1.11472E-05	0.329246159	5.679E-06	7.67982E-05	0.269952905	4.65628E-06	6.29678E-05	0.317742688	5.48058E-06	7.4115E-05
Road 5	5	1900-2000	0.066244738	8.52926E-07	1.15343E-05	0.055252653	7.11399E-07	9.62038E-06	0.375727157	4.83763E-06	6.54202E-05	0.309728061	3.98787E-06	5.39286E-05	0.364980714	4.69926E-06	6.3549E-05
Road 5	5	2000-2100	0.064388767	7.25099E-07	9.80565E-06	0.053441033	6.01813E-07	8.13844E-06	0.36028995	4.05732E-06	5.48679E-05	0.295676283	3.32969E-06	4.5028E-05	0.349117317	3.9315E-06	5.31664E-05
Road 5	5	2100-2200	0.066777249	7.24423E-07	9.79651E-06	0.055742439	6.04713E-07	8.17765E-06	0.383303529	4.15821E-06	5.62323E-05	0.316566869	3.43423E-06	4.64417E-05	0.372309308	4.03894E-06	5.46194E-05
Road 5	5	2200-2300	0.063819699	5.97711E-07	8.08295E-06	0.053361844	4.99767E-07	6.75844E-06	0.361142024	3.38232E-06	4.57397E-05	0.298356854	2.7943E-06	3.77878E-05	0.351718697	3.29406E-06	4.45462E-05
Road 5	5	2300-0000	0.056278543	4.78494E-07	6.47077E-06	0.0466783	3.96871E-07	5.36696E-06	0.334554967	2.84447E-06	3.84663E-05	0.273546424	2.32576E-06	3.14517E-05	0.320224724	2.72263E-06	3.68187E-05
Road 6	6	0000-0100	0.049570333	1.39556E-07	4.98857E-06	0.0419684	1.18154E-07	4.22354E-06	0.321231533	9.04368E-07	3.23275E-05	0.2685548	7.56066E-07	2.70263E-05	0.3105232	8.74221E-07	3.12498E-05
Road 6	6	0100-0200	0.065267281	1.39648E-07	4.99187E-06	0.05578	1.19349E-07	4.26625E-06	0.369394474	7.90371E-07	2.82526E-05	0.312676491	6.69015E-07	2.39146E-05	0.368456491	7.88364E-07	2.81808E-05
Road 6	6	0200-0300	0.059658481	8.84576E-08	3.162E-06	0.0505	7.4878E-08	2.67659E-06	0.342787722	5.08263E-07	1.81683E-05	0.287008861	4.25557E-07	1.5212E-05	0.337508861	5.00435E-07	1.78885E-05
Road 6	6	0300-0400	0.061427903	7.14814E-08	2.55517E-06	0.051802258	6.02804E-08	2.15478E-06	0.393989355	4.58471E-07	1.63885E-05	0.328997903	3.82843E-07	1.36851E-05	0.380800161	4.43123E-07	1.58399E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.066428889	1.12211E-07	4.01109E-06	0.055870556	9.43759E-08	3.37356E-06	0.391551889	6.61405E-07	2.36426E-05	0.326081556	5.50813E-07	1.96893E-05	0.381952111	6.45189E-07	2.30629E-05
Road 6	6	0500-0600	0.059450062	1.8076E-07	6.46145E-06	0.049984074	1.51979E-07	5.43262E-06	0.360327963	1.09559E-06	3.9163E-05	0.299363519	9.10227E-07	3.25369E-05	0.349347593	1.06221E-06	3.79695E-05
Road 6	6	0600-0700	0.063472828	3.45479E-07	1.23495E-05	0.053746103	2.92537E-07	1.0457E-05	0.401879483	2.18741E-06	7.81909E-05	0.336534552	1.83174E-06	6.54772E-05	0.390280655	2.12428E-06	7.59342E-05
Road 6	6	0700-0800	0.059204242	5.1337E-07	1.83509E-05	0.050325779	4.36383E-07	1.55989E-05	0.341587727	2.96197E-06	0.000105878	0.287057273	2.48912E-06	8.8976E-05	0.337383052	2.92551E-06	0.000104575
Road 6	6	0800-0900	0.050601103	6.28715E-07	2.2474E-05	0.04304852	5.34875E-07	1.91196E-05	0.300080559	3.72848E-06	0.000133278	0.252083822	3.13212E-06	0.000111961	0.295132341	3.667E-06	0.00013108
Road 6	6	0900-1000	0.053942686	6.40873E-07	2.29086E-05	0.046021438	5.46764E-07	1.95446E-05	0.307424092	3.65239E-06	0.000130558	0.259442291	3.08234E-06	0.000110181	0.305463728	3.6291E-06	0.000129726
Road 6	6	1000-1100	0.072498972	7.27983E-07	2.60225E-05	0.061581346	6.18356E-07	2.21037E-05	0.398713009	4.00359E-06	0.000143112	0.336630168	3.3802E-06	0.000120829	0.398211514	3.99856E-06	0.000142932
Road 6	6	1100-1200	0.083139154	8.30143E-07	2.96743E-05	0.071681805	7.15742E-07	2.55849E-05	0.436528703	4.35873E-06	0.000155807	0.374605526	3.74043E-06	0.000133705	0.446287331	4.45617E-06	0.00015929
Road 6	6	1200-1300	0.078588222	7.71427E-07	2.75754E-05	0.068486272	6.72266E-07	2.40308E-05	0.396051644	3.88767E-06	0.000138968	0.34363088	3.3731E-06	0.000120575	0.412117151	4.04537E-06	0.000144606
Road 6	6	1300-1400	0.091184683	8.91652E-07	3.18729E-05	0.079425086	7.7666E-07	2.77625E-05	0.467469117	4.57116E-06	0.0001634	0.405356603	3.96379E-06	0.000141689	0.484781689	4.74045E-06	0.000169452
Road 6	6	1400-1500	0.086925627	9.36474E-07	3.34751E-05	0.074634111	8.04054E-07	2.87417E-05	0.438954286	4.72897E-06	0.000169042	0.374945592	4.03939E-06	0.000144392	0.449579704	4.84345E-06	0.000173134
Road 6	6	1500-1600	0.077663256	8.19196E-07	2.92829E-05	0.065792046	6.93978E-07	2.48069E-05	0.406562811	4.28844E-06	0.000153294	0.341743505	3.60473E-06	0.000128854	0.407535552	4.2987E-06	0.000153661
Road 6	6	1600-1700	0.081861684	8.84991E-07	3.16348E-05	0.067796354	7.32934E-07	2.61994E-05	0.40905092	4.42217E-06	0.000158075	0.33625599	3.6352E-06	0.000129944	0.404052344	4.36813E-06	0.000156143
Road 6	6	1700-1800	0.061504344	7.0416E-07	2.51709E-05	0.050807246	5.8169E-07	2.0793E-05	0.319265213	3.65525E-06	0.00013066	0.260656803	2.98425E-06	0.000106675	0.311464049	3.56594E-06	0.000127468
Road 6	6	1800-1900	0.059738113	7.72514E-07	2.76143E-05	0.049699231	6.42695E-07	2.29737E-05	0.316233643	4.08943E-06	0.000146181	0.25976103	3.35915E-06	0.000120076	0.309460261	4.00184E-06	0.00014305
Road 6	6	1900-2000	0.070556317	6.9391E-07	2.48045E-05	0.058822538	5.7851E-07	2.06794E-05	0.373619179	3.67448E-06	0.000131348	0.307723225	3.02641E-06	0.000108182	0.366545763	3.60492E-06	0.000128861
Road 6	6	2000-2100	0.055959139	4.39019E-07	1.56931E-05	0.046411507	3.64114E-07	1.30156E-05	0.33033323	2.59158E-06	9.26384E-05	0.270157751	2.11948E-06	7.57628E-05	0.316569258	2.4836E-06	8.87785E-05
Road 6	6	2100-2200	0.078454278	5.30096E-07	1.89488E-05	0.065491333	4.42509E-07	1.58179E-05	0.421085972	2.84518E-06	0.000101703	0.348224972	2.35287E-06	8.41056E-05	0.413716306	2.79538E-06	9.99235E-05
Road 6	6	2200-2300	0.058280525	4.16758E-07	1.48974E-05	0.048645696	3.47861E-07	1.24346E-05	0.332852572	2.3802E-06	8.50824E-05	0.272982887	1.95207E-06	6.97787E-05	0.321628583	2.29993E-06	8.22133E-05
Road 6	6	2300-0000	0.039378095	2.63851E-07	9.4316E-06	0.032667759	2.18889E-07	7.82438E-06	0.249504706	1.67179E-06	5.97599E-05	0.203365098	1.36264E-06	4.87088E-05	0.236032857	1.58153E-06	5.65332E-05
Road 7	7	0000-0100	0.072625083	1.96121E-07	4.89582E-06	0.061121033	1.65055E-07	4.1203E-06	0.430953779	1.16377E-06	2.90515E-05	0.359790521	9.71599E-07	2.42543E-05	0.420911554	1.13665E-06	2.83746E-05
Road 7	7	0100-0200	0.08863221	1.86588E-07	4.65785E-06	0.075773977	1.59519E-07	3.98211E-06	0.48599942	1.02312E-06	2.55405E-05	0.413038861	8.69527E-07	2.17062E-05	0.488812838	1.02905E-06	2.56884E-05
Road 7	7	0200-0300	0.075881474	1.03559E-07	2.58517E-06	0.064521332	8.80553E-08	2.19815E-06	0.431010708	5.88221E-07	1.46839E-05	0.363841784	4.96552E-07	1.23956E-05	0.428363116	5.84607E-07	1.45937E-05
Road 7	7	0300-0400	0.077935813	8.59954E-08	2.14672E-06	0.065602763	7.23869E-08	1.80701E-06	0.471239039	5.19971E-07	1.29802E-05	0.394031184	4.34779E-07	1.08535E-05	0.459633947	5.07166E-07	1.26605E-05
Road 7	7	0400-0500	0.086419387	1.3927E-07	3.47664E-06	0.072519009	1.16869E-07	2.91743E-06	0.482533228	7.77633E-07	1.94122E-05	0.402213604	6.48193E-07	1.6181E-05	0.474732613	7.65062E-07	1.90984E-05
Road 7	7	0500-0600	0.077785942	2.2361E-07	5.58203E-06	0.065329091	1.878E-07	4.68811E-06	0.439907457	1.26459E-06	3.15684E-05	0.366412828	1.05332E-06	2.62943E-05	0.431741919	1.24112E-06	3.09824E-05
Road 7	7	0600-0700	0.081961335	4.21247E-07	1.05157E-05	0.069424237	3.56811E-07	8.90718E-06	0.476527126	2.44915E-06	6.11387E-05	0.400482203	2.05831E-06	5.13821E-05	0.469906441	2.41512E-06	6.02893E-05
Road 7	7	0700-0800	0.078022016	6.40015E-07	1.59769E-05	0.066457335	5.4515E-07	1.36087E-05	0.42676684	3.50077E-06	8.73906E-05	0.360675962	2.95863E-06	7.38569E-05	0.427133297	3.50377E-06	8.74656E-05
Road 7	7	0800-0900	0.078071003	9.69126E-07	2.41925E-05	0.066603226	8.26772E-07	2.06389E-05	0.425585754	5.28296E-06	0.00013188	0.360251352	4.47194E-06	0.000111634	0.426854578	5.29871E-06	0.000132273
Road 7	7	0900-1000	0.08026299	9.22922E-07	2.30391E-05	0.068545082	7.88181E-07	1.96756E-05	0.422054754	4.85309E-06	0.000121149	0.358152446	4.11829E-06	0.000102806	0.426697528	4.90648E-06	0.000122482
Road 7	7	1000-1100	0.095687541	9.65527E-07	2.41027E-05	0.081226998	8.19614E-07	2.04602E-05	0.50474046	5.09304E-06	0.000127139	0.426662002	4.3052E-06	0.000107472	0.507889001	5.12481E-06	0.000127932
Road 7	7	1100-1200	0.105741432	1.06544E-06	2.65969E-05	0.090690353	9.13787E-07	2.28111E-05	0.542882868	5.47003E-06	0.00013655	0.464287869	4.67812E-06	0.000116781	0.554978222	5.5919E-06	0.000139592
Road 7	7	1200-1300	0.101407869	1.0203E-06	2.54701E-05	0.088347378	8.88897E-07	2.21898E-05	0.513399508	5.16551E-06	0.000128948	0.446113942	4.48852E-06	0.000112048	0.534461321	5.37742E-06	0.000134238
Road 7	7	1300-1400	0.108162858	1.07099E-06	2.67355E-05	0.094223769	9.32973E-07	2.32901E-05	0.548741339	5.43346E-06	0.000135637	0.476581373	4.71895E-06	0.0001178	0.570805142	5.65193E-06	0.000141091
Road 7	7	1400-1500	0.101077106	1.04779E-06	2.61563E-05	0.086981623	9.01675E-07	2.25087E-05	0.515723557	5.34613E-06	0.000133457	0.442271692	4.58471E-06	0.000114449	0.529253315	5.48638E-06	0.000136958
Road 7	7	1500-1600	0.095399307	9.70929E-07	2.42376E-05	0.080310154	8.17359E-07	2.04039E-05	0.494269197	5.03044E-06	0.000125576	0.413839245	4.21186E-06	0.000105142	0.4941494	5.02922E-06	0.000125546
Road 7	7	1600-1700	0.099484804	1.04717E-06	2.61409E-05	0.082694129	8.70436E-07	2.17289E-05	0.497302949	5.2346E-06	0.000130673	0.411180881	4.32808E-06	0.000108043	0.49387501	5.19852E-06	0.000129772
Road 7	7	1700-1800	0.077179446	8.59451E-07	2.14547E-05	0.063745405	7.09853E-07	1.77203E-05	0.401427347	4.4702E-06	0.000111591	0.328884098	3.66237E-06	9.14248E-05	0.392629503	4.37223E-06	0.000109145
Road 7	7	1800-1900	0.070879999	8.20175E-07	2.04742E-05	0.058725361	6.7953E-07	1.69633E-05	0.375172951	4.34124E-06	0.000108372	0.307868348	3.56244E-06	8.89301E-05	0.366593709	4.24197E-06	0.000105893
Road 7	7	1900-2000	0.081916463	7.15965E-07	1.78728E-05	0.068351848	5.97408E-07	1.49133E-05	0.436600244	3.81597E-06	9.5259E-05	0.360959704	3.15486E-06	7.87555E-05	0.429311553	3.75226E-06	9.36687E-05
Road 7	7	2000-2100	0.075736754	5.45397E-07	1.36149E-05	0.06293271	4.53192E-07	1.13132E-05	0.416693004	3.0007E-06	7.49072E-05	0.342933206	2.46954E-06	6.16477E-05	0.405865917	2.92273E-06	7.29609E-05
Road 7	7	2100-2200	0.087411775	5.25405E-07	1.31158E-05	0.072373504	4.35015E-07	1.08594E-05	0.469871475	2.82425E-06	7.05026E-05	0.385901282	2.31953E-06	5.79032E-05	0.458274786	2.75455E-06	6.87625E-05
Road 7	7	2200-2300	0.072614251	4.71253E-07	1.1764E-05	0.060653221	3.93628E-07	9.82623E-06	0.402436644	2.61174E-06	6.51975E-05	0.33182877	2.15351E-06	5.37585E-05	0.392481991	2.54713E-06	6.35847E-05
Road 7	7	2300-0000	0.051382959	3.06609E-07	7.65397E-06	0.042761499	2.55164E-07	6.36972E-06	0.307280096	1.83358E-06	4.57722E-05	0.252503107	1.50672E-06	3.76127E-05	0.295264606	1.76188E-06	4.39824E-05
Road 8	8	0000-0100	0.229983333	1.67261E-07	2.75723E-06	0.194997222	1.41816E-07	2.33779E-06	1.139095	8.28433E-07	1.36564E-05	0.965381667	7.02096E-07	1.15738E-05	1.160378889	8.43912E-07	1.39116E-05
Road 8	8	0100-0200	0.236900333	1.43576E-07	2.3668E-06	0.202366333	1.22646E-07	2.02178E-06	1.170255	7.09245E-07	1.16916E-05	0.999436	6.05719E-07	9.98505E-06	1.201802333	7.28365E-07	1.20068E-05
Road 8	8	0200-0300	0.224740667	6.81032E-08	1.12266E-06	0.190224	5.76436E-08	9.50234E-07	1.167248667	3.53712E-07	5.8308E-06	0.987836	2.99344E-07	4.93458E-06	1.17806	3.56988E-07	5.88481E-06
Road 8	8	0300-0400	0.205355	5.80802E-08	9.5743E-07	0.17286	4.88897E-08	8.05928E-07	1.04455	2.95428E-07	4.87002E-06	0.878995714	2.48605E-07	4.09816E-06	1.051855714	2.97495E-07	4.90409E-06
Road 8	8	0400-0500	0.23251381	9.86422E-08	1.62608E-06	0.195487619	8.29341E-08	1.36714E-06	1.115255238	4.73139E-07	7.79951E-06	0.937660476	3.97795E-07	6.55751E-06	1.133148095	4.80729E-07	7.92465E-06
Road 8	8	0500-0600	0.221135	1.51891E-07	2.50386E-06	0.185921765	1.27704E-07	2.10515E-06	1.042458529	7.16032E-07	1.18035E-05	0.876013824	6.01706E-07	9.9189E-06	1.061935588	7.2941E-07	1.20241E-05
Road 8	8	0600-0700	0.24692871	3.09284E-07	5.09844E-06	0.209073548	2.6187E-07	4.31683E-06	1.149955	1.44035E-06	2.37436E-05	0.972940323	1.21863E-06	2.00887E-05	1.182013871	1.4805E-06	2.44055E-05
Road 8	8	0700-0800	0.244293922	5.03394E-07	8.29825E-06	0.207618529	4.2782E-07	7.05245E-06	1.149252549	2.36816E-06	3.90382E-05	0.975917647	2.01098E-06	3.31503E-05	1.183536176	2.4388E-06	4.02027E-05
Road 8	8	0800-0900	0.273438177	1.06061E-06	1.74837E-05	0.232939219	9.03522E-07	1.48942E-05	1.29129724	5.00867E-06	8.2566E-05	1.09925276	4.26377E-06	7.02866E-05	1.332191979	5.16729E-06	8.51808E-05
Road 8	8	0900-1000	0.294150506	9.38905E-07	1.54775E-05	0.250715063	8.00262E-07	1.3192E-05	1.320871772	4.21612E-06	6.95011E-05	1.12560462	3.59284E-06	5.92266E-05	1.376319684	4.3931E-06	7.24186E-05
Road 8	8	1000-1100	0.278997375	9.0181E-07	1.4866E-05	0.236802125	7.65421E-07	1.26177E-05	1.29050775	4.17134E-06	6.87629E-05	1.094365813	3.53734E-06	5.83118E-05	1.331167938	4.30277E-06	7.09295E-05
Road 8	8	1100-1200	0.288246792	9.25884E-07	1.52628E-05	0.247937547	7.96405E-07	1.31284E-05	1.345962138	4.32339E-06	7.12695E-05	1.157589371	3.71832E-06	6.12951E-05	1.405526918	4.51472E-06	7.44235E-05
Road 8	8	1200-1300	0.285688294	9.81152E-07	1.61739E-05	0.248525294	8.53521E-07	1.407E-05	1.345338706	4.62036E-06	7.61648E-05	1.169823706	4.01758E-06	6.62282E-05	1.418349	4.8711E-06	8.02982E-05
Road 8	8	1300-1400	0.261723827	8.56551E-07	1.41199E-05	0.227717654	7.45258E-07	1.22853E-05	1.215913765	3.97935E-06	6.55982E-05	1.057524383	3.46099E-06	5.70531E-05	1.285242037	4.20625E-06	6.93384E-05
Road 8	8	1400-1500	0.256452158	7.20138E-07	1.18712E-05	0.219860144	6.17385E-07	1.01774E-05	1.24054295	3.48354E-06	5.74249E-05	1.063073094	2.9852E-06	4.92098E-05	1.282933237	3.60258E-06	5.93872E-05
Road 8	8	1500-1600	0.268937986	7.552E-07	1.24492E-05	0.227461583	6.38731E-07	1.05292E-05	1.268503813	3.56206E-06	5.87192E-05	1.072197482	3.01082E-06	4.96322E-05	1.299659065	3.64955E-06	6.01614E-05
Road 8	8	1600-1700	0.270635101	8.14639E-07	1.3429E-05	0.223695638	6.73346E-07	1.10999E-05	1.264771879	3.80709E-06	6.27585E-05	1.044779396	3.14489E-06	5.18424E-05	1.268475034	3.81824E-06	6.29422E-05
Road 8	8	1700-1800	0.222136603	7.00067E-07	1.15403E-05	0.183214103	5.77402E-07	9.51826E-06	1.079297564	3.40142E-06	5.60712E-05	0.888605321	2.80045E-06	4.61644E-05	1.071819423	3.37786E-06	5.56827E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.221811869	4.79472E-07	7.90392E-06	0.184715794	3.99285E-07	6.58206E-06	1.10477271	2.38809E-06	3.93668E-05	0.918841589	1.98618E-06	3.27415E-05	1.103557383	2.38547E-06	3.93235E-05
Road 8	8	1900-2000	0.218917792	3.40539E-07	5.61365E-06	0.182697143	2.84196E-07	4.68486E-06	1.11682	1.73728E-06	2.86383E-05	0.931710779	1.44933E-06	2.38916E-05	1.114407922	1.73352E-06	2.85765E-05
Road 8	8	2000-2100	0.24116013	3.75138E-07	6.18401E-06	0.200020779	3.11143E-07	5.12908E-06	1.122555844	1.7462E-06	2.87854E-05	0.930100779	1.44682E-06	2.38503E-05	1.130121558	1.75797E-06	2.89794E-05
Road 8	8	2100-2200	0.200093889	2.18284E-07	3.59833E-06	0.167190741	1.8239E-07	3.00663E-06	1.017180185	1.10965E-06	1.82922E-05	0.848007963	9.251E-07	1.52499E-05	1.015198704	1.10749E-06	1.82565E-05
Road 8	8	2200-2300	0.23838875	3.0822E-07	5.08089E-06	0.199442344	2.57865E-07	4.25081E-06	1.146203438	1.48196E-06	2.44296E-05	0.957663594	1.23819E-06	2.04111E-05	1.157105938	1.49606E-06	2.46619E-05
Road 8	8	2300-0000	0.187841321	2.01123E-07	3.31544E-06	0.155938679	1.66965E-07	2.75235E-06	0.940401887	1.00689E-06	1.65983E-05	0.779718491	8.3485E-07	1.37622E-05	0.93565717	1.00181E-06	1.65145E-05
Road 9	9	0000-0100	0.662191111	1.73164E-07	5.24992E-06	0.636125955	1.66348E-07	5.04327E-06	3.62156864	9.47045E-07	2.87122E-05	3.498700498	9.14915E-07	2.77381E-05	4.134826453	1.08126E-06	3.27813E-05
Road 9	9	0100-0200	0.686990404	1.41153E-07	4.27942E-06	0.661408768	1.35897E-07	4.12006E-06	3.585608889	7.36719E-07	2.23356E-05	3.470931746	7.13156E-07	2.16212E-05	4.132340514	8.49053E-07	2.57413E-05
Road 9	9	0200-0300	0.343276461	3.20597E-08	9.71976E-07	0.331146371	3.09269E-08	9.3763E-07	2.352511477	2.19709E-07	6.66106E-06	2.270356841	2.12036E-07	6.42844E-06	2.601503212	2.42963E-07	7.36607E-06
Road 9	9	0300-0400	0.426544298	3.18691E-08	9.66197E-07	0.410784365	3.06916E-08	9.30498E-07	2.822058081	2.10849E-07	6.39245E-06	2.728554276	2.03863E-07	6.18065E-06	3.139338641	2.34555E-07	7.11115E-06
Road 9	9	0400-0500	0.752084217	1.40479E-07	4.259E-06	0.721438755	1.34755E-07	4.08546E-06	3.888762215	7.26369E-07	2.20218E-05	3.757380622	7.01829E-07	2.12778E-05	4.478819377	8.36584E-07	2.53633E-05
Road 9	9	0500-0600	0.548208654	1.74077E-07	5.2776E-06	0.526303754	1.67121E-07	5.06672E-06	3.070216064	9.74909E-07	2.95569E-05	2.964421741	9.41315E-07	2.85384E-05	3.490725495	1.10844E-06	3.36052E-05
Road 9	9	0600-0700	0.602198518	3.59945E-07	1.09127E-05	0.578606945	3.45844E-07	1.04852E-05	3.385496024	2.02357E-06	6.13499E-05	3.266454253	1.95242E-06	5.91927E-05	3.845061198	2.29826E-06	6.96778E-05
Road 9	9	0700-0800	0.431143681	3.94606E-07	1.19635E-05	0.41334056	3.78312E-07	1.14695E-05	2.47954254	2.26941E-06	6.88033E-05	2.383767321	2.18175E-06	6.61457E-05	2.797107881	2.56007E-06	7.76152E-05
Road 9	9	0800-0900	0.756930625	1.62592E-06	4.92941E-05	0.72579158	1.55903E-06	4.72663E-05	4.401266521	9.45413E-06	0.000286627	4.247894453	9.12468E-06	0.000276639	4.973686034	1.06837E-05	0.000323905
Road 9	9	0900-1000	0.733687474	1.19227E-06	3.6147E-05	0.70371648	1.14357E-06	3.46704E-05	3.900231312	6.33805E-06	0.000192155	3.765764311	6.11953E-06	0.00018553	4.469480791	7.26311E-06	0.0002202
Road 9	9	1000-1100	0.900700303	1.22814E-06	3.72344E-05	0.864509923	1.1788E-06	3.57383E-05	4.680288703	6.38178E-06	0.00019348	4.523930165	6.16857E-06	0.000187017	5.388440088	7.34737E-06	0.000222755
Road 9	9	1100-1200	0.706434327	1.00284E-06	3.04037E-05	0.680407954	9.65893E-07	2.92836E-05	3.955064587	5.61453E-06	0.000170219	3.82889848	5.43542E-06	0.000164789	4.509306434	6.40132E-06	0.000194073
Road 9	9	1200-1300	0.793253047	1.09645E-06	3.32418E-05	0.765507724	1.0581E-06	3.20791E-05	4.172948239	5.76794E-06	0.00017487	4.048155641	5.59545E-06	0.000169641	4.813663365	6.65355E-06	0.00020172
Road 9	9	1300-1400	0.856631011	9.76045E-07	2.95914E-05	0.824471492	9.39402E-07	2.84805E-05	3.892264976	4.43484E-06	0.000134454	3.763168894	4.28775E-06	0.000129994	4.587640386	5.22715E-06	0.000158475
Road 9	9	1400-1500	0.535890616	6.80661E-07	2.0636E-05	0.514852151	6.53939E-07	1.98259E-05	3.22049725	4.09051E-06	0.000124015	3.112755062	3.95367E-06	0.000119866	3.627607213	4.6076E-06	0.000139692
Road 9	9	1500-1600	0.564919937	6.01461E-07	1.82349E-05	0.542770759	5.7788E-07	1.75199E-05	3.329204841	3.54455E-06	0.000107462	3.218847704	3.42706E-06	0.0001039	3.761618463	4.00494E-06	0.00012142
Road 9	9	1600-1700	0.512706354	7.66134E-07	2.32274E-05	0.490206301	7.32512E-07	2.2208E-05	3.148034439	4.70409E-06	0.000142617	3.022184575	4.51603E-06	0.000136915	3.512390876	5.24854E-06	0.000159123
Road 9	9	1700-1800	0.388096198	5.00189E-07	1.51646E-05	0.370009299	4.76879E-07	1.44578E-05	2.313397344	2.98157E-06	9.03942E-05	2.211806015	2.85064E-06	8.64246E-05	2.581815315	3.32752E-06	0.000100882
Road 9	9	1800-1900	0.367796462	3.02278E-07	9.16435E-06	0.351241789	2.88672E-07	8.75186E-06	2.056660678	1.69029E-06	5.12456E-05	1.96674087	1.61639E-06	4.90051E-05	2.317982659	1.90506E-06	5.77569E-05
Road 9	9	1900-2000	0.408262942	3.2791E-07	9.94145E-06	0.390352562	3.13525E-07	9.50532E-06	2.381959276	1.91315E-06	5.80022E-05	2.284345583	1.83475E-06	5.56252E-05	2.674698145	2.14827E-06	6.51305E-05
Road 9	9	2000-2100	0.534103747	2.89314E-07	8.77132E-06	0.509988976	2.76252E-07	8.3753E-06	2.398449214	1.2992E-06	3.93885E-05	2.300900168	1.24636E-06	3.77865E-05	2.810889144	1.52261E-06	4.61618E-05
Road 9	9	2100-2200	0.02133775	1.11597E-08	3.38336E-07	0.018719896	9.79056E-09	2.96827E-07	0.30588363	1.59978E-07	4.85016E-06	0.264812329	1.38498E-07	4.19892E-06	0.283532225	1.48288E-07	4.49575E-06
Road 9	9	2200-2300	0.56257298	3.46768E-07	1.05132E-05	0.539589462	3.32601E-07	1.00837E-05	3.130365132	1.92955E-06	5.84993E-05	3.019711597	1.86134E-06	5.64314E-05	3.55930106	2.19394E-06	6.65151E-05
Road 9	9	2300-0000	0.39696539	2.22444E-07	6.74396E-06	0.379330961	2.12562E-07	6.44438E-06	2.265295687	1.26938E-06	3.84846E-05	2.173364022	1.21787E-06	3.69228E-05	2.552694982	1.43043E-06	4.33672E-05
Road 10	10	0000-0100	1.202854746	9.26362E-07	2.0563E-05	1.161920575	8.94837E-07	1.98633E-05	7.52104696	5.79223E-06	0.000128574	7.31967352	5.63714E-06	0.000125131	8.481594095	6.53198E-06	0.000144994
Road 10	10	0100-0200	1.151140777	6.69826E-07	1.48686E-05	1.113310966	6.47814E-07	1.43799E-05	7.129715249	4.14864E-06	9.209E-05	6.944972393	4.04114E-06	8.97038E-05	8.058283359	4.68896E-06	0.000104084
Road 10	10	0200-0300	1.227826968	3.99251E-07	8.86242E-06	1.185923305	3.85625E-07	8.55996E-06	7.503610476	2.43994E-06	5.41608E-05	7.301993424	2.37438E-06	5.27056E-05	8.487916729	2.76E-06	6.12655E-05
Road 10	10	0300-0400	1.113865728	2.28754E-07	5.0778E-06	1.074461585	2.20662E-07	4.89817E-06	7.172798508	1.47307E-06	3.26988E-05	6.96866544	1.43115E-06	3.17682E-05	8.043127025	1.65181E-06	3.66664E-05
Road 10	10	0400-0500	1.193301927	4.69713E-07	1.04265E-05	1.149914119	4.52635E-07	1.00474E-05	7.232259546	2.8468E-06	6.31922E-05	7.025043721	2.76523E-06	6.13816E-05	8.17495784	3.21787E-06	7.1429E-05
Road 10	10	0500-0600	1.055385775	7.40542E-07	1.64383E-05	1.016765314	7.13443E-07	1.58368E-05	6.325363793	4.43838E-06	9.85215E-05	6.142915866	4.31036E-06	9.56797E-05	7.15968118	5.0238E-06	0.000111516
Road 10	10	0600-0700	1.129083656	1.58451E-06	3.51724E-05	1.086346853	1.52453E-06	3.38411E-05	6.659980704	9.34634E-06	0.000207467	6.458825004	9.06405E-06	0.0002012	7.545171857	1.05886E-05	0.000235041
Road 10	10	0700-0800	1.083028057	2.39103E-06	5.30751E-05	1.040919086	2.29806E-06	5.10115E-05	6.455404591	1.42517E-05	0.000316355	6.255189332	1.38097E-05	0.000306543	7.296108419	1.61078E-05	0.000357555
Road 10	10	0800-0900	1.219722855	5.17688E-06	0.000114914	1.170969548	4.96995E-06	0.000110321	7.337969855	3.11446E-05	0.000691336	7.10592439	3.01597E-05	0.000669474	8.276893938	3.51297E-05	0.000779795
Road 10	10	0900-1000	1.250334124	4.23688E-06	9.40487E-05	1.200914158	4.06942E-06	9.03314E-05	7.347888597	2.4899E-05	0.0005527	7.118217092	2.41208E-05	0.000535424	8.31913125	2.81902E-05	0.000625755
Road 10	10	1000-1100	1.253704905	4.61306E-06	0.000102399	1.201119946	4.41957E-06	9.81039E-05	7.169172359	2.63792E-05	0.000585557	6.9344737	2.55157E-05	0.000566387	8.135593647	2.99352E-05	0.000664491
Road 10	10	1100-1200	1.283075876	4.72113E-06	0.000104798	1.234469301	4.54228E-06	0.000100828	7.512045374	2.76409E-05	0.000613562	7.289837873	2.68232E-05	0.000595412	8.524307175	3.13655E-05	0.00069624
Road 10	10	1200-1300	1.271197516	4.82971E-06	0.000107208	1.226694435	4.66063E-06	0.000103455	7.457102882	2.8332E-05	0.000628904	7.253245657	2.75575E-05	0.000611712	8.479940092	3.22182E-05	0.000715167
Road 10	10	1300-1400	1.233164153	4.05207E-06	8.99464E-05	1.190260143	3.91109E-06	8.6817E-05	7.130078778	2.34288E-05	0.000520064	6.935025791	2.27879E-05	0.000505837	8.125285934	2.6699E-05	0.000592654
Road 10	10	1400-1500	1.125738082	3.48715E-06	7.74065E-05	1.083132097	3.35517E-06	7.44769E-05	6.825243268	2.11423E-05	0.000469308	6.62044323	2.05079E-05	0.000455226	7.703575327	2.3863E-05	0.000529703
Road 10	10	1500-1600	1.199726335	3.79847E-06	8.43171E-05	1.150736802	3.64336E-06	8.08741E-05	7.093024903	2.24573E-05	0.000498499	6.865606762	2.17373E-05	0.000482516	8.016343563	2.53807E-05	0.000563391
Road 10	10	1600-1700	1.096604776	3.86609E-06	8.58181E-05	1.045123835	3.6846E-06	8.17893E-05	6.582218109	2.32057E-05	0.000515111	6.336166659	2.23382E-05	0.000495856	7.381290494	2.60228E-05	0.000577645
Road 10	10	1700-1800	0.996433327	3.32535E-06	7.3815E-05	0.949578837	3.16899E-06	7.0344E-05	5.978585364	1.99521E-05	0.000442889	5.752808953	1.91986E-05	0.000426163	6.702387791	2.23676E-05	0.000496507
Road 10	10	1800-1900	1.076294244	2.2288E-06	4.94741E-05	1.029184161	2.13124E-06	4.73086E-05	6.499373675	1.3459E-05	0.000298757	6.273799061	1.29918E-05	0.000288388	7.302983222	1.51231E-05	0.000335697
Road 10	10	1900-2000	1.046552736	1.95228E-06	4.3336E-05	1.007402461	1.87925E-06	4.17149E-05	6.52763258	1.21769E-05	0.000270299	6.33268431	1.18132E-05	0.000262226	7.340086771	1.36925E-05	0.000303941
Road 10	10	2000-2100	1.342378684	1.6541E-06	3.67172E-05	1.2906741	1.59039E-06	3.53029E-05	8.126654961	1.00138E-05	0.000222283	7.884592816	9.71553E-06	0.000215662	9.175266916	1.13059E-05	0.000250965
Road 10	10	2100-2200	0.894163526	1.13241E-06	2.51368E-05	0.860504337	1.08978E-06	2.41906E-05	5.582239593	7.0696E-06	0.000156928	5.408900129	6.85008E-06	0.000152056	6.269404466	7.93986E-06	0.000176246
Road 10	10	2200-2300	1.065113207	1.40359E-06	3.11565E-05	1.025511059	1.35141E-06	2.9998E-05	6.412337358	8.4501E-06	0.000187572	6.221968809	8.19924E-06	0.000182004	7.247479868	9.55064E-06	0.000212002
Road 10	10	2300-0000	0.972550025	1.19839E-06	2.66015E-05	0.931933849	1.14835E-06	2.54905E-05	5.965472551	7.35076E-06	0.000163169	5.766399136	7.10546E-06	0.000157724	6.698332985	8.2538E-06	0.000183215
Road 11	11	0000-0100	1.346862635	1.02885E-06	8.53442E-06	1.300653914	9.93555E-07	8.24162E-06	8.398713431	6.41568E-06	5.32186E-05	8.172411324	6.24281E-06	5.17847E-05	9.473065239	7.23637E-06	6.00263E-05
Road 11	11	0100-0200	1.317227214	7.08924E-07	5.88059E-06	1.273650961	6.85472E-07	5.68604E-06	8.12102014	4.37069E-06	3.62552E-05	7.91014172	4.25719E-06	3.53138E-05	9.183792681	4.94267E-06	4.09998E-05
Road 11	11	0200-0300	1.224853334	3.18972E-07	2.6459E-06	1.183084019	3.08095E-07	2.55567E-06	7.86741604	2.04881E-06	1.6995E-05	7.653303586	1.99305E-06	1.65325E-05	8.836387605	2.30114E-06	1.90882E-05
Road 11	11	0300-0400	1.313238094	3.1919E-07	2.64771E-06	1.266718113	3.07883E-07	2.55391E-06	8.403216201	2.04245E-06	1.69423E-05	8.168925178	1.9855E-06	1.64699E-05	9.435643291	2.29339E-06	1.90238E-05
Road 11	11	0400-0500	1.209848163	4.20086E-07	3.48465E-06	1.165265184	4.04606E-07	3.35624E-06	7.261601779	2.52139E-06	2.09151E-05	7.05122708	2.44834E-06	2.03092E-05	8.216492264	2.85295E-06	2.36654E-05
Road 11	11	0500-0600	0.962851449	4.51337E-07	3.74387E-06	0.927336294	4.34689E-07	3.60578E-06	5.871950211	2.75248E-06	2.2832E-05	5.697996481	2.67094E-06	2.21556E-05	6.625332775	3.10562E-06	2.57614E-05
Road 11	11	0600-0700	1.011876166	9.13499E-07	7.57755E-06	0.975485663	8.80647E-07	7.30504E-06	6.173238418	5.57306E-06	4.6229E-05	5.991730901	5.4092E-06	4.48698E-05	6.967216564	6.28985E-06	5.21748E-05
Road 11	11	0700-0800	1.149561136	2.17538E-06	1.8045E-05	1.105187852	2.09141E-06	1.73485E-05	7.127214442	1.34873E-05	0.000111878	6.90854572	1.30735E-05	0.000108445	8.013733573	1.51649E-05	0.000125794

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	1.160895104	4.13166E-06	3.42724E-05	1.114708982	3.96728E-06	3.29089E-05	7.083191625	2.52093E-05	0.000209113	6.859786499	2.44142E-05	0.000202518	7.974495481	2.83815E-05	0.000235426
Road 11	11	0900-1000	1.146464662	2.92587E-06	2.42704E-05	1.101603858	2.81138E-06	2.33207E-05	6.780859643	1.73053E-05	0.000143549	6.570801678	1.67692E-05	0.000139102	7.672405535	1.95806E-05	0.000162423
Road 11	11	1000-1100	1.241214829	2.60741E-06	2.16287E-05	1.191617175	2.50322E-06	2.07644E-05	7.192424949	1.51091E-05	0.000125331	6.965564554	1.46325E-05	0.000121378	8.157181729	1.71357E-05	0.000142142
Road 11	11	1100-1200	1.166778357	2.75489E-06	2.28521E-05	1.124635322	2.65539E-06	2.20267E-05	7.056316813	1.66607E-05	0.000138202	6.852887775	1.61804E-05	0.000134218	7.977523097	1.88358E-05	0.000156245
Road 11	11	1200-1300	1.281178702	3.6478E-06	3.02588E-05	1.237022526	3.52208E-06	2.92159E-05	7.662194674	2.1816E-05	0.000180965	7.454708055	2.12252E-05	0.000176065	8.691730581	2.47473E-05	0.000205281
Road 11	11	1300-1400	1.296605816	2.72377E-06	2.25939E-05	1.251514568	2.62905E-06	2.18082E-05	7.390657396	1.55255E-05	0.000128785	7.187186926	1.50981E-05	0.00012524	8.438701494	1.77271E-05	0.000147048
Road 11	11	1400-1500	1.035315012	2.08501E-06	1.72953E-05	0.996465421	2.00677E-06	1.66463E-05	6.421014456	1.29312E-05	0.000107265	6.229932361	1.25464E-05	0.000104073	7.226397782	1.45532E-05	0.00012072
Road 11	11	1500-1600	1.132547211	2.30049E-06	1.90827E-05	1.092455904	2.21905E-06	1.84072E-05	7.085904809	1.43932E-05	0.000119393	6.887419343	1.39901E-05	0.000116049	7.979875247	1.62091E-05	0.000134456
Road 11	11	1600-1700	1.01063203	2.4564E-06	2.0376E-05	0.969538365	2.35652E-06	1.95475E-05	6.370984051	1.5485E-05	0.00012845	6.159444253	1.49709E-05	0.000124185	7.128982618	1.73274E-05	0.000143732
Road 11	11	1700-1800	1.030999058	2.5596E-06	2.12321E-05	0.988900577	2.45508E-06	2.03651E-05	6.491461826	1.6116E-05	0.000133683	6.277728828	1.55853E-05	0.000129282	7.266629405	1.80404E-05	0.000149647
Road 11	11	1800-1900	1.158377991	2.37307E-06	1.96848E-05	1.113825533	2.2818E-06	1.89277E-05	7.274629458	1.49029E-05	0.000123621	7.05182582	1.44464E-05	0.000119834	8.165651354	1.67282E-05	0.000138762
Road 11	11	1900-2000	1.074082322	1.6969E-06	1.40759E-05	1.033039795	1.63206E-06	1.35381E-05	6.742337197	1.0652E-05	8.83588E-05	6.535398281	1.0325E-05	8.56469E-05	7.568438075	1.19571E-05	9.9185E-05
Road 11	11	2000-2100	1.181439143	1.6614E-06	1.37814E-05	1.135188526	1.59636E-06	1.32419E-05	7.173038855	1.00871E-05	8.36732E-05	6.95235132	9.77674E-06	8.10989E-05	8.087539846	1.13731E-05	9.43408E-05
Road 11	11	2100-2200	0.874995127	8.81071E-07	7.30856E-06	0.841976438	8.47823E-07	7.03276E-06	5.658334698	5.69763E-06	4.72623E-05	5.482317457	5.52039E-06	4.57921E-05	6.324293895	6.36821E-06	5.28248E-05
Road 11	11	2200-2300	1.0888009	1.19088E-06	9.87841E-06	1.048019057	1.14627E-06	9.50841E-06	6.703664373	7.33213E-06	6.08206E-05	6.503698236	7.11342E-06	5.90064E-05	7.551717293	8.25969E-06	6.85148E-05
Road 11	11	2300-0000	1.033059135	1.0761E-06	8.92636E-06	0.992501379	1.03386E-06	8.57592E-06	6.453398336	6.72229E-06	5.57619E-05	6.250619184	6.51106E-06	5.40098E-05	7.243120563	7.54492E-06	6.25857E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	2.633321612	4.94985E-06	7.44482E-06	2.432151612	4.57171E-06	6.87608E-06	14.66005354	2.75565E-05	4.14463E-05	13.77863354	2.58997E-05	3.89544E-05	16.21078515	3.04714E-05	4.58305E-05
Haul Road 1	HR1	0800-0900	2.645711612	4.97314E-06	7.47985E-06	2.444741612	4.59538E-06	6.91168E-06	14.71421354	2.76583E-05	4.15994E-05	13.83379354	2.60034E-05	3.91104E-05	16.27853515	3.05988E-05	4.6022E-05
Haul Road 1	HR1	0900-1000	2.655601612	4.99173E-06	7.50781E-06	2.454331612	4.61341E-06	6.93879E-06	14.75739354	2.77395E-05	4.17215E-05	13.87557354	2.60819E-05	3.92285E-05	16.32990515	3.06953E-05	4.61673E-05
Haul Road 1	HR1	1000-1100	2.660501612	5.00094E-06	7.52167E-06	2.453331612	4.61153E-06	6.93596E-06	14.77877354	2.77796E-05	4.1782E-05	13.87127354	2.60738E-05	3.92163E-05	16.32460515	3.06853E-05	4.61523E-05
Haul Road 1	HR1	1100-1200	2.657001612	4.99436E-06	7.51177E-06	2.466531612	4.63634E-06	6.97328E-06	14.76348354	2.77509E-05	4.17387E-05	13.92933354	2.6183E-05	3.93805E-05	16.39586515	3.08193E-05	4.63537E-05
Haul Road 1	HR1	1200-1300	2.635311612	4.95359E-06	7.45045E-06	2.460731612	4.62544E-06	6.95688E-06	14.66875354	2.75728E-05	4.14709E-05	13.90385354	2.61351E-05	3.93084E-05	16.36458515	3.07605E-05	4.62653E-05
Haul Road 1	HR1	1300-1400	2.635311612	4.95359E-06	7.45045E-06	2.460731612	4.62544E-06	6.95688E-06	14.66875354	2.75728E-05	4.14709E-05	13.90385354	2.61351E-05	3.93084E-05	16.36458515	3.07605E-05	4.62653E-05
Haul Road 1	HR1	1400-1500	2.638811612	4.96017E-06	7.46034E-06	2.446741612	4.59914E-06	6.91733E-06	14.68414354	2.76018E-05	4.15144E-05	13.84229354	2.60193E-05	3.91344E-05	16.28903515	3.06185E-05	4.60517E-05
Haul Road 1	HR1	1500-1600	2.656501612	4.99342E-06	7.51036E-06	2.446741612	4.59914E-06	6.91733E-06	14.76139354	2.7747E-05	4.17328E-05	13.84229354	2.60193E-05	3.91344E-05	16.28903515	3.06185E-05	4.60517E-05
Haul Road 1	HR1	1600-1700	2.664701612	5.00884E-06	7.53354E-06	2.426851612	4.56175E-06	6.8611E-06	14.79766354	2.78152E-05	4.18354E-05	13.75525354	2.58557E-05	3.88883E-05	16.18210515	3.04175E-05	4.57494E-05
Haul Road 1	HR1	1700-1800	2.670291612	5.01935E-06	7.54934E-06	2.429351612	4.56645E-06	6.86817E-06	14.82185354	2.78606E-05	4.19038E-05	13.76614354	2.58762E-05	3.89191E-05	16.19549515	3.04427E-05	4.57873E-05
Haul Road 1	HR1	1800-1900	2.662201612	5.00414E-06	7.52647E-06	2.432951612	4.57322E-06	6.87834E-06	14.78637354	2.77939E-05	4.18035E-05	13.78232354	2.59066E-05	3.89648E-05	16.21527515	3.04798E-05	4.58432E-05
Haul Road 1	HR1	1900-2000	2.651701612	4.9844E-06	7.49679E-06	2.427151612	4.56232E-06	6.86195E-06	14.74070354	2.77081E-05	4.16743E-05	13.75644354	2.5858E-05	3.88917E-05	16.18359515	3.04203E-05	4.57536E-05
Haul Road 1	HR1	2000-2100	2.651701612	4.9844E-06	7.49679E-06	2.421261612	4.55124E-06	6.8453E-06	14.74070354	2.77081E-05	4.16743E-05	13.73065354	2.58095E-05	3.88188E-05	16.15191515	3.03607E-05	4.56641E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	2.633321612	3.41104E-06	6.79151E-06	2.432151612	3.15046E-06	6.27268E-06	14.66005354	1.89897E-05	3.78092E-05	13.77863354	1.7848E-05	3.5536E-05	16.21078515	2.09984E-05	4.18087E-05
Haul Road 2	HR2	0800-0900	2.645711612	3.42709E-06	6.82346E-06	2.444741612	3.16676E-06	6.30515E-06	14.71421354	1.90599E-05	3.79489E-05	13.83379354	1.79194E-05	3.56783E-05	16.27853515	2.10862E-05	4.19834E-05
Haul Road 2	HR2	0900-1000	2.655601612	3.4399E-06	6.84897E-06	2.454331612	3.17919E-06	6.32988E-06	14.75739354	1.91158E-05	3.80603E-05	13.87557354	1.79735E-05	3.5786E-05	16.32990515	2.11527E-05	4.21159E-05
Haul Road 2	HR2	1000-1100	2.660501612	3.44625E-06	6.86161E-06	2.453331612	3.17789E-06	6.3273E-06	14.77877354	1.91435E-05	3.81154E-05	13.87127354	1.7968E-05	3.57749E-05	16.32460515	2.11459E-05	4.21022E-05
Haul Road 2	HR2	1100-1200	2.657001612	3.44171E-06	6.85258E-06	2.466531612	3.19499E-06	6.36135E-06	14.76348354	1.91237E-05	3.8076E-05	13.92933354	1.80432E-05	3.59247E-05	16.39586515	2.12382E-05	4.2286E-05
Haul Road 2	HR2	1200-1300	2.635311612	3.41362E-06	6.79664E-06	2.460731612	3.18748E-06	6.34639E-06	14.66875354	1.9001E-05	3.78317E-05	13.90385354	1.80102E-05	3.58589E-05	16.36458515	2.11976E-05	4.22053E-05
Haul Road 2	HR2	1300-1400	2.635311612	3.41362E-06	6.79664E-06	2.460731612	3.18748E-06	6.34639E-06	14.66875354	1.9001E-05	3.78317E-05	13.90385354	1.80102E-05	3.58589E-05	16.36458515	2.11976E-05	4.22053E-05
Haul Road 2	HR2	1400-1500	2.638811612	3.41815E-06	6.80567E-06	2.446741612	3.16935E-06	6.31031E-06	14.68414354	1.90209E-05	3.78714E-05	13.84229354	1.79304E-05	3.57002E-05	16.28903515	2.10998E-05	4.20105E-05
Haul Road 2	HR2	1500-1600	2.656501612	3.44106E-06	6.85129E-06	2.446741612	3.16935E-06	6.31031E-06	14.76139354	1.9121E-05	3.80706E-05	13.84229354	1.79304E-05	3.57002E-05	16.28903515	2.10998E-05	4.20105E-05
Haul Road 2	HR2	1600-1700	2.664701612	3.45169E-06	6.87244E-06	2.426851612	3.14359E-06	6.25901E-06	14.79766354	1.9168E-05	3.81641E-05	13.75525354	1.78177E-05	3.54757E-05	16.18210515	2.09613E-05	4.17347E-05
Haul Road 2	HR2	1700-1800	2.670291612	3.45893E-06	6.88686E-06	2.429351612	3.14683E-06	6.26546E-06	14.82185354	1.91993E-05	3.82265E-05	13.76614354	1.78318E-05	3.55038E-05	16.19549515	2.09786E-05	4.17692E-05
Haul Road 2	HR2	1800-1900	2.662201612	3.44845E-06	6.86599E-06	2.432951612	3.15149E-06	6.27474E-06	14.78637354	1.91533E-05	3.8135E-05	13.78232354	1.78528E-05	3.55455E-05	16.21527515	2.10042E-05	4.18203E-05
Haul Road 2	HR2	1900-2000	2.651701612	3.43485E-06	6.83891E-06	2.427151612	3.14398E-06	6.25978E-06	14.74070354	1.90942E-05	3.80172E-05	13.75644354	1.78192E-05	3.54788E-05	16.18359515	2.09632E-05	4.17386E-05
Haul Road 2	HR2	2000-2100	2.651701612	3.43485E-06	6.83891E-06	2.421261612	3.13635E-06	6.24459E-06	14.74070354	1.90942E-05	3.80172E-05	13.73065354	1.77858E-05	3.54123E-05	16.15191515	2.09222E-05	4.16568E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	2.633321612	3.41104E-06	6.28208E-06	2.432151612	3.15046E-06	5.80217E-06	14.66005354	1.89897E-05	3.49732E-05	13.77863354	1.7848E-05	3.28705E-05	16.21078515	2.09984E-05	3.86726E-05
Haul Road 3	HR3	0800-0900	2.645711612	3.42709E-06	6.31164E-06	2.444741612	3.16676E-06	5.8322E-06	14.71421354	1.90599E-05	3.51024E-05	13.83379354	1.79194E-05	3.30021E-05	16.27853515	2.10862E-05	3.88343E-05
Haul Road 3	HR3	0900-1000	2.655601612	3.4399E-06	6.33523E-06	2.454331612	3.17919E-06	5.85508E-06	14.75739354	1.91158E-05	3.52054E-05	13.87557354	1.79735E-05	3.31017E-05	16.32990515	2.11527E-05	3.89568E-05
Haul Road 3	HR3	1000-1100	2.660501612	3.44625E-06	6.34692E-06	2.453331612	3.17789E-06	5.8527E-06	14.77877354	1.91435E-05	3.52564E-05	13.87127354	1.7968E-05	3.30915E-05	16.32460515	2.11459E-05	3.89442E-05
Haul Road 3	HR3	1100-1200	2.657001612	3.44171E-06	6.33857E-06	2.466531612	3.19499E-06	5.88419E-06	14.76348354	1.91237E-05	3.52199E-05	13.92933354	1.80432E-05	3.323E-05	16.39586515	2.12382E-05	3.91142E-05
Haul Road 3	HR3	1200-1300	2.635311612	3.41362E-06	6.28683E-06	2.460731612	3.18748E-06	5.87035E-06	14.66875354	1.9001E-05	3.49939E-05	13.90385354	1.80102E-05	3.31692E-05	16.36458515	2.11976E-05	3.90395E-05
Haul Road 3	HR3	1300-1400	2.635311612	3.41362E-06	6.28683E-06	2.460731612	3.18748E-06	5.87035E-06	14.66875354	1.9001E-05	3.49939E-05	13.90385354	1.80102E-05	3.31692E-05	16.36458515	2.11976E-05	3.90395E-05
Haul Road 3	HR3	1400-1500	2.638811612	3.41815E-06	6.29518E-06	2.446741612	3.16935E-06	5.83697E-06	14.68414354	1.90209E-05	3.50307E-05	13.84229354	1.79304E-05	3.30223E-05	16.28903515	2.10998E-05	3.88593E-05
Haul Road 3	HR3	1500-1600	2.656501612	3.44106E-06	6.33738E-06	2.446741612	3.16935E-06	5.83697E-06	14.76139354	1.9121E-05	3.52149E-05	13.84229354	1.79304E-05	3.30223E-05	16.28903515	2.10998E-05	3.88593E-05
Haul Road 3	HR3	1600-1700	2.664701612	3.45169E-06	6.35694E-06	2.426851612	3.14359E-06	5.78952E-06	14.79766354	1.9168E-05	3.53015E-05	13.75525354	1.78177E-05	3.28147E-05	16.18210515	2.09613E-05	3.86042E-05
Haul Road 3	HR3	1700-1800	2.670291612	3.45893E-06	6.37028E-06	2.429351612	3.14683E-06	5.79549E-06	14.82185354	1.91993E-05	3.53592E-05	13.76614354	1.78318E-05	3.28407E-05	16.19549515	2.09786E-05	3.86362E-05
Haul Road 3	HR3	1800-1900	2.662201612	3.44845E-06	6.35098E-06	2.432951612	3.15149E-06	5.80408E-06	14.78637354	1.91533E-05	3.52745E-05	13.78232354	1.78528E-05	3.28793E-05	16.21527515	2.10042E-05	3.86833E-05
Haul Road 3	HR3	1900-2000	2.651701612	3.43485E-06	6.32593E-06	2.427151612	3.14398E-06	5.79024E-06	14.74070354	1.90942E-05	3.51656E-05	13.75644354	1.78192E-05	3.28175E-05	16.18359515	2.09632E-05	3.86078E-05
Haul Road 3	HR3	2000-2100	2.651701612	3.43485E-06	6.32593E-06	2.421261612	3.13635E-06	5.77619E-06	14.74070354	1.90942E-05	3.51656E-05	13.73065354	1.77858E-05	3.2756E-05	16.15191515	2.09222E-05	3.85322E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.093660279	3.14662E-07	2.55982E-06	0.08144419	2.73621E-07	2.22594E-06	0.554607207	1.86326E-06	1.51579E-05	0.479922905	1.61235E-06	1.31167E-05	0.561367095	1.88597E-06	1.53427E-05
Road 1	1	0100-0200	0.070372294	1.43967E-07	1.1712E-06	0.063953119	1.30835E-07	1.06436E-06	0.424183578	8.67793E-07	7.05962E-06	0.384120459	7.85832E-07	6.39286E-06	0.448073578	9.16667E-07	7.45722E-06
Road 1	1	0200-0300	0.068328831	9.87485E-08	8.03334E-07	0.061586364	8.90043E-08	7.24063E-07	0.435905195	6.29968E-07	5.12488E-06	0.39024987	5.63987E-07	4.58812E-06	0.451836234	6.52992E-07	5.31218E-06
Road 1	1	0300-0400	0.057450545	5.93052E-08	4.82456E-07	0.051771818	5.34431E-08	4.34768E-07	0.351859273	3.63218E-07	2.95483E-06	0.315269091	3.25447E-07	2.64756E-06	0.367040909	3.7889E-07	3.08232E-06
Road 1	1	0400-0500	0.074515349	1.20276E-07	9.78465E-07	0.067490465	1.08937E-07	8.86221E-07	0.42681186	6.88923E-07	5.60449E-06	0.385019186	6.21465E-07	5.05571E-06	0.452509651	7.30402E-07	5.94193E-06
Road 1	1	0500-0600	0.062665904	2.21118E-07	1.79883E-06	0.055589468	1.96149E-07	1.5957E-06	0.370618564	1.30774E-06	1.06386E-05	0.326522819	1.15215E-06	9.37287E-06	0.382112287	1.34829E-06	1.09686E-05
Road 1	1	0600-0700	0.085086647	5.38179E-07	4.37817E-06	0.074796795	4.73095E-07	3.8487E-06	0.453339941	2.86741E-06	2.33268E-05	0.396527389	2.50807E-06	2.04035E-05	0.471324184	2.98116E-06	2.42522E-05
Road 1	1	0700-0800	0.071428238	7.53428E-07	6.12925E-06	0.062611566	6.6043E-07	5.37269E-06	0.393934253	4.15524E-06	3.38035E-05	0.342886815	3.61679E-06	2.94231E-05	0.405498381	4.27722E-06	3.47958E-05
Road 1	1	0800-0900	0.076181225	9.923E-07	8.07251E-06	0.068058401	8.86496E-07	7.21178E-06	0.408815303	5.32503E-06	4.33199E-05	0.363868862	4.73958E-06	3.85572E-05	0.431927262	5.62608E-06	4.5769E-05
Road 1	1	0900-1000	0.080992955	1.08538E-06	8.82972E-06	0.073041639	9.78824E-07	7.96288E-06	0.449093039	6.01825E-06	4.89594E-05	0.403810826	5.41143E-06	4.40228E-05	0.476852465	6.39025E-06	5.19857E-05
Road 1	1	1000-1100	0.093899094	1.22485E-06	9.96432E-06	0.085501525	1.11531E-06	9.07319E-06	0.50281564	6.55888E-06	5.33574E-05	0.456739827	5.95785E-06	4.8468E-05	0.542241353	7.07316E-06	5.75412E-05
Road 1	1	1100-1200	0.084216068	1.06535E-06	8.66675E-06	0.076915104	9.72988E-07	7.9154E-06	0.483055801	6.11073E-06	4.97117E-05	0.440041602	5.56659E-06	4.52851E-05	0.516956706	6.53958E-06	5.32005E-05
Road 1	1	1200-1300	0.086455592	1.08232E-06	8.80481E-06	0.079641574	9.97014E-07	8.11086E-06	0.489452354	6.12734E-06	4.98468E-05	0.44993907	5.63268E-06	4.58227E-05	0.529580645	6.6297E-06	5.39336E-05
Road 1	1	1300-1400	0.0901711	1.19991E-06	9.76146E-06	0.082369154	1.09609E-06	8.91686E-06	0.500140155	6.65539E-06	5.41426E-05	0.455872285	6.06632E-06	4.93504E-05	0.538241439	7.16241E-06	5.82673E-05
Road 1	1	1400-1500	0.085685657	1.23672E-06	1.00609E-05	0.077840182	1.12348E-06	9.13969E-06	0.465290403	6.71562E-06	5.46326E-05	0.421748856	6.08718E-06	4.95201E-05	0.499589038	7.21066E-06	5.86598E-05
Road 1	1	1500-1600	0.09155257	1.23032E-06	1.00089E-05	0.08456683	1.13645E-06	9.24516E-06	0.495242402	6.65528E-06	5.41417E-05	0.456345964	6.13258E-06	4.98894E-05	0.540912793	7.26902E-06	5.91346E-05
Road 1	1	1600-1700	0.08764547	1.24197E-06	1.01036E-05	0.080042755	1.13424E-06	9.22721E-06	0.479969815	6.80137E-06	5.53302E-05	0.437330795	6.19716E-06	5.04148E-05	0.51737355	7.3314E-06	5.9642E-05
Road 1	1	1700-1800	0.069328047	9.86311E-07	8.02379E-06	0.063077533	8.97387E-07	7.30037E-06	0.388031412	5.52042E-06	4.49094E-05	0.351872216	5.00599E-06	4.07245E-05	0.414949749	5.90338E-06	4.80248E-05
Road 1	1	1800-1900	0.060773398	8.82857E-07	7.18217E-06	0.056172532	8.1602E-07	6.63844E-06	0.36373646	5.28401E-06	4.29862E-05	0.334699819	4.86219E-06	3.95547E-05	0.390872351	5.67821E-06	4.61931E-05
Road 1	1	1900-2000	0.073381282	8.16725E-07	6.64418E-06	0.066908786	7.44687E-07	6.05814E-06	0.420307723	4.67797E-06	3.8056E-05	0.381744233	4.24877E-06	3.45644E-05	0.448653019	4.99345E-06	4.06225E-05
Road 1	1	2000-2100	0.066620537	6.28944E-07	5.11655E-06	0.061256998	5.78308E-07	4.70462E-06	0.393463201	3.71456E-06	3.02185E-05	0.360524751	3.4036E-06	2.76888E-05	0.42178175	3.98191E-06	3.23934E-05
Road 1	1	2100-2200	0.069874052	6.01956E-07	4.897E-06	0.063912745	5.506E-07	4.47921E-06	0.41644146	3.58759E-06	2.91856E-05	0.379452113	3.26893E-06	2.65932E-05	0.443364858	3.81953E-06	3.10724E-05
Road 1	1	2200-2300	0.069767057	5.69607E-07	4.63384E-06	0.062110621	5.07097E-07	4.12531E-06	0.416042046	3.39674E-06	2.7633E-05	0.368140322	3.00565E-06	2.44514E-05	0.430250943	3.51275E-06	2.85767E-05
Road 1	1	2300-0000	0.062606103	4.58265E-07	3.72806E-06	0.054381359	3.98062E-07	3.23829E-06	0.384487256	2.81438E-06	2.28954E-05	0.330916872	2.42225E-06	1.97054E-05	0.385298231	2.82031E-06	2.29437E-05
Road 2	2	0000-0100	0.155135769	1.86738E-07	1.20593E-06	0.134864615	1.62337E-07	1.04836E-06	0.656649615	7.90412E-07	5.1044E-06	0.568813654	6.84683E-07	4.42162E-06	0.703678269	8.4702E-07	5.46997E-06
Road 2	2	0100-0200	0.106174118	8.3563E-08	5.39641E-07	0.096453824	7.59127E-08	4.90237E-07	0.52395	4.12368E-07	2.66303E-06	0.474545588	3.73485E-07	2.41193E-06	0.570999412	4.49398E-07	2.90217E-06
Road 2	2	0200-0300	0.111055217	5.91266E-08	3.81834E-07	0.10018	5.33366E-08	3.44442E-07	0.605757826	3.2251E-07	2.08274E-06	0.54389	2.89571E-07	1.87002E-06	0.64407	3.42908E-07	2.21446E-06
Road 2	2	0300-0400	0.095866	3.32868E-08	2.14963E-07	0.086410667	3.00037E-08	1.93761E-07	0.348166667	1.20891E-07	7.80704E-07	0.312198	1.08402E-07	7.0005E-07	0.398608667	1.38406E-07	8.93811E-07
Road 2	2	0400-0500	0.129761481	8.11009E-08	5.23742E-07	0.117545185	7.34657E-08	4.74435E-07	0.624765926	3.90479E-07	2.52167E-06	0.564481852	3.52801E-07	2.27836E-06	0.682027037	4.26267E-07	2.75279E-06
Road 2	2	0500-0600	0.104890702	1.38397E-07	8.93757E-07	0.093070702	1.22802E-07	7.93041E-07	0.464140877	6.12408E-07	3.95487E-06	0.409660877	5.40525E-07	3.49066E-06	0.502731579	6.63326E-07	4.2837E-06
Road 2	2	0600-0700	0.149108462	3.58965E-07	2.31816E-06	0.131093942	3.15597E-07	2.03809E-06	0.60292625	1.45149E-06	9.37358E-06	0.528143365	1.27146E-06	8.21094E-06	0.659237308	1.58705E-06	1.0249E-05
Road 2	2	0700-0800	0.122187125	4.52545E-07	2.92249E-06	0.107118125	3.96734E-07	2.56207E-06	0.50796875	1.88137E-06	1.21497E-05	0.442663	1.63949E-06	1.05877E-05	0.549781125	2.03623E-06	1.31498E-05
Road 2	2	0800-0900	0.136739507	9.62241E-07	6.21406E-06	0.122134868	8.59468E-07	5.55036E-06	0.574375987	4.04191E-06	2.61022E-05	0.51115352	3.59701E-06	2.32291E-05	0.633288388	4.45647E-06	2.87795E-05
Road 2	2	0900-1000	0.159807183	9.32209E-07	6.02011E-06	0.144029643	8.40173E-07	5.42575E-06	0.680197817	3.96782E-06	2.56238E-05	0.611922619	3.56955E-06	2.30518E-05	0.755952262	4.40972E-06	2.84776E-05
Road 2	2	1000-1100	0.178040107	7.70683E-07	4.97699E-06	0.162059893	7.01509E-07	4.53028E-06	0.750405401	3.24828E-06	2.09771E-05	0.682047326	2.95238E-06	1.90662E-05	0.844107219	3.65389E-06	2.35965E-05
Road 2	2	1100-1200	0.209159891	8.86025E-07	5.72186E-06	0.190913552	8.08731E-07	5.22271E-06	0.853883607	3.61715E-06	2.33592E-05	0.778788087	3.29903E-06	2.13048E-05	0.969701639	4.10776E-06	2.65275E-05
Road 2	2	1200-1300	0.160401842	7.05471E-07	4.55586E-06	0.147758316	6.49863E-07	4.19675E-06	0.701898368	3.08705E-06	1.99359E-05	0.645434526	2.83872E-06	1.83322E-05	0.793192842	3.48858E-06	2.25289E-05
Road 2	2	1300-1400	0.17681852	9.12744E-07	5.89441E-06	0.161368565	8.32991E-07	5.37937E-06	0.72267574	3.73048E-06	2.40911E-05	0.658569058	3.39956E-06	2.1954E-05	0.819937623	4.23255E-06	2.73334E-05
Road 2	2	1400-1500	0.152198485	5.81314E-07	3.75407E-06	0.138248061	5.28031E-07	3.40997E-06	0.657724	2.51214E-06	1.62232E-05	0.596588667	2.27864E-06	1.47152E-05	0.734836727	2.80667E-06	1.81252E-05
Road 2	2	1500-1600	0.18897459	8.00517E-07	5.16966E-06	0.174374317	7.38669E-07	4.77025E-06	0.744134863	3.15224E-06	2.03568E-05	0.686049945	2.90618E-06	1.87679E-05	0.860424262	3.64485E-06	2.35381E-05
Road 2	2	1600-1700	0.158806652	8.12414E-07	5.24649E-06	0.145020407	7.41887E-07	4.79103E-06	0.667402443	3.41426E-06	2.20489E-05	0.608532081	3.11309E-06	2.0104E-05	0.753552489	3.85498E-06	2.48951E-05
Road 2	2	1700-1800	0.121509505	6.24424E-07	4.03247E-06	0.110582207	5.6827E-07	3.66983E-06	0.481672523	2.47526E-06	1.5985E-05	0.437407432	2.24779E-06	1.4516E-05	0.54798964	2.81606E-06	1.81858E-05
Road 2	2	1800-1900	0.1318444	7.62988E-07	4.9273E-06	0.12188852	7.05373E-07	4.55523E-06	0.5926804	3.42986E-06	2.21497E-05	0.54666464	3.16357E-06	2.043E-05	0.66855316	3.86894E-06	2.49852E-05
Road 2	2	1900-2000	0.112611006	4.40538E-07	2.84495E-06	0.102688462	4.01721E-07	2.59428E-06	0.51007503	1.99543E-06	1.28863E-05	0.463528935	1.81334E-06	1.17104E-05	0.566217396	2.21506E-06	1.43047E-05
Road 2	2	2000-2100	0.107026395	3.64187E-07	2.35188E-06	0.098406259	3.34855E-07	2.16246E-06	0.45576483	1.55087E-06	1.00153E-05	0.41739	1.42029E-06	9.17206E-06	0.515796259	1.75514E-06	1.13345E-05
Road 2	2	2100-2200	0.082972026	2.93859E-07	1.89771E-06	0.07587719	2.68732E-07	1.73544E-06	0.380277386	1.34682E-06	8.6976E-06	0.345636471	1.22413E-06	7.90531E-06	0.42151366	1.49286E-06	9.64075E-06
Road 2	2	2200-2300	0.12357976	3.5758E-07	2.30922E-06	0.1100068	3.18307E-07	2.05559E-06	0.52659608	1.52372E-06	9.84001E-06	0.46650992	1.34986E-06	8.71723E-06	0.57651672	1.66816E-06	1.07728E-05
Road 2	2	2300-0000	0.113078919	2.9055E-07	1.87634E-06	0.098232072	2.52402E-07	1.62999E-06	0.51147018	1.31419E-06	8.48694E-06	0.441154775	1.13352E-06	7.32018E-06	0.539386847	1.38592E-06	8.95017E-06
Road 3	3	0000-0100	0.097696174	3.60411E-07	1.40083E-05	0.086431826	3.18855E-07	1.23931E-05	0.538841304	1.98784E-06	7.72623E-05	0.474680609	1.75114E-06	6.80625E-05	0.561112435	2.07E-06	8.04556E-05
Road 3	3	0100-0200	0.071655352	1.63203E-07	6.34331E-06	0.064680423	1.47317E-07	5.72585E-06	0.417439859	9.50768E-07	3.6954E-05	0.375306408	8.54804E-07	3.32241E-05	0.439986831	1.00212E-06	3.89499E-05
Road 3	3	0200-0300	0.070020606	1.11187E-07	4.32155E-06	0.063041313	1.00104E-07	3.8908E-06	0.436575455	6.93245E-07	2.69447E-05	0.390667475	6.20347E-07	2.41113E-05	0.453708788	7.20451E-07	2.80021E-05
Road 3	3	0300-0400	0.058551714	6.574E-08	2.55515E-06	0.052558	5.90105E-08	2.29359E-06	0.322722857	3.62343E-07	1.40834E-05	0.287782143	3.23113E-07	1.25586E-05	0.340340143	3.82123E-07	1.48522E-05
Road 3	3	0400-0500	0.078193894	1.41724E-07	5.50846E-06	0.071510973	1.29611E-07	5.03767E-06	0.432489823	7.83875E-07	3.04672E-05	0.394095752	7.14286E-07	2.77625E-05	0.465606726	8.43898E-07	3.28002E-05
Road 3	3	0500-0600	0.064240366	2.53475E-07	9.85194E-06	0.058061829	2.29096E-07	8.9044E-06	0.357703496	1.4114E-06	5.48576E-05	0.321472805	1.26844E-06	4.93013E-05	0.379534634	1.49754E-06	5.82057E-05
Road 3	3	0600-0700	0.090117748	6.41779E-07	2.49443E-05	0.080411599	5.72656E-07	2.22577E-05	0.450090991	3.20535E-06	0.000124584	0.39989464	2.84787E-06	0.00011069	0.480306239	3.42053E-06	0.000132947
Road 3	3	0700-0800	0.074152902	8.64679E-07	3.36079E-05	0.065997593	7.69582E-07	2.99117E-05	0.389226011	4.53867E-06	0.000176407	0.34410696	4.01255E-06	0.000155958	0.410104553	4.78213E-06	0.000185869
Road 3	3	0800-0900	0.081993982	1.3112E-06	5.09631E-05	0.073749328	1.17936E-06	4.58387E-05	0.405753039	6.48857E-06	0.000252195	0.363479719	5.81256E-06	0.00022592	0.437229047	6.99192E-06	0.000271758
Road 3	3	0900-1000	0.088924642	1.37639E-06	5.34968E-05	0.080314694	1.24312E-06	4.83171E-05	0.45846144	7.09614E-06	0.000275809	0.412888031	6.39075E-06	0.000248392	0.493202725	7.63387E-06	0.00029671
Road 3	3	1000-1100	0.100366928	1.41505E-06	5.49994E-05	0.090866906	1.28111E-06	4.97936E-05	0.506369204	7.13918E-06	0.000277482	0.457356701	6.44817E-06	0.000250624	0.548223606	7.72928E-06	0.000300418
Road 3	3	1100-1200	0.098650831	1.3513E-06	5.25215E-05	0.088834614	1.21684E-06	4.72954E-05	0.511753536	7.00989E-06	0.000272457	0.459790843	6.29811E-06	0.000244792	0.548625457	7.51495E-06	0.000292087
Road 3	3	1200-1300	0.092104391	1.26163E-06	4.90362E-05	0.08445103	1.15679E-06	4.49616E-05	0.488806265	6.69556E-06	0.00026024	0.447135609	6.12476E-06	0.000238054	0.531586639	7.28156E-06	0.000283016
Road 3	3	1300-1400	0.097651802	1.45195E-06	5.64337E-05	0.089890108	1.33655E-06	5.19482E-05	0.497704099	7.4002E-06	0.000287627	0.457170431	6.79751E-06	0.000264202	0.547060539	8.13406E-06	0.00031615

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.089989968	1.34813E-06	5.23986E-05	0.082837495	1.24098E-06	4.82339E-05	0.466047516	6.98183E-06	0.000271366	0.428048448	6.41257E-06	0.00024924	0.510885942	7.65355E-06	0.000297474
Road 3	3	1500-1600	0.100358179	1.44068E-06	5.59957E-05	0.091419598	1.31236E-06	5.10083E-05	0.505886637	7.2622E-06	0.000282264	0.459916648	6.60229E-06	0.000256614	0.551336246	7.91465E-06	0.000307623
Road 3	3	1600-1700	0.093757541	1.46774E-06	5.70473E-05	0.086818893	1.35912E-06	5.28254E-05	0.480037961	7.5148E-06	0.000292082	0.443538074	6.94341E-06	0.000269873	0.530356967	8.30253E-06	0.000322698
Road 3	3	1700-1800	0.07409474	1.16349E-06	4.52219E-05	0.067446384	1.05909E-06	4.11642E-05	0.381189928	5.98572E-06	0.00023265	0.345753984	5.42928E-06	0.000211022	0.413200368	6.48837E-06	0.000252187
Road 3	3	1800-1900	0.069543661	1.14557E-06	4.45253E-05	0.063622863	1.04804E-06	4.07345E-05	0.383083866	6.31039E-06	0.000245269	0.348933496	5.74785E-06	0.000223404	0.412556358	6.79588E-06	0.000264139
Road 3	3	1900-2000	0.073241079	8.92813E-07	3.47014E-05	0.067003645	8.16778E-07	3.17461E-05	0.403486263	4.91852E-06	0.000191171	0.367795237	4.48345E-06	0.00017426	0.434798882	5.30022E-06	0.000206006
Road 3	3	2000-2100	0.068482589	7.12881E-07	2.77079E-05	0.062931448	6.55096E-07	2.54619E-05	0.375504145	3.90887E-06	0.000151928	0.343691926	3.57772E-06	0.000139057	0.406623374	4.23281E-06	0.000164519
Road 3	3	2100-2200	0.067222309	6.63103E-07	2.57731E-05	0.061489593	6.06553E-07	2.35752E-05	0.37967774	3.74526E-06	0.000145569	0.345782211	3.41091E-06	0.000132573	0.407271805	4.01746E-06	0.000156149
Road 3	3	2200-2300	0.074112611	6.69257E-07	2.60123E-05	0.065979787	5.95815E-07	2.31578E-05	0.406758277	3.67314E-06	0.000142766	0.360011226	3.251E-06	0.000126358	0.425991012	3.84681E-06	0.000149516
Road 3	3	2300-0000	0.066087331	5.32126E-07	2.06824E-05	0.058540896	4.71363E-07	1.83207E-05	0.381089502	3.06848E-06	0.000119264	0.334941454	2.6969E-06	0.000104822	0.393482351	3.16826E-06	0.000123142
Road 4	4	0000-0100	0.262005429	2.12273E-07	2.27293E-06	0.231598	1.87637E-07	2.00914E-06	1.293699143	1.04814E-06	1.1223E-05	1.143202	9.26205E-07	9.91742E-06	1.3748	1.11384E-06	1.19266E-05
Road 4	4	0100-0200	0.241509	1.1181E-07	1.19721E-06	0.217842	1.00853E-07	1.07989E-06	1.1947745	5.53136E-07	5.92275E-06	1.0776505	4.98912E-07	5.34214E-06	1.2954925	5.99765E-07	6.42203E-06
Road 4	4	0200-0300	0.259953846	7.82269E-08	8.3762E-07	0.234203077	7.04778E-08	7.54646E-07	1.243629231	3.7424E-07	4.00721E-06	1.120369231	3.37148E-07	3.61004E-06	1.354572308	4.07626E-07	4.36469E-06
Road 4	4	0300-0400	0.236112857	3.8259E-08	4.09662E-07	0.212058571	3.43613E-08	3.67927E-07	1.211964286	1.96383E-07	2.10279E-06	1.088661429	1.76403E-07	1.88885E-06	1.30072	2.10765E-07	2.25678E-06
Road 4	4	0400-0500	0.242876429	7.871E-08	8.42793E-07	0.222009286	7.19475E-08	7.70383E-07	1.162267857	3.76661E-07	4.03313E-06	1.062482143	3.44323E-07	3.68686E-06	1.284491429	4.1627E-07	4.45725E-06
Road 4	4	0500-0600	0.227338333	1.26299E-07	1.35236E-06	0.205590417	1.14217E-07	1.22299E-06	1.046860833	5.81589E-07	6.22741E-06	0.946118333	5.25621E-07	5.62813E-06	1.15170875	6.39838E-07	6.85112E-06
Road 4	4	0600-0700	0.25638566	3.14547E-07	3.36804E-06	0.228779434	2.80678E-07	3.00539E-06	1.186880943	1.45613E-06	1.55916E-05	1.058677547	1.29884E-06	1.39074E-05	1.287456981	1.57952E-06	1.69128E-05
Road 4	4	0700-0800	0.257120543	5.47572E-07	5.86316E-06	0.228893913	4.87459E-07	5.21951E-06	1.234662826	2.62937E-06	2.81542E-05	1.098157283	2.33867E-06	2.50415E-05	1.327051196	2.82613E-06	3.0261E-05
Road 4	4	0800-0900	0.263484452	9.45372E-07	1.01226E-05	0.236884839	8.49934E-07	9.10073E-06	1.269316194	4.55426E-06	4.87651E-05	1.140755355	4.09299E-06	4.3826E-05	1.377640194	4.94292E-06	5.29267E-05
Road 4	4	0900-1000	0.268527905	9.19957E-07	9.85051E-06	0.242145	8.29571E-07	8.88269E-06	1.228195473	4.20771E-06	4.50543E-05	1.107112365	3.79288E-06	4.06126E-05	1.349257365	4.62246E-06	4.94953E-05
Road 4	4	1000-1100	0.297463333	9.91544E-07	1.0617E-05	0.269080417	8.96935E-07	9.604E-06	1.364284583	4.54762E-06	4.86939E-05	1.233830347	4.11277E-06	4.40378E-05	1.502910764	5.0097E-06	5.36418E-05
Road 4	4	1100-1200	0.275626968	9.88939E-07	1.05891E-05	0.247963484	8.89684E-07	9.52636E-06	1.255986	4.50643E-06	4.8253E-05	1.129768645	4.05357E-06	4.34039E-05	1.377732129	4.94325E-06	5.29303E-05
Road 4	4	1200-1300	0.279691486	9.58202E-07	1.026E-05	0.256304459	8.7808E-07	9.40211E-06	1.330486757	4.55815E-06	4.88067E-05	1.218868514	4.17575E-06	4.47122E-05	1.475172973	5.05383E-06	5.41143E-05
Road 4	4	1300-1400	0.286122267	9.9348E-07	1.06378E-05	0.263224133	9.13973E-07	9.78643E-06	1.329299533	4.61562E-06	4.94221E-05	1.222592133	4.24511E-06	4.54549E-05	1.485816267	5.15908E-06	5.52413E-05
Road 4	4	1400-1500	0.260390429	8.43858E-07	9.03567E-06	0.239545143	7.76304E-07	8.31233E-06	1.248720857	4.04678E-06	4.33312E-05	1.148298714	3.72134E-06	3.98465E-05	1.387843857	4.49764E-06	4.81589E-05
Road 4	4	1500-1600	0.29362296	8.49603E-07	9.0972E-06	0.26728224	7.73386E-07	8.28109E-06	1.36426032	3.94751E-06	4.22683E-05	1.24154976	3.59245E-06	3.84664E-05	1.508832	4.36583E-06	4.67475E-05
Road 4	4	1600-1700	0.272087097	7.80991E-07	8.36252E-06	0.251822823	7.22825E-07	7.7397E-06	1.276753306	3.66475E-06	3.92406E-05	1.181452177	3.39121E-06	3.63116E-05	1.433275	4.11403E-06	4.40513E-05
Road 4	4	1700-1800	0.260270157	7.65146E-07	8.19286E-06	0.236827638	6.96229E-07	7.45493E-06	1.24148189	3.64973E-06	3.90797E-05	1.129267008	3.31984E-06	3.55474E-05	1.366094646	4.01607E-06	4.30023E-05
Road 4	4	1800-1900	0.285340566	7.00141E-07	7.49682E-06	0.260961981	6.40323E-07	6.85631E-06	1.373513396	3.37019E-06	3.60866E-05	1.256263491	3.0825E-06	3.30061E-05	1.517225472	3.72282E-06	3.98624E-05
Road 4	4	1900-2000	0.253971351	4.35044E-07	4.65826E-06	0.232390135	3.98076E-07	4.26243E-06	1.225414189	2.09909E-06	2.24762E-05	1.120982297	1.9202E-06	2.05607E-05	1.353372432	2.31828E-06	2.48231E-05
Road 4	4	2000-2100	0.222056939	2.5187E-07	2.69692E-06	0.20401102	2.31401E-07	2.47775E-06	1.075550408	1.21995E-06	1.30627E-05	0.987579592	1.12017E-06	1.19943E-05	1.191590612	1.35157E-06	1.44721E-05
Road 4	4	2100-2200	0.185601892	1.58965E-07	1.70213E-06	0.169939189	1.4555E-07	1.55849E-06	0.918004595	7.86254E-07	8.41888E-06	0.839605405	7.19106E-07	7.69989E-06	1.009544595	8.64656E-07	9.25837E-06
Road 4	4	2200-2300	0.255767937	3.72995E-07	3.99387E-06	0.227730952	3.32108E-07	3.55607E-06	1.215891111	1.77317E-06	1.89864E-05	1.082074603	1.57803E-06	1.68968E-05	1.309805556	1.91013E-06	2.04529E-05
Road 4	4	2300-0000	0.242905102	2.75517E-07	2.95012E-06	0.215205102	2.44098E-07	2.6137E-06	1.186323469	1.3456E-06	1.44081E-05	1.050406327	1.19143E-06	1.27574E-05	1.265611429	1.43553E-06	1.53711E-05
Road 5	5	0000-0100	0.082690622	2.99536E-07	4.05068E-06	0.07317772	2.65077E-07	3.58469E-06	0.462547668	1.67552E-06	2.26584E-05	0.406952073	1.47413E-06	1.9935E-05	0.480129793	1.73921E-06	2.35196E-05
Road 5	5	0100-0200	0.054367787	1.24491E-07	1.68351E-06	0.049088689	1.12403E-07	1.52004E-06	0.333662705	7.64017E-07	1.0332E-05	0.299540902	6.85886E-07	9.27536E-06	0.34862959	7.98288E-07	1.07954E-05
Road 5	5	0200-0300	0.051678605	8.34152E-08	1.12804E-06	0.046507326	7.50681E-08	1.01516E-06	0.356145698	5.7486E-07	7.77394E-06	0.317812442	5.12986E-07	6.9372E-06	0.364319767	5.88054E-07	7.95236E-06
Road 5	5	0300-0400	0.046026349	5.4423E-08	7.35973E-07	0.041298254	4.88324E-08	6.6037E-07	0.253844921	3.00154E-07	4.05905E-06	0.225674921	2.66845E-07	3.6086E-06	0.266973175	3.15678E-07	4.26897E-06
Road 5	5	0400-0500	0.063970303	1.18864E-07	1.60742E-06	0.058512828	1.08723E-07	1.47028E-06	0.365625051	6.79371E-07	9.18726E-06	0.332797475	6.18374E-07	8.36238E-06	0.391310303	7.27097E-07	9.83267E-06
Road 5	5	0500-0600	0.052557455	2.17017E-07	2.93476E-06	0.047495682	1.96116E-07	2.65211E-06	0.306124182	1.26403E-06	1.70937E-05	0.274637591	1.13401E-06	1.53355E-05	0.322133273	1.33013E-06	1.79876E-05
Road 5	5	0600-0700	0.078072088	5.68543E-07	7.68851E-06	0.069662139	5.07299E-07	6.8603E-06	0.392645825	2.85936E-06	3.86676E-05	0.348432912	2.53739E-06	3.43136E-05	0.418095052	3.04469E-06	4.11739E-05
Road 5	5	0700-0800	0.060604344	7.20018E-07	9.73694E-06	0.053921264	6.40619E-07	8.66321E-06	0.320771359	3.81097E-06	5.15364E-05	0.282977678	3.36195E-06	4.54643E-05	0.336898942	4.00257E-06	5.41275E-05
Road 5	5	0800-0900	0.064860403	1.02623E-06	1.38778E-05	0.058353155	9.23268E-07	1.24855E-05	0.317406192	5.02202E-06	6.79138E-05	0.283906856	4.49199E-06	6.07461E-05	0.342260012	5.41526E-06	7.32316E-05
Road 5	5	0900-1000	0.071755184	1.09895E-06	1.48614E-05	0.064862855	9.93395E-07	1.34339E-05	0.382435907	5.85713E-06	7.9207E-05	0.344280833	5.27277E-06	7.13047E-05	0.409143689	6.26616E-06	8.47385E-05
Road 5	5	1000-1100	0.081314441	1.12021E-06	1.51488E-05	0.073648351	1.0146E-06	1.37206E-05	0.421054142	5.80056E-06	7.8442E-05	0.380105518	5.23644E-06	7.08133E-05	0.453753869	6.25104E-06	8.4534E-05
Road 5	5	1100-1200	0.079984921	1.04935E-06	1.41906E-05	0.072057396	9.45348E-07	1.27841E-05	0.432653605	5.67614E-06	7.67595E-05	0.388531144	5.09728E-06	6.89315E-05	0.460588541	6.04263E-06	8.17156E-05
Road 5	5	1200-1300	0.07361802	9.76876E-07	1.32105E-05	0.067520622	8.95966E-07	1.21163E-05	0.401462405	5.32721E-06	7.20409E-05	0.366982744	4.86968E-06	6.58537E-05	0.434503366	5.76565E-06	7.797E-05
Road 5	5	1300-1400	0.080257722	1.17043E-06	1.58279E-05	0.073898005	1.07768E-06	1.45737E-05	0.417926036	6.09475E-06	8.24205E-05	0.383708327	5.59575E-06	7.56723E-05	0.457606332	6.67343E-06	9.0246E-05
Road 5	5	1400-1500	0.07564301	1.12726E-06	1.52442E-05	0.069646108	1.03789E-06	1.40356E-05	0.395988791	5.90118E-06	7.98028E-05	0.363571675	5.41809E-06	7.32699E-05	0.433217783	6.45599E-06	8.73055E-05
Road 5	5	1500-1600	0.084866481	1.22649E-06	1.6586E-05	0.077330909	1.11758E-06	1.51133E-05	0.433041675	6.2583E-06	8.46321E-05	0.393539844	5.68742E-06	7.6912E-05	0.470870753	6.805E-06	9.20253E-05
Road 5	5	1600-1700	0.079838453	1.27819E-06	1.72853E-05	0.073932286	1.18364E-06	1.60066E-05	0.4152332	6.64778E-06	8.98992E-05	0.383488699	6.13956E-06	8.30264E-05	0.457420985	7.3232E-06	9.9033E-05
Road 5	5	1700-1800	0.058601351	9.35994E-07	1.26576E-05	0.053305734	8.51411E-07	1.15138E-05	0.305223525	4.8751E-06	6.59269E-05	0.27657141	4.41746E-06	5.97381E-05	0.329877145	5.26887E-06	7.12519E-05
Road 5	5	1800-1900	0.054388292	9.38116E-07	1.26863E-05	0.049730098	8.5777E-07	1.15998E-05	0.309533776	5.33899E-06	7.22002E-05	0.28153864	4.85612E-06	6.56702E-05	0.331268738	5.71389E-06	7.727E-05
Road 5	5	1900-2000	0.062358411	8.02888E-07	1.08576E-05	0.057052478	7.34572E-07	9.93376E-06	0.351449898	4.52505E-06	6.11931E-05	0.320061297	4.12091E-06	5.57278E-05	0.377113776	4.85548E-06	6.56616E-05
Road 5	5	2000-2100	0.060601533	6.8245E-07	9.2289E-06	0.05569725	6.27221E-07	8.48203E-06	0.337175967	3.79703E-06	5.13479E-05	0.308411767	3.47311E-06	4.69675E-05	0.364109017	4.10033E-06	5.54495E-05
Road 5	5	2100-2200	0.062664083	6.79802E-07	9.19309E-06	0.057305952	6.21675E-07	8.40703E-06	0.35788218	3.88243E-06	5.25028E-05	0.325753201	3.53388E-06	4.77894E-05	0.383059152	4.15556E-06	5.61964E-05
Road 5	5	2200-2300	0.061972725	5.80413E-07	7.84903E-06	0.055172365	5.16723E-07	6.98774E-06	0.349567154	3.27391E-06	4.42737E-05	0.308854208	2.89261E-06	3.91173E-05	0.364026573	3.40933E-06	4.6105E-05
Road 5	5	2300-0000	0.055500309	4.71878E-07	6.38129E-06	0.049163466	4.18E-07	5.65269E-06	0.329225276	2.79916E-06	3.78535E-05	0.288742804	2.45496E-06	3.31989E-05	0.337906269	2.87296E-06	3.88516E-05
Road 6	6	0000-0100	0.049507067	1.39378E-07	4.9822E-06	0.04373	1.23114E-07	4.40082E-06	0.320642067	9.02709E-07	3.22682E-05	0.280337267	7.89238E-07	2.82121E-05	0.324067267	9.12352E-07	3.26129E-05
Road 6	6	0100-0200	0.064104825	1.37161E-07	4.90296E-06	0.057870965	1.23823E-07	4.42617E-06	0.362110351	7.74786E-07	2.76954E-05	0.324723509	6.94791E-07	2.4836E-05	0.382594474	8.18614E-07	2.92621E-05
Road 6	6	0200-0300	0.058150886	8.62222E-08	3.08209E-06	0.052416835	7.77202E-08	2.77818E-06	0.333367595	4.94295E-07	1.7669E-05	0.298380886	4.42419E-07	1.58147E-05	0.350797722	5.20139E-07	1.85929E-05
Road 6	6	0300-0400	0.059690161	6.94593E-08	2.48289E-06	0.053735323	6.25298E-08	2.23519E-06	0.382094355	4.44629E-07	1.58937E-05	0.341788548	3.97727E-07	1.42171E-05	0.395523871	4.60257E-07	1.64523E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.064692778	1.09278E-07	3.90626E-06	0.059181222	9.99683E-08	3.57346E-06	0.380822	6.4328E-07	2.29947E-05	0.346257556	5.84895E-07	2.09076E-05	0.405438778	6.84863E-07	2.44811E-05
Road 6	6	0500-0600	0.058729198	1.78569E-07	6.3831E-06	0.053138025	1.61568E-07	5.77541E-06	0.355725432	1.0816E-06	3.86627E-05	0.319315	9.7089E-07	3.47054E-05	0.372453025	1.13246E-06	4.04808E-05
Road 6	6	0600-0700	0.063698276	3.46706E-07	1.23933E-05	0.056844655	3.09402E-07	1.10599E-05	0.403268069	2.19497E-06	7.84611E-05	0.357124448	1.94381E-06	6.94833E-05	0.413969103	2.25321E-06	8.05431E-05
Road 6	6	0700-0800	0.059559697	5.16452E-07	1.84611E-05	0.05301513	4.59703E-07	1.64325E-05	0.343681472	2.98012E-06	0.000106527	0.303230281	2.62936E-06	9.3989E-05	0.356245411	3.08906E-06	0.000110422
Road 6	6	0800-0900	0.050348112	6.25572E-07	2.23616E-05	0.045234502	5.62035E-07	2.00905E-05	0.298155227	3.70456E-06	0.000132423	0.265476148	3.29852E-06	0.000117909	0.31071065	3.86056E-06	0.000137999
Road 6	6	0900-1000	0.053223728	6.32331E-07	2.26033E-05	0.048012101	5.70414E-07	2.039E-05	0.30248545	3.59372E-06	0.000128461	0.270811438	3.21741E-06	0.000115009	0.318823539	3.78782E-06	0.000135399
Road 6	6	1000-1100	0.070992093	7.12852E-07	2.54816E-05	0.064224093	6.44893E-07	2.30523E-05	0.389566112	3.91175E-06	0.000139829	0.350915832	3.52365E-06	0.000125956	0.415139925	4.16854E-06	0.000149008
Road 6	6	1100-1200	0.081625038	8.15025E-07	2.91338E-05	0.073537218	7.34268E-07	2.62471E-05	0.427672312	4.2703E-06	0.000152646	0.384112989	3.83536E-06	0.000137099	0.457650207	4.56963E-06	0.000163346
Road 6	6	1200-1300	0.077702294	7.62731E-07	2.72645E-05	0.071277113	6.99661E-07	2.501E-05	0.390680268	3.83494E-06	0.000137084	0.357371625	3.50798E-06	0.000125396	0.428648738	4.20764E-06	0.000150406
Road 6	6	1300-1400	0.089793186	8.78045E-07	3.13866E-05	0.082671478	8.08405E-07	2.88972E-05	0.459197044	4.49027E-06	0.000160509	0.421629789	4.12292E-06	0.000147378	0.504301267	4.93132E-06	0.000176275
Road 6	6	1400-1500	0.085399826	9.20036E-07	3.28875E-05	0.07862547	8.47054E-07	3.02787E-05	0.430258728	4.63529E-06	0.000165693	0.39494169	4.25481E-06	0.000152092	0.47356716	5.10187E-06	0.000182371
Road 6	6	1500-1600	0.075383007	7.95144E-07	2.84232E-05	0.068650605	7.2413E-07	2.58847E-05	0.393093683	4.14637E-06	0.000148216	0.356905285	3.76465E-06	0.000134571	0.42555589	4.48878E-06	0.000160456
Road 6	6	1600-1700	0.078113056	8.44465E-07	3.01862E-05	0.07233316	7.8198E-07	2.79526E-05	0.389003594	4.20544E-06	0.000150328	0.359295903	3.88428E-06	0.000138847	0.431629063	4.66626E-06	0.0001668
Road 6	6	1700-1800	0.058334443	6.67868E-07	2.38736E-05	0.053119148	6.08158E-07	2.17392E-05	0.301220902	3.44866E-06	0.000123276	0.273000098	3.12556E-06	0.000111726	0.326119246	3.73372E-06	0.000133465
Road 6	6	1800-1900	0.056549376	7.31279E-07	2.61402E-05	0.051723237	6.68868E-07	2.39093E-05	0.297657112	3.84921E-06	0.000137594	0.270931553	3.5036E-06	0.00012524	0.32265479	4.17247E-06	0.000149149
Road 6	6	1900-2000	0.06639437	6.52978E-07	2.33413E-05	0.06073584	5.97327E-07	2.1352E-05	0.349504542	3.43732E-06	0.00012287	0.318086927	3.12833E-06	0.000111825	0.378822767	3.72566E-06	0.000133177
Road 6	6	2000-2100	0.052646364	4.13029E-07	1.47641E-05	0.048377153	3.79535E-07	1.35669E-05	0.308700383	2.42186E-06	8.65717E-05	0.281924163	2.21179E-06	7.90626E-05	0.330301316	2.59133E-06	9.26295E-05
Road 6	6	2100-2200	0.073626944	4.97479E-07	1.77829E-05	0.067336889	4.54979E-07	1.62637E-05	0.393431139	2.65832E-06	9.50241E-05	0.358301111	2.42095E-06	8.65393E-05	0.425638	2.87593E-06	0.000102803
Road 6	6	2200-2300	0.056569344	4.04522E-07	1.446E-05	0.050329606	3.59902E-07	1.2865E-05	0.321535958	2.29927E-06	8.21896E-05	0.282721339	2.02171E-06	7.2268E-05	0.333050945	2.38161E-06	8.51331E-05
Road 6	6	2300-0000	0.038835546	2.60216E-07	9.30165E-06	0.034405266	2.30531E-07	8.24054E-06	0.245432605	1.64451E-06	5.87845E-05	0.214778992	1.43912E-06	5.14426E-05	0.249184258	1.66965E-06	5.96831E-05
Road 7	7	0000-0100	0.072461398	1.95679E-07	4.88478E-06	0.06363087	1.71832E-07	4.2895E-06	0.429767957	1.16057E-06	2.89716E-05	0.374922773	1.01246E-06	2.52744E-05	0.438553643	1.1843E-06	2.95639E-05
Road 7	7	0100-0200	0.086737736	1.826E-07	4.55829E-06	0.078471448	1.65198E-07	4.12387E-06	0.47499194	9.99951E-07	2.4962E-05	0.428025172	9.01076E-07	2.24938E-05	0.506496621	1.06627E-06	2.66177E-05
Road 7	7	0200-0300	0.074250368	1.01333E-07	2.5296E-06	0.066960319	9.13839E-08	2.28124E-06	0.421159061	5.74776E-07	1.43483E-05	0.377951568	5.15808E-07	1.28763E-05	0.444911887	6.07192E-07	1.51575E-05
Road 7	7	0300-0400	0.075629211	8.34502E-08	2.08319E-06	0.0681614	7.52101E-08	1.87749E-06	0.456741316	5.03974E-07	1.25808E-05	0.409795762	4.52174E-07	1.12877E-05	0.477957162	5.27384E-07	1.31652E-05
Road 7	7	0400-0500	0.083900968	1.35212E-07	3.37532E-06	0.076479357	1.23251E-07	3.07675E-06	0.467962092	7.5415E-07	1.88261E-05	0.424830142	6.84641E-07	1.70909E-05	0.501309499	8.07892E-07	2.01676E-05
Road 7	7	0500-0600	0.076842246	2.20897E-07	5.51431E-06	0.069060604	1.98527E-07	4.95588E-06	0.434374983	1.24869E-06	3.11714E-05	0.388145136	1.11579E-06	2.78538E-05	0.45720574	1.31432E-06	3.28097E-05
Road 7	7	0600-0700	0.082364556	4.23319E-07	1.05674E-05	0.073134921	3.75883E-07	9.38326E-06	0.478864285	2.46116E-06	6.14386E-05	0.422749426	2.17275E-06	5.4239E-05	0.495884346	2.54864E-06	6.36223E-05
Road 7	7	0700-0800	0.078600278	6.44758E-07	1.60953E-05	0.069598053	5.70913E-07	1.42518E-05	0.429947729	3.52686E-06	8.8042E-05	0.378396996	3.10399E-06	7.74857E-05	0.447995049	3.6749E-06	9.17376E-05
Road 7	7	0800-0900	0.077577578	9.63001E-07	2.40396E-05	0.069595864	8.63921E-07	2.15663E-05	0.422396144	5.24337E-06	0.000130892	0.376828947	4.67773E-06	0.000116771	0.446424811	5.54165E-06	0.000138338
Road 7	7	0900-1000	0.07904062	9.08866E-07	2.26883E-05	0.071282537	8.19658E-07	2.04613E-05	0.414899105	4.77081E-06	0.000119095	0.372402657	4.28215E-06	0.000106897	0.443685194	5.10181E-06	0.000127358
Road 7	7	1000-1100	0.093561433	9.44074E-07	2.35672E-05	0.084843196	8.56103E-07	2.13711E-05	0.492871935	4.97328E-06	0.000124149	0.445559355	4.49588E-06	0.000112232	0.530402552	5.35198E-06	0.000133603
Road 7	7	1100-1200	0.103365997	1.04151E-06	2.59994E-05	0.093556453	9.42665E-07	2.3532E-05	0.530000409	5.34023E-06	0.00013331	0.47867402	4.82307E-06	0.0001204	0.572230473	5.76574E-06	0.000143932
Road 7	7	1200-1300	0.100121198	1.00736E-06	2.51469E-05	0.091956577	9.2521E-07	2.30963E-05	0.506082684	5.09189E-06	0.00012711	0.464052072	4.669E-06	0.000116554	0.55600865	5.59421E-06	0.00013965
Road 7	7	1300-1400	0.106515925	1.05469E-06	2.63284E-05	0.097757119	9.67959E-07	2.41634E-05	0.539387024	5.34084E-06	0.000133325	0.49418943	4.8933E-06	0.000122153	0.591946549	5.86126E-06	0.000146316
Road 7	7	1400-1500	0.099287469	1.02924E-06	2.56932E-05	0.090961313	9.4293E-07	2.35386E-05	0.505804444	5.24331E-06	0.00013089	0.462436557	4.79374E-06	0.000119667	0.55339787	5.73667E-06	0.000143206
Road 7	7	1500-1600	0.092167691	9.38039E-07	2.34165E-05	0.084340669	8.5838E-07	2.1428E-05	0.476256327	4.84711E-06	0.000121	0.434765927	4.42484E-06	0.000110459	0.519106595	5.28322E-06	0.000131886
Road 7	7	1600-1700	0.095263185	1.00274E-06	2.50316E-05	0.087777749	9.23946E-07	2.30647E-05	0.475028295	5.00014E-06	0.00012482	0.436830463	4.59807E-06	0.000114783	0.524608212	5.52201E-06	0.000137847
Road 7	7	1700-1800	0.07311704	8.14213E-07	2.03254E-05	0.066543012	7.41007E-07	1.84979E-05	0.378829231	4.21855E-06	0.000105309	0.343697562	3.82733E-06	9.55427E-05	0.410240574	4.56834E-06	0.000114041
Road 7	7	1800-1900	0.066906994	7.74202E-07	1.93266E-05	0.061439235	7.10933E-07	1.77472E-05	0.352594554	4.07998E-06	0.00010185	0.322540866	3.73222E-06	9.31684E-05	0.3839801	4.44315E-06	0.000110916
Road 7	7	1900-2000	0.077098662	6.73857E-07	1.68217E-05	0.070447375	6.15723E-07	1.53705E-05	0.409027247	3.57498E-06	8.9243E-05	0.372296728	3.25394E-06	8.1229E-05	0.442744103	3.86967E-06	9.65995E-05
Road 7	7	2000-2100	0.071367537	5.13933E-07	1.28294E-05	0.06558232	4.72273E-07	1.17895E-05	0.390788503	2.81415E-06	7.02504E-05	0.357679099	2.57573E-06	6.42985E-05	0.423261418	3.048E-06	7.6088E-05
Road 7	7	2100-2200	0.081941039	4.92523E-07	1.2295E-05	0.074947585	4.50487E-07	1.12456E-05	0.438797005	2.63747E-06	6.584E-05	0.399947101	2.40396E-06	6.00107E-05	0.474894686	2.85445E-06	7.12563E-05
Road 7	7	2200-2300	0.070507808	4.57582E-07	1.14227E-05	0.062742394	4.07186E-07	1.01647E-05	0.389396376	2.52711E-06	6.30848E-05	0.343548881	2.22957E-06	5.56572E-05	0.406291275	2.63675E-06	6.58219E-05
Road 7	7	2300-0000	0.050849244	3.03425E-07	7.57447E-06	0.044748814	2.67022E-07	6.66575E-06	0.303525035	1.81118E-06	4.52129E-05	0.26462989	1.57908E-06	3.94191E-05	0.309378704	1.84611E-06	4.60848E-05
Road 8	8	0000-0100	0.229813889	1.67137E-07	2.7552E-06	0.203115556	1.4772E-07	2.43512E-06	1.138101667	8.2771E-07	1.36445E-05	1.005514444	7.31283E-07	1.20549E-05	1.20863	8.79004E-07	1.449E-05
Road 8	8	0100-0200	0.232692333	1.41026E-07	2.32475E-06	0.209918333	1.27223E-07	2.09723E-06	1.149273	6.96529E-07	1.1482E-05	1.036689333	6.28297E-07	1.03572E-05	1.246607667	7.5552E-07	1.24545E-05
Road 8	8	0200-0300	0.219086	6.63897E-08	1.09441E-06	0.197463333	5.98374E-08	9.86397E-07	1.137859333	3.44806E-07	5.68399E-06	1.025388	3.10724E-07	5.12216E-06	1.222851333	3.70561E-07	6.10856E-06
Road 8	8	0300-0400	0.199522143	5.64305E-08	9.30236E-07	0.179396429	5.07384E-08	8.36403E-07	1.014797143	2.87013E-07	4.73131E-06	0.912265	2.58014E-07	4.25327E-06	1.091661429	3.08753E-07	5.08967E-06
Road 8	8	0400-0500	0.226532381	9.61046E-08	1.58425E-06	0.207122857	8.78703E-08	1.44851E-06	1.086497619	4.60938E-07	7.5984E-06	0.993411429	4.21447E-07	6.9474E-06	1.200534286	5.09318E-07	8.39591E-06
Road 8	8	0500-0600	0.218555294	1.50119E-07	2.47465E-06	0.197705882	1.35798E-07	2.23858E-06	1.030410588	7.07757E-07	1.16671E-05	0.931584706	6.39876E-07	1.05481E-05	1.129290588	7.75674E-07	1.27867E-05
Road 8	8	0600-0700	0.247788871	3.10362E-07	5.1162E-06	0.221241774	2.77111E-07	4.56807E-06	1.154152097	1.4456E-06	2.38302E-05	1.029832581	1.28989E-06	2.12634E-05	1.251074355	1.567E-06	2.58314E-05
Road 8	8	0700-0800	0.245778922	5.06454E-07	8.3487E-06	0.218838431	4.5094E-07	7.43357E-06	1.156392647	2.38287E-06	3.92807E-05	1.02900402	2.12037E-06	3.49535E-05	1.247842451	2.57131E-06	4.23871E-05
Road 8	8	0800-0900	0.272159479	1.05565E-06	1.7402E-05	0.244789375	9.49486E-07	1.56519E-05	1.285231667	4.98514E-06	8.21782E-05	1.155561146	4.48218E-06	7.3887E-05	1.400350521	5.43166E-06	8.95389E-05
Road 8	8	0900-1000	0.290290506	9.26584E-07	1.52744E-05	0.261821646	8.35714E-07	1.37764E-05	1.303511203	4.1607E-06	6.85876E-05	1.175632911	3.75253E-06	6.1859E-05	1.437454557	4.58824E-06	7.56354E-05
Road 8	8	1000-1100	0.2731995	8.83069E-07	1.45571E-05	0.247164438	7.98915E-07	1.31698E-05	1.263445875	4.08387E-06	6.7321E-05	1.142469375	3.69283E-06	6.08749E-05	1.389633813	4.49175E-06	7.40447E-05
Road 8	8	1100-1200	0.282951321	9.08874E-07	1.49824E-05	0.25454283	8.17622E-07	1.34782E-05	1.321121006	4.2436E-06	6.99542E-05	1.188338239	3.81709E-06	6.29232E-05	1.442881069	4.63471E-06	7.64014E-05
Road 8	8	1200-1300	0.282557118	9.70398E-07	1.59966E-05	0.258887176	8.89107E-07	1.46566E-05	1.330287118	4.56866E-06	7.53127E-05	1.218649647	4.18526E-06	6.89925E-05	1.477536824	5.07437E-06	8.36491E-05
Road 8	8	1300-1400	0.25782179	8.4378E-07	1.39094E-05	0.237214074	7.76337E-07	1.27976E-05	1.197615309	3.91947E-06	6.4611E-05	1.101611543	3.60527E-06	5.94316E-05	1.338825617	4.38161E-06	7.22292E-05
Road 8	8	1400-1500	0.251967194	7.07544E-07	1.16636E-05	0.231810863	6.50944E-07	1.07306E-05	1.218679928	3.42215E-06	5.64129E-05	1.120925971	3.14765E-06	5.18878E-05	1.352736835	3.79859E-06	6.26184E-05
Road 8	8	1500-1600	0.261015971	7.32954E-07	1.20825E-05	0.237553237	6.67069E-07	1.09964E-05	1.230769856	3.4561E-06	5.69725E-05	1.119788849	3.14446E-06	5.18352E-05	1.357342086	3.81153E-06	6.28316E-05
Road 8	8	1600-1700	0.25817255	7.77125E-07	1.28106E-05	0.238941678	7.19239E-07	1.18564E-05	1.206443893	3.63152E-06	5.98642E-05	1.116238389	3.35999E-06	5.53882E-05	1.355180067	4.07923E-06	6.72446E-05
Road 8	8	1700-1800	0.210706987	6.64046E-07	1.09466E-05	0.191717628	6.04201E-07	9.96003E-06	1.023315321	3.22499E-06	5.31628E-05	0.930227628	2.93163E-06	4.83268E-05	1.121945256	3.53583E-06	5.82868E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.210151682	4.54267E-07	7.48843E-06	0.192272336	4.15619E-07	6.85132E-06	1.046128224	2.26133E-06	3.72771E-05	0.956772617	2.06818E-06	3.40931E-05	1.149044953	2.48379E-06	4.09444E-05
Road 8	8	1900-2000	0.206157922	3.2069E-07	5.28646E-06	0.18866961	2.93486E-07	4.83801E-06	1.051721558	1.63601E-06	2.6969E-05	0.962195584	1.49675E-06	2.46733E-05	1.150865195	1.79023E-06	2.95113E-05
Road 8	8	2000-2100	0.227049221	3.53188E-07	5.82217E-06	0.208595844	3.24482E-07	5.34897E-06	1.056523506	1.64348E-06	2.70922E-05	0.970202338	1.5092E-06	2.48787E-05	1.178798182	1.83369E-06	3.02276E-05
Road 8	8	2100-2200	0.187886667	2.04967E-07	3.37881E-06	0.171966296	1.876E-07	3.09251E-06	0.954181481	1.04093E-06	1.71593E-05	0.872218889	9.51512E-07	1.56853E-05	1.044185185	1.13911E-06	1.87778E-05
Road 8	8	2200-2300	0.231651406	2.99509E-07	4.93729E-06	0.206258438	2.66678E-07	4.39608E-06	1.113507188	1.43969E-06	2.37327E-05	0.990578906	1.28075E-06	2.11127E-05	1.196837344	1.54743E-06	2.55087E-05
Road 8	8	2300-0000	0.185297736	1.984E-07	3.27054E-06	0.164252264	1.75866E-07	2.89909E-06	0.927430566	9.93006E-07	1.63693E-05	0.821358679	8.79435E-07	1.44971E-05	0.985610943	1.0553E-06	1.73962E-05
Road 9	9	0000-0100	0.200285078	5.3191E-08	1.58784E-06	0.180259958	4.78728E-08	1.42908E-06	0.896106562	2.37985E-07	7.10425E-06	0.801324431	2.12813E-07	6.35283E-06	0.981584389	2.60686E-07	7.78191E-06
Road 9	9	0100-0200	0.21342501	4.45348E-08	1.32944E-06	0.196862647	4.10788E-08	1.22627E-06	0.902541756	1.88331E-07	5.622E-06	0.82746115	1.72664E-07	5.15432E-06	1.024323797	2.13743E-07	6.38059E-06
Road 9	9	0200-0300	0.083012139	7.87359E-09	2.3504E-07	0.075184007	7.13111E-09	2.12876E-07	0.582879667	5.52854E-08	1.65036E-06	0.528772519	5.01534E-08	1.49716E-06	0.603956526	5.72845E-08	1.71004E-06
Road 9	9	0300-0400	0.100502872	7.62605E-09	2.27651E-07	0.090829236	6.89203E-09	2.05739E-07	0.606345935	4.60089E-08	1.37344E-06	0.54864243	4.16304E-08	1.24274E-06	0.639471666	4.85224E-08	1.44848E-06
Road 9	9	0400-0500	0.229764764	4.35858E-08	1.30111E-06	0.213383474	4.04783E-08	1.20835E-06	0.932019023	1.76802E-07	5.27783E-06	0.861350891	1.63396E-07	4.87765E-06	1.074734365	2.03874E-07	6.086E-06
Road 9	9	0500-0600	0.166641081	5.37393E-08	1.60421E-06	0.152883091	4.93026E-08	1.47177E-06	0.823678972	2.65625E-07	7.92935E-06	0.753593901	2.43023E-07	7.25466E-06	0.906476992	2.92326E-07	8.72643E-06
Road 9	9	0600-0700	0.199091315	1.20855E-07	3.60772E-06	0.181828981	1.10376E-07	3.29491E-06	1.01055379	6.13438E-07	1.83122E-05	0.918156365	5.5735E-07	1.66379E-05	1.099985347	6.67726E-07	1.99328E-05
Road 9	9	0700-0800	0.168430907	1.56559E-07	4.67357E-06	0.154570823	1.43676E-07	4.28898E-06	0.932949562	8.67193E-07	2.58872E-05	0.853628375	7.93462E-07	2.36862E-05	1.008199197	9.37139E-07	2.79752E-05
Road 9	9	0800-0900	0.260920262	5.69203E-07	1.69917E-05	0.239369844	5.2219E-07	1.55883E-05	1.23283408	2.68945E-06	8.02848E-05	1.125586399	2.45549E-06	7.33006E-05	1.364956243	2.97768E-06	8.88888E-05
Road 9	9	0900-1000	0.269931539	4.45486E-07	1.32985E-05	0.25008173	4.12727E-07	1.23206E-05	1.154640022	1.90558E-06	5.68848E-05	1.064946758	1.75755E-06	5.2466E-05	1.315028488	2.17028E-06	6.47866E-05
Road 9	9	1000-1100	0.27581062	3.8194E-07	1.14016E-05	0.25385499	3.51536E-07	1.0494E-05	1.159979981	1.60633E-06	4.79517E-05	1.064534285	1.47416E-06	4.40061E-05	1.318389275	1.82569E-06	5.45001E-05
Road 9	9	1100-1200	0.192386484	2.77364E-07	8.27978E-06	0.175054825	2.52377E-07	7.53387E-06	1.001464397	1.44381E-06	4.31003E-05	0.917137643	1.32224E-06	3.94711E-05	1.092192468	1.57461E-06	4.70049E-05
Road 9	9	1200-1300	0.284377402	3.99198E-07	1.19167E-05	0.266957295	3.74744E-07	1.11868E-05	1.265661497	1.77669E-06	5.30371E-05	1.186931561	1.66617E-06	4.9738E-05	1.453888856	2.04091E-06	6.09247E-05
Road 9	9	1300-1400	0.323664875	3.7453E-07	1.11804E-05	0.303607018	3.5132E-07	1.04875E-05	1.230227122	1.42356E-06	4.24958E-05	1.149695606	1.33037E-06	3.9714E-05	1.453302624	1.6817E-06	5.02015E-05
Road 9	9	1400-1500	0.209568212	2.70331E-07	8.06984E-06	0.197303418	2.5451E-07	7.59756E-06	1.005578313	1.29714E-06	3.87218E-05	0.942336158	1.21556E-06	3.62865E-05	1.139639575	1.47007E-06	4.38841E-05
Road 9	9	1500-1600	0.174546438	1.88733E-07	5.634E-06	0.162776607	1.76006E-07	5.25409E-06	0.886076255	9.58092E-07	2.86007E-05	0.827448966	8.947E-07	2.67083E-05	0.990225573	1.07071E-06	3.19624E-05
Road 9	9	1600-1700	0.1835679	2.78579E-07	8.31606E-06	0.173668178	2.63555E-07	7.86758E-06	0.988740481	1.50049E-06	4.47923E-05	0.933388667	1.41649E-06	4.22847E-05	1.107056845	1.68005E-06	5.01523E-05
Road 9	9	1700-1800	0.157644245	2.06342E-07	6.15968E-06	0.148766412	1.94722E-07	5.81279E-06	0.921473876	1.20613E-06	3.6005E-05	0.871527189	1.14075E-06	3.40534E-05	1.0202936	1.33547E-06	3.98662E-05
Road 9	9	1800-1900	0.157009155	1.31051E-07	3.91209E-06	0.149400265	1.247E-07	3.7225E-06	0.894289116	7.46435E-07	2.22824E-05	0.852215859	7.11318E-07	2.12341E-05	1.001616124	8.36017E-07	2.49566E-05
Road 9	9	1900-2000	0.161469389	1.3171E-07	3.93178E-06	0.152673976	1.24536E-07	3.71761E-06	0.8469104	6.90824E-07	2.06223E-05	0.798116315	6.51023E-07	1.94341E-05	0.950790291	7.75558E-07	2.31518E-05
Road 9	9	2000-2100	0.169924696	9.34794E-08	2.79052E-06	0.159042969	8.74931E-08	2.61182E-06	0.745880598	4.10326E-07	1.22489E-05	0.700798969	3.85525E-07	1.15086E-05	0.859841939	4.73018E-07	1.41204E-05
Road 9	9	2100-2200	0.020385817	1.0828E-08	3.23234E-07	0.019198893	1.01975E-08	3.04414E-07	0.291829333	1.55006E-07	4.62719E-06	0.271638798	1.44282E-07	4.30706E-06	0.29083769	1.54479E-07	4.61147E-06
Road 9	9	2200-2300	0.166993502	1.04538E-07	3.12064E-06	0.151945559	9.51181E-08	2.83944E-06	0.801046952	5.01457E-07	1.49693E-05	0.727227157	4.55245E-07	1.35899E-05	0.879172716	5.50363E-07	1.64293E-05
Road 9	9	2300-0000	0.13736652	7.81742E-08	2.33363E-06	0.125024353	7.11504E-08	2.12396E-06	0.696091902	3.9614E-07	1.18255E-05	0.630577101	3.58857E-07	1.07125E-05	0.755601454	4.30007E-07	1.28364E-05
Road 10	10	0000-0100	0.280813749	2.15905E-07	4.80059E-06	0.249556756	1.91873E-07	4.26624E-06	1.387795842	1.06702E-06	2.37248E-05	1.233565648	9.48434E-07	2.10882E-05	1.483122404	1.14031E-06	2.53544E-05
Road 10	10	0100-0200	0.269779035	1.56718E-07	3.48458E-06	0.244791238	1.42203E-07	3.16183E-06	1.323199078	7.68664E-07	1.7091E-05	1.200030518	6.97114E-07	1.55001E-05	1.444821756	8.39316E-07	1.86619E-05
Road 10	10	0200-0300	0.26657393	8.65374E-08	1.92413E-06	0.240246524	7.79908E-08	1.7341E-06	1.291377907	4.19218E-07	9.32118E-06	1.16455849	3.78048E-07	8.40579E-06	1.404805015	4.56039E-07	1.01399E-05
Road 10	10	0300-0400	0.241941993	4.96049E-08	1.10295E-06	0.217486913	4.4591E-08	9.91467E-07	1.264155962	2.59188E-07	5.76296E-06	1.137113508	2.3314E-07	5.18381E-06	1.354600421	2.77731E-07	6.17527E-06
Road 10	10	0400-0500	0.285165209	1.12062E-07	2.49166E-06	0.262395429	1.03114E-07	2.2927E-06	1.328449199	5.22042E-07	1.16074E-05	1.219579809	4.79259E-07	1.06562E-05	1.481975238	5.82373E-07	1.29489E-05
Road 10	10	0500-0600	0.263209158	1.84382E-07	4.09967E-06	0.240238603	1.6829E-07	3.74188E-06	1.231881616	8.62949E-07	1.91874E-05	1.121764012	7.85811E-07	1.74723E-05	1.362002614	9.54101E-07	2.12141E-05
Road 10	10	0600-0700	0.324993165	4.55324E-07	1.0124E-05	0.294964659	4.13253E-07	9.18856E-06	1.548858059	2.16999E-06	4.82491E-05	1.405109891	1.9686E-06	4.37711E-05	1.70007455	2.38185E-06	5.29597E-05
Road 10	10	0700-0800	0.321635631	7.08902E-07	1.57622E-05	0.290577384	6.40448E-07	1.42402E-05	1.550531545	3.41746E-06	7.59861E-05	1.40094036	3.08775E-06	6.86551E-05	1.691517744	3.7282E-06	8.28953E-05
Road 10	10	0800-0900	0.340804234	1.44407E-06	3.21085E-05	0.307834361	1.30437E-06	2.90023E-05	1.626632419	6.89245E-06	0.000153252	1.469147437	6.22515E-06	0.000138414	1.776981798	7.52952E-06	0.000167417
Road 10	10	0900-1000	0.375954969	1.27184E-06	2.8279E-05	0.343562658	1.16226E-06	2.58425E-05	1.738384107	5.8809E-06	0.00013076	1.587649079	5.37096E-06	0.000119422	1.931211737	6.53322E-06	0.000145264
Road 10	10	1000-1100	0.373478631	1.37195E-06	3.05048E-05	0.341050661	1.25282E-06	2.78562E-05	1.635351248	6.00734E-06	0.000133571	1.490276468	5.47442E-06	0.000121722	1.831327129	6.72724E-06	0.000149578
Road 10	10	1100-1200	0.361375616	1.32749E-06	2.95162E-05	0.327103222	1.20159E-06	2.6717E-05	1.639951434	6.02424E-06	0.000133947	1.483091144	5.44802E-06	0.000121135	1.810194365	6.64961E-06	0.000147852
Road 10	10	1200-1300	0.375052209	1.42258E-06	3.16307E-05	0.346744282	1.31521E-06	2.92433E-05	1.714607279	6.50354E-06	0.000144604	1.584725938	6.0109E-06	0.000133651	1.93147022	7.32611E-06	0.000162894
Road 10	10	1300-1400	0.365057955	1.19756E-06	2.66273E-05	0.339008059	1.1121E-06	2.47272E-05	1.634345262	5.36139E-06	0.000119209	1.516077534	4.97342E-06	0.000110582	1.855085593	6.08552E-06	0.00013531
Road 10	10	1400-1500	0.34029516	1.05237E-06	2.3399E-05	0.316782231	9.79652E-07	2.17823E-05	1.626439893	5.02978E-06	0.000111836	1.513410553	4.68024E-06	0.000104064	1.830192784	5.65989E-06	0.000125846
Road 10	10	1500-1600	0.336414786	1.06336E-06	2.36434E-05	0.308662927	9.75638E-07	2.1693E-05	1.559748113	4.93013E-06	0.00010962	1.431008796	4.52321E-06	0.000100572	1.739671723	5.49885E-06	0.000122265
Road 10	10	1600-1700	0.322378868	1.13466E-06	2.52289E-05	0.301282901	1.06041E-06	2.35779E-05	1.516372108	5.3371E-06	0.000118669	1.415354783	4.98156E-06	0.000110763	1.716637684	6.04197E-06	0.000134341
Road 10	10	1700-1800	0.298554378	9.94696E-07	2.21168E-05	0.275645289	9.1837E-07	2.04197E-05	1.471702863	4.90329E-06	0.000109023	1.361224505	4.5352E-06	0.000100839	1.636869794	5.45357E-06	0.000121259
Road 10	10	1800-1900	0.300962388	6.222E-07	1.38344E-05	0.278289274	5.75326E-07	1.27922E-05	1.454452582	3.00689E-06	6.68573E-05	1.345538303	2.78172E-06	6.18508E-05	1.623827577	3.35705E-06	7.4643E-05
Road 10	10	1900-2000	0.2602281	4.84633E-07	1.07757E-05	0.241272711	4.49332E-07	9.99076E-06	1.315970322	2.45078E-06	5.44925E-05	1.221141565	2.27418E-06	5.05657E-05	1.462414276	2.72351E-06	6.05565E-05
Road 10	10	2000-2100	0.298861612	3.6765E-07	8.1746E-06	0.275672392	3.39124E-07	7.54032E-06	1.397535875	1.71921E-06	3.8226E-05	1.288606463	1.5852E-06	3.52465E-05	1.564278855	1.92433E-06	4.27869E-05
Road 10	10	2100-2200	0.251464835	3.17937E-07	7.06924E-06	0.235167027	2.97331E-07	6.61107E-06	1.31412425	1.6615E-06	3.6943E-05	1.22962327	1.55466E-06	3.45675E-05	1.464790296	1.85199E-06	4.11785E-05
Road 10	10	2200-2300	0.267470919	3.51884E-07	7.82404E-06	0.241612848	3.17865E-07	7.06764E-06	1.309196451	1.72238E-06	3.82965E-05	1.184267743	1.55802E-06	3.46421E-05	1.425880592	1.87589E-06	4.17098E-05
Road 10	10	2300-0000	0.249438459	3.06852E-07	6.82275E-06	0.222615734	2.73855E-07	6.08909E-06	1.220647708	1.5016E-06	3.33877E-05	1.088717823	1.33931E-06	2.97791E-05	1.311333556	1.61316E-06	3.58682E-05
Road 11	11	0000-0100	0.314199798	2.40014E-07	1.99093E-06	0.278957048	2.13092E-07	1.76762E-06	1.521813452	1.1625E-06	9.643E-06	1.348957232	1.03045E-06	8.5477E-06	1.62791428	1.24355E-06	1.03153E-05
Road 11	11	0100-0200	0.307185478	1.65326E-07	1.37139E-06	0.278493197	1.49883E-07	1.2433E-06	1.463167147	7.87468E-07	6.53211E-06	1.323776537	7.12449E-07	5.90982E-06	1.602269734	8.62333E-07	7.15312E-06
Road 11	11	0200-0300	0.266028928	6.92784E-08	5.7467E-07	0.239760864	6.24377E-08	5.17926E-07	1.371111436	3.5706E-07	2.96184E-06	1.236460807	3.21995E-07	2.67097E-06	1.47622167	3.84433E-07	3.1889E-06
Road 11	11	0300-0400	0.284836535	6.92311E-08	5.74278E-07	0.255988001	6.22193E-08	5.16114E-07	1.437984553	3.4951E-07	2.89921E-06	1.292713198	3.14201E-07	2.60632E-06	1.548701199	3.7642E-07	3.12244E-06
Road 11	11	0400-0500	0.294785491	1.02356E-07	8.49052E-07	0.271376743	9.4228E-08	7.81629E-07	1.354195761	4.70207E-07	3.9004E-06	1.243644963	4.31821E-07	3.58199E-06	1.515021706	5.26049E-07	4.36362E-06
Road 11	11	0500-0600	0.239989956	1.12495E-07	9.33158E-07	0.218818353	1.02571E-07	8.50836E-07	1.185578323	5.5574E-07	4.60991E-06	1.079617916	5.06071E-07	4.1979E-06	1.298436269	6.08642E-07	5.04873E-06
Road 11	11	0600-0700	0.264661915	2.38931E-07	1.98195E-06	0.239097812	2.15852E-07	1.79051E-06	1.323766796	1.19507E-06	9.91318E-06	1.193114255	1.07712E-06	8.93477E-06	1.432212067	1.29297E-06	1.07253E-05
Road 11	11	0700-0800	0.317983744	6.0174E-07	4.99148E-06	0.285273387	5.3984E-07	4.47802E-06	1.587531507	3.00418E-06	2.49199E-05	1.424330298	2.69535E-06	2.23581E-05	1.709603685	3.23519E-06	2.68361E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.337035906	1.19952E-06	9.95012E-06	0.305829121	1.08845E-06	9.02882E-06	1.605233559	5.71307E-06	4.73904E-05	1.453525902	5.17314E-06	4.29116E-05	1.759355023	6.26159E-06	5.19404E-05
Road 11	11	0900-1000	0.339623141	8.66747E-07	7.18973E-06	0.310231801	7.91737E-07	6.56753E-06	1.5480567	3.95077E-06	3.2772E-05	1.410023028	3.5985E-06	2.98498E-05	1.72025483	4.39023E-06	3.64173E-05
Road 11	11	1000-1100	0.345277954	7.25323E-07	6.01662E-06	0.314719898	6.6113E-07	5.48413E-06	1.554899121	3.26637E-06	2.70948E-05	1.414476906	2.97138E-06	2.46479E-05	1.729196804	3.63251E-06	3.0132E-05
Road 11	11	1100-1200	0.30317438	7.15828E-07	5.93785E-06	0.273440956	6.45624E-07	5.35551E-06	1.501644098	3.54555E-06	2.94106E-05	1.357942554	3.20625E-06	2.65961E-05	1.631383509	3.85188E-06	3.19516E-05
Road 11	11	1200-1300	0.367939099	1.0476E-06	8.68996E-06	0.339837819	9.67594E-07	8.02627E-06	1.716637018	4.88765E-06	4.05434E-05	1.584467444	4.51133E-06	3.74219E-05	1.924305263	5.47892E-06	4.54481E-05
Road 11	11	1300-1400	0.38062684	7.99581E-07	6.63259E-06	0.353299154	7.42174E-07	6.15639E-06	1.662745155	3.49292E-06	2.89741E-05	1.539378919	3.23376E-06	2.68243E-05	1.892678074	3.97594E-06	3.29807E-05
Road 11	11	1400-1500	0.30340124	6.11016E-07	5.06843E-06	0.281990464	5.67897E-07	4.71076E-06	1.4602894	2.94086E-06	2.43947E-05	1.354639151	2.72809E-06	2.26298E-05	1.636629615	3.29599E-06	2.73405E-05
Road 11	11	1500-1600	0.270923971	5.50314E-07	4.5649E-06	0.24817994	5.04116E-07	4.18168E-06	1.349431435	2.74103E-06	2.27371E-05	1.237090273	2.51284E-06	2.08442E-05	1.485270212	3.01696E-06	2.50259E-05
Road 11	11	1600-1700	0.258281603	6.27768E-07	5.20738E-06	0.241403521	5.86745E-07	4.86709E-06	1.322352646	3.21405E-06	2.66608E-05	1.235461784	3.00286E-06	2.4909E-05	1.476865305	3.5896E-06	2.9776E-05
Road 11	11	1700-1800	0.256158706	6.3595E-07	5.27525E-06	0.235569124	5.84833E-07	4.85124E-06	1.334590321	3.31331E-06	2.74841E-05	1.230051037	3.05377E-06	2.53313E-05	1.46562016	3.63861E-06	3.01825E-05
Road 11	11	1800-1900	0.275305434	5.63994E-07	4.67837E-06	0.253829779	5.19999E-07	4.31343E-06	1.404644813	2.87757E-06	2.38697E-05	1.297038923	2.65713E-06	2.20411E-05	1.550868702	3.17713E-06	2.63545E-05
Road 11	11	1900-2000	0.260959773	4.1228E-07	3.4199E-06	0.241086824	3.80884E-07	3.15946E-06	1.311925868	2.07266E-06	1.71929E-05	1.211361336	1.91378E-06	1.5875E-05	1.452448159	2.29467E-06	1.90344E-05
Road 11	11	2000-2100	0.268501932	3.77581E-07	3.13206E-06	0.247779946	3.48441E-07	2.89034E-06	1.295227598	1.82141E-06	1.51088E-05	1.195724692	1.68149E-06	1.39481E-05	1.443504638	2.02993E-06	1.68384E-05
Road 11	11	2100-2200	0.190963843	1.9229E-07	1.59506E-06	0.174987396	1.76203E-07	1.46161E-06	1.035177954	1.04237E-06	8.64652E-06	0.949391144	9.55984E-07	7.92997E-06	1.12437854	1.13219E-06	9.39158E-06
Road 11	11	2200-2300	0.258172787	2.82376E-07	2.34234E-06	0.23153815	2.53245E-07	2.10069E-06	1.262329356	1.38067E-06	1.14528E-05	1.131057082	1.23709E-06	1.02618E-05	1.362595232	1.49034E-06	1.23625E-05
Road 11	11	2300-0000	0.251175567	2.61641E-07	2.17034E-06	0.224377952	2.33727E-07	1.93878E-06	1.248949207	1.30099E-06	1.07918E-05	1.114587196	1.16103E-06	9.63082E-06	1.338965148	1.39476E-06	1.15696E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.34272	2.52391E-06	3.79609E-06	1.19502	2.24628E-06	3.37851E-06	5.88305	1.10584E-05	1.66323E-05	5.23567	9.84148E-06	1.48021E-05	6.43069	1.20878E-05	1.81806E-05
Haul Road 1	HR1	0800-0900	1.34062	2.51996E-06	3.79015E-06	1.20491	2.26487E-06	3.40647E-06	5.87346	1.10403E-05	1.66052E-05	5.27904	9.92301E-06	1.49247E-05	6.48395	1.21879E-05	1.83312E-05
Haul Road 1	HR1	0900-1000	1.33882	2.51658E-06	3.78506E-06	1.20711	2.269E-06	3.41269E-06	5.86606	1.10264E-05	1.65843E-05	5.28854	9.94086E-06	1.49516E-05	6.49565	1.22099E-05	1.83642E-05
Haul Road 1	HR1	1000-1100	1.33313	2.50588E-06	3.76897E-06	1.20541	2.26581E-06	3.40789E-06	5.84077	1.09789E-05	1.65128E-05	5.28104	9.92677E-06	1.49303E-05	6.48645	1.21926E-05	1.83382E-05
Haul Road 1	HR1	1100-1200	1.33313	2.50588E-06	3.76897E-06	1.19891	2.25359E-06	3.38951E-06	5.84077	1.09789E-05	1.65128E-05	5.25267	9.87344E-06	1.48501E-05	6.45158	1.2127E-05	1.82397E-05
Haul Road 1	HR1	1200-1300	1.32173	2.48445E-06	3.73674E-06	1.21061	2.27558E-06	3.42259E-06	5.79071	1.08848E-05	1.63713E-05	5.30432	9.97053E-06	1.49962E-05	6.51493	1.22461E-05	1.84188E-05
Haul Road 1	HR1	1300-1400	1.31654	2.4747E-06	3.72207E-06	1.21061	2.27558E-06	3.42259E-06	5.76792	1.0842E-05	1.63068E-05	5.30432	9.97053E-06	1.49962E-05	6.51493	1.22461E-05	1.84188E-05
Haul Road 1	HR1	1400-1500	1.31654	2.4747E-06	3.72207E-06	1.21061	2.27558E-06	3.42259E-06	5.76792	1.0842E-05	1.63068E-05	5.30432	9.97053E-06	1.49962E-05	6.51493	1.22461E-05	1.84188E-05
Haul Road 1	HR1	1500-1600	1.31754	2.47658E-06	3.7249E-06	1.19891	2.25359E-06	3.38951E-06	5.77272	1.0851E-05	1.63204E-05	5.25267	9.87344E-06	1.48501E-05	6.45158	1.2127E-05	1.82397E-05
Haul Road 1	HR1	1600-1700	1.30285	2.44897E-06	3.68337E-06	1.20541	2.26581E-06	3.40789E-06	5.70836	0.00001073	1.61385E-05	5.28104	9.92677E-06	1.49303E-05	6.48645	1.21926E-05	1.83382E-05
Haul Road 1	HR1	1700-1800	1.30085	2.44521E-06	3.67771E-06	1.18323	2.22412E-06	3.34518E-06	5.69957	1.07135E-05	1.61136E-05	5.184	9.74436E-06	1.4656E-05	6.36723	1.19685E-05	1.80012E-05
Haul Road 1	HR1	1800-1900	1.29135	2.42735E-06	3.65085E-06	1.18103	2.21998E-06	3.33896E-06	5.6576	1.06346E-05	1.59949E-05	5.17441	9.72633E-06	1.46289E-05	6.35544	1.19463E-05	1.79678E-05
Haul Road 1	HR1	1900-2000	1.27407	2.39487E-06	3.602E-06	1.16544	2.19068E-06	3.29489E-06	5.58184	1.04922E-05	1.57808E-05	5.10585	9.59746E-06	1.44351E-05	6.27129	1.17881E-05	1.77299E-05
Haul Road 1	HR1	2000-2100	1.27407	2.39487E-06	3.602E-06	1.17063	2.20043E-06	3.30956E-06	5.58184	1.04922E-05	1.57808E-05	5.12875	9.64051E-06	1.44998E-05	6.29938	1.18409E-05	1.78094E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.34272	1.73927E-06	4.62978E-06	1.19502	1.54795E-06	4.1205E-06	5.88305	7.62053E-06	2.02851E-05	5.23567	6.78196E-06	1.80529E-05	6.43069	8.32991E-06	2.21734E-05
Haul Road 2	HR2	0800-0900	1.34062	1.73655E-06	4.62254E-06	1.20491	1.56076E-06	4.1546E-06	5.87346	7.60811E-06	2.0252E-05	5.27904	6.83813E-06	1.82024E-05	6.48395	8.3989E-06	2.23571E-05
Haul Road 2	HR2	0900-1000	1.33882	1.73422E-06	4.61633E-06	1.20711	1.56361E-06	4.16219E-06	5.86606	7.59852E-06	2.02265E-05	5.28854	6.85044E-06	1.82352E-05	6.49565	8.41405E-06	2.23974E-05
Haul Road 2	HR2	1000-1100	1.33313	1.72685E-06	4.59671E-06	1.20541	1.56141E-06	4.15633E-06	5.84077	7.56576E-06	2.01393E-05	5.28104	6.84073E-06	1.82093E-05	6.48645	8.40214E-06	2.23657E-05
Haul Road 2	HR2	1100-1200	1.33313	1.72685E-06	4.59671E-06	1.19891	1.55299E-06	4.13391E-06	5.84077	7.56576E-06	2.01393E-05	5.25267	6.80398E-06	1.81115E-05	6.45158	8.35697E-06	2.22454E-05
Haul Road 2	HR2	1200-1300	1.32173	1.71209E-06	4.5574E-06	1.21061	1.56815E-06	4.17426E-06	5.79071	7.50092E-06	1.99667E-05	5.30432	6.87088E-06	1.82896E-05	6.51493	8.43903E-06	2.24639E-05
Haul Road 2	HR2	1300-1400	1.31654	1.70536E-06	4.53951E-06	1.21061	1.56815E-06	4.17426E-06	5.76792	7.4714E-06	1.98881E-05	5.30432	6.87088E-06	1.82896E-05	6.51493	8.43903E-06	2.24639E-05
Haul Road 2	HR2	1400-1500	1.31654	1.70536E-06	4.53951E-06	1.21061	1.56815E-06	4.17426E-06	5.76792	7.4714E-06	1.98881E-05	5.30432	6.87088E-06	1.82896E-05	6.51493	8.43903E-06	2.24639E-05
Haul Road 2	HR2	1500-1600	1.31754	1.70666E-06	4.54296E-06	1.19891	1.55299E-06	4.13391E-06	5.77272	7.47762E-06	1.99047E-05	5.25267	6.80398E-06	1.81115E-05	6.45158	8.35697E-06	2.22454E-05
Haul Road 2	HR2	1600-1700	1.30285	1.68763E-06	4.49231E-06	1.20541	1.56141E-06	4.15633E-06	5.70836	7.39425E-06	1.96828E-05	5.28104	6.84073E-06	1.82093E-05	6.48645	8.40214E-06	2.23657E-05
Haul Road 2	HR2	1700-1800	1.30085	1.68504E-06	4.48541E-06	1.18323	1.53268E-06	4.07985E-06	5.69957	7.38286E-06	1.96525E-05	5.184	6.71503E-06	1.78747E-05	6.36723	8.24771E-06	2.19546E-05
Haul Road 2	HR2	1800-1900	1.29135	1.67273E-06	4.45265E-06	1.18103	1.52983E-06	4.07226E-06	5.6576	7.3285E-06	1.95077E-05	5.17441	6.7026E-06	1.78417E-05	6.35544	8.23244E-06	2.19139E-05
Haul Road 2	HR2	1900-2000	1.27407	1.65035E-06	4.39307E-06	1.16544	1.50964E-06	4.01851E-06	5.58184	7.23036E-06	1.92465E-05	5.10585	6.6138E-06	1.76053E-05	6.27129	8.12343E-06	2.16238E-05
Haul Road 2	HR2	2000-2100	1.27407	1.65035E-06	4.39307E-06	1.17063	1.51636E-06	4.0364E-06	5.58184	7.23036E-06	1.92465E-05	5.12875	6.64346E-06	1.76842E-05	6.29938	8.15982E-06	2.17206E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.34272	1.73927E-06	4.62332E-06	1.19502	1.54795E-06	4.11476E-06	5.88305	7.62053E-06	2.02568E-05	5.23567	6.78196E-06	1.80277E-05	6.43069	8.32991E-06	2.21425E-05
Haul Road 3	HR3	0800-0900	1.34062	1.73655E-06	4.61609E-06	1.20491	1.56076E-06	4.14881E-06	5.87346	7.60811E-06	2.02238E-05	5.27904	6.83813E-06	1.81771E-05	6.48395	8.3989E-06	2.23259E-05
Haul Road 3	HR3	0900-1000	1.33882	1.73422E-06	4.6099E-06	1.20711	1.56361E-06	4.15638E-06	5.86606	7.59852E-06	2.01983E-05	5.28854	6.85044E-06	1.82098E-05	6.49565	8.41405E-06	2.23662E-05
Haul Road 3	HR3	1000-1100	1.33313	1.72685E-06	4.5903E-06	1.20541	1.56141E-06	4.15053E-06	5.84077	7.56576E-06	2.01112E-05	5.28104	6.84073E-06	1.8184E-05	6.48645	8.40214E-06	2.23345E-05
Haul Road 3	HR3	1100-1200	1.33313	1.72685E-06	4.5903E-06	1.19891	1.55299E-06	4.12815E-06	5.84077	7.56576E-06	2.01112E-05	5.25267	6.80398E-06	1.80863E-05	6.45158	8.35697E-06	2.22144E-05
Haul Road 3	HR3	1200-1300	1.32173	1.71209E-06	4.55105E-06	1.21061	1.56815E-06	4.16844E-06	5.79071	7.50092E-06	1.99389E-05	5.30432	6.87088E-06	1.82641E-05	6.51493	8.43903E-06	2.24326E-05
Haul Road 3	HR3	1300-1400	1.31654	1.70536E-06	4.53318E-06	1.21061	1.56815E-06	4.16844E-06	5.76792	7.4714E-06	1.98604E-05	5.30432	6.87088E-06	1.82641E-05	6.51493	8.43903E-06	2.24326E-05
Haul Road 3	HR3	1400-1500	1.31654	1.70536E-06	4.53318E-06	1.21061	1.56815E-06	4.16844E-06	5.76792	7.4714E-06	1.98604E-05	5.30432	6.87088E-06	1.82641E-05	6.51493	8.43903E-06	2.24326E-05
Haul Road 3	HR3	1500-1600	1.31754	1.70666E-06	4.53662E-06	1.19891	1.55299E-06	4.12815E-06	5.77272	7.47762E-06	1.98769E-05	5.25267	6.80398E-06	1.80863E-05	6.45158	8.35697E-06	2.22144E-05
Haul Road 3	HR3	1600-1700	1.30285	1.68763E-06	4.48604E-06	1.20541	1.56141E-06	4.15053E-06	5.70836	7.39425E-06	1.96553E-05	5.28104	6.84073E-06	1.8184E-05	6.48645	8.40214E-06	2.23345E-05
Haul Road 3	HR3	1700-1800	1.30085	1.68504E-06	4.47916E-06	1.18323	1.53268E-06	4.07416E-06	5.69957	7.38286E-06	1.96251E-05	5.184	6.71503E-06	1.78498E-05	6.36723	8.24771E-06	2.1924E-05
Haul Road 3	HR3	1800-1900	1.29135	1.67273E-06	4.44644E-06	1.18103	1.52983E-06	4.06658E-06	5.6576	7.3285E-06	1.94805E-05	5.17441	6.7026E-06	1.78168E-05	6.35544	8.23244E-06	2.18834E-05
Haul Road 3	HR3	1900-2000	1.27407	1.65035E-06	4.38695E-06	1.16544	1.50964E-06	4.0129E-06	5.58184	7.23036E-06	1.92197E-05	5.10585	6.6138E-06	1.75807E-05	6.27129	8.12343E-06	2.15936E-05
Haul Road 3	HR3	2000-2100	1.27407	1.65035E-06	4.38695E-06	1.17063	1.51636E-06	4.03078E-06	5.58184	7.23036E-06	1.92197E-05	5.12875	6.64346E-06	1.76596E-05	6.29938	8.15982E-06	2.16904E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.096615698	3.24591E-07	2.6406E-06	0.088273687	2.96565E-07	2.4126E-06	0.573864693	1.92796E-06	1.56843E-05	0.521479665	1.75197E-06	1.42525E-05	0.609753352	2.04853E-06	1.66651E-05
Road 1	1	0100-0200	0.074391193	1.52189E-07	1.23808E-06	0.069198991	1.41567E-07	1.15167E-06	0.450089541	9.20791E-07	7.49077E-06	0.416813945	8.52716E-07	6.93697E-06	0.486012936	9.94283E-07	8.08864E-06
Road 1	1	0200-0300	0.072150519	1.04272E-07	8.48265E-07	0.066719481	9.64227E-08	7.84413E-07	0.464167922	6.70813E-07	5.45717E-06	0.424853247	6.13996E-07	4.99495E-06	0.491572727	7.10419E-07	5.77936E-06
Road 1	1	0300-0400	0.060883455	6.28489E-08	5.11285E-07	0.056101818	5.79129E-08	4.7113E-07	0.376002909	3.88141E-07	3.15759E-06	0.342978	3.5405E-07	2.88025E-06	0.399079818	4.11963E-07	3.35138E-06
Road 1	1	0400-0500	0.078748605	1.27109E-07	1.03405E-06	0.07297407	1.17788E-07	9.58227E-07	0.453565814	7.32107E-07	5.9558E-06	0.41752407	6.73931E-07	5.48253E-06	0.49049814	7.9172E-07	6.44076E-06
Road 1	1	0500-0600	0.065346543	2.30577E-07	1.87578E-06	0.060805266	2.14553E-07	1.74542E-06	0.389191489	1.37327E-06	1.11718E-05	0.358998617	1.26674E-06	1.03051E-05	0.419803883	1.48129E-06	1.20505E-05
Road 1	1	0600-0700	0.087813798	5.55429E-07	4.5185E-06	0.081669407	5.16565E-07	4.20233E-06	0.470320119	2.97481E-06	2.42005E-05	0.434619228	2.749E-06	2.23635E-05	0.516288635	3.26556E-06	2.65658E-05
Road 1	1	0700-0800	0.074042082	7.80999E-07	6.35355E-06	0.068509911	7.22646E-07	5.87883E-06	0.411125374	4.33657E-06	3.52786E-05	0.377050534	3.97715E-06	3.23547E-05	0.445560445	4.69979E-06	3.82335E-05
Road 1	1	0800-0900	0.079539222	1.03604E-06	8.42834E-06	0.073826614	9.6163E-07	7.82301E-06	0.428540245	5.58196E-06	4.54101E-05	0.395629712	5.15328E-06	4.19227E-05	0.469456326	6.11492E-06	4.97457E-05
Road 1	1	0900-1000	0.084356919	1.13046E-06	9.19645E-06	0.078751751	1.05534E-06	8.58538E-06	0.468819314	6.2826E-06	5.11099E-05	0.43616084	5.84495E-06	4.75495E-05	0.514912591	6.90029E-06	5.61349E-05
Road 1	1	1000-1100	0.097723755	1.27474E-06	1.03702E-05	0.090970072	1.18664E-06	9.6535E-06	0.524216835	6.83804E-06	5.56285E-05	0.486553209	6.34674E-06	5.16317E-05	0.577523281	7.53338E-06	6.12852E-05
Road 1	1	1100-1200	0.087585401	1.10797E-06	9.01349E-06	0.082246499	1.04043E-06	8.46406E-06	0.502677611	6.35895E-06	5.1731E-05	0.471232003	5.96116E-06	4.84949E-05	0.553478501	7.00159E-06	5.69589E-05
Road 1	1	1200-1300	0.090284723	1.13025E-06	9.19478E-06	0.084563208	1.05863E-06	8.61209E-06	0.511413493	6.40227E-06	5.20834E-05	0.478368486	5.98858E-06	4.8718E-05	0.562931694	7.04721E-06	5.73301E-05
Road 1	1	1300-1400	0.094141594	1.25275E-06	1.01913E-05	0.088554076	1.17839E-06	9.58641E-06	0.522188759	6.9488E-06	5.65295E-05	0.490716573	6.52999E-06	5.31225E-05	0.579270649	7.70839E-06	6.27089E-05
Road 1	1	1400-1500	0.088686424	1.28003E-06	1.04132E-05	0.083835956	1.21002E-06	9.84369E-06	0.481732653	6.95294E-06	5.65632E-05	0.454684278	6.56254E-06	5.33872E-05	0.538520234	7.77256E-06	6.32309E-05
Road 1	1	1500-1600	0.096425363	1.29581E-06	1.05416E-05	0.089953799	1.20884E-06	9.83408E-06	0.522102542	7.01624E-06	5.70782E-05	0.486191313	6.53365E-06	5.31522E-05	0.576145112	7.74249E-06	6.29863E-05
Road 1	1	1600-1700	0.091957417	1.30308E-06	1.06007E-05	0.085638172	1.21353E-06	9.87224E-06	0.50411457	7.14352E-06	5.81136E-05	0.468464821	6.63834E-06	5.40039E-05	0.554102993	7.85187E-06	6.38761E-05
Road 1	1	1700-1800	0.073800277	1.04994E-06	8.54139E-06	0.067428417	9.59286E-07	7.80393E-06	0.414569182	5.89796E-06	4.79808E-05	0.376756082	5.36001E-06	4.36044E-05	0.444184499	6.31929E-06	5.14084E-05
Road 1	1	1800-1900	0.065762687	9.55336E-07	7.7718E-06	0.059560556	8.65238E-07	7.03884E-06	0.395790181	5.74965E-06	4.67743E-05	0.355809341	5.16885E-06	4.20494E-05	0.415369897	6.03409E-06	4.90882E-05
Road 1	1	1900-2000	0.07977425	8.87878E-07	7.22302E-06	0.072285447	8.04528E-07	6.54496E-06	0.459910776	5.11875E-06	4.16418E-05	0.413703693	4.60447E-06	3.74581E-05	0.48598914	5.409E-06	4.4003E-05
Road 1	1	2000-2100	0.072235209	6.8195E-07	5.54777E-06	0.065220755	6.15729E-07	5.00905E-06	0.429350179	4.05336E-06	3.29747E-05	0.384646461	3.63133E-06	2.95414E-05	0.449867217	4.24706E-06	3.45504E-05
Road 1	1	2100-2200	0.075728061	6.52387E-07	5.30726E-06	0.069258824	5.96655E-07	4.85388E-06	0.453858802	3.90993E-06	3.18079E-05	0.412479216	3.55345E-06	2.89079E-05	0.481738039	4.15011E-06	3.37617E-05
Road 1	1	2200-2300	0.07370554	6.01763E-07	4.89543E-06	0.06736577	5.50002E-07	4.47435E-06	0.441553218	3.60502E-06	2.93274E-05	0.400788092	3.2722E-06	2.66198E-05	0.468153862	3.8222E-06	3.10942E-05
Road 1	1	2300-0000	0.064509	4.72194E-07	3.84137E-06	0.058964128	4.31607E-07	3.51119E-06	0.397942205	2.91287E-06	2.36966E-05	0.360549795	2.63916E-06	2.147E-05	0.419513923	3.07077E-06	2.49811E-05
Road 2	2	0000-0100	0.160020192	1.92617E-07	1.2439E-06	0.146192692	1.75973E-07	1.13641E-06	0.678975769	8.17286E-07	5.27795E-06	0.617735769	7.43571E-07	4.80191E-06	0.763928462	9.19544E-07	5.93832E-06
Road 2	2	0100-0200	0.112254118	8.83481E-08	5.70544E-07	0.104396765	8.21641E-08	5.30608E-07	0.555701176	4.37357E-07	2.82441E-06	0.514847353	4.05204E-07	2.61677E-06	0.619244118	4.87368E-07	3.14738E-06
Road 2	2	0200-0300	0.117185652	6.23905E-08	4.02912E-07	0.10846087	5.77454E-08	3.72914E-07	0.64248087	3.42062E-07	2.209E-06	0.590823913	3.14559E-07	2.03139E-06	0.699284783	3.72304E-07	2.40431E-06
Road 2	2	0300-0400	0.101571333	3.52678E-08	2.27756E-07	0.093606	3.25021E-08	2.09895E-07	0.371504	1.28994E-07	8.33034E-07	0.339415333	1.17853E-07	7.6108E-07	0.433021333	1.50355E-07	9.70976E-07
Road 2	2	0400-0500	0.137117407	8.56984E-08	5.53432E-07	0.127080741	7.94255E-08	5.12922E-07	0.662173333	4.13858E-07	2.67266E-06	0.611373333	3.82108E-07	2.46762E-06	0.738454074	4.61534E-07	2.98054E-06
Road 2	2	0500-0600	0.109334035	1.4426E-07	9.31618E-07	0.101771579	1.34282E-07	8.6718E-07	0.486469474	6.41869E-07	4.14513E-06	0.449771754	5.93449E-07	3.83243E-06	0.551543333	7.27731E-07	4.69961E-06
Road 2	2	0600-0700	0.153811346	3.70287E-07	2.39127E-06	0.143136442	3.44588E-07	2.22531E-06	0.624440192	1.50328E-06	9.70805E-06	0.578232308	1.39204E-06	8.98966E-06	0.72136875	1.73663E-06	1.1215E-05
Road 2	2	0700-0800	0.126605375	4.68909E-07	3.02817E-06	0.11721825	4.34142E-07	2.80364E-06	0.529459438	1.96096E-06	1.26637E-05	0.486368375	1.80136E-06	1.1633E-05	0.603586625	2.23551E-06	1.44367E-05
Road 2	2	0800-0900	0.14276898	1.00467E-06	6.48806E-06	0.132507632	9.32461E-07	6.02174E-06	0.602059507	4.23672E-06	2.73603E-05	0.556019276	3.91273E-06	2.5268E-05	0.688526908	4.84519E-06	3.12898E-05
Road 2	2	0900-1000	0.166457937	9.71005E-07	6.27065E-06	0.155401627	9.06509E-07	5.85415E-06	0.70965246	4.13964E-06	2.67334E-05	0.660800952	3.85467E-06	2.48931E-05	0.816202579	4.76118E-06	3.07472E-05
Road 2	2	1000-1100	0.185253797	8.01909E-07	5.17865E-06	0.172482834	7.46627E-07	4.82164E-06	0.781894011	3.38459E-06	2.18573E-05	0.726335294	3.14409E-06	2.03042E-05	0.898818128	3.89072E-06	2.51259E-05
Road 2	2	1100-1200	0.217538743	9.21518E-07	5.95108E-06	0.204280492	8.65355E-07	5.58838E-06	0.888284044	3.76287E-06	2.43002E-05	0.833590492	3.53118E-06	2.2804E-05	1.037870984	4.39654E-06	2.83924E-05
Road 2	2	1200-1300	0.167506737	7.36719E-07	4.75766E-06	0.156926053	6.90184E-07	4.45714E-06	0.733273158	3.22504E-06	2.0827E-05	0.686077211	3.01747E-06	1.94865E-05	0.843003263	3.70765E-06	2.39437E-05
Road 2	2	1300-1400	0.184678117	9.53315E-07	6.15642E-06	0.173661614	8.96448E-07	5.78917E-06	0.754829865	3.89646E-06	2.5163E-05	0.709146682	3.66064E-06	2.36401E-05	0.882808296	4.55709E-06	2.94292E-05
Road 2	2	1400-1500	0.157567515	6.0182E-07	3.8865E-06	0.148915576	5.68775E-07	3.67309E-06	0.681030667	2.60116E-06	1.6798E-05	0.643075818	2.45619E-06	1.58619E-05	0.791991394	3.02497E-06	1.95349E-05
Road 2	2	1500-1600	0.199141639	8.43586E-07	5.4478E-06	0.185658907	7.86472E-07	5.07896E-06	0.784477486	3.32313E-06	2.14605E-05	0.730815137	3.09581E-06	1.99925E-05	0.916474044	3.88229E-06	2.50714E-05
Road 2	2	1600-1700	0.166661131	8.52595E-07	5.50598E-06	0.155197692	7.93951E-07	5.12726E-06	0.70083543	3.58529E-06	2.31535E-05	0.651694208	3.3339E-06	2.153E-05	0.8068919	4.12785E-06	2.66573E-05
Road 2	2	1700-1800	0.129320991	6.64566E-07	4.2917E-06	0.118182658	6.07328E-07	3.92206E-06	0.513907568	2.64091E-06	1.70548E-05	0.46805009	2.40526E-06	1.55329E-05	0.586232748	3.01258E-06	1.9455E-05
Road 2	2	1800-1900	0.14255556	8.24974E-07	5.3276E-06	0.12921724	7.47785E-07	4.82912E-06	0.64280236	3.71992E-06	2.40229E-05	0.58028536	3.35813E-06	2.16865E-05	0.7095026	4.10592E-06	2.65156E-05
Road 2	2	1900-2000	0.122417219	4.78901E-07	3.09269E-06	0.110944142	4.34018E-07	2.80284E-06	0.557580947	2.18128E-06	1.40865E-05	0.502096213	1.96422E-06	1.26847E-05	0.613040355	2.39824E-06	1.54876E-05
Road 2	2	2000-2100	0.116117687	3.95123E-07	2.55166E-06	0.104734626	3.56389E-07	2.30152E-06	0.497636395	1.69335E-06	1.09355E-05	0.445536939	1.51606E-06	9.79059E-06	0.550271565	1.87245E-06	1.20921E-05
Road 2	2	2100-2200	0.089977059	3.18669E-07	2.05793E-06	0.082246536	2.9129E-07	1.88112E-06	0.41593281	1.4731E-06	9.51311E-06	0.376561046	1.33365E-06	8.61261E-06	0.458807582	1.62494E-06	1.04937E-05
Road 2	2	2200-2300	0.13049192	3.77581E-07	2.43838E-06	0.11928848	3.45163E-07	2.22903E-06	0.5583352	1.61555E-06	1.04331E-05	0.50750872	1.46849E-06	9.48334E-06	0.6267972	1.81365E-06	1.17124E-05
Road 2	2	2300-0000	0.116491622	2.99319E-07	1.93297E-06	0.106496757	2.73638E-07	1.76712E-06	0.528786036	1.35869E-06	8.77426E-06	0.480127027	1.23366E-06	7.96685E-06	0.586623784	1.5073E-06	9.73398E-06
Road 3	3	0000-0100	0.10055913	3.70972E-07	1.44188E-05	0.091805609	3.3868E-07	1.31636E-05	0.556264609	2.05211E-06	7.97605E-05	0.505120696	1.86344E-06	7.24272E-05	0.596926304	2.20212E-06	8.55908E-05
Road 3	3	0100-0200	0.075084859	1.71015E-07	6.6469E-06	0.06998993	1.5941E-07	6.19587E-06	0.43893	9.99714E-07	3.88564E-05	0.407307394	9.2769E-07	3.6057E-05	0.477297324	1.0871E-06	4.22529E-05
Road 3	3	0200-0300	0.073985051	1.17482E-07	4.56623E-06	0.068573939	1.0889E-07	4.23227E-06	0.46503101	7.3843E-07	2.87009E-05	0.426908687	6.77895E-07	2.63481E-05	0.495482626	7.86785E-07	3.05803E-05
Road 3	3	0300-0400	0.061933857	6.95374E-08	2.70274E-06	0.057173714	6.41929E-08	2.49501E-06	0.344390714	3.86671E-07	1.50289E-05	0.314527714	3.53142E-07	1.37257E-05	0.371701429	4.17335E-07	1.62208E-05
Road 3	3	0400-0500	0.082236283	1.49051E-07	5.79323E-06	0.077000973	1.39562E-07	5.42442E-06	0.456985664	8.28272E-07	3.21929E-05	0.425516195	7.71235E-07	2.9976E-05	0.502517168	9.10797E-07	3.54004E-05
Road 3	3	0500-0600	0.067177886	2.65066E-07	1.03024E-05	0.062489878	2.46568E-07	9.58349E-06	0.376634959	1.4861E-06	5.7761E-05	0.347482195	1.37107E-06	5.32901E-05	0.409972073	1.61764E-06	6.28736E-05
Road 3	3	0600-0700	0.092897883	6.61578E-07	2.57139E-05	0.086503198	6.16038E-07	2.39438E-05	0.466218851	3.32021E-06	0.000129048	0.431558559	3.07337E-06	0.000119454	0.518061757	3.68941E-06	0.000143398
Road 3	3	0700-0800	0.077084017	8.98858E-07	3.49363E-05	0.071132407	8.29457E-07	3.22389E-05	0.40735542	4.75007E-06	0.000184623	0.372548074	4.34419E-06	0.000168848	0.443680481	5.17365E-06	0.000201087
Road 3	3	0800-0900	0.085065567	1.36032E-06	5.28722E-05	0.078899749	1.26172E-06	4.90399E-05	0.422526951	6.75681E-06	0.00026262	0.389667763	6.23135E-06	0.000242197	0.468567513	7.49307E-06	0.000291237
Road 3	3	0900-1000	0.092509295	1.43187E-06	5.56534E-05	0.085852518	1.32884E-06	5.16487E-05	0.47835401	7.40404E-06	0.000287777	0.441989617	6.84119E-06	0.0002659	0.527842135	8.17003E-06	0.000317549
Road 3	3	1000-1100	0.104574573	1.47437E-06	5.73052E-05	0.097234539	1.37089E-06	5.32829E-05	0.528508441	7.45132E-06	0.000289614	0.490083163	6.90957E-06	0.000268558	0.587317702	8.28045E-06	0.00032184
Road 3	3	1100-1200	0.102483735	1.4038E-06	5.45622E-05	0.095617459	1.30975E-06	5.09066E-05	0.532267131	7.29088E-06	0.000283378	0.495441276	6.78644E-06	0.000263772	0.591058735	8.09619E-06	0.000314679
Road 3	3	1200-1300	0.096182506	1.31749E-06	5.12074E-05	0.089792283	1.22995E-06	4.78053E-05	0.510726241	6.99581E-06	0.00027191	0.475886452	6.51859E-06	0.000253361	0.565678735	7.74854E-06	0.000301166
Road 3	3	1300-1400	0.102081726	1.51782E-06	5.89938E-05	0.095570151	1.421E-06	5.52307E-05	0.52035534	7.73699E-06	0.000300717	0.486501694	7.23363E-06	0.000281153	0.582071845	8.65463E-06	0.000336384

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.094069807	1.40925E-06	5.47742E-05	0.088072034	1.3194E-06	5.12818E-05	0.487255535	7.29955E-06	0.000283715	0.455529861	6.82427E-06	0.000265242	0.543601895	8.14367E-06	0.000316524
Road 3	3	1500-1600	0.104521754	1.50045E-06	5.83188E-05	0.097386793	1.39803E-06	5.43378E-05	0.527255251	7.56896E-06	0.000294186	0.490486927	7.04114E-06	0.000273671	0.587873721	8.43916E-06	0.000328009
Road 3	3	1600-1700	0.098749631	1.54589E-06	6.00847E-05	0.091624365	1.43434E-06	5.57493E-05	0.506114334	7.92302E-06	0.000307948	0.468613217	7.33595E-06	0.00028513	0.560237582	8.7703E-06	0.000340879
Road 3	3	1700-1800	0.078691011	1.23566E-06	4.80271E-05	0.072086701	1.13196E-06	4.39963E-05	0.406137773	6.37747E-06	0.000247876	0.370182165	5.81287E-06	0.000225932	0.442268866	6.94482E-06	0.000269928
Road 3	3	1800-1900	0.074274606	1.2235E-06	4.75543E-05	0.067428802	1.11073E-06	4.31712E-05	0.411038335	6.77088E-06	0.000263167	0.370828364	6.10851E-06	0.000237423	0.438257167	7.21924E-06	0.000280594
Road 3	3	1900-2000	0.079723026	9.71828E-07	3.77725E-05	0.072172408	8.79786E-07	3.41951E-05	0.441975737	5.38771E-06	0.000209407	0.397201447	4.84191E-06	0.000188193	0.469373855	5.7217E-06	0.000222388
Road 3	3	2000-2100	0.074524114	7.75771E-07	3.01523E-05	0.067264145	7.00197E-07	2.72149E-05	0.411299014	4.28149E-06	0.000166411	0.368388629	3.8348E-06	0.000149049	0.435652773	4.535E-06	0.000176264
Road 3	3	2100-2200	0.072689496	7.17033E-07	2.78693E-05	0.06641974	6.55186E-07	2.54654E-05	0.413130358	4.07525E-06	0.000158395	0.374868699	3.69783E-06	0.000143725	0.441288439	4.35301E-06	0.000169191
Road 3	3	2200-2300	0.078089716	7.05171E-07	2.74082E-05	0.071564298	6.46245E-07	2.51179E-05	0.430589734	3.88834E-06	0.00015113	0.391864458	3.53864E-06	0.000137538	0.463428757	4.18489E-06	0.000162656
Road 3	3	2300-0000	0.068333406	5.50211E-07	2.13853E-05	0.062629841	5.04286E-07	1.96003E-05	0.395963446	3.18824E-06	0.000123919	0.359782649	2.89692E-06	0.000112596	0.42241249	3.4012E-06	0.000132196
Road 4	4	0000-0100	0.269643714	2.18461E-07	2.33919E-06	0.246100571	1.99387E-07	2.13495E-06	1.331900571	1.07909E-06	1.15544E-05	1.214852857	9.84256E-07	1.0539E-05	1.460953429	1.18364E-06	1.26739E-05
Road 4	4	0100-0200	0.2529445	1.17104E-07	1.2539E-06	0.235819	1.09175E-07	1.169E-06	1.2516375	5.79462E-07	6.20463E-06	1.1667225	5.40149E-07	5.78369E-06	1.4025415	6.49325E-07	6.9527E-06
Road 4	4	0200-0300	0.274291538	8.25414E-08	8.83819E-07	0.254592308	7.66134E-08	8.20344E-07	1.312173077	3.94867E-07	4.22807E-06	1.217901538	3.66498E-07	3.92431E-06	1.472493846	4.43112E-07	4.74465E-06
Road 4	4	0300-0400	0.249362857	4.0406E-08	4.32651E-07	0.230527143	3.73539E-08	3.9997E-07	1.280221429	2.07443E-07	2.22122E-06	1.183444286	1.91762E-07	2.0533E-06	1.413971429	2.29116E-07	2.45327E-06
Road 4	4	0400-0500	0.255247857	8.27192E-08	8.85722E-07	0.239055	7.74715E-08	8.29532E-07	1.221715714	3.95926E-07	4.23941E-06	1.144199286	3.70805E-07	3.97043E-06	1.383254286	4.48277E-07	4.79996E-06
Road 4	4	0500-0600	0.237455833	1.3192E-07	1.41254E-06	0.221155833	1.22864E-07	1.31558E-06	1.09398125	6.07767E-07	6.50772E-06	1.01824125	5.6569E-07	6.05717E-06	1.239397083	6.88554E-07	7.37275E-06
Road 4	4	0600-0700	0.264061698	3.23965E-07	3.46888E-06	0.246101321	3.0193E-07	3.23294E-06	1.223275849	1.50078E-06	1.60697E-05	1.139208113	1.39764E-06	1.49653E-05	1.385309434	1.69957E-06	1.81983E-05
Road 4	4	0700-0800	0.267039674	5.68696E-07	6.08935E-06	0.246726304	5.25436E-07	5.62614E-06	1.28314587	2.73263E-06	2.92598E-05	1.18433087	2.52219E-06	2.70065E-05	1.431057174	3.04762E-06	3.26326E-05
Road 4	4	0800-0900	0.273229161	9.80336E-07	1.0497E-05	0.25346929	9.09438E-07	9.73788E-06	1.316733355	4.72439E-06	5.05868E-05	1.220864645	4.38042E-06	4.69037E-05	1.474333935	5.28986E-06	5.66415E-05
Road 4	4	0900-1000	0.279429257	9.57304E-07	1.02504E-05	0.259140608	8.87797E-07	9.50615E-06	1.278523378	4.38013E-06	4.69005E-05	1.184957635	4.05958E-06	4.34682E-05	1.444098243	4.94737E-06	5.29744E-05
Road 4	4	1000-1100	0.309926944	1.03309E-06	1.10619E-05	0.288159167	9.60531E-07	1.0285E-05	1.421622639	4.73874E-06	5.07405E-05	1.321589722	4.4053E-06	4.71701E-05	1.609748889	5.36583E-06	5.7455E-05
Road 4	4	1100-1200	0.286320645	1.02731E-06	1.1E-05	0.267069677	9.58236E-07	1.02604E-05	1.304965935	4.68217E-06	5.01347E-05	1.216959871	4.36641E-06	4.67536E-05	1.484029548	5.32464E-06	5.7014E-05
Road 4	4	1200-1300	0.292241892	1.0012E-06	1.07204E-05	0.272640608	9.34047E-07	1.00014E-05	1.390180405	4.76266E-06	5.09965E-05	1.296763446	4.44262E-06	4.75697E-05	1.569404054	5.37666E-06	5.7571E-05
Road 4	4	1300-1400	0.2992334	1.039E-06	1.11252E-05	0.280003267	9.72234E-07	1.04103E-05	1.390292533	4.8274E-06	5.16898E-05	1.300705667	4.51634E-06	4.83591E-05	1.580708933	5.48857E-06	5.87693E-05
Road 4	4	1400-1500	0.272322571	8.82527E-07	9.44973E-06	0.254816929	8.25796E-07	8.84227E-06	1.306017786	4.23247E-06	4.53195E-05	1.221737429	3.95933E-06	4.23949E-05	1.476554357	4.78513E-06	5.12372E-05
Road 4	4	1500-1600	0.3059712	8.85333E-07	9.47978E-06	0.2849216	8.24426E-07	8.8276E-06	1.42177328	4.11393E-06	4.40502E-05	1.32374888	3.83029E-06	4.10131E-05	1.60867048	4.65472E-06	4.98408E-05
Road 4	4	1600-1700	0.286687984	8.22901E-07	8.81127E-06	0.265938871	7.63343E-07	8.17356E-06	1.345568629	3.86228E-06	4.13557E-05	1.247797742	3.58164E-06	3.83507E-05	1.513736613	4.34498E-06	4.65243E-05
Road 4	4	1700-1800	0.276412677	8.12602E-07	8.701E-06	0.253199921	7.44361E-07	7.9703E-06	1.318778976	3.87697E-06	4.15129E-05	1.207578346	3.55006E-06	3.80125E-05	1.460778268	4.29442E-06	4.59828E-05
Road 4	4	1800-1900	0.304561698	7.47304E-07	8.00182E-06	0.276727358	6.79007E-07	7.27052E-06	1.466247642	3.59774E-06	3.85231E-05	1.332162642	3.26873E-06	3.50002E-05	1.60889	3.94774E-06	4.22707E-05
Road 4	4	1900-2000	0.276286892	4.73269E-07	5.06757E-06	0.250297027	4.2875E-07	4.59087E-06	1.333393243	2.28405E-06	2.44567E-05	1.207435405	2.06829E-06	2.21464E-05	1.457732432	2.49704E-06	2.67373E-05
Road 4	4	2000-2100	0.241612653	2.74051E-07	2.93443E-06	0.218129184	2.47415E-07	2.64922E-06	1.171461837	1.32874E-06	1.42276E-05	1.05619898	1.198E-06	1.28277E-05	1.274328163	1.44542E-06	1.54769E-05
Road 4	4	2100-2200	0.200466216	1.71696E-07	1.83844E-06	0.183443514	1.57116E-07	1.68233E-06	0.992780541	8.50298E-07	9.10463E-06	0.907054054	7.76875E-07	8.31845E-06	1.090497568	9.33991E-07	1.00008E-05
Road 4	4	2200-2300	0.269407619	3.92886E-07	4.20686E-06	0.246923175	3.60096E-07	3.85576E-06	1.280927778	1.86802E-06	2.0002E-05	1.173812857	1.71181E-06	1.83293E-05	1.420736032	2.07191E-06	2.21851E-05
Road 4	4	2300-0000	0.251122653	2.84838E-07	3.04993E-06	0.230234694	2.61146E-07	2.79624E-06	1.226969592	1.3917E-06	1.49018E-05	1.12417898	1.27511E-06	1.36533E-05	1.354413673	1.53626E-06	1.64496E-05
Road 5	5	0000-0100	0.085121295	3.08341E-07	4.16975E-06	0.077716218	2.81517E-07	3.80701E-06	0.478001554	1.7315E-06	2.34154E-05	0.433285337	1.56952E-06	2.12249E-05	0.511001554	1.85104E-06	2.50319E-05
Road 5	5	0100-0200	0.056974098	1.30459E-07	1.76422E-06	0.053105492	1.216E-07	1.64443E-06	0.351446721	8.04739E-07	1.08826E-05	0.325444836	7.452E-07	1.00775E-05	0.378550328	8.66801E-07	1.17219E-05
Road 5	5	0200-0300	0.054647791	8.82078E-08	1.19285E-06	0.050603953	8.16806E-08	1.10458E-06	0.380833721	6.14709E-07	8.31283E-06	0.348052907	5.61797E-07	7.59729E-06	0.39865686	6.43478E-07	8.70187E-06
Road 5	5	0300-0400	0.048711587	5.75982E-08	7.78911E-07	0.044939683	5.31381E-08	7.18597E-07	0.272010476	3.21634E-07	4.34952E-06	0.247204127	2.92302E-07	3.95286E-06	0.29214381	3.4544E-07	4.67145E-06
Road 5	5	0400-0500	0.067288586	1.25029E-07	1.6908E-06	0.062997576	1.17056E-07	1.58297E-06	0.387052929	7.19186E-07	9.72569E-06	0.359671313	6.68308E-07	9.03766E-06	0.422668889	7.85364E-07	1.06206E-05
Road 5	5	0500-0600	0.054987091	2.27049E-07	3.07042E-06	0.051121909	2.11089E-07	2.8546E-06	0.323059136	1.33395E-06	1.80393E-05	0.297257136	1.22741E-06	1.65985E-05	0.348379045	1.4385E-06	1.94531E-05
Road 5	5	0600-0700	0.080498067	5.8621E-07	7.92742E-06	0.07493683	5.45711E-07	7.37975E-06	0.407350593	2.96644E-06	4.01158E-05	0.376355979	2.74073E-06	3.70634E-05	0.451292809	3.28644E-06	4.44432E-05
Road 5	5	0700-0800	0.063026619	7.48796E-07	1.01261E-05	0.058140774	6.90749E-07	9.34113E-06	0.336600932	3.99903E-06	5.40797E-05	0.306781295	3.64476E-06	4.92887E-05	0.36492207	4.3355E-06	5.86298E-05
Road 5	5	0800-0900	0.067306868	1.06493E-06	1.44013E-05	0.062394259	9.87206E-07	1.33502E-05	0.33115796	5.23961E-06	7.08562E-05	0.30465866	4.82033E-06	6.51862E-05	0.367052918	5.80754E-06	7.85364E-05
Road 5	5	0900-1000	0.074651422	1.14331E-06	1.54612E-05	0.069272071	1.06092E-06	1.43471E-05	0.399352194	6.1162E-06	8.27106E-05	0.368596728	5.64518E-06	7.63408E-05	0.437868799	6.7061E-06	9.06878E-05
Road 5	5	1000-1100	0.084710763	1.167E-06	1.57815E-05	0.078786567	1.08539E-06	1.46779E-05	0.439792452	6.0587E-06	8.1933E-05	0.407372643	5.61208E-06	7.58932E-05	0.48615921	6.69746E-06	9.05711E-05
Road 5	5	1100-1200	0.083059041	1.08968E-06	1.4736E-05	0.077510844	1.01689E-06	1.37516E-05	0.450246152	5.90695E-06	7.98807E-05	0.418762976	5.49391E-06	7.42951E-05	0.49627382	6.5108E-06	8.80468E-05
Road 5	5	1200-1300	0.076868953	1.02001E-06	1.37938E-05	0.071760849	9.52232E-07	1.28772E-05	0.419452306	5.56593E-06	7.52691E-05	0.390644484	5.18366E-06	7.00997E-05	0.462405332	6.1359E-06	8.29769E-05
Road 5	5	1300-1400	0.083889447	1.22339E-06	1.65441E-05	0.078540386	1.14538E-06	1.54892E-05	0.436898211	6.37143E-06	8.61621E-05	0.408380837	5.95555E-06	8.05381E-05	0.486921223	7.10093E-06	9.60273E-05
Road 5	5	1400-1500	0.079062872	1.17823E-06	1.59334E-05	0.074021033	1.10309E-06	1.49173E-05	0.413971952	6.16918E-06	8.34269E-05	0.386952003	5.76651E-06	7.79817E-05	0.460973035	6.86961E-06	9.2899E-05
Road 5	5	1500-1600	0.088359571	1.27697E-06	1.72687E-05	0.082359714	1.19026E-06	1.60961E-05	0.451374662	6.52324E-06	8.82151E-05	0.419754506	6.06627E-06	8.20353E-05	0.502114221	7.25653E-06	9.81314E-05
Road 5	5	1600-1700	0.08406129	1.3458E-06	1.81995E-05	0.078031102	1.24926E-06	1.6894E-05	0.437855334	7.00996E-06	9.4797E-05	0.405226506	6.48758E-06	8.77327E-05	0.483257608	7.73684E-06	0.000104627
Road 5	5	1700-1800	0.062238731	9.94091E-07	1.34433E-05	0.056986475	9.10201E-07	1.23088E-05	0.32560832	5.20069E-06	7.03299E-05	0.296234407	4.73152E-06	6.39853E-05	0.353220881	5.64172E-06	7.62941E-05
Road 5	5	1800-1900	0.058076855	1.00174E-06	1.35467E-05	0.052719347	9.0933E-07	1.2297E-05	0.332763471	5.73967E-06	7.76186E-05	0.299434168	5.16479E-06	6.98444E-05	0.352153515	6.07412E-06	8.21415E-05
Road 5	5	1900-2000	0.067876224	8.73932E-07	1.18183E-05	0.061438382	7.91042E-07	1.06974E-05	0.385652915	4.96543E-06	6.71484E-05	0.345895379	4.45353E-06	6.0226E-05	0.407333761	5.24458E-06	7.09234E-05
Road 5	5	2000-2100	0.065949283	7.42672E-07	1.00433E-05	0.05953925	6.70487E-07	9.06712E-06	0.3697189	4.1635E-06	5.63038E-05	0.3307029	3.72413E-06	5.03621E-05	0.39024215	4.39462E-06	5.94293E-05
Road 5	5	2100-2200	0.067781557	7.35318E-07	9.94384E-06	0.061929619	6.71834E-07	9.08534E-06	0.389703547	4.22764E-06	5.71712E-05	0.353300727	3.83273E-06	5.18307E-05	0.415230346	4.50456E-06	6.09161E-05
Road 5	5	2200-2300	0.065309259	6.11661E-07	8.27161E-06	0.059841082	5.60449E-07	7.57905E-06	0.370599359	3.47089E-06	4.69375E-05	0.336553246	3.15203E-06	4.26255E-05	0.396394329	3.71248E-06	5.02045E-05
Road 5	5	2300-0000	0.057393267	4.87972E-07	6.59894E-06	0.052591589	4.47147E-07	6.04685E-06	0.342485143	2.9119E-06	3.93781E-05	0.310496777	2.63992E-06	3.57002E-05	0.363088366	3.08707E-06	4.1747E-05
Road 6	6	0000-0100	0.0510068	1.436E-07	5.13313E-06	0.046490267	1.30885E-07	4.6786E-06	0.3327342	9.36752E-07	3.34851E-05	0.2992866	8.42586E-07	3.0119E-05	0.345776867	9.73471E-07	3.47976E-05
Road 6	6	0100-0200	0.06718614	1.43754E-07	5.13863E-06	0.062612105	1.33967E-07	4.78879E-06	0.381920351	8.17172E-07	2.92106E-05	0.353061491	7.55424E-07	2.70034E-05	0.415673596	8.89392E-07	3.17921E-05
Road 6	6	0200-0300	0.061411266	9.10565E-08	3.2549E-06	0.05695557	8.44499E-08	3.01874E-06	0.355418861	5.26991E-07	1.88378E-05	0.325954937	4.83304E-07	1.72762E-05	0.382910506	5.67754E-07	2.02949E-05
Road 6	6	0300-0400	0.06304629	7.33647E-08	2.62249E-06	0.058318871	6.78636E-08	2.42585E-06	0.406647581	4.73201E-07	1.6915E-05	0.372661774	4.33653E-07	1.55013E-05	0.430980645	5.01517E-07	1.79272E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.068059667	1.14966E-07	4.10956E-06	0.063714333	1.07626E-07	3.84718E-06	0.403685778	6.81902E-07	2.43752E-05	0.374626444	6.32815E-07	2.26206E-05	0.438340778	7.40441E-07	2.64677E-05
Road 6	6	0500-0600	0.061407716	1.86713E-07	6.67422E-06	0.057156728	1.73787E-07	6.21219E-06	0.375305864	1.14113E-06	4.07909E-05	0.345465432	1.0504E-06	3.75476E-05	0.40262216	1.22419E-06	4.37598E-05
Road 6	6	0600-0700	0.065724897	3.57737E-07	1.27876E-05	0.06113731	3.32767E-07	1.18951E-05	0.420108862	2.28663E-06	8.17377E-05	0.386249828	2.10234E-06	7.515E-05	0.447387138	2.4351E-06	8.7045E-05
Road 6	6	0700-0800	0.061941039	5.37101E-07	1.91992E-05	0.057141883	4.95487E-07	1.77117E-05	0.360855887	3.12904E-06	0.000111851	0.32860671	2.84941E-06	0.000101855	0.385748593	3.34489E-06	0.000119566
Road 6	6	0800-0900	0.052302553	6.49855E-07	2.32297E-05	0.048405453	6.01434E-07	2.14988E-05	0.312547931	3.88338E-06	0.000138815	0.285552492	3.54797E-06	0.000126825	0.333957946	4.1494E-06	0.000148324
Road 6	6	0900-1000	0.055438799	6.58648E-07	2.3544E-05	0.051351675	6.1009E-07	2.18083E-05	0.31769346	3.7744E-06	0.000134919	0.290723428	3.45398E-06	0.000123466	0.342075103	4.06407E-06	0.000145274
Road 6	6	1000-1100	0.073975794	7.42813E-07	2.65525E-05	0.068762262	6.90462E-07	2.46812E-05	0.40761957	4.09303E-06	0.000146309	0.376363551	3.77918E-06	0.00013509	0.445125813	4.46964E-06	0.000159771
Road 6	6	1100-1200	0.08476015	8.46329E-07	3.02528E-05	0.079114605	7.89958E-07	2.82378E-05	0.444999117	4.44331E-06	0.00015883	0.413865263	4.13244E-06	0.000147718	0.492979868	4.9224E-06	0.000175956
Road 6	6	1200-1300	0.081114245	7.96223E-07	2.84617E-05	0.075745354	7.43521E-07	2.65779E-05	0.407990497	4.00486E-06	0.000143158	0.380229598	3.73236E-06	0.000133417	0.455974952	4.47588E-06	0.000159995
Road 6	6	1300-1400	0.093849098	9.17706E-07	3.28043E-05	0.087876065	8.59299E-07	3.07164E-05	0.480051631	4.6942E-06	0.000167799	0.448710441	4.38773E-06	0.000156843	0.536586507	5.24703E-06	0.00018756
Road 6	6	1400-1500	0.089258833	9.6161E-07	3.43737E-05	0.08357453	9.00371E-07	3.21846E-05	0.449815209	4.84598E-06	0.000173224	0.420360836	4.52866E-06	0.000161881	0.503935366	5.42903E-06	0.000194066
Road 6	6	1500-1600	0.078505534	8.2808E-07	2.96005E-05	0.073143434	7.7152E-07	2.75787E-05	0.409849893	4.32312E-06	0.000154534	0.380839413	4.01711E-06	0.000143595	0.453982847	4.78863E-06	0.000171174
Road 6	6	1600-1700	0.082265833	8.8936E-07	3.1791E-05	0.076365451	8.25572E-07	2.95109E-05	0.410242778	4.43506E-06	0.000158535	0.379646372	4.10429E-06	0.000146712	0.456011823	4.92986E-06	0.000176222
Road 6	6	1700-1800	0.06194382	7.09192E-07	2.53507E-05	0.05675759	6.49815E-07	2.32282E-05	0.321208066	3.67749E-06	0.000131456	0.292339525	3.34698E-06	0.000119641	0.349097115	3.9968E-06	0.000142869
Road 6	6	1800-1900	0.060391887	7.80969E-07	2.79165E-05	0.054849071	7.09291E-07	2.53543E-05	0.319693948	4.13418E-06	0.00014778	0.288024267	3.72464E-06	0.000133141	0.342873338	4.43393E-06	0.000158495
Road 6	6	1900-2000	0.072292786	7.10988E-07	2.54149E-05	0.065429408	6.43487E-07	2.30021E-05	0.383765687	3.77427E-06	0.000134915	0.343988378	3.38307E-06	0.000120931	0.409417786	4.02656E-06	0.000143933
Road 6	6	2000-2100	0.057328254	4.4976E-07	1.60771E-05	0.051724761	4.05799E-07	1.45057E-05	0.339262464	2.66163E-06	9.51425E-05	0.302669354	2.37455E-06	8.48804E-05	0.354394115	2.78034E-06	9.9386E-05
Road 6	6	2100-2200	0.079629528	5.38037E-07	1.92327E-05	0.072765278	4.91657E-07	1.75748E-05	0.428031361	2.8921E-06	0.000103381	0.388438722	2.62459E-06	9.38183E-05	0.461204	3.11624E-06	0.000111393
Road 6	6	2200-2300	0.059652861	4.26572E-07	1.52482E-05	0.054610184	3.90512E-07	1.39592E-05	0.342186509	2.44694E-06	8.74683E-05	0.309084331	2.21023E-06	7.90068E-05	0.363694514	2.60074E-06	9.2966E-05
Road 6	6	2300-0000	0.04016028	2.69092E-07	9.61895E-06	0.036801765	2.46588E-07	8.81454E-06	0.255694678	1.71327E-06	6.12424E-05	0.231238711	1.5494E-06	5.53849E-05	0.268040476	1.79599E-06	6.41994E-05
Road 7	7	0000-0100	0.074674768	2.01656E-07	5.03399E-06	0.06812405	1.83966E-07	4.59239E-06	0.444954509	1.20158E-06	2.99954E-05	0.40257014	1.08712E-06	2.71381E-05	0.47069419	1.27109E-06	3.17305E-05
Road 7	7	0100-0200	0.091176232	1.91944E-07	4.79154E-06	0.084919172	1.78771E-07	4.46272E-06	0.501235559	1.0552E-06	2.63412E-05	0.464561448	9.77992E-07	2.44139E-05	0.549480621	1.15676E-06	2.88766E-05
Road 7	7	0200-0300	0.078359845	1.06941E-07	2.66961E-06	0.072656064	9.91572E-08	2.47529E-06	0.447292247	6.10441E-07	1.52386E-05	0.411565426	5.61683E-07	1.40214E-05	0.484221489	6.6084E-07	1.64967E-05
Road 7	7	0300-0400	0.079923714	8.81888E-08	2.20148E-06	0.073885	8.15256E-08	2.03515E-06	0.485249808	5.35431E-07	1.33661E-05	0.445659211	4.91746E-07	1.22756E-05	0.519544211	5.73272E-07	1.43107E-05
Road 7	7	0400-0500	0.088386057	1.4244E-07	3.55576E-06	0.082463269	1.32895E-07	3.31749E-06	0.495514144	7.98552E-07	1.99345E-05	0.459520856	7.40547E-07	1.84865E-05	0.541984125	8.73442E-07	2.1804E-05
Road 7	7	0500-0600	0.08022697	2.30627E-07	5.7572E-06	0.074709192	2.14765E-07	5.36124E-06	0.456344697	1.31185E-06	3.27479E-05	0.421668535	1.21216E-06	3.02595E-05	0.496377727	1.42693E-06	3.56208E-05
Road 7	7	0600-0700	0.084964426	4.36681E-07	1.0901E-05	0.079068423	4.06378E-07	1.01445E-05	0.497408609	2.55647E-06	6.38179E-05	0.458960911	2.35887E-06	5.8885E-05	0.538029334	2.76524E-06	6.90295E-05
Road 7	7	0700-0800	0.081612938	6.69471E-07	1.67122E-05	0.075411051	6.18597E-07	1.54422E-05	0.44935531	3.68606E-06	9.20161E-05	0.411589465	3.37627E-06	8.42827E-05	0.487000516	3.99487E-06	9.97249E-05
Road 7	7	0800-0900	0.080698482	1.00174E-06	2.50067E-05	0.07481619	9.28723E-07	2.31839E-05	0.441760477	5.48375E-06	0.000136892	0.406434473	5.04523E-06	0.000125945	0.481250663	5.97395E-06	0.000149129
Road 7	7	0900-1000	0.082322767	9.46606E-07	2.36304E-05	0.07646385	8.79236E-07	2.19486E-05	0.434035624	4.99085E-06	0.000124588	0.400532248	4.60561E-06	0.000114971	0.476996097	5.48484E-06	0.00013692
Road 7	7	1000-1100	0.097456087	9.83373E-07	2.45482E-05	0.090632591	9.14521E-07	2.28294E-05	0.514708405	5.19362E-06	0.00012965	0.476644649	4.80954E-06	0.000120062	0.56727724	5.72406E-06	0.000142891
Road 7	7	1100-1200	0.107413078	1.08228E-06	2.70173E-05	0.100453258	1.01216E-06	2.52667E-05	0.551255819	5.5544E-06	0.000138656	0.514557527	5.18463E-06	0.000129425	0.615010785	6.19679E-06	0.000154692
Road 7	7	1200-1300	0.104551602	1.05193E-06	2.62597E-05	0.097711355	9.83111E-07	2.45417E-05	0.528618817	5.31863E-06	0.00013277	0.493532977	4.96562E-06	0.000123958	0.591244331	5.94873E-06	0.0001485
Road 7	7	1300-1400	0.111279428	1.10185E-06	2.75058E-05	0.104358916	1.03333E-06	2.57952E-05	0.563699474	5.58157E-06	0.000139334	0.528024564	5.22833E-06	0.000130516	0.63238348	6.26166E-06	0.000156311
Road 7	7	1400-1500	0.103422752	1.07211E-06	2.67633E-05	0.09715465	1.00713E-06	2.51413E-05	0.527024642	5.46328E-06	0.000136381	0.49439475	5.12503E-06	0.000127937	0.5915494	6.13216E-06	0.000153079
Road 7	7	1500-1600	0.096399848	9.81112E-07	2.44918E-05	0.089829925	9.14247E-07	2.28226E-05	0.498506482	5.07356E-06	0.000126653	0.463681864	4.71914E-06	0.000117805	0.553511789	5.63338E-06	0.000140628
Road 7	7	1600-1700	0.100212717	1.05484E-06	2.63322E-05	0.093105013	9.80021E-07	2.44645E-05	0.500161352	5.26469E-06	0.000131424	0.463800191	4.88195E-06	0.000121869	0.556905204	5.86197E-06	0.000146334
Road 7	7	1700-1800	0.07770443	8.65298E-07	2.16006E-05	0.071122399	7.92002E-07	1.97709E-05	0.403909503	4.49784E-06	0.000112281	0.36791352	4.097E-06	0.000102274	0.439035919	4.889E-06	0.000122045
Road 7	7	1800-1900	0.071779602	8.30584E-07	2.07341E-05	0.065140427	7.5376E-07	1.88163E-05	0.379871944	4.39562E-06	0.000109729	0.342688469	3.96536E-06	9.89882E-05	0.407828896	4.71912E-06	0.000117805
Road 7	7	1900-2000	0.083884128	7.33163E-07	1.83021E-05	0.075966696	6.63963E-07	1.65747E-05	0.447890949	3.91465E-06	9.77225E-05	0.402673888	3.51945E-06	8.78568E-05	0.478640584	4.18341E-06	0.000104432
Road 7	7	2000-2100	0.077588992	5.58735E-07	1.39479E-05	0.070021573	5.04241E-07	1.25875E-05	0.42766127	3.07968E-06	7.68789E-05	0.382886714	2.75725E-06	6.883E-05	0.452908286	3.26149E-06	8.14175E-05
Road 7	7	2100-2200	0.088675957	5.33004E-07	1.33055E-05	0.081066646	4.87267E-07	1.21638E-05	0.477237203	2.86853E-06	7.16078E-05	0.433789247	2.60737E-06	6.50886E-05	0.514855893	3.09464E-06	7.72523E-05
Road 7	7	2200-2300	0.0743919	4.82789E-07	1.2052E-05	0.068072506	4.41777E-07	1.10282E-05	0.413610185	2.68425E-06	6.70077E-05	0.374771029	2.43219E-06	6.07154E-05	0.442843535	2.87397E-06	7.17437E-05
Road 7	7	2300-0000	0.052508919	3.13328E-07	7.82169E-06	0.048090681	2.86964E-07	7.16355E-06	0.31508627	1.88016E-06	4.6935E-05	0.285806813	1.70545E-06	4.25736E-05	0.333897494	1.99241E-06	4.97371E-05
Road 8	8	0000-0100	0.236515	1.72011E-07	2.83554E-06	0.215820556	1.5696E-07	2.58743E-06	1.171743611	8.52177E-07	1.40478E-05	1.06873	7.77258E-07	1.28128E-05	1.284550556	9.34219E-07	1.54002E-05
Road 8	8	0100-0200	0.243711333	1.47704E-07	2.43484E-06	0.227224	1.37712E-07	2.27012E-06	1.203919333	7.29648E-07	1.2028E-05	1.122305667	6.80185E-07	1.12126E-05	1.349529667	8.17897E-07	1.34827E-05
Road 8	8	0200-0300	0.231124667	7.00378E-08	1.15455E-06	0.214579333	6.5024E-08	1.0719E-06	1.200438	3.63769E-07	5.9966E-06	1.114383333	3.37692E-07	5.56672E-06	1.328962667	4.02716E-07	6.63862E-06
Road 8	8	0300-0400	0.210648571	5.95774E-08	9.82111E-07	0.194861429	5.51123E-08	9.08506E-07	1.071534286	3.0306E-07	4.99583E-06	0.991072857	2.80303E-07	4.6207E-06	1.185934286	3.35416E-07	5.5292E-06
Road 8	8	0400-0500	0.238044762	1.00989E-07	1.66476E-06	0.222982381	9.45986E-08	1.55942E-06	1.141950476	4.84464E-07	7.9862E-06	1.069634286	4.53784E-07	7.48046E-06	1.292616667	5.48383E-07	9.03988E-06
Road 8	8	0500-0600	0.228241176	1.56772E-07	2.58432E-06	0.212633529	1.46051E-07	2.4076E-06	1.076264412	7.39252E-07	1.21863E-05	1.002393824	6.88513E-07	1.13499E-05	1.215027353	8.34564E-07	1.37575E-05
Road 8	8	0600-0700	0.255222903	3.19673E-07	5.26969E-06	0.23789871	2.97974E-07	4.91199E-06	1.18929129	1.48962E-06	2.45558E-05	1.107934032	1.38772E-06	2.2876E-05	1.345832742	1.68569E-06	2.7788E-05
Road 8	8	0700-0800	0.255245196	5.2596E-07	8.67025E-06	0.235859412	4.86013E-07	8.01175E-06	1.201445196	2.47571E-06	4.08111E-05	1.109413333	2.28606E-06	3.76849E-05	1.345272745	2.77208E-06	4.56967E-05
Road 8	8	0800-0900	0.282173906	1.09449E-06	1.80423E-05	0.261834323	1.0156E-06	1.67418E-05	1.332991302	5.17039E-06	8.52319E-05	1.236373385	4.79563E-06	7.90542E-05	1.498207708	5.81123E-06	9.57959E-05
Road 8	8	0900-1000	0.302032152	9.64062E-07	1.58922E-05	0.280161962	8.94254E-07	1.47414E-05	1.356243924	4.32902E-06	7.13623E-05	1.257874367	4.01503E-06	6.61863E-05	1.538036329	4.90929E-06	8.09278E-05
Road 8	8	1000-1100	0.284633938	9.20029E-07	1.51663E-05	0.264664688	8.55482E-07	1.41023E-05	1.316802438	4.25633E-06	7.0164E-05	1.223859438	3.95591E-06	6.52117E-05	1.488524125	4.81139E-06	7.9314E-05
Road 8	8	1100-1200	0.293935975	9.44158E-07	1.55641E-05	0.274163962	8.80648E-07	1.45171E-05	1.372643396	4.4091E-06	7.26823E-05	1.280100126	4.11184E-06	6.77821E-05	1.554264088	4.99248E-06	8.22992E-05
Road 8	8	1200-1300	0.295158059	1.01367E-06	1.671E-05	0.275389059	9.45781E-07	1.55908E-05	1.389908	4.77342E-06	7.86881E-05	1.296561941	4.45284E-06	7.34034E-05	1.571951	5.39862E-06	8.89942E-05
Road 8	8	1300-1400	0.269615679	8.82379E-07	1.45457E-05	0.252312654	8.25751E-07	1.36122E-05	1.252489198	4.09906E-06	6.75714E-05	1.171885617	3.83526E-06	6.32229E-05	1.424198272	4.66101E-06	7.6835E-05
Road 8	8	1400-1500	0.263496763	7.3992E-07	1.21973E-05	0.246572878	6.92397E-07	1.14139E-05	1.274538273	3.57901E-06	5.89986E-05	1.192482086	3.34859E-06	5.52002E-05	1.439054964	4.04098E-06	6.66141E-05
Road 8	8	1500-1600	0.271996978	7.63789E-07	1.25908E-05	0.253281439	7.11235E-07	1.17244E-05	1.282883165	3.60244E-06	5.93849E-05	1.194085252	3.35309E-06	5.52744E-05	1.447366691	4.06432E-06	6.69988E-05
Road 8	8	1600-1700	0.272049933	8.18898E-07	1.34992E-05	0.252335034	7.59554E-07	1.2521E-05	1.271543758	3.82748E-06	6.30945E-05	1.179029329	3.549E-06	5.85039E-05	1.431364362	4.30855E-06	7.10248E-05
Road 8	8	1700-1800	0.223815	7.05356E-07	1.16275E-05	0.204994615	6.46044E-07	1.06498E-05	1.087725641	3.42798E-06	5.6509E-05	0.995132051	3.13617E-06	5.16986E-05	1.200126667	3.78222E-06	6.23484E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.224248692	4.8474E-07	7.99075E-06	0.20382486	4.40591E-07	7.26298E-06	1.11705486	2.41464E-06	3.98045E-05	1.014594579	2.19316E-06	3.61535E-05	1.218419439	2.63376E-06	4.34165E-05
Road 8	8	1900-2000	0.224226753	3.48797E-07	5.74979E-06	0.203145974	3.16005E-07	5.20922E-06	1.144166234	1.77981E-06	2.93396E-05	1.036332338	1.61207E-06	2.65744E-05	1.239478312	1.92808E-06	3.17836E-05
Road 8	8	2000-2100	0.247053247	3.84305E-07	6.33512E-06	0.223026104	3.46929E-07	5.719E-06	1.150528961	1.78971E-06	2.95027E-05	1.037549221	1.61397E-06	2.66056E-05	1.260575325	1.96089E-06	3.23246E-05
Road 8	8	2100-2200	0.20302463	2.21481E-07	3.65104E-06	0.185708519	2.02591E-07	3.33964E-06	1.032515	1.12638E-06	1.8568E-05	0.942752037	1.02846E-06	1.69537E-05	1.128460556	1.23105E-06	2.02934E-05
Road 8	8	2200-2300	0.244010938	3.15489E-07	5.20072E-06	0.223639688	2.8915E-07	4.76653E-06	1.173448906	1.51719E-06	2.50102E-05	1.074895781	1.38976E-06	2.29097E-05	1.298535469	1.67891E-06	2.76763E-05
Road 8	8	2300-0000	0.191554151	2.05098E-07	3.38097E-06	0.175671887	1.88093E-07	3.10064E-06	0.959224151	1.02705E-06	1.69305E-05	0.878969434	9.41119E-07	1.5514E-05	1.054641321	1.12921E-06	1.86146E-05
Road 9	9	0000-0100	0.205386074	5.45457E-08	1.62828E-06	0.190345591	5.05513E-08	1.50904E-06	0.923653681	2.45301E-07	7.32264E-06	0.849684886	2.25656E-07	6.73623E-06	1.040030477	2.76208E-07	8.24527E-06
Road 9	9	0100-0200	0.222171734	4.63599E-08	1.38392E-06	0.209739459	4.37657E-08	1.30648E-06	0.945383003	1.9727E-07	5.88886E-06	0.886713411	1.85028E-07	5.5234E-06	1.09645287	2.28794E-07	6.82988E-06
Road 9	9	0200-0300	0.087633326	8.31191E-09	2.48125E-07	0.081355631	7.71648E-09	2.3035E-07	0.622404957	5.90343E-08	1.76228E-06	0.572907219	5.43395E-08	1.62213E-06	0.65426285	6.2056E-08	1.85248E-06
Road 9	9	0300-0400	0.106078145	8.0491E-09	2.40279E-07	0.098250372	7.45514E-09	2.22549E-07	0.641872598	4.87046E-08	1.45392E-06	0.593711632	4.50502E-08	1.34483E-06	0.691962004	5.25054E-08	1.56738E-06
Road 9	9	0400-0500	0.239671885	4.54651E-08	1.35721E-06	0.226656708	4.29962E-08	1.28351E-06	0.979487007	1.85806E-07	5.54663E-06	0.920031419	1.74528E-07	5.20995E-06	1.146688127	2.17524E-07	6.49346E-06
Road 9	9	0500-0600	0.173018791	5.57961E-08	1.66561E-06	0.163006409	5.25672E-08	1.56922E-06	0.862457984	2.7813E-07	8.30267E-06	0.80778276	2.60498E-07	7.77632E-06	0.970789169	3.13066E-07	9.34554E-06
Road 9	9	0600-0700	0.204203078	1.23958E-07	3.70035E-06	0.193012097	1.17164E-07	3.49756E-06	1.05031146	6.37572E-07	1.90326E-05	0.982623599	5.96484E-07	1.78061E-05	1.175635696	7.13648E-07	2.13036E-05
Road 9	9	0700-0800	0.173472898	1.61246E-07	4.81347E-06	0.163591163	1.52061E-07	4.53928E-06	0.976416744	9.07596E-07	2.70933E-05	0.909991477	8.45853E-07	2.52502E-05	1.073582639	9.97914E-07	2.97894E-05
Road 9	9	0800-0900	0.269320627	5.87528E-07	1.75387E-05	0.253411543	5.52822E-07	1.65027E-05	1.282157354	2.79705E-06	8.34968E-05	1.197156878	2.61162E-06	7.79614E-05	1.450568421	3.16444E-06	9.44641E-05
Road 9	9	0900-1000	0.2783989	4.5946E-07	1.37157E-05	0.263326826	4.34586E-07	1.29731E-05	1.202523308	1.98461E-06	5.92439E-05	1.126067548	1.85843E-06	5.54772E-05	1.389394374	2.29301E-06	6.84503E-05
Road 9	9	1000-1100	0.285630007	3.95538E-07	1.18075E-05	0.26851405	3.71836E-07	1.10999E-05	1.208020566	1.67286E-06	4.99376E-05	1.128440359	1.56265E-06	4.66479E-05	1.396954409	1.93449E-06	5.77478E-05
Road 9	9	1100-1200	0.199619208	2.87791E-07	8.59106E-06	0.187223913	2.69921E-07	8.0576E-06	1.042694589	1.50325E-06	4.48747E-05	0.976276386	1.4075E-06	4.20162E-05	1.163500299	1.67742E-06	5.00738E-05
Road 9	9	1200-1300	0.293944844	4.12628E-07	1.23177E-05	0.279279582	3.92042E-07	1.17031E-05	1.312020236	1.84176E-06	5.49798E-05	1.242341315	1.74395E-06	5.20599E-05	1.521620896	2.13599E-06	6.3763E-05
Road 9	9	1300-1400	0.334790264	3.87404E-07	1.15647E-05	0.318682568	3.68765E-07	1.10083E-05	1.276439855	1.47704E-06	4.40921E-05	1.210154818	1.40034E-06	4.18024E-05	1.528837385	1.7691E-06	5.28107E-05
Road 9	9	1400-1500	0.215985577	2.78609E-07	8.31696E-06	0.206437304	2.66292E-07	7.94928E-06	1.041322644	1.34325E-06	4.00982E-05	0.989143222	1.27594E-06	3.80889E-05	1.195580526	1.54223E-06	4.60382E-05
Road 9	9	1500-1600	0.18084501	1.95543E-07	5.8373E-06	0.170967591	1.84863E-07	5.51848E-06	0.921277104	9.96154E-07	2.97369E-05	0.86812113	9.38678E-07	2.80211E-05	1.039088721	1.12354E-06	3.35396E-05
Road 9	9	1600-1700	0.19029332	2.88785E-07	8.62073E-06	0.180696442	2.74221E-07	8.18597E-06	1.028802701	1.56129E-06	4.66072E-05	0.972754551	1.47623E-06	4.40681E-05	1.153450993	1.75045E-06	5.2254E-05
Road 9	9	1700-1800	0.164112255	2.14809E-07	6.4124E-06	0.154951575	2.02818E-07	6.05447E-06	0.967277688	1.26608E-06	3.77947E-05	0.906639818	1.18671E-06	3.54254E-05	1.061591393	1.38953E-06	4.14799E-05
Road 9	9	1800-1900	0.163869737	1.36777E-07	4.08303E-06	0.154524755	1.28977E-07	3.85018E-06	0.939424408	7.84108E-07	2.3407E-05	0.880727239	7.35115E-07	2.19445E-05	1.035251994	8.64092E-07	2.57946E-05
Road 9	9	1900-2000	0.171151553	1.39608E-07	4.16754E-06	0.160136313	1.30623E-07	3.89932E-06	0.912284291	7.44149E-07	2.22141E-05	0.841069369	6.86059E-07	2.048E-05	1.001205683	8.16682E-07	2.43794E-05
Road 9	9	2000-2100	0.182194927	1.0023E-07	2.99202E-06	0.167535536	9.21651E-08	2.75129E-06	0.806809003	4.43844E-07	1.32495E-05	0.737382092	4.0565E-07	1.21094E-05	0.904917628	4.97815E-07	1.48606E-05
Road 9	9	2100-2200	0.021825239	1.15925E-08	3.46057E-07	0.020347564	1.08077E-08	3.22627E-07	0.317152676	1.68457E-07	5.02872E-06	0.291122185	1.5463E-07	4.61598E-06	0.311469749	1.65438E-07	4.93861E-06
Road 9	9	2200-2300	0.174619045	1.09312E-07	3.26314E-06	0.162348683	1.01631E-07	3.03385E-06	0.843852113	5.28253E-07	1.57692E-05	0.779733132	4.88114E-07	1.4571E-05	0.942081815	5.89745E-07	1.76049E-05
Road 9	9	2300-0000	0.141058196	8.02751E-08	2.39635E-06	0.131894494	7.50601E-08	2.24067E-06	0.721226479	4.10444E-07	1.22525E-05	0.668570687	3.80478E-07	1.13579E-05	0.800465181	4.55538E-07	1.35986E-05
Road 10	10	0000-0100	0.288816908	2.22059E-07	4.93741E-06	0.264489786	2.03355E-07	4.52153E-06	1.430783132	1.10007E-06	2.44596E-05	1.30806967	1.00572E-06	2.23618E-05	1.572559455	1.20907E-06	2.68833E-05
Road 10	10	0100-0200	0.282022903	1.63831E-07	3.64273E-06	0.263831218	1.53263E-07	3.40776E-06	1.386070537	8.05187E-07	1.79031E-05	1.294806512	7.5217E-07	1.67243E-05	1.55863773	9.05434E-07	2.0132E-05
Road 10	10	0200-0300	0.281254963	9.13033E-08	2.0301E-06	0.261099942	8.47604E-08	1.88462E-06	1.364716378	4.43025E-07	9.85053E-06	1.265422431	4.10792E-07	9.13383E-06	1.526522373	4.95552E-07	1.10185E-05
Road 10	10	0300-0400	0.255588116	5.24028E-08	1.16516E-06	0.236322346	4.84528E-08	1.07733E-06	1.338280564	2.74385E-07	6.10088E-06	1.235463841	2.53305E-07	5.63216E-06	1.471786187	3.01758E-07	6.70949E-06
Road 10	10	0400-0500	0.29878128	1.17412E-07	2.61063E-06	0.281072517	1.10453E-07	2.4559E-06	1.395616215	5.48436E-07	1.21943E-05	1.309484417	5.14589E-07	1.14417E-05	1.590556934	6.25043E-07	1.38976E-05
Road 10	10	0500-0600	0.274054839	1.91979E-07	4.2686E-06	0.256796715	1.7989E-07	3.99979E-06	1.286466495	9.01187E-07	2.00376E-05	1.202187911	8.42149E-07	1.87249E-05	1.458984626	1.02204E-06	2.27247E-05
Road 10	10	0600-0700	0.333608261	4.67394E-07	1.03924E-05	0.313907979	4.39793E-07	9.77867E-06	1.595971549	2.236E-06	4.97168E-05	1.498004952	2.09874E-06	4.6665E-05	1.811912932	2.53854E-06	5.64436E-05
Road 10	10	0700-0800	0.332725753	7.33345E-07	1.63057E-05	0.31024788	6.83803E-07	1.52042E-05	1.610646928	3.54995E-06	7.89321E-05	1.49777959	3.30119E-06	7.34009E-05	1.808027471	3.98499E-06	8.86051E-05
Road 10	10	0800-0900	0.352994118	1.49572E-06	3.3257E-05	0.328428608	1.39163E-06	3.09426E-05	1.688865376	7.15615E-06	0.000159115	1.568342176	6.64546E-06	0.00014776	1.896770783	8.03709E-06	0.000178702
Road 10	10	0900-1000	0.389440534	1.31746E-06	2.92934E-05	0.364440295	1.23289E-06	2.74129E-05	1.806102662	6.10998E-06	0.000135854	1.685340625	5.70145E-06	0.00012677	2.04978092	6.93434E-06	0.000154183
Road 10	10	1000-1100	0.387833484	1.42468E-06	3.16773E-05	0.362873622	1.33299E-06	2.96386E-05	1.702807156	6.25513E-06	0.000139081	1.587953812	5.83323E-06	0.0001297	1.950827434	7.16621E-06	0.000159339
Road 10	10	1100-1200	0.374719894	1.3765E-06	3.06062E-05	0.350783198	1.28858E-06	2.86511E-05	1.703274387	6.25685E-06	0.000139119	1.591511202	5.84629E-06	0.000129991	1.942294399	7.13487E-06	0.000158642
Road 10	10	1200-1300	0.390282121	1.48035E-06	3.29151E-05	0.366536612	1.39028E-06	3.09125E-05	1.785667055	6.77308E-06	0.000150597	1.675325022	6.35455E-06	0.000141291	2.041861634	7.74483E-06	0.000172204
Road 10	10	1300-1400	0.379979439	1.2465E-06	2.77157E-05	0.358086231	1.17468E-06	2.61188E-05	1.703168279	5.58716E-06	0.000124229	1.602730252	5.25768E-06	0.000116903	1.960816483	6.43236E-06	0.000143022
Road 10	10	1400-1500	0.353783229	1.09408E-06	2.43265E-05	0.334003378	1.03291E-06	2.29664E-05	1.692781509	5.23494E-06	0.000116397	1.596166379	4.93616E-06	0.000109754	1.930169757	5.96907E-06	0.00013272
Road 10	10	1500-1600	0.349475088	1.10464E-06	2.45613E-05	0.327264948	1.03444E-06	2.30004E-05	1.621327184	5.12478E-06	0.000113948	1.517190761	4.79562E-06	0.000106629	1.844455709	5.83005E-06	0.000129629
Road 10	10	1600-1700	0.337668262	1.18847E-06	2.64254E-05	0.315969768	1.1121E-06	2.47273E-05	1.590591779	5.59833E-06	0.000124477	1.485743818	5.2293E-06	0.000116272	1.801713587	6.3414E-06	0.000140999
Road 10	10	1700-1800	0.314453868	1.04767E-06	2.32946E-05	0.291635309	9.71644E-07	2.16042E-05	1.552137681	5.17127E-06	0.000114982	1.438540626	4.7928E-06	0.000106566	1.730175935	5.76444E-06	0.000128171
Road 10	10	1800-1900	0.319002372	6.59495E-07	1.46637E-05	0.292983297	6.05704E-07	1.34677E-05	1.544198544	3.19243E-06	7.09827E-05	1.416131756	2.92767E-06	6.50958E-05	1.709115053	3.53337E-06	7.85634E-05
Road 10	10	1900-2000	0.280070202	5.21586E-07	1.15973E-05	0.257060611	4.78734E-07	1.06445E-05	1.421411375	2.64715E-06	5.88586E-05	1.300853112	2.42263E-06	5.38665E-05	1.557913722	2.90137E-06	6.4511E-05
Road 10	10	2000-2100	0.324107811	3.98708E-07	8.86514E-06	0.293803757	3.61428E-07	8.03625E-06	1.51860912	1.86815E-06	4.15377E-05	1.374063932	1.69033E-06	3.7584E-05	1.667867689	2.05176E-06	4.56203E-05
Road 10	10	2100-2200	0.267105008	3.37712E-07	7.50892E-06	0.2492856	3.15182E-07	7.00798E-06	1.398978916	1.76879E-06	3.93284E-05	1.303902615	1.64858E-06	3.66556E-05	1.553188215	1.96376E-06	4.36636E-05
Road 10	10	2200-2300	0.280118915	3.68524E-07	8.19402E-06	0.259378326	3.41238E-07	7.58732E-06	1.37283399	1.8061E-06	4.0158E-05	1.27081545	1.67188E-06	3.71738E-05	1.530193776	2.01312E-06	4.47611E-05
Road 10	10	2300-0000	0.257540797	3.16819E-07	7.04437E-06	0.237216795	2.91817E-07	6.48846E-06	1.263149328	1.55389E-06	3.45502E-05	1.16135821	1.42867E-06	3.1766E-05	1.398575005	1.72048E-06	3.82545E-05
Road 11	11	0000-0100	0.323078373	2.46796E-07	2.04719E-06	0.295729785	2.25905E-07	1.8739E-06	1.566612239	1.19672E-06	9.92687E-06	1.431628559	1.09361E-06	9.07154E-06	1.727358345	1.31951E-06	1.09454E-05
Road 11	11	0100-0200	0.321154238	1.72843E-07	1.43375E-06	0.300339808	1.61641E-07	1.34083E-06	1.53205489	8.24543E-07	6.83965E-06	1.430040243	7.6964E-07	6.38422E-06	1.730380051	9.31281E-07	7.72505E-06
Road 11	11	0200-0300	0.280694493	7.30975E-08	6.0635E-07	0.26056521	6.78555E-08	5.62867E-07	1.449151785	3.77383E-07	3.13042E-06	1.343549073	3.49883E-07	2.9023E-06	1.604114283	4.17738E-07	3.46517E-06
Road 11	11	0300-0400	0.300828129	7.31179E-08	6.06519E-07	0.278192963	6.76163E-08	5.60883E-07	1.519068258	3.69218E-07	3.06269E-06	1.404539038	3.41381E-07	2.83178E-06	1.682732001	4.08997E-07	3.39267E-06
Road 11	11	0400-0500	0.308755972	1.07207E-07	8.8929E-07	0.290575394	1.00894E-07	8.36926E-07	1.422757809	4.94013E-07	4.09788E-06	1.335053762	4.6356E-07	3.84527E-06	1.625629156	5.64455E-07	4.6822E-06
Road 11	11	0500-0600	0.250067387	1.17219E-07	9.72342E-07	0.234104035	1.09736E-07	9.10271E-07	1.239795767	5.81154E-07	4.82072E-06	1.15773359	5.42688E-07	4.50164E-06	1.391837625	6.52424E-07	5.41191E-06
Road 11	11	0600-0700	0.272043284	2.45595E-07	2.03723E-06	0.255239852	2.30425E-07	1.91139E-06	1.369176816	1.23606E-06	1.02532E-05	1.278461572	1.15417E-06	9.57391E-06	1.533701424	1.38459E-06	1.14853E-05
Road 11	11	0700-0800	0.329629376	6.23778E-07	5.17429E-06	0.30597811	5.79021E-07	4.80303E-06	1.652444683	3.12702E-06	2.59389E-05	1.529791829	2.89492E-06	2.40136E-05	1.835769939	3.47394E-06	2.88166E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.348588939	1.24064E-06	1.02912E-05	0.325307139	1.15778E-06	9.60386E-06	1.665637879	5.92805E-06	4.91737E-05	1.549151878	5.51347E-06	4.57347E-05	1.874459017	6.67125E-06	5.53386E-05
Road 11	11	0900-1000	0.351920318	8.9813E-07	7.45006E-06	0.329169982	8.40069E-07	6.96844E-06	1.611652966	4.11307E-06	3.41183E-05	1.499681772	3.82731E-06	3.17479E-05	1.828851754	4.66738E-06	3.87163E-05
Road 11	11	1000-1100	0.358777898	7.53683E-07	6.25186E-06	0.33528831	7.04338E-07	5.84254E-06	1.620063839	3.40326E-06	2.82303E-05	1.50904663	3.17005E-06	2.62958E-05	1.844334939	3.87438E-06	3.21383E-05
Road 11	11	1100-1200	0.314827611	7.43343E-07	6.16609E-06	0.294008645	6.94187E-07	5.75834E-06	1.56155069	3.68699E-06	3.05839E-05	1.457254613	3.44074E-06	2.85412E-05	1.751263258	4.13493E-06	3.42996E-05
Road 11	11	1200-1300	0.383005862	1.0905E-06	9.04581E-06	0.359483481	1.02353E-06	8.49026E-06	1.789029865	5.09377E-06	4.22532E-05	1.676639737	4.77377E-06	3.95988E-05	2.036123218	5.7973E-06	4.8089E-05
Road 11	11	1300-1400	0.396256547	8.32414E-07	6.90494E-06	0.373313196	7.84217E-07	6.50514E-06	1.73417347	3.64297E-06	3.02187E-05	1.629734143	3.42357E-06	2.83988E-05	2.00304734	4.20779E-06	3.4904E-05
Road 11	11	1400-1500	0.3157072	6.35799E-07	5.27401E-06	0.297678883	5.99492E-07	4.97284E-06	1.522819119	3.06679E-06	2.54393E-05	1.431950319	2.88379E-06	2.39213E-05	1.729629201	3.48328E-06	2.88941E-05
Road 11	11	1500-1600	0.281613833	5.72028E-07	4.74502E-06	0.263413031	5.35058E-07	4.43835E-06	1.404245758	2.85237E-06	2.36607E-05	1.312257675	2.66552E-06	2.21107E-05	1.575670705	3.20058E-06	2.65491E-05
Road 11	11	1600-1700	0.270503326	6.57473E-07	5.45379E-06	0.253173733	6.15353E-07	5.1044E-06	1.386564401	3.37012E-06	2.79554E-05	1.296020016	3.15005E-06	2.61299E-05	1.549193749	3.7654E-06	3.12343E-05
Road 11	11	1700-1800	0.27041756	6.71349E-07	5.5689E-06	0.249924341	6.20472E-07	5.14686E-06	1.411883894	3.5052E-06	2.90759E-05	1.303186971	3.23534E-06	2.68374E-05	1.553111312	3.85581E-06	3.19843E-05
Road 11	11	1800-1900	0.292317982	5.98846E-07	4.96748E-06	0.267750943	5.48518E-07	4.55E-06	1.492983588	3.05854E-06	2.53709E-05	1.366741423	2.79992E-06	2.32256E-05	1.634492366	3.34844E-06	2.77756E-05
Road 11	11	1900-2000	0.281782243	4.45177E-07	3.69278E-06	0.257643035	4.0704E-07	3.37643E-06	1.423110309	2.24832E-06	1.865E-05	1.295790589	2.04717E-06	1.69814E-05	1.553433624	2.45421E-06	2.03579E-05
Road 11	11	2000-2100	0.291199195	4.09499E-07	3.39683E-06	0.264019433	3.71277E-07	3.07978E-06	1.4077138	1.9796E-06	1.64209E-05	1.274085781	1.79168E-06	1.48622E-05	1.538105214	2.16296E-06	1.79419E-05
Road 11	11	2100-2200	0.206230779	2.07663E-07	1.72258E-06	0.188819338	1.90131E-07	1.57715E-06	1.119382564	1.12716E-06	9.34985E-06	1.024203123	1.03132E-06	8.55485E-06	1.213022461	1.22145E-06	1.0132E-05
Road 11	11	2200-2300	0.271205448	2.96631E-07	2.46058E-06	0.249835024	2.73257E-07	2.26669E-06	1.329394415	1.45403E-06	1.20613E-05	1.222041164	1.33661E-06	1.10873E-05	1.471876189	1.60986E-06	1.3354E-05
Road 11	11	2300-0000	0.259270405	2.70073E-07	2.24028E-06	0.238982247	2.4894E-07	2.06498E-06	1.292425453	1.34628E-06	1.11675E-05	1.188575343	1.2381E-06	1.02701E-05	1.427557591	1.48704E-06	1.23351E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.39449	2.62122E-06	3.94245E-06	1.28826	2.42154E-06	3.64212E-06	6.1097	1.14844E-05	1.72731E-05	5.6442	1.06094E-05	1.59571E-05	6.93246	1.30309E-05	1.95992E-05
Haul Road 1	HR1	0800-0900	1.39029	2.61333E-06	3.93057E-06	1.28946	2.4238E-06	3.64551E-06	6.09131	1.14498E-05	1.72211E-05	5.6496	1.06195E-05	1.59723E-05	6.93906	1.30433E-05	1.96178E-05
Haul Road 1	HR1	0900-1000	1.39319	2.61878E-06	3.93877E-06	1.29185	2.42829E-06	3.65227E-06	6.1042	1.14741E-05	1.72576E-05	5.6601	1.06393E-05	1.6002E-05	6.95195	1.30676E-05	1.96543E-05
Haul Road 1	HR1	1000-1100	1.38919	2.61126E-06	3.92746E-06	1.29135	2.42735E-06	3.65085E-06	6.08642	1.14406E-05	1.72073E-05	5.6576	1.06346E-05	1.59949E-05	6.94895	1.30619E-05	1.96458E-05
Haul Road 1	HR1	1100-1200	1.38509	2.60355E-06	3.91587E-06	1.29165	2.42791E-06	3.6517E-06	6.06863	1.14072E-05	1.7157E-05	5.6592	1.06376E-05	1.59995E-05	6.95085	1.30655E-05	1.96512E-05
Haul Road 1	HR1	1200-1300	1.3811	2.59605E-06	3.90459E-06	1.28816	2.42135E-06	3.64184E-06	6.05073	1.13736E-05	1.71064E-05	5.6439	1.06088E-05	1.59562E-05	6.93206	1.30302E-05	1.9598E-05
Haul Road 1	HR1	1300-1400	1.377	2.58835E-06	3.893E-06	1.28816	2.42135E-06	3.64184E-06	6.03315	1.13405E-05	1.70567E-05	5.6439	1.06088E-05	1.59562E-05	6.93206	1.30302E-05	1.9598E-05
Haul Road 1	HR1	1400-1500	1.377	2.58835E-06	3.893E-06	1.28816	2.42135E-06	3.64184E-06	6.03315	1.13405E-05	1.70567E-05	5.6439	1.06088E-05	1.59562E-05	6.93206	1.30302E-05	1.9598E-05
Haul Road 1	HR1	1500-1600	1.3732	2.5812E-06	3.88226E-06	1.27836	2.40293E-06	3.61413E-06	6.01646	1.13091E-05	1.70095E-05	5.60104	1.05283E-05	1.5835E-05	6.8794	1.29312E-05	1.94492E-05
Haul Road 1	HR1	1600-1700	1.3732	2.5812E-06	3.88226E-06	1.27327	2.39336E-06	3.59974E-06	6.01646	1.13091E-05	1.70095E-05	5.57854	1.0486E-05	1.57714E-05	6.85181	1.28793E-05	1.93712E-05
Haul Road 1	HR1	1700-1800	1.3818	2.59737E-06	3.90657E-06	1.26537	2.37852E-06	3.5774E-06	6.05393	1.13796E-05	1.71154E-05	5.54397	1.0421E-05	1.56737E-05	6.80934	1.27995E-05	1.92511E-05
Haul Road 1	HR1	1800-1900	1.3784	2.59098E-06	3.89696E-06	1.25238	2.3541E-06	3.54068E-06	6.03934	1.13521E-05	1.70742E-05	5.48721	1.03143E-05	1.55132E-05	6.73959	1.26684E-05	1.90539E-05
Haul Road 1	HR1	1900-2000	1.38609	2.60543E-06	3.9187E-06	1.25538	2.35974E-06	3.54916E-06	6.07263	1.14147E-05	1.71683E-05	5.5001	1.03385E-05	1.55497E-05	6.75548	1.26983E-05	1.90988E-05
Haul Road 1	HR1	2000-2100	1.38609	2.60543E-06	3.9187E-06	1.25128	2.35203E-06	3.53757E-06	6.07263	1.14147E-05	1.71683E-05	5.48231	1.03051E-05	1.54994E-05	6.73359	1.26571E-05	1.90369E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.39449	1.80633E-06	4.80829E-06	1.28826	1.66873E-06	4.442E-06	6.1097	7.91412E-06	2.10666E-05	5.6442	7.31114E-06	1.94615E-05	6.93246	8.97987E-06	2.39035E-05
Haul Road 2	HR2	0800-0900	1.39029	1.80089E-06	4.7938E-06	1.28946	1.67028E-06	4.44614E-06	6.09131	7.8903E-06	2.10032E-05	5.6496	7.31813E-06	1.94802E-05	6.93906	8.98842E-06	2.39263E-05
Haul Road 2	HR2	0900-1000	1.39319	1.80465E-06	4.8038E-06	1.29185	1.67338E-06	4.45438E-06	6.1042	7.90699E-06	2.10476E-05	5.6601	7.33174E-06	1.95164E-05	6.95195	9.00512E-06	2.39707E-05
Haul Road 2	HR2	1000-1100	1.38919	1.79947E-06	4.79001E-06	1.29135	1.67273E-06	4.45265E-06	6.08642	7.88396E-06	2.09863E-05	5.6576	7.3285E-06	1.95077E-05	6.94895	9.00123E-06	2.39604E-05
Haul Road 2	HR2	1100-1200	1.38509	1.79416E-06	4.77587E-06	1.29165	1.67312E-06	4.45369E-06	6.06863	7.86092E-06	2.0925E-05	5.6592	7.33057E-06	1.95133E-05	6.95085	9.00369E-06	2.39669E-05
Haul Road 2	HR2	1200-1300	1.3811	1.78899E-06	4.76212E-06	1.28816	1.6686E-06	4.44165E-06	6.05073	7.83773E-06	2.08633E-05	5.6439	7.31075E-06	1.94605E-05	6.93206	8.97935E-06	2.39022E-05
Haul Road 2	HR2	1300-1400	1.377	1.78368E-06	4.74798E-06	1.28816	1.6686E-06	4.44165E-06	6.03315	7.81496E-06	2.08027E-05	5.6439	7.31075E-06	1.94605E-05	6.93206	8.97935E-06	2.39022E-05
Haul Road 2	HR2	1400-1500	1.377	1.78368E-06	4.74798E-06	1.28816	1.6686E-06	4.44165E-06	6.03315	7.81496E-06	2.08027E-05	5.6439	7.31075E-06	1.94605E-05	6.93206	8.97935E-06	2.39022E-05
Haul Road 2	HR2	1500-1600	1.3732	1.77876E-06	4.73488E-06	1.27836	1.65591E-06	4.40786E-06	6.01646	7.79334E-06	2.07451E-05	5.60104	7.25523E-06	1.93127E-05	6.8794	8.91114E-06	2.37206E-05
Haul Road 2	HR2	1600-1700	1.3732	1.77876E-06	4.73488E-06	1.27327	1.64931E-06	4.39031E-06	6.01646	7.79334E-06	2.07451E-05	5.57854	7.22609E-06	1.92351E-05	6.85181	8.8754E-06	2.36255E-05
Haul Road 2	HR2	1700-1800	1.3818	1.7899E-06	4.76453E-06	1.26537	1.63908E-06	4.36307E-06	6.05393	7.84188E-06	2.08743E-05	5.54397	7.18131E-06	1.91159E-05	6.80934	8.82039E-06	2.3479E-05
Haul Road 2	HR2	1800-1900	1.3784	1.78549E-06	4.75281E-06	1.25238	1.62225E-06	4.31828E-06	6.03934	7.82298E-06	2.0824E-05	5.48721	7.10778E-06	1.89202E-05	6.73959	8.73004E-06	2.32385E-05
Haul Road 2	HR2	1900-2000	1.38609	1.79545E-06	4.77932E-06	1.25538	1.62614E-06	4.32863E-06	6.07263	7.8661E-06	2.09388E-05	5.5001	7.12448E-06	1.89647E-05	6.75548	8.75062E-06	2.32933E-05
Haul Road 2	HR2	2000-2100	1.38609	1.79545E-06	4.77932E-06	1.25128	1.62083E-06	4.31449E-06	6.07263	7.8661E-06	2.09388E-05	5.48231	7.10144E-06	1.89033E-05	6.73359	8.72227E-06	2.32178E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.39449	1.80633E-06	4.80158E-06	1.28826	1.66873E-06	4.4358E-06	6.1097	7.91412E-06	2.10372E-05	5.6442	7.31114E-06	1.94344E-05	6.93246	8.97987E-06	2.38702E-05
Haul Road 3	HR3	0800-0900	1.39029	1.80089E-06	4.78712E-06	1.28946	1.67028E-06	4.43994E-06	6.09131	7.8903E-06	2.09739E-05	5.6496	7.31813E-06	1.9453E-05	6.93906	8.98842E-06	2.38929E-05
Haul Road 3	HR3	0900-1000	1.39319	1.80465E-06	4.79711E-06	1.29185	1.67338E-06	4.44817E-06	6.1042	7.90699E-06	2.10183E-05	5.6601	7.33174E-06	1.94892E-05	6.95195	9.00512E-06	2.39373E-05
Haul Road 3	HR3	1000-1100	1.38919	1.79947E-06	4.78333E-06	1.29135	1.67273E-06	4.44644E-06	6.08642	7.88396E-06	2.09571E-05	5.6576	7.3285E-06	1.94805E-05	6.94895	9.00123E-06	2.3927E-05
Haul Road 3	HR3	1100-1200	1.38509	1.79416E-06	4.76922E-06	1.29165	1.67312E-06	4.44748E-06	6.06863	7.86092E-06	2.08958E-05	5.6592	7.33057E-06	1.94861E-05	6.95085	9.00369E-06	2.39335E-05
Haul Road 3	HR3	1200-1300	1.3811	1.78899E-06	4.75548E-06	1.28816	1.6686E-06	4.43546E-06	6.05073	7.83773E-06	2.08342E-05	5.6439	7.31075E-06	1.94334E-05	6.93206	8.97935E-06	2.38688E-05
Haul Road 3	HR3	1300-1400	1.377	1.78368E-06	4.74136E-06	1.28816	1.6686E-06	4.43546E-06	6.03315	7.81496E-06	2.07737E-05	5.6439	7.31075E-06	1.94334E-05	6.93206	8.97935E-06	2.38688E-05
Haul Road 3	HR3	1400-1500	1.377	1.78368E-06	4.74136E-06	1.28816	1.6686E-06	4.43546E-06	6.03315	7.81496E-06	2.07737E-05	5.6439	7.31075E-06	1.94334E-05	6.93206	8.97935E-06	2.38688E-05
Haul Road 3	HR3	1500-1600	1.3732	1.77876E-06	4.72827E-06	1.27836	1.65591E-06	4.40172E-06	6.01646	7.79334E-06	2.07162E-05	5.60104	7.25523E-06	1.92858E-05	6.8794	8.91114E-06	2.36875E-05
Haul Road 3	HR3	1600-1700	1.3732	1.77876E-06	4.72827E-06	1.27327	1.64931E-06	4.38419E-06	6.01646	7.79334E-06	2.07162E-05	5.57854	7.22609E-06	1.92083E-05	6.85181	8.8754E-06	2.35925E-05
Haul Road 3	HR3	1700-1800	1.3818	1.7899E-06	4.75789E-06	1.26537	1.63908E-06	4.35699E-06	6.05393	7.84188E-06	2.08452E-05	5.54397	7.18131E-06	1.90893E-05	6.80934	8.82039E-06	2.34463E-05
Haul Road 3	HR3	1800-1900	1.3784	1.78549E-06	4.74618E-06	1.25238	1.62225E-06	4.31226E-06	6.03934	7.82298E-06	2.0795E-05	5.48721	7.10778E-06	1.88939E-05	6.73959	8.73004E-06	2.32061E-05
Haul Road 3	HR3	1900-2000	1.38609	1.79545E-06	4.77266E-06	1.25538	1.62614E-06	4.32259E-06	6.07263	7.8661E-06	2.09096E-05	5.5001	7.12448E-06	1.89382E-05	6.75548	8.75062E-06	2.32608E-05
Haul Road 3	HR3	2000-2100	1.38609	1.79545E-06	4.77266E-06	1.25128	1.62083E-06	4.30847E-06	6.07263	7.8661E-06	2.09096E-05	5.48231	7.10144E-06	1.8877E-05	6.73359	8.72227E-06	2.31855E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.101331508	3.40434E-07	2.76948E-06	0.09211838	3.09482E-07	2.51768E-06	0.604914749	2.03228E-06	1.65329E-05	0.54604648	1.8345E-06	1.4924E-05	0.63816486	2.14398E-06	1.74416E-05
Road 1	1	0100-0200	0.078726147	1.61058E-07	1.31023E-06	0.07137	1.46008E-07	1.1878E-06	0.479193211	9.80331E-07	7.97514E-06	0.431153119	8.82051E-07	7.17562E-06	0.502523119	1.02806E-06	8.36342E-06
Road 1	1	0200-0300	0.076392987	1.10403E-07	8.98143E-07	0.069045974	9.97849E-08	8.11765E-07	0.496621039	7.17714E-07	5.83871E-06	0.442004935	6.38783E-07	5.1966E-06	0.511050909	7.38568E-07	6.00836E-06
Road 1	1	0300-0400	0.064440545	6.65208E-08	5.41157E-07	0.058011273	5.9884E-08	4.87165E-07	0.402483636	4.15477E-07	3.37996E-06	0.356681455	3.68196E-07	2.99533E-06	0.414692727	4.2808E-07	3.48249E-06
Road 1	1	0400-0500	0.083398953	1.34615E-07	1.09512E-06	0.076100581	1.22835E-07	9.99281E-07	0.484238721	7.81617E-07	6.35857E-06	0.437458256	7.06108E-07	5.74429E-06	0.513558837	8.28943E-07	6.74357E-06
Road 1	1	0500-0600	0.068870266	2.43011E-07	1.97693E-06	0.062764787	2.21467E-07	1.80167E-06	0.414597713	1.46292E-06	1.19011E-05	0.372621915	1.31481E-06	1.06962E-05	0.435386702	1.53627E-06	1.24978E-05
Road 1	1	0600-0700	0.092274392	5.83642E-07	4.74802E-06	0.084036855	5.31539E-07	4.32415E-06	0.497897181	3.14924E-06	2.56195E-05	0.448725846	2.83822E-06	2.30894E-05	0.5327627	3.36976E-06	2.74135E-05
Road 1	1	0700-0800	0.077299466	8.15358E-07	6.63306E-06	0.070377242	7.42343E-07	6.03907E-06	0.433546655	4.57307E-06	3.72026E-05	0.388879359	4.10192E-06	3.33697E-05	0.459256601	4.84426E-06	3.94088E-05
Road 1	1	0800-0900	0.08288598	1.07963E-06	8.78298E-06	0.075557161	9.84172E-07	8.00638E-06	0.449685764	5.85739E-06	4.76508E-05	0.405731816	5.28487E-06	4.29932E-05	0.481288977	6.26904E-06	5.09996E-05
Road 1	1	0900-1000	0.087897997	1.17791E-06	9.58249E-06	0.080495588	1.07871E-06	8.77549E-06	0.491172871	6.58216E-06	5.35468E-05	0.446251821	5.98018E-06	4.86496E-05	0.526747409	7.05889E-06	5.74251E-05
Road 1	1	1000-1100	0.101848187	1.32854E-06	1.08079E-05	0.092956201	1.21255E-06	9.86426E-06	0.548463597	7.15432E-06	5.82015E-05	0.49740377	6.48828E-06	5.27831E-05	0.590359971	7.70083E-06	6.26474E-05
Road 1	1	1100-1200	0.091999228	1.1638E-06	9.46772E-06	0.083990341	1.06249E-06	8.64352E-06	0.531163027	6.71929E-06	5.46624E-05	0.481312344	6.08867E-06	4.95323E-05	0.565302685	7.15116E-06	5.81758E-05
Road 1	1	1200-1300	0.095157076	1.19125E-06	9.69099E-06	0.08606973	1.07749E-06	8.76552E-06	0.541955517	6.78462E-06	5.51939E-05	0.486882384	6.09517E-06	4.95851E-05	0.572952114	7.17266E-06	5.83506E-05
Road 1	1	1300-1400	0.099402341	1.32275E-06	1.07608E-05	0.090061848	1.19846E-06	9.74963E-06	0.554626135	7.38044E-06	6.0041E-05	0.499019633	6.64048E-06	5.40213E-05	0.589081481	7.83894E-06	6.37709E-05
Road 1	1	1400-1500	0.094287945	1.36088E-06	1.10709E-05	0.08533446	1.23165E-06	1.00196E-05	0.514735176	7.42927E-06	6.04382E-05	0.462739506	6.6788E-06	5.43331E-05	0.548073966	7.91045E-06	6.43527E-05
Road 1	1	1500-1600	0.101530251	1.36441E-06	1.10997E-05	0.091960154	1.2358E-06	1.00534E-05	0.55229486	7.42198E-06	6.03789E-05	0.497104804	6.68031E-06	5.43453E-05	0.589064958	7.91611E-06	6.43988E-05
Road 1	1	1600-1700	0.097171417	1.37696E-06	1.12018E-05	0.088195205	1.24976E-06	1.0167E-05	0.53625947	7.59902E-06	6.18192E-05	0.482711576	6.84023E-06	5.56463E-05	0.570906781	8.08999E-06	6.58133E-05
Road 1	1	1700-1800	0.077476478	1.10224E-06	8.96686E-06	0.069988113	9.95702E-07	8.10018E-06	0.438163325	6.23363E-06	5.07115E-05	0.391743984	5.57323E-06	4.53391E-05	0.461732098	6.56894E-06	5.34393E-05
Road 1	1	1800-1900	0.069086512	1.00362E-06	8.16461E-06	0.06257584	9.09041E-07	7.39518E-06	0.418953127	6.08614E-06	4.95117E-05	0.375090052	5.44894E-06	4.4328E-05	0.437665891	6.35798E-06	5.17231E-05
Road 1	1	1900-2000	0.083350624	9.27682E-07	7.54683E-06	0.074908314	8.33721E-07	6.78244E-06	0.483580034	5.38219E-06	4.37849E-05	0.429647757	4.78193E-06	3.89017E-05	0.504556071	5.61565E-06	4.56841E-05
Road 1	1	2000-2100	0.075660338	7.14286E-07	5.81082E-06	0.068340795	6.45184E-07	5.24867E-06	0.452489125	4.27181E-06	3.47518E-05	0.404604632	3.81975E-06	3.10742E-05	0.472945427	4.46493E-06	3.63229E-05
Road 1	1	2100-2200	0.079596841	6.85716E-07	5.5784E-06	0.0715561	6.16446E-07	5.01488E-06	0.480805251	4.14207E-06	3.36964E-05	0.427617277	3.68387E-06	2.99688E-05	0.499173377	4.30031E-06	3.49837E-05
Road 1	1	2200-2300	0.077524736	6.32944E-07	5.14909E-06	0.069649425	5.68647E-07	4.62603E-06	0.468442161	3.82456E-06	3.11133E-05	0.415822805	3.39495E-06	2.76184E-05	0.48547223	3.9636E-06	3.22444E-05
Road 1	1	2300-0000	0.067946154	4.97354E-07	4.04605E-06	0.061439744	4.49728E-07	3.6586E-06	0.424642692	3.10831E-06	2.52865E-05	0.378131487	2.76785E-06	2.25169E-05	0.439571231	3.21758E-06	2.61755E-05
Road 2	2	0000-0100	0.167772115	2.01948E-07	1.30416E-06	0.152567308	1.83646E-07	1.18597E-06	0.714830192	8.60444E-07	5.55666E-06	0.646344615	7.78007E-07	5.0243E-06	0.798911923	9.61653E-07	6.21026E-06
Road 2	2	0100-0200	0.118771765	9.34778E-08	6.0367E-07	0.107694412	8.47595E-08	5.47369E-07	0.59121	4.65304E-07	3.00489E-06	0.532372647	4.18997E-07	2.70584E-06	0.640067059	5.03756E-07	3.25321E-06
Road 2	2	0200-0300	0.123898261	6.59644E-08	4.25991E-07	0.112170435	5.97204E-08	3.85668E-07	0.683987826	3.6416E-07	2.35171E-06	0.613186522	3.26465E-07	2.10828E-06	0.725356957	3.86185E-07	2.49395E-06
Road 2	2	0300-0400	0.107362	3.72785E-08	2.40741E-07	0.09683	3.36215E-08	2.17125E-07	0.396989333	1.37844E-07	8.9018E-07	0.352645333	1.22446E-07	7.90746E-07	0.449475333	1.56068E-07	1.00787E-06
Road 2	2	0400-0500	0.145105185	9.06907E-08	5.85672E-07	0.132466667	8.27917E-08	5.3466E-07	0.704312222	4.40195E-07	2.84274E-06	0.639136296	3.9946E-07	2.57967E-06	0.771602963	4.82252E-07	3.11434E-06
Road 2	2	0500-0600	0.115097895	1.51865E-07	9.80731E-07	0.10499193	1.38531E-07	8.9462E-07	0.516823509	6.8192E-07	4.40377E-06	0.466121404	6.15021E-07	3.97175E-06	0.571113333	7.53552E-07	4.86637E-06
Road 2	2	0600-0700	0.161577212	3.88982E-07	2.51201E-06	0.147220673	3.5442E-07	2.28881E-06	0.659473077	1.58762E-06	1.02527E-05	0.596328173	1.4356E-06	9.271E-06	0.743548846	1.79003E-06	1.15598E-05
Road 2	2	0700-0800	0.132126625	4.89358E-07	3.16023E-06	0.12034725	4.45731E-07	2.87848E-06	0.55729775	2.06407E-06	1.33295E-05	0.501250875	1.85648E-06	1.1989E-05	0.621598125	2.30222E-06	1.48675E-05
Road 2	2	0800-0900	0.148749375	1.04675E-06	6.75984E-06	0.13562727	9.54414E-07	6.16351E-06	0.6311525	4.44144E-06	2.86824E-05	0.570170625	4.01231E-06	2.59111E-05	0.705797895	4.96673E-06	3.20746E-05
Road 2	2	0900-1000	0.173418016	1.01161E-06	6.53285E-06	0.158843929	9.2659E-07	5.98383E-06	0.74237754	4.33054E-06	2.79662E-05	0.675909365	3.9428E-06	2.54622E-05	0.834753294	4.86939E-06	3.14461E-05
Road 2	2	1000-1100	0.193055668	8.35681E-07	5.39674E-06	0.176231604	7.62854E-07	4.92644E-06	0.81732984	3.53798E-06	2.28479E-05	0.742342781	3.21338E-06	2.07517E-05	0.918574385	3.97624E-06	2.56781E-05
Road 2	2	1100-1200	0.22839459	9.67505E-07	6.24805E-06	0.208579563	8.83566E-07	5.70598E-06	0.934890929	3.9603E-06	2.55752E-05	0.851231093	3.60591E-06	2.32866E-05	1.059810656	4.48948E-06	2.89926E-05
Road 2	2	1200-1300	0.176527895	7.76396E-07	5.01389E-06	0.159717211	7.0246E-07	4.53642E-06	0.776653	3.41583E-06	2.20591E-05	0.698245579	3.07099E-06	1.98321E-05	0.857962789	3.77345E-06	2.43686E-05
Road 2	2	1300-1400	0.195013677	1.00667E-06	6.50096E-06	0.176617265	9.11705E-07	5.8877E-06	0.80077417	4.13363E-06	2.66946E-05	0.72131565	3.72346E-06	2.40457E-05	0.897932915	4.63516E-06	2.99334E-05
Road 2	2	1400-1500	0.167439455	6.39526E-07	4.12999E-06	0.151545758	5.78821E-07	3.73797E-06	0.726255455	2.77389E-06	1.79135E-05	0.654499212	2.49982E-06	1.61436E-05	0.80604497	3.07864E-06	1.98816E-05
Road 2	2	1500-1600	0.209629016	8.88012E-07	5.73469E-06	0.189821803	8.04106E-07	5.19284E-06	0.828109617	3.50796E-06	2.26541E-05	0.747217268	3.1653E-06	2.04412E-05	0.937039071	3.9694E-06	2.5634E-05
Road 2	2	1600-1700	0.17597819	9.00259E-07	5.81378E-06	0.159798416	8.17487E-07	5.27925E-06	0.74367638	3.80446E-06	2.45688E-05	0.671400362	3.43471E-06	2.2181E-05	0.831198778	4.2522E-06	2.74603E-05
Road 2	2	1700-1800	0.135665135	6.97168E-07	4.50224E-06	0.122652703	6.30299E-07	4.07041E-06	0.541628514	2.78337E-06	1.79747E-05	0.486243964	2.49875E-06	1.61367E-05	0.608896667	3.12905E-06	2.02071E-05
Road 2	2	1800-1900	0.14959932	8.65737E-07	5.59084E-06	0.13565516	7.85041E-07	5.06972E-06	0.67767364	3.92172E-06	2.53261E-05	0.61039956	3.5324E-06	2.28119E-05	0.74605472	4.31745E-06	2.78816E-05
Road 2	2	1900-2000	0.127866391	5.00218E-07	3.23036E-06	0.114934024	4.49626E-07	2.90364E-06	0.585764083	2.29153E-06	1.47985E-05	0.521282899	2.03928E-06	1.31695E-05	0.636216923	2.4889E-06	1.60731E-05
Road 2	2	2000-2100	0.12156068	4.13644E-07	2.67127E-06	0.109793673	3.73603E-07	2.41269E-06	0.524665782	1.78532E-06	1.15294E-05	0.468850748	1.59539E-06	1.03029E-05	0.578644422	1.969E-06	1.27156E-05
Road 2	2	2100-2200	0.094595621	3.35026E-07	2.16357E-06	0.084998562	3.01037E-07	1.94406E-06	0.442540588	1.56733E-06	1.01217E-05	0.391121634	1.38522E-06	8.94563E-06	0.476120196	1.68626E-06	1.08897E-05
Road 2	2	2200-2300	0.13717136	3.96908E-07	2.56319E-06	0.12334752	3.56908E-07	2.30488E-06	0.59125688	1.71081E-06	1.10483E-05	0.52618264	1.52252E-06	9.83228E-06	0.64953016	1.87943E-06	1.21372E-05
Road 2	2	2300-0000	0.122605135	3.15027E-07	2.03441E-06	0.110981261	2.8516E-07	1.84154E-06	0.56238036	1.44501E-06	9.3317E-06	0.502705946	1.29168E-06	8.34151E-06	0.613687207	1.57684E-06	1.0183E-05
Road 3	3	0000-0100	0.105944	3.90838E-07	1.51909E-05	0.095885652	3.53731E-07	1.37487E-05	0.589696696	2.17545E-06	8.45542E-05	0.529288087	1.9526E-06	7.58925E-05	0.625173739	2.30633E-06	8.96411E-05
Road 3	3	0100-0200	0.079634789	1.81377E-07	7.04969E-06	0.072023169	1.64041E-07	6.37587E-06	0.468523592	1.06712E-06	4.14762E-05	0.420413803	9.57541E-07	3.72172E-05	0.492436972	1.12158E-06	4.35931E-05
Road 3	3	0200-0300	0.078477273	1.24615E-07	4.84348E-06	0.070771818	1.1238E-07	4.36792E-06	0.498187879	7.9108E-07	3.07473E-05	0.442921111	7.03321E-07	2.73363E-05	0.513692929	8.15701E-07	3.17043E-05
Road 3	3	0300-0400	0.065676	7.3739E-08	2.86605E-06	0.059166	6.64297E-08	2.58196E-06	0.369914	4.15328E-07	1.61427E-05	0.327212143	3.67384E-07	1.42793E-05	0.386378143	4.33813E-07	1.68612E-05
Road 3	3	0400-0500	0.087251681	1.58141E-07	6.14654E-06	0.079628584	1.44324E-07	5.60953E-06	0.488535133	8.85455E-07	3.44154E-05	0.441739912	8.0064E-07	3.11189E-05	0.521368496	9.44964E-07	3.67284E-05
Road 3	3	0500-0600	0.070762967	2.79212E-07	1.08523E-05	0.064371504	2.53993E-07	9.87205E-06	0.401203821	1.58304E-06	6.15289E-05	0.359839309	1.41983E-06	5.51852E-05	0.424210813	1.67382E-06	6.50572E-05
Road 3	3	0600-0700	0.097958604	6.97618E-07	2.71147E-05	0.089044122	6.34133E-07	2.46472E-05	0.49523723	3.52686E-06	0.00013708	0.445707658	3.17413E-06	0.000123371	0.534751779	3.80827E-06	0.000148018
Road 3	3	0700-0800	0.080471032	9.38353E-07	3.64714E-05	0.073254209	8.54199E-07	3.32006E-05	0.429446176	5.00767E-06	0.000194635	0.385377813	4.4938E-06	0.000174663	0.458632022	5.348E-06	0.000207863
Road 3	3	0800-0900	0.08892344	1.42201E-06	5.52701E-05	0.080771364	1.29165E-06	5.02032E-05	0.445269348	7.12049E-06	0.000276756	0.399918285	6.39527E-06	0.000248568	0.480689649	7.68692E-06	0.000298771
Road 3	3	0900-1000	0.09595314	1.48518E-06	5.77252E-05	0.087806725	1.35909E-06	5.28243E-05	0.49838085	7.71402E-06	0.000299825	0.452462808	7.0033E-06	0.0002722	0.540269534	8.36238E-06	0.000325025
Road 3	3	1000-1100	0.109030205	1.53719E-06	5.97468E-05	0.099407998	1.40153E-06	5.4474E-05	0.553280796	7.80058E-06	0.000303189	0.501334073	7.06819E-06	0.000274723	0.600742071	8.46972E-06	0.000329197
Road 3	3	1100-1200	0.107536897	1.47302E-06	5.72525E-05	0.09767459	1.33792E-06	5.20018E-05	0.561667541	7.6936E-06	0.000299031	0.506368829	6.93613E-06	0.00026959	0.604043419	8.27405E-06	0.000321592
Road 3	3	1200-1300	0.101379637	1.38868E-06	5.39743E-05	0.092223349	1.26325E-06	4.90995E-05	0.541265211	7.41413E-06	0.000288169	0.489085398	6.69938E-06	0.000260388	0.581308747	7.96264E-06	0.000309488
Road 3	3	1300-1400	0.108106224	1.6074E-06	6.24754E-05	0.097331316	1.44719E-06	5.62485E-05	0.554160054	8.23962E-06	0.000320253	0.495493355	7.36732E-06	0.000286349	0.592824671	8.81451E-06	0.000342598

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.099236103	1.48665E-06	5.77824E-05	0.089693298	1.34369E-06	5.22259E-05	0.51652349	7.73801E-06	0.000300757	0.463949325	6.9504E-06	0.000270145	0.553642623	8.29409E-06	0.00032237
Road 3	3	1500-1600	0.110129587	1.58095E-06	6.14477E-05	0.100513408	1.44291E-06	5.60823E-05	0.558030547	8.01075E-06	0.000311358	0.50650914	7.27114E-06	0.000282611	0.607022547	8.71405E-06	0.000338693
Road 3	3	1600-1700	0.104127039	1.63007E-06	6.33566E-05	0.094427305	1.47822E-06	5.74548E-05	0.537188986	8.40948E-06	0.000326855	0.483212203	7.56449E-06	0.000294013	0.577639508	9.04272E-06	0.000351468
Road 3	3	1700-1800	0.082797497	1.30015E-06	5.05334E-05	0.074604168	1.17149E-06	4.55328E-05	0.430150306	6.75453E-06	0.000262532	0.383751093	6.02594E-06	0.000234213	0.45835526	7.19742E-06	0.000279746
Road 3	3	1800-1900	0.078362639	1.29084E-06	5.01716E-05	0.070631091	1.16348E-06	4.52215E-05	0.43769518	7.20999E-06	0.000280234	0.389679649	6.41904E-06	0.000249492	0.46031074	7.58252E-06	0.000294714
Road 3	3	1900-2000	0.083479526	1.01762E-06	3.95523E-05	0.07503025	9.14623E-07	3.55491E-05	0.46584775	5.67871E-06	0.000220717	0.413912	5.04561E-06	0.00019611	0.48894225	5.96023E-06	0.000231659
Road 3	3	2000-2100	0.077909476	8.11012E-07	3.1522E-05	0.070485532	7.33731E-07	2.85183E-05	0.432734407	4.50462E-06	0.000175083	0.387577273	4.03455E-06	0.000156813	0.458062804	4.76828E-06	0.000185331
Road 3	3	2100-2200	0.076598618	7.55594E-07	2.9368E-05	0.068832358	6.78985E-07	2.63904E-05	0.439127106	4.33169E-06	0.000168362	0.390033854	3.84742E-06	0.00014954	0.458866211	4.52641E-06	0.00017593
Road 3	3	2200-2300	0.082554423	7.45489E-07	2.89753E-05	0.074737496	6.749E-07	2.62317E-05	0.459738739	4.15156E-06	0.000161361	0.411286483	3.71403E-06	0.000144355	0.486023979	4.38893E-06	0.000170587
Road 3	3	2300-0000	0.072037829	5.80038E-07	2.25446E-05	0.065276315	5.25595E-07	2.04286E-05	0.422534163	3.40218E-06	0.000132234	0.377203606	3.03719E-06	0.000118048	0.44247992	3.56278E-06	0.000138476
Road 4	4	0000-0100	0.283915143	2.30024E-07	2.463E-06	0.257004571	2.08221E-07	2.22955E-06	1.403126	1.13679E-06	1.21723E-05	1.269289429	1.02836E-06	1.10112E-05	1.526294	1.23658E-06	1.32408E-05
Road 4	4	0100-0200	0.268011	1.24079E-07	1.32859E-06	0.2426585	1.12342E-07	1.20291E-06	1.3262955	6.14026E-07	6.57473E-06	1.200684	5.55872E-07	5.95205E-06	1.4433425	6.68214E-07	7.15495E-06
Road 4	4	0200-0300	0.290278462	8.73523E-08	9.35332E-07	0.262580769	7.90174E-08	8.46085E-07	1.388837692	4.17937E-07	4.4751E-06	1.256183077	3.78018E-07	4.04766E-06	1.518763846	4.57035E-07	4.89374E-06
Road 4	4	0300-0400	0.263768571	4.27403E-08	4.57645E-07	0.238334286	3.8619E-08	4.13516E-07	1.354341429	2.19453E-07	2.34982E-06	1.223415714	1.98239E-07	2.12266E-06	1.46175	2.36858E-07	2.53617E-06
Road 4	4	0400-0500	0.270545714	8.76769E-08	9.38807E-07	0.247092143	8.00762E-08	8.57422E-07	1.295015714	4.19681E-07	4.49377E-06	1.182661429	3.8327E-07	4.10389E-06	1.429753571	4.63346E-07	4.96131E-06
Road 4	4	0500-0600	0.249702917	1.38724E-07	1.4854E-06	0.227560417	1.26422E-07	1.35368E-06	1.151735833	6.39853E-07	6.85128E-06	1.04818625	5.82326E-07	6.2353E-06	1.275746667	7.08748E-07	7.58898E-06
Road 4	4	0600-0700	0.278279434	3.41408E-07	3.65565E-06	0.253173208	3.10606E-07	3.32584E-06	1.289990943	1.58263E-06	1.69461E-05	1.172420189	1.43839E-06	1.54016E-05	1.425593396	1.74899E-06	1.87275E-05
Road 4	4	0700-0800	0.278380326	5.92847E-07	6.34796E-06	0.253895761	5.40704E-07	5.78963E-06	1.338858152	2.85127E-06	3.05302E-05	1.219378587	2.59682E-06	2.78057E-05	1.473274348	3.13753E-06	3.35953E-05
Road 4	4	0800-0900	0.285260323	1.0235E-06	1.09592E-05	0.259516323	9.31135E-07	9.9702E-06	1.375829935	4.93643E-06	5.28572E-05	1.25018671	4.48562E-06	4.80302E-05	1.509703032	5.41676E-06	5.80004E-05
Road 4	4	0900-1000	0.289781959	9.92772E-07	1.06302E-05	0.265081351	9.08149E-07	9.72408E-06	1.326713649	4.54522E-06	4.86683E-05	1.212317568	4.15331E-06	4.44719E-05	1.477398919	5.06146E-06	5.4196E-05
Road 4	4	1000-1100	0.323084722	1.07695E-06	1.15315E-05	0.294643681	9.82146E-07	1.05164E-05	1.482325	4.94108E-06	5.2907E-05	1.351288333	4.50429E-06	4.82301E-05	1.645932014	5.48644E-06	5.87465E-05
Road 4	4	1100-1200	0.300374452	1.07773E-06	1.15399E-05	0.272916387	9.79214E-07	1.0485E-05	1.369479935	4.91364E-06	5.26132E-05	1.243517935	4.4617E-06	4.7774E-05	1.516434323	5.44091E-06	5.8259E-05
Road 4	4	1200-1300	0.307891419	1.05481E-06	1.12945E-05	0.280144932	9.59756E-07	1.02767E-05	1.465089392	5.01929E-06	5.37444E-05	1.332520068	4.56512E-06	4.88813E-05	1.612665	5.52487E-06	5.9158E-05
Road 4	4	1300-1400	0.316702133	1.09966E-06	1.17747E-05	0.285204267	9.90293E-07	1.06036E-05	1.472107467	5.11148E-06	5.47316E-05	1.324869	4.60024E-06	4.92574E-05	1.610073267	5.59053E-06	5.98611E-05
Road 4	4	1400-1500	0.287179	9.30673E-07	9.96525E-06	0.2595525	8.41142E-07	9.0066E-06	1.378125286	4.46615E-06	4.78216E-05	1.244442071	4.03291E-06	4.31827E-05	1.503994571	4.87406E-06	5.21893E-05
Road 4	4	1500-1600	0.32230184	9.32586E-07	9.98574E-06	0.29412232	8.51048E-07	9.11267E-06	1.49802144	4.33455E-06	4.64126E-05	1.3666764	3.9545E-06	4.23432E-05	1.66079872	4.80555E-06	5.14558E-05
Road 4	4	1600-1700	0.302124032	8.67208E-07	9.2857E-06	0.274040968	7.86599E-07	8.42257E-06	1.418381613	4.07128E-06	4.35936E-05	1.285987177	3.69126E-06	3.95244E-05	1.560028145	4.47786E-06	4.7947E-05
Road 4	4	1700-1800	0.290498976	8.54013E-07	9.14441E-06	0.262019528	7.70289E-07	8.24793E-06	1.386684724	4.0766E-06	4.36505E-05	1.249949606	3.67462E-06	3.93463E-05	1.511969134	4.44491E-06	4.75942E-05
Road 4	4	1800-1900	0.32093717	7.87485E-07	8.43205E-06	0.289794434	7.1107E-07	7.61383E-06	1.545416415	3.79199E-06	4.06031E-05	1.395027736	3.42298E-06	3.66519E-05	1.68482217	4.13405E-06	4.42657E-05
Road 4	4	1900-2000	0.289001216	4.95048E-07	5.30077E-06	0.260125676	4.45586E-07	4.77114E-06	1.39541	2.39029E-06	2.55942E-05	1.255053649	2.14986E-06	2.30198E-05	1.515179324	2.59545E-06	2.77909E-05
Road 4	4	2000-2100	0.252343061	2.86222E-07	3.06475E-06	0.228523265	2.59205E-07	2.77545E-06	1.224503878	1.3889E-06	1.48718E-05	1.107262857	1.25592E-06	1.34479E-05	1.335786122	1.51513E-06	1.62233E-05
Road 4	4	2100-2200	0.21090973	1.8064E-07	1.93422E-06	0.190023784	1.62752E-07	1.74268E-06	1.046270811	8.96112E-07	9.59518E-06	0.940421622	8.05454E-07	8.62446E-06	1.130445405	9.68206E-07	1.03671E-05
Road 4	4	2200-2300	0.284256349	4.14541E-07	4.43872E-06	0.257747619	3.75882E-07	4.02479E-06	1.352735079	1.97274E-06	2.11233E-05	1.225394127	1.78703E-06	1.91348E-05	1.483141746	2.16292E-06	2.31596E-05
Road 4	4	2300-0000	0.264182857	2.99652E-07	3.20855E-06	0.239734082	2.71921E-07	2.91161E-06	1.291926327	1.46538E-06	1.56907E-05	1.171104898	1.32834E-06	1.42233E-05	1.41083898	1.60026E-06	1.71349E-05
Road 5	5	0000-0100	0.089717979	3.24992E-07	4.39493E-06	0.081156321	2.93978E-07	3.97553E-06	0.507908964	1.83984E-06	2.48804E-05	0.45455772	1.64658E-06	2.2267E-05	0.535714041	1.94056E-06	2.62425E-05
Road 5	5	0100-0200	0.060465328	1.38453E-07	1.87232E-06	0.054654098	1.25146E-07	1.69238E-06	0.37637418	8.61818E-07	1.16545E-05	0.336368361	7.70213E-07	1.04157E-05	0.391022459	8.95359E-07	1.21081E-05
Road 5	5	0200-0300	0.058036279	9.36772E-08	1.26681E-06	0.052245698	8.43305E-08	1.14042E-06	0.409981047	6.61756E-07	8.94905E-06	0.361977326	5.84273E-07	7.90123E-06	0.414223023	6.68603E-07	9.04165E-06
Road 5	5	0300-0400	0.051708571	6.11419E-08	8.26833E-07	0.046482063	5.49619E-08	7.4326E-07	0.29395381	3.47581E-07	4.7004E-06	0.25789	3.04938E-07	4.12373E-06	0.304372063	3.59899E-07	4.86699E-06
Road 5	5	0400-0500	0.071424141	1.32714E-07	1.79471E-06	0.065159394	1.21073E-07	1.6373E-06	0.414981212	7.7108E-07	1.04275E-05	0.373950707	6.94841E-07	9.39646E-06	0.439110101	8.15914E-07	1.10338E-05
Road 5	5	0500-0600	0.057954636	2.39302E-07	3.23613E-06	0.052686409	2.17549E-07	2.94196E-06	0.345353773	1.42601E-06	1.92842E-05	0.308388955	1.27338E-06	1.72201E-05	0.361075364	1.49093E-06	2.01621E-05
Road 5	5	0600-0700	0.084906082	6.1831E-07	8.36152E-06	0.077154227	5.61859E-07	7.59812E-06	0.433652088	3.15798E-06	4.27059E-05	0.389117216	2.83366E-06	3.83201E-05	0.466271443	3.39552E-06	4.59183E-05
Road 5	5	0700-0800	0.065844376	7.82273E-07	1.05788E-05	0.059890269	7.11534E-07	9.62221E-06	0.356237441	4.23233E-06	5.72345E-05	0.317889826	3.77673E-06	5.10735E-05	0.377780095	4.48827E-06	6.06957E-05
Road 5	5	0800-0900	0.070389348	1.11371E-06	1.50608E-05	0.063902977	1.01108E-06	1.3673E-05	0.350433345	5.54458E-06	7.49804E-05	0.312988387	4.95212E-06	6.69685E-05	0.376891364	5.9632E-06	8.06415E-05
Road 5	5	0900-1000	0.077422868	1.18576E-06	1.60352E-05	0.070856201	1.08519E-06	1.46752E-05	0.416673309	6.38148E-06	8.6298E-05	0.377400833	5.78001E-06	7.81642E-05	0.448257034	6.8652E-06	9.28394E-05
Road 5	5	1000-1100	0.088338052	1.21697E-06	1.64573E-05	0.080549196	1.10967E-06	1.50062E-05	0.461164169	6.35313E-06	8.59145E-05	0.416779646	5.74167E-06	7.76457E-05	0.497328842	6.85134E-06	9.2652E-05
Road 5	5	1100-1200	0.087190172	1.14388E-06	1.54689E-05	0.079198727	1.03904E-06	1.40511E-05	0.476172346	6.24708E-06	8.44804E-05	0.428013305	5.61526E-06	7.59363E-05	0.507212031	6.6543E-06	8.99874E-05
Road 5	5	1200-1300	0.081043607	1.07541E-06	1.4543E-05	0.073720141	9.78231E-07	1.32288E-05	0.445634809	5.91336E-06	7.99675E-05	0.401497086	5.32767E-06	7.20471E-05	0.475217228	6.3059E-06	8.52759E-05
Road 5	5	1300-1400	0.088847825	1.2957E-06	1.7522E-05	0.079988687	1.1665E-06	1.57748E-05	0.466348494	6.80092E-06	9.19701E-05	0.415894775	6.06513E-06	8.20199E-05	0.495883462	7.23163E-06	9.77947E-05
Road 5	5	1400-1500	0.083405894	1.24295E-06	1.68086E-05	0.07538927	1.12348E-06	1.5193E-05	0.439541121	6.55022E-06	8.85798E-05	0.394068149	5.87256E-06	7.94158E-05	0.469457418	6.99604E-06	9.46088E-05
Road 5	5	1500-1600	0.093109117	1.34561E-06	1.81969E-05	0.084996701	1.22837E-06	1.66115E-05	0.478442571	6.91443E-06	9.35051E-05	0.433517286	6.26517E-06	8.47251E-05	0.518513987	7.49354E-06	0.000101337
Road 5	5	1600-1700	0.088663705	1.41948E-06	1.9196E-05	0.080392837	1.28707E-06	1.74053E-05	0.46570789	7.45587E-06	0.000100827	0.417960528	6.69145E-06	9.04897E-05	0.498353365	7.97852E-06	0.000107895
Road 5	5	1700-1800	0.065498425	1.04616E-06	1.41474E-05	0.05899604	9.42298E-07	1.27429E-05	0.345867603	5.52427E-06	7.47058E-05	0.307256569	4.90757E-06	6.6366E-05	0.366252609	5.84987E-06	7.91089E-05
Road 5	5	1800-1900	0.061306627	1.05745E-06	1.43001E-05	0.05523827	9.52777E-07	1.28846E-05	0.355615919	6.13384E-06	8.29491E-05	0.315044157	5.43404E-06	7.34855E-05	0.370282427	6.38682E-06	8.63701E-05
Road 5	5	1900-2000	0.0711157	9.15641E-07	1.23824E-05	0.063869796	8.22348E-07	1.11208E-05	0.407215612	5.24305E-06	7.09028E-05	0.360685423	4.64396E-06	6.28011E-05	0.424555219	5.46631E-06	7.39219E-05
Road 5	5	2000-2100	0.06896805	7.76667E-07	1.0503E-05	0.062393917	7.02634E-07	9.50185E-06	0.3894741	4.38597E-06	5.93123E-05	0.3481561	3.92068E-06	5.302E-05	0.410550017	4.62331E-06	6.25219E-05
Road 5	5	2100-2200	0.071429758	7.74895E-07	1.0479E-05	0.064182093	6.9627E-07	9.41579E-06	0.414653201	4.4983E-06	6.08314E-05	0.36776474	3.98964E-06	5.39527E-05	0.431946834	4.68591E-06	6.33684E-05
Road 5	5	2200-2300	0.069087956	6.47051E-07	8.7502E-06	0.062510281	5.85447E-07	7.91711E-06	0.397029078	3.71842E-06	5.02849E-05	0.353817455	3.31372E-06	4.4812E-05	0.416327735	3.89917E-06	5.27291E-05
Road 5	5	2300-0000	0.060544768	5.14767E-07	6.96129E-06	0.054808609	4.65997E-07	6.30176E-06	0.366817196	3.11877E-06	4.21757E-05	0.326092428	2.77252E-06	3.74933E-05	0.380901038	3.23852E-06	4.37951E-05
Road 6	6	0000-0100	0.0538884	1.51713E-07	5.42312E-06	0.048587467	1.36789E-07	4.88965E-06	0.356982067	1.00502E-06	3.59253E-05	0.315503667	8.88242E-07	3.17511E-05	0.364091133	1.02503E-06	3.66407E-05
Road 6	6	0100-0200	0.071313246	1.52585E-07	5.45428E-06	0.064448246	1.37896E-07	4.92922E-06	0.410162982	8.77601E-07	3.13707E-05	0.365299561	7.81609E-07	2.79394E-05	0.429747807	9.19505E-07	3.28686E-05
Road 6	6	0200-0300	0.065112152	9.65439E-08	3.45105E-06	0.058759494	8.71246E-08	3.11435E-06	0.381336456	5.6542E-07	2.02115E-05	0.338383291	5.01732E-07	1.79349E-05	0.397142785	5.88857E-07	2.10492E-05
Road 6	6	0300-0400	0.066753871	7.76791E-08	2.77671E-06	0.060250645	7.01115E-08	2.5062E-06	0.435249839	5.06484E-07	1.81048E-05	0.387095484	4.50449E-07	1.61017E-05	0.447346129	5.2056E-07	1.86079E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.072254	1.22051E-07	4.36282E-06	0.065906556	1.11329E-07	3.97955E-06	0.433598778	7.3243E-07	2.61814E-05	0.389884667	6.58589E-07	2.35419E-05	0.455791222	7.69918E-07	2.75214E-05
Road 6	6	0500-0600	0.064723148	1.96793E-07	7.03456E-06	0.05886642	1.78986E-07	6.39801E-06	0.401009506	1.21929E-06	4.35845E-05	0.35833679	1.08954E-06	3.89466E-05	0.41720321	1.26852E-06	4.53446E-05
Road 6	6	0600-0700	0.069400552	3.77743E-07	1.35028E-05	0.062993414	3.4287E-07	1.22562E-05	0.449846	2.44849E-06	8.75235E-05	0.400496897	2.17988E-06	7.79219E-05	0.46349031	2.52275E-06	9.01781E-05
Road 6	6	0700-0800	0.064702035	5.61042E-07	2.0055E-05	0.058865844	5.10436E-07	1.8246E-05	0.382443874	3.31624E-06	0.000118542	0.340648571	2.95382E-06	0.000105587	0.399514416	3.46426E-06	0.000123833
Road 6	6	0800-0900	0.054826631	6.81217E-07	2.43507E-05	0.049628822	6.16634E-07	2.20422E-05	0.334418157	4.15512E-06	0.000148529	0.294085363	3.65399E-06	0.000130615	0.343714184	4.27062E-06	0.000152657
Road 6	6	0900-1000	0.057619384	6.84555E-07	2.44701E-05	0.052553397	6.24367E-07	2.23186E-05	0.334528863	3.97441E-06	0.000142069	0.298232923	3.5432E-06	0.000126655	0.350786319	4.16756E-06	0.000148973
Road 6	6	1000-1100	0.077215327	7.75342E-07	2.77153E-05	0.07028172	7.05719E-07	2.52266E-05	0.429421533	4.31195E-06	0.000154135	0.385291028	3.86882E-06	0.000138295	0.455572748	4.57454E-06	0.000163521
Road 6	6	1100-1200	0.088969361	8.88358E-07	3.17552E-05	0.080803778	8.06825E-07	2.88407E-05	0.470997782	4.70291E-06	0.00016811	0.42301	4.22375E-06	0.000150982	0.503813778	5.03057E-06	0.000179823
Road 6	6	1200-1300	0.085496119	8.39236E-07	2.99993E-05	0.077803021	7.6372E-07	2.72999E-05	0.433019598	4.25055E-06	0.00015194	0.390668107	3.83482E-06	0.000137079	0.468471128	4.59854E-06	0.000164379
Road 6	6	1300-1400	0.099391593	9.71904E-07	3.47416E-05	0.089482246	8.75005E-07	3.12779E-05	0.512250038	5.00905E-06	0.000179053	0.456991747	4.46871E-06	0.000159738	0.546473992	5.34371E-06	0.000191016
Road 6	6	1400-1500	0.094144756	1.01425E-06	3.62552E-05	0.085103118	9.16839E-07	3.27733E-05	0.47789324	5.14847E-06	0.000184037	0.428127439	4.61233E-06	0.000164872	0.513230557	5.52917E-06	0.000197646
Road 6	6	1500-1600	0.082752473	8.72877E-07	3.12018E-05	0.075478043	7.96146E-07	2.8459E-05	0.435406317	4.59269E-06	0.00016417	0.393479626	4.15044E-06	0.000148361	0.468957669	4.94659E-06	0.00017682
Road 6	6	1600-1700	0.086761997	9.37968E-07	3.35285E-05	0.07866066	8.50386E-07	3.03978E-05	0.436053264	4.71409E-06	0.00016851	0.391611997	4.23364E-06	0.000151336	0.470272656	5.08403E-06	0.000181733
Road 6	6	1700-1800	0.065195885	7.46424E-07	2.66816E-05	0.058725361	6.72344E-07	2.40336E-05	0.34113718	3.90566E-06	0.000139612	0.303205984	3.47139E-06	0.000124088	0.361931344	4.14373E-06	0.000148122
Road 6	6	1800-1900	0.063759666	8.2452E-07	2.94732E-05	0.057437634	7.42765E-07	2.65508E-05	0.340830319	4.40751E-06	0.000157551	0.302943454	3.91757E-06	0.000140037	0.360381089	4.66033E-06	0.000166588
Road 6	6	1900-2000	0.075746469	7.44954E-07	2.66291E-05	0.068031202	6.69076E-07	2.39167E-05	0.405224466	3.98532E-06	0.000142459	0.358857061	3.5293E-06	0.000126158	0.426888263	4.19838E-06	0.000150075
Road 6	6	2000-2100	0.059964665	4.70444E-07	1.68164E-05	0.054205287	4.25259E-07	1.52013E-05	0.358041722	2.80896E-06	0.000100409	0.319134665	2.50372E-06	8.94979E-05	0.373339952	2.92898E-06	0.000104699
Road 6	6	2100-2200	0.083896556	5.66869E-07	2.02633E-05	0.075410278	5.09529E-07	1.82136E-05	0.454818861	3.0731E-06	0.000109851	0.404114556	2.7305E-06	9.76044E-05	0.479524833	3.24003E-06	0.000115818
Road 6	6	2200-2300	0.063172047	4.51737E-07	1.61478E-05	0.057089843	4.08244E-07	1.45931E-05	0.369536089	2.64252E-06	9.44592E-05	0.326283071	2.33322E-06	8.34031E-05	0.383372913	2.74146E-06	9.79961E-05
Road 6	6	2300-0000	0.042405378	2.84135E-07	1.01567E-05	0.038362297	2.57045E-07	9.18831E-06	0.274848599	1.84161E-06	6.58301E-05	0.243313137	1.63031E-06	5.82769E-05	0.281675434	1.88735E-06	6.74652E-05
Road 7	7	0000-0100	0.07864442	2.12376E-07	5.30159E-06	0.071155173	1.92151E-07	4.79673E-06	0.47281771	1.27682E-06	3.18737E-05	0.422762062	1.14165E-06	2.84993E-05	0.493917236	1.3338E-06	3.32961E-05
Road 7	7	0100-0200	0.096619793	2.03404E-07	5.07761E-06	0.087461518	1.84124E-07	4.59632E-06	0.535001931	1.12628E-06	2.81157E-05	0.480021099	1.01054E-06	2.52263E-05	0.567482617	1.19466E-06	2.98226E-05
Road 7	7	0200-0300	0.08296617	1.13228E-07	2.82654E-06	0.075013775	1.02375E-07	2.55561E-06	0.477380319	6.51503E-07	1.62636E-05	0.426672008	5.82299E-07	1.45361E-05	0.501685783	6.84674E-07	1.70917E-05
Road 7	7	0300-0400	0.084522237	9.32629E-08	2.32815E-06	0.076377105	8.42755E-08	2.10379E-06	0.5170225	5.70489E-07	1.42413E-05	0.462146316	5.09938E-07	1.27297E-05	0.538523421	5.94214E-07	1.48335E-05
Road 7	7	0400-0500	0.093701441	1.51006E-07	3.7696E-06	0.085524505	1.37828E-07	3.44064E-06	0.529459009	8.53257E-07	2.13001E-05	0.478604054	7.71301E-07	1.92542E-05	0.564128559	9.09129E-07	2.26948E-05
Road 7	7	0500-0600	0.084486414	2.42871E-07	6.06286E-06	0.076967332	2.21256E-07	5.52328E-06	0.485126111	1.39458E-06	3.48133E-05	0.436572111	1.25501E-06	3.1329E-05	0.513539443	1.47626E-06	3.68523E-05
Road 7	7	0600-0700	0.089517881	4.60084E-07	1.14852E-05	0.081393698	4.18329E-07	1.04429E-05	0.529404944	2.72092E-06	6.7923E-05	0.47468636	2.43969E-06	6.09026E-05	0.556080058	2.85802E-06	7.13454E-05
Road 7	7	0700-0800	0.085186	6.98781E-07	1.74438E-05	0.07758492	6.36429E-07	1.58873E-05	0.473668336	3.8855E-06	9.69948E-05	0.425182053	3.48777E-06	8.70661E-05	0.502766973	4.1242E-06	0.000102953
Road 7	7	0800-0900	0.084324444	1.04675E-06	2.61304E-05	0.07661171	9.51011E-07	2.37403E-05	0.466847623	5.79516E-06	0.000144666	0.417450352	5.18197E-06	0.000129359	0.494062062	6.13299E-06	0.000153099
Road 7	7	0900-1000	0.085592354	9.84203E-07	2.45689E-05	0.078211051	8.99327E-07	2.24501E-05	0.455190982	5.23411E-06	0.000130661	0.410292289	4.71784E-06	0.000117773	0.48850334	5.61716E-06	0.000140223
Road 7	7	1000-1100	0.101655205	1.02574E-06	2.56059E-05	0.092662317	9.35001E-07	2.33407E-05	0.540001799	5.44884E-06	0.000136021	0.487571405	4.9198E-06	0.000122814	0.580233721	5.8548E-06	0.000146155
Road 7	7	1100-1200	0.112745347	1.13601E-06	2.83585E-05	0.102620938	1.034E-06	2.5812E-05	0.581636488	5.86051E-06	0.000146297	0.525714962	5.29705E-06	0.000132232	0.628335901	6.33105E-06	0.000158044
Road 7	7	1200-1300	0.110157504	1.10834E-06	2.76677E-05	0.100053412	1.00668E-06	2.51299E-05	0.559429336	5.62863E-06	0.000140509	0.505374711	5.08477E-06	0.000126932	0.605428123	6.09144E-06	0.000152062
Road 7	7	1300-1400	0.117709003	1.16552E-06	2.90951E-05	0.106228377	1.05184E-06	2.62573E-05	0.599364765	5.93472E-06	0.00014815	0.537494464	5.3221E-06	0.000132857	0.643722841	6.37393E-06	0.000159114
Road 7	7	1400-1500	0.109402502	1.1341E-06	2.83107E-05	0.098928045	1.02551E-06	2.56002E-05	0.56015374	5.80671E-06	0.000144954	0.503378727	5.21816E-06	0.000130262	0.602306771	6.24367E-06	0.000155862
Road 7	7	1500-1600	0.101576085	1.03379E-06	2.58069E-05	0.092409012	9.40495E-07	2.34778E-05	0.528054118	5.37429E-06	0.00013416	0.47723498	4.85707E-06	0.000121248	0.569643992	5.79757E-06	0.000144726
Road 7	7	1600-1700	0.105720587	1.11281E-06	2.77794E-05	0.095916492	1.00961E-06	2.52033E-05	0.53051834	5.58422E-06	0.0001394	0.478141877	5.03291E-06	0.000125638	0.574058369	6.04252E-06	0.000150841
Road 7	7	1700-1800	0.081673038	9.09491E-07	2.27039E-05	0.073678081	8.20461E-07	2.04814E-05	0.427194785	4.75714E-06	0.000118754	0.381767184	4.25127E-06	0.000106125	0.455445265	5.07173E-06	0.000126607
Road 7	7	1800-1900	0.0756044	8.74842E-07	2.18389E-05	0.068306365	7.90394E-07	1.97308E-05	0.402904165	4.66213E-06	0.000116382	0.360320277	4.16938E-06	0.000104081	0.428626642	4.95977E-06	0.000123812
Road 7	7	1900-2000	0.087779917	7.67213E-07	1.91521E-05	0.078889037	6.89505E-07	1.72123E-05	0.471438621	4.12046E-06	0.00010286	0.419175498	3.66367E-06	9.14572E-05	0.498064535	4.35318E-06	0.00010867
Road 7	7	2000-2100	0.081183334	5.84619E-07	1.4594E-05	0.073389738	5.28496E-07	1.3193E-05	0.450218228	3.24212E-06	8.09339E-05	0.40292371	2.90154E-06	7.24319E-05	0.476313448	3.43004E-06	8.56249E-05
Road 7	7	2100-2200	0.093323599	5.6094E-07	1.40029E-05	0.083917415	5.04402E-07	1.25915E-05	0.505837198	3.04043E-06	7.58991E-05	0.450485121	2.70773E-06	6.75937E-05	0.534402536	3.21213E-06	8.01853E-05
Road 7	7	2200-2300	0.078549826	5.09773E-07	1.27256E-05	0.07086872	4.59924E-07	1.14812E-05	0.442661244	2.87279E-06	7.17141E-05	0.392647933	2.54821E-06	6.36116E-05	0.463516652	3.00813E-06	7.50928E-05
Road 7	7	2300-0000	0.05535159	3.30291E-07	8.24513E-06	0.050107251	2.98997E-07	7.46394E-06	0.336557484	2.00829E-06	5.01333E-05	0.299847348	1.78923E-06	4.4665E-05	0.349954599	2.08823E-06	5.2129E-05
Road 8	8	0000-0100	0.249021111	1.81106E-07	2.98547E-06	0.225410833	1.63935E-07	2.70241E-06	1.2342025	8.97602E-07	1.47966E-05	1.116630556	8.12095E-07	1.33871E-05	1.342041389	9.7603E-07	1.60895E-05
Road 8	8	0100-0200	0.258222	1.56498E-07	2.57981E-06	0.233811333	1.41704E-07	2.33593E-06	1.275670333	7.73134E-07	1.27448E-05	1.154942667	6.99965E-07	1.15387E-05	1.388754	8.41669E-07	1.38746E-05
Road 8	8	0200-0300	0.244548667	7.41057E-08	1.2216E-06	0.221292	6.70582E-08	1.10543E-06	1.270458	3.84987E-07	6.34637E-06	1.149330667	3.48282E-07	5.7413E-06	1.370622667	4.1534E-07	6.84673E-06
Road 8	8	0300-0400	0.222701429	6.29863E-08	1.0383E-06	0.201390714	5.6959E-08	9.38948E-07	1.133204286	3.20502E-07	5.28336E-06	1.024321429	2.89707E-07	4.77571E-06	1.225712143	3.46666E-07	5.71466E-06
Road 8	8	0400-0500	0.252276667	1.07026E-07	1.76429E-06	0.230462381	9.77719E-08	1.61173E-06	1.210332381	5.13474E-07	8.46443E-06	1.105511429	4.69005E-07	7.73137E-06	1.33597381	5.66777E-07	9.3431E-06
Road 8	8	0500-0600	0.239966176	1.64825E-07	2.71708E-06	0.218759706	1.50259E-07	2.47697E-06	1.132133529	7.77627E-07	1.28189E-05	1.031453529	7.08473E-07	1.16789E-05	1.250213235	8.58732E-07	1.41559E-05
Road 8	8	0600-0700	0.268897742	3.36801E-07	5.55204E-06	0.24476	3.06568E-07	5.05366E-06	1.253930806	1.57058E-06	2.58904E-05	1.140042097	1.42793E-06	2.35389E-05	1.384802097	1.7345E-06	2.85926E-05
Road 8	8	0700-0800	0.266068725	5.48263E-07	9.03791E-06	0.242701078	5.00111E-07	8.24415E-06	1.253116667	2.58218E-06	4.25663E-05	1.142006667	2.35323E-06	3.8792E-05	1.384707745	2.85334E-06	4.70362E-05
Road 8	8	0800-0900	0.294566094	1.14256E-06	1.88347E-05	0.268081406	1.03983E-06	1.71412E-05	1.392158021	5.39989E-06	8.90151E-05	1.265902031	4.91017E-06	8.09422E-05	1.533983438	5.95E-06	9.80835E-05
Road 8	8	0900-1000	0.313183734	9.99657E-07	1.6479E-05	0.286566139	9.14696E-07	1.50784E-05	1.40647462	4.48935E-06	7.40053E-05	1.286646709	4.10687E-06	6.77002E-05	1.573212848	5.02157E-06	8.27787E-05
Road 8	8	1000-1100	0.296703688	9.59042E-07	1.58095E-05	0.270611875	8.74705E-07	1.44192E-05	1.373206875	4.43865E-06	7.31695E-05	1.251521063	4.04532E-06	6.66856E-05	1.522132938	4.92003E-06	8.11048E-05
Road 8	8	1100-1200	0.308358931	9.90486E-07	1.63278E-05	0.280173648	8.99952E-07	1.48354E-05	1.440195975	4.62608E-06	7.62593E-05	1.308059497	4.20165E-06	6.92625E-05	1.588233145	5.1016E-06	8.40979E-05
Road 8	8	1200-1300	0.310975882	1.068E-06	1.76055E-05	0.282968059	9.71809E-07	1.60199E-05	1.464866294	5.03085E-06	8.29317E-05	1.332233824	4.57535E-06	7.54229E-05	1.615201882	5.54716E-06	9.14428E-05
Road 8	8	1300-1400	0.285341975	9.33846E-07	1.53941E-05	0.256993457	8.41069E-07	1.38647E-05	1.32616358	4.34017E-06	7.15461E-05	1.193626296	3.90641E-06	6.43958E-05	1.450619753	4.74748E-06	7.82605E-05
Road 8	8	1400-1500	0.277849496	7.80224E-07	1.28617E-05	0.251155324	7.05264E-07	1.1626E-05	1.344303669	3.77491E-06	6.2228E-05	1.214602518	3.4107E-06	5.62241E-05	1.465757842	4.11597E-06	6.78502E-05
Road 8	8	1500-1600	0.286540216	8.04628E-07	1.3264E-05	0.261477698	7.34251E-07	1.21038E-05	1.352258777	3.79725E-06	6.25963E-05	1.232990863	3.46234E-06	5.70753E-05	1.494468561	4.19659E-06	6.91792E-05
Road 8	8	1600-1700	0.286724966	8.63071E-07	1.42274E-05	0.260028725	7.82713E-07	1.29027E-05	1.340587315	4.0353E-06	6.65205E-05	1.215199933	3.65787E-06	6.02987E-05	1.475228658	4.44059E-06	7.32014E-05
Road 8	8	1700-1800	0.235300705	7.41554E-07	1.22242E-05	0.21215891	6.68622E-07	1.1022E-05	1.144606923	3.60725E-06	5.94641E-05	1.030484936	3.24759E-06	5.35353E-05	1.242643846	3.91621E-06	6.45573E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.236285981	5.1076E-07	8.41968E-06	0.213427009	4.61347E-07	7.60514E-06	1.177952897	2.54628E-06	4.19745E-05	1.062673738	2.29709E-06	3.78667E-05	1.276100748	2.75844E-06	4.54718E-05
Road 8	8	1900-2000	0.234546364	3.6485E-07	6.01441E-06	0.211148571	3.28453E-07	5.41443E-06	1.197120519	1.86219E-06	3.06975E-05	1.077103896	1.67549E-06	2.76199E-05	1.288252468	2.00395E-06	3.30343E-05
Road 8	8	2000-2100	0.258020909	4.01366E-07	6.61637E-06	0.233659091	3.6347E-07	5.99166E-06	1.202383247	1.87037E-06	3.08324E-05	1.087587662	1.6918E-06	2.78887E-05	1.321246753	2.05527E-06	3.38804E-05
Road 8	8	2100-2200	0.213654444	2.33078E-07	3.8422E-06	0.192396296	2.09887E-07	3.45991E-06	1.088684259	1.18766E-06	1.95781E-05	0.977733333	1.06662E-06	1.75828E-05	1.17012963	1.27651E-06	2.10427E-05
Road 8	8	2200-2300	0.257474219	3.32896E-07	5.48766E-06	0.233451406	3.01836E-07	4.97566E-06	1.239769531	1.60293E-06	2.64238E-05	1.122476875	1.45128E-06	2.39239E-05	1.355928281	1.75312E-06	2.88995E-05
Road 8	8	2300-0000	0.201486038	2.15733E-07	3.55627E-06	0.182893019	1.95825E-07	3.2281E-06	1.009959057	1.08137E-06	1.7826E-05	0.915655849	9.80399E-07	1.61615E-05	1.098548868	1.17622E-06	1.93896E-05
Road 9	9	0000-0100	0.214429475	5.69474E-08	1.69998E-06	0.197382327	5.24201E-08	1.56483E-06	0.971471733	2.58E-07	7.70174E-06	0.885775198	2.35241E-07	7.02235E-06	1.083157525	2.87661E-07	8.58718E-06
Road 9	9	0100-0200	0.233054732	4.86309E-08	1.45171E-06	0.214841273	4.48303E-08	1.33826E-06	1.000629176	2.08798E-07	6.23299E-06	0.912393395	1.90387E-07	5.68336E-06	1.127234668	2.35217E-07	7.02163E-06
Road 9	9	0200-0300	0.092816104	8.80349E-09	2.62799E-07	0.08402513	7.96967E-09	2.37908E-07	0.666777671	6.3243E-08	1.88791E-06	0.595858582	5.65164E-08	1.68711E-06	0.679883712	6.44861E-08	1.92502E-06
Road 9	9	0300-0400	0.112061466	8.50311E-09	2.53832E-07	0.101491018	7.70103E-09	2.29889E-07	0.680548081	5.16393E-08	1.54152E-06	0.61443178	4.66224E-08	1.39176E-06	0.715922798	5.43235E-08	1.62165E-06
Road 9	9	0400-0500	0.251499443	4.77088E-08	1.42419E-06	0.233341945	4.42644E-08	1.32137E-06	1.037362226	1.96785E-07	5.87437E-06	0.952391618	1.80666E-07	5.3932E-06	1.185733563	2.24931E-07	6.71456E-06
Road 9	9	0500-0600	0.180903484	5.83388E-08	1.74151E-06	0.167217887	5.39254E-08	1.60976E-06	0.913265153	2.94515E-07	8.79177E-06	0.834456069	2.691E-07	8.0331E-06	1.001673956	3.23025E-07	9.64286E-06
Road 9	9	0600-0700	0.213033808	1.29318E-07	3.86037E-06	0.197480827	1.19877E-07	3.57854E-06	1.110919187	6.74363E-07	2.01309E-05	1.013534682	6.15248E-07	1.83662E-05	1.211015509	7.35125E-07	2.19447E-05
Road 9	9	0700-0800	0.17936983	1.66727E-07	4.9771E-06	0.167222892	1.55437E-07	4.64005E-06	1.027270935	9.54866E-07	2.85044E-05	0.938932011	8.72753E-07	2.60532E-05	1.106154902	1.02819E-06	3.06932E-05
Road 9	9	0800-0900	0.279093789	6.08849E-07	1.81752E-05	0.258308731	5.63506E-07	1.68216E-05	1.341939381	2.92747E-06	8.73899E-05	1.225923435	2.67438E-06	7.98347E-05	1.484232166	3.23788E-06	9.66563E-05
Road 9	9	0900-1000	0.286672638	4.73115E-07	1.41233E-05	0.267859776	4.42067E-07	1.31965E-05	1.249362048	2.06191E-06	6.15514E-05	1.151408804	1.90025E-06	5.67257E-05	1.41926858	2.34231E-06	6.99221E-05
Road 9	9	1000-1100	0.296060196	4.09981E-07	1.22387E-05	0.273605479	3.78886E-07	1.13104E-05	1.259349596	1.74394E-06	5.20595E-05	1.153177863	1.59691E-06	4.76705E-05	1.426783342	1.9758E-06	5.89809E-05
Road 9	9	1100-1200	0.209161939	3.01549E-07	9.00175E-06	0.191110585	2.75524E-07	8.22487E-06	1.099027187	1.58447E-06	4.72991E-05	0.998046991	1.43888E-06	4.29532E-05	1.189157576	1.71441E-06	5.1178E-05
Road 9	9	1200-1300	0.306040141	4.29607E-07	1.28245E-05	0.284445312	3.99293E-07	1.19196E-05	1.375129584	1.93035E-06	5.76244E-05	1.26759387	1.7794E-06	5.31181E-05	1.552039182	2.17869E-06	6.50377E-05
Road 9	9	1300-1400	0.349554476	4.04488E-07	1.20747E-05	0.323014347	3.73777E-07	1.11579E-05	1.341453397	1.55227E-06	4.63379E-05	1.228403882	1.42145E-06	4.24328E-05	1.551418229	1.79523E-06	5.35907E-05
Road 9	9	1400-1500	0.225001584	2.90239E-07	8.66413E-06	0.209104688	2.69733E-07	8.05199E-06	1.099058629	1.41772E-06	4.23214E-05	1.00471181	1.29602E-06	3.86884E-05	1.213816498	1.56575E-06	4.67404E-05
Road 9	9	1500-1600	0.188686558	2.04022E-07	6.09041E-06	0.175005565	1.89229E-07	5.64882E-06	0.972823141	1.05189E-06	3.14007E-05	0.89150966	9.63967E-07	2.87761E-05	1.066515225	1.1532E-06	3.44249E-05
Road 9	9	1600-1700	0.197802352	3.00181E-07	8.96091E-06	0.184529243	2.80038E-07	8.35961E-06	1.080282284	1.63941E-06	4.89393E-05	0.996441524	1.51218E-06	4.51411E-05	1.180970766	1.79222E-06	5.35007E-05
Road 9	9	1700-1800	0.169834321	2.22298E-07	6.63598E-06	0.158593359	2.07585E-07	6.19676E-06	1.010148898	1.3222E-06	3.94698E-05	0.933602352	1.222E-06	3.64789E-05	1.092195711	1.42959E-06	4.26757E-05
Road 9	9	1800-1900	0.169469023	1.4145E-07	4.22254E-06	0.159111415	1.32805E-07	3.96447E-06	0.980347675	8.18265E-07	2.44266E-05	0.91317638	7.622E-07	2.2753E-05	1.072287795	8.95005E-07	2.67174E-05
Road 9	9	1900-2000	0.176828834	1.44239E-07	4.30578E-06	0.164369896	1.34076E-07	4.00241E-06	0.953854685	7.78058E-07	2.32264E-05	0.871788715	7.11117E-07	2.12281E-05	1.036158611	8.45193E-07	2.52305E-05
Road 9	9	2000-2100	0.189262659	1.04118E-07	3.10809E-06	0.174248721	9.58581E-08	2.86153E-06	0.845814387	4.65301E-07	1.389E-05	0.774085555	4.25842E-07	1.27121E-05	0.948334275	5.217E-07	1.55736E-05
Road 9	9	2100-2200	0.0229898	1.22111E-08	3.64522E-07	0.02101447	1.11619E-08	3.33202E-07	0.339911157	1.80545E-07	5.38957E-06	0.303912455	1.61424E-07	4.81878E-06	0.324926925	1.72586E-07	5.15198E-06
Road 9	9	2200-2300	0.182845553	1.14462E-07	3.41687E-06	0.168009447	1.05174E-07	3.13963E-06	0.894503043	5.5996E-07	1.67158E-05	0.813225889	5.09081E-07	1.51969E-05	0.981235336	6.14255E-07	1.83366E-05
Road 9	9	2300-0000	0.147109161	8.37187E-08	2.49915E-06	0.136259948	7.75445E-08	2.31484E-06	0.763949072	4.34757E-07	1.29783E-05	0.697880187	3.97158E-07	1.18559E-05	0.834140135	4.74703E-07	1.41707E-05
Road 10	10	0000-0100	0.303718045	2.33515E-07	5.19215E-06	0.275877796	2.1211E-07	4.71621E-06	1.508611084	1.1599E-06	2.57901E-05	1.366851355	1.05091E-06	2.33667E-05	1.642729151	1.26302E-06	2.80829E-05
Road 10	10	0100-0200	0.29815082	1.732E-07	3.85105E-06	0.271189079	1.57537E-07	3.5028E-06	1.469413471	8.53602E-07	1.89796E-05	1.333007301	7.74362E-07	1.72177E-05	1.60419638	9.31899E-07	2.07205E-05
Road 10	10	0200-0300	0.297718258	9.66477E-08	2.14893E-06	0.26932138	8.74293E-08	1.94396E-06	1.446660461	4.69627E-07	1.0442E-05	1.306537886	4.24139E-07	9.4306E-06	1.575859266	5.11568E-07	1.13746E-05
Road 10	10	0300-0400	0.270443862	5.54486E-08	1.23288E-06	0.244299932	5.00884E-08	1.1137E-06	1.420353309	2.91213E-07	6.47502E-06	1.279029138	2.62237E-07	5.83076E-06	1.52332907	3.12326E-07	6.94446E-06
Road 10	10	0400-0500	0.315598019	1.24021E-07	2.75757E-06	0.289884759	1.13916E-07	2.53289E-06	1.478819107	5.81133E-07	1.29213E-05	1.353110128	5.31733E-07	1.18229E-05	1.642994887	6.45649E-07	1.43558E-05
Road 10	10	0500-0600	0.287198299	2.01186E-07	4.47331E-06	0.263628498	1.84675E-07	4.1062E-06	1.354157193	9.48605E-07	2.10919E-05	1.237362349	8.66789E-07	1.92728E-05	1.500990847	1.05146E-06	2.3379E-05
Road 10	10	0600-0700	0.349301985	4.89381E-07	1.08812E-05	0.32175187	4.50783E-07	1.0023E-05	1.677215382	2.34982E-06	5.22476E-05	1.538689843	2.15575E-06	4.79323E-05	1.860441713	2.60653E-06	5.79554E-05
Road 10	10	0700-0800	0.345429214	7.61345E-07	1.69283E-05	0.318259392	7.01461E-07	1.55968E-05	1.679690404	3.70213E-06	8.23157E-05	1.540226846	3.39474E-06	7.54811E-05	1.858486238	4.0962E-06	9.10779E-05
Road 10	10	0800-0900	0.368110162	1.55978E-06	3.46811E-05	0.335970783	1.42359E-06	3.16532E-05	1.767274265	7.48838E-06	0.000166502	1.606732443	6.80813E-06	0.000151377	1.942703226	8.23172E-06	0.00018303
Road 10	10	0900-1000	0.402251167	1.3608E-06	3.0257E-05	0.371804423	1.2578E-06	2.79668E-05	1.870110207	6.32652E-06	0.000140668	1.721861536	5.825E-06	0.000129517	2.093665959	7.0828E-06	0.000157484
Road 10	10	1000-1100	0.402915942	1.48008E-06	3.29091E-05	0.370301083	1.36027E-06	3.02453E-05	1.774023686	6.51674E-06	0.000144898	1.622943932	5.96176E-06	0.000132558	1.993245016	7.32203E-06	0.000162803
Road 10	10	1100-1200	0.392253897	1.44091E-06	3.20383E-05	0.358020851	1.31516E-06	2.92422E-05	1.786850931	6.56386E-06	0.000145945	1.625729758	5.97199E-06	0.000132785	1.983750608	7.28716E-06	0.000162028
Road 10	10	1200-1300	0.409355315	1.55269E-06	3.45237E-05	0.375634575	1.42479E-06	3.16798E-05	1.876617527	7.11805E-06	0.000158268	1.718014721	6.51647E-06	0.000144892	2.093649296	7.94126E-06	0.000176572
Road 10	10	1300-1400	0.399953922	1.31203E-06	2.91726E-05	0.36398782	1.19404E-06	2.65492E-05	1.79744407	5.89643E-06	0.000131105	1.630081058	5.3474E-06	0.000118898	1.994068878	6.54145E-06	0.000145447
Road 10	10	1400-1500	0.370623444	1.14616E-06	2.54844E-05	0.33933717	1.0494E-06	2.33332E-05	1.778790857	5.50093E-06	0.000122311	1.622642808	5.01804E-06	0.000111575	1.961979978	6.06744E-06	0.000134908
Road 10	10	1500-1600	0.366740565	1.15921E-06	2.57747E-05	0.336996439	1.0652E-06	2.36843E-05	1.705365131	5.39041E-06	0.000119854	1.563555508	4.94217E-06	0.000109888	1.900551947	6.00736E-06	0.000133572
Road 10	10	1600-1700	0.353926836	1.2457E-06	2.76977E-05	0.324488068	1.14209E-06	2.53939E-05	1.672919434	5.88809E-06	0.00013092	1.527550857	5.37645E-06	0.000119544	1.852038925	6.51853E-06	0.000144938
Road 10	10	1700-1800	0.328453795	1.09431E-06	2.43317E-05	0.300350967	1.00068E-06	2.22499E-05	1.624273977	5.41161E-06	0.000120325	1.48323237	4.9417E-06	0.000109877	1.783583338	5.94238E-06	0.000132127
Road 10	10	1800-1900	0.334489521	6.91513E-07	1.53756E-05	0.305283943	6.31134E-07	1.40331E-05	1.622621149	3.35456E-06	7.45875E-05	1.478188213	3.05596E-06	6.79483E-05	1.783472156	3.68709E-06	8.19814E-05
Road 10	10	1900-2000	0.291512876	5.42896E-07	1.20711E-05	0.2658379	4.95081E-07	1.1008E-05	1.483883521	2.7635E-06	6.14455E-05	1.348525407	2.51141E-06	5.58405E-05	1.614363307	3.00649E-06	6.68485E-05
Road 10	10	2000-2100	0.338010138	4.1581E-07	9.24541E-06	0.307247117	3.77966E-07	8.40396E-06	1.586251743	1.95136E-06	4.33879E-05	1.439439953	1.77076E-06	3.93722E-05	1.74668707	2.14872E-06	4.77762E-05
Road 10	10	2100-2200	0.278172269	3.51705E-07	7.82005E-06	0.256253521	3.23992E-07	7.20386E-06	1.461829375	1.84825E-06	4.10953E-05	1.342849051	1.69782E-06	3.77505E-05	1.599102573	2.02181E-06	4.49544E-05
Road 10	10	2200-2300	0.294013585	3.86804E-07	8.60046E-06	0.269431072	3.54463E-07	7.88138E-06	1.44524255	1.90136E-06	4.22761E-05	1.322355913	1.73969E-06	3.86815E-05	1.591786985	2.09415E-06	4.65628E-05
Road 10	10	2300-0000	0.270403843	3.32643E-07	7.39621E-06	0.246566259	3.03318E-07	6.74419E-06	1.33142109	1.63787E-06	3.64176E-05	1.210217936	1.48877E-06	3.31024E-05	1.456784195	1.79209E-06	3.98466E-05
Road 11	11	0000-0100	0.339728601	2.59515E-07	2.1527E-06	0.308472691	2.35639E-07	1.95464E-06	1.649596785	1.26011E-06	1.04527E-05	1.494802239	1.14186E-06	9.47184E-06	1.803274931	1.3775E-06	1.14265E-05
Road 11	11	0100-0200	0.339561356	1.8275E-07	1.51593E-06	0.308687786	1.66134E-07	1.3781E-06	1.62319745	8.73596E-07	7.24655E-06	1.471476503	7.9194E-07	6.56921E-06	1.780164289	9.58075E-07	7.94731E-06
Road 11	11	0200-0300	0.297098701	7.73695E-08	6.41786E-07	0.268765279	6.9991E-08	5.80581E-07	1.53646589	4.00121E-07	3.31904E-06	1.387335977	3.61285E-07	2.99689E-06	1.656101256	4.31276E-07	3.57747E-06
Road 11	11	0300-0400	0.31818899	7.73376E-08	6.41522E-07	0.287540291	6.98883E-08	5.79729E-07	1.607299452	3.90663E-07	3.24058E-06	1.452144794	3.52952E-07	2.92776E-06	1.739685085	4.2284E-07	3.50749E-06
Road 11	11	0400-0500	0.326069722	1.13219E-07	9.39158E-07	0.299650972	1.04045E-07	8.63066E-07	1.507681113	5.235E-07	4.34248E-06	1.379555809	4.79012E-07	3.97345E-06	1.679206781	5.83058E-07	4.83651E-06
Road 11	11	0500-0600	0.262287379	1.22947E-07	1.01986E-06	0.240478498	1.12724E-07	9.35057E-07	1.307611393	6.12943E-07	5.08441E-06	1.192945397	5.59193E-07	4.63855E-06	1.433423895	6.71917E-07	5.57361E-06
Road 11	11	0600-0700	0.285459266	2.57706E-07	2.13769E-06	0.261916899	2.36453E-07	1.96139E-06	1.445834884	1.30527E-06	1.08273E-05	1.316912346	1.18888E-06	9.86185E-06	1.578829244	1.42533E-06	1.18232E-05
Road 11	11	0700-0800	0.342957997	6.49E-07	5.38351E-06	0.314387814	5.94935E-07	4.93504E-06	1.726904916	3.26793E-06	2.71077E-05	1.575701913	2.9818E-06	2.47342E-05	1.890089727	3.57673E-06	2.96693E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.362913923	1.29162E-06	1.07141E-05	0.33243615	1.18315E-06	9.81432E-06	1.742030146	6.19993E-06	5.1429E-05	1.58641622	5.6461E-06	4.68349E-05	1.918852371	6.82925E-06	5.66492E-05
Road 11	11	0900-1000	0.363589899	9.27912E-07	7.6971E-06	0.335878572	8.5719E-07	7.11046E-06	1.671651553	4.26619E-06	3.53884E-05	1.533916884	3.91468E-06	3.24726E-05	1.869795456	4.77187E-06	3.95831E-05
Road 11	11	1000-1100	0.373045829	7.83655E-07	6.50048E-06	0.342274808	7.19015E-07	5.96429E-06	1.689157594	3.5484E-06	2.94343E-05	1.542775705	3.2409E-06	2.68835E-05	1.885050513	3.95992E-06	3.28478E-05
Road 11	11	1100-1200	0.330080123	7.79356E-07	6.46482E-06	0.300354026	7.09169E-07	5.88262E-06	1.641146748	3.87493E-06	3.21429E-05	1.489411101	3.51667E-06	2.9171E-05	1.789765127	4.22583E-06	3.50536E-05
Road 11	11	1200-1300	0.401900229	1.1443E-06	9.49206E-06	0.368509367	1.04923E-06	8.70343E-06	1.881947903	5.35832E-06	4.44477E-05	1.720130664	4.89759E-06	4.06259E-05	2.088640031	5.94682E-06	4.93294E-05
Road 11	11	1300-1400	0.417118786	8.76239E-07	7.26847E-06	0.379505078	7.97224E-07	6.61304E-06	1.831316175	3.84704E-06	3.19115E-05	1.658146339	3.48326E-06	2.88939E-05	2.037651417	4.28048E-06	3.5507E-05
Road 11	11	1400-1500	0.331071657	6.66742E-07	5.53068E-06	0.302558539	6.09319E-07	5.05435E-06	1.605255075	3.23281E-06	2.68164E-05	1.457048648	2.93433E-06	2.43405E-05	1.759607187	3.54365E-06	2.93949E-05
Road 11	11	1500-1600	0.295803234	6.0085E-07	4.9841E-06	0.271405799	5.51293E-07	4.57302E-06	1.48051786	3.0073E-06	2.49458E-05	1.353782852	2.74987E-06	2.28104E-05	1.62518865	3.30116E-06	2.73834E-05
Road 11	11	1600-1700	0.28349161	6.89042E-07	5.71566E-06	0.259956826	6.3184E-07	5.24116E-06	1.458927766	3.546E-06	2.94144E-05	1.332327829	3.2383E-06	2.68619E-05	1.592284655	3.87014E-06	3.21031E-05
Road 11	11	1700-1800	0.283031061	7.02664E-07	5.82865E-06	0.25778597	6.39989E-07	5.30876E-06	1.48122194	3.67734E-06	3.05038E-05	1.346279873	3.34233E-06	2.77249E-05	1.604065843	3.98232E-06	3.30336E-05
Road 11	11	1800-1900	0.306915618	6.28751E-07	5.21554E-06	0.279320186	5.72218E-07	4.7466E-06	1.57040974	3.21716E-06	2.66866E-05	1.427815961	2.92504E-06	2.42634E-05	1.707136147	3.49726E-06	2.901E-05
Road 11	11	1900-2000	0.293775383	4.64124E-07	3.84995E-06	0.266857863	4.21598E-07	3.49719E-06	1.488688258	2.35192E-06	1.95094E-05	1.345960821	2.12643E-06	1.76389E-05	1.612818684	2.54803E-06	2.11361E-05
Road 11	11	2000-2100	0.303728363	4.27118E-07	3.54298E-06	0.276091047	3.88253E-07	3.22059E-06	1.471189147	2.06886E-06	1.71614E-05	1.335478985	1.87802E-06	1.55783E-05	1.611570032	2.26627E-06	1.87989E-05
Road 11	11	2100-2200	0.217033007	2.1854E-07	1.81281E-06	0.195612158	1.96971E-07	1.63389E-06	1.180738145	1.18894E-06	9.86233E-06	1.062461185	1.06984E-06	8.8744E-06	1.258073343	1.26681E-06	1.05083E-05
Road 11	11	2200-2300	0.285526708	3.12295E-07	2.59051E-06	0.260189786	2.84583E-07	2.36064E-06	1.405902971	1.53771E-06	1.27554E-05	1.27641986	1.39608E-06	1.15806E-05	1.536609646	1.68067E-06	1.39413E-05
Road 11	11	2300-0000	0.272100119	2.83438E-07	2.35114E-06	0.248309974	2.58656E-07	2.14557E-06	1.362254519	1.41902E-06	1.17708E-05	1.238560094	1.29017E-06	1.0702E-05	1.486870067	1.54882E-06	1.28476E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.45365	2.73242E-06	4.1097E-06	1.32573	2.49197E-06	3.74805E-06	6.36873	1.19713E-05	1.80054E-05	5.8085	1.09182E-05	1.64216E-05	7.13423	1.34102E-05	2.01696E-05
Haul Road 1	HR1	0800-0900	1.45165	2.72867E-06	4.10405E-06	1.32024	2.48165E-06	3.73253E-06	6.36013	1.19551E-05	1.79811E-05	5.78441	1.0873E-05	1.63535E-05	7.10465	1.33546E-05	2.0086E-05
Haul Road 1	HR1	0900-1000	1.44485	2.71588E-06	4.08482E-06	1.32153	2.48408E-06	3.73618E-06	6.33046	1.18994E-05	1.78972E-05	5.79021	1.08839E-05	1.63699E-05	7.11174	1.33679E-05	2.0106E-05
Haul Road 1	HR1	1000-1100	1.44835	2.72246E-06	4.09472E-06	1.32034	2.48184E-06	3.73281E-06	6.34575	1.19281E-05	1.79405E-05	5.78501	1.08741E-05	1.63552E-05	7.10535	1.33559E-05	2.0088E-05
Haul Road 1	HR1	1100-1200	1.45315	2.73148E-06	4.10829E-06	1.31994	2.48109E-06	3.73168E-06	6.36673	1.19675E-05	1.79998E-05	5.78291	1.08701E-05	1.63492E-05	7.10285	1.33512E-05	2.00809E-05
Haul Road 1	HR1	1200-1300	1.45515	2.73524E-06	4.11394E-06	1.32373	2.48821E-06	3.7424E-06	6.37552	1.19841E-05	1.80246E-05	5.79961	1.09015E-05	1.63964E-05	7.12334	1.33897E-05	2.01388E-05
Haul Road 1	HR1	1300-1400	1.45775	2.74013E-06	4.12129E-06	1.31214	2.46643E-06	3.70963E-06	6.38671	1.20051E-05	1.80563E-05	5.74904	1.08065E-05	1.62535E-05	7.06118	1.32729E-05	1.99631E-05
Haul Road 1	HR1	1400-1500	1.45215	2.72961E-06	4.10546E-06	1.31214	2.46643E-06	3.70963E-06	6.36233	1.19593E-05	1.79873E-05	5.74904	1.08065E-05	1.62535E-05	7.06118	1.32729E-05	1.99631E-05
Haul Road 1	HR1	1500-1600	1.44665	2.71927E-06	4.08991E-06	1.31994	2.48109E-06	3.73168E-06	6.33825	1.1914E-05	1.79193E-05	5.78291	1.08701E-05	1.63492E-05	7.10285	1.33512E-05	2.00809E-05
Haul Road 1	HR1	1600-1700	1.44745	2.72077E-06	4.09217E-06	1.31234	2.4668E-06	3.7102E-06	6.34165	1.19204E-05	1.79289E-05	5.74954	1.08074E-05	1.62549E-05	7.06188	1.32742E-05	1.99651E-05
Haul Road 1	HR1	1700-1800	1.45255	2.73036E-06	4.10659E-06	1.30964	2.46173E-06	3.70256E-06	6.36423	1.19628E-05	1.79927E-05	5.73805	1.07858E-05	1.62224E-05	7.04769	1.32475E-05	1.9925E-05
Haul Road 1	HR1	1800-1900	1.45255	2.73036E-06	4.10659E-06	1.31154	2.4653E-06	3.70793E-06	6.36423	1.19628E-05	1.79927E-05	5.74614	1.0801E-05	1.62453E-05	7.05768	1.32663E-05	1.99532E-05
Haul Road 1	HR1	1900-2000	1.45005	2.72566E-06	4.09952E-06	1.30485	2.45273E-06	3.68902E-06	6.35294	1.19416E-05	1.79608E-05	5.71685	1.0746E-05	1.61625E-05	7.0217	1.31987E-05	1.98515E-05
Haul Road 1	HR1	2000-2100	1.44745	2.72077E-06	4.09217E-06	1.31084	2.46398E-06	3.70596E-06	6.34165	1.19204E-05	1.79289E-05	5.74324	1.07956E-05	1.62371E-05	7.05408	1.32595E-05	1.9943E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.45365	1.88297E-06	5.01227E-06	1.32573	1.71727E-06	4.5712E-06	6.36873	8.24965E-06	2.19598E-05	5.8085	7.52396E-06	2.00281E-05	7.13423	9.24123E-06	2.45993E-05
Haul Road 2	HR2	0800-0900	1.45165	1.88038E-06	5.00538E-06	1.32024	1.71016E-06	4.55227E-06	6.36013	8.23851E-06	2.19301E-05	5.78441	7.49276E-06	1.9945E-05	7.10465	9.20291E-06	2.44973E-05
Haul Road 2	HR2	0900-1000	1.44485	1.87157E-06	4.98193E-06	1.32153	1.71183E-06	4.55672E-06	6.33046	8.20008E-06	2.18278E-05	5.79021	7.50027E-06	1.9965E-05	7.11174	9.2121E-06	2.45217E-05
Haul Road 2	HR2	1000-1100	1.44835	1.8761E-06	4.994E-06	1.32034	1.71028E-06	4.55261E-06	6.34575	8.21988E-06	2.18805E-05	5.78501	7.49354E-06	1.99471E-05	7.10535	9.20382E-06	2.44997E-05
Haul Road 2	HR2	1100-1200	1.45315	1.88232E-06	5.01055E-06	1.31994	1.70977E-06	4.55123E-06	6.36673	8.24706E-06	2.19529E-05	5.78291	7.49082E-06	1.99398E-05	7.10285	9.20058E-06	2.44911E-05
Haul Road 2	HR2	1200-1300	1.45515	1.88491E-06	5.01744E-06	1.32373	1.71468E-06	4.5643E-06	6.37552	8.25845E-06	2.19832E-05	5.79961	7.51245E-06	1.99974E-05	7.12334	9.22712E-06	2.45617E-05
Haul Road 2	HR2	1300-1400	1.45775	1.88828E-06	5.02641E-06	1.31214	1.69966E-06	4.52434E-06	6.38671	8.27294E-06	2.20218E-05	5.74904	7.44694E-06	1.9823E-05	7.06118	9.14661E-06	2.43474E-05
Haul Road 2	HR2	1400-1500	1.45215	1.88102E-06	5.0071E-06	1.31214	1.69966E-06	4.52434E-06	6.36233	8.24136E-06	2.19377E-05	5.74904	7.44694E-06	1.9823E-05	7.06118	9.14661E-06	2.43474E-05
Haul Road 2	HR2	1500-1600	1.44665	1.8739E-06	4.98814E-06	1.31994	1.70977E-06	4.55123E-06	6.33825	8.21017E-06	2.18547E-05	5.78291	7.49082E-06	1.99398E-05	7.10285	9.20058E-06	2.44911E-05
Haul Road 2	HR2	1600-1700	1.44745	1.87494E-06	4.99089E-06	1.31234	1.69992E-06	4.52503E-06	6.34165	8.21457E-06	2.18664E-05	5.74954	7.44759E-06	1.98248E-05	7.06188	9.14751E-06	2.43498E-05
Haul Road 2	HR2	1700-1800	1.45255	1.88154E-06	5.00848E-06	1.30964	1.69642E-06	4.51572E-06	6.36423	8.24382E-06	2.19442E-05	5.73805	7.43271E-06	1.97851E-05	7.04769	9.12913E-06	2.43009E-05
Haul Road 2	HR2	1800-1900	1.45255	1.88154E-06	5.00848E-06	1.31154	1.69889E-06	4.52227E-06	6.36423	8.24382E-06	2.19442E-05	5.74614	7.44319E-06	1.9813E-05	7.05768	9.14207E-06	2.43353E-05
Haul Road 2	HR2	1900-2000	1.45005	1.8783E-06	4.99986E-06	1.30485	1.69022E-06	4.4992E-06	6.35294	8.2292E-06	2.19053E-05	5.71685	7.40525E-06	1.9712E-05	7.0217	9.09547E-06	2.42112E-05
Haul Road 2	HR2	2000-2100	1.44745	1.87494E-06	4.99089E-06	1.31084	1.69798E-06	4.51986E-06	6.34165	8.21457E-06	2.18664E-05	5.74324	7.43943E-06	1.9803E-05	7.05408	9.13741E-06	2.43229E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2028

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.45365	1.88297E-06	5.00528E-06	1.32573	1.71727E-06	4.56482E-06	6.36873	8.24965E-06	2.19291E-05	5.8085	7.52396E-06	2.00001E-05	7.13423	9.24123E-06	2.4565E-05
Haul Road 3	HR3	0800-0900	1.45165	1.88038E-06	4.9984E-06	1.32024	1.71016E-06	4.54592E-06	6.36013	8.23851E-06	2.18995E-05	5.78441	7.49276E-06	1.99172E-05	7.10465	9.20291E-06	2.44631E-05
Haul Road 3	HR3	0900-1000	1.44485	1.87157E-06	4.97498E-06	1.32153	1.71183E-06	4.55036E-06	6.33046	8.20008E-06	2.17974E-05	5.79021	7.50027E-06	1.99372E-05	7.11174	9.2121E-06	2.44875E-05
Haul Road 3	HR3	1000-1100	1.44835	1.8761E-06	4.98704E-06	1.32034	1.71028E-06	4.54626E-06	6.34575	8.21988E-06	2.185E-05	5.78501	7.49354E-06	1.99193E-05	7.10535	9.20382E-06	2.44655E-05
Haul Road 3	HR3	1100-1200	1.45315	1.88232E-06	5.00356E-06	1.31994	1.70977E-06	4.54489E-06	6.36673	8.24706E-06	2.19223E-05	5.78291	7.49082E-06	1.9912E-05	7.10285	9.20058E-06	2.44569E-05
Haul Road 3	HR3	1200-1300	1.45515	1.88491E-06	5.01045E-06	1.32373	1.71468E-06	4.55794E-06	6.37552	8.25845E-06	2.19525E-05	5.79961	7.51245E-06	1.99695E-05	7.12334	9.22712E-06	2.45275E-05
Haul Road 3	HR3	1300-1400	1.45775	1.88828E-06	5.0194E-06	1.31214	1.69966E-06	4.51803E-06	6.38671	8.27294E-06	2.19911E-05	5.74904	7.44694E-06	1.97954E-05	7.06118	9.14661E-06	2.43134E-05
Haul Road 3	HR3	1400-1500	1.45215	1.88102E-06	5.00012E-06	1.31214	1.69966E-06	4.51803E-06	6.36233	8.24136E-06	2.19071E-05	5.74904	7.44694E-06	1.97954E-05	7.06118	9.14661E-06	2.43134E-05
Haul Road 3	HR3	1500-1600	1.44665	1.8739E-06	4.98118E-06	1.31994	1.70977E-06	4.54489E-06	6.33825	8.21017E-06	2.18242E-05	5.78291	7.49082E-06	1.9912E-05	7.10285	9.20058E-06	2.44569E-05
Haul Road 3	HR3	1600-1700	1.44745	1.87494E-06	4.98394E-06	1.31234	1.69992E-06	4.51872E-06	6.34165	8.21457E-06	2.18359E-05	5.74954	7.44759E-06	1.97971E-05	7.06188	9.14751E-06	2.43158E-05
Haul Road 3	HR3	1700-1800	1.45255	1.88154E-06	5.0015E-06	1.30964	1.69642E-06	4.50942E-06	6.36423	8.24382E-06	2.19137E-05	5.73805	7.43271E-06	1.97576E-05	7.04769	9.12913E-06	2.4267E-05
Haul Road 3	HR3	1800-1900	1.45255	1.88154E-06	5.0015E-06	1.31154	1.69889E-06	4.51596E-06	6.36423	8.24382E-06	2.19137E-05	5.74614	7.44319E-06	1.97854E-05	7.05768	9.14207E-06	2.43014E-05
Haul Road 3	HR3	1900-2000	1.45005	1.8783E-06	4.99289E-06	1.30485	1.69022E-06	4.49293E-06	6.35294	8.2292E-06	2.18748E-05	5.71685	7.40525E-06	1.96846E-05	7.0217	9.09547E-06	2.41775E-05
Haul Road 3	HR3	2000-2100	1.44745	1.87494E-06	4.98394E-06	1.31084	1.69798E-06	4.51355E-06	6.34165	8.21457E-06	2.18359E-05	5.74324	7.43943E-06	1.97754E-05	7.05408	9.13741E-06	2.4289E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2027)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 1	1	-	70	68.68304	N	0000-0100	177	25.42%	16.95%	5.65%	7.91%	4.52%	2.26%	10.17%	0.00%	0.00%	0.00%	0.56%	3.95%	2.26%	0.00%	4.52%	2.26%	13.56%	0.00%	100%
Road 1	1	-	70	69.19643	N	0100-0200	108	42.59%	11.11%	4.63%	6.48%	3.70%	1.85%	6.48%	0.00%	0.00%	0.00%	0.00%	2.78%	1.85%	0.00%	3.70%	2.78%	12.04%	0.00%	100%
Road 1	1	-	70	69.42708	N	0200-0300	77	32.47%	27.27%	2.60%	2.60%	1.30%	2.60%	9.09%	0.00%	0.00%	0.00%	0.00%	2.60%	1.30%	0.00%	3.90%	3.90%	10.39%	0.00%	100%
Road 1	1	-	70	69.59077	N	0300-0400	55	49.09%	20.00%	1.82%	1.82%	1.82%	1.82%	3.64%	0.00%	0.00%	0.00%	0.00%	3.64%	1.82%	0.00%	3.64%	1.82%	9.09%	0.00%	100%
Road 1	1	-	70	69.36756	N	0400-0500	85	41.18%	15.29%	3.53%	4.71%	3.53%	2.35%	8.24%	0.00%	0.00%	0.00%	1.18%	3.53%	2.35%	0.00%	3.53%	1.18%	9.41%	0.00%	100%
Road 1	1	-	70	68.60863	N	0500-0600	187	46.52%	19.79%	1.60%	2.67%	2.14%	2.14%	8.02%	0.00%	0.00%	0.00%	0.53%	3.21%	1.60%	0.00%	3.21%	2.14%	6.42%	0.00%	100%
Road 1	1	-	70	67.52976	N	0600-0700	332	38.25%	12.95%	3.31%	4.52%	3.31%	3.01%	9.94%	0.00%	0.30%	0.60%	0.60%	4.52%	2.71%	0.00%	3.01%	4.22%	8.43%	0.30%	100%
Road 1	1	-	70	65.84077	N	0700-0800	559	37.03%	17.35%	3.94%	5.72%	3.94%	2.15%	6.62%	0.00%	0.00%	0.00%	0.54%	3.40%	2.33%	0.00%	1.97%	5.90%	8.94%	0.18%	100%
Road 1	1	-	70	64.74206	N	0800-0900	685	41.31%	13.43%	4.38%	6.28%	4.23%	2.19%	7.30%	0.00%	0.15%	0.29%	0.58%	3.50%	2.04%	0.00%	1.90%	1.90%	10.36%	0.15%	100%
Road 1	1	-	70	64.30556	N	0900-1000	707	33.24%	11.60%	8.06%	11.32%	7.07%	2.55%	8.77%	0.00%	0.14%	0.14%	0.28%	2.12%	1.27%	0.00%	2.69%	1.56%	9.05%	0.14%	100%
Road 1	1	-	70	64.70238	N	1000-1100	687	30.28%	10.63%	6.40%	9.17%	5.82%	3.93%	13.83%	0.00%	0.44%	0.58%	0.29%	1.89%	1.16%	0.00%	2.18%	2.18%	11.06%	0.15%	100%
Road 1	1	-	70	65.0372	N	1100-1200	667	30.13%	14.69%	6.45%	9.15%	5.85%	3.30%	11.24%	0.00%	0.30%	0.30%	0.30%	1.65%	0.90%	0.00%	3.15%	2.10%	10.49%	0.00%	100%
Road 1	1	-	70	65.08929	N	1200-1300	660	32.58%	12.42%	5.76%	8.18%	5.30%	3.18%	10.76%	0.00%	0.15%	0.30%	0.30%	1.97%	1.21%	0.00%	3.18%	2.42%	12.12%	0.15%	100%
Road 1	1	-	70	64.40476	N	1300-1400	702	29.20%	13.82%	6.41%	9.26%	5.84%	3.70%	13.11%	0.00%	0.28%	0.43%	0.28%	1.57%	1.00%	0.00%	2.71%	1.14%	11.25%	0.00%	100%
Road 1	1	-	70	63.15476	N	1400-1500	765	33.99%	13.46%	5.49%	7.84%	4.97%	3.14%	11.90%	0.00%	0.52%	0.65%	0.39%	2.61%	1.70%	0.00%	2.48%	1.18%	9.54%	0.13%	100%
Road 1	1	-	70	64.26587	N	1500-1600	709	25.39%	13.40%	7.48%	10.58%	6.49%	3.24%	11.57%	0.00%	0.56%	0.85%	0.42%	2.68%	1.55%	0.00%	2.54%	2.54%	10.58%	0.14%	100%
Road 1	1	-	70	63.49206	N	1600-1700	748	29.14%	17.38%	5.88%	8.29%	5.21%	3.21%	11.36%	0.00%	0.40%	0.67%	0.40%	2.81%	1.60%	0.00%	2.67%	0.40%	10.43%	0.13%	100%
Road 1	1	-	70	63.45238	N	1700-1800	750	41.07%	15.47%	4.00%	5.73%	3.47%	1.87%	7.07%	0.00%	0.27%	0.27%	0.53%	3.47%	2.00%	0.00%	2.53%	3.33%	8.80%	0.13%	100%
Road 1	1	-	70	63.09524	N	1800-1900	768	38.54%	21.48%	3.39%	4.69%	2.86%	1.56%	5.86%	0.00%	0.13%	0.13%	0.52%	3.26%	1.82%	0.00%	2.86%	4.82%	7.94%	0.13%	100%
Road 1	1	-	70	65.63988	N	1900-2000	586	34.47%	21.67%	3.24%	4.78%	2.90%	2.56%	10.07%	0.00%	0.00%	0.17%	0.51%	3.07%	1.71%	0.00%	2.73%	2.39%	9.56%	0.17%	100%
Road 1	1	-	70	66.30952	N	2000-2100	496	40.12%	20.56%	3.02%	4.64%	2.82%	2.42%	9.07%	0.00%	0.00%	0.00%	0.40%	2.22%	1.41%	0.00%	2.62%	1.01%	9.68%	0.00%	100%
Road 1	1	-	70	66.62946	N	2100-2200	453	39.07%	21.19%	2.21%	3.09%	1.99%	2.87%	11.04%	0.00%	0.00%	0.00%	0.44%	2.43%	1.55%	0.00%	3.09%	1.55%	9.49%	0.00%	100%
Road 1	1	-	70	66.79315	N	2200-2300	431	37.35%	22.97%	2.78%	4.18%	2.32%	2.55%	9.51%	0.00%	0.23%	0.46%	0.46%	2.78%	1.62%	0.00%	3.02%	0.93%	8.82%	0.00%	100%
Road 1	1	-	70	67.13542	N	2300-0000	385	35.84%	26.75%	3.90%	5.71%	3.38%	1.56%	6.49%	0.00%	0.00%	0.00%	0.52%	2.86%	1.82%	0.00%	2.86%	1.04%	7.27%	0.00%	100%
Road 2	2	-	50	40.75	N	0000-0100	51	29.41%	11.76%	5.88%	7.84%	5.88%	5.88%	7.84%	0.00%	0.00%	0.00%	0.00%	9.80%	3.92%	0.00%	1.96%	1.96%	7.84%	0.00%	100%
Road 2	2	-	50	42.25	N	0100-0200	33	45.45%	9.09%	3.03%	6.06%	3.03%	3.03%	6.06%	0.00%	0.00%	0.00%	0.00%	6.06%	3.03%	0.00%	3.03%	3.03%	9.09%	0.00%	100%
Road 2	2	-	50	43.08333	N	0200-0300	23	34.78%	17.39%	4.35%	4.35%	0.00%	4.35%	8.70%	0.00%	0.00%	0.00%	0.00%	4.35%	0.00%	0.00%	4.35%	4.35%	13.04%	0.00%	100%
Road 2	2	-	50	45	N	0300-0400	15	60.00%	13.33%	0.00%	0.00%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	13.33%	0.00%	100%
Road 2	2	-	50	42.75	N	0400-0500	27	40.74%	11.11%	3.70%	3.70%	3.70%	3.70%	7.41%	0.00%	0.00%	0.00%	0.00%	7.41%	3.70%	0.00%	3.70%	0.00%	11.11%	0.00%	100%
Road 2	2	-	50	40.25	N	0500-0600	57	50.88%	14.04%	1.75%	3.51%	1.75%	3.51%	5.26%	0.00%	0.00%	0.00%	0.00%	7.02%	1.75%	0.00%	1.75%	1.75%	7.02%	0.00%	100%
Road 2	2	-	50	38.56667	N	0600-0700	103	40.78%	8.74%	2.91%	4.85%	2.91%	5.83%	6.80%	0.00%	0.00%	0.97%	0.00%	10.68%	3.88%	0.00%	1.94%	3.88%	5.83%	0.00%	100%
Road 2	2	-	50	36.73333	N	0700-0800	158	43.04%	13.29%	3.16%	5.70%	3.80%	3.80%	5.06%	0.00%	0.00%	0.00%	0.00%	8.23%	3.16%	0.00%	1.27%	5.70%	3.80%	0.00%	100%
Road 2	2	-	50	32	N	0800-0900	300	44.67%	9.33%	3.00%	7.33%	4.33%	4.67%	5.33%	0.00%	0.00%	1.00%	0.00%	7.33%	3.67%	0.00%	1.33%	5.00%	3.00%	0.00%	100%
Road 2	2	-	50	33.8	N	0900-1000	246	34.15%	9.35%	5.28%	13.41%	6.91%	6.50%	8.13%	0.00%	0.00%	0.00%	0.00%	5.69%	1.63%	0.00%	1.22%	1.22%	6.50%	0.00%	100%
Road 2	2	-	50	35.86667	N	1000-1100	184	28.26%	10.33%	5.98%	10.87%	8.15%	9.78%	9.24%	0.00%	0.00%	0.00%	0.00%	4.89%	2.72%	0.00%	1.63%	0.54%	7.61%	0.00%	100%
Road 2	2	-	50	35.96667	N	1100-1200	181	20.99%	7.18%	3.87%	12.15%	11.05%	12.71%	15.47%	0.00%	0.00%	0.00%	0.00%	4.97%	0.55%	0.00%	2.21%	1.10%	7.73%	0.00%	100%
Road 2	2	-	50	35.73333	N	1200-1300	188	27.66%	12.77%	4.26%	12.23%	8.51%	6.38%	9.04%	0.00%	0.00%	0.53%	0.00%	5.32%	1.60%	0.00%	1.60%	2.13%	7.98%	0.00%	100%
Road 2	2	-	50	34.66667	N	1300-1400	220	31.36%	10.45%	3.64%	7.27%	7.73%	11.36%	10.45%	0.45%	0.00%	0.45%	0.00%	3.64%	1.36%	0.00%	1.36%	1.82%	8.64%	0.00%	100%
Road 2	2	-	50	36.56667	N	1400-1500	163	34.97%	7.98%	4.29%	10.43%	7.36%	7.98%	7.98%	0.00%	0.00%	0.61%	0.00%	4.91%	1.84%	0.00%	1.84%	1.84%	7.98%	0.00%	100%
Road 2	2	-	50	36.03333	N	1500-1600	179	31.84%	7.82%	5.59%	5.59%	7.26%	8.94%	10.06%	0.00%	0.00%	1.12%	0.56%	8.38%	3.91%	0.00%	1.68%	0.56%	6.70%	0.00%	100%
Road 2	2	-	50	34.7	N	1600-1700	219	33.33%	10.50%	3.65%	12.79%	3.65%	6.39%	7.76%	0.46%	0.00%	0.91%	0.91%	8.22%	4.11%	0.00%	0.91%	0.91%	5.48%	0.00%	100%
Road 2	2	-	50	34.76667	N	1700-1800	217	50.69%	7.37%	5.99%	4.61%	4.61%	6.91%	7.37%	0.46%	0.00%	0.00%	0.00%	5.53%	1.84%	0.00%	0.92%	1.84%	1.84%	0.00%	100%
Road 2	2	-	50	33.73333	N	1800-1900	248	41.53%	14.52%	4.03%	4.84%	4.03%	4.03%	9.68%	0.00%	0.00%	0.00%	0.81%	5.24%	4.44%	0.00%	1.21%	1.21%	4.44%	0.00%	100%
Road 2	2	-	50	36.46667	N	1900-2000	166	47.59%	16.27%	3.61%	3.61%	0.60%	1.81%	9.04%	0.60%	0.00%	0.00%	0.00%	8.43%	3.01%	0.00%	1.81%	0.60%	3.01%	0.00%	100%
Road 2	2	-	50	37.13333	N	2000-2100	146	46.58%	16.44%	4.79%	1.37%	4.11%	2.74%	4.79%	0.00%	0.00%	0.00%	0.00%	8.22%	0.68%	0.00%	2.05%	2.74%	5.48%	0.00%	100%
Road 2	2	-	50	36.93333	N	2100-2200	152	51.32%	19.08%	2.63%	1.97%	0.66%	3.95%	3.29%	0.00%	0.00%	0.00%	0.00%	5.92%	0.66%	0.00%	1.97%	3.95%	4.61%	0.00%	100%
Road 2	2	-	50	37.83333	N	2200-2300	125	43.20%	16.80%	2.40%	4.00%	2.40%	5.60%	7.20%	0.00%	0.00%	0.80%	0.00%	7.20%	2.40%	0.00%	1.60%	0.80%	5.60%	0.00%	100%
Road 2	2	-	50	38.33333	N	2300-0000	110	40.91%	20.00%	3.64%	5.45%	3.64%	3.64%	5.45%	0.00%	0.00%	0.00%	0.00%	7.27%	2.73%	0.00%	1.82%	0.91%	4.55%	0.00%	100%
Road 3	3	-	70	68.29613	N	0000-0100	229	26.64%	15.72%	5.68%	8.30%	4.80%	3.06%	9.61%	0.00%	0.00%	0.00%	0.44%	5.24%	2.62%	0.00%	3.93%	2.18%	11.79%	0.00%	100%
Road 3	3	-	70	68.95089	N	0100-0200	141	43.97%	10.64%	4.26%	6.38%	3.55%	2.13%	6.38%	0.00%	0.00%	0.00%	0.00%	3.55%	2.13%	0.00%	3.55%	2.84%	10.64%	0.00%	100%
Road 3	3	-	70	69.26339	N	0200-0300	99	33.33%	25.25%	3.03%	3.03%	1.01%	3.03%	9.09%	0.00%	0.00%	0.00%	0.00%	3.03%	1.01%	0.00%	4.04%	4.04%	10.10%	0.00%	100%
Road 3	3	-	70	69.48661	N	0300-0400	69	52.17%	18.84%	1.45%	1.45%	1.45%	2.90%	2.90%	0.00%	0.00%	0.00%	0.00%	4.35%	1.45%	0.00%	2.90%	1.45%	8.70%	0.00%	100%
Road 3	3	-	70	69.17411	N	0400-0500	111	41.44%	14.41%	3.60%	4.50%	3.60%	2.70%	8.11%	0.00%	0.00%	0.00%	0.90%	4.50%	2.70%	0.00%	3.60%	0.90%	9.01%	0.00%	100%
Road 3	3	-	70	68.19196	N	0500-0600	243	47.33%	18.52%	1.65%	2.88%	2.06%	2.47%	7.82%	0.00%	0.00%	0.00%	0.41%	4.12%	1.65%	0.00%	2.88%	2.06%	6.17%	0.00%	100%
Road 3	3	-	70	66.74107	N	0600-0700	438	38.58%	12.10%	3.20%	4.79%	3.20%	3.65%	9.13%	0.00%	0.23%	0.68%	0.46%	6.16%	2.97%	0.00%	2.74%	4.34%	7.53%	0.23%	100%
Road 3	3	-	70	64.12698	N	0700-0800	716	38.41%	16.34%	3.77%	5.73%	3.91%	2.51%	6.28%	0.14%	0.00%	0.00%	0.42%	4.47%	2.51%	0.00%	1.82%	5.87%	7.68%	0.14%	100%
Road 3	3	-	70	58.71032	N	0800-0900	989	42.16%	12.13%	3.94%	6.57%	4.25%	3.03%	6.77%	0.00%	0.10%	0.51%	0.40%	4.55%	2.63%	0.00%	1.82%	2.93%	8.09%	0.10%	100%
Road 3	3	-	70	59.40476	N	0900-1000	954	33.44%	11.01%	7.34%	11.84%	7.13%	3.67%	8.49%	0.00%	0.10%	0.10%	0.21%	3.14%	1.36%	0.00%	2.31%	1.47%	8.28%	0.10%	100%
Road 3	3	-	70	61.07143	N	1000-1100	870	29.89%	10.57%	6.44%	9.43%	6.32%	5.17%	12.87%	0.00%	0.34%	0.46%	0.23%	2.64%	1.49%	0.00%	2.18%	1.84%	10.00%	0.11%	100%
Road 3	3	-	70	61.54762	N	1100-1200	846	28.25%	13.12%	5.91%	9.69%	6.97%	5.20%	12.17%	0.00%	0.24%	0.24%	0.24%	2.48%	0.83%	0.00%	2.96%	1.89%	9.81%	0.00%	100%
Road 3	3	-	70	61.54762	N	1200-1300	846	31.56%	12.53%	5.44%	8.98%	6.03%	3.90%	10.40%	0.00%	0.12%	0.35%	0.24%	2.84%	1.30%	0.00%	2.84%	2.48%	10.87%	0.12%	100%
Road 3	3	-	70	60.09921	N	1300-1400	919	29.82%	13.06%	5.88%	8.81%	6.42%	5.44%	12.40%	0.11%	0.22%	0.44%	0.22%	2.18%	1.09%	0.00%	2.39%	1.31%	10.23%	0.00%	100%
Road 3	3	-	70	60	N	1400-1500	924	34.20%	12.55%	5.30%	8.33%	5.41%	4.00%	11.26%	0.00%	0.43%	0.65%	0.32%	3.03%	1.73%	0.00%	2.38%	1.30%	8.98%	0.11%	100%
Road 3	3	-	70	60.6746	N	1500-1600	890	26.63%	12.25%	7.08%	9.55%	6.74%	4.38%	11.35%	0.00%	0.45%	0.90%	0.45%	3.82%	2.13%	0.00%	2.36%	2.13%	9.66%	0.11%	100%
Road 3	3	-	70	59.10714	N	1600-1700	969	30.13%	15.69%	5.47%	9.29%	4.85%	3.92%	10.63%	0.10%	0.31%	0.72%	0.52%	3.92%	2.27%	0.00%	2.27%	0.52%	9.29%	0.10%	100%
Road 3	3	-	70	59.0873	N	1700-1800	970	43.09%	13.71%	4.43%	5.46%	3.71%	3.09%	7.11%	0.10%	0.21%	0.21%	0.41%	3.92%	2.06%	0.00%	2.16%	2.99%	7.22%	0.10%	100%
Road 3	3	-	70	58.15476	N	1800-1900	1017	39.23%	19.76%	3.54%	4.72%	3.15%	2.26%	6.78%	0.00%	0.10%	0.10%	0.59%	3.74%	2.56%	0.00%	2.46%	3.93%	6.98%	0.10%	100%
Road 3	3	-	70	63.39286	N	1900-2000	753	37.32%	20.45%	3.32%	4.52%	2.52%	2.52%	9.83%	0.13%	0.00%	0.13%	0.40%	4.25%	1.99%	0.00%	2.66%	1.99%	7.84%	0.13%	100%
Road 3	3	-	70	65.20833	N	2000-2100	644	41.46%	19.57%	3.57%	3.88%	3.26%	2.48%	8.23%	0.00%	0.00%	0.00%	0.31%	3.73%	1.24%	0.00%	2.48%	1.40%	8.39%	0.00%	100%
Road 3	3	-	70	65.46131	N	2100-2200	610	41.97%	20.49%	2.30%	2.95%	1.64%	3.28%	9.18%	0.00%	0.00%	0.00%	0.33%	3.44%	1.31%	0.00%	2.95%	2.13%	8.03%	0.00%	100%
Road 3	3	-	70	65.8631	N	2200-2300	556	38.49%	21.58%	2.70%	4.14%	2.34%	3.42%	8.99%	0.00%	0.18%	0.54%	0.36%	3.96%	1.80%	0.00%	2.70%	0.90%	7.91%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2027)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 3	3	-	70	66.29464	N	2300-0000	498	36.75%	25.10%	4.02%	5.62%	3.61%	2.01%	6.22%	0.00%	0.00%	0.00%	0.40%	4.02%	2.01%	0.00%	2.61%	1.00%	6.63%	0.00%	100%
Road 4	4	-	50	42.08333	N	0000-0100	35	5.71%	2.86%	2.86%	2.86%	2.86%	2.86%	25.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	54.29%	0.00%	100%
Road 4	4	-	50	45	N	0100-0200	20	10.00%	0.00%	0.00%	5.00%	0.00%	5.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	60.00%	0.00%	100%
Road 4	4	-	50	45	N	0200-0300	13	7.69%	0.00%	0.00%	0.00%	0.00%	7.69%	30.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	53.85%	0.00%	100%
Road 4	4	-	50	45	N	0300-0400	7	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	71.43%	0.00%	100%
Road 4	4	-	50	45	N	0400-0500	14	14.29%	0.00%	0.00%	0.00%	0.00%	7.14%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	100%
Road 4	4	-	50	45	N	0500-0600	24	16.67%	4.17%	0.00%	0.00%	4.17%	8.33%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	0.00%	100%
Road 4	4	-	50	40.66667	N	0600-0700	52	11.54%	1.92%	1.92%	1.92%	5.77%	7.69%	32.69%	0.00%	0.00%	0.00%	0.00%	0.00%	1.92%	0.00%	0.00%	1.92%	32.69%	0.00%	100%
Road 4	4	-	50	38.93333	N	0700-0800	92	10.87%	2.17%	2.17%	4.35%	4.35%	5.43%	22.83%	1.09%	0.00%	0.00%	0.00%	0.00%	3.26%	0.00%	0.00%	2.17%	41.30%	0.00%	100%
Road 4	4	-	50	36.9	N	0800-0900	153	15.03%	1.96%	2.61%	3.92%	3.27%	3.92%	29.41%	0.00%	0.00%	0.00%	0.00%	0.00%	1.96%	0.00%	0.00%	0.65%	37.25%	0.00%	100%
Road 4	4	-	50	37.06667	N	0900-1000	148	12.84%	2.03%	2.70%	4.73%	4.73%	8.11%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.03%	37.84%	0.00%	100%
Road 4	4	-	50	37.23333	N	1000-1100	143	4.20%	0.70%	2.80%	6.99%	5.59%	8.39%	33.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.70%	37.06%	0.00%	100%
Road 4	4	-	50	36.83333	N	1100-1200	155	12.26%	1.29%	3.23%	4.52%	3.87%	7.74%	40.65%	0.00%	0.00%	0.00%	0.00%	0.65%	0.00%	0.00%	0.00%	0.00%	25.81%	0.00%	100%
Road 4	4	-	50	37.1	N	1200-1300	147	8.16%	0.68%	2.72%	6.12%	4.08%	4.76%	29.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.36%	42.86%	0.00%	100%
Road 4	4	-	50	37.03333	N	1300-1400	149	6.71%	0.67%	4.03%	5.37%	4.70%	7.38%	32.21%	0.67%	0.00%	0.00%	0.00%	0.00%	0.67%	0.00%	0.00%	0.00%	37.58%	0.00%	100%
Road 4	4	-	50	37.4	N	1400-1500	138	10.14%	2.90%	2.17%	6.52%	4.35%	4.35%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	1.45%	0.00%	0.00%	1.45%	33.33%	0.00%	100%
Road 4	4	-	50	37.86667	N	1500-1600	124	3.23%	1.61%	1.61%	5.65%	6.45%	6.45%	33.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	41.13%	0.00%	100%
Road 4	4	-	50	37.86667	N	1600-1700	124	6.45%	0.00%	4.84%	6.45%	5.65%	6.45%	29.84%	0.81%	0.00%	0.00%	0.00%	0.00%	0.81%	0.00%	0.00%	0.00%	38.71%	0.00%	100%
Road 4	4	-	50	37.8	N	1700-1800	126	8.73%	0.00%	5.56%	5.56%	3.97%	5.56%	28.57%	0.79%	0.00%	0.00%	0.00%	0.00%	0.79%	0.00%	0.00%	1.59%	38.89%	0.00%	100%
Road 4	4	-	50	38.46667	N	1800-1900	106	7.55%	0.94%	1.89%	0.94%	2.83%	3.77%	34.91%	0.00%	0.00%	0.00%	0.00%	0.00%	1.89%	0.00%	0.00%	0.00%	45.28%	0.00%	100%
Road 4	4	-	50	39.53333	N	1900-2000	74	6.76%	2.70%	2.70%	4.05%	5.41%	1.35%	36.49%	0.00%	0.00%	0.00%	0.00%	1.35%	0.00%	0.00%	0.00%	0.00%	39.19%	0.00%	100%
Road 4	4	-	50	45	N	2000-2100	49	10.20%	4.08%	0.00%	2.04%	2.04%	6.12%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.08%	57.14%	0.00%	100%
Road 4	4	-	50	45	N	2100-2200	37	16.22%	8.11%	0.00%	10.81%	2.70%	5.41%	10.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	45.95%	0.00%	100%
Road 4	4	-	50	39.9	N	2200-2300	63	11.11%	3.17%	1.59%	3.17%	1.59%	6.35%	34.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	38.10%	0.00%	100%
Road 4	4	-	50	41	N	2300-0000	48	12.50%	4.17%	2.08%	4.17%	2.08%	4.17%	27.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	43.75%	0.00%	100%
Road 5	5	-	70	68.56399	N	0000-0100	193	30.57%	18.13%	6.22%	9.33%	5.18%	3.11%	6.22%	0.00%	0.00%	0.00%	0.52%	6.22%	3.11%	0.00%	4.66%	2.59%	4.15%	0.00%	100%
Road 5	5	-	70	69.0997	N	0100-0200	121	49.59%	12.40%	4.96%	6.61%	4.13%	1.65%	4.13%	0.00%	0.00%	0.00%	0.00%	4.13%	2.48%	0.00%	4.13%	3.31%	2.48%	0.00%	100%
Road 5	5	-	70	69.36012	N	0200-0300	86	37.21%	29.07%	3.49%	3.49%	1.16%	2.33%	5.81%	0.00%	0.00%	0.00%	0.00%	3.49%	1.16%	0.00%	4.65%	4.65%	3.49%	0.00%	100%
Road 5	5	-	70	69.53869	N	0300-0400	62	56.45%	20.97%	1.61%	1.61%	1.61%	3.23%	1.61%	0.00%	0.00%	0.00%	0.00%	4.84%	1.61%	0.00%	3.23%	1.61%	1.61%	0.00%	100%
Road 5	5	-	70	69.27827	N	0400-0500	97	45.36%	16.49%	4.12%	5.15%	4.12%	2.06%	5.15%	0.00%	0.00%	0.00%	1.03%	5.15%	3.09%	0.00%	4.12%	1.03%	3.09%	0.00%	100%
Road 5	5	-	70	68.37798	N	0500-0600	218	50.92%	20.18%	1.83%	3.21%	1.83%	1.83%	4.59%	0.00%	0.00%	0.00%	0.46%	4.59%	1.83%	0.00%	3.21%	2.29%	3.21%	0.00%	100%
Road 5	5	-	70	67.13542	N	0600-0700	385	42.34%	13.51%	3.38%	5.19%	2.86%	3.12%	5.97%	0.00%	0.26%	0.78%	0.52%	7.01%	3.12%	0.00%	3.12%	4.68%	3.90%	0.26%	100%
Road 5	5	-	70	65.35714	N	0700-0800	624	42.47%	18.43%	4.01%	5.93%	3.85%	2.08%	4.01%	0.00%	0.00%	0.00%	0.48%	5.13%	2.40%	0.00%	2.08%	6.41%	2.56%	0.16%	100%
Road 5	5	-	70	61.74603	N	0800-0900	836	47.25%	13.88%	4.19%	7.06%	4.43%	2.87%	2.63%	0.00%	0.12%	0.60%	0.48%	5.38%	2.75%	0.00%	2.15%	3.35%	2.75%	0.12%	100%
Road 5	5	-	70	62.30159	N	0900-1000	808	37.25%	12.62%	8.17%	13.12%	7.55%	2.85%	5.45%	0.00%	0.12%	0.12%	0.25%	3.71%	1.61%	0.00%	2.72%	1.36%	2.97%	0.12%	100%
Road 5	5	-	70	63.92857	N	1000-1100	726	34.85%	12.53%	7.16%	9.92%	6.47%	4.55%	8.82%	0.00%	0.41%	0.55%	0.28%	3.17%	1.79%	0.00%	2.62%	2.07%	4.68%	0.14%	100%
Road 5	5	-	70	64.64286	N	1100-1200	690	31.88%	15.80%	6.52%	10.87%	7.68%	4.64%	5.80%	0.00%	0.29%	0.29%	0.29%	2.90%	1.01%	0.00%	3.62%	2.32%	6.09%	0.00%	100%
Road 5	5	-	70	64.46429	N	1200-1300	699	36.34%	15.02%	6.01%	9.59%	6.44%	3.72%	6.44%	0.00%	0.14%	0.43%	0.29%	3.43%	1.57%	0.00%	3.43%	2.72%	4.29%	0.14%	100%
Road 5	5	-	70	63.11508	N	1300-1400	767	34.42%	15.38%	6.13%	9.52%	6.65%	5.08%	8.60%	0.00%	0.26%	0.52%	0.26%	2.61%	1.17%	0.00%	2.87%	1.56%	4.95%	0.00%	100%
Road 5	5	-	70	62.7381	N	1400-1500	786	38.42%	14.25%	5.85%	8.65%	5.60%	3.94%	7.38%	0.00%	0.51%	0.76%	0.38%	3.56%	1.78%	0.00%	2.80%	1.27%	4.71%	0.13%	100%
Road 5	5	-	70	63.15476	N	1500-1600	765	30.46%	13.99%	7.97%	10.20%	6.67%	4.05%	7.71%	0.00%	0.52%	1.05%	0.52%	4.44%	2.48%	0.00%	2.75%	2.48%	4.58%	0.13%	100%
Road 5	5	-	70	61.62698	N	1600-1700	842	33.61%	18.05%	5.46%	9.62%	4.75%	3.56%	7.84%	0.00%	0.36%	0.83%	0.59%	4.51%	2.49%	0.00%	2.61%	0.59%	4.99%	0.12%	100%
Road 5	5	-	70	61.5873	N	1700-1800	844	48.22%	15.76%	4.27%	5.45%	3.67%	2.73%	3.91%	0.00%	0.24%	0.24%	0.47%	4.50%	2.25%	0.00%	2.49%	3.20%	2.49%	0.12%	100%
Road 5	5	-	70	60.27778	N	1800-1900	910	42.86%	21.98%	3.74%	5.16%	3.19%	2.09%	3.52%	0.00%	0.11%	0.11%	0.66%	4.18%	2.64%	0.00%	2.75%	4.40%	2.53%	0.11%	100%
Road 5	5	-	70	64.90079	N	1900-2000	677	40.77%	22.30%	3.40%	4.58%	2.07%	2.66%	6.94%	0.15%	0.00%	0.15%	0.44%	4.58%	2.22%	0.00%	2.95%	2.22%	4.43%	0.15%	100%
Road 5	5	-	70	65.58036	N	2000-2100	594	44.11%	20.88%	3.87%	4.04%	3.37%	2.19%	7.58%	0.00%	0.00%	0.00%	0.34%	4.04%	1.35%	0.00%	2.69%	1.18%	4.38%	0.00%	100%
Road 5	5	-	70	65.75149	N	2100-2200	571	43.61%	21.37%	2.45%	2.28%	1.58%	3.15%	9.11%	0.00%	0.00%	0.00%	0.35%	3.68%	1.40%	0.00%	3.15%	2.28%	5.60%	0.00%	100%
Road 5	5	-	70	66.33929	N	2200-2300	492	42.07%	23.78%	2.85%	4.27%	2.44%	2.85%	5.89%	0.00%	0.20%	0.61%	0.41%	4.47%	2.03%	0.00%	3.05%	1.02%	4.07%	0.00%	100%
Road 5	5	-	70	66.66667	N	2300-0000	448	39.51%	27.46%	4.24%	5.80%	3.57%	1.79%	4.02%	0.00%	0.00%	0.00%	0.45%	4.46%	2.23%	0.00%	2.90%	1.12%	2.46%	0.00%	100%
Road 6	6	-	70	68.89881	N	0000-0100	148	44.59%	25.68%	3.38%	4.05%	2.03%	2.03%	2.70%	0.00%	0.00%	0.00%	0.68%	4.05%	2.03%	0.00%	4.05%	2.03%	2.70%	0.00%	100%
Road 6	6	-	70	69.15923	N	0100-0200	113	38.05%	20.35%	7.08%	6.19%	3.54%	4.42%	4.42%	0.00%	0.00%	0.00%	0.00%	3.54%	0.88%	0.00%	3.54%	2.65%	5.31%	0.00%	100%
Road 6	6	-	70	69.4122	N	0200-0300	79	41.77%	22.78%	6.33%	5.06%	3.80%	2.53%	2.53%	0.00%	0.00%	0.00%	0.00%	5.06%	1.27%	0.00%	3.80%	1.27%	3.80%	0.00%	100%
Road 6	6	-	70	69.53869	N	0300-0400	62	35.48%	19.35%	9.68%	9.68%	4.84%	3.23%	3.23%	0.00%	0.00%	0.00%	0.00%	3.23%	1.61%	0.00%	4.84%	1.61%	3.23%	0.00%	100%
Road 6	6	-	70	69.33036	N	0400-0500	90	37.78%	20.00%	5.56%	6.67%	3.33%	3.33%	4.44%	0.00%	0.00%	1.11%	0.00%	4.44%	1.11%	0.00%	4.44%	3.33%	4.44%	0.00%	100%
Road 6	6	-	70	68.80208	N	0500-0600	161	37.89%	23.60%	5.59%	6.21%	3.11%	3.11%	3.73%	0.00%	0.00%	0.00%	0.62%	3.73%	1.86%	0.00%	3.73%	3.11%	3.73%	0.00%	100%
Road 6	6	-	70	67.86458	N	0600-0700	287	32.40%	26.48%	6.27%	6.62%	3.83%	3.48%	3.83%	0.00%	0.00%	0.00%	0.35%	3.83%	2.09%	0.00%	4.53%	2.79%	3.48%	0.00%	100%
Road 6	6	-	70	66.60714	N	0700-0800	456	37.50%	24.56%	5.92%	6.14%	3.51%	2.63%	2.63%	0.00%	0.22%	0.22%	0.44%	5.04%	2.19%	0.00%	3.29%	3.29%	2.41%	0.00%	100%
Road 6	6	-	70	65.13393	N	0800-0900	654	42.20%	27.98%	5.35%	3.82%	1.22%	2.14%	0.31%	0.00%	0.15%	0.61%	0.46%	5.81%	3.67%	0.00%	3.21%	2.29%	0.61%	0.15%	100%
Road 6	6	-	70	65.32738	N	0900-1000	628	41.24%	26.11%	5.57%	6.21%	3.18%	4.14%	2.55%	0.00%	0.00%	0.32%	0.00%	3.50%	1.11%	0.00%	2.87%	1.59%	1.59%	0.00%	100%
Road 6	6	-	70	66.04167	N	1000-1100	532	34.77%	23.50%	6.77%	5.64%	5.45%	4.32%	4.14%	0.00%	0.19%	0.19%	0.38%	3.57%	1.69%	0.00%	3.38%	0.56%	5.45%	0.00%	100%
Road 6	6	-	70	66.07143	N	1100-1200	528	29.17%	18.37%	8.52%	10.42%	7.20%	6.44%	7.20%	0.00%	0.19%	0.38%	0.19%	2.27%	1.14%	0.00%	2.84%	0.95%	4.73%	0.00%	100%
Road 6	6	-	70	66.16071	N	1200-1300	516	37.98%	13.57%	8.14%	9.11%	6.98%	5.43%	3.29%	0.00%	0.19%	0.19%	0.19%	4.07%	1.74%	0.00%	2.91%	0.97%	5.23%	0.00%	100%
Road 6	6	-	70	66.16815	N	1300-1400	515	28.16%	17.28%	8.35%	8.54%	5.83%	4.66%	6.80%	0.19%	0.39%	0.58%	0.58%	5.63%	2.52%	0.00%	3.11%	0.97%	6.21%	0.19%	100%
Road 6	6	-	70	65.77381	N	1400-1500	568	30.11%	17.61%	7.92%	8.45%	5.46%	4.93%	6.34%	0.18%	0.53%	0.88%	0.70%	5.81%	3.17%	0.00%	3.17%	1.23%	3.35%	0.18%	100%
Road 6	6	-	70	65.87054	N	1500-1600	555	35.86%	17.30%	6.31%	8.11%	4.50%	3.96%	4.68%	0.18%	0.00%	0.36%	0.36%	5.41%	2.34%	0.00%	2.88%	2.70%	4.86%	0.18%	100%
Road 6	6	-	70	65.77381	N	1600-1700	568	35.74%	14.44%	7.57%	8.80%	4.75%	4.40%	4.40%	0.00%	0.35%	0.70%	0.53%	5.63%	2.46%	0.00%	2.46%	2.46%	5.11%	0.18%	100%
Road 6	6	-	70	65.54315	N	1700-1800	599	47.41%	16.03%	5.18%	7.01%	2.34%	3.17%	2.50%	0.00%	0.17%	0.33%	0.50%	5.34%	2.34%	0.00%	2.17%	2.67%	2.67%	0.17%	100%
Road 6	6	-	70	64.78175	N	1800-1900	683	48.90%	16.25%	4.54%	3.07%	1.90%	1.90%	3.22%	0.00%	0.29%	0.44%	0.44%	6.15%	2.34%	0.00%	2.78%	4.83%	2.78%	0.15%	100%
Road 6	6	-	70	66.12351	N	1900-2000	521	39.35%	19.96%	4.22%	3.45%	2.11%	3.45%	4.03%	0.00%	0.38%	0.38%	0.58%	6.33%	2.11%	0.00%	3.45%	5.76%	4.22%	0.19%	100%
Road 6	6	-	70	66.9494	N	2000-2100	410	46.83%	22.20%	3.41%	3.17%	1.46%	1.95%	3.90%	0.00%	0.00%	0.00%	0.49%	5.85%	1.95%	0.00%	3.66%	3.17%	1.95%	0.00%	100%
Road 6	6	-	70	67.35119	N	2100-2200	356	41.29%	20.51%	2.25%	2.25%	1.12%	2.53%	7.02%	0.00%	0.00%	0.00%	0.56%	7.58%	2.81%	0.00%	3.65%	2.53%	5.62%	0.28%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2027)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 6	6	-	70	67.19494	N	2200-2300	377	33.42%	33.95%	3.45%	3.45%	1.86%	2.65%	2.65%	0.00%	0.53%	1.06%	0.53%	5.57%	2.39%	0.00%	2.92%	2.92%	2.65%	0.00%	100%
Road 6	6	-	70	67.36607	N	2300-0000	354	49.44%	23.16%	5.08%	5.37%	3.11%	1.41%	1.41%	0.00%	0.00%	0.00%	0.28%	3.11%	1.13%	0.00%	2.54%	2.26%	1.69%	0.00%	100%
Road 7	7	-	70	68.63095	N	0000-0100	184	38.59%	20.65%	2.72%	3.80%	2.17%	2.17%	6.52%	0.00%	0.00%	0.00%	0.54%	3.26%	1.63%	0.00%	3.26%	2.17%	12.50%	0.00%	100%
Road 7	7	-	70	68.93601	N	0100-0200	143	32.17%	16.08%	5.59%	6.29%	3.50%	4.20%	9.79%	0.00%	0.00%	0.00%	0.00%	2.80%	0.70%	0.00%	2.80%	2.10%	13.99%	0.00%	100%
Road 7	7	-	70	69.3006	N	0200-0300	94	37.23%	19.15%	5.32%	5.32%	3.19%	2.13%	7.45%	0.00%	0.00%	0.00%	0.00%	4.26%	1.06%	0.00%	3.19%	1.06%	10.64%	0.00%	100%
Road 7	7	-	70	69.43452	N	0300-0400	76	31.58%	15.79%	7.89%	10.53%	5.26%	2.63%	6.58%	0.00%	0.00%	0.00%	0.00%	2.63%	1.32%	0.00%	3.95%	1.32%	10.53%	0.00%	100%
Road 7	7	-	70	69.17411	N	0400-0500	111	33.33%	16.22%	4.50%	6.31%	3.60%	3.60%	9.91%	0.00%	0.00%	0.90%	0.00%	3.60%	0.90%	0.00%	3.60%	2.70%	10.81%	0.00%	100%
Road 7	7	-	70	68.54167	N	0500-0600	196	33.67%	19.39%	4.59%	6.12%	3.57%	3.57%	9.69%	0.00%	0.00%	0.00%	0.51%	3.06%	1.53%	0.00%	3.06%	3.06%	8.16%	0.00%	100%
Road 7	7	-	70	67.39583	N	0600-0700	350	28.57%	22.00%	5.43%	6.86%	4.29%	4.00%	9.14%	0.00%	0.00%	0.00%	0.29%	3.14%	1.71%	0.00%	3.71%	2.57%	8.29%	0.00%	100%
Road 7	7	-	70	65.83333	N	0700-0800	560	32.86%	20.18%	5.00%	6.43%	4.29%	3.04%	6.25%	0.00%	0.18%	0.18%	0.36%	4.11%	1.79%	0.00%	2.68%	3.39%	9.29%	0.00%	100%
Road 7	7	-	70	61.54762	N	0800-0900	846	34.63%	21.75%	4.73%	5.56%	2.84%	2.84%	5.91%	0.24%	0.12%	0.47%	0.35%	4.49%	2.84%	0.00%	2.48%	1.77%	8.87%	0.12%	100%
Road 7	7	-	70	62.7381	N	0900-1000	786	34.48%	20.87%	5.09%	6.49%	4.07%	5.22%	7.51%	0.00%	0.00%	0.25%	0.13%	2.80%	1.15%	0.00%	2.29%	1.27%	8.40%	0.00%	100%
Road 7	7	-	70	64.6627	N	1000-1100	689	28.88%	18.14%	5.66%	6.53%	5.52%	4.64%	11.32%	0.29%	0.15%	0.15%	0.29%	3.05%	1.31%	0.00%	2.61%	0.73%	10.74%	0.00%	100%
Road 7	7	-	70	64.72222	N	1100-1200	686	24.93%	14.14%	7.29%	9.04%	6.27%	6.27%	13.41%	0.00%	0.15%	0.29%	0.15%	1.90%	0.87%	0.00%	2.19%	0.87%	12.24%	0.00%	100%
Road 7	7	-	70	64.74206	N	1200-1300	685	31.09%	10.51%	6.57%	8.61%	6.28%	5.40%	10.36%	0.00%	0.15%	0.15%	0.15%	3.07%	1.46%	0.00%	2.19%	0.88%	13.14%	0.00%	100%
Road 7	7	-	70	64.94048	N	1300-1400	675	24.44%	13.33%	6.81%	8.89%	6.07%	5.04%	12.00%	0.15%	0.30%	0.44%	0.44%	4.30%	2.07%	0.00%	2.37%	1.04%	12.15%	0.15%	100%
Road 7	7	-	70	64.28571	N	1400-1500	708	27.12%	14.27%	6.92%	8.33%	5.37%	4.52%	10.31%	0.14%	0.42%	0.71%	0.56%	4.66%	2.82%	0.00%	2.54%	1.13%	10.03%	0.14%	100%
Road 7	7	-	70	64.60317	N	1500-1600	692	31.36%	14.16%	5.49%	7.51%	4.48%	4.19%	9.97%	0.29%	0.00%	0.29%	0.29%	4.34%	2.02%	0.00%	2.31%	2.60%	10.55%	0.14%	100%
Road 7	7	-	70	64.12698	N	1600-1700	716	30.45%	11.45%	6.42%	8.94%	5.31%	4.47%	10.34%	0.00%	0.28%	0.56%	0.42%	4.47%	1.96%	0.00%	1.96%	2.65%	10.20%	0.14%	100%
Road 7	7	-	70	63.27381	N	1700-1800	759	41.90%	12.78%	4.35%	7.25%	2.77%	3.16%	6.85%	0.00%	0.13%	0.26%	0.40%	4.22%	2.11%	0.00%	1.71%	3.69%	8.30%	0.13%	100%
Road 7	7	-	70	62.69841	N	1800-1900	788	45.18%	14.34%	4.06%	4.06%	2.03%	1.90%	5.08%	0.00%	0.25%	0.38%	0.38%	5.33%	2.03%	0.00%	2.41%	4.57%	7.87%	0.13%	100%
Road 7	7	-	70	65.55804	N	1900-2000	597	36.18%	17.59%	3.69%	4.02%	2.18%	3.18%	7.54%	0.00%	0.34%	0.34%	0.50%	5.53%	2.01%	0.00%	3.02%	5.03%	8.71%	0.17%	100%
Road 7	7	-	70	66.36905	N	2000-2100	488	40.98%	19.06%	2.87%	2.87%	2.05%	2.87%	6.97%	0.00%	0.00%	0.00%	0.41%	4.92%	1.64%	0.00%	3.07%	3.28%	9.02%	0.00%	100%
Road 7	7	-	70	66.9494	N	2100-2200	410	37.80%	19.02%	1.95%	2.68%	1.71%	2.44%	9.51%	0.00%	0.00%	0.00%	0.49%	6.59%	2.93%	0.00%	3.17%	2.44%	9.02%	0.24%	100%
Road 7	7	-	70	66.71131	N	2200-2300	442	30.54%	29.41%	3.17%	3.62%	2.04%	2.94%	6.56%	0.00%	0.45%	0.90%	0.45%	4.75%	2.04%	0.00%	2.49%	2.94%	7.69%	0.00%	100%
Road 7	7	-	70	66.97173	N	2300-0000	407	46.44%	20.39%	4.67%	5.90%	3.19%	1.47%	3.44%	0.00%	0.00%	0.00%	0.25%	2.70%	0.98%	0.00%	2.21%	2.21%	6.14%	0.00%	100%
Road 8	8	-	50	45	N	0000-0100	36	13.89%	0.00%	0.00%	2.78%	2.78%	2.78%	22.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.78%	52.78%	0.00%	100%
Road 8	8	-	50	45	N	0100-0200	30	10.00%	0.00%	0.00%	6.67%	3.33%	3.33%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.67%	0.00%	100%
Road 8	8	-	50	45	N	0200-0300	15	13.33%	0.00%	0.00%	6.67%	0.00%	0.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.67%	0.00%	100%
Road 8	8	-	50	45	N	0300-0400	14	14.29%	0.00%	0.00%	14.29%	7.14%	0.00%	21.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	42.86%	0.00%	100%
Road 8	8	-	50	45	N	0400-0500	21	14.29%	0.00%	0.00%	4.76%	4.76%	4.76%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	38.10%	0.00%	100%
Road 8	8	-	50	45	N	0500-0600	34	14.71%	0.00%	0.00%	5.88%	5.88%	5.88%	35.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	29.41%	0.00%	100%
Road 8	8	-	50	39.93333	N	0600-0700	62	11.29%	1.61%	1.61%	8.06%	6.45%	6.45%	33.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.61%	29.03%	0.00%	100%
Road 8	8	-	50	38.63333	N	0700-0800	101	12.87%	0.99%	0.99%	7.92%	6.93%	4.95%	22.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.97%	39.60%	0.00%	100%
Road 8	8	-	50	35.66667	N	0800-0900	190	8.42%	0.53%	2.63%	12.11%	7.37%	4.74%	25.79%	1.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	37.37%	0.00%	100%
Road 8	8	-	50	36.76667	N	0900-1000	157	7.64%	0.00%	3.18%	7.01%	7.64%	9.55%	27.39%	0.00%	0.00%	0.00%	0.64%	0.00%	1.27%	0.00%	0.00%	0.00%	35.67%	0.00%	100%
Road 8	8	-	50	36.73333	N	1000-1100	158	8.23%	0.00%	1.27%	9.49%	5.70%	5.70%	36.71%	1.27%	0.00%	0.00%	0.00%	1.27%	0.00%	0.00%	0.00%	1.27%	29.11%	0.00%	100%
Road 8	8	-	50	36.7	N	1100-1200	159	11.32%	0.00%	2.52%	4.40%	3.14%	5.66%	34.59%	0.00%	0.00%	0.00%	0.00%	0.63%	0.00%	0.00%	0.00%	0.63%	37.11%	0.00%	100%
Road 8	8	-	50	36.36667	N	1200-1300	169	10.06%	1.18%	1.18%	6.51%	4.14%	5.33%	32.54%	0.00%	0.00%	0.00%	0.00%	0.00%	0.59%	0.00%	0.00%	0.59%	37.87%	0.00%	100%
Road 8	8	-	50	36.66667	N	1300-1400	160	12.50%	0.63%	1.25%	9.38%	6.88%	6.25%	29.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.63%	0.00%	0.00%	1.25%	31.88%	0.00%	100%
Road 8	8	-	50	37.36667	N	1400-1500	139	15.11%	0.72%	2.16%	7.19%	5.04%	2.88%	27.34%	0.00%	0.00%	0.00%	0.00%	0.00%	1.44%	0.00%	0.00%	0.72%	37.41%	0.00%	100%
Road 8	8	-	50	37.43333	N	1500-1600	137	13.87%	1.46%	1.46%	5.11%	4.38%	5.11%	32.12%	0.73%	0.00%	0.00%	0.00%	0.00%	0.73%	0.00%	0.00%	1.46%	33.58%	0.00%	100%
Road 8	8	-	50	37.13333	N	1600-1700	146	10.27%	0.00%	1.37%	8.90%	7.53%	4.79%	34.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.74%	30.14%	0.00%	100%
Road 8	8	-	50	36.8	N	1700-1800	156	21.79%	0.64%	0.64%	7.69%	3.85%	3.21%	24.36%	0.00%	0.00%	0.00%	0.00%	0.00%	1.28%	0.00%	0.00%	7.05%	29.49%	0.00%	100%
Road 8	8	-	50	38.43333	N	1800-1900	107	21.50%	1.87%	0.93%	9.35%	2.80%	1.87%	18.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.80%	40.19%	0.00%	100%
Road 8	8	-	50	45	N	1900-2000	77	14.29%	1.30%	0.00%	7.79%	2.60%	1.30%	32.47%	0.00%	0.00%	0.00%	0.00%	0.00%	1.30%	0.00%	0.00%	0.00%	38.96%	0.00%	100%
Road 8	8	-	50	45	N	2000-2100	76	10.53%	2.63%	0.00%	1.32%	5.26%	7.89%	22.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.95%	46.05%	0.00%	100%
Road 8	8	-	50	45	N	2100-2200	53	13.21%	9.43%	0.00%	5.66%	5.66%	1.89%	26.42%	0.00%	0.00%	0.00%	0.00%	0.00%	3.77%	0.00%	0.00%	1.89%	32.08%	0.00%	100%
Road 8	8	-	50	39.86667	N	2200-2300	64	14.06%	3.13%	1.56%	4.69%	3.13%	4.69%	29.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.13%	35.94%	0.00%	100%
Road 8	8	-	50	40.66667	N	2300-0000	52	25.00%	1.92%	1.92%	9.62%	3.85%	1.92%	17.31%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.92%	36.54%	0.00%	100%
Road 9	9	-	50	35	Y	0000-0100	14	28.57%	7.14%	0.00%	21.43%	7.14%	7.14%	21.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.14%	0.00%	100%
Road 9	9	-	50	35	Y	0100-0200	11	27.27%	9.09%	0.00%	18.18%	9.09%	9.09%	18.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.09%	0.00%	100%
Road 9	9	-	50	35	Y	0200-0300	5	40.00%	20.00%	0.00%	20.00%	0.00%	0.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
Road 9	9	-	50	35	Y	0300-0400	4	50.00%	0.00%	0.00%	25.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
Road 9	9	-	50	35	Y	0400-0500	10	30.00%	10.00%	0.00%	10.00%	10.00%	10.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	100%
Road 9	9	-	50	35	Y	0500-0600	17	35.29%	11.76%	0.00%	11.76%	5.88%	5.88%	17.65%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.88%	5.88%	0.00%	100%
Road 9	9	-	50	35	Y	0600-0700	32	25.00%	9.38%	0.00%	15.63%	6.25%	6.25%	18.75%	9.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.13%	6.25%	0.00%	100%
Road 9	9	-	50	33	Y	0700-0800	48	29.17%	8.33%	2.08%	16.67%	6.25%	4.17%	12.50%	10.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.25%	4.17%	0.00%	100%
Road 9	9	-	50	30.20833	Y	0800-0900	115	16.52%	7.83%	3.48%	18.26%	9.57%	3.48%	28.70%	4.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.74%	6.09%	0.00%	100%
Road 9	9	-	50	31.41667	Y	0900-1000	86	25.58%	5.81%	4.65%	10.47%	8.14%	6.98%	17.44%	6.98%	0.00%	0.00%	1.16%	1.16%	0.00%	0.00%	0.00%	1.16%	10.47%	0.00%	100%
Road 9	9	-	50	32.04167	Y	1000-1100	71	21.13%	5.63%	1.41%	14.08%	4.23%	12.68%	22.54%	4.23%	0.00%	0.00%	0.00%	1.41%	0.00%	0.00%	0.00%	0.00%	12.68%	0.00%	100%
Road 9	9	-	50	31.91667	Y	1100-1200	74	28.38%	2.70%	1.35%	18.92%	0.00%	9.46%	21.62%	5.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.05%	8.11%	0.00%	100%
Road 9	9	-	50	31.95833	Y	1200-1300	73	15.07%	9.59%	1.37%	17.81%	10.96%	9.59%	26.03%	2.74%	0.00%	0.00%	0.00%	0.00%	1.37%	0.00%	0.00%	1.37%	4.11%	0.00%	100%
Road 9	9	-	50	32.5	Y	1300-1400	60	11.67%	0.00%	3.33%	21.67%	16.67%	16.67%	15.00%	5.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	100%
Road 9	9	-	50	32.16667	Y	1400-1500	68	27.94%	8.82%	1.47%	17.65%	11.76%	0.00%	17.65%	5.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.47%	7.35%	0.00%	100%
Road 9	9	-	50	35	Y	1500-1600	57	38.60%	5.26%	0.00%	10.53%	5.26%	3.51%	19.30%	8.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.75%	7.02%	0.00%	100%
Road 9	9	-	50	35	Y	1600-1700	79	29.11%	3.80%	0.00%	29.11%	6.33%	1.27%	17.72%	5.06%	0.00%	0.00%	0.00%	0.00%	1.27%	0.00%	0.00%	1.27%	5.06%	0.00%	100%
Road 9	9	-	50	35	Y	1700-1800	68	41.18%	1.47%	0.00%	19.12%	4.41%	2.94%	7.35%	8.82%	0.00%	0.00%	0.00%	0.00%	1.47%	0.00%	0.00%	5.88%	7.35%	0.00%	100%
Road 9	9	-	50	35	Y	1800-1900	44	40.91%	11.36%	0.00%	15.91%	4.55%	4.55%	9.09%	4.55%	0.00%	0.00%	0.00%	0.00%	2.27%	0.00%	0.00%	4.55%	2.27%	0.00%	100%
Road 9	9	-	50	35	Y	1900-2000	43	25.58%	18.60%	0.00%	18.60%	4.65%	2.33%	13.95%	0.00%	0.00%	0.00%	0.00%	2.33%	0.00%	0.00%	0.00%	11.63%	2.33%	0.00%	100%
Road 9	9	-	50	35	Y	2000-2100	29	34.48%	20.69%	0.00%	3.45%	6.90%	13.79%	6.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.90%	6.90%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2027)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Road 9	9	-	50	35	Y	2100-2200	27	55.56%	14.81%	0.00%	29.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
Road 9	9	-	50	35	Y	2200-2300	33	33.33%	15.15%	0.00%	12.12%	6.06%	6.06%	18.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.03%	6.06%	0.00%	100%
Road 9	9	-	50	35	Y	2300-0000	30	40.00%	13.33%	0.00%	16.67%	6.67%	3.33%	13.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.33%	3.33%	0.00%	100%
Road 10	10	-	50	35	Y	0000-0100	45	13.33%	4.44%	0.00%	6.67%	2.22%	2.22%	24.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.22%	44.44%	0.00%	100%
Road 10	10	-	50	35	Y	0100-0200	34	14.71%	2.94%	0.00%	8.82%	2.94%	2.94%	23.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.94%	41.18%	0.00%	100%
Road 10	10	-	50	35	Y	0200-0300	19	15.79%	5.26%	0.00%	5.26%	0.00%	5.26%	31.58%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.84%	0.00%	100%
Road 10	10	-	50	35	Y	0300-0400	12	16.67%	8.33%	0.00%	8.33%	0.00%	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	100%
Road 10	10	-	50	35	Y	0400-0500	23	13.04%	4.35%	0.00%	8.70%	4.35%	4.35%	30.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	34.78%	0.00%	100%
Road 10	10	-	50	35	Y	0500-0600	41	19.51%	4.88%	0.00%	7.32%	4.88%	4.88%	31.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.44%	24.39%	0.00%	100%
Road 10	10	-	50	31.58333	Y	0600-0700	82	13.41%	3.66%	1.22%	7.32%	4.88%	6.10%	31.71%	3.66%	0.00%	0.00%	0.00%	0.00%	1.22%	0.00%	0.00%	2.44%	24.39%	0.00%	100%
Road 10	10	-	50	29.85	Y	0700-0800	129	15.50%	3.88%	0.78%	8.53%	4.65%	4.65%	22.48%	3.88%	0.00%	0.00%	0.00%	0.00%	0.78%	0.00%	0.00%	3.10%	31.78%	0.00%	100%
Road 10	10	-	50	27.88333	Y	0800-0900	247	11.34%	3.24%	2.43%	9.72%	2.02%	4.45%	31.17%	2.83%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.81%	31.98%	0.00%	100%
Road 10	10	-	50	28.73333	Y	0900-1000	196	8.16%	3.06%	2.55%	8.16%	4.59%	5.61%	29.08%	3.06%	0.00%	0.00%	0.00%	0.51%	1.02%	0.00%	0.00%	1.02%	33.16%	0.00%	100%
Road 10	10	-	50	28.45	Y	1000-1100	213	11.74%	1.88%	1.41%	7.98%	5.63%	7.51%	33.33%	2.35%	0.00%	0.00%	0.00%	0.47%	0.00%	0.00%	0.00%	0.94%	26.76%	0.00%	100%
Road 10	10	-	50	28.45	Y	1100-1200	213	12.68%	0.94%	1.41%	8.45%	2.35%	6.57%	34.27%	1.88%	0.00%	0.00%	0.00%	0.47%	0.00%	0.00%	0.00%	0.94%	30.05%	0.00%	100%
Road 10	10	-	50	28.33333	Y	1200-1300	220	10.91%	3.18%	0.91%	8.18%	5.00%	5.91%	33.64%	0.91%	0.00%	0.00%	0.00%	0.00%	0.91%	0.00%	0.00%	0.91%	29.55%	0.00%	100%
Road 10	10	-	50	28.8	Y	1300-1400	192	10.42%	0.52%	1.04%	11.46%	6.77%	6.77%	29.69%	1.56%	0.00%	0.00%	0.00%	0.00%	0.52%	0.00%	0.00%	1.04%	30.21%	0.00%	100%
Road 10	10	-	50	29	Y	1400-1500	180	12.78%	3.89%	1.11%	11.67%	6.11%	2.22%	27.22%	2.22%	0.00%	0.00%	0.00%	0.00%	1.11%	0.00%	0.00%	1.11%	30.56%	0.00%	100%
Road 10	10	-	50	28.93333	Y	1500-1600	184	15.22%	2.72%	1.09%	8.15%	3.80%	5.43%	31.52%	1.63%	0.00%	0.00%	0.00%	0.00%	0.54%	0.00%	0.00%	0.54%	29.35%	0.00%	100%
Road 10	10	-	50	28.58333	Y	1600-1700	205	14.15%	0.98%	0.98%	15.12%	6.34%	2.93%	32.20%	1.95%	0.00%	0.00%	0.00%	0.00%	0.49%	0.00%	0.00%	1.46%	23.41%	0.00%	100%
Road 10	10	-	50	28.8	Y	1700-1800	192	23.44%	1.04%	0.52%	11.98%	3.65%	3.65%	22.92%	2.60%	0.00%	0.00%	0.00%	0.00%	1.56%	0.00%	0.00%	2.60%	26.04%	0.00%	100%
Road 10	10	-	50	29.98333	Y	1800-1900	121	19.83%	2.48%	0.83%	9.09%	4.13%	3.31%	19.01%	1.65%	0.00%	0.00%	0.00%	0.00%	0.83%	0.00%	0.00%	2.48%	36.36%	0.00%	100%
Road 10	10	-	50	35	Y	1900-2000	109	16.51%	9.17%	0.00%	5.50%	1.83%	1.83%	28.44%	0.92%	0.00%	0.00%	0.00%	0.92%	0.92%	0.00%	0.00%	4.59%	29.36%	0.00%	100%
Road 10	10	-	50	35	Y	2000-2100	72	11.11%	5.56%	0.00%	0.00%	2.78%	5.56%	27.78%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%	45.83%	0.00%	100%
Road 10	10	-	50	35	Y	2100-2200	72	20.83%	11.11%	0.00%	11.11%	4.17%	1.39%	23.61%	0.00%	0.00%	0.00%	0.00%	0.00%	2.78%	0.00%	0.00%	1.39%	23.61%	0.00%	100%
Road 10	10	-	50	35	Y	2200-2300	75	20.00%	6.67%	0.00%	6.67%	2.67%	5.33%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.33%	0.00%	0.00%	1.33%	36.00%	0.00%	100%
Road 10	10	-	50	32.08333	Y	2300-0000	70	22.86%	5.71%	1.43%	10.00%	2.86%	2.86%	21.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.43%	31.43%	0.00%	100%
Road 11	11	-	50	35	Y	0000-0100	44	9.09%	2.27%	0.00%	6.82%	2.27%	2.27%	6.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	70.45%	0.00%	100%
Road 11	11	-	50	35	Y	0100-0200	31	9.68%	3.23%	0.00%	6.45%	3.23%	3.23%	6.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	67.74%	0.00%	100%
Road 11	11	-	50	35	Y	0200-0300	15	13.33%	6.67%	0.00%	6.67%	0.00%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	66.67%	0.00%	100%
Road 11	11	-	50	35	Y	0300-0400	14	14.29%	0.00%	0.00%	7.14%	0.00%	0.00%	7.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	71.43%	0.00%	100%
Road 11	11	-	50	35	Y	0400-0500	20	15.00%	5.00%	0.00%	5.00%	5.00%	5.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	55.00%	0.00%	100%
Road 11	11	-	50	35	Y	0500-0600	27	22.22%	7.41%	0.00%	7.41%	3.70%	3.70%	11.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.70%	40.74%	0.00%	100%
Road 11	11	-	50	35	Y	0600-0700	52	15.38%	5.77%	0.00%	9.62%	3.85%	3.85%	11.54%	5.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.92%	42.31%	0.00%	100%
Road 11	11	-	50	30.5	Y	0700-0800	108	12.96%	3.70%	0.93%	7.41%	2.78%	1.85%	5.56%	4.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.78%	57.41%	0.00%	100%
Road 11	11	-	50	28.58333	Y	0800-0900	205	11.22%	4.39%	1.95%	10.24%	5.37%	1.95%	16.10%	2.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.98%	45.37%	0.00%	100%
Road 11	11	-	50	29.56667	Y	0900-1000	146	15.07%	3.42%	2.74%	6.16%	4.79%	4.11%	10.27%	4.11%	0.00%	0.00%	0.68%	0.68%	0.00%	0.00%	0.00%	0.68%	47.26%	0.00%	100%
Road 11	11	-	50	30.04167	Y	1000-1100	119	12.61%	3.36%	0.84%	8.40%	2.52%	7.56%	13.45%	2.52%	0.00%	0.00%	0.00%	0.84%	0.00%	0.00%	0.00%	0.00%	47.90%	0.00%	100%
Road 11	11	-	50	29.76667	Y	1100-1200	134	15.67%	1.49%	0.75%	10.45%	0.00%	5.22%	11.94%	2.99%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.24%	49.25%	0.00%	100%
Road 11	11	-	50	29.28333	Y	1200-1300	163	9.20%	4.29%	0.61%	7.98%	4.91%	4.29%	11.66%	1.23%	0.00%	0.00%	0.00%	0.00%	0.61%	0.00%	0.00%	0.61%	54.60%	0.00%	100%
Road 11	11	-	50	30	Y	1300-1400	120	5.83%	0.00%	1.67%	10.83%	8.33%	8.33%	7.50%	2.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	55.00%	0.00%	100%
Road 11	11	-	50	30.16667	Y	1400-1500	116	16.38%	5.17%	0.86%	10.34%	6.90%	0.00%	10.34%	3.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.86%	45.69%	0.00%	100%
Road 11	11	-	50	35	Y	1500-1600	117	18.80%	2.56%	0.00%	5.13%	2.56%	1.71%	9.40%	4.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.85%	54.70%	0.00%	100%
Road 11	11	-	50	35	Y	1600-1700	139	16.55%	2.16%	0.00%	16.55%	3.60%	0.72%	10.07%	2.88%	0.00%	0.00%	0.00%	0.00%	0.72%	0.00%	0.00%	0.72%	46.04%	0.00%	100%
Road 11	11	-	50	35	Y	1700-1800	142	21.13%	0.70%	0.00%	9.15%	2.11%	1.41%	3.52%	4.23%	0.00%	0.00%	0.00%	0.00%	0.70%	0.00%	0.00%	2.82%	54.23%	0.00%	100%
Road 11	11	-	50	35	Y	1800-1900	118	16.95%	4.24%	0.00%	5.93%	1.69%	1.69%	3.39%	1.69%	0.00%	0.00%	0.00%	0.00%	0.85%	0.00%	0.00%	1.69%	61.86%	0.00%	100%
Road 11	11	-	50	35	Y	1900-2000	91	12.09%	8.79%	0.00%	8.79%	2.20%	1.10%	6.59%	0.00%	0.00%	0.00%	0.00%	1.10%	0.00%	0.00%	0.00%	5.49%	53.85%	0.00%	100%
Road 11	11	-	50	35	Y	2000-2100	81	17.28%	7.41%	0.00%	1.23%	2.47%	4.94%	2.47%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.47%	61.73%	0.00%	100%
Road 11	11	-	50	35	Y	2100-2200	57	26.32%	7.02%	0.00%	14.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	52.63%	0.00%	100%
Road 11	11	-	50	35	Y	2200-2300	63	17.46%	7.94%	0.00%	6.35%	3.17%	3.17%	9.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.59%	50.79%	0.00%	100%
Road 11	11	-	50	35	Y	2300-0000	60	20.00%	6.67%	0.00%	8.33%	3.33%	1.67%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.67%	51.67%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0000-0100	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0100-0200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0200-0300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0300-0400	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0400-0500	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0500-0600	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0600-0700	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0700-0800	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0800-0900	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	0900-1000	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1000-1100	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1100-1200	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1200-1300	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1300-1400	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1400-1500	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1500-1600	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1600-1700	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1700-1800	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1800-1900	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	1900-2000	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons
Traffic Data and Road Segments (Year 2027)

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
Haul Road 1	HR1	-	8	8	N	2000-2100	90	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	2100-2200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	2200-2300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 1	HR1	-	8	8	N	2300-0000	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0000-0100	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0100-0200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0200-0300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0300-0400	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0400-0500	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0500-0600	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0600-0700	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0700-0800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0800-0900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	0900-1000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1000-1100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1100-1200	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1200-1300	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1300-1400	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1400-1500	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1500-1600	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1600-1700	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1700-1800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1800-1900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	1900-2000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	2000-2100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	2100-2200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	2200-2300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 2	HR2	-	8	8	N	2300-0000	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0000-0100	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0100-0200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0200-0300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0300-0400	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0400-0500	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0500-0600	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0600-0700	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0700-0800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0800-0900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	0900-1000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1000-1100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1100-1200	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1200-1300	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1300-1400	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1400-1500	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1500-1600	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1600-1700	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1700-1800	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1800-1900	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	1900-2000	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	2000-2100	45	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	2100-2200	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	2200-2300	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%
Haul Road 3	HR3	-	8	8	N	2300-0000	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%	0.00%	100%

Appendix 3.4 Calculation of Vehicular Emisisons

Traffic Data and Road Segments (Year 2027)

Road ID	Segment ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Road height (mAG)	Physical Road width (m)	Road elevation (m)	Barrier 1 width (m)	Barrier 1 height (m)	Barrier 1 DCL (m)	Barrier 2 width (m)	Barrier 2 height (m)	Barrier 2 DCL (m)
1	101	828242.3	824610.5	828289.6	824616.5	0	8.8							
1	102	828289.6	824616.5	828345.2	824613.2	0	8.8							
1	103	828345.2	824613.2	828393.7	824604.3	0	8.8							
2	201	828243.6	824599.7	828289.2	824602.8	0	6							
2	202	828289.2	824602.8	828319.6	824603.4	0	6							
2	203	828319.6	824603.4	828361.2	824598.3	0	6							
2	204	828361.2	824598.3	828391.9	824591.4	0	6							
3	301	827622.1	824564.9	827684.2	824567.6	0	14.5							
3	302	827684.2	824567.6	827744.3	824569.4	0	9.5							
3	303	827744.3	824569.4	827964.2	824571.3	15	8.8	20						
3	304	827964.2	824571.3	828081.5	824573.3	0	10.7							
3	305	828081.5	824573.3	828242.6	824603.5	0	14.6							
4	401	827377.9	824531.6	827454.6	824530.9	0	6							
4	402	827454.6	824530.9	827480.4	824531.6	0	6							
4	403	827480.4	824531.6	827514.3	824536.6	0	6							
4	404	827514.3	824536.6	827566.9	824551.5	0	6							
4	405	827566.9	824551.5	827622.4	824561.6	0	6							
5	501	827368.6	824570.9	827455.4	824571.3	12	8.8	25						
5	502	827455.4	824571.3	827555.4	824571.4	25	8.8	20						
5	503	827555.4	824571.4	827622.4	824570.1	10	8.8	25						
6	601	827366.9	824580.9	827460.9	824580.1	10	8.8	25						
6	602	827460.9	824580.1	827610.6	824580.7	30	8.8	22						
6	603	827610.6	824580.7	827733.2	824581.3	0	8.8							
6	604	827733.2	824581.3	828037.8	824582.2	15	8.8	20						
7	701	828037.6	824586.5	828080.8	824587.4	0	17.7							
7	702	828080.8	824587.4	828201.9	824614.1	0	14.9		1	5	7.5			
7	703	828201.9	824614.1	828267.3	824626.1	0	14.9		1	5	7.5			
7	704	828267.3	824626.1	828346.3	824627.8	0	15.5		1	5	7.75			
7	705	828346.3	824627.8	828395.2	824618.9	0	17.7		1	5	8.85			
8	801	827738.6	824652.6	827741.8	824624.8	0	7.75							
8	802	827741.8	824624.8	827761.8	824604.4	0	7.75							
8	803	827761.8	824604.4	827791.9	824599.8	0	7.75							
8	804	827791.9	824599.8	827913.9	824595.7	0	7.75							
8	805	827913.9	824595.7	828037.8	824592.1	0	7.75							
9	901	827882.4	824651.4	827956.1	824648.4	0	10.5							
9	902	827956.1	824648.4	827974.8	824648.9	0	12.4							
9	903	827974.8	824648.9	828037.8	824627.1	0	8							
9	904	828037.8	824627.1	828058.9	824623.6	0	7.9							
9	905	828058.9	824623.6	828088	824624.9	0	7.9							
9	906	828088	824624.9	828155.8	824654.4	0	7.9							
9	907	828155.8	824654.4	828269.5	824708.4	0	10.15							
9	908	828269.5	824708.4	828357.8	824774.9	0	5.5							
9	909	828357.8	824774.9	828400.6	824792.5	0	10.5							
10	1001	827359.4	824666.1	827665.9	824660.6	0	10.2							
10	1002	827665.9	824660.6	827700.1	824659.6	0	10.5							
10	1003	827700.1	824659.6	827738.6	824652.6	0	10.5							
11	1101	827738.6	824652.6	827818.3	824648.1	0	10							
11	1102	827818.3	824648.1	827882.4	824651.4	0	10							
HR1	HR1	827867.4	824736.8	827898.8	824735.9	0	7.3							
HR2	HR2	827878.3	824733.2	827876.4	824656.6	0	3.65							
HR3	HR3	827882	824733.1	827880.4	824656.6	0	3.65							

Appendix 3.4 Calculation of Vehicular Emisisons

Traffic Data and Road Segments (Year 2027)

Start Profile	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9
Y	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	1	0	0
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Remarks:

Y:

The start profile 'Y' is adopted for Tam Kon Shan Road (Road 9, 10 and 11)
- As indicated on Annex I on Appendix 3.4, no parking is allowed on Tam Kon Shan Road.
- There are no bus stops on Tam Kon Shan Road and hence no engine start from FBSD, FBDD and NFB9 is expected
- Most of the HGVs along the local roads in the assessment area are the working vehicles travelling to/from the Project, other industrial buildings and dockyards on Tam Kon Shan Road, which includes concrete mixer trucks and cement tankers. These working vehicles are not supposed to park along these roads, i.e. no engine start is expected.
- To account for parking in Tsing Yi Northeast Park Car Park, vehicle classes that can park inside Tsing Yi Northeast Park Car Park (including PC, TAXI, LGV3, LGV4, LGV6, PLB, PV4, PV5, NFB6, NFB7, NFB8 and MC, i.e.

N:

No start emission under broad-brush approach.

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2027

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 1	1	0000-0100	0.111237571	3.695E-07	0.001097284	0.6604901	2.194E-06	0.006515289	0.7717277	2.564E-06	0.007612573	0.0295577	9.819E-08	0.000291567	0.0321514	1.068E-07	0.000317151
Road 1	1	0100-0200	0.086261574	1.749E-07	0.000519201	0.524337	1.063E-06	0.003155938	0.6105986	1.238E-06	0.003675138	0.0235516	4.774E-08	0.000141755	0.0256283	5.195E-08	0.000154255
Road 1	1	0200-0300	0.082569351	1.193E-07	0.000354327	0.5337818	7.714E-07	0.002290597	0.6163512	8.907E-07	0.002644923	0.0229326	3.314E-08	9.84097E-05	0.0249506	3.606E-08	0.00010707
Road 1	1	0300-0400	0.070637818	7.292E-08	0.000216518	0.4358251	4.499E-07	0.001335885	0.5064629	5.228E-07	0.001552403	0.0186413	1.924E-08	5.7139E-05	0.0202564	2.091E-08	6.20895E-05
Road 1	1	0400-0500	0.091992	1.468E-07	0.000435776	0.5297741	8.452E-07	0.002509596	0.6217661	9.919E-07	0.002945372	0.0235195	3.752E-08	0.000111414	0.0255875	4.082E-08	0.000121211
Road 1	1	0500-0600	0.074330695	2.609E-07	0.000774647	0.4442181	1.559E-06	0.004629478	0.5185488	1.82E-06	0.005404125	0.0192076	6.741E-08	0.000200175	0.0209021	7.336E-08	0.000217834
Road 1	1	0600-0700	0.10076003	6.279E-07	0.00186432	0.5454343	3.399E-06	0.01009194	0.6461943	4.027E-06	0.01195626	0.0239741	1.494E-07	0.000443583	0.0260846	1.625E-07	0.000482633
Road 1	1	0700-0800	0.084855206	8.903E-07	0.002643531	0.4745216	4.979E-06	0.014782977	0.5593768	5.869E-06	0.017426508	0.0198026	2.078E-07	0.000616918	0.021522	2.258E-07	0.000670484
Road 1	1	0800-0900	0.090743445	1.167E-06	0.003464176	0.4873041	6.265E-06	0.018603077	0.5780476	7.432E-06	0.022067253	0.0211051	2.713E-07	0.000805697	0.0229375	2.949E-07	0.000875651
Road 1	1	0900-1000	0.09421587	1.25E-06	0.003712253	0.5311451	7.048E-06	0.020927952	0.625361	8.298E-06	0.024640205	0.0226632	3.007E-07	0.000892967	0.024628	3.268E-07	0.000970384
Road 1	1	1000-1100	0.109512591	1.412E-06	0.004192904	0.5915779	7.628E-06	0.022649716	0.7010905	9.04E-06	0.02684262	0.026403	3.404E-07	0.00101089	0.0287034	3.701E-07	0.001098966
Road 1	1	1100-1200	0.09912934	1.241E-06	0.00368487	0.5727828	7.171E-06	0.021291678	0.6719121	8.412E-06	0.024976548	0.0251282	3.146E-07	0.000934075	0.0273182	3.42E-07	0.00101548
Road 1	1	1200-1300	0.102095485	1.265E-06	0.0037553	0.5854084	7.252E-06	0.021532625	0.6875038	8.516E-06	0.025287924	0.0260873	3.232E-07	0.000959549	0.0283595	3.513E-07	0.001043125
Road 1	1	1300-1400	0.106907749	1.409E-06	0.004182543	0.5996297	7.901E-06	0.023459264	0.7065375	9.309E-06	0.027641807	0.0264733	3.488E-07	0.001035712	0.028768	3.79E-07	0.001125489
Road 1	1	1400-1500	0.102272889	1.468E-06	0.004360297	0.5596563	8.036E-06	0.023860359	0.6619292	9.504E-06	0.028220656	0.024664	3.541E-07	0.001051523	0.0268339	3.853E-07	0.001144034
Road 1	1	1500-1600	0.109643597	1.459E-06	0.004332351	0.5981603	7.96E-06	0.023635127	0.7078039	9.419E-06	0.027967478	0.02588	3.444E-07	0.001022596	0.0281285	3.743E-07	0.001111442
Road 1	1	1600-1700	0.105236578	1.477E-06	0.004386947	0.5810324	8.157E-06	0.024221223	0.686269	9.635E-06	0.02860817	0.0252447	3.544E-07	0.001052363	0.0274614	3.855E-07	0.001144769
Road 1	1	1700-1800	0.08453824	1.19E-06	0.003533528	0.4768839	6.713E-06	0.019932789	0.5614222	7.903E-06	0.023466318	0.0204412	2.877E-07	0.000854403	0.0222445	3.131E-07	0.000929777
Road 1	1	1800-1900	0.075446094	1.088E-06	0.003229179	0.4532148	6.533E-06	0.019398112	0.5286609	7.62E-06	0.022627291	0.0188845	2.722E-07	0.000808279	0.0205534	2.963E-07	0.00087971
Road 1	1	1900-2000	0.090214505	9.922E-07	0.00294624	0.5213721	5.734E-06	0.017027054	0.6115866	6.727E-06	0.019973294	0.0226801	2.494E-07	0.00074069	0.0246436	2.71E-07	0.000804816
Road 1	1	2000-2100	0.081691149	7.605E-07	0.00225814	0.4848937	4.514E-06	0.013403627	0.5665849	5.275E-06	0.015661767	0.0212723	1.98E-07	0.000588016	0.0231086	2.151E-07	0.000638777
Road 1	1	2100-2200	0.08629936	7.337E-07	0.002178712	0.5154466	4.382E-06	0.013012958	0.601746	5.116E-06	0.01519167	0.023097	1.964E-07	0.000583106	0.0250932	2.133E-07	0.000633504
Road 1	1	2200-2300	0.084032807	6.798E-07	0.00201846	0.5005805	4.049E-06	0.012023899	0.5846133	4.729E-06	0.014042359	0.0218333	1.766E-07	0.000524434	0.0237178	1.919E-07	0.000569699
Road 1	1	2300-0000	0.073684468	5.324E-07	0.001580996	0.457873	3.309E-06	0.009824261	0.5315575	3.841E-06	0.011405257	0.0187971	1.358E-07	0.000403315	0.0204167	1.475E-07	0.000438066
Road 2	2	0000-0100	0.186496471	2.202E-07	0.000518969	0.7967794	9.406E-07	0.00221722	0.9832759	1.161E-06	0.002736189	0.0288451	3.405E-08	8.02681E-05	0.0313673	3.703E-08	8.72865E-05
Road 2	2	0100-0200	0.132735152	1.014E-07	0.000239001	0.6627006	5.062E-07	0.001193251	0.7954358	6.076E-07	0.001432253	0.0255539	1.952E-08	4.60121E-05	0.0277888	2.123E-08	5.00362E-05
Road 2	2	0200-0300	0.132632609	7.061E-08	0.000166448	0.7305678	3.89E-07	0.00091683	0.8632004	4.596E-07	0.001083278	0.0278426	1.482E-08	3.49412E-05	0.0302774	1.612E-08	3.79968E-05
Road 2	2	0300-0400	0.117058	4.065E-08	9.58061E-05	0.432482	1.502E-07	0.000353965	0.54954	1.908E-07	0.000449771	0.014974	5.199E-09	1.22555E-05	0.016278	5.652E-09	1.33227E-05
Road 2	2	0400-0500	0.157561481	9.848E-08	0.000232121	0.7679811	4.8E-07	0.001131397	0.9255426	5.785E-07	0.001363518	0.03013	1.883E-08	4.43878E-05	0.032757	2.047E-08	4.8258E-05
Road 2	2	0500-0600	0.125562105	1.657E-07	0.000390512	0.5622037	7.418E-07	0.001748514	0.6877658	9.075E-07	0.002139026	0.0202319	2.669E-08	6.29235E-05	0.0219853	2.901E-08	6.83765E-05
Road 2	2	0600-0700	0.178694466	4.261E-07	0.001004266	0.731625	1.744E-06	0.004111747	0.9103195	2.17E-06	0.005116013	0.0263127	6.274E-08	0.000147878	0.0286317	6.827E-08	0.000160911
Road 2	2	0700-0800	0.142382848	5.208E-07	0.001227483	0.6093354	2.229E-06	0.005253081	0.7517183	2.749E-06	0.006480564	0.0207072	7.573E-08	0.000178517	0.0225491	8.247E-08	0.000194395
Road 2	2	0800-0900	0.160599333	1.115E-06	0.002628849	0.6869011	4.77E-06	0.011243877	0.8475005	5.885E-06	0.013872725	0.023576	1.637E-07	0.000385915	0.0256514	1.781E-07	0.000419887
Road 2	2	0900-1000	0.18191565	1.036E-06	0.002441776	0.7916101	4.508E-06	0.010625442	0.9735257	5.544E-06	0.013067218	0.0269049	1.532E-07	0.000361133	0.0292511	1.666E-07	0.000392625
Road 2	2	1000-1100	0.202295163	8.616E-07	0.002030972	0.8725405	3.716E-06	0.008759998	1.0748357	4.578E-06	0.01079097	0.0308689	1.315E-07	0.000309913	0.0335577	1.429E-07	0.000336907
Road 2	2	1100-1200	0.245050276	1.027E-06	0.002420106	1.0077527	4.222E-06	0.009952521	1.2528029	5.249E-06	0.012372627	0.0367785	1.541E-07	0.000363223	0.0399814	1.675E-07	0.000394854
Road 2	2	1200-1300	0.186985532	8.137E-07	0.001918079	0.8284986	3.606E-06	0.008498656	1.0154841	4.419E-06	0.010416734	0.028888	1.257E-07	0.000296331	0.0314112	1.367E-07	0.000322213
Road 2	2	1300-1400	0.207430864	1.056E-06	0.002489985	0.8617694	4.389E-06	0.010344615	1.0692003	5.445E-06	0.0128346	0.0309237	1.575E-07	0.000371206	0.033628	1.713E-07	0.000403667
Road 2	2	1400-1500	0.180745215	6.82E-07	0.001607515	0.785008	2.962E-06	0.006981718	0.9657533	3.644E-06	0.008589233	0.0281667	1.063E-07	0.00025051	0.0306401	1.156E-07	0.000272507
Road 2	2	1500-1600	0.222025419	9.2E-07	0.002168484	0.8949129	3.708E-06	0.008740462	1.1169383	4.628E-06	0.010908947	0.0328236	1.36E-07	0.000320583	0.0356829	1.479E-07	0.000348509
Road 2	2	1600-1700	0.190473973	9.656E-07	0.002276042	0.8102122	4.107E-06	0.009681519	1.0006862	5.073E-06	0.011957561	0.0276943	1.404E-07	0.000330929	0.0301064	1.526E-07	0.000359752
Road 2	2	1700-1800	0.144703641	7.269E-07	0.001713325	0.580189	2.914E-06	0.006869575	0.7248927	3.641E-06	0.0085829	0.0201734	1.013E-07	0.000238857	0.0219457	1.102E-07	0.000259842
Road 2	2	1800-1900	0.159171734	9.138E-07	0.002153864	0.7396406	4.246E-06	0.010008593	0.8988123	5.16E-06	0.012162456	0.0270214	1.551E-07	0.000365645	0.0293781	1.687E-07	0.000397536
Road 2	2	1900-2000	0.136138554	5.231E-07	0.001233076	0.6322315	2.429E-06	0.005726441	0.7683701	2.953E-06	0.006959517	0.02258	8.677E-08	0.000204519	0.0245514	9.434E-08	0.000222374
Road 2	2	2000-2100	0.134048219	4.53E-07	0.00106786	0.5709146	1.929E-06	0.004548043	0.7049628	2.383E-06	0.005615904	0.0197999	6.692E-08	0.000157731	0.0215521	7.284E-08	0.000171689
Road 2	2	2100-2200	0.103788224	3.652E-07	0.00086078	0.4788232	1.685E-06	0.003971178	0.5826114	2.05E-06	0.004831958	0.0160032	5.631E-08	0.000132725	0.0174279	6.132E-08	0.00014454
Road 2	2	2200-2300	0.14872688	4.303E-07	0.001014379	0.6422751	1.858E-06	0.004380581	0.791002	2.289E-06	0.005394959	0.0228898	6.623E-08	0.000156118	0.0249009	7.205E-08	0.000169834
Road 2	2	2300-0000	0.134906727	3.435E-07	0.000809705	0.6164949	1.57E-06	0.003700179	0.7514016	1.913E-06	0.004509884	0.0211394	5.383E-08	0.000126878	0.0229976	5.856E-08	0.000138031
Road 3	3	0000-0100	0.11623607	4.269E-07	0.006056866	0.642787	2.361E-06	0.033494551	0.7590231	2.788E-06	0.039551417	0.0280527	1.03E-07	0.001461779	0.0305105	1.121E-07	0.001589852
Road 3	3	0100-0200	0.087447021	1.978E-07	0.002805664	0.5114396	1.157E-06	0.01640911	0.5988866	1.354E-06	0.019214774	0.0227533	5.146E-08	0.000730022	0.0247608	5.6E-08	0.000794429
Road 3	3	0200-0300	0.084979394	1.349E-07	0.001914346	0.53527	8.5E-07	0.012058122	0.6202494	9.849E-07	0.013972468	0.0228662	3.631E-08	0.00051511	0.0248793	3.951E-08	0.00056046
Road 3	3	0300-0400	0.073176957	8.099E-08	0.001148934	0.4037472	4.468E-07	0.006339138	0.4769242	5.278E-07	0.007488072	0.0167307	1.852E-08	0.000262685	0.018208	2.015E-08	0.000285879
Road 3	3	0400-0500	0.097248108	1.731E-07	0.002456268	0.5398771	9.612E-07	0.013636078	0.6371252	1.134E-06	0.016092346	0.0238858	4.253E-08	0.000603301	0.0259849	4.626E-08	0.000656319
Road 3	3	0500-0600	0.078520288	3.06E-07	0.004341699	0.4396021	1.713E-06	0.024307352	0.5181224	2.019E-06	0.028649051	0.0187385	7.304E-08	0.001036127	0.0203905	7.947E-08	0.001127474
Road 3	3	0600-0700	0.10740847	7.546E-07	0.010704939	0.5409781	3.801E-06	0.053916955	0.6483866	4.555E-06	0.064621894	0.0232095	1.631E-07	0.002313188	0.025219	1.772E-07	0.002513473
Road 3	3	0700-0800	0.088268338	1.014E-06	0.014381015	0.4655956	5.347E-06	0.075856623	0.553864	6.361E-06	0.090237638	0.0190326	2.186E-07	0.003100857	0.0206903	2.376E-07	0.003370935
Road 3	3	0800-0900	0.097086431	1.54E-06	0.02184874	0.4881816	7.744E-06	0.109862452	0.585268	9.284E-06	0.131711192	0.0203392	3.226E-07	0.004577222	0.0221235	3.509E-07	0.004978768
Road 3	3	0900-1000	0.104059958	1.592E-06	0.022589343	0.5389478	8.247E-06	0.116994829	0.6430078	9.839E-06	0.139584172	0.0222098	3.398E-07	0.00482131	0.0241484	3.695E-07	0.00524214
Road 3	3	1000-1100	0.117163494	1.635E-06	0.0231944	0.5985587	8.353E-06	0.118494331	0.7157222	9.987E-06	0.141688731	0.0261226	3.645E-07	0.005171398	0.0283838	3.961E-07	0.005619024
Road 3	3	1100-1200	0.115123924	1.562E-06	0.022161927	0.6039629	8.195E-06	0.116265854	0.7190868	9.758E-06	0.138427781	0.0260746	3.538E-07	0.005019485	0.0283559	3.848E-07	0.005458656
Road 3	3	1200-1300	0.108761395	1.476E-06	0.020937109	0.5830932	7.912E-06	0.112248328	0.6918546	9.388E-06	0.133185436	0.0253103	3.434E-07	0.004872367	0.0275273	3.735E-07	0.005299134
Road 3	3	1300-1400	0.115828651	1.707E-06	0.024221614	0.5975868	8.809E-06	0.124964901	0.7134154	1.052E-05	0.149186515	0.0258209	3.806E-07	0.005399559	0.0280545	4.135E-07	0.005866632

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary)

Year 2027

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 3	3	1400-1500	0.107371623	1.591E-06	0.022575276	0.5600871	8.301E-06	0.117760359	0.6674587	9.892E-06	0.140335635	0.0243354	3.607E-07	0.005116614	0.0264394	3.918E-07	0.00555899
Road 3	3	1500-1600	0.119560461	1.707E-06	0.024213031	0.6068403	8.663E-06	0.122895498	0.7264007	1.037E-05	0.147108529	0.0261131	3.728E-07	0.005288341	0.0283757	4.051E-07	0.005746571
Road 3	3	1600-1700	0.112579133	1.75E-06	0.024822942	0.5837213	9.072E-06	0.12870662	0.6963004	1.082E-05	0.153529561	0.0246239	3.827E-07	0.005429395	0.0267693	4.161E-07	0.005902462
Road 3	3	1700-1800	0.090149134	1.403E-06	0.019897791	0.4686258	7.291E-06	0.103435478	0.558775	8.694E-06	0.123333269	0.019536	3.039E-07	0.004311995	0.0212512	3.306E-07	0.004690577
Road 3	3	1800-1900	0.085428918	1.394E-06	0.01976958	0.4768886	7.779E-06	0.110359445	0.5623176	9.173E-06	0.130129024	0.0195117	3.183E-07	0.004515313	0.0212425	3.465E-07	0.00491584
Road 3	3	1900-2000	0.091421368	1.104E-06	0.015664418	0.5063463	6.116E-06	0.086758934	0.5977677	7.22E-06	0.102423352	0.0216974	2.621E-07	0.003717701	0.0236089	2.851E-07	0.004045217
Road 3	3	2000-2100	0.084836755	8.763E-07	0.012432014	0.4658829	4.812E-06	0.068270671	0.5507196	5.689E-06	0.080702685	0.0199696	2.063E-07	0.002926355	0.0217004	2.242E-07	0.003179984
Road 3	3	2100-2200	0.083927902	8.212E-07	0.011649513	0.477114	4.668E-06	0.066225249	0.5610419	5.489E-06	0.077874762	0.0206458	2.02E-07	0.002865714	0.0224354	2.195E-07	0.003114118
Road 3	3	2200-2300	0.090037716	8.03E-07	0.011391236	0.4949027	4.414E-06	0.062613237	0.5849404	5.216E-06	0.074004472	0.0210686	1.879E-07	0.002665523	0.0228873	2.041E-07	0.002895618
Road 3	3	2300-0000	0.079406165	6.343E-07	0.00899819	0.455332	3.637E-06	0.051597554	0.5347382	4.271E-06	0.060595744	0.0184562	1.474E-07	0.00209143	0.0200482	1.601E-07	0.002271832
Road 4	4	0000-0100	0.296948286	2.406E-07	0.000940263	1.5142251	1.227E-06	0.004794672	1.8111734	1.467E-06	0.005734934	0.0646263	5.236E-08	0.000204634	0.0702846	5.694E-08	0.00022255
Road 4	4	0100-0200	0.2809685	1.301E-07	0.000508379	1.4342635	6.64E-07	0.002595131	1.715232	7.941E-07	0.003103511	0.0617455	2.859E-08	0.000111721	0.067112	3.107E-08	0.000121431
Road 4	4	0200-0300	0.303998462	9.148E-08	0.000357532	1.50041	4.515E-07	0.00176463	1.8044085	5.43E-07	0.002122162	0.06553	1.972E-08	7.70697E-05	0.0712162	2.143E-08	8.37572E-05
Road 4	4	0300-0400	0.276621429	4.482E-08	0.00017518	1.4684329	2.379E-07	0.000929935	1.7450543	2.828E-07	0.001105115	0.0640786	1.038E-08	4.05799E-05	0.0696529	1.129E-08	4.411E-05
Road 4	4	0400-0500	0.283328571	9.182E-08	0.000358855	1.3991986	4.534E-07	0.00177218	1.6825271	5.453E-07	0.002131035	0.0609443	1.975E-08	7.71901E-05	0.0662329	2.146E-08	8.38884E-05
Road 4	4	0500-0600	0.261511667	1.453E-07	0.00056781	1.2409821	6.894E-07	0.002694493	1.5024938	8.347E-07	0.003262303	0.0538654	2.993E-08	0.000116956	0.0585304	3.252E-08	0.000127085
Road 4	4	0600-0700	0.290123077	3.492E-07	0.001364853	1.3865873	1.669E-06	0.006523053	1.6767104	2.018E-06	0.007887907	0.0587296	7.069E-08	0.000276287	0.0638675	7.688E-08	0.000300458
Road 4	4	0700-0800	0.290810543	6.193E-07	0.002420462	1.4499241	3.088E-06	0.012067949	1.7407347	3.707E-06	0.014488412	0.0602095	1.282E-07	0.000501133	0.0654718	1.394E-07	0.000544933
Road 4	4	0800-0900	0.296133529	1.049E-06	0.004099014	1.478698	5.237E-06	0.020467806	1.7748316	6.286E-06	0.02456682	0.0617837	2.188E-07	0.000855196	0.0671522	2.378E-07	0.000929506
Road 4	4	0900-1000	0.301990676	1.035E-06	0.004043483	1.4245737	4.88E-06	0.01907423	1.7265644	5.915E-06	0.023117713	0.058411	2.001E-07	0.00078209	0.0634937	2.175E-07	0.000850145
Road 4	4	1000-1100	0.336408112	1.114E-06	0.00435214	1.5891266	5.26E-06	0.020558665	1.9255348	6.374E-06	0.024910805	0.065412	2.165E-07	0.000846241	0.0710967	2.353E-07	0.000919784
Road 4	4	1100-1200	0.313088	1.123E-06	0.004390343	1.469451	5.272E-06	0.02060569	1.782539	6.396E-06	0.024996034	0.0611419	2.194E-07	0.000857376	0.0664581	2.384E-07	0.000931923
Road 4	4	1200-1300	0.320370204	1.09E-06	0.004260591	1.5730463	5.353E-06	0.020919881	1.8934165	6.443E-06	0.025180472	0.0648492	2.207E-07	0.000862427	0.0704837	2.398E-07	0.000937361
Road 4	4	1300-1400	0.329678926	1.137E-06	0.004444039	1.5807821	5.452E-06	0.021308783	1.910461	6.589E-06	0.025752821	0.0648623	2.237E-07	0.000874338	0.0704967	2.431E-07	0.000950289
Road 4	4	1400-1500	0.300836087	9.61E-07	0.00375586	1.4919291	4.766E-06	0.018626344	1.7927651	5.727E-06	0.022382204	0.0619013	1.977E-07	0.000772822	0.0672838	2.149E-07	0.000840021
Road 4	4	1500-1600	0.335905806	9.642E-07	0.003768249	1.6084124	4.617E-06	0.018043445	1.9443182	5.581E-06	0.021811694	0.0673216	1.932E-07	0.000755225	0.0731796	2.101E-07	0.000820941
Road 4	4	1600-1700	0.315177016	9.047E-07	0.00353571	1.526346	4.381E-06	0.017122811	1.8415231	5.286E-06	0.020658521	0.0631218	1.812E-07	0.000708111	0.068615	1.97E-07	0.000769735
Road 4	4	1700-1800	0.302311667	8.817E-07	0.003446084	1.4889749	4.343E-06	0.016972988	1.7912866	5.225E-06	0.020419071	0.0613575	1.79E-07	0.00069942	0.0667044	1.946E-07	0.00076037
Road 4	4	1800-1900	0.334455472	8.207E-07	0.003207337	1.6692306	4.096E-06	0.016007465	2.003686	4.916E-06	0.019214802	0.0711522	1.746E-07	0.00068233	0.0773469	1.898E-07	0.000741736
Road 4	4	1900-2000	0.302651892	5.184E-07	0.002026168	1.504087	2.576E-06	0.010069434	1.8067389	3.095E-06	0.012095602	0.0641408	1.099E-07	0.000429404	0.0696997	1.194E-07	0.00046662
Road 4	4	2000-2100	0.264648776	3.002E-07	0.001173185	1.3232059	1.501E-06	0.005865755	1.5878547	1.801E-06	0.007038939	0.0562576	6.381E-08	0.000249389	0.0611627	6.937E-08	0.000271133
Road 4	4	2100-2200	0.221405405	1.896E-07	0.000741123	1.1280592	9.662E-07	0.003776017	1.3494646	1.156E-06	0.00451714	0.0460659	3.945E-08	0.000154199	0.050073	4.289E-08	0.000167612
Road 4	4	2200-2300	0.296537143	4.325E-07	0.00169013	1.4554121	2.122E-06	0.008295201	1.7519492	2.555E-06	0.00998533	0.0617798	9.01E-08	0.000352118	0.0671341	9.79E-08	0.000382635
Road 4	4	2300-0000	0.274833958	3.054E-07	0.001193471	1.38559	1.54E-06	0.006016949	1.660424	1.845E-06	0.007210421	0.0587144	6.524E-08	0.000254968	0.0638463	7.094E-08	0.000277253
Road 5	5	0000-0100	0.099220829	3.594E-07	0.001774058	0.552526	2.001E-06	0.009879108	0.6517468	2.361E-06	0.011653166	0.0225251	8.159E-08	0.000402746	0.0245117	8.879E-08	0.000438266
Road 5	5	0100-0200	0.067351901	1.53E-07	0.000754993	0.410338	9.319E-07	0.004599757	0.4776899	1.085E-06	0.00535475	0.0170976	3.883E-08	0.000191659	0.0186186	4.228E-08	0.000208708
Road 5	5	0200-0300	0.063525698	1.025E-07	0.000506122	0.4382392	7.074E-07	0.003491543	0.5017649	8.099E-07	0.003997665	0.017177	2.773E-08	0.000136853	0.0187001	3.018E-08	0.000148988
Road 5	5	0300-0400	0.058429839	6.799E-08	0.000335609	0.3193745	3.716E-07	0.001834424	0.3778044	4.396E-07	0.002170033	0.0119166	1.387E-08	6.84467E-05	0.0129455	1.506E-08	7.43563E-05
Road 5	5	0400-0500	0.080761237	1.47E-07	0.000725742	0.4593499	8.363E-07	0.004127842	0.5401111	9.833E-07	0.004853584	0.0192157	3.498E-08	0.000172677	0.0209124	3.807E-08	0.000187924
Road 5	5	0500-0600	0.064862615	2.654E-07	0.001309962	0.3769922	1.542E-06	0.007613715	0.4418549	1.808E-06	0.008923677	0.0151011	6.179E-08	0.000304982	0.0164393	6.726E-08	0.000332007
Road 5	5	0600-0700	0.094492156	6.828E-07	0.003370266	0.4753508	3.435E-06	0.01695441	0.569843	4.118E-06	0.020324676	0.0193114	1.395E-07	0.000688784	0.0209822	1.516E-07	0.000748374
Road 5	5	0700-0800	0.072667788	8.511E-07	0.004200822	0.3829758	4.485E-06	0.022139288	0.4556436	5.336E-06	0.02634011	0.0143099	1.676E-07	0.000827232	0.0155613	1.822E-07	0.000899575
Road 5	5	0800-0900	0.078152464	1.226E-06	0.006052805	0.3854774	6.048E-06	0.029854715	0.4636299	7.275E-06	0.03590752	0.014648	2.298E-07	0.001134468	0.0159462	2.502E-07	0.001235012
Road 5	5	0900-1000	0.084824121	1.286E-06	0.006349484	0.4500759	6.825E-06	0.033690295	0.5349	8.112E-06	0.040039779	0.0173982	2.638E-07	0.001302336	0.0189289	2.871E-07	0.00141692
Road 5	5	1000-1100	0.096218003	1.311E-06	0.006471436	0.5003525	6.818E-06	0.03365274	0.5965705	8.129E-06	0.040124177	0.0206312	2.811E-07	0.001387612	0.0224197	3.055E-07	0.001507907
Road 5	5	1100-1200	0.09439129	1.222E-06	0.00603377	0.5108672	6.616E-06	0.032656138	0.6052585	7.838E-06	0.038689908	0.020543	2.66E-07	0.001313166	0.0223358	2.893E-07	0.001427768
Road 5	5	1200-1300	0.088433333	1.16E-06	0.005726653	0.4819361	6.323E-06	0.031208605	0.5703694	7.483E-06	0.036935258	0.0195011	2.558E-07	0.001262828	0.0211923	2.78E-07	0.001372342
Road 5	5	1300-1400	0.095576362	1.376E-06	0.00679131	0.5010535	7.213E-06	0.035603048	0.5966299	8.589E-06	0.042394359	0.0204138	2.939E-07	0.001450532	0.0222152	3.198E-07	0.001578533
Road 5	5	1400-1500	0.09103285	1.343E-06	0.006628701	0.4764671	7.029E-06	0.034694705	0.5675	8.372E-06	0.041323406	0.0195507	2.884E-07	0.001423616	0.0212749	3.139E-07	0.001549165
Road 5	5	1500-1600	0.10198834	1.464E-06	0.007228026	0.5214984	7.488E-06	0.036959164	0.6234867	8.952E-06	0.04418719	0.0211353	3.035E-07	0.00149788	0.0229977	3.302E-07	0.001629874
Road 5	5	1600-1700	0.096152138	1.52E-06	0.007500302	0.504231	7.969E-06	0.039332301	0.6003831	9.488E-06	0.046832603	0.0204237	3.228E-07	0.001593142	0.0222144	3.511E-07	0.001732821
Road 5	5	1700-1800	0.071908329	1.139E-06	0.005622499	0.3765794	5.965E-06	0.029444675	0.4484878	7.104E-06	0.035067174	0.0146941	2.328E-07	0.001148928	0.015996	2.534E-07	0.001250722
Road 5	5	1800-1900	0.067716396	1.157E-06	0.005708775	0.3877358	6.622E-06	0.032687746	0.4554522	7.779E-06	0.038396521	0.0148154	2.53E-07	0.001249	0.0161023	2.75E-07	0.001357493
Road 5	5	1900-2000	0.078345643	9.955E-07	0.004913729	0.4423244	5.62E-06	0.02774197	0.5206701	6.616E-06	0.0326557	0.0179938	2.286E-07	0.001128545	0.0195553	2.485E-07	0.001226483
Road 5	5	2000-2100	0.075157121	8.379E-07	0.004135845	0.4166714	4.645E-06	0.022929148	0.4918286	5.483E-06	0.027064993	0.0172521	1.923E-07	0.000949373	0.0187388	2.089E-07	0.001031186
Road 5	5	2100-2200	0.078741786	8.439E-07	0.004165327	0.4511279	4.835E-06	0.023864017	0.5298697	5.679E-06	0.028029344	0.0192986	2.068E-07	0.001020867	0.0209674	2.247E-07	0.001109144
Road 5	5	2200-2300	0.075968435	7.015E-07	0.003462629	0.4266908	3.94E-06	0.019448499	0.5026592	4.642E-06	0.022911129	0.0171156	1.58E-07	0.000780128	0.0185904	1.717E-07	0.00084735
Road 5	5	2300-0000	0.067018996	5.635E-07	0.002781529	0.3933088	3.307E-06	0.016323728	0.4603277	3.871E-06	0.019105257	0.014804	1.245E-07	0.000614417	0.0160753	1.352E-07	0.000667183
Road 6	6	0000-0100	0.060473041	1.68E-07	0.002191689	0.388518	1.079E-06	0.014080833	0.4489911	1.247E-06	0.016272522	0.0149782	4.161E-08	0.000542848	0.0163069	4.53E-08	0.000591001
Road 6	6	0100-0200	0.078416903	1.663E-07	0.002169919	0.44421	9.421E-07	0.012291991	0.5226269	1.108E-06	0.01446191	0.0171878	3.645E-08	0.000475613	0.0187104	3.968E-08	0.000517745
Road 6	6	0200-0300	0.072103038	1.069E-07	0.001394878	0.4110767	6.095E-07	0.007952532	0.4831797	7.164E-07	0.009347409	0.0154861	2.296E-08	0.000299588	0.0168581	2.5E-08	0.00032613
Road 6	6	0300-0400	0.07295	8.489E-08	0.001107573	0.4669321	5.434E-07	0.007089259	0.5398821	6.282E-07	0.008196833	0.0178818	2.081E-08	0.000271492	0.0194302	2.261E-08	0.000295001

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2027

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 6	6	0400-0500	0.079292222	1.339E-07	0.001747546	0.4659714	7.871E-07	0.010269688	0.5452637	9.211E-07	0.012017234	0.0182357	3.08E-08	0.000401901	0.0198507	3.353E-08	0.000437495
Road 6	6	0500-0600	0.071483043	2.16E-07	0.002818281	0.4334214	1.31E-06	0.017088016	0.5049044	1.526E-06	0.019906297	0.0164773	4.979E-08	0.000649633	0.0179389	5.421E-08	0.000707256
Road 6	6	0600-0700	0.076414983	4.116E-07	0.005370514	0.477308	2.571E-06	0.033545637	0.553723	2.983E-06	0.038916151	0.0181037	9.752E-08	0.001272342	0.0197002	1.061E-07	0.001384546
Road 6	6	0700-0800	0.071934605	6.157E-07	0.008032637	0.4107731	3.516E-06	0.045869315	0.4827077	4.131E-06	0.053901952	0.0148864	1.274E-07	0.001662307	0.0161699	1.384E-07	0.001805622
Road 6	6	0800-0900	0.061223287	7.515E-07	0.009805051	0.3662617	4.496E-06	0.058657656	0.427485	5.247E-06	0.068462706	0.0125904	1.545E-07	0.002016386	0.0136834	1.68E-07	0.002191432
Road 6	6	0900-1000	0.063206704	7.45E-07	0.009720268	0.3581107	4.221E-06	0.055072203	0.4213175	4.966E-06	0.064792471	0.0123743	1.459E-07	0.001902984	0.0134478	1.585E-07	0.002068071
Road 6	6	1000-1100	0.084667162	8.454E-07	0.011030167	0.4647728	4.641E-06	0.060549116	0.54944	5.486E-06	0.071579282	0.0182764	1.825E-07	0.002380992	0.019853	1.982E-07	0.002586381
Road 6	6	1100-1200	0.096332273	9.546E-07	0.0124555	0.5026845	4.982E-06	0.064995739	0.5990168	5.936E-06	0.07745124	0.0196594	1.948E-07	0.002541911	0.0213551	2.116E-07	0.002761151
Road 6	6	1200-1300	0.093775233	9.082E-07	0.011849317	0.4649357	4.503E-06	0.058748666	0.5587109	5.411E-06	0.070597982	0.018078	1.751E-07	0.002284313	0.019634	1.901E-07	0.002480926
Road 6	6	1300-1400	0.109631573	1.06E-06	0.013826056	0.5536369	5.351E-06	0.069821258	0.6632684	6.411E-06	0.083647315	0.0221579	2.142E-07	0.002794413	0.0240726	2.327E-07	0.003035893
Road 6	6	1400-1500	0.104172236	1.111E-06	0.014489579	0.5225229	5.57E-06	0.072679034	0.6266952	6.681E-06	0.087168613	0.0206384	2.2E-07	0.002870647	0.0224215	2.39E-07	0.003118663
Road 6	6	1500-1600	0.091687928	9.551E-07	0.012461221	0.4704713	4.901E-06	0.063941318	0.5621592	5.856E-06	0.076402539	0.018456	1.923E-07	0.00250834	0.0200507	2.089E-07	0.002725077
Road 6	6	1600-1700	0.096309701	1.027E-06	0.013395959	0.4727871	5.04E-06	0.065761152	0.5690968	6.067E-06	0.079157112	0.0183691	1.958E-07	0.002555	0.0199551	2.127E-07	0.002775599
Road 6	6	1700-1800	0.072032337	8.098E-07	0.01056598	0.3652753	4.107E-06	0.05357998	0.4373076	4.916E-06	0.06414596	0.0134332	1.51E-07	0.001970432	0.0145886	1.64E-07	0.002139916
Road 6	6	1800-1900	0.071139122	9.119E-07	0.011898293	0.3728419	4.779E-06	0.062359255	0.4439811	5.691E-06	0.074257548	0.014453	1.853E-07	0.002417328	0.0157102	2.014E-07	0.0026276
Road 6	6	1900-2000	0.084628464	8.275E-07	0.010797162	0.4430951	4.333E-06	0.056531445	0.5277235	5.16E-06	0.067328608	0.0172815	1.69E-07	0.002204825	0.0187833	1.837E-07	0.002396427
Road 6	6	2000-2100	0.067346122	5.182E-07	0.006761638	0.3831728	2.949E-06	0.038471043	0.4505189	3.467E-06	0.04523268	0.014879	1.145E-07	0.001493868	0.0161623	1.244E-07	0.001622718
Road 6	6	2100-2200	0.094239185	6.297E-07	0.008215556	0.4944404	3.304E-06	0.04310418	0.5886796	3.933E-06	0.051319736	0.0207355	1.385E-07	0.001807674	0.0225286	1.505E-07	0.001963991
Road 6	6	2200-2300	0.070909576	5.017E-07	0.006546387	0.4019115	2.844E-06	0.037104559	0.4728211	3.346E-06	0.043650946	0.0141541	1.002E-07	0.001306711	0.0153771	1.088E-07	0.00141962
Road 6	6	2300-0000	0.047339294	3.145E-07	0.004103746	0.2972102	1.975E-06	0.025764541	0.3445495	2.289E-06	0.029868288	0.0103834	6.899E-08	0.00090012	0.0112703	7.488E-08	0.000976998
Road 7	7	0000-0100	0.086476874	2.31E-07	0.002104923	0.5162542	1.379E-06	0.012566083	0.6027311	1.61E-06	0.014671007	0.022574	6.03E-08	0.00054947	0.024559	6.561E-08	0.000597788
Road 7	7	0100-0200	0.104151469	2.162E-07	0.001970244	0.5770187	1.198E-06	0.01091552	0.6811701	1.414E-06	0.012885763	0.0252071	5.233E-08	0.000476845	0.0274213	5.693E-08	0.000518731
Road 7	7	0200-0300	0.090644255	1.237E-07	0.001127163	0.5164643	7.048E-07	0.006422241	0.6071085	8.285E-07	0.007549404	0.0219185	2.991E-08	0.000272557	0.0238462	3.254E-08	0.000296528
Road 7	7	0300-0400	0.091555132	1.01E-07	0.000920481	0.5572207	6.148E-07	0.005602209	0.6487758	7.159E-07	0.00652269	0.0233832	2.58E-08	0.000235091	0.025443	2.807E-08	0.0002558
Road 7	7	0400-0500	0.101603243	1.637E-07	0.001491932	0.5712374	9.206E-07	0.008387994	0.6728406	1.084E-06	0.009879926	0.024725	3.985E-08	0.00036306	0.0268993	4.335E-08	0.000394986
Road 7	7	0500-0600	0.092539235	2.633E-07	0.002399388	0.5281821	1.503E-06	0.013694881	0.6207213	1.766E-06	0.016094269	0.0223291	6.354E-08	0.000578957	0.0242964	6.914E-08	0.000629965
Road 7	7	0600-0700	0.097088943	4.934E-07	0.004495276	0.5661	2.877E-06	0.026210767	0.663189	3.37E-06	0.030706042	0.0235584	1.197E-07	0.001090767	0.0255959	1.301E-07	0.001185106
Road 7	7	0700-0800	0.092947571	7.557E-07	0.006885644	0.5106753	4.152E-06	0.037831311	0.6036229	4.908E-06	0.044716955	0.0208514	1.695E-07	0.001544692	0.0226571	1.842E-07	0.00167846
Road 7	7	0800-0900	0.091773103	1.127E-06	0.0102708	0.5077136	6.236E-06	0.056820844	0.5994867	7.363E-06	0.067091645	0.0207051	2.543E-07	0.002317214	0.0225219	2.766E-07	0.002520543
Road 7	7	0900-1000	0.093017795	1.061E-06	0.009671795	0.4926325	5.622E-06	0.051222896	0.5856503	6.683E-06	0.060894691	0.0200458	2.288E-07	0.002084315	0.021811	2.489E-07	0.002267861
Road 7	7	1000-1100	0.110032483	1.101E-06	0.010029023	0.5839382	5.841E-06	0.053223648	0.6939707	6.942E-06	0.063252671	0.0252933	2.53E-07	0.002305386	0.0274922	2.75E-07	0.002505807
Road 7	7	1100-1200	0.12050145	1.2E-06	0.010935406	0.6258238	6.233E-06	0.056792987	0.7463253	7.433E-06	0.067728393	0.0272484	2.714E-07	0.002472772	0.0296204	2.95E-07	0.002688023
Road 7	7	1200-1300	0.11907654	1.184E-06	0.010790344	0.603926	6.006E-06	0.054725888	0.7230026	7.19E-06	0.065516232	0.0263824	2.624E-07	0.002390693	0.0286764	2.852E-07	0.002598563
Road 7	7	1300-1400	0.127901319	1.253E-06	0.01142082	0.6472405	6.343E-06	0.057794692	0.7751418	7.596E-06	0.069215513	0.0279863	2.743E-07	0.00249901	0.0304228	2.981E-07	0.00271657
Road 7	7	1400-1500	0.119433665	1.228E-06	0.011186096	0.6113337	6.284E-06	0.057257197	0.7307673	7.512E-06	0.068443293	0.0261716	2.69E-07	0.002451216	0.0284424	2.924E-07	0.002663902
Road 7	7	1500-1600	0.110232807	1.107E-06	0.010091029	0.5693314	5.72E-06	0.052118244	0.6795643	6.827E-06	0.062209273	0.0245	2.461E-07	0.002242805	0.0266329	2.676E-07	0.00243805
Road 7	7	1600-1700	0.115364518	1.199E-06	0.010927071	0.5743386	5.97E-06	0.054400077	0.6897031	7.17E-06	0.065327149	0.0245097	2.548E-07	0.002321505	0.0266384	2.769E-07	0.002523126
Road 7	7	1700-1800	0.089556877	9.869E-07	0.008992061	0.4634929	5.108E-06	0.046537534	0.5530498	6.094E-06	0.055529595	0.019224	2.118E-07	0.001930207	0.020923	2.306E-07	0.002100801
Road 7	7	1800-1900	0.08300627	9.496E-07	0.008652779	0.439607	5.029E-06	0.04582572	0.5226132	5.979E-06	0.054478499	0.0182547	2.088E-07	0.001902912	0.0198691	2.273E-07	0.002071204
Road 7	7	1900-2000	0.096937571	8.402E-07	0.007655701	0.5152441	4.466E-06	0.040691699	0.6121816	5.306E-06	0.0483474	0.0217218	1.883E-07	0.00171549	0.0236077	2.046E-07	0.001864434
Road 7	7	2000-2100	0.089303773	6.327E-07	0.005765117	0.4864495	3.447E-06	0.031403357	0.5757533	4.079E-06	0.037168474	0.0207711	1.472E-07	0.001340902	0.0225696	1.599E-07	0.001457011
Road 7	7	2100-2200	0.103225341	6.145E-07	0.005598719	0.5483544	3.264E-06	0.029741555	0.6515797	3.879E-06	0.035340274	0.0240579	1.432E-07	0.001304846	0.0261398	1.556E-07	0.001417768
Road 7	7	2200-2300	0.08700524	5.583E-07	0.005087286	0.4827117	3.098E-06	0.028224654	0.569717	3.656E-06	0.03331194	0.0191968	1.232E-07	0.001122456	0.0208582	1.339E-07	0.001219603
Road 7	7	2300-0000	0.059974967	3.544E-07	0.003229111	0.3615138	2.136E-06	0.019464253	0.4214887	2.491E-06	0.022693364	0.0141358	8.353E-08	0.000761086	0.0153487	9.07E-08	0.00082639
Road 8	8	0000-0100	0.261120833	1.899E-07	0.001142643	1.3348425	9.708E-07	0.005841162	1.5959633	1.161E-06	0.006983805	0.0581917	4.232E-08	0.000254642	0.0632544	4.6E-08	0.000276796
Road 8	8	0100-0200	0.270706333	1.641E-07	0.000987157	1.3778497	8.351E-07	0.005024465	1.648556	9.991E-07	0.006011622	0.059994	3.636E-08	0.000218774	0.065198	3.951E-08	0.000237751
Road 8	8	0200-0300	0.256211333	7.764E-08	0.00046715	1.37347	4.162E-07	0.002504247	1.6296813	4.938E-07	0.002971397	0.060356	1.829E-08	0.000110047	0.0655913	1.988E-08	0.000119593
Road 8	8	0300-0400	0.233966429	6.617E-08	0.000398151	1.2237079	3.461E-07	0.00208244	1.4576743	4.123E-07	0.002480591	0.0517586	1.464E-08	8.80799E-05	0.0562514	1.591E-08	9.57256E-05
Road 8	8	0400-0500	0.26440619	1.122E-07	0.000674928	1.3060205	5.541E-07	0.003333773	1.5704267	6.662E-07	0.004008701	0.0568962	2.414E-08	0.000145234	0.0618262	2.623E-08	0.000157819
Road 8	8	0500-0600	0.251502353	1.727E-07	0.001039412	1.2199162	8.379E-07	0.005041684	1.4714185	1.011E-06	0.006081096	0.0527921	3.626E-08	0.00021818	0.0573724	3.941E-08	0.000237109
Road 8	8	0600-0700	0.280886774	3.518E-07	0.002116848	1.3469445	1.687E-06	0.010150983	1.6278313	2.039E-06	0.012267831	0.0559311	7.006E-08	0.000421514	0.0607885	7.614E-08	0.000458121
Road 8	8	0700-0800	0.280680198	5.727E-07	0.003445878	1.3611256	2.777E-06	0.016710379	1.6418058	3.35E-06	0.020156257	0.056057	1.144E-07	0.000688206	0.0609622	1.244E-07	0.000748425
Road 8	8	0800-0900	0.308211	1.183E-06	0.007118172	1.4995596	5.756E-06	0.034632516	1.8077706	6.939E-06	0.041750687	0.0602302	2.312E-07	0.001391024	0.0654741	2.513E-07	0.001512133
Road 8	8	0900-1000	0.32661121	1.036E-06	0.006233005	1.5109301	4.792E-06	0.028834389	1.8375413	5.828E-06	0.035067393	0.0619236	1.964E-07	0.001181741	0.0673059	2.135E-07	0.001284456
Road 8	8	1000-1100	0.313487722	1.001E-06	0.006020663	1.4890244	4.753E-06	0.028597339	1.8025122	5.753E-06	0.034618002	0.0613151	1.957E-07	0.001177583	0.0666489	2.127E-07	0.001280021
Road 8	8	1100-1200	0.321489874	1.033E-06	0.006213426	1.5483401	4.973E-06	0.029924728	1.86983	6.006E-06	0.036138154	0.064523	2.073E-07	0.001247033	0.0701296	2.253E-07	0.001355392
Road 8	8	1200-1300	0.325511716	1.111E-06	0.006686826	1.5840885	5.408E-06	0.032541147	1.9096002	6.52E-06	0.039227973	0.0653393	2.231E-07	0.001342234	0.0710284	2.425E-07	0.001459101
Road 8	8	1300-1400	0.298559375	9.65E-07	0.00580654	1.4266053	4.611E-06	0.02774537	1.7251646	5.576E-06	0.03355191	0.0582305	1.882E-07	0.001132497	0.0632959	2.046E-07	0.001231013
Road 8	8	1400-1500	0.289654388	8.134E-07	0.004893974	1.4492994	4.07E-06	0.024487227	1.7389537	4.883E-06	0.029381201	0.0601488	1.689E-07	0.001016269	0.0653754	1.836E-07	0.001104577
Road 8	8	1500-1600	0.297241314	8.227E-07	0.0049499	1.447789	4.007E-06	0.024109741	1.7450303	4.83E-06	0.029059642	0.0605068	1.675E-07	0.001007607	0.0657696	1.82E-07	0.001095247
Road 8	8	1600-1700	0.299752877	8.841E-07	0.005319648	1.4418473	4.253E-06	0.025588148	1.7416002	5.137E-06	0.030907796	0.0598376	1.765E-07	0.001061925	0.0650486	1.919E-07	0.001154403
Road 8	8	1700-1800	0.245301795	7.731E-07	0.004651489	1.2334254	3.887E-06	0.0233886	1.4787272	4.66E-06	0.028040089	0.050742	1.599E-07	0.000962185	0.0551793	1.739E-07	0.001046327

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2027

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 8	8	1800-1900	0.24652729	5.329E-07	0.003206384	1.2678054	2.741E-06	0.016489333	1.5143327	3.273E-06	0.019695717	0.0518478	1.121E-07	0.000674342	0.0563766	1.219E-07	0.000733246
Road 8	8	1900-2000	0.245942338	3.826E-07	0.002301923	1.2958126	2.016E-06	0.012128292	1.5417549	2.398E-06	0.014430215	0.0566808	8.817E-08	0.00053051	0.0615943	9.581E-08	0.000576498
Road 8	8	2000-2100	0.27014	4.148E-07	0.002495567	1.293805	1.986E-06	0.011952235	1.563945	2.401E-06	0.014447802	0.0555737	8.533E-08	0.000513392	0.0604097	9.275E-08	0.000558068
Road 8	8	2100-2200	0.222953019	2.387E-07	0.001436336	1.1751698	1.258E-06	0.007570825	1.3981228	1.497E-06	0.009007161	0.0506309	5.421E-08	0.000326181	0.0550249	5.892E-08	0.000354488
Road 8	8	2200-2300	0.268791719	3.475E-07	0.002091041	1.3338947	1.725E-06	0.010376914	1.6026864	2.072E-06	0.012467955	0.0561361	7.258E-08	0.000436706	0.0610088	7.888E-08	0.000474612
Road 8	8	2300-0000	0.214878846	2.257E-07	0.0013582	1.1087188	1.165E-06	0.007007958	1.3235977	1.39E-06	0.008366158	0.0459479	4.827E-08	0.000290426	0.0499687	5.249E-08	0.00031584
Road 9	9	0000-0100	0.221498116	5.882E-08	0.000640946	1.0267543	2.727E-07	0.002971106	1.2482525	3.315E-07	0.003612052	0.0355479	9.441E-09	0.000102865	0.0386107	1.025E-08	0.000111727
Road 9	9	0100-0200	0.240344291	5.015E-08	0.00054645	1.0548806	2.201E-07	0.002398389	1.2952249	2.703E-07	0.002944838	0.0353464	7.376E-09	8.0364E-05	0.0383943	8.012E-09	8.72938E-05
Road 9	9	0200-0300	0.09680477	9.182E-09	0.000100044	0.706936	6.705E-08	0.00073059	0.8037407	7.623E-08	0.000830634	0.0239321	2.27E-09	2.47329E-05	0.0259751	2.464E-09	2.68442E-05
Road 9	9	0300-0400	0.117071153	8.883E-09	9.67907E-05	0.730558	5.543E-08	0.000604002	0.8476292	6.432E-08	0.000700793	0.0299152	2.27E-09	2.47329E-05	0.0324689	2.464E-09	2.68442E-05
Road 9	9	0400-0500	0.259052324	4.914E-08	0.00053544	1.0946035	2.076E-07	0.002262457	1.3536558	2.568E-07	0.002797898	0.0377711	7.165E-09	7.80699E-05	0.0410348	7.784E-09	8.48157E-05
Road 9	9	0500-0600	0.187010491	6.031E-08	0.000657111	0.9671498	3.119E-07	0.003398335	1.1541603	3.722E-07	0.004055446	0.037066	1.195E-08	0.000130241	0.0410355	1.323E-08	0.000144189
Road 9	9	0600-0700	0.218037508	1.324E-07	0.001442131	1.1778263	7.15E-07	0.007790311	1.3958638	8.473E-07	0.009232442	0.0360685	2.189E-08	0.000238562	0.0395918	2.403E-08	0.000261866
Road 9	9	0700-0800	0.186725798	1.7E-07	0.001852547	1.1085782	1.009E-06	0.010998441	1.295304	1.179E-06	0.012850988	0.0336863	3.067E-08	0.000334209	0.0373979	3.405E-08	0.000371033
Road 9	9	0800-0900	0.285666919	6.232E-07	0.006790181	1.4140514	3.085E-06	0.033611399	1.6997183	3.708E-06	0.04040158	0.0458881	1.001E-07	0.00109074	0.0500804	1.093E-07	0.001190389
Road 9	9	0900-1000	0.290243101	4.735E-07	0.005159219	1.3073689	2.133E-06	0.023239147	1.597612	2.606E-06	0.028398365	0.0402163	6.561E-08	0.000714864	0.0438598	7.155E-08	0.00077963
Road 9	9	1000-1100	0.306287553	4.125E-07	0.004494809	1.3392809	1.804E-06	0.01965412	1.6455684	2.216E-06	0.024148929	0.0443474	5.973E-08	0.000650804	0.0482062	6.493E-08	0.000707433
Road 9	9	1100-1200	0.215472718	3.025E-07	0.003295699	1.1643556	1.634E-06	0.017809057	1.3798283	1.937E-06	0.021104757	0.0424278	5.956E-08	0.000648941	0.0466435	6.548E-08	0.000713421
Road 9	9	1200-1300	0.315789323	4.373E-07	0.004764791	1.472001	2.038E-06	0.022210305	1.7877903	2.476E-06	0.026975096	0.0433897	6.009E-08	0.000654686	0.0473443	6.556E-08	0.000714355
Road 9	9	1300-1400	0.356249318	4.055E-07	0.004418032	1.389087	1.581E-06	0.017226786	1.7453363	1.987E-06	0.021644819	0.0401065	4.565E-08	0.000497382	0.043573	4.959E-08	0.000540371
Road 9	9	1400-1500	0.229377307	2.959E-07	0.00322391	1.1578115	1.494E-06	0.016273102	1.3871889	1.789E-06	0.019497013	0.035608	4.593E-08	0.000500473	0.0388846	5.016E-08	0.000546524
Road 9	9	1500-1600	0.192997677	2.087E-07	0.002273791	1.0361231	1.12E-06	0.012207024	1.2291208	1.329E-06	0.014480815	0.0349907	3.783E-08	0.000412241	0.0382328	4.134E-08	0.000450437
Road 9	9	1600-1700	0.199415761	2.988E-07	0.003256193	1.1494571	1.723E-06	0.018769099	1.3488729	2.021E-06	0.022025292	0.0328463	4.922E-08	0.000536336	0.0358295	5.369E-08	0.000585048
Road 9	9	1700-1800	0.173825372	2.242E-07	0.002443125	1.0981377	1.417E-06	0.015434384	1.2719631	1.641E-06	0.017877508	0.0324041	4.18E-08	0.000455441	0.0359507	4.637E-08	0.00050529
Road 9	9	1800-1900	0.171430741	1.431E-07	0.001559068	1.0649883	8.889E-07	0.009685478	1.236419	1.032E-06	0.011244546	0.0283706	2.368E-08	0.000258015	0.0313948	2.62E-08	0.000285519
Road 9	9	1900-2000	0.180346731	1.471E-07	0.001602877	0.9994395	8.152E-07	0.008882772	1.1797862	9.624E-07	0.010485649	0.036579	2.984E-08	0.000325105	0.0412616	3.366E-08	0.000366723
Road 9	9	2000-2100	0.195449586	1.075E-07	0.001171538	0.8892472	4.892E-07	0.005330207	1.0846968	5.967E-07	0.006501745	0.0320788	1.765E-08	0.000192282	0.0357535	1.967E-08	0.000214309
Road 9	9	2100-2200	0.025802754	1.322E-08	0.000143997	0.368845	1.889E-07	0.002058407	0.3946477	2.021E-07	0.002202404	0.0092891	4.758E-09	5.18394E-05	0.0100319	5.138E-09	5.59846E-05
Road 9	9	2200-2300	0.188833522	1.182E-07	0.001288002	0.9451009	5.916E-07	0.006446377	1.1339345	7.098E-07	0.007734379	0.0341665	2.139E-08	0.000233044	0.0375099	2.348E-08	0.000255849
Road 9	9	2300-0000	0.151788954	8.638E-08	0.000941207	0.8055953	4.585E-07	0.004995302	0.9573843	5.448E-07	0.005936509	0.0283938	1.616E-08	0.000176063	0.0312636	1.779E-08	0.000193858
Road 10	10	0000-0100	0.315122304	2.423E-07	0.001966293	1.619063	1.245E-06	0.010102593	1.9341853	1.487E-06	0.012068886	0.0665562	5.117E-08	0.000415296	0.0726314	5.584E-08	0.000453204
Road 10	10	0100-0200	0.309276135	1.797E-07	0.001458082	1.5756971	9.153E-07	0.007428622	1.8849733	1.095E-06	0.008886704	0.064698	3.758E-08	0.000305018	0.0707032	4.107E-08	0.00033333
Road 10	10	0200-0300	0.309245437	1.004E-07	0.00081473	1.5534949	5.043E-07	0.004092795	1.8627403	6.047E-07	0.004907525	0.063818	2.072E-08	0.000168133	0.0693657	2.252E-08	0.000182749
Road 10	10	0300-0400	0.281268	5.767E-08	0.000468013	1.5275611	3.132E-07	0.002541771	1.8088291	3.709E-07	0.003009784	0.0608534	1.248E-08	0.000101256	0.066133	1.356E-08	0.000110041
Road 10	10	0400-0500	0.326776633	1.284E-07	0.001042163	1.581567	6.215E-07	0.005043965	1.9083436	7.499E-07	0.006086127	0.0623696	2.451E-08	0.00019891	0.0677895	2.664E-08	0.000216196
Road 10	10	0500-0600	0.297161648	2.082E-07	0.001689403	1.4462248	1.013E-06	0.008221977	1.7433865	1.221E-06	0.00991138	0.058314	4.085E-08	0.000331523	0.0636987	4.462E-08	0.000362136
Road 10	10	0600-0700	0.358276918	5.02E-07	0.004073702	1.8026212	2.526E-06	0.020496275	2.1608981	3.027E-06	0.024569977	0.0635138	8.898E-08	0.000722169	0.0693686	9.719E-08	0.000788739
Road 10	10	0700-0800	0.354467366	7.813E-07	0.006340486	1.8001382	3.968E-06	0.032199725	2.1546055	4.749E-06	0.038540212	0.0641976	1.415E-07	0.001148325	0.0701418	1.546E-07	0.001254652
Road 10	10	0800-0900	0.37834786	1.597E-06	0.012958205	1.8829425	7.946E-06	0.064489741	2.2612904	9.543E-06	0.077447946	0.0703429	2.969E-07	0.002409205	0.0765791	3.232E-07	0.002622791
Road 10	10	0900-1000	0.415747096	1.392E-06	0.011299049	2.017378	6.756E-06	0.054827691	2.4331251	8.148E-06	0.06612674	0.0707768	2.37E-07	0.001923552	0.0771048	2.582E-07	0.002095531
Road 10	10	1000-1100	0.414759574	1.509E-06	0.012249903	1.8871728	6.868E-06	0.055737552	2.3019324	8.377E-06	0.067987455	0.0699724	2.546E-07	0.002066633	0.0761911	2.773E-07	0.002250301
Road 10	10	1100-1200	0.404419476	1.472E-06	0.011944508	1.9064854	6.938E-06	0.056307949	2.3109049	8.41E-06	0.068252458	0.072576	2.641E-07	0.002143528	0.0790186	2.876E-07	0.002333811
Road 10	10	1200-1300	0.421061844	1.583E-06	0.012844736	2.0107823	7.558E-06	0.061340083	2.4318442	9.141E-06	0.074184819	0.0727577	2.735E-07	0.002219516	0.0792152	2.978E-07	0.002416507
Road 10	10	1300-1400	0.410700508	1.347E-06	0.010934101	1.9173564	6.29E-06	0.05104588	2.3280569	7.637E-06	0.061979981	0.069193	2.27E-07	0.001842128	0.075376	2.473E-07	0.00200674
Road 10	10	1400-1500	0.379084065	1.166E-06	0.009461601	1.9036727	5.855E-06	0.047513979	2.2827568	7.02E-06	0.05697558	0.0662713	2.038E-07	0.001654073	0.0722059	2.221E-07	0.001802196
Road 10	10	1500-1600	0.378493395	1.19E-06	0.009656789	1.8288678	5.75E-06	0.046661292	2.2073612	6.939E-06	0.056318081	0.0679741	2.137E-07	0.001734275	0.073983	2.326E-07	0.001887585
Road 10	10	1600-1700	0.362654286	1.27E-06	0.010308685	1.7814329	6.24E-06	0.050638396	2.1440872	7.51E-06	0.060947081	0.0646362	2.264E-07	0.001837325	0.0704725	2.468E-07	0.002003226
Road 10	10	1700-1800	0.336422106	1.104E-06	0.008956583	1.7521857	5.748E-06	0.046648532	2.0886079	6.852E-06	0.055605116	0.060929	1.999E-07	0.001622117	0.0665773	2.184E-07	0.00177249
Road 10	10	1800-1900	0.343786206	7.107E-07	0.005768069	1.7423706	3.602E-06	0.029233614	2.0861568	4.313E-06	0.035001683	0.0639933	1.323E-07	0.001073684	0.0698341	1.444E-07	0.001171682
Road 10	10	1900-2000	0.299782297	5.583E-07	0.004530948	1.5959392	2.972E-06	0.024121231	1.8957215	3.53E-06	0.028652179	0.0612588	1.141E-07	0.000925874	0.0671834	1.251E-07	0.001015419
Road 10	10	2000-2100	0.350397286	4.31E-07	0.003498242	1.7013248	2.093E-06	0.016985423	2.0517221	2.524E-06	0.020483664	0.0700873	8.622E-08	0.000699727	0.0763689	9.395E-08	0.00076244
Road 10	10	2100-2200	0.286812252	3.528E-07	0.002863432	1.6053162	1.975E-06	0.016026906	1.8921285	2.328E-06	0.018890338	0.0516562	6.355E-08	0.000515717	0.0563143	6.928E-08	0.000562221
Road 10	10	2200-2300	0.306125998	3.923E-07	0.003183597	1.57641	2.02E-06	0.01639408	1.882536	2.412E-06	0.019577677	0.0578415	7.412E-08	0.000601531	0.0630353	8.078E-08	0.000655544
Road 10	10	2300-0000	0.281706774	3.369E-07	0.002734336	1.4330351	1.714E-06	0.013909499	1.7147419	2.051E-06	0.016643836	0.0565064	6.758E-08	0.000548469	0.0616179	7.369E-08	0.000598083
Road 11	11	0000-0100	0.352889908	2.696E-07	0.000816174	1.775054	1.356E-06	0.004105398	2.1279439	1.626E-06	0.004921572	0.070813	5.409E-08	0.000163778	0.0769625	5.879E-08	0.000178001
Road 11	11	0100-0200	0.352470555	1.897E-07	0.000574349	1.7444996	9.389E-07	0.002842651	2.0969701	1.129E-06	0.003417	0.0688455	3.705E-08	0.000112183	0.0748238	4.027E-08	0.000121925
Road 11	11	0200-0300	0.30916159	8.051E-08	0.000243763	1.6556387	4.312E-07	0.001305413	1.9648002	5.117E-07	0.001549176	0.0661574	1.723E-08	5.21628E-05	0.0718984	1.872E-08	5.66893E-05
Road 11	11	0300-0400	0.331191758	8.05E-08	0.000243724	1.735288	4.218E-07	0.001276999	2.0664798	5.023E-07	0.001520723	0.0708829	1.723E-08	5.21628E-05	0.077034	1.872E-08	5.66893E-05
Road 11	11	0400-0500	0.337946162	1.173E-07	0.000355278	1.6158917	5.611E-07	0.001698765	1.9538379	6.784E-07	0.002054043	0.0625206	2.171E-08	6.5727E-05	0.0679474	2.359E-08	7.14322E-05
Road 11	11	0500-0600	0.272132532	1.276E-07	0.00038622	1.4004943	6.565E-07	0.001987633	1.6726269	7.84E-07	0.002373853	0.0556601	2.609E-08	7.89948E-05	0.0609705	2.858E-08	8.65315E-05
Road 11	11	0600-0700	0.294769236	2.661E-07	0.000805706	1.548347	1.398E-06	0.004232166	1.8431162	1.664E-06	0.005037872	0.0557614	5.034E-08	0.000152415	0.0608488	5.493E-08	0.000166321
Road 11	11	0700-0800	0.346098133	6.489E-07	0.00196478	1.817796	3.408E-06	0.01031953	2.1638942	4.057E-06	0.012284311	0.067709	1.27E-07	0.00038438	0.0739643	1.387E-07	0.000419891

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2027

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Road 11	11	0800-0900	0.37349076	1.329E-06	0.004024619	1.8579476	6.612E-06	0.020020658	2.2314384	7.942E-06	0.024045277	0.0676342	2.407E-07	0.000728805	0.0736751	2.622E-07	0.0007939
Road 11	11	0900-1000	0.372775264	9.449E-07	0.002860823	1.7796786	4.511E-06	0.013657948	2.1524539	5.456E-06	0.016518771	0.0636713	1.614E-07	0.000488638	0.0692503	1.755E-07	0.000531454
Road 11	11	1000-1100	0.386792521	7.991E-07	0.002419447	1.8141009	3.748E-06	0.01134748	2.2008934	4.547E-06	0.013766927	0.0663218	1.37E-07	0.000414853	0.0720385	1.488E-07	0.000450612
Road 11	11	1100-1200	0.342489997	7.968E-07	0.002412369	1.7623914	4.1E-06	0.012413613	2.1048814	4.897E-06	0.014825982	0.0673347	1.566E-07	0.00047428	0.073432	1.708E-07	0.000517227
Road 11	11	1200-1300	0.41549949	1.176E-06	0.003559993	2.0231552	5.725E-06	0.017334361	2.4386547	6.901E-06	0.020894354	0.0726403	2.056E-07	0.000622381	0.0790695	2.238E-07	0.000677466
Road 11	11	1300-1400	0.432542325	9.011E-07	0.002728355	1.9595758	4.082E-06	0.012360452	2.3921182	4.984E-06	0.015088807	0.0693161	1.444E-07	0.000437226	0.0753012	1.569E-07	0.000474979
Road 11	11	1400-1500	0.340469669	6.857E-07	0.002076	1.7121848	3.448E-06	0.010439979	2.0526544	4.134E-06	0.01251598	0.0614198	1.237E-07	0.000374505	0.0668238	1.346E-07	0.000407455
Road 11	11	1500-1600	0.306160714	6.219E-07	0.001882896	1.5923582	3.234E-06	0.009793043	1.8985189	3.856E-06	0.011675939	0.0618006	1.255E-07	0.000380075	0.0672724	1.366E-07	0.000413727
Road 11	11	1600-1700	0.29197543	7.046E-07	0.002133301	1.5691934	3.787E-06	0.011465218	1.8611688	4.491E-06	0.013598519	0.0563386	1.36E-07	0.000411634	0.0613103	1.48E-07	0.00044796
Road 11	11	1700-1800	0.29391675	7.246E-07	0.002193834	1.6073999	3.963E-06	0.011997846	1.9013166	4.687E-06	0.01419168	0.0599191	1.477E-07	0.000447244	0.0654781	1.614E-07	0.000488738
Road 11	11	1800-1900	0.317489538	6.504E-07	0.001969257	1.6991513	3.481E-06	0.010539138	2.0166409	4.131E-06	0.012508395	0.0640114	1.311E-07	0.000397037	0.0697849	1.43E-07	0.000432847
Road 11	11	1900-2000	0.303929994	4.802E-07	0.001453804	1.5937694	2.518E-06	0.007623561	1.8976994	2.998E-06	0.009077366	0.0633171	1E-07	0.000302868	0.0695333	1.099E-07	0.000332602
Road 11	11	2000-2100	0.315531005	4.437E-07	0.001343439	1.5813468	2.224E-06	0.006732916	1.8968778	2.667E-06	0.008076355	0.0637339	8.963E-08	0.000271361	0.0695899	9.786E-08	0.000296294
Road 11	11	2100-2200	0.230190778	2.278E-07	0.00068969	1.2925002	1.279E-06	0.003872545	1.522691	1.507E-06	0.004562235	0.0503317	4.981E-08	0.000150802	0.0546783	5.411E-08	0.000163825
Road 11	11	2200-2300	0.296335013	3.241E-07	0.000981329	1.507774	1.649E-06	0.004993072	1.804109	1.973E-06	0.005974401	0.0594539	6.503E-08	0.000196885	0.0648195	7.09E-08	0.000214653
Road 11	11	2300-0000	0.28243863	2.942E-07	0.000890772	1.4620071	1.523E-06	0.004610964	1.7444458	1.817E-06	0.005501736	0.0578319	6.024E-08	0.000182394	0.0630618	6.569E-08	0.000198888
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.47643	2.775E-06	0.001523548	6.78481	1.275E-05	0.007001338	8.26124	1.553E-05	0.008524886	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	0800-0900	1.47444	2.772E-06	0.001521495	6.7756	1.274E-05	0.006991834	8.25004	1.551E-05	0.008513329	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	0900-1000	1.46754	2.759E-06	0.001514375	6.74402	1.268E-05	0.006959246	8.21156	1.544E-05	0.008473621	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	1000-1100	1.47104	2.765E-06	0.001517986	6.76021	1.271E-05	0.006975953	8.23125	1.547E-05	0.008493939	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	1100-1200	1.47593	2.774E-06	0.001523032	6.78271	1.275E-05	0.006999171	8.25864	1.552E-05	0.008522203	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	1200-1300	1.47803	2.778E-06	0.001525199	6.7919	1.277E-05	0.007008654	8.26993	1.554E-05	0.008533853	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	1300-1400	1.48063	2.783E-06	0.001527882	6.8039	1.279E-05	0.007021037	8.28453	1.557E-05	0.008548919	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	1400-1500	1.47494	2.772E-06	0.001522011	6.7779	1.274E-05	0.006994207	8.25284	1.551E-05	0.008516218	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	1500-1600	1.46934	2.762E-06	0.001516232	6.75231	1.269E-05	0.006967801	8.22165	1.545E-05	0.008484033	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	1600-1700	1.47014	2.763E-06	0.001517057	6.75601	1.27E-05	0.006971619	8.22615	1.546E-05	0.008488676	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	1700-1800	1.47534	2.773E-06	0.001522423	6.78	1.274E-05	0.006996374	8.25534	1.552E-05	0.008518798	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	1800-1900	1.47534	2.773E-06	0.001522423	6.78	1.274E-05	0.006996374	8.25534	1.552E-05	0.008518798	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	1900-2000	1.47274	2.768E-06	0.00151974	6.768	1.272E-05	0.006983991	8.24074	1.549E-05	0.008503732	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	2000-2100	1.47014	2.763E-06	0.001517057	6.75601	1.27E-05	0.006971619	8.22615	1.546E-05	0.008488676	0.21962	4.128E-07	0.000226629	0.23871	4.487E-07	0.000246328
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.47643	1.912E-06	0.001858149	6.78481	8.789E-06	0.008538968	8.26124	1.07E-05	0.010397117	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	0800-0900	1.47444	1.91E-06	0.001855645	6.7756	8.777E-06	0.008527377	8.25004	1.069E-05	0.010383022	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	0900-1000	1.46754	1.901E-06	0.001846961	6.74402	8.736E-06	0.008487632	8.21156	1.064E-05	0.010334593	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	1000-1100	1.47104	1.905E-06	0.001851366	6.76021	8.757E-06	0.008508008	8.23125	1.066E-05	0.010359374	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	1100-1200	1.47593	1.912E-06	0.00185752	6.78271	8.786E-06	0.008536325	8.25864	1.07E-05	0.010393845	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	1200-1300	1.47803	1.915E-06	0.001860163	6.7919	8.798E-06	0.008547891	8.26993	1.071E-05	0.010408054	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	1300-1400	1.48063	1.918E-06	0.001863435	6.8039	8.813E-06	0.008562994	8.28453	1.073E-05	0.010426429	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	1400-1500	1.47494	1.911E-06	0.001856274	6.7779	8.78E-06	0.008530272	8.25284	1.069E-05	0.010386546	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	1500-1600	1.46934	1.903E-06	0.001849226	6.75231	8.747E-06	0.008498066	8.22165	1.065E-05	0.010347292	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	1600-1700	1.47014	1.904E-06	0.001850233	6.75601	8.751E-06	0.008502722	8.22615	1.066E-05	0.010352955	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	1700-1800	1.47534	1.911E-06	0.001856777	6.78	8.782E-06	0.008532915	8.25534	1.069E-05	0.010389692	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	1800-1900	1.47534	1.911E-06	0.001856777	6.78	8.782E-06	0.008532915	8.25534	1.069E-05	0.010389692	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	1900-2000	1.47274	1.908E-06	0.001853505	6.768	8.767E-06	0.008517812	8.24074	1.067E-05	0.010371317	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	2000-2100	1.47014	1.904E-06	0.001850233	6.75601	8.751E-06	0.008502722	8.22615	1.066E-05	0.010352955	0.21962	2.845E-07	0.000276401	0.23871	3.092E-07	0.000300427
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (Summary) Year 2027

Road Name	Road ID	Hour	NO2 Emission			NO Emission			NOX Emission			PM25 Emission			PM10 Emission		
			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin			AnnualHourMin		
			g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year	g/km/veh	g/s/m2	tonne/year
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.47643	1.912E-06	0.001855558	6.78481	8.789E-06	0.008527063	8.26124	1.07E-05	0.010382621	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	0800-0900	1.47444	1.91E-06	0.001853057	6.7756	8.777E-06	0.008515488	8.25004	1.069E-05	0.010368545	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	0900-1000	1.46754	1.901E-06	0.001844386	6.74402	8.736E-06	0.008475799	8.21156	1.064E-05	0.010320184	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	1000-1100	1.47104	1.905E-06	0.001848784	6.76021	8.757E-06	0.008496146	8.23125	1.066E-05	0.01034493	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	1100-1200	1.47593	1.912E-06	0.00185493	6.78271	8.786E-06	0.008524424	8.25864	1.07E-05	0.010379354	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	1200-1300	1.47803	1.915E-06	0.001857569	6.7919	8.798E-06	0.008535974	8.26993	1.071E-05	0.010393543	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	1300-1400	1.48063	1.918E-06	0.001860837	6.8039	8.813E-06	0.008551055	8.28453	1.073E-05	0.010411892	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	1400-1500	1.47494	1.911E-06	0.001853686	6.7779	8.78E-06	0.008518379	8.25284	1.069E-05	0.010372064	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	1500-1600	1.46934	1.903E-06	0.001846648	6.75231	8.747E-06	0.008486217	8.22165	1.065E-05	0.010332865	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	1600-1700	1.47014	1.904E-06	0.001847653	6.75601	8.751E-06	0.008490868	8.22615	1.066E-05	0.010338521	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	1700-1800	1.47534	1.911E-06	0.001854189	6.78	8.782E-06	0.008521018	8.25534	1.069E-05	0.010375206	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	1800-1900	1.47534	1.911E-06	0.001854189	6.78	8.782E-06	0.008521018	8.25534	1.069E-05	0.010375206	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	1900-2000	1.47274	1.908E-06	0.001850921	6.768	8.767E-06	0.008505936	8.24074	1.067E-05	0.010356857	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	2000-2100	1.47014	1.904E-06	0.001847653	6.75601	8.751E-06	0.008490868	8.22615	1.066E-05	0.010338521	0.21962	2.845E-07	0.000276016	0.23871	3.092E-07	0.000300008
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.109079153	3.624E-07	2.94792E-06	0.0977638	3.248E-07	2.64212E-06	0.6467243	2.148E-06	1.74781E-05	0.5753862	1.911E-06	1.55501E-05	0.6731499	2.236E-06	1.81922E-05
Road 1	1	0100-0200	0.084568981	1.714E-07	1.39456E-06	0.0754415	1.529E-07	1.24404E-06	0.513248	1.04E-06	8.46354E-06	0.4540875	9.204E-07	7.48798E-06	0.529529	1.073E-06	8.73202E-06
Road 1	1	0200-0300	0.080297403	1.16E-07	9.44047E-07	0.0726305	1.05E-07	8.53908E-07	0.5171748	7.474E-07	6.08036E-06	0.4618135	6.674E-07	5.42948E-06	0.534444	7.724E-07	6.28339E-06
Road 1	1	0300-0400	0.068977273	7.12E-08	5.79255E-07	0.0619187	6.392E-08	5.19979E-07	0.4236304	4.373E-07	3.55755E-06	0.3754969	3.876E-07	3.15334E-06	0.4374156	4.515E-07	3.67332E-06
Road 1	1	0400-0500	0.089931059	1.435E-07	1.16716E-06	0.0808089	1.289E-07	1.04877E-06	0.5168845	8.246E-07	6.70832E-06	0.4601068	7.34E-07	5.97144E-06	0.5409158	8.629E-07	7.02021E-06
Road 1	1	0500-0600	0.072321337	2.538E-07	2.06495E-06	0.0651727	2.287E-07	1.86084E-06	0.4307812	1.512E-06	1.22998E-05	0.3829416	1.344E-06	1.09339E-05	0.4481142	1.573E-06	1.27947E-05
Road 1	1	0600-0700	0.097130934	6.052E-07	4.92376E-06	0.0883139	5.503E-07	4.47681E-06	0.5240494	3.265E-06	2.65651E-05	0.4724301	2.944E-06	2.39484E-05	0.560744	3.494E-06	2.84252E-05
Road 1	1	0700-0800	0.081665814	8.568E-07	6.97033E-06	0.0750216	7.871E-07	6.40323E-06	0.4543431	4.767E-06	3.8779E-05	0.4130804	4.334E-06	3.52572E-05	0.488102	5.121E-06	4.16604E-05
Road 1	1	0800-0900	0.087152219	1.12E-06	9.11529E-06	0.0803858	1.033E-06	8.40758E-06	0.4656762	5.987E-06	4.87053E-05	0.4269464	5.489E-06	4.46545E-05	0.5073322	6.523E-06	5.30621E-05
Road 1	1	0900-1000	0.091221796	1.21E-06	9.84735E-06	0.0830182	1.102E-06	8.96177E-06	0.5129357	6.806E-06	5.53712E-05	0.463736	6.154E-06	5.00601E-05	0.5467542	7.255E-06	5.90218E-05
Road 1	1	1000-1100	0.105472475	1.36E-06	1.10636E-05	0.097286	1.254E-06	1.02049E-05	0.568378	7.329E-06	5.96204E-05	0.5219157	6.73E-06	5.47468E-05	0.6192017	7.984E-06	6.49516E-05
Road 1	1	1100-1200	0.095918051	1.201E-06	9.76849E-06	0.0876592	1.097E-06	8.92739E-06	0.5529372	6.922E-06	5.63122E-05	0.5023702	6.289E-06	5.11624E-05	0.5900294	7.386E-06	6.00898E-05
Road 1	1	1200-1300	0.098386136	1.219E-06	9.91469E-06	0.0892562	1.106E-06	8.99464E-06	0.5624628	6.967E-06	5.66812E-05	0.5078576	6.291E-06	5.11785E-05	0.5971138	7.397E-06	6.01731E-05
Road 1	1	1300-1400	0.103289188	1.361E-06	1.10712E-05	0.0936213	1.234E-06	1.00349E-05	0.5782002	7.618E-06	6.1975E-05	0.5210695	6.865E-06	5.58514E-05	0.6146908	8.099E-06	6.58863E-05
Road 1	1	1400-1500	0.099180458	1.424E-06	1.15848E-05	0.0897069	1.288E-06	1.04782E-05	0.5416907	7.778E-06	6.32724E-05	0.4874427	6.999E-06	5.69359E-05	0.5771496	8.287E-06	6.74142E-05
Road 1	1	1500-1600	0.106533568	1.418E-06	1.15328E-05	0.0963034	1.282E-06	1.04253E-05	0.5800428	7.719E-06	6.27925E-05	0.521541	6.94E-06	5.64594E-05	0.6178444	8.222E-06	6.68847E-05
Road 1	1	1600-1700	0.101934358	1.431E-06	1.16419E-05	0.0924947	1.299E-06	1.05638E-05	0.5611366	7.878E-06	6.40872E-05	0.5061281	7.106E-06	5.78047E-05	0.5986228	8.404E-06	6.83685E-05
Road 1	1	1700-1800	0.08209548	1.156E-06	9.40117E-06	0.073439	1.034E-06	8.40987E-06	0.4619162	6.502E-06	5.28963E-05	0.409483	5.764E-06	4.6892E-05	0.482922	6.798E-06	5.53018E-05
Road 1	1	1800-1900	0.073423346	1.058E-06	8.60987E-06	0.0658125	9.486E-07	7.7174E-06	0.4403096	6.347E-06	5.16322E-05	0.3900133	5.622E-06	4.57343E-05	0.4558258	6.57E-06	5.34517E-05
Road 1	1	1900-2000	0.087001485	9.569E-07	7.78441E-06	0.0789968	8.688E-07	7.06819E-06	0.5005089	5.505E-06	4.47827E-05	0.4509703	4.96E-06	4.03503E-05	0.5299672	5.829E-06	4.74185E-05
Road 1	1	2000-2100	0.079162319	7.369E-07	5.99517E-06	0.0711705	6.625E-07	5.38993E-06	0.46841	4.361E-06	3.54739E-05	0.4171714	3.884E-06	3.15935E-05	0.4883419	4.546E-06	3.69834E-05
Road 1	1	2100-2200	0.082345828	7.001E-07	5.69562E-06	0.0747819	6.358E-07	5.17245E-06	0.489506	4.162E-06	3.38577E-05	0.4408683	3.748E-06	3.04936E-05	0.5156502	4.384E-06	3.5666E-05
Road 1	1	2200-2300	0.081988561	6.632E-07	5.3955E-06	0.0740545	5.991E-07	4.87338E-06	0.4870728	3.94E-06	3.20533E-05	0.4355408	3.523E-06	2.86621E-05	0.5095953	4.122E-06	3.35354E-05
Road 1	1	2300-0000	0.071803766	5.189E-07	4.22094E-06	0.0645424	4.664E-07	3.79409E-06	0.4437721	3.207E-06	2.60869E-05	0.3936489	2.844E-06	2.31404E-05	0.4581913	3.311E-06	2.69345E-05
Road 2	2	0000-0100	0.182897843	2.159E-07	1.3944E-06	0.1639763	1.936E-07	1.25014E-06	0.78048	9.214E-07	5.95031E-06	0.6956127	8.212E-07	5.30329E-06	0.859589	1.015E-06	6.55343E-06
Road 2	2	0100-0200	0.130119394	9.94E-08	6.41895E-07	0.1160618	8.866E-08	5.72547E-07	0.6488224	4.956E-07	3.20072E-06	0.5746082	4.389E-07	2.83461E-06	0.69067	5.276E-07	3.40716E-06
Road 2	2	0200-0300	0.129027826	6.87E-08	4.43628E-07	0.11688	6.223E-08	4.01861E-07	0.7089952	3.775E-07	2.43769E-06	0.6368713	3.391E-07	2.18971E-06	0.7537513	4.013E-07	2.59157E-06
Road 2	2	0300-0400	0.114340667	3.97E-08	2.56389E-07	0.102708	3.566E-08	2.30305E-07	0.4206873	1.461E-07	9.43319E-07	0.373584	1.297E-07	8.37698E-07	0.476292	1.654E-07	1.068E-06
Road 2	2	0400-0500	0.15405037	9.628E-08	6.21776E-07	0.1384781	8.655E-08	5.58924E-07	0.7499352	4.687E-07	3.02688E-06	0.6701333	4.188E-07	2.70478E-06	0.8086115	5.054E-07	3.26371E-06
Road 2	2	0500-0600	0.122209123	1.612E-07	1.04132E-06	0.1102279	1.454E-07	9.39235E-07	0.5456979	7.2E-07	4.64981E-06	0.4869539	6.425E-07	4.14926E-06	0.5971818	7.879E-07	5.08849E-06
Road 2	2	0600-0700	0.172323883	4.109E-07	2.65332E-06	0.1567429	3.737E-07	2.41342E-06	0.7036649	1.678E-06	1.08345E-05	0.6360218	1.516E-06	9.79303E-06	0.7927648	1.89E-06	1.22064E-05
Road 2	2	0700-0800	0.137064747	5.013E-07	3.23736E-06	0.1259612	4.607E-07	2.9751E-06	0.583918	2.136E-06	1.37917E-05	0.5318216	1.945E-06	1.25612E-05	0.6577828	2.406E-06	1.55363E-05
Road 2	2	0800-0900	0.154223533	1.071E-06	6.91639E-06	0.1422926	9.881E-07	6.38133E-06	0.6568429	4.561E-06	2.94571E-05	0.6025392	4.184E-06	2.70218E-05	0.7448318	5.172E-06	3.34031E-05
Road 2	2	0900-1000	0.176165163	1.003E-06	6.47833E-06	0.1602874	9.127E-07	5.89443E-06	0.7649706	4.356E-06	2.81312E-05	0.6926875	3.944E-06	2.5473E-05	0.8529749	4.857E-06	3.13674E-05
Road 2	2	1000-1100	0.194828641	8.298E-07	5.35893E-06	0.1797251	7.655E-07	4.9435E-06	0.8387649	3.573E-06	2.3071E-05	0.7709664	3.284E-06	2.12061E-05	0.9506915	4.049E-06	2.61496E-05
Road 2	2	1100-1200	0.237099006	9.934E-07	6.41529E-06	0.216775	9.082E-07	5.86537E-06	0.9742466	4.082E-06	2.63606E-05	0.8887004	3.723E-06	2.40459E-05	1.1054754	4.632E-06	2.99113E-05
Road 2	2	1200-1300	0.18015617	7.84E-07	5.06308E-06	0.1635209	7.116E-07	4.59556E-06	0.7962161	3.465E-06	2.23767E-05	0.7192846	3.13E-06	2.02147E-05	0.8828055	3.842E-06	2.48102E-05
Road 2	2	1300-1400	0.200397955	1.021E-06	6.59058E-06	0.181525	9.244E-07	5.9699E-06	0.8311886	4.233E-06	2.73357E-05	0.7495656	3.817E-06	2.46513E-05	0.9310906	4.742E-06	3.06212E-05
Road 2	2	1400-1500	0.175298405	6.614E-07	4.27143E-06	0.1586037	5.984E-07	3.86464E-06	0.7603952	2.869E-06	1.85283E-05	0.685616	2.587E-06	1.67061E-05	0.8442198	3.185E-06	2.05708E-05
Road 2	2	1500-1600	0.215676704	8.937E-07	5.77117E-06	0.1948755	8.075E-07	5.21456E-06	0.8684809	3.599E-06	2.32392E-05	0.7824317	3.242E-06	2.09366E-05	0.9773072	4.049E-06	2.61512E-05
Road 2	2	1600-1700	0.184538174	9.355E-07	6.04141E-06	0.1675171	8.492E-07	5.48417E-06	0.7834125	3.971E-06	2.56473E-05	0.7080476	3.589E-06	2.318E-05	0.8755647	4.439E-06	2.86642E-05
Road 2	2	1700-1800	0.140551797	7.06E-07	4.55936E-06	0.1258183	6.32E-07	4.08142E-06	0.5625543	2.826E-06	1.82487E-05	0.5004566	2.514E-06	1.62343E-05	0.6262749	3.146E-06	2.03157E-05
Road 2	2	1800-1900	0.154943347	8.895E-07	5.74424E-06	0.1390867	7.985E-07	5.15638E-06	0.7192766	4.129E-06	2.66658E-05	0.6411444	3.681E-06	2.37692E-05	0.7802311	4.479E-06	2.89256E-05
Road 2	2	1900-2000	0.131313916	5.046E-07	3.25857E-06	0.1192945	4.584E-07	2.9603E-06	0.6072082	2.333E-06	1.50679E-05	0.547583	2.104E-06	1.35883E-05	0.6668775	2.563E-06	1.65486E-05
Road 2	2	2000-2100	0.129882671	4.39E-07	2.83473E-06	0.1167529	3.946E-07	2.54817E-06	0.5514385	1.864E-06	1.20353E-05	0.4908432	1.659E-06	1.07128E-05	0.6075961	2.053E-06	1.3261E-05
Road 2	2	2100-2200	0.099047105	3.485E-07	2.25057E-06	0.0899039	3.163E-07	2.04282E-06	0.4534738	1.596E-06	1.03039E-05	0.4064397	1.43E-06	9.23522E-06	0.4963436	1.746E-06	1.1278E-05
Road 2	2	2200-2300	0.1451484	4.2E-07	2.71225E-06	0.1311898	3.796E-07	2.45142E-06	0.6253056	1.809E-06	1.16845E-05	0.5603982	1.622E-06	1.04716E-05	0.6915881	2.001E-06	1.29231E-05
Road 2	2	2300-0000	0.131517273	3.349E-07	2.16263E-06	0.1182661	3.011E-07	1.94474E-06	0.5983844	1.524E-06	9.83967E-06	0.532633	1.356E-06	8.75847E-06	0.6508991	1.657E-06	1.07032E-05
Road 3	3	0000-0100	0.113513886	4.169E-07	1.62055E-05	0.1016779	3.735E-07	1.45158E-05	0.6261137	2.3E-06	8.93856E-05	0.5567455	2.045E-06	7.94824E-05	0.6584233	2.418E-06	9.39982E-05
Road 3	3	0100-0200	0.085603901	1.936E-07	7.52474E-06	0.0773557	1.749E-07	6.79971E-06	0.4998091	1.13E-06	4.39341E-05	0.4486221	1.015E-06	3.94347E-05	0.5259778	1.19E-06	4.62344E-05
Road 3	3	0200-0300	0.082509495	1.31E-07	5.09235E-06	0.0747802	1.187E-07	4.61531E-06	0.517878	8.223E-07	3.19625E-05	0.4637058	7.363E-07	2.86191E-05	0.538486	8.551E-07	3.32344E-05
Road 3	3	0300-0400	0.071642899	7.929E-08	3.08178E-06	0.0641519	7.1E-08	2.75954E-06	0.393917	4.36E-07	1.69446E-05	0.3476428	3.847E-07	1.49541E-05	0.4117946	4.557E-07	1.77137E-05
Road 3	3	0400-0500	0.095072342	1.693E-07	6.57894E-06	0.0854399	1.521E-07	5.91238E-06	0.5268294	9.38E-07	3.64562E-05	0.469327	8.356E-07	3.24771E-05	0.5547669	9.877E-07	3.83895E-05
Road 3	3	0500-0600	0.076291564	2.974E-07	1.15574E-05	0.0688736	2.684E-07	1.04337E-05	0.4257114	1.659E-06	6.44912E-05	0.3792972	1.478E-06	5.74599E-05	0.4481707	1.747E-06	6.78935E-05
Road 3	3	0600-0700	0.10340258	7.264E-07	2.82348E-05	0.094159	6.615E-07	2.57107E-05	0.5190149	3.646E-06	0.00014172	0.4687778	3.293E-06	0.000128003	0.5629368	3.955E-06	0.000153714
Road 3	3	0700-0800	0.084809916	9.74E-07	3.78563E-05	0.0778617	8.942E-07	3.47549E-05	0.4450558	5.111E-06	0.000198658	0.4043921	4.644E-06	0.000180507	0.4822538	5.538E-06	0.000215262
Road 3	3	0800-0900	0.09342996	1.482E-06	5.76051E-05	0.0856868	1.359E-06	5.2831E-05	0.4676628	7.419E-06	0.000288342	0.4257634	6.754E-06	0.000262508	0.5114502	8.113E-06	0.000315339
Road 3	3	0900-1000	0.100561342	1.539E-06	5.98078E-05	0.0926255	1.417E-06	5.50881E-05	0.5193674	7.947E-06	0.000308889	0.4755847	7.277E-06	0.000282849	0.5682101	8.695E-06	0.000337937
Road 3	3	1000-1100	0.113364885	1.582E-06	6.1486E-05	0.1039786	1.451E-06	5.63952E-05	0.5781907	8.068E-06	0.000313595	0.5275664	7.362E-06	0.000286138	0.631545	8.813E-06	0.000342533
Road 3	3	1100-1200	0.111424858	1.512E-06	5.87667E-05	0.1012911	1.374E-06	5.3422E-05	0.5834603	7.917E-06	0.000307723	0.52711	7.153E-06	0.000278004	0.6284011	8.527E-06	0.000331426
Road 3	3	1200-1300	0.10505091	1.425E-06	5.5405E-05	0.0958484	1.301E-06	5.05515E-05	0.5621289	7.628E-06	0.000296473	0.5099879	6.92E-06	0.000268973	0.6058363	8.221E-06	0.000319525
Road 3	3	1300-1400	0.111897116	1.649E-06	6.41081E-05	0.1010873	1.49E-06	5.7915E-05	0.5762531	8.494E-06	0.000330147	0.5176058	7.63E-06	0.000296547	0.618693	9.12E-06	0.000354462

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.104106385	1.543E-06	5.99692E-05	0.0937712	1.39E-06	5.40157E-05	0.5420558	8.034E-06	0.000312244	0.4857179	7.199E-06	0.000279792	0.5794892	8.588E-06	0.000333807
Road 3	3	1500-1600	0.116128292	1.658E-06	6.44328E-05	0.1057093	1.509E-06	5.86519E-05	0.588443	8.4E-06	0.000326492	0.5331355	7.611E-06	0.000295806	0.6388448	9.12E-06	0.000354457
Road 3	3	1600-1700	0.109530526	1.702E-06	6.61664E-05	0.0988618	1.537E-06	5.97216E-05	0.566815	8.81E-06	0.000342408	0.5081642	7.898E-06	0.000306977	0.607026	9.435E-06	0.000366699
Road 3	3	1700-1800	0.087374186	1.359E-06	5.28364E-05	0.0790113	1.229E-06	4.77793E-05	0.4530635	7.049E-06	0.000273974	0.4064161	6.323E-06	0.000245766	0.4854274	7.552E-06	0.000293545
Road 3	3	1800-1900	0.082800344	1.351E-06	5.24967E-05	0.0741907	1.21E-06	4.7038E-05	0.4605705	7.513E-06	0.000292009	0.4082003	6.659E-06	0.000258805	0.482391	7.869E-06	0.000305843
Road 3	3	1900-2000	0.088565405	1.07E-06	4.15755E-05	0.0800652	9.67E-07	3.75852E-05	0.4891433	5.908E-06	0.00022962	0.4379883	5.29E-06	0.000205606	0.5180535	6.257E-06	0.000243191
Road 3	3	2000-2100	0.082340248	8.505E-07	3.3058E-05	0.0738379	7.627E-07	2.96445E-05	0.4508532	4.657E-06	0.000181009	0.4003413	4.135E-06	0.000160729	0.4741792	4.898E-06	0.000190374
Road 3	3	2100-2200	0.080274033	7.854E-07	3.0527E-05	0.0725327	7.097E-07	2.75831E-05	0.4538508	4.441E-06	0.000172592	0.4064174	3.976E-06	0.000154554	0.4789502	4.686E-06	0.000182137
Road 3	3	2200-2300	0.087611151	7.813E-07	3.03678E-05	0.0789515	7.041E-07	2.73662E-05	0.479565	4.277E-06	0.000166227	0.4278629	3.816E-06	0.000148306	0.5068144	4.52E-06	0.000175672
Road 3	3	2300-0000	0.077368012	6.18E-07	2.40198E-05	0.0696866	5.566E-07	2.1635E-05	0.4413204	3.525E-06	0.000137013	0.3925233	3.135E-06	0.000121863	0.4622099	3.692E-06	0.000143498
Road 4	4	0000-0100	0.290029714	2.35E-07	2.51604E-06	0.2597917	2.105E-07	2.25372E-06	1.4786891	1.198E-06	1.28278E-05	1.3235157	1.072E-06	1.14817E-05	1.5833074	1.283E-06	1.37354E-05
Road 4	4	0100-0200	0.275074	1.273E-07	1.3636E-06	0.2487385	1.152E-07	1.23305E-06	1.404062	6.5E-07	6.96023E-06	1.2692885	5.876E-07	6.29213E-06	1.518027	7.028E-07	7.52518E-06
Road 4	4	0200-0300	0.295324615	8.887E-08	9.51591E-07	0.2682515	8.072E-08	8.64357E-07	1.4575654	4.386E-07	4.69655E-06	1.3237415	3.983E-07	4.26534E-06	1.5919931	4.791E-07	5.1297E-06
Road 4	4	0300-0400	0.270862857	4.389E-08	4.69954E-07	0.2432486	3.942E-08	4.22042E-07	1.43795	2.33E-07	2.49488E-06	1.29092	2.092E-07	2.23978E-06	1.5341686	2.486E-07	2.66182E-06
Road 4	4	0400-0500	0.277017857	8.977E-08	9.61265E-07	0.2491407	8.074E-08	8.6453E-07	1.3681229	4.434E-07	4.74745E-06	1.2300407	3.986E-07	4.2683E-06	1.4791814	4.794E-07	5.13283E-06
Road 4	4	0500-0600	0.254149583	1.412E-07	1.51185E-06	0.2299033	1.277E-07	1.36762E-06	1.2059083	6.699E-07	7.17353E-06	1.0891875	6.051E-07	6.4792E-06	1.3190908	7.328E-07	7.84682E-06
Road 4	4	0600-0700	0.279395769	3.363E-07	3.60106E-06	0.2546137	3.065E-07	3.28165E-06	1.3348833	1.607E-06	1.7205E-05	1.2155479	1.463E-06	1.56669E-05	1.4701615	1.77E-06	1.89485E-05
Road 4	4	0700-0800	0.279623587	5.955E-07	6.37631E-06	0.2570217	5.474E-07	5.86091E-06	1.3933679	2.967E-06	3.17732E-05	1.2794254	2.725E-06	2.9175E-05	1.5364472	3.272E-06	3.50359E-05
Road 4	4	0800-0900	0.285194575	1.01E-06	1.08153E-05	0.261706	9.269E-07	9.92459E-06	1.4233639	5.041E-06	5.39778E-05	1.305352	4.623E-06	4.95024E-05	1.567058	5.55E-06	5.9427E-05
Road 4	4	0900-1000	0.291781351	9.996E-07	1.07035E-05	0.2685597	9.201E-07	9.85167E-06	1.3759916	4.714E-06	5.0476E-05	1.2654716	4.335E-06	4.64218E-05	1.5340312	5.255E-06	5.62734E-05
Road 4	4	1000-1100	0.32548042	1.077E-06	1.15363E-05	0.298528	9.882E-07	1.0581E-05	1.5374017	5.089E-06	5.44918E-05	1.4095622	4.666E-06	4.99606E-05	1.7080903	5.654E-06	6.05417E-05
Road 4	4	1100-1200	0.303018129	1.087E-06	1.16415E-05	0.275459	9.883E-07	1.05827E-05	1.4220181	5.102E-06	5.46316E-05	1.2920087	4.636E-06	4.96369E-05	1.5674677	5.624E-06	6.02196E-05
Road 4	4	1200-1300	0.309458844	1.053E-06	1.12753E-05	0.2823461	9.608E-07	1.02874E-05	1.5193076	5.17E-06	5.53567E-05	1.3854786	4.714E-06	5.04806E-05	1.6678247	5.675E-06	6.0768E-05
Road 4	4	1300-1400	0.318519933	1.099E-06	1.17633E-05	0.2877038	9.923E-07	1.06253E-05	1.5270354	5.267E-06	5.63953E-05	1.3787607	4.755E-06	5.09193E-05	1.6664646	5.748E-06	6.15446E-05
Road 4	4	1400-1500	0.291671377	9.317E-07	9.97655E-06	0.2626798	8.391E-07	8.9849E-06	1.4461991	4.62E-06	4.94669E-05	1.3013893	4.157E-06	4.45137E-05	1.5640691	4.996E-06	5.34986E-05
Road 4	4	1500-1600	0.326221935	9.364E-07	1.00263E-05	0.2968234	8.52E-07	9.12278E-06	1.5620552	4.484E-06	4.80093E-05	1.4208984	4.079E-06	4.36709E-05	1.7177218	4.93E-06	5.27937E-05
Road 4	4	1600-1700	0.306667984	8.803E-07	9.42535E-06	0.2767635	7.944E-07	8.50625E-06	1.485014	4.263E-06	4.56415E-05	1.3398123	3.846E-06	4.11788E-05	1.6165759	4.64E-06	4.9685E-05
Road 4	4	1700-1800	0.293125	8.549E-07	9.15442E-06	0.2652871	7.738E-07	8.28503E-06	1.4433936	4.21E-06	4.50778E-05	1.3055287	3.808E-06	4.07722E-05	1.5708158	4.582E-06	4.90573E-05
Road 4	4	1800-1900	0.324254906	7.956E-07	8.51922E-06	0.2908792	7.137E-07	7.64234E-06	1.6181476	3.97E-06	4.2514E-05	1.4513723	3.561E-06	3.81322E-05	1.7422515	4.275E-06	4.57746E-05
Road 4	4	1900-2000	0.293362568	5.025E-07	5.38076E-06	0.2654642	4.547E-07	4.86906E-06	1.4577068	2.497E-06	2.67368E-05	1.3181659	2.258E-06	2.41774E-05	1.5836301	2.713E-06	2.90464E-05
Road 4	4	2000-2100	0.256963469	2.915E-07	3.12086E-06	0.2305557	2.615E-07	2.80014E-06	1.2842671	1.457E-06	1.55976E-05	1.1508992	1.305E-06	1.39779E-05	1.3814549	1.567E-06	1.6778E-05
Road 4	4	2100-2200	0.211948649	1.815E-07	1.94375E-06	0.1918914	1.644E-07	1.75981E-06	1.0786903	9.239E-07	9.8925E-06	0.9748522	8.349E-07	8.94022E-06	1.1667435	9.993E-07	1.07E-05
Road 4	4	2200-2300	0.288729524	4.211E-07	4.50857E-06	0.2605102	3.799E-07	4.06792E-06	1.4169641	2.066E-06	2.21262E-05	1.2773954	1.863E-06	1.99468E-05	1.5379056	2.243E-06	2.40147E-05
Road 4	4	2300-0000	0.268007917	2.978E-07	3.18857E-06	0.2416665	2.685E-07	2.87518E-06	1.3505333	1.501E-06	1.60677E-05	1.2164773	1.352E-06	1.44728E-05	1.4581438	1.62E-06	1.7348E-05
Road 5	5	0000-0100	0.096881036	3.509E-07	4.74582E-06	0.0867802	3.144E-07	4.25101E-06	0.5376807	1.948E-06	2.63388E-05	0.4769236	1.728E-06	2.33626E-05	0.5637037	2.042E-06	2.76136E-05
Road 5	5	0100-0200	0.065925537	1.497E-07	2.02467E-06	0.0595574	1.353E-07	1.82909E-06	0.4006955	9.1E-07	1.23059E-05	0.3584817	8.141E-07	1.10095E-05	0.4180391	9.494E-07	1.28386E-05
Road 5	5	0200-0300	0.061658605	9.952E-08	1.34588E-06	0.0558191	9.01E-08	1.21842E-06	0.4232999	6.833E-07	9.23978E-06	0.3768106	6.082E-07	8.22501E-06	0.4326297	6.983E-07	9.44343E-06
Road 5	5	0300-0400	0.05716371	6.652E-08	8.99553E-07	0.0511631	5.954E-08	8.05125E-07	0.3112063	3.621E-07	4.89728E-06	0.2726834	3.173E-07	4.29107E-06	0.3238465	3.768E-07	5.09619E-06
Road 5	5	0400-0500	0.078946701	1.437E-07	1.94366E-06	0.0709325	1.291E-07	1.74635E-06	0.4479442	8.155E-07	1.10283E-05	0.3977762	7.242E-07	9.79322E-06	0.4687087	8.533E-07	1.15396E-05
Road 5	5	0500-0600	0.063013532	2.578E-07	3.48662E-06	0.0568498	2.326E-07	3.14558E-06	0.3647083	1.492E-06	2.01798E-05	0.3235949	1.324E-06	1.79049E-05	0.3804447	1.557E-06	2.10505E-05
Road 5	5	0600-0700	0.090959091	6.573E-07	8.88836E-06	0.0828087	5.984E-07	8.09192E-06	0.4555942	3.292E-06	4.45199E-05	0.4105143	2.966E-06	4.01147E-05	0.493323	3.565E-06	4.82066E-05
Road 5	5	0700-0800	0.069815801	8.177E-07	1.10574E-05	0.0640584	7.502E-07	1.01455E-05	0.3653352	4.279E-06	5.78617E-05	0.3305838	3.872E-06	5.23578E-05	0.3946422	4.622E-06	6.25033E-05
Road 5	5	0800-0900	0.075185251	1.18E-06	1.59534E-05	0.0689427	1.082E-06	1.46288E-05	0.3684531	5.781E-06	7.81814E-05	0.3343085	5.246E-06	7.09363E-05	0.4032512	6.327E-06	8.55651E-05
Road 5	5	0900-1000	0.081973304	1.243E-06	1.68112E-05	0.0754973	1.145E-06	1.54831E-05	0.4333533	6.572E-06	8.88727E-05	0.3962046	6.009E-06	8.12542E-05	0.4717019	7.153E-06	9.67373E-05
Road 5	5	1000-1100	0.093094904	1.269E-06	1.71545E-05	0.0853813	1.163E-06	1.57331E-05	0.4830413	6.582E-06	8.90094E-05	0.4398763	5.994E-06	8.10554E-05	0.5252576	7.157E-06	9.67885E-05
Road 5	5	1100-1200	0.091354826	1.183E-06	1.59991E-05	0.0830522	1.076E-06	1.4545E-05	0.4931618	6.387E-06	8.63681E-05	0.4444278	5.756E-06	7.78332E-05	0.52748	6.831E-06	9.23783E-05
Road 5	5	1200-1300	0.085409185	1.121E-06	1.51529E-05	0.0779242	1.022E-06	1.3825E-05	0.4642348	6.09E-06	8.23625E-05	0.4201988	5.513E-06	7.45499E-05	0.498123	6.535E-06	8.83748E-05
Road 5	5	1300-1400	0.092336688	1.329E-06	1.79756E-05	0.0834105	1.201E-06	1.62379E-05	0.4828208	6.951E-06	9.39931E-05	0.4328124	6.231E-06	8.42578E-05	0.5162229	7.431E-06	0.000100496
Road 5	5	1400-1500	0.088266374	1.302E-06	1.76089E-05	0.0795138	1.173E-06	1.58628E-05	0.460881	6.799E-06	9.19446E-05	0.4123716	6.083E-06	8.22671E-05	0.4918854	7.256E-06	9.81299E-05
Road 5	5	1500-1600	0.099037908	1.422E-06	1.92299E-05	0.0901647	1.295E-06	1.7507E-05	0.5054606	7.257E-06	9.8144E-05	0.4573374	6.566E-06	8.88E-05	0.5475021	7.861E-06	0.000106307
Road 5	5	1600-1700	0.093532922	1.478E-06	1.9989E-05	0.0844159	1.334E-06	1.80406E-05	0.4893362	7.733E-06	0.000104577	0.4378437	6.919E-06	9.3572E-05	0.5222596	8.253E-06	0.000111613
Road 5	5	1700-1800	0.069691055	1.104E-06	1.49291E-05	0.063003	9.98E-07	1.34964E-05	0.3636608	5.761E-06	7.79029E-05	0.3251252	5.15E-06	6.96479E-05	0.3881282	6.148E-06	8.31443E-05
Road 5	5	1800-1900	0.065597604	1.12E-06	1.51511E-05	0.0587682	1.004E-06	1.35737E-05	0.374005	6.388E-06	8.63841E-05	0.3300499	5.637E-06	7.62317E-05	0.3888181	6.641E-06	8.98055E-05
Road 5	5	1900-2000	0.075898656	9.644E-07	1.30418E-05	0.0685643	8.712E-07	1.17815E-05	0.4269128	5.425E-06	7.33572E-05	0.3813338	4.845E-06	6.55253E-05	0.4498981	5.717E-06	7.73068E-05
Road 5	5	2000-2100	0.072961279	8.134E-07	1.1E-05	0.0654176	7.293E-07	9.86271E-06	0.4030039	4.493E-06	6.0759E-05	0.3571566	3.982E-06	5.38468E-05	0.4225742	4.711E-06	6.37095E-05
Road 5	5	2100-2200	0.075299545	8.07E-07	1.0913E-05	0.0680351	7.291E-07	9.86016E-06	0.4288349	4.596E-06	6.215E-05	0.3835697	4.111E-06	5.55898E-05	0.4516048	4.84E-06	6.545E-05
Road 5	5	2200-2300	0.073901626	6.824E-07	9.22856E-06	0.0665731	6.148E-07	8.31341E-06	0.4128869	3.813E-06	5.15598E-05	0.3672161	3.391E-06	4.58566E-05	0.4337892	4.006E-06	5.417E-05
Road 5	5	2300-0000	0.065279085	5.489E-07	7.42279E-06	0.0587776	4.942E-07	6.68351E-06	0.3806173	3.2E-06	4.32794E-05	0.3373166	2.836E-06	3.83558E-05	0.3960942	3.331E-06	4.50393E-05
Road 6	6	0000-0100	0.058992432	1.639E-07	5.85761E-06	0.0527019	1.464E-07	5.233E-06	0.3766416	1.046E-06	3.73984E-05	0.3305353	9.182E-07	3.28203E-05	0.3832372	1.065E-06	3.80533E-05
Road 6	6	0100-0200	0.076754602	1.628E-07	5.81896E-06	0.0693111	1.47E-07	5.25465E-06	0.4334095	9.192E-07	3.28579E-05	0.3864584	8.196E-07	2.92984E-05	0.4557695	9.666E-07	3.4553E-05
Road 6	6	0200-0300	0.070022532	1.038E-07	3.71131E-06	0.0635184	9.418E-08	3.36658E-06	0.3975515	5.895E-07	2.10709E-05	0.3554524	5.27E-07	1.88396E-05	0.4189708	6.212E-07	2.22062E-05
Road 6	6	0300-0400	0.071431935	8.312E-08	2.9713E-06	0.064165	7.467E-08	2.66902E-06	0.4559606	5.306E-07	1.89663E-05	0.4038829	4.7E-07	1.68E-05	0.4680479	5.447E-07	1.9469E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.077509556	1.309E-07	4.68016E-06	0.0696192	1.176E-07	4.20372E-06	0.4541089	7.671E-07	2.74199E-05	0.4020246	6.791E-07	2.42749E-05	0.4716438	7.967E-07	2.84786E-05
Road 6	6	0500-0600	0.069464224	2.099E-07	7.50325E-06	0.0627156	1.895E-07	6.77429E-06	0.4193866	1.267E-06	4.53005E-05	0.372373	1.125E-06	4.02223E-05	0.4350886	1.315E-06	4.69966E-05
Road 6	6	0600-0700	0.073525749	3.961E-07	1.41574E-05	0.0668869	3.603E-07	1.28791E-05	0.4562051	2.457E-06	8.78425E-05	0.4084039	2.2E-06	7.86384E-05	0.4752909	2.56E-06	9.15175E-05
Road 6	6	0700-0800	0.069108991	5.915E-07	2.11428E-05	0.0634253	5.428E-07	1.94039E-05	0.3916053	3.352E-06	0.000119805	0.35399	3.03E-06	0.000108298	0.4174153	3.572E-06	0.000127701
Road 6	6	0800-0900	0.058868257	7.226E-07	2.58298E-05	0.0538638	6.612E-07	2.3634E-05	0.3479011	4.27E-06	0.00015265	0.3125964	3.837E-06	0.000137159	0.3664602	4.498E-06	0.000160793
Road 6	6	0900-1000	0.061007675	7.191E-07	2.57044E-05	0.0560562	6.607E-07	2.36182E-05	0.3428663	4.041E-06	0.00014446	0.3098434	3.652E-06	0.000130546	0.3658996	4.313E-06	0.000154164
Road 6	6	1000-1100	0.081893722	8.177E-07	2.92297E-05	0.0750188	7.491E-07	2.67759E-05	0.4478231	4.472E-06	0.000159838	0.4054015	4.048E-06	0.000144697	0.4804203	4.797E-06	0.000171473
Road 6	6	1100-1200	0.093246193	9.241E-07	3.30314E-05	0.0847606	8.4E-07	3.00255E-05	0.4851274	4.808E-06	0.000171851	0.436902	4.33E-06	0.000154768	0.5216626	5.17E-06	0.000184793
Road 6	6	1200-1300	0.090586938	8.773E-07	3.13601E-05	0.0826712	8.006E-07	2.86198E-05	0.4480259	4.339E-06	0.000155101	0.4060144	3.932E-06	0.000140557	0.4886856	4.733E-06	0.000169177
Road 6	6	1300-1400	0.105920466	1.024E-06	3.65974E-05	0.0956809	9.248E-07	3.30594E-05	0.5335103	5.157E-06	0.000184337	0.4783377	4.624E-06	0.000165274	0.5740186	5.548E-06	0.000198333
Road 6	6	1400-1500	0.101009225	1.077E-06	3.84921E-05	0.0910068	9.702E-07	3.46805E-05	0.5053198	5.387E-06	0.000192565	0.4518569	4.817E-06	0.000172192	0.5428638	5.787E-06	0.000206872
Road 6	6	1500-1600	0.089071532	9.278E-07	3.31661E-05	0.0810305	8.441E-07	3.0172E-05	0.4555825	4.746E-06	0.000169638	0.4112951	4.284E-06	0.000153147	0.4923256	5.128E-06	0.000183319
Road 6	6	1600-1700	0.093716232	9.991E-07	3.5713E-05	0.0845833	9.017E-07	3.22326E-05	0.4589049	4.892E-06	0.000174877	0.4108062	4.379E-06	0.000156548	0.4953895	5.281E-06	0.000188781
Road 6	6	1700-1800	0.069813105	7.849E-07	2.8056E-05	0.0631296	7.097E-07	2.53701E-05	0.3527862	3.966E-06	0.000141775	0.3154757	3.547E-06	0.000126781	0.3786053	4.256E-06	0.000152151
Road 6	6	1800-1900	0.06892448	8.835E-07	3.15832E-05	0.0617509	7.916E-07	2.82961E-05	0.3599175	4.614E-06	0.000164925	0.3183941	4.082E-06	0.000145898	0.380145	4.873E-06	0.000174194
Road 6	6	1900-2000	0.081998964	8.018E-07	2.86621E-05	0.0740617	7.242E-07	2.58877E-05	0.4276695	4.182E-06	0.000149489	0.3819393	3.735E-06	0.000133504	0.456001	4.459E-06	0.000159392
Road 6	6	2000-2100	0.06537322	5.031E-07	1.79823E-05	0.0585512	4.506E-07	1.61058E-05	0.3702644	2.849E-06	0.000101849	0.3271365	2.517E-06	8.99861E-05	0.3856877	2.968E-06	0.000106092
Road 6	6	2100-2200	0.090107022	6.021E-07	2.15214E-05	0.0814368	5.441E-07	1.94506E-05	0.4704141	3.143E-06	0.000112355	0.4213534	2.815E-06	0.000100637	0.5027902	3.359E-06	0.000120088
Road 6	6	2200-2300	0.06896069	4.88E-07	1.74424E-05	0.0620488	4.39E-07	1.56941E-05	0.3876337	2.743E-06	9.8045E-05	0.3421357	2.421E-06	8.65371E-05	0.4041845	2.86E-06	0.000102231
Road 6	6	2300-0000	0.046095113	3.063E-07	1.09476E-05	0.0414945	2.757E-07	9.85501E-06	0.2872105	1.908E-06	6.82128E-05	0.2536711	1.685E-06	6.02472E-05	0.2951656	1.961E-06	7.01022E-05
Road 7	7	0000-0100	0.084538782	2.258E-07	5.63767E-06	0.0756255	2.02E-07	5.04327E-06	0.5029973	1.344E-06	3.35436E-05	0.4450521	1.189E-06	2.96793E-05	0.5206776	1.391E-06	3.47226E-05
Road 7	7	0100-0200	0.10201163	2.118E-07	5.28703E-06	0.0917462	1.905E-07	4.75499E-06	0.5640598	1.171E-06	2.92339E-05	0.5031034	1.045E-06	2.60747E-05	0.5948496	1.235E-06	3.08297E-05
Road 7	7	0200-0300	0.088095977	1.202E-07	3.0013E-06	0.0799104	1.091E-07	2.72243E-06	0.5005213	6.831E-07	1.7052E-05	0.4496291	6.136E-07	1.53182E-05	0.5295396	7.227E-07	1.80406E-05
Road 7	7	0300-0400	0.089608721	9.888E-08	2.46825E-06	0.0805508	8.888E-08	2.21875E-06	0.5439775	6.002E-07	1.49837E-05	0.4846041	5.347E-07	1.33483E-05	0.5651549	6.236E-07	1.55671E-05
Road 7	7	0400-0500	0.099334324	1.601E-07	3.99621E-06	0.0892701	1.439E-07	3.59132E-06	0.5573248	8.982E-07	2.24211E-05	0.4960515	7.994E-07	1.99561E-05	0.5853216	9.433E-07	2.35474E-05
Road 7	7	0500-0600	0.089983392	2.561E-07	6.39211E-06	0.0812634	2.312E-07	5.77267E-06	0.5120979	1.457E-06	3.63777E-05	0.4571584	1.301E-06	3.24749E-05	0.5384218	1.532E-06	3.82476E-05
Road 7	7	0600-0700	0.093502109	4.751E-07	1.18608E-05	0.0850771	4.323E-07	1.07921E-05	0.5425922	2.757E-06	6.88283E-05	0.4880877	2.48E-06	6.19144E-05	0.5731647	2.913E-06	7.27065E-05
Road 7	7	0700-0800	0.089379077	7.267E-07	1.81405E-05	0.0820986	6.675E-07	1.66629E-05	0.4885014	3.972E-06	9.9147E-05	0.4441422	3.611E-06	9.01438E-05	0.5262408	4.279E-06	0.000106807
Road 7	7	0800-0900	0.088215036	1.084E-06	2.70482E-05	0.081027	9.952E-07	2.48442E-05	0.4847416	5.954E-06	0.00014863	0.4407912	5.414E-06	0.000135154	0.5218181	6.409E-06	0.000159998
Road 7	7	0900-1000	0.089901063	1.026E-06	2.56102E-05	0.0823302	9.395E-07	2.34535E-05	0.4738404	5.407E-06	0.000134983	0.4295526	4.902E-06	0.000122367	0.5118828	5.841E-06	0.000145821
Road 7	7	1000-1100	0.106254807	1.063E-06	2.65334E-05	0.0975944	9.763E-07	2.43708E-05	0.5623404	5.625E-06	0.000140425	0.5127608	5.129E-06	0.000128044	0.6103551	6.106E-06	0.000152415
Road 7	7	1100-1200	0.116620744	1.162E-06	2.89952E-05	0.1062248	1.058E-06	2.64104E-05	0.6045294	6.021E-06	0.000150303	0.5475578	5.454E-06	0.000136138	0.6537825	6.512E-06	0.000162549
Road 7	7	1200-1300	0.114939193	1.143E-06	2.85354E-05	0.1046741	1.041E-06	2.5987E-05	0.5818379	5.787E-06	0.00014445	0.5277583	5.249E-06	0.000131024	0.6324325	6.29E-06	0.000157011
Road 7	7	1300-1400	0.123572385	1.211E-06	3.02309E-05	0.1117687	1.095E-06	2.73432E-05	0.6242416	6.118E-06	0.000152715	0.5617078	5.505E-06	0.000137417	0.6734766	6.6E-06	0.00016476
Road 7	7	1400-1500	0.115818547	1.191E-06	2.97192E-05	0.1044836	1.074E-06	2.68106E-05	0.5916955	6.082E-06	0.00015183	0.5310894	5.459E-06	0.000136278	0.635573	6.533E-06	0.000163089
Road 7	7	1500-1600	0.107086619	1.076E-06	2.68576E-05	0.0971792	9.763E-07	2.43728E-05	0.55184	5.544E-06	0.000138403	0.4980245	5.004E-06	0.000124906	0.5952037	5.98E-06	0.000149279
Road 7	7	1600-1700	0.112068071	1.165E-06	2.90818E-05	0.1013483	1.054E-06	2.63E-05	0.5569214	5.789E-06	0.000144522	0.500943	5.207E-06	0.000129995	0.6022913	6.261E-06	0.000156295
Road 7	7	1700-1800	0.086872256	9.573E-07	2.38973E-05	0.0782887	8.627E-07	2.15361E-05	0.4485119	4.942E-06	0.000123379	0.4009482	4.418E-06	0.000110295	0.4792369	5.281E-06	0.000131831
Road 7	7	1800-1900	0.080565563	9.217E-07	2.30092E-05	0.0722303	8.264E-07	2.06287E-05	0.4256933	4.87E-06	0.000121576	0.3780307	4.325E-06	0.000107964	0.450261	5.151E-06	0.000128593
Road 7	7	1900-2000	0.093777523	8.128E-07	2.02908E-05	0.0848845	7.357E-07	1.83666E-05	0.4967524	4.306E-06	0.000107483	0.4460271	3.866E-06	9.65075E-05	0.5309116	4.602E-06	0.000114874
Road 7	7	2000-2100	0.086631557	6.138E-07	1.53222E-05	0.0777273	5.507E-07	1.37473E-05	0.4704537	3.333E-06	8.32075E-05	0.4180901	2.962E-06	7.39461E-05	0.4958173	3.513E-06	8.76935E-05
Road 7	7	2100-2200	0.098646204	5.872E-07	1.46585E-05	0.0893277	5.317E-07	1.32738E-05	0.5218357	3.106E-06	7.75431E-05	0.469041	2.792E-06	6.9698E-05	0.5583687	3.324E-06	8.29718E-05
Road 7	7	2200-2300	0.084727738	5.437E-07	1.35729E-05	0.0763612	4.9E-07	1.22326E-05	0.4676309	3.001E-06	7.49119E-05	0.41566	2.667E-06	6.65865E-05	0.4920212	3.157E-06	7.88191E-05
Road 7	7	2300-0000	0.058432892	3.453E-07	8.61941E-06	0.0526018	3.108E-07	7.75927E-06	0.3502336	2.07E-06	5.16628E-05	0.3108843	1.837E-06	4.58584E-05	0.3634861	2.148E-06	5.36177E-05
Road 8	8	0000-0100	0.255066667	1.855E-07	3.05795E-06	0.2284303	1.661E-07	2.73861E-06	1.3035447	9.48E-07	1.5628E-05	1.1667817	8.486E-07	1.39883E-05	1.3952119	1.015E-06	1.67269E-05
Road 8	8	0100-0200	0.265021667	1.606E-07	2.64775E-06	0.239684	1.453E-07	2.39461E-06	1.3488667	8.175E-07	1.34761E-05	1.219484	7.391E-07	1.21835E-05	1.459168	8.843E-07	1.45781E-05
Road 8	8	0200-0300	0.248928667	7.543E-08	1.24348E-06	0.226202	6.855E-08	1.12996E-06	1.33432	4.043E-07	6.66538E-06	1.2120633	3.673E-07	6.05467E-06	1.4382653	4.358E-07	7.18463E-06
Road 8	8	0300-0400	0.229152857	6.481E-08	1.06838E-06	0.2059914	5.826E-08	9.60398E-07	1.1984414	3.39E-07	5.58751E-06	1.0766886	3.045E-07	5.01986E-06	1.28268	3.628E-07	5.98026E-06
Road 8	8	0400-0500	0.258537619	1.097E-07	1.80808E-06	0.2325881	9.867E-08	1.6266E-06	1.2770681	5.418E-07	8.93115E-06	1.1484324	4.872E-07	8.03154E-06	1.3810205	5.859E-07	9.65813E-06
Road 8	8	0500-0600	0.244454118	1.679E-07	2.7679E-06	0.2212209	1.519E-07	2.50483E-06	1.1857347	8.144E-07	1.34258E-05	1.0720553	7.364E-07	1.21386E-05	1.2932762	8.883E-07	1.46435E-05
Road 8	8	0600-0700	0.270559194	3.389E-07	5.58635E-06	0.2466455	3.089E-07	5.09259E-06	1.2969061	1.624E-06	2.67778E-05	1.1814063	1.48E-06	2.4393E-05	1.4280518	1.789E-06	2.94856E-05
Road 8	8	0700-0800	0.269899901	5.507E-07	9.07816E-06	0.2481218	5.063E-07	8.34565E-06	1.3083587	2.67E-06	4.4007E-05	1.2019849	2.453E-06	4.04291E-05	1.4501066	2.959E-06	4.87748E-05
Road 8	8	0800-0900	0.296867421	1.139E-06	1.87841E-05	0.2725468	1.046E-06	1.72452E-05	1.4438226	5.542E-06	9.13569E-05	1.3248098	5.085E-06	8.38264E-05	1.5973567	6.131E-06	0.000101072
Road 8	8	0900-1000	0.315603185	1.001E-06	1.65012E-05	0.2905514	9.215E-07	1.51914E-05	1.4599894	4.631E-06	7.63349E-05	1.3438682	4.262E-06	7.02636E-05	1.6344196	5.184E-06	8.54549E-05
Road 8	8	1000-1100	0.303313861	9.682E-07	1.59596E-05	0.2782273	8.881E-07	1.46396E-05	1.4404533	4.598E-06	7.57932E-05	1.3203227	4.214E-06	6.94722E-05	1.59855	5.102E-06	8.41118E-05
Road 8	8	1100-1200	0.311148302	9.994E-07	1.64755E-05	0.2828391	9.085E-07	1.49765E-05	1.4984555	4.813E-06	7.93441E-05	1.361724	4.374E-06	7.21041E-05	1.6445631	5.283E-06	8.70806E-05
Road 8	8	1200-1300	0.314455799	1.074E-06	1.76978E-05	0.2868459	9.793E-07	1.61439E-05	1.5298676	5.223E-06	8.61022E-05	1.3951695	4.763E-06	7.85213E-05	1.6820153	5.743E-06	9.46652E-05
Road 8	8	1300-1400	0.28846625	9.324E-07	1.53705E-05	0.2605863	8.423E-07	1.3885E-05	1.3781373	4.455E-06	7.34322E-05	1.2444216	4.022E-06	6.63073E-05	1.5050079	4.865E-06	8.01923E-05
Road 8	8	1400-1500	0.280843309	7.886E-07	1.30003E-05	0.2529529	7.103E-07	1.17092E-05	1.4051024	3.946E-06	6.50424E-05	1.2650254	3.552E-06	5.85582E-05	1.5179783	4.263E-06	7.02675E-05
Road 8	8	1500-1600	0.28868438	7.99E-07	1.3171E-05	0.2626576	7.27E-07	1.19835E-05	1.4057945	3.891E-06	6.41381E-05	1.2780944	3.537E-06	5.83119E-05	1.540752	4.264E-06	7.02954E-05
Road 8	8	1600-1700	0.291661233	8.603E-07	1.4181E-05	0.2632257	7.764E-07	1.27984E-05	1.4027342	4.137E-06	6.82028E-05	1.2653721	3.732E-06	6.15241E-05	1.5285977	4.509E-06	7.43224E-05
Road 8	8	1700-1800	0.237815962	7.495E-07	1.23549E-05	0.2151882	6.782E-07	1.11794E-05	1.1952908	3.767E-06	6.20972E-05	1.0799933	3.404E-06	5.61073E-05	1.2951815	4.082E-06	6.72867E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.239038318	5.167E-07	8.51776E-06	0.2145102	4.637E-07	7.64373E-06	1.2287882	2.656E-06	4.37859E-05	1.1015933	2.381E-06	3.92535E-05	1.3161035	2.845E-06	4.68973E-05
Road 8	8	1900-2000	0.238421818	3.709E-07	6.11379E-06	0.2157262	3.356E-07	5.53181E-06	1.2559478	1.954E-06	3.2206E-05	1.1360836	1.767E-06	2.91323E-05	1.3518099	2.103E-06	3.46641E-05
Road 8	8	2000-2100	0.262295658	4.027E-07	6.63863E-06	0.2353336	3.613E-07	5.95623E-06	1.2558257	1.928E-06	3.17846E-05	1.1257012	1.728E-06	2.84912E-05	1.3610347	2.09E-06	3.44474E-05
Road 8	8	2100-2200	0.213386604	2.285E-07	3.76632E-06	0.1930942	2.067E-07	3.40815E-06	1.1233209	1.203E-06	1.98268E-05	1.0144283	1.086E-06	1.79049E-05	1.2075225	1.293E-06	2.1313E-05
Road 8	8	2200-2300	0.261706719	3.384E-07	5.57787E-06	0.2361236	3.053E-07	5.03261E-06	1.2984106	1.679E-06	2.76736E-05	1.1699664	1.513E-06	2.4936E-05	1.40609	1.818E-06	2.99686E-05
Road 8	8	2300-0000	0.209561731	2.201E-07	3.62902E-06	0.1890433	1.986E-07	3.2737E-06	1.080695	1.135E-06	1.87146E-05	0.9736165	1.023E-06	1.68603E-05	1.1626598	1.221E-06	2.0134E-05
Road 9	9	0000-0100	0.217253199	5.77E-08	1.72236E-06	0.1978906	5.256E-08	1.56886E-06	1.0042393	2.667E-07	7.96152E-06	0.90708	2.409E-07	7.19125E-06	1.1049707	2.935E-07	8.76011E-06
Road 9	9	0100-0200	0.236207301	4.929E-08	1.47135E-06	0.216558	4.519E-08	1.34896E-06	1.0343825	2.158E-07	6.44324E-06	0.9393798	1.96E-07	5.85146E-06	1.1559378	2.412E-07	7.20042E-06
Road 9	9	0200-0300	0.09417783	8.933E-09	2.66655E-07	0.085575	8.117E-09	2.42297E-07	0.6859436	6.506E-08	1.94218E-06	0.6179931	5.862E-08	1.74978E-06	0.703568	6.673E-08	1.99208E-06
Road 9	9	0300-0400	0.114665028	8.701E-09	2.5973E-07	0.1033492	7.842E-09	2.34098E-07	0.7148824	5.424E-08	1.61929E-06	0.6433462	4.882E-08	1.45725E-06	0.7466955	5.666E-08	1.69135E-06
Road 9	9	0400-0500	0.254208789	4.822E-08	1.43953E-06	0.2327033	4.414E-08	1.31775E-06	1.0718611	2.033E-07	6.06973E-06	0.9707093	1.841E-07	5.49693E-06	1.2034126	2.283E-07	6.81468E-06
Road 9	9	0500-0600	0.182602836	5.889E-08	1.75787E-06	0.1674787	5.401E-08	1.61228E-06	0.9426079	3.04E-07	9.07425E-06	0.8555679	2.759E-07	8.23634E-06	1.0230466	3.299E-07	9.84861E-06
Road 9	9	0600-0700	0.21148544	1.284E-07	3.83231E-06	0.1960767	1.19E-07	3.55309E-06	1.136664	6.9E-07	2.05974E-05	1.040716	6.317E-07	1.88588E-05	1.2367927	7.508E-07	2.24118E-05
Road 9	9	0700-0800	0.18119721	1.65E-07	4.9252E-06	0.1699062	1.547E-07	4.61829E-06	1.0692751	9.736E-07	2.90644E-05	0.9909914	9.023E-07	2.69365E-05	1.1608976	1.057E-06	3.15548E-05
Road 9	9	0800-0900	0.276600176	6.034E-07	1.80128E-05	0.2579971	5.628E-07	1.68013E-05	1.361437	2.97E-06	8.86597E-05	1.2599231	2.749E-06	8.20489E-05	1.5179202	3.311E-06	9.88502E-05
Road 9	9	0900-1000	0.282667267	4.611E-07	1.37659E-05	0.2644393	4.314E-07	1.28782E-05	1.2671936	2.067E-06	6.17124E-05	1.1734948	1.914E-06	5.71492E-05	1.437934	2.346E-06	7.00274E-05
Road 9	9	1000-1100	0.297278868	4.004E-07	1.19523E-05	0.2761977	3.72E-07	1.11048E-05	1.2970896	1.747E-06	5.21506E-05	1.1965007	1.612E-06	4.81063E-05	1.4726984	1.984E-06	5.92111E-05
Road 9	9	1100-1200	0.208877143	2.932E-07	8.75293E-06	0.1909291	2.68E-07	8.00082E-06	1.129123	1.585E-06	4.73155E-05	1.0280497	1.443E-06	4.30801E-05	1.2189787	1.711E-06	5.10809E-05
Road 9	9	1200-1300	0.307186561	4.254E-07	1.26986E-05	0.2859004	3.959E-07	1.18187E-05	1.4298981	1.98E-06	5.91097E-05	1.3239465	1.833E-06	5.47298E-05	1.609847	2.229E-06	6.65485E-05
Road 9	9	1300-1400	0.346804823	3.947E-07	1.17833E-05	0.3208561	3.652E-07	1.09017E-05	1.3495399	1.536E-06	4.5853E-05	1.2383427	1.409E-06	4.20749E-05	1.5591988	1.775E-06	5.29765E-05
Road 9	9	1400-1500	0.22416996	2.892E-07	8.63211E-06	0.2077905	2.68E-07	8.00139E-06	1.1275327	1.454E-06	4.34179E-05	1.0301992	1.329E-06	3.96699E-05	1.2379898	1.597E-06	4.76713E-05
Road 9	9	1500-1600	0.188431788	2.037E-07	6.08219E-06	0.1742569	1.884E-07	5.62465E-06	1.0096314	1.092E-06	3.25888E-05	0.9254676	1.001E-06	2.98722E-05	1.0997245	1.189E-06	3.54968E-05
Road 9	9	1600-1700	0.195293411	2.927E-07	8.73666E-06	0.1816077	2.722E-07	8.12441E-06	1.1233093	1.683E-06	5.02524E-05	1.0367629	1.554E-06	4.63807E-05	1.2183706	1.826E-06	5.45051E-05
Road 9	9	1700-1800	0.170265757	2.196E-07	6.55642E-06	0.1588066	2.049E-07	6.11517E-06	1.0742197	1.386E-06	4.1365E-05	0.9958105	1.285E-06	3.83457E-05	1.1546172	1.489E-06	4.44608E-05
Road 9	9	1800-1900	0.168171696	1.404E-07	4.19021E-06	0.1568993	1.31E-07	3.90935E-06	1.0441089	8.715E-07	2.60153E-05	0.9697323	8.094E-07	2.41621E-05	1.1266316	9.404E-07	2.80715E-05
Road 9	9	1900-2000	0.176124688	1.437E-07	4.28864E-06	0.1643298	1.34E-07	4.00143E-06	0.9713368	7.923E-07	2.36521E-05	0.896865	7.316E-07	2.18387E-05	1.0611948	8.656E-07	2.58401E-05
Road 9	9	2000-2100	0.190572482	1.048E-07	3.1296E-06	0.1742659	9.587E-08	2.86181E-06	0.8651956	4.76E-07	1.42083E-05	0.7876963	4.333E-07	1.29356E-05	0.9619622	5.292E-07	1.57974E-05
Road 9	9	2100-2200	0.024779644	1.269E-08	3.78869E-07	0.0228673	1.171E-08	3.4963E-07	0.3508872	1.797E-07	5.3649E-06	0.3185944	1.632E-07	4.87116E-06	0.3414617	1.749E-07	5.22079E-06
Road 9	9	2200-2300	0.184589815	1.156E-07	3.44947E-06	0.1692511	1.06E-07	3.16283E-06	0.9197984	5.758E-07	1.71885E-05	0.8374941	5.243E-07	1.56504E-05	1.0067452	6.302E-07	1.88133E-05
Road 9	9	2300-0000	0.148612074	8.457E-08	2.52468E-06	0.1369137	7.792E-08	2.32594E-06	0.7838327	4.461E-07	1.3316E-05	0.7153451	4.071E-07	1.21526E-05	0.8522588	4.85E-07	1.44785E-05
Road 10	10	0000-0100	0.307990656	2.368E-07	5.26519E-06	0.2768934	2.129E-07	4.73357E-06	1.580662	1.215E-06	2.70219E-05	1.4188064	1.091E-06	2.42549E-05	1.6956998	1.304E-06	2.89885E-05
Road 10	10	0100-0200	0.303071679	1.761E-07	3.91461E-06	0.2752878	1.599E-07	3.55574E-06	1.5432508	8.965E-07	1.99333E-05	1.399205	8.128E-07	1.80727E-05	1.6744929	9.727E-07	2.16285E-05
Road 10	10	0200-0300	0.300478151	9.754E-08	2.16885E-06	0.272931	8.86E-08	1.97002E-06	1.508846	4.898E-07	1.08909E-05	1.3691976	4.445E-07	9.88288E-06	1.6421286	5.331E-07	1.18529E-05
Road 10	10	0300-0400	0.275413654	5.647E-08	1.25554E-06	0.2473654	5.072E-08	1.12767E-06	1.4952283	3.066E-07	6.81636E-06	1.3397938	2.747E-07	6.10777E-06	1.5871592	3.254E-07	7.23545E-06
Road 10	10	0400-0500	0.31992553	1.257E-07	2.79538E-06	0.2895732	1.138E-07	2.53017E-06	1.5472699	6.08E-07	1.35194E-05	1.3946765	5.481E-07	1.21861E-05	1.6842497	6.619E-07	1.47163E-05
Road 10	10	0500-0600	0.289465053	2.028E-07	4.50862E-06	0.2638046	1.848E-07	4.10894E-06	1.407487	9.86E-07	2.19226E-05	1.277039	8.946E-07	1.98908E-05	1.5408436	1.079E-06	2.39997E-05
Road 10	10	0600-0700	0.346593338	4.856E-07	1.07969E-05	0.3195701	4.477E-07	9.95506E-06	1.7423621	2.441E-06	5.4277E-05	1.6033079	2.246E-06	4.99453E-05	1.922878	2.694E-06	5.99003E-05
Road 10	10	0700-0800	0.342209091	7.542E-07	1.67705E-05	0.3174216	6.996E-07	1.55557E-05	1.7357919	3.826E-06	8.5065E-05	1.606652	3.541E-06	7.87363E-05	1.9240736	4.241E-06	9.42921E-05
Road 10	10	0800-0900	0.364771553	1.539E-06	3.4228E-05	0.3358313	1.417E-06	3.15124E-05	1.8123998	7.649E-06	0.000170065	1.6651621	7.027E-06	0.000156249	2.0009934	8.445E-06	0.000187761
Road 10	10	0900-1000	0.403121984	1.35E-06	3.00162E-05	0.3744333	1.254E-06	2.78801E-05	1.9543371	6.545E-06	0.000145519	1.8120051	6.068E-06	0.000134921	2.1864384	7.322E-06	0.000162801
Road 10	10	1000-1100	0.402319729	1.464E-06	3.25548E-05	0.3715124	1.352E-06	3.00619E-05	1.8287701	6.655E-06	0.00014798	1.6823583	6.123E-06	0.000136133	2.0538708	7.475E-06	0.000166194
Road 10	10	1100-1200	0.391966646	1.426E-06	3.1717E-05	0.3578459	1.302E-06	2.89561E-05	1.8470058	6.722E-06	0.000149455	1.6816325	6.12E-06	0.000136074	2.0394784	7.422E-06	0.00016503
Road 10	10	1200-1300	0.407888487	1.533E-06	3.40901E-05	0.3750997	1.41E-06	3.13497E-05	1.9475236	7.32E-06	0.000162768	1.7885966	6.723E-06	0.000149485	2.1636963	8.133E-06	0.000180835
Road 10	10	1300-1400	0.398078875	1.306E-06	2.90358E-05	0.3631934	1.191E-06	2.64913E-05	1.8573634	6.093E-06	0.000135476	1.6898379	5.543E-06	0.000123257	2.0530314	6.735E-06	0.000149748
Road 10	10	1400-1500	0.368883768	1.134E-06	2.52247E-05	0.3365867	1.035E-06	2.30162E-05	1.8516551	5.695E-06	0.000126618	1.685674	5.184E-06	0.000115268	2.0222607	6.219E-06	0.000138284
Road 10	10	1500-1600	0.368337752	1.158E-06	2.57471E-05	0.3374484	1.061E-06	2.35879E-05	1.7792353	5.594E-06	0.00012437	1.6279192	5.118E-06	0.000113793	1.9653676	6.179E-06	0.000137381
Road 10	10	1600-1700	0.353834169	1.239E-06	2.75561E-05	0.3228894	1.131E-06	2.51461E-05	1.7370077	6.084E-06	0.000135276	1.5800823	5.534E-06	0.000123054	1.9029718	6.665E-06	0.000148201
Road 10	10	1700-1800	0.327408022	1.074E-06	2.38811E-05	0.3002118	9.848E-07	2.18974E-05	1.7059542	5.596E-06	0.000124432	1.5649751	5.134E-06	0.000114149	1.8651869	6.119E-06	0.000136046
Road 10	10	1800-1900	0.334287539	6.911E-07	1.53663E-05	0.3032074	6.268E-07	1.39376E-05	1.6938908	3.502E-06	7.78636E-05	1.5352026	3.174E-06	7.05691E-05	1.83841	3.801E-06	8.45068E-05
Road 10	10	1900-2000	0.291596206	5.431E-07	1.20746E-05	0.2669405	4.971E-07	1.10536E-05	1.5516493	2.89E-06	6.42516E-05	1.4191541	2.643E-06	5.87651E-05	1.6860946	3.14E-06	6.98188E-05
Road 10	10	2000-2100	0.340569065	4.19E-07	9.3154E-06	0.3068291	3.775E-07	8.39253E-06	1.6527234	2.033E-06	4.5206E-05	1.486777	1.829E-06	4.0667E-05	1.793606	2.206E-06	4.90595E-05
Road 10	10	2100-2200	0.276884649	3.406E-07	7.57347E-06	0.2559707	3.149E-07	7.00143E-06	1.5489685	1.905E-06	4.23681E-05	1.4330515	1.763E-06	3.91975E-05	1.6890223	2.078E-06	4.61989E-05
Road 10	10	2200-2300	0.298855413	3.83E-07	8.51503E-06	0.2725337	3.492E-07	7.76507E-06	1.5377552	1.971E-06	4.38139E-05	1.4037805	1.799E-06	3.99967E-05	1.6763142	2.148E-06	4.77618E-05
Road 10	10	2300-0000	0.274923884	3.288E-07	7.31096E-06	0.2492018	2.98E-07	6.62694E-06	1.3965127	1.67E-06	3.7137E-05	1.26306	1.511E-06	3.35881E-05	1.5122618	1.809E-06	4.02151E-05
Road 11	11	0000-0100	0.344927934	2.635E-07	2.18564E-06	0.3099257	2.367E-07	1.96385E-06	1.7337653	1.324E-06	1.0986E-05	1.5551183	1.188E-06	9.85404E-06	1.865044	1.425E-06	1.18179E-05
Road 11	11	0100-0200	0.345359315	1.859E-07	1.54181E-06	0.3135391	1.687E-07	1.39975E-06	1.7082612	9.194E-07	7.6263E-06	1.5468742	8.325E-07	6.90581E-06	1.8604133	1.001E-06	8.30557E-06
Road 11	11	0200-0300	0.30041302	7.823E-08	6.48945E-07	0.2728983	7.107E-08	5.89509E-07	1.6079561	4.187E-07	3.47347E-06	1.4589177	3.799E-07	3.15152E-06	1.731816	4.51E-07	3.74103E-06
Road 11	11	0300-0400	0.324307015	7.882E-08	6.53857E-07	0.2913569	7.082E-08	5.87424E-07	1.6993708	4.13E-07	3.42621E-06	1.5262275	3.71E-07	3.07713E-06	1.8175844	4.418E-07	3.66455E-06
Road 11	11	0400-0500	0.330874395	1.149E-07	9.52997E-07	0.2996316	1.04E-07	8.6301E-07	1.5808805	5.489E-07	4.55331E-06	1.4250447	4.948E-07	4.10447E-06	1.7246763	5.988E-07	4.96748E-06
Road 11	11	0500-0600	0.264990162	1.242E-07	1.03037E-06	0.2412125	1.131E-07	9.37911E-07	1.3627477	6.388E-07	5.2988E-06	1.2347576	5.788E-07	4.80113E-06	1.4759701	6.919E-07	5.73904E-06
Road 11	11	0600-0700	0.284777649	2.571E-07	2.13259E-06	0.2616472	2.362E-07	1.95938E-06	1.4923821	1.347E-06	1.11759E-05	1.3632791	1.231E-06	1.02091E-05	1.6249263	1.467E-06	1.21684E-05
Road 11	11	0700-0800	0.333488894	6.253E-07	5.18685E-06	0.3079914	5.775E-07	4.79028E-06	1.7491478	3.28E-06	2.7205E-05	1.6111922	3.021E-06	2.50593E-05	1.9191836	3.598E-06	2.98496E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.36060808	1.283E-06	1.0646E-05	0.333038	1.185E-06	9.83209E-06	1.7892567	6.368E-06	5.28232E-05	1.6464579	5.86E-06	4.86074E-05	1.9794959	7.045E-06	5.84395E-05
Road 11	11	0900-1000	0.361422328	9.161E-07	7.59917E-06	0.3355475	8.505E-07	7.05513E-06	1.7215208	4.364E-06	3.61962E-05	1.5907424	4.032E-06	3.34465E-05	1.9262899	4.883E-06	4.05016E-05
Road 11	11	1000-1100	0.374964198	7.747E-07	6.42591E-06	0.3457227	7.143E-07	5.92479E-06	1.7569953	3.63E-06	3.01103E-05	1.6139368	3.334E-06	2.76587E-05	1.9596595	4.049E-06	3.35835E-05
Road 11	11	1100-1200	0.33163718	7.715E-07	6.3998E-06	0.3018523	7.022E-07	5.82502E-06	1.7069403	3.971E-06	3.29398E-05	1.5510781	3.608E-06	2.99321E-05	1.8529304	4.311E-06	3.57571E-05
Road 11	11	1200-1300	0.402413255	1.139E-06	9.44622E-06	0.3697015	1.046E-06	8.67835E-06	1.9582278	5.542E-06	4.59673E-05	1.795344	5.081E-06	4.21438E-05	2.1650455	6.127E-06	5.08221E-05
Road 11	11	1300-1400	0.419214162	8.734E-07	7.24462E-06	0.3823097	7.965E-07	6.60685E-06	1.896782	3.952E-06	3.27791E-05	1.7221562	3.588E-06	2.97613E-05	2.1044659	4.384E-06	3.63682E-05
Road 11	11	1400-1500	0.33106258	6.667E-07	5.53052E-06	0.3014919	6.072E-07	5.03653E-06	1.6629402	3.349E-06	2.778E-05	1.505312	3.032E-06	2.51468E-05	1.8068039	3.639E-06	3.01833E-05
Road 11	11	1500-1600	0.297780441	6.049E-07	5.01742E-06	0.2724054	5.533E-07	4.58986E-06	1.5481214	3.145E-06	2.60849E-05	1.4126896	2.87E-06	2.38029E-05	1.6850949	3.423E-06	2.83928E-05
Road 11	11	1600-1700	0.284917992	6.876E-07	5.70339E-06	0.259957	6.273E-07	5.20373E-06	1.5303232	3.693E-06	3.06335E-05	1.3930268	3.362E-06	2.78851E-05	1.6529838	3.989E-06	3.30888E-05
Road 11	11	1700-1800	0.285799359	7.046E-07	5.84451E-06	0.2609965	6.434E-07	5.3373E-06	1.5626861	3.852E-06	3.19564E-05	1.4264666	3.517E-06	2.91708E-05	1.6874631	4.16E-06	3.45081E-05
Road 11	11	1800-1900	0.308529673	6.321E-07	5.24297E-06	0.2789956	5.716E-07	4.74108E-06	1.6508901	3.382E-06	2.80542E-05	1.4932836	3.059E-06	2.5376E-05	1.7722792	3.631E-06	3.0117E-05
Road 11	11	1900-2000	0.295347603	4.666E-07	3.87055E-06	0.2694183	4.256E-07	3.53075E-06	1.5470147	2.444E-06	2.02737E-05	1.4071024	2.223E-06	1.84402E-05	1.6765206	2.649E-06	2.19709E-05
Road 11	11	2000-2100	0.306700932	4.313E-07	3.57765E-06	0.276336	3.886E-07	3.22345E-06	1.5362207	2.16E-06	1.79199E-05	1.3827469	1.944E-06	1.61297E-05	1.6590829	2.333E-06	1.93531E-05
Road 11	11	2100-2200	0.220401257	2.181E-07	1.8092E-06	0.1996473	1.976E-07	1.63884E-06	1.2360786	1.223E-06	1.01466E-05	1.119094	1.107E-06	9.18628E-06	1.3187413	1.305E-06	1.08251E-05
Road 11	11	2200-2300	0.288904189	3.16E-07	2.62115E-06	0.2619654	2.865E-07	2.37674E-06	1.467323	1.605E-06	1.33126E-05	1.3274878	1.452E-06	1.2044E-05	1.5894531	1.738E-06	1.44207E-05
Road 11	11	2300-0000	0.275702791	2.872E-07	2.38227E-06	0.2500369	2.605E-07	2.1605E-06	1.4247106	1.484E-06	1.23105E-05	1.2888676	1.343E-06	1.11367E-05	1.5389044	1.603E-06	1.32972E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.41956	2.668E-06	4.01332E-06	1.3048	2.453E-06	3.68888E-06	6.5236	1.226E-05	1.84433E-05	5.9962	1.127E-05	1.69522E-05	7.301	1.372E-05	2.06411E-05
Haul Road 1	HR1	0800-0900	1.41986	2.669E-06	4.01417E-06	1.3028	2.449E-06	3.68322E-06	6.5245	1.226E-05	1.84458E-05	5.98671	1.125E-05	1.69254E-05	7.28951	1.37E-05	2.06086E-05
Haul Road 1	HR1	0900-1000	1.41796	2.665E-06	4.0088E-06	1.3049	2.453E-06	3.68916E-06	6.5161	1.225E-05	1.84221E-05	5.9967	1.127E-05	1.69536E-05	7.3016	1.372E-05	2.06428E-05
Haul Road 1	HR1	1000-1100	1.42316	2.675E-06	4.0235E-06	1.3048	2.453E-06	3.68888E-06	6.54009	1.229E-05	1.84899E-05	5.9963	1.127E-05	1.69525E-05	7.3011	1.372E-05	2.06414E-05
Haul Road 1	HR1	1100-1200	1.42835	2.685E-06	4.03817E-06	1.2981	2.44E-06	3.66994E-06	6.56409	1.234E-05	1.85577E-05	5.96532	1.121E-05	1.68649E-05	7.26342	1.365E-05	2.05349E-05
Haul Road 1	HR1	1200-1300	1.42755	2.683E-06	4.03591E-06	1.302	2.447E-06	3.68096E-06	6.55999	1.233E-05	1.85461E-05	5.98301	1.125E-05	1.69149E-05	7.28501	1.369E-05	2.05959E-05
Haul Road 1	HR1	1300-1400	1.43035	2.689E-06	4.04383E-06	1.29151	2.428E-06	3.65131E-06	6.57279	1.235E-05	1.85823E-05	5.93522	1.116E-05	1.67798E-05	7.22673	1.358E-05	2.04311E-05
Haul Road 1	HR1	1400-1500	1.42995	2.688E-06	4.0427E-06	1.28741	2.42E-06	3.63971E-06	6.57139	1.235E-05	1.85784E-05	5.91623	1.112E-05	1.67261E-05	7.20364	1.354E-05	2.03658E-05
Haul Road 1	HR1	1500-1600	1.42695	2.682E-06	4.03422E-06	1.2981	2.44E-06	3.66994E-06	6.55769	1.233E-05	1.85396E-05	5.96532	1.121E-05	1.68649E-05	7.26342	1.365E-05	2.05349E-05
Haul Road 1	HR1	1600-1700	1.43035	2.689E-06	4.04383E-06	1.29041	2.426E-06	3.6482E-06	6.57279	1.235E-05	1.85823E-05	5.92973	1.115E-05	1.67643E-05	7.22014	1.357E-05	2.04125E-05
Haul Road 1	HR1	1700-1800	1.43035	2.689E-06	4.04383E-06	1.294	2.432E-06	3.65835E-06	6.57279	1.235E-05	1.85823E-05	5.94623	1.118E-05	1.68109E-05	7.24023	1.361E-05	2.04693E-05
Haul Road 1	HR1	1800-1900	1.43035	2.689E-06	4.04383E-06	1.28311	2.412E-06	3.62756E-06	6.57279	1.235E-05	1.85823E-05	5.89634	1.108E-05	1.66699E-05	7.17945	1.35E-05	2.02975E-05
Haul Road 1	HR1	1900-2000	1.42755	2.683E-06	4.03591E-06	1.29131	2.427E-06	3.65074E-06	6.55999	1.233E-05	1.85461E-05	5.93422	1.115E-05	1.6777E-05	7.22553	1.358E-05	2.04277E-05
Haul Road 1	HR1	2000-2100	1.42755	2.683E-06	4.03591E-06	1.28111	2.408E-06	3.6219E-06	6.55999	1.233E-05	1.85461E-05	5.88745	1.107E-05	1.66448E-05	7.16856	1.347E-05	2.02667E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.41956	1.839E-06	4.89473E-06	1.3048	1.69E-06	4.49903E-06	6.5236	8.45E-06	2.24938E-05	5.9962	7.767E-06	2.06753E-05	7.301	9.457E-06	2.51743E-05
Haul Road 2	HR2	0800-0900	1.41986	1.839E-06	4.89576E-06	1.3028	1.688E-06	4.49213E-06	6.5245	8.451E-06	2.24969E-05	5.98671	7.755E-06	2.06425E-05	7.28951	9.442E-06	2.51347E-05
Haul Road 2	HR2	0900-1000	1.41796	1.837E-06	4.88921E-06	1.3049	1.69E-06	4.49937E-06	6.5161	8.441E-06	2.24679E-05	5.9967	7.768E-06	2.0677E-05	7.3016	9.458E-06	2.51764E-05
Haul Road 2	HR2	1000-1100	1.42316	1.843E-06	4.90714E-06	1.3048	1.69E-06	4.49903E-06	6.54009	8.472E-06	2.25506E-05	5.9963	7.767E-06	2.06756E-05	7.3011	9.457E-06	2.51746E-05
Haul Road 2	HR2	1100-1200	1.42835	1.85E-06	4.92504E-06	1.2981	1.681E-06	4.47593E-06	6.56409	8.503E-06	2.26334E-05	5.96532	7.727E-06	2.05688E-05	7.26342	9.409E-06	2.50447E-05
Haul Road 2	HR2	1200-1300	1.42755	1.849E-06	4.92228E-06	1.302	1.687E-06	4.48937E-06	6.55999	8.497E-06	2.26192E-05	5.98301	7.75E-06	2.06298E-05	7.28501	9.437E-06	2.51192E-05
Haul Road 2	HR2	1300-1400	1.43035	1.853E-06	4.93193E-06	1.29151	1.673E-06	4.4532E-06	6.57279	8.514E-06	2.26634E-05	5.93522	7.688E-06	2.0465E-05	7.22673	9.361E-06	2.49182E-05
Haul Road 2	HR2	1400-1500	1.42995	1.852E-06	4.93055E-06	1.28741	1.668E-06	4.43907E-06	6.57139	8.512E-06	2.26585E-05	5.91623	7.664E-06	2.03995E-05	7.20364	9.331E-06	2.48386E-05
Haul Road 2	HR2	1500-1600	1.42695	1.848E-06	4.92021E-06	1.2981	1.681E-06	4.47593E-06	6.55769	8.494E-06	2.26113E-05	5.96532	7.727E-06	2.05688E-05	7.26342	9.409E-06	2.50447E-05
Haul Road 2	HR2	1600-1700	1.43035	1.853E-06	4.93193E-06	1.29041	1.672E-06	4.44941E-06	6.57279	8.514E-06	2.26634E-05	5.92973	7.681E-06	2.04461E-05	7.22014	9.353E-06	2.48955E-05
Haul Road 2	HR2	1700-1800	1.43035	1.853E-06	4.93193E-06	1.294	1.676E-06	4.46179E-06	6.57279	8.514E-06	2.26634E-05	5.94623	7.702E-06	2.0503E-05	7.24023	9.379E-06	2.49647E-05
Haul Road 2	HR2	1800-1900	1.43035	1.853E-06	4.93193E-06	1.28311	1.662E-06	4.42424E-06	6.57279	8.514E-06	2.26634E-05	5.89634	7.638E-06	2.03309E-05	7.17945	9.3E-06	2.47552E-05
Haul Road 2	HR2	1900-2000	1.42755	1.849E-06	4.92228E-06	1.29131	1.673E-06	4.45251E-06	6.55999	8.497E-06	2.26192E-05	5.93422	7.687E-06	2.04615E-05	7.22553	9.359E-06	2.49141E-05
Haul Road 2	HR2	2000-2100	1.42755	1.849E-06	4.92228E-06	1.28111	1.659E-06	4.41734E-06	6.55999	8.497E-06	2.26192E-05	5.88745	7.626E-06	2.03003E-05	7.16856	9.286E-06	2.47176E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (January) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.41956	1.839E-06	4.8879E-06	1.3048	1.69E-06	4.49276E-06	6.5236	8.45E-06	2.24624E-05	5.9962	7.767E-06	2.06464E-05	7.301	9.457E-06	2.51392E-05
Haul Road 3	HR3	0800-0900	1.41986	1.839E-06	4.88894E-06	1.3028	1.688E-06	4.48587E-06	6.5245	8.451E-06	2.24655E-05	5.98671	7.755E-06	2.06138E-05	7.28951	9.442E-06	2.50996E-05
Haul Road 3	HR3	0900-1000	1.41796	1.837E-06	4.88239E-06	1.3049	1.69E-06	4.4931E-06	6.5161	8.441E-06	2.24366E-05	5.9967	7.768E-06	2.06482E-05	7.3016	9.458E-06	2.51413E-05
Haul Road 3	HR3	1000-1100	1.42316	1.843E-06	4.9003E-06	1.3048	1.69E-06	4.49276E-06	6.54009	8.472E-06	2.25192E-05	5.9963	7.767E-06	2.06468E-05	7.3011	9.457E-06	2.51395E-05
Haul Road 3	HR3	1100-1200	1.42835	1.85E-06	4.91817E-06	1.2981	1.681E-06	4.46969E-06	6.56409	8.503E-06	2.26018E-05	5.96532	7.727E-06	2.05401E-05	7.26342	9.409E-06	2.50098E-05
Haul Road 3	HR3	1200-1300	1.42755	1.849E-06	4.91542E-06	1.302	1.687E-06	4.48312E-06	6.55999	8.497E-06	2.25877E-05	5.98301	7.75E-06	2.0601E-05	7.28501	9.437E-06	2.50841E-05
Haul Road 3	HR3	1300-1400	1.43035	1.853E-06	4.92506E-06	1.29151	1.673E-06	4.447E-06	6.57279	8.514E-06	2.26318E-05	5.93522	7.688E-06	2.04365E-05	7.22673	9.361E-06	2.48835E-05
Haul Road 3	HR3	1400-1500	1.42995	1.852E-06	4.92368E-06	1.28741	1.668E-06	4.43288E-06	6.57139	8.512E-06	2.2627E-05	5.91623	7.664E-06	2.03711E-05	7.20364	9.331E-06	2.4804E-05
Haul Road 3	HR3	1500-1600	1.42695	1.848E-06	4.91335E-06	1.2981	1.681E-06	4.46969E-06	6.55769	8.494E-06	2.25798E-05	5.96532	7.727E-06	2.05401E-05	7.26342	9.409E-06	2.50098E-05
Haul Road 3	HR3	1600-1700	1.43035	1.853E-06	4.92506E-06	1.29041	1.672E-06	4.44321E-06	6.57279	8.514E-06	2.26318E-05	5.92973	7.681E-06	2.04176E-05	7.22014	9.353E-06	2.48608E-05
Haul Road 3	HR3	1700-1800	1.43035	1.853E-06	4.92506E-06	1.294	1.676E-06	4.45557E-06	6.57279	8.514E-06	2.26318E-05	5.94623	7.702E-06	2.04744E-05	7.24023	9.379E-06	2.49299E-05
Haul Road 3	HR3	1800-1900	1.43035	1.853E-06	4.92506E-06	1.28311	1.662E-06	4.41807E-06	6.57279	8.514E-06	2.26318E-05	5.89634	7.638E-06	2.03026E-05	7.17945	9.3E-06	2.47207E-05
Haul Road 3	HR3	1900-2000	1.42755	1.849E-06	4.91542E-06	1.29131	1.673E-06	4.44631E-06	6.55999	8.497E-06	2.25877E-05	5.93422	7.687E-06	2.0433E-05	7.22553	9.359E-06	2.48793E-05
Haul Road 3	HR3	2000-2100	1.42755	1.849E-06	4.91542E-06	1.28111	1.659E-06	4.41119E-06	6.55999	8.497E-06	2.25877E-05	5.88745	7.626E-06	2.0272E-05	7.16856	9.286E-06	2.46832E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.101364972	3.367E-07	2.73944E-06	0.0928656	3.085E-07	2.50975E-06	0.5974098	1.985E-06	1.61453E-05	0.5452713	1.811E-06	1.47363E-05	0.6381369	2.12E-06	1.7246E-05
Road 1	1	0100-0200	0.079083333	1.603E-07	1.3041E-06	0.0718231	1.456E-07	1.18438E-06	0.4773861	9.677E-07	7.87218E-06	0.4314556	8.746E-07	7.11477E-06	0.5032787	1.02E-06	8.29915E-06
Road 1	1	0200-0300	0.07549961	1.091E-07	8.8764E-07	0.0682799	9.868E-08	8.02758E-07	0.4813082	6.956E-07	5.65868E-06	0.4314119	6.235E-07	5.07206E-06	0.4996918	7.222E-07	5.87482E-06
Road 1	1	0300-0400	0.064502727	6.659E-08	5.41679E-07	0.0580322	5.991E-08	4.87341E-07	0.3921549	4.048E-07	3.29323E-06	0.3499242	3.612E-07	2.93858E-06	0.4079564	4.211E-07	3.42592E-06
Road 1	1	0400-0500	0.08451	1.348E-07	1.0968E-06	0.0758087	1.209E-07	9.83873E-07	0.4820982	7.691E-07	6.25685E-06	0.4299916	6.86E-07	5.58059E-06	0.5058004	8.069E-07	6.56446E-06
Road 1	1	0500-0600	0.067888717	2.383E-07	1.93839E-06	0.0609222	2.138E-07	1.73948E-06	0.3999127	1.404E-06	1.14185E-05	0.3557689	1.249E-06	1.01581E-05	0.4166911	1.462E-06	1.18975E-05
Road 1	1	0600-0700	0.091562651	5.705E-07	4.64149E-06	0.0825995	5.147E-07	4.18713E-06	0.4905218	3.057E-06	2.48655E-05	0.4400647	2.742E-06	2.23078E-05	0.5226642	3.257E-06	2.64949E-05
Road 1	1	0700-0800	0.076550465	8.031E-07	6.53373E-06	0.0706524	7.413E-07	6.03032E-06	0.4221247	4.429E-06	3.60291E-05	0.386893	4.059E-06	3.3022E-05	0.4575455	4.8E-06	3.90524E-05
Road 1	1	0800-0900	0.08178708	1.052E-06	8.55414E-06	0.0761119	9.785E-07	7.96058E-06	0.4351146	5.594E-06	4.55088E-05	0.4029826	5.181E-06	4.21481E-05	0.4790946	6.16E-06	5.01087E-05
Road 1	1	0900-1000	0.086367454	1.146E-06	9.32332E-06	0.0794948	1.055E-06	8.58142E-06	0.4837892	6.42E-06	5.22248E-05	0.4433302	5.883E-06	4.78573E-05	0.5228249	6.938E-06	5.64387E-05
Road 1	1	1000-1100	0.10016508	1.292E-06	1.05069E-05	0.0920325	1.187E-06	9.65382E-06	0.5382283	6.94E-06	5.64579E-05	0.4928855	6.355E-06	5.17016E-05	0.584918	7.542E-06	6.13554E-05
Road 1	1	1100-1200	0.091352429	1.144E-06	9.30352E-06	0.083037	1.04E-06	8.45665E-06	0.5247893	6.57E-06	5.34456E-05	0.4750502	5.947E-06	4.83801E-05	0.5580872	6.987E-06	5.68367E-05
Road 1	1	1200-1300	0.093424727	1.157E-06	9.41471E-06	0.0855292	1.059E-06	8.61905E-06	0.532636	6.598E-06	5.36754E-05	0.4861405	6.022E-06	4.89899E-05	0.5716697	7.081E-06	5.7609E-05
Road 1	1	1300-1400	0.098166752	1.293E-06	1.05221E-05	0.089785	1.183E-06	9.6237E-06	0.5474133	7.213E-06	5.86751E-05	0.4991429	6.577E-06	5.35012E-05	0.5889279	7.76E-06	6.31249E-05
Road 1	1	1400-1500	0.093849412	1.348E-06	1.09621E-05	0.0860209	1.235E-06	1.00477E-05	0.5108626	7.335E-06	5.96715E-05	0.4668421	6.703E-06	5.45297E-05	0.5528631	7.938E-06	6.45774E-05
Road 1	1	1500-1600	0.100265882	1.334E-06	1.08543E-05	0.0919468	1.224E-06	9.95369E-06	0.5441344	7.241E-06	5.89052E-05	0.4973289	6.618E-06	5.38383E-05	0.5892758	7.842E-06	6.3792E-05
Road 1	1	1600-1700	0.095893476	1.346E-06	1.0952E-05	0.0871373	1.223E-06	9.95192E-06	0.525689	7.38E-06	6.00388E-05	0.4759004	6.681E-06	5.43524E-05	0.5630377	7.905E-06	6.43043E-05
Road 1	1	1700-1800	0.076834587	1.082E-06	8.79872E-06	0.070328	9.9E-07	8.05361E-06	0.4296715	6.048E-06	4.92038E-05	0.3913685	5.509E-06	4.48176E-05	0.4616965	6.499E-06	5.28712E-05
Road 1	1	1800-1900	0.068498698	9.874E-07	8.03239E-06	0.0626766	9.034E-07	7.34968E-06	0.4072111	5.87E-06	4.7751E-05	0.3702007	5.336E-06	4.3411E-05	0.4328774	6.24E-06	5.07607E-05
Road 1	1	1900-2000	0.080255119	8.827E-07	7.18078E-06	0.0753826	8.291E-07	6.74482E-06	0.4585446	5.043E-06	4.1028E-05	0.429329	4.722E-06	3.8414E-05	0.5047117	5.551E-06	4.51588E-05
Road 1	1	2000-2100	0.072708488	6.769E-07	5.5064E-06	0.0676418	6.297E-07	5.12269E-06	0.4272587	3.977E-06	3.23574E-05	0.3954201	3.681E-06	2.99462E-05	0.4630619	4.311E-06	3.50689E-05
Road 1	1	2100-2200	0.075912936	6.454E-07	5.25068E-06	0.0709994	6.037E-07	4.91082E-06	0.4481376	3.81E-06	3.09964E-05	0.4173718	3.549E-06	2.88684E-05	0.4883712	4.152E-06	3.37792E-05
Road 1	1	2200-2300	0.073699165	5.962E-07	4.84999E-06	0.069071	5.587E-07	4.54542E-06	0.4332497	3.505E-06	2.85113E-05	0.4041427	3.269E-06	2.65958E-05	0.4732137	3.828E-06	3.11412E-05
Road 1	1	2300-0000	0.064217065	4.64E-07	3.77496E-06	0.0612746	4.428E-07	3.60199E-06	0.3915228	2.829E-06	2.30154E-05	0.3720232	2.688E-06	2.18692E-05	0.4332979	3.131E-06	2.54711E-05
Road 2	2	0000-0100	0.169996667	2.007E-07	1.29604E-06	0.1557531	1.839E-07	1.18745E-06	0.7220249	8.524E-07	5.50465E-06	0.6595906	7.787E-07	5.02866E-06	0.8153437	9.626E-07	6.21611E-06
Road 2	2	0100-0200	0.121692727	9.296E-08	6.00325E-07	0.11049	8.44E-08	5.4506E-07	0.6039194	4.613E-07	2.97921E-06	0.546067	4.171E-07	2.69381E-06	0.656557	5.015E-07	3.23887E-06
Road 2	2	0200-0300	0.121443043	6.466E-08	4.1755E-07	0.1099583	5.854E-08	3.78062E-07	0.6629148	3.529E-07	2.27926E-06	0.5966365	3.177E-07	2.05138E-06	0.7065948	3.762E-07	2.42944E-06
Road 2	2	0300-0400	0.106974	3.714E-08	2.39871E-07	0.096268	3.343E-08	2.15864E-07	0.3900187	1.354E-07	8.74549E-07	0.3484987	1.21E-07	7.81448E-07	0.4447667	1.544E-07	9.97312E-07
Road 2	2	0400-0500	0.144807778	9.05E-08	5.84472E-07	0.1299381	8.121E-08	5.24455E-07	0.7016522	4.385E-07	2.832E-06	0.6272444	3.92E-07	2.53168E-06	0.7571826	4.732E-07	3.05613E-06
Road 2	2	0500-0600	0.114775965	1.514E-07	9.77988E-07	0.103084	1.36E-07	8.78363E-07	0.50817	6.705E-07	4.33004E-06	0.4531904	5.98E-07	3.86156E-06	0.5562744	7.34E-07	4.73993E-06
Road 2	2	0600-0700	0.162468155	3.874E-07	2.50157E-06	0.1466167	3.496E-07	2.2575E-06	0.6601007	1.574E-06	1.01638E-05	0.5931675	1.414E-06	9.13319E-06	0.7397842	1.764E-06	1.13907E-05
Road 2	2	0700-0800	0.128536835	4.701E-07	3.03593E-06	0.1186718	4.34E-07	2.80293E-06	0.5433716	1.987E-06	1.2834E-05	0.4985872	1.824E-06	1.17762E-05	0.617259	2.258E-06	1.45792E-05
Road 2	2	0800-0900	0.1447583	1.005E-06	6.49191E-06	0.1346878	9.353E-07	6.04028E-06	0.6139903	4.264E-06	2.75353E-05	0.5687711	3.95E-06	2.55074E-05	0.7034589	4.885E-06	3.15477E-05
Road 2	2	0900-1000	0.166748252	9.495E-07	6.13203E-06	0.1534424	8.738E-07	5.64272E-06	0.7221727	4.112E-06	2.65573E-05	0.6624273	3.772E-06	2.43602E-05	0.8158697	4.646E-06	3.00029E-05
Road 2	2	1000-1100	0.185038315	7.881E-07	5.08964E-06	0.1700172	7.241E-07	4.67647E-06	0.794744	3.385E-06	2.18601E-05	0.728453	3.103E-06	2.00367E-05	0.8984702	3.827E-06	2.47132E-05
Road 2	2	1100-1200	0.225870221	9.464E-07	6.11146E-06	0.2053285	8.603E-07	5.55566E-06	0.9268156	3.883E-06	2.50772E-05	0.8411556	3.524E-06	2.27595E-05	1.0464841	4.385E-06	2.83152E-05
Road 2	2	1200-1300	0.171162926	7.449E-07	4.81033E-06	0.1566832	6.819E-07	4.4034E-06	0.7541644	3.282E-06	2.11949E-05	0.6886227	2.997E-06	1.93529E-05	0.8453059	3.679E-06	2.37563E-05
Road 2	2	1300-1400	0.190417818	9.697E-07	6.26236E-06	0.1740323	8.863E-07	5.72348E-06	0.78743	4.01E-06	2.58966E-05	0.7179421	3.656E-06	2.36113E-05	0.8919744	4.542E-06	2.93348E-05
Road 2	2	1400-1500	0.165920982	6.26E-07	4.04293E-06	0.152072	5.738E-07	3.70548E-06	0.7180848	2.709E-06	1.74973E-05	0.6568986	2.479E-06	1.60064E-05	0.8089706	3.052E-06	1.97119E-05
Road 2	2	1500-1600	0.202999609	8.411E-07	5.43195E-06	0.1860008	7.707E-07	4.97709E-06	0.8157979	3.38E-06	2.18295E-05	0.7463674	3.093E-06	1.99716E-05	0.9323682	3.863E-06	2.49487E-05
Road 2	2	1600-1700	0.173684658	8.805E-07	5.68608E-06	0.1578118	8E-07	5.16644E-06	0.7349942	3.726E-06	2.40622E-05	0.6661252	3.377E-06	2.18076E-05	0.823937	4.177E-06	2.6974E-05
Road 2	2	1700-1800	0.131644194	6.613E-07	4.27041E-06	0.1205022	6.053E-07	3.90897E-06	0.52455	2.635E-06	1.70159E-05	0.4786609	2.404E-06	1.55273E-05	0.599163	3.01E-06	1.94363E-05
Road 2	2	1800-1900	0.144711653	8.308E-07	5.36492E-06	0.132497	7.606E-07	4.91208E-06	0.6682871	3.836E-06	2.47755E-05	0.6097675	3.501E-06	2.2606E-05	0.7422645	4.261E-06	2.75181E-05
Road 2	2	1900-2000	0.121165843	4.656E-07	3.00674E-06	0.1138428	4.375E-07	2.82502E-06	0.5567538	2.139E-06	1.38159E-05	0.5214754	2.004E-06	1.29405E-05	0.6353183	2.441E-06	1.57655E-05
Road 2	2	2000-2100	0.119313082	4.032E-07	2.60405E-06	0.1109469	3.75E-07	2.42145E-06	0.5027614	1.699E-06	1.09729E-05	0.4651175	1.572E-06	1.01513E-05	0.5760644	1.947E-06	1.25728E-05
Road 2	2	2100-2200	0.0912625	3.211E-07	2.07369E-06	0.0853036	3.001E-07	1.93829E-06	0.4135668	1.455E-06	9.39717E-06	0.3841401	1.352E-06	8.72853E-06	0.4694437	1.652E-06	1.06668E-05
Road 2	2	2200-2300	0.13051976	3.777E-07	2.4389E-06	0.1223247	3.539E-07	2.28577E-06	0.5575241	1.613E-06	1.04179E-05	0.520541	1.506E-06	9.72686E-06	0.6428658	1.86E-06	1.20126E-05
Road 2	2	2300-0000	0.117678091	2.996E-07	1.93507E-06	0.1123025	2.86E-07	1.84667E-06	0.5298403	1.349E-06	8.71255E-06	0.5039663	1.283E-06	8.28709E-06	0.6162688	1.569E-06	1.01338E-05
Road 3	3	0000-0100	0.106381703	3.907E-07	1.51873E-05	0.0968103	3.556E-07	1.38209E-05	0.5839133	2.145E-06	8.33609E-05	0.5290297	1.943E-06	7.55256E-05	0.62584	2.299E-06	8.93465E-05
Road 3	3	0100-0200	0.079989291	1.809E-07	7.0312E-06	0.0725899	1.642E-07	6.38078E-06	0.4645686	1.051E-06	4.08364E-05	0.419554	9.489E-07	3.68796E-05	0.4921438	1.113E-06	4.32603E-05
Road 3	3	0200-0300	0.077544343	1.231E-07	4.7859E-06	0.0700943	1.113E-07	4.3261E-06	0.4820366	7.654E-07	2.97505E-05	0.4320438	6.86E-07	2.6665E-05	0.5021382	7.974E-07	3.09911E-05
Road 3	3	0300-0400	0.066685942	7.38E-08	2.86855E-06	0.0601297	6.655E-08	2.58653E-06	0.3622525	4.009E-07	1.55826E-05	0.323902	3.585E-07	1.39329E-05	0.3840317	4.25E-07	1.65194E-05
Road 3	3	0400-0500	0.089677748	1.597E-07	6.20564E-06	0.0801566	1.427E-07	5.54678E-06	0.4939323	8.794E-07	3.41798E-05	0.438754	7.812E-07	3.03615E-05	0.5189105	9.239E-07	3.59082E-05
Road 3	3	0500-0600	0.072179877	2.813E-07	1.09346E-05	0.064387	2.51E-07	9.754E-06	0.3990974	1.556E-06	6.04594E-05	0.352514	1.374E-06	5.34025E-05	0.4169009	1.625E-06	6.31565E-05
Road 3	3	0600-0700	0.098222991	6.9E-07	2.68204E-05	0.0894588	6.285E-07	2.44273E-05	0.4902745	3.444E-06	0.000133873	0.4439167	3.119E-06	0.000121214	0.5333755	3.747E-06	0.000145642
Road 3	3	0700-0800	0.079650838	9.147E-07	3.55535E-05	0.0732809	8.416E-07	3.27101E-05	0.4142348	4.757E-06	0.000184901	0.3785233	4.347E-06	0.00016896	0.4518041	5.189E-06	0.00020167
Road 3	3	0800-0900	0.088236744	1.4E-06	5.44032E-05	0.0810846	1.286E-06	4.99935E-05	0.4396731	6.975E-06	0.000271085	0.4015253	6.369E-06	0.000247564	0.4826099	7.656E-06	0.000297558
Road 3	3	0900-1000	0.095339686	1.459E-06	5.67023E-05	0.0876435	1.341E-06	5.21251E-05	0.4907003	7.509E-06	0.000291839	0.4492382	6.874E-06	0.00026718	0.5368818	8.215E-06	0.000319305
Road 3	3	1000-1100	0.107981057	1.507E-06	5.8566E-05	0.0982555	1.371E-06	5.32911E-05	0.5493114	7.665E-06	0.000297932	0.4979173	6.948E-06	0.000270057	0.5961728	8.319E-06	0.000323348
Road 3	3	1100-1200	0.105598381	1.433E-06	5.56937E-05	0.0969063	1.315E-06	5.11094E-05	0.5507939	7.474E-06	0.000290495	0.5036222	6.834E-06	0.000265616	0.6005285	8.149E-06	0.000316725
Road 3	3	1200-1300	0.099288026	1.347E-06	5.23656E-05	0.090754	1.231E-06	4.78646E-05	0.5291079	7.18E-06	0.000279057	0.4823081	6.545E-06	0.000254375	0.5730621	7.776E-06	0.000302239
Road 3	3	1300-1400	0.106085441	1.564E-06	6.07785E-05	0.0965036	1.422E-06	5.52888E-05	0.5441866	8.021E-06	0.000311776	0.4935938	7.276E-06	0.00028279	0.5900974	8.698E-06	0.000338079

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.098467781	1.459E-06	5.67211E-05	0.0901363	1.336E-06	5.19219E-05	0.511059	7.574E-06	0.000294389	0.4664789	6.913E-06	0.000268709	0.5566152	8.249E-06	0.000320631
Road 3	3	1500-1600	0.109272011	1.56E-06	6.06286E-05	0.1000249	1.428E-06	5.5498E-05	0.5518635	7.878E-06	0.000306197	0.503853	7.193E-06	0.000279558	0.6038779	8.62E-06	0.000335056
Road 3	3	1600-1700	0.102551971	1.594E-06	6.19507E-05	0.0944717	1.468E-06	5.70695E-05	0.5279779	8.206E-06	0.000318947	0.4849013	7.536E-06	0.000292925	0.579373	9.005E-06	0.000349994
Road 3	3	1700-1800	0.081769371	1.272E-06	4.94471E-05	0.0747336	1.163E-06	4.51925E-05	0.4213044	6.555E-06	0.000254769	0.3834785	5.966E-06	0.000231895	0.4582121	7.129E-06	0.000277088
Road 3	3	1800-1900	0.077035605	1.257E-06	4.88417E-05	0.0706229	1.152E-06	4.4776E-05	0.4249683	6.932E-06	0.000269436	0.3874036	6.319E-06	0.00024562	0.4580265	7.471E-06	0.000290396
Road 3	3	1900-2000	0.081963785	9.899E-07	3.84765E-05	0.0761592	9.198E-07	3.57517E-05	0.4495888	5.43E-06	0.000211052	0.4156239	5.02E-06	0.000195108	0.4917831	5.94E-06	0.000230859
Road 3	3	2000-2100	0.075640093	7.813E-07	3.0368E-05	0.0703467	7.266E-07	2.82428E-05	0.4111647	4.247E-06	0.000165075	0.3804925	3.93E-06	0.00015276	0.4508392	4.657E-06	0.000181003
Road 3	3	2100-2200	0.073806918	7.221E-07	2.80676E-05	0.0690278	6.754E-07	2.62502E-05	0.4143725	4.054E-06	0.000157579	0.3857322	3.774E-06	0.000146688	0.45476	4.449E-06	0.000172938
Road 3	3	2200-2300	0.078584964	7.008E-07	2.72391E-05	0.0749928	6.688E-07	2.5994E-05	0.4255802	3.795E-06	0.000147515	0.4049692	3.612E-06	0.00014037	0.479962	4.28E-06	0.000166364
Road 3	3	2300-0000	0.069331667	5.538E-07	2.15248E-05	0.0659701	5.269E-07	2.04812E-05	0.3904365	3.119E-06	0.000121216	0.3699062	2.955E-06	0.000114842	0.4358763	3.482E-06	0.000135323
Road 4	4	0000-0100	0.271812571	2.202E-07	2.35801E-06	0.2473131	2.004E-07	2.14547E-06	1.3851589	1.122E-06	1.20164E-05	1.2598929	1.021E-06	1.09297E-05	1.507206	1.221E-06	1.30752E-05
Road 4	4	0100-0200	0.2572065	1.191E-07	1.27503E-06	0.233369	1.08E-07	1.15686E-06	1.312895	6.078E-07	6.5083E-06	1.191126	5.514E-07	5.90466E-06	1.424495	6.595E-07	7.06152E-06
Road 4	4	0200-0300	0.278056154	8.367E-08	8.95949E-07	0.2516331	7.572E-08	8.10809E-07	1.3722877	4.13E-07	4.42177E-06	1.2420562	3.738E-07	4.00214E-06	1.4936892	4.495E-07	4.81295E-06
Road 4	4	0300-0400	0.252654286	4.094E-08	4.38361E-07	0.2281671	3.697E-08	3.95876E-07	1.3413043	2.173E-07	2.3272E-06	1.2112343	1.963E-07	2.10152E-06	1.4394014	2.332E-07	2.4974E-06
Road 4	4	0400-0500	0.26144	8.473E-08	9.07209E-07	0.2337007	7.574E-08	8.10953E-07	1.2909186	4.184E-07	4.47955E-06	1.1540907	3.74E-07	4.00475E-06	1.3877914	4.497E-07	4.8157E-06
Road 4	4	0500-0600	0.24073	1.337E-07	1.43202E-06	0.2150104	1.195E-07	1.27902E-06	1.1412692	6.34E-07	6.78902E-06	1.0183133	5.657E-07	6.05759E-06	1.2333238	6.852E-07	7.33662E-06
Road 4	4	0600-0700	0.265565577	3.197E-07	3.42281E-06	0.2419648	2.913E-07	3.11862E-06	1.2681094	1.526E-06	1.63443E-05	1.1545367	1.39E-06	1.48805E-05	1.3965015	1.681E-06	1.79992E-05
Road 4	4	0700-0800	0.26291913	5.599E-07	5.99539E-06	0.2420525	5.155E-07	5.51957E-06	1.3087707	2.787E-06	2.98441E-05	1.2041012	2.564E-06	2.74573E-05	1.4461537	3.08E-06	3.29769E-05
Road 4	4	0800-0900	0.269417386	9.542E-07	1.0217E-05	0.2476192	8.77E-07	9.39038E-06	1.3439768	4.76E-06	5.09672E-05	1.2346131	4.373E-06	4.68198E-05	1.4822322	5.25E-06	5.62102E-05
Road 4	4	0900-1000	0.276494122	9.472E-07	1.01427E-05	0.253957	8.7E-07	9.316E-06	1.3033097	4.465E-06	4.78098E-05	1.1963235	4.099E-06	4.38852E-05	1.4502805	4.969E-06	5.32012E-05
Road 4	4	1000-1100	0.310037622	1.026E-06	1.0989E-05	0.2820222	9.335E-07	9.99601E-06	1.4643143	4.847E-06	5.19013E-05	1.3316133	4.408E-06	4.71978E-05	1.6136355	5.341E-06	5.71938E-05
Road 4	4	1100-1200	0.287212903	1.031E-06	1.10343E-05	0.2634342	9.452E-07	1.01207E-05	1.3474022	4.834E-06	5.1765E-05	1.235565	4.433E-06	4.74684E-05	1.4989992	5.378E-06	5.75891E-05
Road 4	4	1200-1300	0.292531429	9.954E-07	1.06585E-05	0.2673252	9.096E-07	9.74013E-06	1.4356198	4.885E-06	5.23075E-05	1.3115469	4.463E-06	4.77869E-05	1.578872	5.373E-06	5.7527E-05
Road 4	4	1300-1400	0.30197745	1.042E-06	1.11524E-05	0.2746106	9.472E-07	1.01417E-05	1.4474426	4.992E-06	5.34558E-05	1.3157105	4.538E-06	4.85908E-05	1.5903211	5.485E-06	5.87325E-05
Road 4	4	1400-1500	0.275901159	8.814E-07	9.43713E-06	0.2524596	8.065E-07	8.63532E-06	1.3673683	4.368E-06	4.67705E-05	1.2505204	3.995E-06	4.27738E-05	1.50298	4.801E-06	5.14091E-05
Road 4	4	1500-1600	0.306910242	8.809E-07	9.4328E-06	0.2807881	8.06E-07	8.62994E-06	1.4692123	4.217E-06	4.51558E-05	1.3440411	3.858E-06	4.13087E-05	1.6248292	4.664E-06	4.99387E-05
Road 4	4	1600-1700	0.287130565	8.242E-07	8.82488E-06	0.2644533	7.591E-07	8.1279E-06	1.3901699	3.99E-06	4.27265E-05	1.2798311	3.674E-06	3.93352E-05	1.5442844	4.433E-06	4.74631E-05
Road 4	4	1700-1800	0.27443881	8.004E-07	8.57084E-06	0.2509359	7.319E-07	7.83684E-06	1.350951	3.94E-06	4.21908E-05	1.2346379	3.601E-06	3.85583E-05	1.4855738	4.333E-06	4.63951E-05
Road 4	4	1800-1900	0.301988302	7.41E-07	7.93421E-06	0.2769308	6.795E-07	7.27587E-06	1.506803	3.697E-06	3.95886E-05	1.3816031	3.39E-06	3.62992E-05	1.658534	4.07E-06	4.3575E-05
Road 4	4	1900-2000	0.271699324	4.654E-07	4.98342E-06	0.2525759	4.327E-07	4.63267E-06	1.3494641	2.312E-06	2.47514E-05	1.2539945	2.148E-06	2.30004E-05	1.5065704	2.581E-06	2.7633E-05
Road 4	4	2000-2100	0.236197347	2.679E-07	2.86866E-06	0.2196902	2.492E-07	2.66817E-06	1.1792704	1.338E-06	1.43224E-05	1.0960994	1.243E-06	1.33123E-05	1.3157896	1.492E-06	1.59805E-05
Road 4	4	2100-2200	0.195219459	1.672E-07	1.79033E-06	0.1827265	1.565E-07	1.67576E-06	0.9920427	8.497E-07	9.09787E-06	0.9277162	7.946E-07	8.50794E-06	1.1104427	9.511E-07	1.01837E-05
Road 4	4	2200-2300	0.259206508	3.78E-07	4.04757E-06	0.2475262	3.61E-07	3.86518E-06	1.2711349	1.854E-06	1.9849E-05	1.2134635	1.77E-06	1.89485E-05	1.4609897	2.131E-06	2.28137E-05
Road 4	4	2300-0000	0.240455833	2.672E-07	2.86078E-06	0.2288225	2.542E-07	2.72237E-06	1.210491	1.345E-06	1.44016E-05	1.1515744	1.28E-06	1.37006E-05	1.3803969	1.534E-06	1.6423E-05
Road 5	5	0000-0100	0.090766788	3.288E-07	4.4463E-06	0.0826412	2.994E-07	4.04826E-06	0.5006089	1.813E-06	2.45228E-05	0.4528689	1.64E-06	2.21842E-05	0.5355101	1.94E-06	2.62325E-05
Road 5	5	0100-0200	0.061575455	1.398E-07	1.89107E-06	0.0558898	1.269E-07	1.71645E-06	0.3714295	8.435E-07	1.14071E-05	0.3347269	7.602E-07	1.02799E-05	0.3906167	8.871E-07	1.19964E-05
Road 5	5	0200-0300	0.057889884	9.344E-08	1.26362E-06	0.0522964	8.441E-08	1.14152E-06	0.3921537	6.33E-07	8.55992E-06	0.3500547	5.65E-07	7.64098E-06	0.402351	6.494E-07	8.78251E-06
Road 5	5	0300-0400	0.053161452	6.186E-08	8.36572E-07	0.0479381	5.578E-08	7.54375E-07	0.2845245	3.311E-07	4.4774E-06	0.2533245	2.948E-07	3.98643E-06	0.3012626	3.506E-07	4.7408E-06
Road 5	5	0400-0500	0.07445299	1.355E-07	1.83303E-06	0.0665465	1.212E-07	1.63837E-06	0.4190355	7.629E-07	1.03166E-05	0.3713955	6.762E-07	9.14373E-06	0.437942	7.973E-07	1.07821E-05
Road 5	5	0500-0600	0.059591284	2.438E-07	3.29727E-06	0.0531326	2.174E-07	2.9399E-06	0.3409301	1.395E-06	1.88641E-05	0.3002017	1.228E-06	1.66106E-05	0.3533342	1.446E-06	1.95505E-05
Road 5	5	0600-0700	0.086385974	6.242E-07	8.44148E-06	0.0786704	5.685E-07	7.68753E-06	0.4296522	3.105E-06	4.19849E-05	0.3883948	2.807E-06	3.79533E-05	0.4670652	3.375E-06	4.56408E-05
Road 5	5	0700-0800	0.065530401	7.675E-07	1.03787E-05	0.0602754	7.059E-07	9.5464E-06	0.338832	3.968E-06	5.36641E-05	0.3087901	3.616E-06	4.89061E-05	0.3690655	4.322E-06	5.84525E-05
Road 5	5	0800-0900	0.071001292	1.114E-06	1.50656E-05	0.0652192	1.023E-06	1.38388E-05	0.3457042	5.424E-06	7.33543E-05	0.3148825	4.941E-06	6.68143E-05	0.3801018	5.964E-06	8.06531E-05
Road 5	5	0900-1000	0.077718082	1.179E-06	1.59385E-05	0.0714804	1.084E-06	1.46593E-05	0.4090727	6.204E-06	8.38932E-05	0.3741144	5.674E-06	7.67239E-05	0.4455948	6.758E-06	9.13832E-05
Road 5	5	1000-1100	0.088713512	1.209E-06	1.63471E-05	0.0807314	1.1E-06	1.48763E-05	0.4583824	6.246E-06	8.44655E-05	0.4149224	5.654E-06	7.64572E-05	0.4956539	6.754E-06	9.13335E-05
Road 5	5	1100-1200	0.08658813	1.121E-06	1.51643E-05	0.0794701	1.029E-06	1.39177E-05	0.4647734	6.019E-06	8.13964E-05	0.4244467	5.497E-06	7.43339E-05	0.5039167	6.526E-06	8.82516E-05
Road 5	5	1200-1300	0.08073093	1.059E-06	1.43229E-05	0.0738165	9.684E-07	1.30962E-05	0.4361929	5.723E-06	7.73875E-05	0.3971913	5.211E-06	7.0468E-05	0.4710078	6.179E-06	8.35642E-05
Road 5	5	1300-1400	0.087526532	1.26E-06	1.70392E-05	0.0796469	1.147E-06	1.55053E-05	0.4552879	6.554E-06	8.86332E-05	0.412586	5.939E-06	8.03202E-05	0.492233	7.086E-06	9.58255E-05
Road 5	5	1400-1500	0.083494059	1.232E-06	1.66569E-05	0.0764518	1.128E-06	1.52519E-05	0.4340839	6.404E-06	8.65986E-05	0.3959425	5.841E-06	7.89895E-05	0.4723944	6.969E-06	9.42415E-05
Road 5	5	1500-1600	0.093192732	1.338E-06	1.8095E-05	0.0853411	1.225E-06	1.65705E-05	0.4735782	6.8E-06	9.19535E-05	0.4320741	6.204E-06	8.38947E-05	0.5174152	7.429E-06	0.000100465
Road 5	5	1600-1700	0.087546722	1.384E-06	1.87097E-05	0.0806629	1.275E-06	1.72385E-05	0.4551375	7.193E-06	9.72679E-05	0.4176636	6.6E-06	8.92593E-05	0.4983265	7.875E-06	0.000106498
Road 5	5	1700-1800	0.065171268	1.032E-06	1.39609E-05	0.0595911	9.44E-07	1.27655E-05	0.3373282	5.344E-06	7.2262E-05	0.3064739	4.855E-06	6.56524E-05	0.366065	5.799E-06	7.8418E-05
Road 5	5	1800-1900	0.061029066	1.042E-06	1.40959E-05	0.0559302	9.553E-07	1.29182E-05	0.343942	5.874E-06	7.94404E-05	0.3129165	5.344E-06	7.22744E-05	0.3688467	6.3E-06	8.51927E-05
Road 5	5	1900-2000	0.070202083	8.92E-07	1.20629E-05	0.0652222	8.287E-07	1.12072E-05	0.3916902	4.977E-06	6.73048E-05	0.361608	4.595E-06	6.21357E-05	0.4268302	5.423E-06	7.3343E-05
Road 5	5	2000-2100	0.066999343	7.47E-07	1.01012E-05	0.0623314	6.949E-07	9.39741E-06	0.3670176	4.092E-06	5.53335E-05	0.3393058	3.783E-06	5.11555E-05	0.4016373	4.478E-06	6.05529E-05
Road 5	5	2100-2200	0.069231559	7.42E-07	1.00336E-05	0.0647375	6.938E-07	9.38225E-06	0.3911408	4.192E-06	5.66871E-05	0.3639102	3.9E-06	5.27406E-05	0.4286477	4.594E-06	6.21229E-05
Road 5	5	2200-2300	0.066264919	6.119E-07	8.27492E-06	0.0632264	5.838E-07	7.89548E-06	0.3652213	3.373E-06	4.56075E-05	0.3471829	3.206E-06	4.33549E-05	0.4104093	3.79E-06	5.12504E-05
Road 5	5	2300-0000	0.058477679	4.917E-07	6.64941E-06	0.0556417	4.679E-07	6.32693E-06	0.3354638	2.821E-06	3.81451E-05	0.3174447	2.669E-06	3.60962E-05	0.3730864	3.137E-06	4.24231E-05
Road 6	6	0000-0100	0.055161216	1.532E-07	5.47719E-06	0.0501501	1.393E-07	4.97962E-06	0.3482184	9.673E-07	3.45761E-05	0.3128686	8.691E-07	3.10661E-05	0.3630188	1.008E-06	3.60457E-05
Road 6	6	0100-0200	0.071670442	1.52E-07	5.43352E-06	0.0650326	1.379E-07	4.93028E-06	0.4006519	8.497E-07	3.03744E-05	0.360315	7.642E-07	2.73164E-05	0.4253476	9.021E-07	3.22467E-05
Road 6	6	0200-0300	0.065837975	9.762E-08	3.48952E-06	0.059583	8.835E-08	3.158E-06	0.3695411	5.479E-07	1.95863E-05	0.3310653	4.909E-07	1.7547E-05	0.3906484	5.792E-07	2.0705E-05
Road 6	6	0300-0400	0.066603387	7.75E-08	2.77045E-06	0.0602448	7.01E-08	2.50596E-06	0.4204716	4.893E-07	1.749E-05	0.3770424	4.388E-07	1.56836E-05	0.4372873	5.089E-07	1.81895E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.073077667	1.234E-07	4.41255E-06	0.0653134	1.103E-07	3.94373E-06	0.4239276	7.161E-07	2.55975E-05	0.3748222	6.331E-07	2.26324E-05	0.4401357	7.435E-07	2.65761E-05
Road 6	6	0500-0600	0.065717826	1.986E-07	7.09858E-06	0.0586545	1.772E-07	6.33563E-06	0.3921884	1.185E-06	4.23627E-05	0.3455884	1.044E-06	3.73291E-05	0.404243	1.222E-06	4.36647E-05
Road 6	6	0600-0700	0.069784704	3.759E-07	1.34371E-05	0.0635477	3.423E-07	1.22361E-05	0.428256	2.307E-06	8.24609E-05	0.3855462	2.077E-06	7.42371E-05	0.4490939	2.419E-06	8.64732E-05
Road 6	6	0700-0800	0.064865417	5.552E-07	1.98445E-05	0.0596951	5.109E-07	1.82628E-05	0.3628372	3.105E-06	0.000111004	0.3305771	2.829E-06	0.000101135	0.3902722	3.34E-06	0.000119397
Road 6	6	0800-0900	0.055506896	6.813E-07	2.4355E-05	0.0509307	6.252E-07	2.23471E-05	0.3245374	3.984E-06	0.000142398	0.2933465	3.601E-06	0.000128713	0.3442773	4.226E-06	0.00015106
Road 6	6	0900-1000	0.057771035	6.809E-07	2.43407E-05	0.053018	6.249E-07	2.23381E-05	0.321398	3.788E-06	0.000135415	0.2914753	3.436E-06	0.000122807	0.3444933	4.06E-06	0.000145145
Road 6	6	1000-1100	0.077957556	7.784E-07	2.78248E-05	0.0708753	7.077E-07	2.5297E-05	0.4236547	4.23E-06	0.000151212	0.3819176	3.813E-06	0.000136315	0.4527929	4.521E-06	0.000161612
Road 6	6	1100-1200	0.088364432	8.757E-07	3.13021E-05	0.0811131	8.038E-07	2.87334E-05	0.4569812	4.529E-06	0.000161881	0.4172562	4.135E-06	0.000147808	0.4983692	4.939E-06	0.000176542
Road 6	6	1200-1300	0.085606783	8.291E-07	2.96361E-05	0.0783267	7.586E-07	2.71158E-05	0.4213348	4.08E-06	0.000145861	0.3840057	3.719E-06	0.000132938	0.4623324	4.478E-06	0.000160054
Road 6	6	1300-1400	0.100392117	9.704E-07	3.46872E-05	0.0913549	8.83E-07	3.15647E-05	0.5031575	4.863E-06	0.00017385	0.4560191	4.408E-06	0.000157563	0.5473741	5.291E-06	0.000189127
Road 6	6	1400-1500	0.095544683	1.019E-06	3.64097E-05	0.0874793	9.326E-07	3.33362E-05	0.4757782	5.072E-06	0.000181307	0.433848	4.625E-06	0.000165329	0.5213273	5.558E-06	0.000198665
Road 6	6	1500-1600	0.08376609	8.726E-07	3.11906E-05	0.0766724	7.987E-07	2.85492E-05	0.4261747	4.439E-06	0.000158688	0.3882724	4.045E-06	0.000144575	0.4649447	4.843E-06	0.000173124
Road 6	6	1600-1700	0.087718063	9.351E-07	3.34272E-05	0.0808211	8.616E-07	3.0799E-05	0.4270136	4.552E-06	0.000162724	0.3918394	4.177E-06	0.00014932	0.4726605	5.039E-06	0.000180119
Road 6	6	1700-1800	0.065303623	7.342E-07	2.62438E-05	0.0597311	6.715E-07	2.40044E-05	0.3272557	3.679E-06	0.000131515	0.2974502	3.344E-06	0.000119537	0.3571813	4.016E-06	0.000143542
Road 6	6	1800-1900	0.064093353	8.216E-07	2.93695E-05	0.058763	7.533E-07	2.6927E-05	0.3316839	4.252E-06	0.000151987	0.3019999	3.871E-06	0.000138385	0.360763	4.625E-06	0.000165312
Road 6	6	1900-2000	0.075844146	7.416E-07	2.65108E-05	0.0704393	6.888E-07	2.46215E-05	0.3922867	3.836E-06	0.000137121	0.3620058	3.54E-06	0.000126536	0.432445	4.229E-06	0.000151158
Road 6	6	2000-2100	0.059994537	4.617E-07	1.65028E-05	0.0557688	4.292E-07	1.53404E-05	0.3363926	2.589E-06	9.25322E-05	0.310458	2.389E-06	8.53983E-05	0.3662269	2.818E-06	0.000100739
Road 6	6	2100-2200	0.082889522	5.538E-07	1.97976E-05	0.0775196	5.18E-07	1.8515E-05	0.4295299	2.87E-06	0.00010259	0.3998719	2.672E-06	9.55066E-05	0.4773914	3.19E-06	0.000114022
Road 6	6	2200-2300	0.061724032	4.367E-07	1.5612E-05	0.0588954	4.167E-07	1.48965E-05	0.3402313	2.407E-06	8.60554E-05	0.3225203	2.282E-06	8.15757E-05	0.3814158	2.699E-06	9.64723E-05
Road 6	6	2300-0000	0.041280311	2.743E-07	9.80412E-06	0.0392776	2.61E-07	9.32848E-06	0.2522486	1.676E-06	5.99093E-05	0.2384094	1.584E-06	5.66225E-05	0.2776869	1.845E-06	6.5951E-05
Road 7	7	0000-0100	0.078891696	2.108E-07	5.26108E-06	0.0719082	1.921E-07	4.79537E-06	0.4658257	1.244E-06	3.10647E-05	0.4218136	1.127E-06	2.81296E-05	0.4937218	1.319E-06	3.2925E-05
Road 7	7	0100-0200	0.095341642	1.979E-07	4.94134E-06	0.086531	1.797E-07	4.4847E-06	0.5239185	1.088E-06	2.71535E-05	0.472963	9.819E-07	2.45126E-05	0.559494	1.162E-06	2.89973E-05
Road 7	7	0200-0300	0.082897661	1.131E-07	2.8242E-06	0.0750511	1.024E-07	2.55688E-06	0.4673698	6.378E-07	1.59226E-05	0.4203016	5.736E-07	1.43191E-05	0.4953528	6.76E-07	1.68759E-05
Road 7	7	0300-0400	0.0837164	9.237E-08	2.30595E-06	0.0756353	8.346E-08	2.08336E-06	0.5045161	5.567E-07	1.38968E-05	0.4531878	5.001E-07	1.2483E-05	0.528823	5.835E-07	1.45663E-05
Road 7	7	0400-0500	0.093572151	1.508E-07	3.7644E-06	0.0837567	1.35E-07	3.36952E-06	0.5213489	8.402E-07	2.09738E-05	0.4635125	7.47E-07	1.8647E-05	0.5472692	8.82E-07	2.20166E-05
Road 7	7	0500-0600	0.084949326	2.417E-07	6.0345E-06	0.076018	2.163E-07	5.40006E-06	0.4793546	1.364E-06	3.40517E-05	0.4253532	1.21E-06	3.02156E-05	0.5013712	1.427E-06	3.56157E-05
Road 7	7	0600-0700	0.088552525	4.5E-07	1.1233E-05	0.0803993	4.085E-07	1.01987E-05	0.5095578	2.589E-06	6.46379E-05	0.4589948	2.332E-06	5.82239E-05	0.5393941	2.741E-06	6.84226E-05
Road 7	7	0700-0800	0.083888857	6.821E-07	1.70262E-05	0.0773025	6.285E-07	1.56894E-05	0.4545347	3.696E-06	9.2253E-05	0.4160115	3.382E-06	8.44343E-05	0.493314	4.011E-06	0.000100124
Road 7	7	0800-0900	0.083103521	1.021E-06	2.54809E-05	0.0766549	9.415E-07	2.35037E-05	0.4536556	5.572E-06	0.000139098	0.4152635	5.101E-06	0.000127327	0.4919184	6.042E-06	0.00015083
Road 7	7	0900-1000	0.085111607	9.713E-07	2.42458E-05	0.0781849	8.922E-07	2.22726E-05	0.4459967	5.09E-06	0.000127052	0.4068166	4.642E-06	0.00011589	0.4850015	5.535E-06	0.000138163
Road 7	7	1000-1100	0.101080585	1.011E-06	2.52414E-05	0.0922539	9.228E-07	2.30372E-05	0.5327316	5.329E-06	0.000133031	0.4836692	4.838E-06	0.00012078	0.5759231	5.761E-06	0.000143817
Road 7	7	1100-1200	0.110731224	1.103E-06	2.75309E-05	0.1012781	1.009E-06	2.51806E-05	0.5719344	5.696E-06	0.000142199	0.521344	5.192E-06	0.000129621	0.622622	6.201E-06	0.000154801
Road 7	7	1200-1300	0.108827017	1.082E-06	2.7018E-05	0.0995597	9.901E-07	2.47172E-05	0.5493804	5.464E-06	0.000136392	0.5014724	4.987E-06	0.000124498	0.6010321	5.977E-06	0.000149215
Road 7	7	1300-1400	0.117262043	1.149E-06	2.86871E-05	0.106868	1.047E-06	2.61443E-05	0.5902869	5.785E-06	0.000144408	0.5365674	5.258E-06	0.000131266	0.6434354	6.306E-06	0.000157411
Road 7	7	1400-1500	0.10957767	1.126E-06	2.81178E-05	0.1003591	1.032E-06	2.57523E-05	0.5579852	5.736E-06	0.00014318	0.5095631	5.238E-06	0.000130755	0.6099222	6.269E-06	0.000156507
Road 7	7	1500-1600	0.100740476	1.012E-06	2.5266E-05	0.0922438	9.268E-07	2.3135E-05	0.5171678	5.196E-06	0.000129707	0.471938	4.741E-06	0.000118363	0.5641818	5.668E-06	0.000141498
Road 7	7	1600-1700	0.105109558	1.093E-06	2.7276E-05	0.0963632	1.002E-06	2.50063E-05	0.5202964	5.409E-06	0.000135017	0.4755578	4.944E-06	0.000123408	0.571921	5.945E-06	0.000148414
Road 7	7	1700-1800	0.081305058	8.959E-07	2.23658E-05	0.0743783	8.196E-07	2.04604E-05	0.4173811	4.599E-06	0.000114815	0.3801125	4.189E-06	0.000104563	0.4544908	5.008E-06	0.000125024
Road 7	7	1800-1900	0.075048573	8.586E-07	2.14336E-05	0.0687642	7.867E-07	1.96388E-05	0.393776	4.505E-06	0.000112461	0.3589577	4.107E-06	0.000102517	0.4277219	4.893E-06	0.000122156
Road 7	7	1900-2000	0.086676293	7.513E-07	1.87543E-05	0.0808323	7.006E-07	1.74898E-05	0.4562237	3.954E-06	9.87138E-05	0.4236587	3.672E-06	9.16676E-05	0.504491	4.373E-06	0.000109157
Road 7	7	2000-2100	0.079546906	5.636E-07	1.40692E-05	0.0739765	5.241E-07	1.3084E-05	0.4290067	3.04E-06	7.58769E-05	0.3968566	2.812E-06	7.01906E-05	0.4708331	3.336E-06	8.32746E-05
Road 7	7	2100-2200	0.090827	5.407E-07	1.34966E-05	0.0849525	5.057E-07	1.26237E-05	0.4775133	2.842E-06	7.0957E-05	0.4449268	2.648E-06	6.61147E-05	0.5298793	3.154E-06	7.87384E-05
Road 7	7	2200-2300	0.075981898	4.876E-07	1.21719E-05	0.072039	4.623E-07	1.15403E-05	0.4134126	2.653E-06	6.62265E-05	0.3898904	2.502E-06	6.24583E-05	0.4619294	2.964E-06	7.39986E-05
Road 7	7	2300-0000	0.052337764	3.093E-07	7.72032E-06	0.0498513	2.946E-07	7.35354E-06	0.3091972	1.827E-06	4.56095E-05	0.2931274	1.732E-06	4.32391E-05	0.3429787	2.027E-06	5.05926E-05
Road 8	8	0000-0100	0.238983611	1.738E-07	2.86513E-06	0.2174389	1.581E-07	2.60684E-06	1.2212031	8.881E-07	1.46408E-05	1.1106186	8.077E-07	1.3315E-05	1.3280575	9.659E-07	1.59218E-05
Road 8	8	0100-0200	0.247832	1.502E-07	2.47601E-06	0.2248857	1.363E-07	2.24676E-06	1.2613423	7.644E-07	1.26017E-05	1.1444517	6.936E-07	1.14339E-05	1.3693373	8.299E-07	1.36806E-05
Road 8	8	0200-0300	0.234418	7.104E-08	1.171E-06	0.212232	6.431E-08	1.06017E-06	1.25641	3.807E-07	6.2762E-06	1.137472	3.447E-07	5.68206E-06	1.349704	4.09E-07	6.74223E-06
Road 8	8	0300-0400	0.213875	6.049E-08	9.97153E-07	0.19334	5.468E-08	9.01413E-07	1.1183993	3.163E-07	5.21433E-06	1.010705	2.859E-07	4.71223E-06	1.204045	3.405E-07	5.61364E-06
Road 8	8	0400-0500	0.244030476	1.035E-07	1.70662E-06	0.2182105	9.257E-08	1.52605E-06	1.2051462	5.113E-07	8.42816E-06	1.0776833	4.572E-07	7.53675E-06	1.2958938	5.498E-07	9.0628E-06
Road 8	8	0500-0600	0.231592059	1.591E-07	2.62226E-06	0.2069388	1.421E-07	2.34312E-06	1.1229474	7.713E-07	1.27149E-05	1.0026938	6.887E-07	1.13533E-05	1.2096326	8.309E-07	1.36964E-05
Road 8	8	0600-0700	0.257213871	3.222E-07	5.3108E-06	0.2343955	2.936E-07	4.83966E-06	1.2323135	1.544E-06	2.54441E-05	1.122374	1.406E-06	2.31741E-05	1.3567695	1.699E-06	2.80138E-05
Road 8	8	0700-0800	0.253806634	5.179E-07	8.53686E-06	0.2336952	4.768E-07	7.86041E-06	1.2294352	2.509E-06	4.13524E-05	1.1315909	2.309E-06	3.80614E-05	1.3652861	2.786E-06	4.59218E-05
Road 8	8	0800-0900	0.280504421	1.077E-06	1.77487E-05	0.2579204	9.9E-07	1.63197E-05	1.3637987	5.235E-06	8.62934E-05	1.2533627	4.811E-06	7.93057E-05	1.5112831	5.801E-06	9.56254E-05
Road 8	8	0900-1000	0.299108981	9.487E-07	1.56388E-05	0.2747897	8.716E-07	1.43673E-05	1.3835757	4.388E-06	7.23397E-05	1.2709331	4.031E-06	6.64502E-05	1.5457228	4.903E-06	8.08174E-05
Road 8	8	1000-1100	0.288938544	9.223E-07	1.52032E-05	0.2628536	8.39E-07	1.38307E-05	1.3717986	4.379E-06	7.21807E-05	1.2470565	3.981E-06	6.56171E-05	1.5099101	4.82E-06	7.94478E-05
Road 8	8	1100-1200	0.294907736	9.473E-07	1.56155E-05	0.2704817	8.688E-07	1.43222E-05	1.4200384	4.561E-06	7.51919E-05	1.3022396	4.183E-06	6.89544E-05	1.5727213	5.052E-06	8.32766E-05
Road 8	8	1200-1300	0.297223195	1.015E-06	1.6728E-05	0.2716184	9.273E-07	1.52869E-05	1.445627	4.936E-06	8.13611E-05	1.3207541	4.509E-06	7.43331E-05	1.5923725	5.437E-06	8.96201E-05
Road 8	8	1300-1400	0.273502563	8.84E-07	1.45732E-05	0.2487406	8.04E-07	1.32538E-05	1.3063454	4.223E-06	6.96068E-05	1.1875872	3.839E-06	6.3279E-05	1.4363278	4.643E-06	7.65328E-05
Road 8	8	1400-1500	0.265672662	7.46E-07	1.2298E-05	0.2431242	6.827E-07	1.12543E-05	1.3289058	3.732E-06	6.15153E-05	1.2157082	3.414E-06	5.62753E-05	1.4588324	4.097E-06	6.75296E-05
Road 8	8	1500-1600	0.271590365	7.517E-07	1.23911E-05	0.248472	6.877E-07	1.13363E-05	1.3218682	3.659E-06	6.03091E-05	1.2086464	3.345E-06	5.51434E-05	1.4571183	4.033E-06	6.64797E-05
Road 8	8	1600-1700	0.273084932	8.055E-07	1.32777E-05	0.2514717	7.417E-07	1.22269E-05	1.3130082	3.873E-06	6.38402E-05	1.2086529	3.565E-06	5.87663E-05	1.4601247	4.307E-06	7.09932E-05
Road 8	8	1700-1800	0.222623462	7.016E-07	1.15656E-05	0.2035447	6.415E-07	1.05745E-05	1.1179172	3.523E-06	5.80775E-05	1.0207531	3.217E-06	5.30297E-05	1.2242978	3.858E-06	6.36042E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.222675888	4.813E-07	7.93471E-06	0.2042717	4.416E-07	7.2789E-06	1.1437651	2.472E-06	4.07563E-05	1.0485114	2.266E-06	3.73621E-05	1.2527831	2.708E-06	4.4641E-05
Road 8	8	1900-2000	0.22084974	3.435E-07	5.66319E-06	0.205323	3.194E-07	5.26505E-06	1.1629477	1.809E-06	2.98212E-05	1.0808849	1.681E-06	2.77169E-05	1.2862079	2.001E-06	3.29819E-05
Road 8	8	2000-2100	0.241093684	3.702E-07	6.10202E-06	0.22424	3.443E-07	5.67545E-06	1.1533797	1.771E-06	2.91917E-05	1.0721612	1.646E-06	2.71361E-05	1.2964012	1.99E-06	3.28116E-05
Road 8	8	2100-2200	0.196453962	2.103E-07	3.46745E-06	0.1838309	1.968E-07	3.24465E-06	1.0324681	1.105E-06	1.82233E-05	0.965027	1.033E-06	1.70329E-05	1.1488579	1.23E-06	2.02776E-05
Road 8	8	2200-2300	0.234942188	3.038E-07	5.00743E-06	0.2243563	2.901E-07	4.78181E-06	1.1642153	1.505E-06	2.48134E-05	1.1111425	1.437E-06	2.36823E-05	1.3354988	1.727E-06	2.84641E-05
Road 8	8	2300-0000	0.188096731	1.976E-07	3.25731E-06	0.1790377	1.881E-07	3.10043E-06	0.9688354	1.018E-06	1.67775E-05	0.9217342	9.683E-07	1.59618E-05	1.1007719	1.156E-06	1.90623E-05
Road 9	9	0000-0100	0.205118544	5.447E-08	1.62616E-06	0.1898658	5.042E-08	1.50524E-06	0.9425081	2.503E-07	7.47212E-06	0.866965	2.302E-07	6.87322E-06	1.0568308	2.807E-07	8.37846E-06
Road 9	9	0100-0200	0.223280993	4.659E-08	1.39083E-06	0.206274	4.304E-08	1.2849E-06	0.9704431	2.025E-07	6.04496E-06	0.8901119	1.857E-07	5.54457E-06	1.096386	2.288E-07	6.82947E-06
Road 9	9	0200-0300	0.088550811	8.399E-09	2.50722E-07	0.0804733	7.633E-09	2.27852E-07	0.6385401	6.056E-08	1.80796E-06	0.578432	5.486E-08	1.63777E-06	0.6589053	6.25E-08	1.86562E-06
Road 9	9	0300-0400	0.107189055	8.133E-09	2.42796E-07	0.0971986	7.375E-09	2.20166E-07	0.6665758	5.058E-08	1.50987E-06	0.6044973	4.587E-08	1.36926E-06	0.7016959	5.324E-08	1.58942E-06
Road 9	9	0400-0500	0.241912248	4.589E-08	1.3699E-06	0.2208814	4.19E-08	1.25081E-06	1.0117839	1.919E-07	5.72952E-06	0.916293	1.738E-07	5.18878E-06	1.1371744	2.157E-07	6.43958E-06
Road 9	9	0500-0600	0.173785109	5.604E-08	1.67299E-06	0.1583647	5.107E-08	1.52454E-06	0.8882187	2.864E-07	8.55066E-06	0.8049764	2.596E-07	7.74931E-06	0.9633411	3.107E-07	9.27384E-06
Road 9	9	0600-0700	0.202435853	1.229E-07	3.66833E-06	0.1876833	1.139E-07	3.401E-06	1.0756359	6.529E-07	1.94915E-05	0.9910595	6.016E-07	1.79589E-05	1.1787428	7.155E-07	2.13599E-05
Road 9	9	0700-0800	0.172603724	1.572E-07	4.69161E-06	0.1624436	1.479E-07	4.41545E-06	1.0060362	9.16E-07	2.73455E-05	0.9396246	8.556E-07	2.55403E-05	1.1020683	1.003E-06	2.99558E-05
Road 9	9	0800-0900	0.263542925	5.749E-07	1.71625E-05	0.2466566	5.381E-07	1.60628E-05	1.291179	2.817E-06	8.40843E-05	1.1979878	2.613E-06	7.80155E-05	1.4446444	3.152E-06	9.40783E-05
Road 9	9	0900-1000	0.271069175	4.422E-07	1.32011E-05	0.2541298	4.146E-07	1.23761E-05	1.2089533	1.972E-06	5.88761E-05	1.1211784	1.829E-06	5.46014E-05	1.3753082	2.244E-06	6.69775E-05
Road 9	9	1000-1100	0.284795045	3.836E-07	1.14504E-05	0.2631634	3.544E-07	1.05807E-05	1.2385549	1.668E-06	4.97971E-05	1.1358744	1.53E-06	4.56688E-05	1.3990378	1.884E-06	5.62495E-05
Road 9	9	1100-1200	0.198711255	2.789E-07	8.32693E-06	0.1826234	2.564E-07	7.65277E-06	1.0725233	1.506E-06	4.49437E-05	0.983388	1.38E-06	4.12086E-05	1.1660114	1.637E-06	4.88613E-05
Road 9	9	1200-1300	0.294402621	4.077E-07	1.21701E-05	0.2750742	3.809E-07	1.13711E-05	1.3660426	1.892E-06	5.647E-05	1.2721641	1.762E-06	5.25892E-05	1.5472383	2.143E-06	6.39603E-05
Road 9	9	1300-1400	0.332932798	3.789E-07	1.1312E-05	0.3100549	3.529E-07	1.05347E-05	1.2901915	1.468E-06	4.38365E-05	1.1936008	1.359E-06	4.05547E-05	1.5036556	1.711E-06	5.10893E-05
Road 9	9	1400-1500	0.215207472	2.776E-07	8.28699E-06	0.2019263	2.605E-07	7.77557E-06	1.0750247	1.387E-06	4.1396E-05	0.9973465	1.287E-06	3.84048E-05	1.1992727	1.547E-06	4.61804E-05
Road 9	9	1500-1600	0.17936864	1.939E-07	5.78965E-06	0.1671037	1.807E-07	5.39376E-06	0.9570075	1.035E-06	3.08902E-05	0.8848201	9.567E-07	2.85602E-05	1.0519237	1.137E-06	3.39539E-05
Road 9	9	1600-1700	0.186426063	2.794E-07	8.33997E-06	0.1754509	2.629E-07	7.84898E-06	1.0673235	1.6E-06	4.77479E-05	0.9987204	1.497E-06	4.46788E-05	1.1741713	1.76E-06	5.25278E-05
Road 9	9	1700-1800	0.162776474	2.1E-07	6.26803E-06	0.1534164	1.979E-07	5.9076E-06	1.0220579	1.318E-06	3.93564E-05	0.958362	1.236E-06	3.69036E-05	1.1117783	1.434E-06	4.28112E-05
Road 9	9	1800-1900	0.160645499	1.341E-07	4.00269E-06	0.1522311	1.271E-07	3.79304E-06	0.9931725	8.29E-07	2.47462E-05	0.9394714	7.841E-07	2.34081E-05	1.0917025	9.112E-07	2.72012E-05
Road 9	9	1900-2000	0.166773742	1.36E-07	4.06094E-06	0.1588405	1.296E-07	3.86777E-06	0.912857	7.446E-07	2.22281E-05	0.8619392	7.031E-07	2.09882E-05	1.0207797	8.326E-07	2.4856E-05
Road 9	9	2000-2100	0.177691619	9.775E-08	2.91807E-06	0.1673494	9.206E-08	2.74823E-06	0.8049976	4.428E-07	1.32198E-05	0.7550146	4.154E-07	1.23989E-05	0.922364	5.074E-07	1.51472E-05
Road 9	9	2100-2200	0.023193322	1.188E-08	3.54615E-07	0.0219841	1.126E-08	3.36127E-07	0.3247343	1.663E-07	4.96504E-06	0.3040543	1.557E-07	4.64885E-06	0.3260384	1.67E-07	4.98498E-06
Road 9	9	2200-2300	0.168571757	1.055E-07	3.15014E-06	0.1614709	1.011E-07	3.01744E-06	0.8341126	5.222E-07	1.55872E-05	0.7956487	4.981E-07	1.48685E-05	0.9571195	5.992E-07	1.78859E-05
Road 9	9	2300-0000	0.136415381	7.763E-08	2.31748E-06	0.1313486	7.475E-08	2.2314E-06	0.7126241	4.055E-07	1.21063E-05	0.6827225	3.885E-07	1.15983E-05	0.8140711	4.633E-07	1.38297E-05
Road 10	10	0000-0100	0.289245288	2.224E-07	4.94473E-06	0.2641547	2.031E-07	4.5158E-06	1.4823745	1.14E-06	2.53416E-05	1.3523217	1.04E-06	2.31183E-05	1.6164763	1.243E-06	2.76341E-05
Road 10	10	0100-0200	0.284183724	1.651E-07	3.67064E-06	0.2590975	1.505E-07	3.34662E-06	1.4441274	8.389E-07	1.8653E-05	1.3153804	7.641E-07	1.699E-05	1.5744779	9.146E-07	2.03366E-05
Road 10	10	0200-0300	0.282853069	9.182E-08	2.04164E-06	0.256081	8.313E-08	1.84839E-06	1.4185666	4.605E-07	1.02392E-05	1.2841959	4.169E-07	9.26934E-06	1.5402769	5E-07	1.11177E-05
Road 10	10	0300-0400	0.256862902	5.266E-08	1.17097E-06	0.2321077	4.759E-08	1.05812E-06	1.3908779	2.852E-07	6.34065E-06	1.2563563	2.576E-07	5.7274E-06	1.488464	3.052E-07	6.78552E-06
Road 10	10	0400-0500	0.302954781	1.191E-07	2.64709E-06	0.2728176	1.072E-07	2.38377E-06	1.4609689	5.741E-07	1.27653E-05	1.3111586	5.152E-07	1.14564E-05	1.5839761	6.225E-07	1.38401E-05
Road 10	10	0500-0600	0.275219205	1.928E-07	4.28673E-06	0.2481434	1.738E-07	3.86501E-06	1.3336244	9.342E-07	2.07721E-05	1.1982843	8.394E-07	1.86641E-05	1.4464277	1.013E-06	2.25291E-05
Road 10	10	0600-0700	0.331461793	4.644E-07	1.03255E-05	0.3058187	4.285E-07	9.52668E-06	1.6623833	2.329E-06	5.17856E-05	1.5335379	2.149E-06	4.77719E-05	1.8393566	2.577E-06	5.72985E-05
Road 10	10	0700-0800	0.323763058	7.136E-07	1.58665E-05	0.3010174	6.635E-07	1.47518E-05	1.6380021	3.61E-06	8.02727E-05	1.5212539	3.353E-06	7.45513E-05	1.8222713	4.016E-06	8.93031E-05
Road 10	10	0800-0900	0.345338625	1.457E-06	3.24045E-05	0.3183701	1.344E-06	2.9874E-05	1.7140575	7.234E-06	0.000160837	1.5767694	6.654E-06	0.000147955	1.8951395	7.998E-06	0.000177829
Road 10	10	0900-1000	0.384270003	1.287E-06	2.86125E-05	0.3564492	1.194E-06	2.6541E-05	1.8613358	6.233E-06	0.000138594	1.7228097	5.769E-06	0.000128279	2.0792589	6.963E-06	0.00015482
Road 10	10	1000-1100	0.384718768	1.4E-06	3.11305E-05	0.3527422	1.284E-06	2.85431E-05	1.7457167	6.353E-06	0.000141259	1.5938376	5.8E-06	0.00012897	1.9465798	7.084E-06	0.000157513
Road 10	10	1100-1200	0.37241868	1.355E-06	3.01353E-05	0.3430695	1.249E-06	2.77604E-05	1.7523115	6.377E-06	0.000141793	1.6105252	5.861E-06	0.00013032	1.9535947	7.11E-06	0.00015808
Road 10	10	1200-1300	0.387403914	1.456E-06	3.2378E-05	0.3570044	1.342E-06	2.98373E-05	1.8480193	6.946E-06	0.000154452	1.7017296	6.397E-06	0.000142225	2.058734	7.738E-06	0.000172063
Road 10	10	1300-1400	0.379367872	1.244E-06	2.7671E-05	0.3483633	1.143E-06	2.54096E-05	1.7674671	5.798E-06	0.000128919	1.6197401	5.313E-06	0.000118144	1.9681034	6.456E-06	0.000143553
Road 10	10	1400-1500	0.351364817	1.081E-06	2.40267E-05	0.3252272	1E-06	2.22394E-05	1.7617594	5.418E-06	0.000120471	1.6282259	5.007E-06	0.00011134	1.9534531	6.008E-06	0.000133579
Road 10	10	1500-1600	0.34805036	1.094E-06	2.4329E-05	0.320626	1.008E-06	2.2412E-05	1.6801144	5.282E-06	0.000117441	1.5460381	4.86E-06	0.000108069	1.866664	5.868E-06	0.000130481
Road 10	10	1600-1700	0.333643552	1.169E-06	2.59837E-05	0.3101167	1.086E-06	2.41514E-05	1.6345385	5.725E-06	0.000127295	1.5158133	5.309E-06	0.000118049	1.82593	6.395E-06	0.000142201
Road 10	10	1700-1800	0.309167471	1.014E-06	2.25506E-05	0.2862093	9.389E-07	2.08761E-05	1.6108033	5.284E-06	0.000117492	1.4920548	4.895E-06	0.00010883	1.7782641	5.834E-06	0.000129706
Road 10	10	1800-1900	0.313515571	6.482E-07	1.44115E-05	0.2902071	6E-07	1.334E-05	1.5873955	3.282E-06	7.29683E-05	1.4689909	3.037E-06	6.75256E-05	1.759198	3.637E-06	8.08656E-05
Road 10	10	1900-2000	0.272477698	5.074E-07	1.12829E-05	0.2555745	4.76E-07	1.0583E-05	1.4495173	2.699E-06	6.00224E-05	1.3580309	2.529E-06	5.62341E-05	1.6136054	3.005E-06	6.68171E-05
Road 10	10	2000-2100	0.314009865	3.863E-07	8.58894E-06	0.2928928	3.603E-07	8.01134E-06	1.5224168	1.873E-06	4.16418E-05	1.4183625	1.745E-06	3.87957E-05	1.7112554	2.105E-06	4.6807E-05
Road 10	10	2100-2200	0.259441599	3.192E-07	7.09636E-06	0.2463982	3.031E-07	6.7396E-06	1.452854	1.787E-06	3.97391E-05	1.3802329	1.698E-06	3.77528E-05	1.6266312	2.001E-06	4.44923E-05
Road 10	10	2200-2300	0.271357534	3.477E-07	7.73156E-06	0.2604766	3.338E-07	7.42154E-06	1.3978624	1.791E-06	3.98281E-05	1.342155	1.72E-06	3.82409E-05	1.6026316	2.054E-06	4.56624E-05
Road 10	10	2300-0000	0.248056235	2.967E-07	6.59648E-06	0.2366732	2.831E-07	6.29377E-06	1.2571888	1.504E-06	3.3432E-05	1.1982092	1.433E-06	3.18636E-05	1.4348824	1.716E-06	3.81573E-05
Road 11	11	0000-0100	0.323878782	2.474E-07	2.05226E-06	0.2956187	2.258E-07	1.87319E-06	1.6258281	1.242E-06	1.03021E-05	1.4816616	1.132E-06	9.38858E-06	1.7772803	1.358E-06	1.12618E-05
Road 11	11	0100-0200	0.32380332	1.743E-07	1.44558E-06	0.294994	1.588E-07	1.31696E-06	1.5982716	8.602E-07	7.13527E-06	1.4533228	7.822E-07	6.48817E-06	1.7483168	9.409E-07	7.80513E-06
Road 11	11	0200-0300	0.282800321	7.365E-08	6.10899E-07	0.2560475	6.668E-08	5.53108E-07	1.5115684	3.936E-07	3.26526E-06	1.368289	3.563E-07	2.95575E-06	1.6243365	4.23E-07	3.50886E-06
Road 11	11	0300-0400	0.302571928	7.354E-08	6.10035E-07	0.2733925	6.645E-08	5.51204E-07	1.5850289	3.853E-07	3.19568E-06	1.4322992	3.481E-07	2.88775E-06	1.7056917	4.146E-07	3.43896E-06
Road 11	11	0400-0500	0.313391033	1.088E-07	9.0264E-07	0.2823757	9.805E-08	8.13309E-07	1.4926428	5.183E-07	4.29916E-06	1.3398565	4.652E-07	3.8591E-06	1.6222322	5.633E-07	4.67241E-06
Road 11	11	0500-0600	0.251758397	1.18E-07	9.78917E-07	0.2267	1.063E-07	8.81482E-07	1.2894673	6.044E-07	5.01386E-06	1.1579963	5.428E-07	4.50266E-06	1.3846962	6.491E-07	5.38414E-06
Road 11	11	0600-0700	0.271783124	2.454E-07	2.03528E-06	0.2498435	2.256E-07	1.87098E-06	1.4173	1.28E-06	1.06136E-05	1.299148	1.173E-06	9.72882E-06	1.5489914	1.398E-06	1.15998E-05
Road 11	11	0700-0800	0.31456934	5.898E-07	4.89258E-06	0.2911232	5.459E-07	4.52792E-06	1.6447733	3.084E-06	2.55816E-05	1.5199873	2.85E-06	2.36408E-05	1.8111106	3.396E-06	2.81687E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.342059468	1.217E-06	1.00984E-05	0.3164747	1.126E-06	9.3431E-06	1.6939596	6.029E-06	5.00098E-05	1.560834	5.555E-06	4.60796E-05	1.8773087	6.681E-06	5.54227E-05
Road 11	11	0900-1000	0.344426542	8.73E-07	7.24182E-06	0.3193405	8.094E-07	6.71437E-06	1.6362572	4.147E-06	3.44035E-05	1.5088466	3.825E-06	3.17246E-05	1.8281872	4.634E-06	3.8439E-05
Road 11	11	1000-1100	0.358260973	7.402E-07	6.13966E-06	0.3279013	6.774E-07	5.61938E-06	1.6758397	3.462E-06	2.87195E-05	1.5277427	3.156E-06	2.61815E-05	1.855644	3.834E-06	3.18009E-05
Road 11	11	1100-1200	0.31457173	7.318E-07	6.07047E-06	0.2888999	6.721E-07	5.57507E-06	1.6178719	3.764E-06	3.1221E-05	1.4847787	3.454E-06	2.86526E-05	1.7736786	4.126E-06	3.42277E-05
Road 11	11	1200-1300	0.381999468	1.081E-06	8.96703E-06	0.351646	9.951E-07	8.25451E-06	1.8562189	5.253E-06	4.35727E-05	1.7064688	4.829E-06	4.00575E-05	2.0581147	5.824E-06	4.8312E-05
Road 11	11	1300-1400	0.399381173	8.32E-07	6.90187E-06	0.3665673	7.637E-07	6.3348E-06	1.8031832	3.757E-06	3.11616E-05	1.6488048	3.435E-06	2.84937E-05	2.0153722	4.199E-06	3.48285E-05
Road 11	11	1400-1500	0.315013016	6.344E-07	5.26241E-06	0.2911086	5.863E-07	4.86308E-06	1.5777225	3.177E-06	2.63564E-05	1.451132	2.922E-06	2.42417E-05	1.7422407	3.509E-06	2.91048E-05
Road 11	11	1500-1600	0.281162717	5.711E-07	4.73742E-06	0.2586113	5.253E-07	4.35744E-06	1.4596977	2.965E-06	2.4595E-05	1.3397086	2.721E-06	2.25733E-05	1.5983199	3.247E-06	2.69307E-05
Road 11	11	1600-1700	0.268619826	6.482E-07	5.37714E-06	0.2497009	6.026E-07	4.99842E-06	1.4406372	3.477E-06	2.88382E-05	1.3369975	3.226E-06	2.67635E-05	1.5866983	3.829E-06	3.1762E-05
Road 11	11	1700-1800	0.26912399	6.635E-07	5.5035E-06	0.2482002	6.119E-07	5.07561E-06	1.4706648	3.626E-06	3.00746E-05	1.3557174	3.342E-06	2.7724E-05	1.6039176	3.954E-06	3.27996E-05
Road 11	11	1800-1900	0.288785207	5.916E-07	4.90744E-06	0.2666349	5.462E-07	4.53103E-06	1.5451132	3.165E-06	2.62567E-05	1.4276946	2.925E-06	2.42614E-05	1.6943295	3.471E-06	2.87924E-05
Road 11	11	1900-2000	0.275245036	4.348E-07	3.60711E-06	0.2574532	4.067E-07	3.37394E-06	1.4391	2.274E-06	1.88595E-05	1.3425391	2.121E-06	1.75941E-05	1.5999922	2.528E-06	2.0968E-05
Road 11	11	2000-2100	0.282818495	3.977E-07	3.29907E-06	0.2638178	3.71E-07	3.07742E-06	1.4158586	1.991E-06	1.65159E-05	1.3193487	1.855E-06	1.53901E-05	1.5831665	2.226E-06	1.84676E-05
Road 11	11	2100-2200	0.203070521	2.01E-07	1.66694E-06	0.1901872	1.882E-07	1.56118E-06	1.1388636	1.127E-06	9.34856E-06	1.0656731	1.055E-06	8.74776E-06	1.2558603	1.243E-06	1.03089E-05
Road 11	11	2200-2300	0.260755198	2.852E-07	2.36577E-06	0.2496413	2.73E-07	2.26493E-06	1.3213311	1.445E-06	1.19881E-05	1.263181	1.382E-06	1.14605E-05	1.5128223	1.655E-06	1.37255E-05
Road 11	11	2300-0000	0.248937691	2.593E-07	2.151E-06	0.2375654	2.475E-07	2.05273E-06	1.2828571	1.336E-06	1.10848E-05	1.222867	1.274E-06	1.05664E-05	1.4604323	1.521E-06	1.26192E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.33459	2.509E-06	3.7731E-06	1.22873	2.31E-06	3.47382E-06	6.13315	1.153E-05	1.73394E-05	5.64644	1.061E-05	1.59634E-05	6.87517	1.292E-05	1.94372E-05
Haul Road 1	HR1	0800-0900	1.34109	2.521E-06	3.79148E-06	1.23233	2.316E-06	3.48399E-06	6.16264	1.158E-05	1.74228E-05	5.66323	1.065E-05	1.60109E-05	6.89556	1.296E-05	1.94949E-05
Haul Road 1	HR1	0900-1000	1.34359	2.526E-06	3.79854E-06	1.23383	2.319E-06	3.48824E-06	6.17423	1.161E-05	1.74555E-05	5.67003	1.066E-05	1.60301E-05	6.90386	1.298E-05	1.95183E-05
Haul Road 1	HR1	1000-1100	1.35548	2.548E-06	3.83216E-06	1.23253	2.317E-06	3.48456E-06	6.22902	1.171E-05	1.76104E-05	5.66393	1.065E-05	1.60128E-05	6.89646	1.296E-05	1.94974E-05
Haul Road 1	HR1	1100-1200	1.35368	2.545E-06	3.82707E-06	1.24132	2.333E-06	3.50941E-06	6.22072	1.169E-05	1.7587E-05	5.70432	1.072E-05	1.6127E-05	6.94564	1.306E-05	1.96364E-05
Haul Road 1	HR1	1200-1300	1.34908	2.536E-06	3.81407E-06	1.23243	2.317E-06	3.48428E-06	6.19963	1.165E-05	1.75273E-05	5.66363	1.065E-05	1.6012E-05	6.89606	1.296E-05	1.94963E-05
Haul Road 1	HR1	1300-1400	1.35588	2.549E-06	3.83329E-06	1.23243	2.317E-06	3.48428E-06	6.23082	1.171E-05	1.76155E-05	5.66363	1.065E-05	1.6012E-05	6.89606	1.296E-05	1.94963E-05
Haul Road 1	HR1	1400-1500	1.35248	2.542E-06	3.82368E-06	1.23713	2.325E-06	3.49757E-06	6.21522	1.168E-05	1.75714E-05	5.68512	1.069E-05	1.60727E-05	6.92225	1.301E-05	1.95703E-05
Haul Road 1	HR1	1500-1600	1.34229	2.523E-06	3.79487E-06	1.22773	2.308E-06	3.47099E-06	6.16843	1.159E-05	1.74391E-05	5.64214	1.061E-05	1.59512E-05	6.86987	1.291E-05	1.94222E-05
Haul Road 1	HR1	1600-1700	1.33889	2.517E-06	3.78526E-06	1.23253	2.317E-06	3.48456E-06	6.15274	1.157E-05	1.73948E-05	5.66393	1.065E-05	1.60128E-05	6.89646	1.296E-05	1.94974E-05
Haul Road 1	HR1	1700-1800	1.33889	2.517E-06	3.78526E-06	1.22373	2.3E-06	3.45968E-06	6.15274	1.157E-05	1.73948E-05	5.62365	1.057E-05	1.5899E-05	6.84738	1.287E-05	1.93586E-05
Haul Road 1	HR1	1800-1900	1.33209	2.504E-06	3.76603E-06	1.22143	2.296E-06	3.45318E-06	6.12156	1.151E-05	1.73066E-05	5.61315	1.055E-05	1.58693E-05	6.83458	1.285E-05	1.93225E-05
Haul Road 1	HR1	1900-2000	1.32189	2.485E-06	3.7372E-06	1.22853	2.309E-06	3.47325E-06	6.07448	1.142E-05	1.71735E-05	5.64544	1.061E-05	1.59606E-05	6.87397	1.292E-05	1.94338E-05
Haul Road 1	HR1	2000-2100	1.3123	2.467E-06	3.71008E-06	1.22073	2.295E-06	3.4512E-06	6.03059	1.134E-05	1.70494E-05	5.60995	1.055E-05	1.58602E-05	6.83068	1.284E-05	1.93114E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.33459	1.729E-06	4.60175E-06	1.22873	1.592E-06	4.23674E-06	6.13315	7.944E-06	2.11475E-05	5.64644	7.314E-06	1.94693E-05	6.87517	8.906E-06	2.3706E-05
Haul Road 2	HR2	0800-0900	1.34109	1.737E-06	4.62416E-06	1.23233	1.596E-06	4.24915E-06	6.16264	7.983E-06	2.12492E-05	5.66323	7.336E-06	1.95272E-05	6.89556	8.932E-06	2.37763E-05
Haul Road 2	HR2	0900-1000	1.34359	1.74E-06	4.63278E-06	1.23383	1.598E-06	4.25432E-06	6.17423	7.998E-06	2.12891E-05	5.67003	7.345E-06	1.95506E-05	6.90386	8.943E-06	2.38049E-05
Haul Road 2	HR2	1000-1100	1.35548	1.756E-06	4.67378E-06	1.23253	1.597E-06	4.24984E-06	6.22902	8.069E-06	2.1478E-05	5.66393	7.337E-06	1.95296E-05	6.89646	8.933E-06	2.37794E-05
Haul Road 2	HR2	1100-1200	1.35368	1.753E-06	4.66757E-06	1.24132	1.608E-06	4.28015E-06	6.22072	8.058E-06	2.14494E-05	5.70432	7.389E-06	1.96688E-05	6.94564	8.997E-06	2.3949E-05
Haul Road 2	HR2	1200-1300	1.34908	1.748E-06	4.65171E-06	1.23243	1.596E-06	4.24949E-06	6.19963	8.031E-06	2.13767E-05	5.66363	7.336E-06	1.95285E-05	6.89606	8.933E-06	2.3778E-05
Haul Road 2	HR2	1300-1400	1.35588	1.756E-06	4.67516E-06	1.23243	1.596E-06	4.24949E-06	6.23082	8.071E-06	2.14842E-05	5.66363	7.336E-06	1.95285E-05	6.89606	8.933E-06	2.3778E-05
Haul Road 2	HR2	1400-1500	1.35248	1.752E-06	4.66343E-06	1.23713	1.603E-06	4.2657E-06	6.21522	8.051E-06	2.14305E-05	5.68512	7.364E-06	1.96026E-05	6.92225	8.967E-06	2.38683E-05
Haul Road 2	HR2	1500-1600	1.34229	1.739E-06	4.6283E-06	1.22773	1.59E-06	4.23329E-06	6.16843	7.99E-06	2.12691E-05	5.64214	7.308E-06	1.94544E-05	6.86987	8.899E-06	2.36877E-05
Haul Road 2	HR2	1600-1700	1.33889	1.734E-06	4.61657E-06	1.23253	1.597E-06	4.24984E-06	6.15274	7.97E-06	2.1215E-05	5.66393	7.337E-06	1.95296E-05	6.89646	8.933E-06	2.37794E-05
Haul Road 2	HR2	1700-1800	1.33889	1.734E-06	4.61657E-06	1.22373	1.585E-06	4.21949E-06	6.15274	7.97E-06	2.1215E-05	5.62365	7.285E-06	1.93907E-05	6.84738	8.87E-06	2.36102E-05
Haul Road 2	HR2	1800-1900	1.33209	1.726E-06	4.59313E-06	1.22143	1.582E-06	4.21156E-06	6.12156	7.929E-06	2.11075E-05	5.61315	7.271E-06	1.93545E-05	6.83458	8.853E-06	2.3566E-05
Haul Road 2	HR2	1900-2000	1.32189	1.712E-06	4.55796E-06	1.22853	1.591E-06	4.23605E-06	6.07448	7.868E-06	2.09452E-05	5.64544	7.313E-06	1.94658E-05	6.87397	8.904E-06	2.37019E-05
Haul Road 2	HR2	2000-2100	1.3123	1.7E-06	4.52489E-06	1.22073	1.581E-06	4.20915E-06	6.03059	7.812E-06	2.07938E-05	5.60995	7.267E-06	1.93434E-05	6.83068	8.848E-06	2.35526E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (February) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.33459	1.729E-06	4.59533E-06	1.22873	1.592E-06	4.23083E-06	6.13315	7.944E-06	2.1118E-05	5.64644	7.314E-06	1.94421E-05	6.87517	8.906E-06	2.36729E-05
Haul Road 3	HR3	0800-0900	1.34109	1.737E-06	4.61771E-06	1.23233	1.596E-06	4.24322E-06	6.16264	7.983E-06	2.12195E-05	5.66323	7.336E-06	1.94999E-05	6.89556	8.932E-06	2.37432E-05
Haul Road 3	HR3	0900-1000	1.34359	1.74E-06	4.62632E-06	1.23383	1.598E-06	4.24839E-06	6.17423	7.998E-06	2.12594E-05	5.67003	7.345E-06	1.95233E-05	6.90386	8.943E-06	2.37717E-05
Haul Road 3	HR3	1000-1100	1.35548	1.756E-06	4.66726E-06	1.23253	1.597E-06	4.24391E-06	6.22902	8.069E-06	2.14481E-05	5.66393	7.337E-06	1.95023E-05	6.89646	8.933E-06	2.37463E-05
Haul Road 3	HR3	1100-1200	1.35368	1.753E-06	4.66106E-06	1.24132	1.608E-06	4.27418E-06	6.22072	8.058E-06	2.14195E-05	5.70432	7.389E-06	1.96414E-05	6.94564	8.997E-06	2.39156E-05
Haul Road 3	HR3	1200-1300	1.34908	1.748E-06	4.64522E-06	1.23243	1.596E-06	4.24357E-06	6.19963	8.031E-06	2.13469E-05	5.66363	7.336E-06	1.95013E-05	6.89606	8.933E-06	2.37449E-05
Haul Road 3	HR3	1300-1400	1.35588	1.756E-06	4.66864E-06	1.23243	1.596E-06	4.24357E-06	6.23082	8.071E-06	2.14543E-05	5.66363	7.336E-06	1.95013E-05	6.89606	8.933E-06	2.37449E-05
Haul Road 3	HR3	1400-1500	1.35248	1.752E-06	4.65693E-06	1.23713	1.603E-06	4.25975E-06	6.21522	8.051E-06	2.14006E-05	5.68512	7.364E-06	1.95753E-05	6.92225	8.967E-06	2.38351E-05
Haul Road 3	HR3	1500-1600	1.34229	1.739E-06	4.62184E-06	1.22773	1.59E-06	4.22738E-06	6.16843	7.99E-06	2.12395E-05	5.64214	7.308E-06	1.94273E-05	6.86987	8.899E-06	2.36547E-05
Haul Road 3	HR3	1600-1700	1.33889	1.734E-06	4.61014E-06	1.23253	1.597E-06	4.24391E-06	6.15274	7.97E-06	2.11854E-05	5.66393	7.337E-06	1.95023E-05	6.89646	8.933E-06	2.37463E-05
Haul Road 3	HR3	1700-1800	1.33889	1.734E-06	4.61014E-06	1.22373	1.585E-06	4.21361E-06	6.15274	7.97E-06	2.11854E-05	5.62365	7.285E-06	1.93636E-05	6.84738	8.87E-06	2.35773E-05
Haul Road 3	HR3	1800-1900	1.33209	1.726E-06	4.58672E-06	1.22143	1.582E-06	4.20569E-06	6.12156	7.929E-06	2.10781E-05	5.61315	7.271E-06	1.93275E-05	6.83458	8.853E-06	2.35332E-05
Haul Road 3	HR3	1900-2000	1.32189	1.712E-06	4.5516E-06	1.22853	1.591E-06	4.23014E-06	6.07448	7.868E-06	2.0916E-05	5.64544	7.313E-06	1.94387E-05	6.87397	8.904E-06	2.36688E-05
Haul Road 3	HR3	2000-2100	1.3123	1.7E-06	4.51858E-06	1.22073	1.581E-06	4.20328E-06	6.03059	7.812E-06	2.07648E-05	5.60995	7.267E-06	1.93165E-05	6.83068	8.848E-06	2.35198E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.100242712	3.33E-07	2.70911E-06	0.0916767	3.046E-07	2.47761E-06	0.5909404	1.963E-06	1.59705E-05	0.5379395	1.787E-06	1.45381E-05	0.6296162	2.092E-06	1.70157E-05
Road 1	1	0100-0200	0.077952407	1.58E-07	1.28545E-06	0.070908	1.437E-07	1.16928E-06	0.4706063	9.539E-07	7.76038E-06	0.4256331	8.628E-07	7.01876E-06	0.4965411	1.007E-06	8.18804E-06
Road 1	1	0200-0300	0.074142208	1.071E-07	8.71681E-07	0.0671596	9.706E-08	7.89587E-07	0.4721204	6.823E-07	5.55066E-06	0.4238638	6.126E-07	4.98331E-06	0.4910234	7.096E-07	5.7729E-06
Road 1	1	0300-0400	0.064184909	6.626E-08	5.3901E-07	0.0572645	5.911E-08	4.80894E-07	0.3903489	4.03E-07	3.27806E-06	0.344942	3.561E-07	2.89674E-06	0.4022065	4.152E-07	3.37764E-06
Road 1	1	0400-0500	0.08451	1.348E-07	1.0968E-06	0.0748146	1.194E-07	9.70971E-07	0.4820982	7.691E-07	6.25685E-06	0.4240418	6.765E-07	5.50337E-06	0.4988564	7.958E-07	6.47434E-06
Road 1	1	0500-0600	0.069148877	2.427E-07	1.97437E-06	0.0612837	2.151E-07	1.7498E-06	0.4083435	1.433E-06	1.16592E-05	0.358033	1.257E-06	1.02227E-05	0.4193168	1.472E-06	1.19725E-05
Road 1	1	0600-0700	0.09515003	5.929E-07	4.82334E-06	0.0833276	5.192E-07	4.22404E-06	0.5110927	3.185E-06	2.59083E-05	0.4441483	2.768E-06	2.25148E-05	0.527476	3.287E-06	2.67388E-05
Road 1	1	0700-0800	0.080835653	8.481E-07	6.89947E-06	0.0704301	7.389E-07	6.01134E-06	0.447245	4.692E-06	3.81732E-05	0.3855395	4.045E-06	3.29065E-05	0.4559696	4.784E-06	3.89179E-05
Road 1	1	0800-0900	0.086233723	1.109E-06	9.01922E-06	0.0757003	9.732E-07	7.91753E-06	0.4594674	5.907E-06	4.80559E-05	0.4007792	5.153E-06	4.19177E-05	0.4764795	6.126E-06	4.98352E-05
Road 1	1	0900-1000	0.089499434	1.188E-06	9.66142E-06	0.0788637	1.046E-06	8.5133E-06	0.5014749	6.654E-06	5.4134E-05	0.4397905	5.836E-06	4.74752E-05	0.5186542	6.882E-06	5.59885E-05
Road 1	1	1000-1100	0.103158617	1.33E-06	1.08209E-05	0.0910089	1.173E-06	9.54645E-06	0.5542664	7.147E-06	5.81402E-05	0.4873888	6.284E-06	5.1125E-05	0.5783977	7.458E-06	6.06715E-05
Road 1	1	1100-1200	0.093983193	1.177E-06	9.57144E-06	0.083037	1.04E-06	8.45665E-06	0.5402494	6.763E-06	5.50201E-05	0.4750502	5.947E-06	4.83801E-05	0.5580872	6.987E-06	5.68367E-05
Road 1	1	1200-1300	0.096237	1.192E-06	9.69811E-06	0.0855292	1.059E-06	8.61905E-06	0.5491493	6.803E-06	5.53395E-05	0.4861405	6.022E-06	4.89899E-05	0.5716697	7.081E-06	5.7609E-05
Road 1	1	1300-1400	0.100513675	1.324E-06	1.07737E-05	0.0881415	1.161E-06	9.44754E-06	0.5613128	7.396E-06	6.01649E-05	0.4898525	6.454E-06	5.25054E-05	0.5779939	7.615E-06	6.19529E-05
Road 1	1	1400-1500	0.09566349	1.374E-06	1.1174E-05	0.0848026	1.218E-06	9.90539E-06	0.5215426	7.488E-06	6.0919E-05	0.4600424	6.605E-06	5.37354E-05	0.544845	7.823E-06	6.36408E-05
Road 1	1	1500-1600	0.102514076	1.364E-06	1.10976E-05	0.0919468	1.224E-06	9.95369E-06	0.5571313	7.414E-06	6.03122E-05	0.4973289	6.618E-06	5.38383E-05	0.5892758	7.842E-06	6.3792E-05
Road 1	1	1600-1700	0.097851404	1.374E-06	1.11756E-05	0.0874656	1.228E-06	9.98941E-06	0.5372409	7.542E-06	6.13581E-05	0.4777759	6.708E-06	5.45666E-05	0.5652415	7.935E-06	6.4556E-05
Road 1	1	1700-1800	0.077700787	1.094E-06	8.89791E-06	0.0700668	9.863E-07	8.02371E-06	0.435044	6.124E-06	4.98191E-05	0.3899129	5.489E-06	4.46509E-05	0.4599797	6.475E-06	5.26746E-05
Road 1	1	1800-1900	0.068480586	9.871E-07	8.03027E-06	0.0616885	8.892E-07	7.2338E-06	0.4074266	5.873E-06	4.77762E-05	0.3639166	5.246E-06	4.26741E-05	0.425605	6.135E-06	4.99079E-05
Road 1	1	1900-2000	0.082612116	9.086E-07	7.39167E-06	0.0744739	8.191E-07	6.66351E-06	0.4737951	5.211E-06	4.23925E-05	0.4237823	4.661E-06	3.79177E-05	0.4982562	5.48E-06	4.45812E-05
Road 1	1	2000-2100	0.074126452	6.901E-07	5.61379E-06	0.0669895	6.236E-07	5.07329E-06	0.4365916	4.064E-06	3.30642E-05	0.3914591	3.644E-06	2.96462E-05	0.4584486	4.268E-06	3.47195E-05
Road 1	1	2100-2200	0.078014194	6.633E-07	5.39601E-06	0.0712233	6.056E-07	4.92631E-06	0.4616827	3.925E-06	3.19332E-05	0.4187568	3.56E-06	2.89642E-05	0.4899801	4.166E-06	3.38905E-05
Road 1	1	2200-2300	0.076102622	6.156E-07	5.00816E-06	0.0692729	5.604E-07	4.55871E-06	0.4488066	3.631E-06	2.95351E-05	0.4055252	3.28E-06	2.66868E-05	0.4747982	3.841E-06	3.12455E-05
Road 1	1	2300-0000	0.066336312	4.793E-07	3.89954E-06	0.0604952	4.371E-07	3.55618E-06	0.4061749	2.935E-06	2.38767E-05	0.3668101	2.651E-06	2.15627E-05	0.4273053	3.088E-06	2.51189E-05
Road 2	2	0000-0100	0.168120588	1.985E-07	1.28174E-06	0.1537437	1.815E-07	1.17213E-06	0.7141553	8.431E-07	5.44466E-06	0.650821	7.683E-07	4.9618E-06	0.8045647	9.498E-07	6.13393E-06
Road 2	2	0100-0200	0.119955152	9.163E-08	5.91753E-07	0.1090703	8.332E-08	5.38057E-07	0.5952773	4.547E-07	2.93657E-06	0.5387079	4.115E-07	2.65751E-06	0.6477782	4.948E-07	3.19557E-06
Road 2	2	0200-0300	0.119274783	6.35E-08	4.10095E-07	0.1081691	5.759E-08	3.71911E-07	0.6506822	3.464E-07	2.2372E-06	0.5865213	3.123E-07	2.0166E-06	0.6946904	3.699E-07	2.38851E-06
Road 2	2	0300-0400	0.106475333	3.697E-08	2.38753E-07	0.0950013	3.299E-08	2.13024E-07	0.3882487	1.348E-07	8.70581E-07	0.3435773	1.193E-07	7.70413E-07	0.4385787	1.523E-07	9.83437E-07
Road 2	2	0400-0500	0.144807778	9.05E-08	5.84472E-07	0.1282074	8.013E-08	5.17469E-07	0.7016522	4.385E-07	2.832E-06	0.6187596	3.867E-07	2.49743E-06	0.746967	4.669E-07	3.0149E-06
Road 2	2	0500-0600	0.116903158	1.542E-07	9.96114E-07	0.1036933	1.368E-07	8.83555E-07	0.5185344	6.842E-07	4.41835E-06	0.4560114	6.017E-07	3.8856E-06	0.5597047	7.385E-07	4.76916E-06
Road 2	2	0600-0700	0.168848641	4.026E-07	2.59982E-06	0.1479182	3.527E-07	2.27754E-06	0.6872767	1.639E-06	1.05822E-05	0.5986057	1.427E-06	9.21692E-06	0.7465239	1.78E-06	1.14945E-05
Road 2	2	0700-0800	0.135728608	4.964E-07	3.2058E-06	0.1182992	4.327E-07	2.79413E-06	0.5753606	2.104E-06	1.35895E-05	0.4968579	1.817E-06	1.17354E-05	0.6151572	2.25E-06	1.45295E-05
Road 2	2	0800-0900	0.152640133	1.06E-06	6.84538E-06	0.1339796	9.304E-07	6.00852E-06	0.6483451	4.502E-06	2.9076E-05	0.5655908	3.928E-06	2.53648E-05	0.6995704	4.858E-06	3.13733E-05
Road 2	2	0900-1000	0.172863659	9.844E-07	6.35692E-06	0.1522393	8.669E-07	5.59847E-06	0.7485682	4.263E-06	2.7528E-05	0.6571542	3.742E-06	2.41663E-05	0.8093935	4.609E-06	2.97648E-05
Road 2	2	1000-1100	0.190568696	8.117E-07	5.24176E-06	0.1681298	7.161E-07	4.62456E-06	0.8184374	3.486E-06	2.25118E-05	0.7203559	3.068E-06	1.9814E-05	0.8884858	3.784E-06	2.44386E-05
Road 2	2	1100-1200	0.232433702	9.739E-07	6.28906E-06	0.2053285	8.603E-07	5.55566E-06	0.9538823	3.997E-06	2.58096E-05	0.8411556	3.524E-06	2.27595E-05	1.0464841	4.385E-06	2.83152E-05
Road 2	2	1200-1300	0.176253298	7.67E-07	4.95339E-06	0.1566832	6.819E-07	4.4034E-06	0.7775026	3.384E-06	2.18508E-05	0.6886227	2.997E-06	1.93529E-05	0.8453059	3.679E-06	2.37563E-05
Road 2	2	1300-1400	0.194985318	9.93E-07	6.41257E-06	0.1708286	8.7E-07	5.61812E-06	0.807268	4.111E-06	2.6549E-05	0.7045158	3.588E-06	2.31697E-05	0.8753444	4.458E-06	2.87879E-05
Road 2	2	1400-1500	0.169133497	6.382E-07	4.12121E-06	0.1498987	5.656E-07	3.65253E-06	0.7326957	2.765E-06	1.78533E-05	0.6473777	2.443E-06	1.57744E-05	0.7972764	3.008E-06	1.94269E-05
Road 2	2	1500-1600	0.207540335	8.599E-07	5.55346E-06	0.1860008	7.707E-07	4.97709E-06	0.8348165	3.459E-06	2.23384E-05	0.7463674	3.093E-06	1.99716E-05	0.9323682	3.863E-06	2.49487E-05
Road 2	2	1600-1700	0.177178584	8.982E-07	5.80047E-06	0.1584224	8.031E-07	5.18643E-06	0.7507295	3.806E-06	2.45774E-05	0.6687081	3.39E-06	2.18922E-05	0.8271305	4.193E-06	2.70786E-05
Road 2	2	1700-1800	0.133062719	6.684E-07	4.31642E-06	0.1200706	6.031E-07	3.89497E-06	0.530838	2.666E-06	1.72199E-05	0.476888	2.395E-06	1.54698E-05	0.5969585	2.999E-06	1.93647E-05
Road 2	2	1800-1900	0.144611613	8.302E-07	5.36121E-06	0.1304036	7.486E-07	4.83447E-06	0.6682781	3.836E-06	2.47752E-05	0.5998024	3.443E-06	2.22366E-05	0.730206	4.192E-06	2.7071E-05
Road 2	2	1900-2000	0.124709277	4.792E-07	3.09467E-06	0.1124649	4.322E-07	2.79083E-06	0.575019	2.21E-06	1.42691E-05	0.5147863	1.978E-06	1.27745E-05	0.6272512	2.41E-06	1.55653E-05
Road 2	2	2000-2100	0.121654795	4.111E-07	2.65515E-06	0.109877	3.713E-07	2.3981E-06	0.5137884	1.736E-06	1.12136E-05	0.4603899	1.556E-06	1.00482E-05	0.5702669	1.927E-06	1.24463E-05
Road 2	2	2100-2200	0.093760921	3.299E-07	2.13046E-06	0.0855891	3.011E-07	1.94478E-06	0.4267189	1.501E-06	9.69601E-06	0.3854525	1.356E-06	8.75835E-06	0.4710416	1.657E-06	1.07031E-05
Road 2	2	2200-2300	0.13475168	3.899E-07	2.51798E-06	0.1227209	3.551E-07	2.29317E-06	0.5771506	1.67E-06	1.07847E-05	0.5222909	1.511E-06	9.75956E-06	0.6450118	1.866E-06	1.20527E-05
Road 2	2	2300-0000	0.121566182	3.095E-07	1.999E-06	0.1108552	2.823E-07	1.82287E-06	0.5490125	1.398E-06	9.02781E-06	0.4970028	1.266E-06	8.17258E-06	0.607858	1.548E-06	9.99545E-06
Road 3	3	0000-0100	0.104269301	3.83E-07	1.48857E-05	0.0952603	3.499E-07	1.35996E-05	0.5719031	2.101E-06	8.16463E-05	0.5202294	1.911E-06	7.42693E-05	0.6154897	2.261E-06	8.78689E-05
Road 3	3	0100-0200	0.078858582	1.783E-07	6.93181E-06	0.0716409	1.62E-07	6.29737E-06	0.4580195	1.036E-06	4.02607E-05	0.4137745	9.358E-07	3.63715E-05	0.4854154	1.098E-06	4.26689E-05
Road 3	3	0200-0300	0.076332828	1.212E-07	4.71113E-06	0.0691625	1.098E-07	4.26859E-06	0.4739992	7.527E-07	2.92544E-05	0.4258429	6.762E-07	2.62823E-05	0.4950055	7.86E-07	3.05509E-05
Road 3	3	0300-0400	0.066685942	7.38E-08	2.86855E-06	0.0593338	6.567E-08	2.55229E-06	0.3622525	4.009E-07	1.55826E-05	0.3192543	3.533E-07	1.3733E-05	0.3785881	4.19E-07	1.62853E-05
Road 3	3	0400-0500	0.090035045	1.603E-07	6.23036E-06	0.0803993	1.431E-07	5.56357E-06	0.496035	8.831E-07	3.43253E-05	0.4400915	7.835E-07	3.0454E-05	0.5204908	9.267E-07	3.60176E-05
Road 3	3	0500-0600	0.073063621	2.848E-07	1.10684E-05	0.0647675	2.524E-07	9.81165E-06	0.4043457	1.576E-06	6.12545E-05	0.3547235	1.383E-06	5.37372E-05	0.4194909	1.635E-06	6.35488E-05
Road 3	3	0600-0700	0.101443014	7.127E-07	2.76997E-05	0.0888527	6.242E-07	2.42618E-05	0.5070873	3.562E-06	0.000138464	0.4407608	3.096E-06	0.000120353	0.5296134	3.721E-06	0.000144614
Road 3	3	0700-0800	0.083916941	9.637E-07	3.74577E-05	0.0730401	8.388E-07	3.26027E-05	0.4379147	5.029E-06	0.000195471	0.3770947	4.331E-06	0.000168323	0.4501348	5.169E-06	0.000200925
Road 3	3	0800-0900	0.092687583	1.47E-06	5.71474E-05	0.0806242	1.279E-06	4.97096E-05	0.4624545	7.336E-06	0.000285131	0.3992322	6.333E-06	0.00024615	0.4798564	7.612E-06	0.00029586
Road 3	3	0900-1000	0.09878674	1.512E-06	5.87524E-05	0.0869439	1.33E-06	5.1709E-05	0.5084923	7.781E-06	0.000302421	0.4455355	6.817E-06	0.000264978	0.5324794	8.148E-06	0.000316687
Road 3	3	1000-1100	0.110527276	1.542E-06	5.9947E-05	0.0971779	1.356E-06	5.27067E-05	0.5618456	7.84E-06	0.00030473	0.492192	6.868E-06	0.000266952	0.5893699	8.224E-06	0.000319658
Road 3	3	1100-1200	0.108642305	1.474E-06	5.72991E-05	0.0955061	1.296E-06	5.03709E-05	0.5669186	7.693E-06	0.000298999	0.4961924	6.733E-06	0.000261697	0.5916985	8.029E-06	0.000312068
Road 3	3	1200-1300	0.102495851	1.391E-06	5.40574E-05	0.0904161	1.227E-06	4.76864E-05	0.546956	7.422E-06	0.000288471	0.4804324	6.519E-06	0.000253385	0.5708484	7.746E-06	0.000301072
Road 3	3	1300-1400	0.10889346	1.605E-06	6.23873E-05	0.0961401	1.417E-06	5.50806E-05	0.5594336	8.246E-06	0.000320511	0.4916735	7.247E-06	0.00028169	0.5878137	8.665E-06	0.00033677

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.100633344	1.491E-06	5.79686E-05	0.0897933	1.331E-06	5.17243E-05	0.523066	7.752E-06	0.000301306	0.464691	6.887E-06	0.000267679	0.5544843	8.218E-06	0.000319404
Road 3	3	1500-1600	0.111736966	1.595E-06	6.19963E-05	0.1000249	1.428E-06	5.5498E-05	0.5651131	8.067E-06	0.000313548	0.503853	7.193E-06	0.000279558	0.6038779	8.62E-06	0.000335056
Road 3	3	1600-1700	0.104897792	1.63E-06	6.33678E-05	0.0934081	1.452E-06	5.6427E-05	0.5409502	8.408E-06	0.000326783	0.4793292	7.45E-06	0.000289559	0.5727373	8.902E-06	0.000345986
Road 3	3	1700-1800	0.08287299	1.289E-06	5.01145E-05	0.0747336	1.163E-06	4.51925E-05	0.4276949	6.654E-06	0.000258633	0.3834785	5.966E-06	0.000231895	0.4582121	7.129E-06	0.000277088
Road 3	3	1800-1900	0.078078869	1.274E-06	4.95032E-05	0.0708587	1.156E-06	4.49255E-05	0.4321453	7.049E-06	0.000273987	0.3888089	6.342E-06	0.000246511	0.4596676	7.498E-06	0.000291436
Road 3	3	1900-2000	0.083509509	1.009E-06	3.92021E-05	0.0752142	9.084E-07	3.53081E-05	0.4591096	5.545E-06	0.000215521	0.4101605	4.954E-06	0.000192543	0.4853747	5.862E-06	0.000227851
Road 3	3	2000-2100	0.076951925	7.949E-07	3.08947E-05	0.0694486	7.174E-07	2.78823E-05	0.4191616	4.33E-06	0.000168285	0.3753059	3.877E-06	0.000150678	0.4447545	4.594E-06	0.00017856
Road 3	3	2100-2200	0.075490541	7.386E-07	2.87079E-05	0.0692413	6.775E-07	2.63314E-05	0.4249804	4.158E-06	0.000161613	0.3870067	3.787E-06	0.000147173	0.456248	4.464E-06	0.000173504
Road 3	3	2200-2300	0.080949694	7.219E-07	2.80588E-05	0.0738188	6.583E-07	2.55871E-05	0.4399167	3.923E-06	0.000152484	0.3981272	3.55E-06	0.000137999	0.471946	4.209E-06	0.000163586
Road 3	3	2300-0000	0.071299398	5.695E-07	2.21357E-05	0.065108	5.201E-07	2.02135E-05	0.4029493	3.219E-06	0.0001251	0.3646257	2.913E-06	0.000113202	0.4297337	3.433E-06	0.000133416
Road 4	4	0000-0100	0.266444857	2.159E-07	2.31144E-06	0.2433731	1.972E-07	2.11129E-06	1.3574703	1.1E-06	1.17762E-05	1.2394869	1.004E-06	1.07527E-05	1.48286	1.201E-06	1.2864E-05
Road 4	4	0100-0200	0.2534965	1.174E-07	1.25664E-06	0.230326	1.066E-07	1.14177E-06	1.293999	5.991E-07	6.41463E-06	1.1753115	5.441E-07	5.82627E-06	1.4056375	6.508E-07	6.96804E-06
Road 4	4	0200-0300	0.273740769	8.238E-08	8.82044E-07	0.2483362	7.473E-08	8.00186E-07	1.35107	4.066E-07	4.3534E-06	1.2255292	3.688E-07	3.94889E-06	1.4738654	4.435E-07	4.74907E-06
Road 4	4	0300-0400	0.252654286	4.094E-08	4.38361E-07	0.2251971	3.649E-08	3.90722E-07	1.3413043	2.173E-07	2.3272E-06	1.1950943	1.936E-07	2.07352E-06	1.4202914	2.301E-07	2.46424E-06
Road 4	4	0400-0500	0.262482857	8.506E-08	9.10828E-07	0.2344079	7.597E-08	8.13407E-07	1.2962271	4.201E-07	4.49797E-06	1.1574779	3.751E-07	4.0165E-06	1.3918857	4.511E-07	4.82991E-06
Road 4	4	0500-0600	0.243714583	1.354E-07	1.44977E-06	0.2162975	1.202E-07	1.28668E-06	1.15535	6.419E-07	6.87278E-06	1.0244008	5.691E-07	6.09381E-06	1.2406983	6.893E-07	7.38049E-06
Road 4	4	0600-0700	0.274300385	3.302E-07	3.53539E-06	0.2403329	2.893E-07	3.09759E-06	1.3099569	1.577E-06	1.68837E-05	1.1467896	1.38E-06	1.47807E-05	1.3871225	1.67E-06	1.78783E-05
Road 4	4	0700-0800	0.276949674	5.898E-07	6.31533E-06	0.2412537	5.138E-07	5.50135E-06	1.3793376	2.937E-06	3.14533E-05	1.2000497	2.556E-06	2.73649E-05	1.4413034	3.069E-06	3.28663E-05
Road 4	4	0800-0900	0.283028693	1.002E-06	1.07332E-05	0.2462222	8.72E-07	9.3374E-06	1.4122269	5.002E-06	5.35554E-05	1.2278352	4.349E-06	4.65628E-05	1.4740573	5.221E-06	5.59002E-05
Road 4	4	0900-1000	0.286693514	9.822E-07	1.05169E-05	0.2519179	8.631E-07	9.2412E-06	1.3513666	4.63E-06	4.95727E-05	1.1864707	4.065E-06	4.35237E-05	1.4383886	4.928E-06	5.27649E-05
Road 4	4	1000-1100	0.317504895	1.051E-06	1.12537E-05	0.2788037	9.229E-07	9.88194E-06	1.4994475	4.963E-06	5.31465E-05	1.3163953	4.358E-06	4.66584E-05	1.595199	5.28E-06	5.65403E-05
Road 4	4	1100-1200	0.295581742	1.061E-06	1.13558E-05	0.2596106	9.315E-07	9.97382E-06	1.3866963	4.975E-06	5.32746E-05	1.2174799	4.368E-06	4.67736E-05	1.4770906	5.3E-06	5.67474E-05
Road 4	4	1200-1300	0.302066667	1.028E-06	1.1006E-05	0.2663137	9.062E-07	9.70328E-06	1.4825884	5.045E-06	5.40189E-05	1.3065892	4.446E-06	4.76062E-05	1.5729029	5.352E-06	5.73095E-05
Road 4	4	1300-1400	0.309984362	1.069E-06	1.14481E-05	0.2735778	9.436E-07	1.01036E-05	1.4859018	5.125E-06	5.48762E-05	1.3107307	4.521E-06	4.84069E-05	1.5843085	5.464E-06	5.85105E-05
Road 4	4	1400-1500	0.281989565	9.008E-07	9.64539E-06	0.2515101	8.034E-07	8.60284E-06	1.3977596	4.465E-06	4.781E-05	1.2457557	3.979E-06	4.26108E-05	1.4972659	4.783E-06	5.12136E-05
Road 4	4	1500-1600	0.313899758	9.01E-07	9.64762E-06	0.2807881	8.06E-07	8.62994E-06	1.502598	4.313E-06	4.61819E-05	1.3440411	3.858E-06	4.13087E-05	1.6248292	4.664E-06	4.99387E-05
Road 4	4	1600-1700	0.2936875	8.43E-07	9.0264E-06	0.2614385	7.504E-07	8.03524E-06	1.4220124	4.082E-06	4.37051E-05	1.2652121	3.632E-06	3.88859E-05	1.5266506	4.382E-06	4.69212E-05
Road 4	4	1700-1800	0.278106746	8.111E-07	8.68539E-06	0.2509359	7.319E-07	7.83684E-06	1.3691431	3.993E-06	4.27589E-05	1.2346379	3.601E-06	3.85583E-05	1.4855738	4.333E-06	4.63951E-05
Road 4	4	1800-1900	0.305928774	7.507E-07	8.03774E-06	0.2778766	6.818E-07	7.30071E-06	1.526661	3.746E-06	4.01103E-05	1.3862559	3.401E-06	3.64214E-05	1.6641325	4.083E-06	4.37221E-05
Road 4	4	1900-2000	0.276766892	4.741E-07	5.07637E-06	0.2494396	4.273E-07	4.57514E-06	1.3747912	2.355E-06	2.5216E-05	1.2383561	2.121E-06	2.27135E-05	1.4877957	2.549E-06	2.72887E-05
Road 4	4	2000-2100	0.240211633	2.725E-07	2.91741E-06	0.2168418	2.46E-07	2.63358E-06	1.1997612	1.361E-06	1.45713E-05	1.0817633	1.227E-06	1.31382E-05	1.2986051	1.473E-06	1.57718E-05
Road 4	4	2100-2200	0.199575135	1.709E-07	1.83027E-06	0.1832857	1.57E-07	1.68088E-06	1.0148965	8.692E-07	9.30746E-06	0.9307073	7.971E-07	8.53537E-06	1.113993	9.541E-07	1.02163E-05
Road 4	4	2200-2300	0.267006032	3.894E-07	4.16936E-06	0.2436003	3.553E-07	3.80387E-06	1.3097025	1.91E-06	2.04513E-05	1.1941102	1.741E-06	1.86463E-05	1.4377105	2.097E-06	2.24502E-05
Road 4	4	2300-0000	0.247170417	2.746E-07	2.94066E-06	0.2258156	2.509E-07	2.6866E-06	1.2448019	1.383E-06	1.48098E-05	1.1362535	1.263E-06	1.35184E-05	1.3620692	1.513E-06	1.6205E-05
Road 5	5	0000-0100	0.088977513	3.223E-07	4.35865E-06	0.0813144	2.946E-07	3.98327E-06	0.4901881	1.776E-06	2.40124E-05	0.4452366	1.613E-06	2.18104E-05	0.5265509	1.907E-06	2.57936E-05
Road 5	5	0100-0200	0.060716116	1.379E-07	1.86468E-06	0.0551582	1.253E-07	1.69399E-06	0.3662373	8.317E-07	1.12477E-05	0.3300341	7.495E-07	1.01358E-05	0.3851923	8.748E-07	1.18298E-05
Road 5	5	0200-0300	0.056979651	9.197E-08	1.24375E-06	0.0515962	8.328E-08	1.12624E-06	0.385426	6.221E-07	8.41307E-06	0.3448697	5.567E-07	7.5278E-06	0.3964658	6.399E-07	8.65404E-06
Road 5	5	0300-0400	0.053161452	6.186E-08	8.36572E-07	0.0473011	5.504E-08	7.44351E-07	0.2845245	3.311E-07	4.4774E-06	0.2496094	2.905E-07	3.92796E-06	0.2969105	3.455E-07	4.67231E-06
Road 5	5	0400-0500	0.074748454	1.361E-07	1.8403E-06	0.066751	1.215E-07	1.6434E-06	0.4208467	7.662E-07	1.03612E-05	0.3725352	6.782E-07	9.17178E-06	0.4392862	7.998E-07	1.08152E-05
Road 5	5	0500-0600	0.060321376	2.468E-07	3.33766E-06	0.0534518	2.187E-07	2.95756E-06	0.3454944	1.414E-06	1.91167E-05	0.3021018	1.236E-06	1.67157E-05	0.3555536	1.455E-06	1.96733E-05
Road 5	5	0600-0700	0.089217584	6.447E-07	8.71818E-06	0.0781364	5.646E-07	7.63535E-06	0.4445476	3.212E-06	4.34404E-05	0.3855883	2.786E-06	3.7679E-05	0.4637247	3.351E-06	4.53144E-05
Road 5	5	0700-0800	0.069030513	8.085E-07	1.0933E-05	0.0600826	7.037E-07	9.51586E-06	0.3586332	4.2E-06	5.68002E-05	0.3075753	3.602E-06	4.87137E-05	0.3676579	4.306E-06	5.82295E-05
Road 5	5	0800-0900	0.074581507	1.17E-06	1.58253E-05	0.0648717	1.018E-06	1.3765E-05	0.3637959	5.708E-06	7.71932E-05	0.3129946	4.911E-06	6.64137E-05	0.3778663	5.929E-06	8.01787E-05
Road 5	5	0900-1000	0.08049875	1.221E-06	1.65088E-05	0.070908	1.075E-06	1.45419E-05	0.4238115	6.427E-06	8.69158E-05	0.3710136	5.626E-06	7.6088E-05	0.4419215	6.702E-06	9.06299E-05
Road 5	5	1000-1100	0.09077573	1.237E-06	1.67271E-05	0.0798167	1.088E-06	1.47077E-05	0.4686301	6.386E-06	8.63538E-05	0.410193	5.589E-06	7.55857E-05	0.4900096	6.677E-06	9.02934E-05
Road 5	5	1100-1200	0.089072348	1.154E-06	1.55994E-05	0.0783221	1.014E-06	1.37167E-05	0.4784185	6.196E-06	8.37861E-05	0.4181626	5.415E-06	7.32334E-05	0.4964848	6.43E-06	8.69501E-05
Road 5	5	1200-1300	0.083343934	1.093E-06	1.47865E-05	0.0735503	9.649E-07	1.3049E-05	0.4510754	5.918E-06	8.00278E-05	0.395612	5.19E-06	7.01878E-05	0.4691623	6.155E-06	8.32368E-05
Road 5	5	1300-1400	0.08984691	1.293E-06	1.74909E-05	0.0793424	1.142E-06	1.5446E-05	0.4683021	6.742E-06	9.11667E-05	0.4109805	5.916E-06	8.00076E-05	0.4903229	7.059E-06	9.54536E-05
Road 5	5	1400-1500	0.085315153	1.259E-06	1.70202E-05	0.0761588	1.124E-06	1.51935E-05	0.4444633	6.557E-06	8.86693E-05	0.3944014	5.818E-06	7.86821E-05	0.4705602	6.942E-06	9.38756E-05
Road 5	5	1500-1600	0.09529983	1.368E-06	1.85041E-05	0.0853411	1.225E-06	1.65705E-05	0.4851461	6.966E-06	9.41995E-05	0.4320741	6.204E-06	8.38947E-05	0.5174152	7.429E-06	0.000100465
Road 5	5	1600-1700	0.089565546	1.415E-06	1.91411E-05	0.0797572	1.26E-06	1.7045E-05	0.4665335	7.373E-06	9.97034E-05	0.4128717	6.525E-06	8.82352E-05	0.4926289	7.785E-06	0.00010528
Road 5	5	1700-1800	0.066077571	1.047E-06	1.4155E-05	0.0595911	9.44E-07	1.27655E-05	0.3426681	5.428E-06	7.34059E-05	0.3064739	4.855E-06	6.56524E-05	0.366065	5.799E-06	7.8418E-05
Road 5	5	1800-1900	0.061855374	1.056E-06	1.42868E-05	0.0561148	9.584E-07	1.29608E-05	0.3502249	5.982E-06	8.08916E-05	0.3140657	5.364E-06	7.25399E-05	0.3701805	6.323E-06	8.55007E-05
Road 5	5	1900-2000	0.071562954	9.093E-07	1.22968E-05	0.0644166	8.185E-07	1.10688E-05	0.4002128	5.085E-06	6.87693E-05	0.3567912	4.534E-06	6.13081E-05	0.4212078	5.352E-06	7.23769E-05
Road 5	5	2000-2100	0.068161919	7.599E-07	1.02765E-05	0.0615304	6.86E-07	9.27664E-06	0.3743149	4.173E-06	5.64337E-05	0.3346491	3.731E-06	5.04535E-05	0.3961795	4.417E-06	5.97301E-05
Road 5	5	2100-2200	0.070817303	7.589E-07	1.02634E-05	0.06494	6.96E-07	9.41159E-06	0.4012963	4.301E-06	5.81589E-05	0.3651162	3.913E-06	5.29154E-05	0.4300561	4.609E-06	6.2327E-05
Road 5	5	2200-2300	0.068259817	6.303E-07	8.52403E-06	0.0622367	5.747E-07	7.77189E-06	0.3778895	3.49E-06	4.71894E-05	0.3412159	3.151E-06	4.26098E-05	0.4034526	3.726E-06	5.03817E-05
Road 5	5	2300-0000	0.060142656	5.057E-07	6.83873E-06	0.0548902	4.615E-07	6.24148E-06	0.3466042	2.914E-06	3.94118E-05	0.3128433	2.631E-06	3.55729E-05	0.3677334	3.092E-06	4.18144E-05
Road 6	6	0000-0100	0.054060338	1.502E-07	5.36788E-06	0.0493264	1.37E-07	4.89783E-06	0.3405776	9.46E-07	3.38174E-05	0.3073186	8.537E-07	3.0515E-05	0.356645	9.907E-07	3.54128E-05
Road 6	6	0100-0200	0.070671858	1.499E-07	5.35781E-06	0.0641785	1.361E-07	4.86553E-06	0.395102	8.38E-07	2.99537E-05	0.3552035	7.533E-07	2.69289E-05	0.4193819	8.895E-07	3.17944E-05
Road 6	6	0200-0300	0.064820759	9.611E-08	3.43561E-06	0.0588004	8.719E-08	3.11652E-06	0.3633629	5.388E-07	1.92588E-05	0.3263267	4.839E-07	1.72959E-05	0.3851271	5.71E-07	2.04124E-05
Road 6	6	0300-0400	0.066603387	7.75E-08	2.77045E-06	0.0594652	6.92E-08	2.47353E-06	0.4204716	4.893E-07	1.749E-05	0.3718085	4.327E-07	1.54658E-05	0.4312737	5.019E-07	1.79394E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.073368556	1.239E-07	4.43012E-06	0.0655128	1.107E-07	3.95577E-06	0.4257874	7.192E-07	2.57098E-05	0.3759801	6.351E-07	2.27023E-05	0.4414929	7.458E-07	2.66581E-05
Road 6	6	0500-0600	0.066515776	2.01E-07	7.18477E-06	0.059007	1.783E-07	6.3737E-06	0.3974224	1.201E-06	4.2928E-05	0.347789	1.051E-06	3.75668E-05	0.406796	1.229E-06	4.39405E-05
Road 6	6	0600-0700	0.072073171	3.882E-07	1.38777E-05	0.0631073	3.399E-07	1.21513E-05	0.4434557	2.389E-06	8.53876E-05	0.38271	2.062E-06	7.3691E-05	0.4458173	2.401E-06	8.58423E-05
Road 6	6	0700-0800	0.068333136	5.848E-07	2.09054E-05	0.0595083	5.093E-07	1.82056E-05	0.3840953	3.287E-06	0.000117508	0.3293127	2.818E-06	0.000100748	0.388821	3.328E-06	0.000118953
Road 6	6	0800-0900	0.058316911	7.158E-07	2.55879E-05	0.0506296	6.215E-07	2.22149E-05	0.3420934	4.199E-06	0.000150102	0.2915548	3.579E-06	0.000127927	0.3421845	4.2E-06	0.000150141
Road 6	6	0900-1000	0.059853424	7.055E-07	2.5218E-05	0.0525869	6.198E-07	2.21564E-05	0.3330447	3.926E-06	0.000140322	0.2889471	3.406E-06	0.000121742	0.341534	4.026E-06	0.000143898
Road 6	6	1000-1100	0.079779699	7.966E-07	2.84752E-05	0.0700901	6.998E-07	2.50168E-05	0.4326339	4.32E-06	0.000154417	0.3774962	3.769E-06	0.000134737	0.4475864	4.469E-06	0.000159754
Road 6	6	1100-1200	0.090904034	9.009E-07	3.22018E-05	0.0799459	7.923E-07	2.832E-05	0.4703609	4.661E-06	0.00016662	0.4110893	4.074E-06	0.000145624	0.4910352	4.866E-06	0.000173944
Road 6	6	1200-1300	0.088398081	8.561E-07	3.06024E-05	0.0780246	7.556E-07	2.70112E-05	0.4355592	4.218E-06	0.000150785	0.3825039	3.704E-06	0.000132418	0.4605284	4.46E-06	0.00015943
Road 6	6	1300-1400	0.103054252	9.961E-07	3.5607E-05	0.0910021	8.796E-07	3.14428E-05	0.5175253	5.002E-06	0.000178814	0.4542295	4.391E-06	0.000156944	0.5452316	5.27E-06	0.000188387
Road 6	6	1400-1500	0.097662236	1.041E-06	3.72167E-05	0.0871565	9.291E-07	3.32132E-05	0.4872314	5.194E-06	0.000185672	0.4321552	4.607E-06	0.000164684	0.5193117	5.536E-06	0.000197897
Road 6	6	1500-1600	0.085688072	8.926E-07	3.19063E-05	0.0766724	7.987E-07	2.85492E-05	0.4368327	4.55E-06	0.000162656	0.3882724	4.045E-06	0.000144575	0.4649447	4.843E-06	0.000173124
Road 6	6	1600-1700	0.08973368	9.566E-07	3.41953E-05	0.0799217	8.52E-07	3.04562E-05	0.4376664	4.666E-06	0.000166784	0.3873384	4.129E-06	0.000147605	0.4672601	4.981E-06	0.000178061
Road 6	6	1700-1800	0.066214341	7.444E-07	2.66098E-05	0.0597311	6.715E-07	2.40044E-05	0.3324134	3.737E-06	0.000133588	0.2974502	3.344E-06	0.000119537	0.3571813	4.016E-06	0.000143542
Road 6	6	1800-1900	0.06498795	8.331E-07	2.97794E-05	0.0589471	7.556E-07	2.70113E-05	0.3374326	4.326E-06	0.000154622	0.3031091	3.886E-06	0.000138894	0.3620562	4.641E-06	0.000165905
Road 6	6	1900-2000	0.077308829	7.56E-07	2.70227E-05	0.0695655	6.802E-07	2.43161E-05	0.4008487	3.92E-06	0.000140114	0.3571133	3.492E-06	0.000124826	0.4266788	4.172E-06	0.000149143
Road 6	6	2000-2100	0.061041415	4.697E-07	1.67908E-05	0.0550474	4.236E-07	1.5142E-05	0.3433222	2.642E-06	9.44383E-05	0.3060855	2.355E-06	8.41956E-05	0.3611329	2.779E-06	9.93376E-05
Road 6	6	2100-2200	0.084785702	5.665E-07	2.02505E-05	0.0777627	5.196E-07	1.85731E-05	0.4405062	2.943E-06	0.000105212	0.4012146	2.681E-06	9.58273E-05	0.4789773	3.2E-06	0.0001144
Road 6	6	2200-2300	0.063638382	4.503E-07	1.60962E-05	0.057966	4.102E-07	1.46615E-05	0.3528223	2.497E-06	8.92401E-05	0.3167354	2.241E-06	8.01125E-05	0.3747013	2.651E-06	9.4774E-05
Road 6	6	2300-0000	0.042454633	2.821E-07	1.0083E-05	0.0387449	2.574E-07	9.20196E-06	0.260889	1.733E-06	6.19615E-05	0.2348738	1.561E-06	5.57828E-05	0.2736187	1.818E-06	6.49848E-05
Road 7	7	0000-0100	0.077564381	2.072E-07	5.17256E-06	0.0708238	1.892E-07	4.72305E-06	0.4576927	1.223E-06	3.05223E-05	0.4150826	1.109E-06	2.76808E-05	0.4859063	1.298E-06	3.24038E-05
Road 7	7	0100-0200	0.093986915	1.951E-07	4.87112E-06	0.0854073	1.773E-07	4.42646E-06	0.5165373	1.072E-06	2.67709E-05	0.4664818	9.685E-07	2.41767E-05	0.5518891	1.146E-06	2.86031E-05
Road 7	7	0200-0300	0.081551809	1.113E-07	2.77835E-06	0.0739885	1.01E-07	2.52068E-06	0.4593764	6.269E-07	1.56503E-05	0.4139896	5.65E-07	1.4104E-05	0.4879781	6.66E-07	1.66247E-05
Road 7	7	0300-0400	0.083583588	9.223E-08	2.30229E-06	0.0746558	8.238E-08	2.05638E-06	0.5037041	5.558E-07	1.38744E-05	0.4469822	4.932E-07	1.2312E-05	0.521638	5.756E-07	1.43684E-05
Road 7	7	0400-0500	0.093813065	1.512E-07	3.77409E-06	0.0835279	1.346E-07	3.36032E-06	0.5227887	8.425E-07	2.10317E-05	0.4621397	7.448E-07	1.85918E-05	0.5456675	8.794E-07	2.19521E-05
Road 7	7	0500-0600	0.086168367	2.452E-07	6.1211E-06	0.076464	2.176E-07	5.43174E-06	0.4868569	1.385E-06	3.45846E-05	0.4280166	1.218E-06	3.04048E-05	0.5044806	1.436E-06	3.58365E-05
Road 7	7	0600-0700	0.091658629	4.658E-07	1.1627E-05	0.0802953	4.08E-07	1.01855E-05	0.5287179	2.687E-06	6.70684E-05	0.4583674	2.329E-06	5.81443E-05	0.5386626	2.737E-06	6.83299E-05
Road 7	7	0700-0800	0.088446929	7.191E-07	1.79513E-05	0.077062	6.265E-07	1.56406E-05	0.4807615	3.909E-06	9.75761E-05	0.4145071	3.37E-06	8.4129E-05	0.4915691	3.997E-06	9.97696E-05
Road 7	7	0800-0900	0.08741345	1.074E-06	2.68024E-05	0.0762545	9.366E-07	2.33809E-05	0.4781691	5.873E-06	0.000146615	0.4128437	5.071E-06	0.000126585	0.4890982	6.007E-06	0.000149966
Road 7	7	0900-1000	0.088214101	1.007E-06	2.51296E-05	0.0775528	8.85E-07	2.20926E-05	0.4622696	5.275E-06	0.000131687	0.4034289	4.604E-06	0.000114925	0.4809818	5.489E-06	0.000137018
Road 7	7	1000-1100	0.103697968	1.037E-06	2.5895E-05	0.0912061	9.124E-07	2.27756E-05	0.5460161	5.462E-06	0.000136348	0.478159	4.783E-06	0.000119404	0.5693651	5.696E-06	0.000142179
Road 7	7	1100-1200	0.11392904	1.135E-06	2.83259E-05	0.1003225	9.992E-07	2.4943E-05	0.5886945	5.863E-06	0.000146366	0.5163839	5.143E-06	0.000128387	0.6167064	6.142E-06	0.00015333
Road 7	7	1200-1300	0.112272394	1.117E-06	2.78734E-05	0.0993265	9.878E-07	2.46593E-05	0.5671934	5.641E-06	0.000140815	0.5002199	4.975E-06	0.000124187	0.5995464	5.963E-06	0.000148847
Road 7	7	1300-1400	0.120251867	1.178E-06	2.94185E-05	0.1059168	1.038E-06	2.59116E-05	0.6061919	5.941E-06	0.000148299	0.5316583	5.21E-06	0.000130065	0.6375751	6.248E-06	0.000155977
Road 7	7	1400-1500	0.111881088	1.15E-06	2.87088E-05	0.099601	1.024E-06	2.55577E-05	0.5705371	5.865E-06	0.000146401	0.505663	5.198E-06	0.000129754	0.605264	6.222E-06	0.000155312
Road 7	7	1500-1600	0.103018315	1.035E-06	2.58372E-05	0.0922438	9.268E-07	2.3135E-05	0.529743	5.322E-06	0.000132861	0.471938	4.741E-06	0.000118363	0.5641818	5.668E-06	0.000141498
Road 7	7	1600-1700	0.107422765	1.117E-06	2.78763E-05	0.0957851	9.957E-07	2.48563E-05	0.532426	5.535E-06	0.000138165	0.4726935	4.914E-06	0.000122664	0.5684787	5.91E-06	0.000147521
Road 7	7	1700-1800	0.082344967	9.074E-07	2.26519E-05	0.0742808	8.185E-07	2.04336E-05	0.423233	4.664E-06	0.000116425	0.3796127	4.183E-06	0.000104426	0.4538935	5.002E-06	0.000124859
Road 7	7	1800-1900	0.07570283	8.661E-07	2.16204E-05	0.0685299	7.84E-07	1.95718E-05	0.3979314	4.553E-06	0.000113648	0.3576404	4.092E-06	0.000102141	0.4261703	4.876E-06	0.000121712
Road 7	7	1900-2000	0.088649115	7.684E-07	1.91811E-05	0.0798402	6.92E-07	1.72751E-05	0.4677415	4.054E-06	0.000101206	0.4180873	3.624E-06	9.04622E-05	0.4979275	4.316E-06	0.000107737
Road 7	7	2000-2100	0.080988835	5.738E-07	1.43242E-05	0.0731083	5.18E-07	1.29304E-05	0.437724	3.101E-06	7.74187E-05	0.3919181	2.777E-06	6.93172E-05	0.4650264	3.295E-06	8.22476E-05
Road 7	7	2100-2200	0.093055427	5.539E-07	1.38277E-05	0.0852199	5.073E-07	1.26634E-05	0.4902896	2.919E-06	7.28555E-05	0.4464013	2.657E-06	6.63338E-05	0.5316211	3.165E-06	7.89972E-05
Road 7	7	2200-2300	0.078373667	5.029E-07	1.2555E-05	0.0713791	4.581E-07	1.14345E-05	0.4282474	2.748E-06	6.86029E-05	0.3859732	2.477E-06	6.18308E-05	0.4573523	2.935E-06	7.32654E-05
Road 7	7	2300-0000	0.05389866	3.185E-07	7.95057E-06	0.0491969	2.907E-07	7.25701E-06	0.3198202	1.89E-06	4.71765E-05	0.288942	1.707E-06	4.26217E-05	0.3381388	1.998E-06	4.98787E-05
Road 8	8	0000-0100	0.234239722	1.704E-07	2.80826E-06	0.2139503	1.556E-07	2.56501E-06	1.1967972	8.704E-07	1.43482E-05	1.0925633	7.946E-07	1.30985E-05	1.3065136	9.502E-07	1.56636E-05
Road 8	8	0100-0200	0.244259667	1.48E-07	2.44032E-06	0.2219527	1.345E-07	2.21746E-06	1.2432023	7.535E-07	1.24204E-05	1.129275	6.844E-07	1.12822E-05	1.3512277	8.189E-07	1.34997E-05
Road 8	8	0200-0300	0.230798667	6.994E-08	1.15292E-06	0.2094687	6.348E-08	1.04637E-06	1.237034	3.749E-07	6.17941E-06	1.122382	3.401E-07	5.60668E-06	1.3318507	4.036E-07	6.65305E-06
Road 8	8	0300-0400	0.213875	6.049E-08	9.97153E-07	0.1908364	5.397E-08	8.8974E-07	1.1183993	3.163E-07	5.21433E-06	0.997365	2.821E-07	4.65003E-06	1.1882014	3.361E-07	5.53977E-06
Road 8	8	0400-0500	0.244997143	1.039E-07	1.71338E-06	0.2188767	9.286E-08	1.53071E-06	1.2100957	5.134E-07	8.46278E-06	1.0808338	4.585E-07	7.55879E-06	1.2997105	5.514E-07	9.0895E-06
Road 8	8	0500-0600	0.234460294	1.61E-07	2.65474E-06	0.2081735	1.43E-07	2.3571E-06	1.1367176	7.808E-07	1.28708E-05	1.0086582	6.928E-07	1.14208E-05	1.2168318	8.358E-07	1.37779E-05
Road 8	8	0600-0700	0.265598226	3.327E-07	5.48391E-06	0.2328523	2.917E-07	4.8078E-06	1.2728418	1.594E-06	2.62809E-05	1.1148555	1.396E-06	2.30189E-05	1.3477077	1.688E-06	2.78267E-05
Road 8	8	0700-0800	0.267329406	5.455E-07	8.9917E-06	0.2329279	4.753E-07	7.8346E-06	1.2954513	2.643E-06	4.35729E-05	1.1278106	2.301E-06	3.79342E-05	1.3607385	2.776E-06	4.57688E-05
Road 8	8	0800-0900	0.294657316	1.131E-06	1.86442E-05	0.2565475	9.847E-07	1.62329E-05	1.4327326	5.499E-06	9.06552E-05	1.2464293	4.784E-06	7.8867E-05	1.5029768	5.769E-06	9.50998E-05
Road 8	8	0900-1000	0.310128471	9.836E-07	1.62149E-05	0.272584	8.646E-07	1.42519E-05	1.4345201	4.55E-06	7.50033E-05	1.2605401	3.998E-06	6.59068E-05	1.5331241	4.863E-06	8.01587E-05
Road 8	8	1000-1100	0.295894937	9.445E-07	1.55693E-05	0.2598584	8.294E-07	1.36731E-05	1.4046643	4.484E-06	7.391E-05	1.2327777	3.935E-06	6.48658E-05	1.4926361	4.764E-06	7.85389E-05
Road 8	8	1100-1200	0.303510503	9.749E-07	1.60711E-05	0.2665595	8.562E-07	1.41145E-05	1.4614458	4.694E-06	7.73845E-05	1.2831586	4.122E-06	6.7944E-05	1.5497181	4.978E-06	8.20585E-05
Road 8	8	1200-1300	0.30689355	1.048E-06	1.72722E-05	0.2705835	9.238E-07	1.52287E-05	1.4929568	5.097E-06	8.40249E-05	1.315745	4.492E-06	7.40512E-05	1.5863285	5.416E-06	8.92799E-05
Road 8	8	1300-1400	0.280745563	9.075E-07	1.49591E-05	0.2478097	8.01E-07	1.32042E-05	1.3410258	4.335E-06	7.14547E-05	1.1830959	3.824E-06	6.30396E-05	1.4309056	4.625E-06	7.62438E-05
Road 8	8	1400-1500	0.271531799	7.625E-07	1.25692E-05	0.2422154	6.802E-07	1.12122E-05	1.3582678	3.814E-06	6.28744E-05	1.2110894	3.401E-06	5.60615E-05	1.4533048	4.081E-06	6.72737E-05
Road 8	8	1500-1600	0.277716715	7.686E-07	1.26706E-05	0.248472	6.877E-07	1.13363E-05	1.3520939	3.742E-06	6.16881E-05	1.2086464	3.345E-06	5.51434E-05	1.4571183	4.033E-06	6.64797E-05
Road 8	8	1600-1700	0.279317671	8.238E-07	1.35808E-05	0.248601	7.332E-07	1.20873E-05	1.3431132	3.962E-06	6.53039E-05	1.1948301	3.524E-06	5.80942E-05	1.4434311	4.257E-06	7.01815E-05
Road 8	8	1700-1800	0.225630577	7.111E-07	1.17219E-05	0.2035447	6.415E-07	1.05745E-05	1.1331369	3.571E-06	5.88682E-05	1.0207531	3.217E-06	5.30297E-05	1.2242978	3.858E-06	6.36042E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.225584299	4.876E-07	8.03834E-06	0.2049706	4.431E-07	7.3038E-06	1.1590711	2.505E-06	4.13017E-05	1.0520373	2.274E-06	3.74877E-05	1.2570079	2.717E-06	4.47915E-05
Road 8	8	1900-2000	0.224917143	3.499E-07	5.76749E-06	0.2027414	3.154E-07	5.19885E-06	1.184746	1.843E-06	3.03801E-05	1.0675083	1.661E-06	2.73738E-05	1.2702497	1.976E-06	3.25727E-05
Road 8	8	2000-2100	0.245195132	3.765E-07	6.20582E-06	0.2213359	3.398E-07	5.60195E-06	1.1733364	1.801E-06	2.96968E-05	1.0581466	1.625E-06	2.67814E-05	1.2794825	1.964E-06	3.23834E-05
Road 8	8	2100-2200	0.200870566	2.151E-07	3.54541E-06	0.1844002	1.974E-07	3.2547E-06	1.056447	1.131E-06	1.86465E-05	0.9681483	1.037E-06	1.7088E-05	1.1525485	1.234E-06	2.03427E-05
Road 8	8	2200-2300	0.242014219	3.129E-07	5.15816E-06	0.2207936	2.855E-07	4.70587E-06	1.1997095	1.551E-06	2.557E-05	1.0933306	1.414E-06	2.33027E-05	1.3141242	1.699E-06	2.80085E-05
Road 8	8	2300-0000	0.193332115	2.031E-07	3.34797E-06	0.1766962	1.856E-07	3.05988E-06	0.996244	1.047E-06	1.72521E-05	0.9094837	9.554E-07	1.57497E-05	1.0861798	1.141E-06	1.88096E-05
Road 9	9	0000-0100	0.20214081	5.368E-08	1.60255E-06	0.1874443	4.978E-08	1.48604E-06	0.9283904	2.466E-07	7.3602E-06	0.8548219	2.27E-07	6.77695E-06	1.0422662	2.768E-07	8.26299E-06
Road 9	9	0100-0200	0.220722991	4.606E-08	1.3749E-06	0.2040871	4.259E-08	1.27127E-06	0.9598031	2.003E-07	5.97868E-06	0.8793949	1.835E-07	5.47781E-06	1.0834819	2.261E-07	6.74909E-06
Road 9	9	0200-0300	0.087226964	8.273E-09	2.46974E-07	0.079389	7.53E-09	2.24782E-07	0.6293651	5.969E-08	1.78198E-06	0.5697737	5.404E-08	1.61326E-06	0.6491627	6.157E-08	1.83804E-06
Road 9	9	0300-0400	0.107064438	8.124E-09	2.42514E-07	0.0959862	7.283E-09	2.1742E-07	0.6658267	5.052E-08	1.50818E-06	0.5964816	4.526E-08	1.3511E-06	0.6924678	5.254E-08	1.56852E-06
Road 9	9	0400-0500	0.242487092	4.6E-08	1.37315E-06	0.2206339	4.185E-08	1.2494E-06	1.0143443	1.924E-07	5.74402E-06	0.9148324	1.735E-07	5.18051E-06	1.1354663	2.154E-07	6.42991E-06
Road 9	9	0500-0600	0.175797455	5.669E-08	1.69236E-06	0.1591323	5.132E-08	1.53193E-06	0.898765	2.898E-07	8.65219E-06	0.8086335	2.608E-07	7.78451E-06	0.9677658	3.121E-07	9.31644E-06
Road 9	9	0600-0700	0.207963513	1.262E-07	3.76849E-06	0.187267	1.137E-07	3.39345E-06	1.1049356	6.707E-07	2.00225E-05	0.9871356	5.992E-07	1.78878E-05	1.1744026	7.129E-07	2.12813E-05
Road 9	9	0700-0800	0.179351151	1.633E-07	4.87502E-06	0.1619657	1.475E-07	4.40246E-06	1.0435637	9.502E-07	2.83655E-05	0.9339413	8.504E-07	2.53858E-05	1.095907	9.979E-07	2.97883E-05
Road 9	9	0800-0900	0.274520307	5.989E-07	1.78773E-05	0.2455506	5.357E-07	1.59908E-05	1.3450068	2.934E-06	8.75897E-05	1.191079	2.598E-06	7.75656E-05	1.4366296	3.134E-06	9.35564E-05
Road 9	9	0900-1000	0.278534446	4.544E-07	1.35646E-05	0.2525683	4.12E-07	1.23001E-05	1.2390913	2.021E-06	6.03438E-05	1.1125989	1.815E-06	5.41836E-05	1.3651672	2.227E-06	6.64837E-05
Road 9	9	1000-1100	0.290983536	3.919E-07	1.16992E-05	0.2606416	3.51E-07	1.04793E-05	1.2620981	1.7E-06	5.07437E-05	1.1244865	1.515E-06	4.52109E-05	1.3851282	1.866E-06	5.56902E-05
Road 9	9	1100-1200	0.203999074	2.864E-07	8.54851E-06	0.1808586	2.539E-07	7.57882E-06	1.0969198	1.54E-06	4.59661E-05	0.9743277	1.368E-06	4.08289E-05	1.1551863	1.622E-06	4.84077E-05
Road 9	9	1200-1300	0.301509475	4.175E-07	1.24639E-05	0.2744924	3.801E-07	1.13471E-05	1.3990906	1.937E-06	5.78362E-05	1.2696314	1.758E-06	5.24845E-05	1.5441238	2.138E-06	6.38316E-05
Road 9	9	1300-1400	0.339518747	3.864E-07	1.15357E-05	0.3082271	3.508E-07	1.04726E-05	1.3179853	1.5E-06	4.47809E-05	1.1861819	1.35E-06	4.03026E-05	1.4944091	1.701E-06	5.07752E-05
Road 9	9	1400-1500	0.218564947	2.819E-07	8.41628E-06	0.2009706	2.592E-07	7.73878E-06	1.095226	1.413E-06	4.21739E-05	0.9922294	1.28E-06	3.82078E-05	1.1932	1.539E-06	4.59465E-05
Road 9	9	1500-1600	0.182630176	1.975E-07	5.89492E-06	0.1671037	1.807E-07	5.39376E-06	0.9767326	1.056E-06	3.15269E-05	0.8848201	9.567E-07	2.85602E-05	1.0519237	1.137E-06	3.39539E-05
Road 9	9	1600-1700	0.189344144	2.838E-07	8.47051E-06	0.174604	2.617E-07	7.8111E-06	1.0860541	1.628E-06	4.85858E-05	0.9935379	1.489E-06	4.4447E-05	1.1681419	1.751E-06	5.22581E-05
Road 9	9	1700-1800	0.164201276	2.118E-07	6.3229E-06	0.1533176	1.978E-07	5.9038E-06	1.0333178	1.333E-06	3.979E-05	0.9578145	1.236E-06	3.68826E-05	1.1111321	1.433E-06	4.27864E-05
Road 9	9	1800-1900	0.16175346	1.35E-07	4.0303E-06	0.1520409	1.269E-07	3.78829E-06	1.0042019	8.382E-07	2.5021E-05	0.9379311	7.829E-07	2.33698E-05	1.089972	9.098E-07	2.71581E-05
Road 9	9	1900-2000	0.169397767	1.382E-07	4.12484E-06	0.1574244	1.284E-07	3.83329E-06	0.9316027	7.599E-07	2.26845E-05	0.8518115	6.948E-07	2.07416E-05	1.0092359	8.232E-07	2.45749E-05
Road 9	9	2000-2100	0.180374435	9.923E-08	2.96213E-06	0.1656814	9.115E-08	2.72084E-06	0.819359	4.507E-07	1.34556E-05	0.7460062	4.104E-07	1.2251E-05	0.9116876	5.015E-07	1.49718E-05
Road 9	9	2100-2200	0.023674988	1.213E-08	3.6198E-07	0.0220434	1.129E-08	3.37033E-07	0.3330731	1.706E-07	5.09254E-06	0.3047617	1.561E-07	4.65967E-06	0.326805	1.674E-07	4.9967E-06
Road 9	9	2200-2300	0.172937647	1.083E-07	3.23172E-06	0.160021	1.002E-07	2.99035E-06	0.8577098	5.369E-07	1.60282E-05	0.7875534	4.93E-07	1.47172E-05	0.9475744	5.932E-07	1.77075E-05
Road 9	9	2300-0000	0.139547461	7.942E-08	2.37069E-06	0.1300002	7.398E-08	2.20849E-06	0.7312441	4.161E-07	1.24227E-05	0.6741779	3.837E-07	1.14532E-05	0.8041781	4.577E-07	1.36617E-05
Road 10	10	0000-0100	0.283724843	2.181E-07	4.85036E-06	0.2600327	1.999E-07	4.44533E-06	1.4542905	1.118E-06	2.48615E-05	1.3308816	1.023E-06	2.27518E-05	1.5909143	1.223E-06	2.71971E-05
Road 10	10	0100-0200	0.280373707	1.629E-07	3.62143E-06	0.2558722	1.486E-07	3.30496E-06	1.4257727	8.283E-07	1.84159E-05	1.2982325	7.542E-07	1.67685E-05	1.5541047	9.028E-07	2.00735E-05
Road 10	10	0200-0300	0.278495174	9.041E-08	2.01018E-06	0.2527338	8.204E-08	1.82423E-06	1.3969908	4.535E-07	1.00835E-05	1.2669881	4.113E-07	9.14513E-06	1.5197219	4.933E-07	1.09694E-05
Road 10	10	0300-0400	0.256862902	5.266E-08	1.17097E-06	0.2290862	4.697E-08	1.04435E-06	1.3908779	2.852E-07	6.34065E-06	1.2394474	2.541E-07	5.65032E-06	1.4685336	3.011E-07	6.69467E-06
Road 10	10	0400-0500	0.304099998	1.195E-07	2.6571E-06	0.273621	1.075E-07	2.39079E-06	1.4666615	5.764E-07	1.28151E-05	1.3147725	5.167E-07	1.14879E-05	1.5883935	6.242E-07	1.38787E-05
Road 10	10	0500-0600	0.278302863	1.95E-07	4.33476E-06	0.2495005	1.748E-07	3.88614E-06	1.3486234	9.447E-07	2.10058E-05	1.2047387	8.439E-07	1.87646E-05	1.4542392	1.019E-06	2.26508E-05
Road 10	10	0600-0700	0.34088411	4.776E-07	1.0619E-05	0.3040272	4.26E-07	9.47087E-06	1.7081445	2.393E-06	5.32111E-05	1.5236282	2.135E-06	4.74632E-05	1.8276554	2.561E-06	5.6934E-05
Road 10	10	0700-0800	0.3390405	7.473E-07	1.66152E-05	0.3000901	6.614E-07	1.47064E-05	1.7131758	3.776E-06	8.39567E-05	1.5153752	3.34E-06	7.42632E-05	1.8154654	4.001E-06	8.89696E-05
Road 10	10	0800-0900	0.362022733	1.528E-06	3.39701E-05	0.3167146	1.337E-06	2.97186E-05	1.7955205	7.577E-06	0.000168481	1.5676573	6.616E-06	0.0001471	1.8843719	7.952E-06	0.000176818
Road 10	10	0900-1000	0.396748959	1.329E-06	2.95417E-05	0.3538837	1.185E-06	2.635E-05	1.9193575	6.428E-06	0.000142914	1.7098257	5.726E-06	0.000127313	2.0637094	6.911E-06	0.000153663
Road 10	10	1000-1100	0.39311609	1.431E-06	3.181E-05	0.3491178	1.271E-06	2.82498E-05	1.7818163	6.484E-06	0.00014418	1.5768853	5.739E-06	0.000127598	1.9260031	7.009E-06	0.000155848
Road 10	10	1100-1200	0.382677774	1.393E-06	3.09654E-05	0.3383188	1.231E-06	2.7376E-05	1.800201	6.551E-06	0.000145668	1.5880015	5.779E-06	0.000128497	1.9263203	7.01E-06	0.000155873
Road 10	10	1200-1300	0.398867869	1.499E-06	3.33362E-05	0.3557468	1.337E-06	2.97322E-05	1.9025733	7.151E-06	0.000159011	1.6959997	6.375E-06	0.000141746	2.0517465	7.712E-06	0.000171479
Road 10	10	1300-1400	0.388394021	1.274E-06	2.83294E-05	0.3472141	1.139E-06	2.53258E-05	1.8105815	5.94E-06	0.000132064	1.6142355	5.295E-06	0.000117742	1.9614496	6.434E-06	0.000143068
Road 10	10	1400-1500	0.358122655	1.101E-06	2.44888E-05	0.3241612	9.969E-07	2.21665E-05	1.796648	5.525E-06	0.000122857	1.6229542	4.991E-06	0.000110979	1.9471154	5.988E-06	0.000133146
Road 10	10	1500-1600	0.355377058	1.117E-06	2.48411E-05	0.320626	1.008E-06	2.2412E-05	1.7159899	5.395E-06	0.000119949	1.5460381	4.86E-06	0.000108069	1.866664	5.868E-06	0.000130481
Road 10	10	1600-1700	0.340431922	1.192E-06	2.65123E-05	0.307039	1.075E-06	2.39117E-05	1.668913	5.845E-06	0.000129972	1.5003363	5.255E-06	0.000116844	1.8073754	6.33E-06	0.000140756
Road 10	10	1700-1800	0.312747015	1.026E-06	2.28117E-05	0.2862093	9.389E-07	2.08761E-05	1.6301301	5.348E-06	0.000118901	1.4920548	4.895E-06	0.00010883	1.7782641	5.834E-06	0.000129706
Road 10	10	1800-1900	0.317272686	6.559E-07	1.45842E-05	0.2910778	6.018E-07	1.33801E-05	1.6083197	3.325E-06	7.39301E-05	1.4732702	3.046E-06	6.77223E-05	1.764348	3.648E-06	8.11023E-05
Road 10	10	1900-2000	0.277007804	5.159E-07	1.14705E-05	0.2527843	4.708E-07	1.04674E-05	1.4744797	2.746E-06	6.10561E-05	1.342416	2.5E-06	5.55875E-05	1.5952003	2.971E-06	6.6055E-05
Road 10	10	2000-2100	0.319194517	3.927E-07	8.73075E-06	0.2892863	3.559E-07	7.91269E-06	1.5482328	1.905E-06	4.2348E-05	1.400158	1.722E-06	3.82978E-05	1.6894443	2.078E-06	4.62104E-05
Road 10	10	2100-2200	0.264045395	3.248E-07	7.22229E-06	0.2469767	3.038E-07	6.75542E-06	1.4788405	1.819E-06	4.04499E-05	1.3834568	1.702E-06	3.78409E-05	1.6304335	2.006E-06	4.45964E-05
Road 10	10	2200-2300	0.278653519	3.571E-07	7.93943E-06	0.2568145	3.291E-07	7.31719E-06	1.4350604	1.839E-06	4.08879E-05	1.3232474	1.696E-06	3.77021E-05	1.5800619	2.025E-06	4.50193E-05
Road 10	10	2300-0000	0.254624957	3.045E-07	6.77116E-06	0.2337389	2.796E-07	6.21574E-06	1.2916032	1.545E-06	3.43472E-05	1.1825433	1.414E-06	3.1447E-05	1.4162822	1.694E-06	3.76627E-05
Road 11	11	0000-0100	0.3176206	2.426E-07	2.01261E-06	0.2909878	2.223E-07	1.84385E-06	1.594214	1.218E-06	1.01018E-05	1.458165	1.114E-06	9.23969E-06	1.7491528	1.336E-06	1.10835E-05
Road 11	11	0100-0200	0.319352902	1.719E-07	1.42571E-06	0.2913163	1.568E-07	1.30054E-06	1.5764472	8.484E-07	7.03784E-06	1.4344103	7.72E-07	6.40373E-06	1.7257266	9.288E-07	7.70428E-06
Road 11	11	0200-0300	0.278448988	7.251E-08	6.01499E-07	0.2527097	6.581E-08	5.45898E-07	1.4885617	3.876E-07	3.21556E-06	1.3499446	3.515E-07	2.91612E-06	1.6026542	4.174E-07	3.46202E-06
Road 11	11	0300-0400	0.302571928	7.354E-08	6.10035E-07	0.2698318	6.558E-08	5.44026E-07	1.5850289	3.853E-07	3.19568E-06	1.4133019	3.435E-07	2.84945E-06	1.6831336	4.091E-07	3.39348E-06
Road 11	11	0400-0500	0.314588533	1.092E-07	9.06089E-07	0.2832047	9.833E-08	8.15696E-07	1.4984083	5.203E-07	4.31577E-06	1.343523	4.665E-07	3.86966E-06	1.6267277	5.648E-07	4.68536E-06
Road 11	11	0500-0600	0.254594694	1.193E-07	9.89945E-07	0.2279611	1.069E-07	8.86386E-07	1.3037928	6.112E-07	5.06956E-06	1.164147	5.457E-07	4.52658E-06	1.3921081	6.526E-07	5.41296E-06
Road 11	11	0600-0700	0.279842931	2.526E-07	2.09564E-06	0.2483066	2.242E-07	1.85947E-06	1.4586604	1.317E-06	1.09233E-05	1.2897065	1.164E-06	9.65812E-06	1.5380131	1.388E-06	1.15176E-05
Road 11	11	0700-0800	0.330244062	6.192E-07	5.13638E-06	0.2901672	5.441E-07	4.51305E-06	1.7255227	3.235E-06	2.68375E-05	1.5137994	2.838E-06	2.35445E-05	1.8039667	3.382E-06	2.80576E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.357962882	1.274E-06	1.05679E-05	0.3148716	1.121E-06	9.29577E-06	1.7725528	6.309E-06	5.23301E-05	1.5519762	5.524E-06	4.58181E-05	1.8668478	6.644E-06	5.51139E-05
Road 11	11	0900-1000	0.355633229	9.014E-07	7.47745E-06	0.317021	8.036E-07	6.6656E-06	1.6881622	4.279E-06	3.54948E-05	1.4968449	3.794E-06	3.14723E-05	1.8138659	4.598E-06	3.81378E-05
Road 11	11	1000-1100	0.366238412	7.566E-07	6.27638E-06	0.3244228	6.702E-07	5.55977E-06	1.711078	3.535E-06	2.93234E-05	1.5111679	3.122E-06	2.58975E-05	1.8355907	3.792E-06	3.14573E-05
Road 11	11	1100-1200	0.32346541	7.525E-07	6.2421E-06	0.2848548	6.627E-07	5.49701E-06	1.6613146	3.865E-06	3.20594E-05	1.4639444	3.406E-06	2.82506E-05	1.7487992	4.068E-06	3.37476E-05
Road 11	11	1200-1300	0.393419529	1.113E-06	9.2351E-06	0.3504365	9.917E-07	8.22612E-06	1.9120814	5.411E-06	4.48841E-05	1.7005645	4.812E-06	3.99189E-05	2.051001	5.804E-06	4.8145E-05
Road 11	11	1300-1400	0.408959123	8.52E-07	7.06739E-06	0.3653588	7.612E-07	6.31392E-06	1.8482059	3.85E-06	3.19396E-05	1.6430099	3.423E-06	2.83935E-05	2.0083687	4.184E-06	3.47075E-05
Road 11	11	1400-1500	0.321239193	6.469E-07	5.36642E-06	0.2901075	5.842E-07	4.84635E-06	1.6108	3.244E-06	2.6909E-05	1.4462134	2.913E-06	2.41595E-05	1.7363209	3.497E-06	2.90059E-05
Road 11	11	1500-1600	0.287106677	5.832E-07	4.83757E-06	0.2586113	5.253E-07	4.35744E-06	1.4919379	3.03E-06	2.51382E-05	1.3397086	2.721E-06	2.25733E-05	1.5983199	3.247E-06	2.69307E-05
Road 11	11	1600-1700	0.274080485	6.614E-07	5.48645E-06	0.2472483	5.967E-07	4.94933E-06	1.4706998	3.549E-06	2.94399E-05	1.3235147	3.194E-06	2.64936E-05	1.5707631	3.791E-06	3.1443E-05
Road 11	11	1700-1800	0.272422446	6.716E-07	5.57095E-06	0.2482002	6.119E-07	5.07561E-06	1.4894172	3.672E-06	3.04581E-05	1.3557174	3.342E-06	2.7724E-05	1.6039176	3.954E-06	3.27996E-05
Road 11	11	1800-1900	0.292341376	5.989E-07	4.96787E-06	0.2674855	5.48E-07	4.54549E-06	1.5658226	3.208E-06	2.66086E-05	1.4319223	2.933E-06	2.43332E-05	1.6994078	3.481E-06	2.88787E-05
Road 11	11	1900-2000	0.280003868	4.424E-07	3.66947E-06	0.2545127	4.021E-07	3.33541E-06	1.4653602	2.315E-06	1.92037E-05	1.3260883	2.095E-06	1.73785E-05	1.580601	2.497E-06	2.07139E-05
Road 11	11	2000-2100	0.287487019	4.043E-07	3.35352E-06	0.2605705	3.664E-07	3.03954E-06	1.4400601	2.025E-06	1.67982E-05	1.3023071	1.831E-06	1.51914E-05	1.5628776	2.198E-06	1.82309E-05
Road 11	11	2100-2200	0.207659715	2.055E-07	1.70461E-06	0.1907416	1.888E-07	1.56574E-06	1.1648637	1.153E-06	9.56199E-06	1.0690082	1.058E-06	8.77514E-06	1.2597498	1.247E-06	1.03409E-05
Road 11	11	2200-2300	0.268237199	2.934E-07	2.43365E-06	0.2458894	2.689E-07	2.23089E-06	1.3601329	1.488E-06	1.23401E-05	1.2434392	1.36E-06	1.12814E-05	1.4893286	1.629E-06	1.35123E-05
Road 11	11	2300-0000	0.255488653	2.661E-07	2.2076E-06	0.234644	2.444E-07	2.02749E-06	1.3178531	1.373E-06	1.13872E-05	1.2068799	1.257E-06	1.04283E-05	1.441524	1.502E-06	1.24558E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.40616	2.643E-06	3.97544E-06	1.22463	2.302E-06	3.46223E-06	6.46173	1.215E-05	1.82683E-05	5.62775	1.058E-05	1.59106E-05	6.85238	1.288E-05	1.93728E-05
Haul Road 1	HR1	0800-0900	1.40916	2.649E-06	3.98392E-06	1.22563	2.304E-06	3.46505E-06	6.47542	1.217E-05	1.83071E-05	5.63204	1.059E-05	1.59227E-05	6.85767	1.289E-05	1.93877E-05
Haul Road 1	HR1	0900-1000	1.39327	2.619E-06	3.939E-06	1.22373	2.3E-06	3.45968E-06	6.40255	1.203E-05	1.8101E-05	5.62365	1.057E-05	1.5899E-05	6.84738	1.287E-05	1.93586E-05
Haul Road 1	HR1	1000-1100	1.38827	2.61E-06	3.92486E-06	1.21843	2.29E-06	3.4447E-06	6.37936	1.199E-05	1.80355E-05	5.59916	1.052E-05	1.58297E-05	6.81759	1.282E-05	1.92744E-05
Haul Road 1	HR1	1100-1200	1.39327	2.619E-06	3.939E-06	1.22313	2.299E-06	3.45798E-06	6.40255	1.203E-05	1.8101E-05	5.62065	1.057E-05	1.58905E-05	6.84378	1.286E-05	1.93485E-05
Haul Road 1	HR1	1200-1300	1.39327	2.619E-06	3.939E-06	1.22773	2.308E-06	3.47099E-06	6.40255	1.203E-05	1.8101E-05	5.64214	1.061E-05	1.59512E-05	6.86987	1.291E-05	1.94222E-05
Haul Road 1	HR1	1300-1400	1.39187	2.616E-06	3.93504E-06	1.22773	2.308E-06	3.47099E-06	6.39625	1.202E-05	1.80832E-05	5.64214	1.061E-05	1.59512E-05	6.86987	1.291E-05	1.94222E-05
Haul Road 1	HR1	1400-1500	1.38237	2.598E-06	3.90818E-06	1.23243	2.317E-06	3.48428E-06	6.35237	1.194E-05	1.79592E-05	5.66363	1.065E-05	1.6012E-05	6.89606	1.296E-05	1.94963E-05
Haul Road 1	HR1	1500-1600	1.37277	2.58E-06	3.88104E-06	1.22773	2.308E-06	3.47099E-06	6.30849	1.186E-05	1.78351E-05	5.64214	1.061E-05	1.59512E-05	6.86987	1.291E-05	1.94222E-05
Haul Road 1	HR1	1600-1700	1.36958	2.574E-06	3.87202E-06	1.21843	2.29E-06	3.4447E-06	6.29389	1.183E-05	1.77938E-05	5.59916	1.052E-05	1.58297E-05	6.81759	1.282E-05	1.92744E-05
Haul Road 1	HR1	1700-1800	1.35688	2.551E-06	3.83612E-06	1.22373	2.3E-06	3.45968E-06	6.23531	1.172E-05	1.76282E-05	5.62365	1.057E-05	1.5899E-05	6.84738	1.287E-05	1.93586E-05
Haul Road 1	HR1	1800-1900	1.34948	2.537E-06	3.8152E-06	1.22563	2.304E-06	3.46505E-06	6.20163	1.166E-05	1.7533E-05	5.63204	1.059E-05	1.59227E-05	6.85767	1.289E-05	1.93877E-05
Haul Road 1	HR1	1900-2000	1.34658	2.531E-06	3.807E-06	1.21324	2.281E-06	3.43002E-06	6.18784	1.163E-05	1.7494E-05	5.57526	1.048E-05	1.57622E-05	6.7885	1.276E-05	1.91922E-05
Haul Road 1	HR1	2000-2100	1.33459	2.509E-06	3.7731E-06	1.20494	2.265E-06	3.40656E-06	6.13315	1.153E-05	1.73394E-05	5.53748	1.041E-05	1.56553E-05	6.74242	1.267E-05	1.90619E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.40616	1.821E-06	4.84852E-06	1.22463	1.586E-06	4.2226E-06	6.46173	8.37E-06	2.22804E-05	5.62775	7.29E-06	1.94048E-05	6.85238	8.876E-06	2.36274E-05
Haul Road 2	HR2	0800-0900	1.40916	1.825E-06	4.85887E-06	1.22563	1.588E-06	4.22605E-06	6.47542	8.388E-06	2.23276E-05	5.63204	7.295E-06	1.94196E-05	6.85767	8.883E-06	2.36457E-05
Haul Road 2	HR2	0900-1000	1.39327	1.805E-06	4.80408E-06	1.22373	1.585E-06	4.21949E-06	6.40255	8.293E-06	2.20764E-05	5.62365	7.285E-06	1.93907E-05	6.84738	8.87E-06	2.36102E-05
Haul Road 2	HR2	1000-1100	1.38827	1.798E-06	4.78684E-06	1.21843	1.578E-06	4.20122E-06	6.37936	8.263E-06	2.19964E-05	5.59916	7.253E-06	1.93062E-05	6.81759	8.831E-06	2.35075E-05
Haul Road 2	HR2	1100-1200	1.39327	1.805E-06	4.80408E-06	1.22313	1.584E-06	4.21743E-06	6.40255	8.293E-06	2.20764E-05	5.62065	7.281E-06	1.93803E-05	6.84378	8.865E-06	2.35978E-05
Haul Road 2	HR2	1200-1300	1.39327	1.805E-06	4.80408E-06	1.22773	1.59E-06	4.23329E-06	6.40255	8.293E-06	2.20764E-05	5.64214	7.308E-06	1.94544E-05	6.86987	8.899E-06	2.36877E-05
Haul Road 2	HR2	1300-1400	1.39187	1.803E-06	4.79925E-06	1.22773	1.59E-06	4.23329E-06	6.39625	8.285E-06	2.20547E-05	5.64214	7.308E-06	1.94544E-05	6.86987	8.899E-06	2.36877E-05
Haul Road 2	HR2	1400-1500	1.38237	1.791E-06	4.7665E-06	1.23243	1.596E-06	4.24949E-06	6.35237	8.228E-06	2.19034E-05	5.66363	7.336E-06	1.95285E-05	6.89606	8.933E-06	2.3778E-05
Haul Road 2	HR2	1500-1600	1.37277	1.778E-06	4.73339E-06	1.22773	1.59E-06	4.23329E-06	6.30849	8.172E-06	2.17521E-05	5.64214	7.308E-06	1.94544E-05	6.86987	8.899E-06	2.36877E-05
Haul Road 2	HR2	1600-1700	1.36958	1.774E-06	4.72239E-06	1.21843	1.578E-06	4.20122E-06	6.29389	8.153E-06	2.17017E-05	5.59916	7.253E-06	1.93062E-05	6.81759	8.831E-06	2.35075E-05
Haul Road 2	HR2	1700-1800	1.35688	1.758E-06	4.6786E-06	1.22373	1.585E-06	4.21949E-06	6.23531	8.077E-06	2.14997E-05	5.62365	7.285E-06	1.93907E-05	6.84738	8.87E-06	2.36102E-05
Haul Road 2	HR2	1800-1900	1.34948	1.748E-06	4.65309E-06	1.22563	1.588E-06	4.22605E-06	6.20163	8.033E-06	2.13836E-05	5.63204	7.295E-06	1.94196E-05	6.85767	8.883E-06	2.36457E-05
Haul Road 2	HR2	1900-2000	1.34658	1.744E-06	4.64309E-06	1.21324	1.572E-06	4.18332E-06	6.18784	8.015E-06	2.1336E-05	5.57526	7.222E-06	1.92238E-05	6.7885	8.793E-06	2.34072E-05
Haul Road 2	HR2	2000-2100	1.33459	1.729E-06	4.60175E-06	1.20494	1.561E-06	4.15471E-06	6.13315	7.944E-06	2.11475E-05	5.53748	7.173E-06	1.90936E-05	6.74242	8.734E-06	2.32483E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (March) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.40616	1.821E-06	4.84176E-06	1.22463	1.586E-06	4.21671E-06	6.46173	8.37E-06	2.22494E-05	5.62775	7.29E-06	1.93778E-05	6.85238	8.876E-06	2.35945E-05
Haul Road 3	HR3	0800-0900	1.40916	1.825E-06	4.85209E-06	1.22563	1.588E-06	4.22015E-06	6.47542	8.388E-06	2.22965E-05	5.63204	7.295E-06	1.93925E-05	6.85767	8.883E-06	2.36127E-05
Haul Road 3	HR3	0900-1000	1.39327	1.805E-06	4.79738E-06	1.22373	1.585E-06	4.21361E-06	6.40255	8.293E-06	2.20456E-05	5.62365	7.285E-06	1.93636E-05	6.84738	8.87E-06	2.35773E-05
Haul Road 3	HR3	1000-1100	1.38827	1.798E-06	4.78016E-06	1.21843	1.578E-06	4.19536E-06	6.37936	8.263E-06	2.19657E-05	5.59916	7.253E-06	1.92793E-05	6.81759	8.831E-06	2.34747E-05
Haul Road 3	HR3	1100-1200	1.39327	1.805E-06	4.79738E-06	1.22313	1.584E-06	4.21155E-06	6.40255	8.293E-06	2.20456E-05	5.62065	7.281E-06	1.93533E-05	6.84378	8.865E-06	2.35649E-05
Haul Road 3	HR3	1200-1300	1.39327	1.805E-06	4.79738E-06	1.22773	1.59E-06	4.22738E-06	6.40255	8.293E-06	2.20456E-05	5.64214	7.308E-06	1.94273E-05	6.86987	8.899E-06	2.36547E-05
Haul Road 3	HR3	1300-1400	1.39187	1.803E-06	4.79256E-06	1.22773	1.59E-06	4.22738E-06	6.39625	8.285E-06	2.20239E-05	5.64214	7.308E-06	1.94273E-05	6.86987	8.899E-06	2.36547E-05
Haul Road 3	HR3	1400-1500	1.38237	1.791E-06	4.75985E-06	1.23243	1.596E-06	4.24357E-06	6.35237	8.228E-06	2.18728E-05	5.66363	7.336E-06	1.95013E-05	6.89606	8.933E-06	2.37449E-05
Haul Road 3	HR3	1500-1600	1.37277	1.778E-06	4.72679E-06	1.22773	1.59E-06	4.22738E-06	6.30849	8.172E-06	2.17217E-05	5.64214	7.308E-06	1.94273E-05	6.86987	8.899E-06	2.36547E-05
Haul Road 3	HR3	1600-1700	1.36958	1.774E-06	4.71581E-06	1.21843	1.578E-06	4.19536E-06	6.29389	8.153E-06	2.16715E-05	5.59916	7.253E-06	1.92793E-05	6.81759	8.831E-06	2.34747E-05
Haul Road 3	HR3	1700-1800	1.35688	1.758E-06	4.67208E-06	1.22373	1.585E-06	4.21361E-06	6.23531	8.077E-06	2.14697E-05	5.62365	7.285E-06	1.93636E-05	6.84738	8.87E-06	2.35773E-05
Haul Road 3	HR3	1800-1900	1.34948	1.748E-06	4.6466E-06	1.22563	1.588E-06	4.22015E-06	6.20163	8.033E-06	2.13538E-05	5.63204	7.295E-06	1.93925E-05	6.85767	8.883E-06	2.36127E-05
Haul Road 3	HR3	1900-2000	1.34658	1.744E-06	4.63662E-06	1.21324	1.572E-06	4.17749E-06	6.18784	8.015E-06	2.13063E-05	5.57526	7.222E-06	1.9197E-05	6.7885	8.793E-06	2.33745E-05
Haul Road 3	HR3	2000-2100	1.33459	1.729E-06	4.59533E-06	1.20494	1.561E-06	4.14891E-06	6.13315	7.944E-06	2.1118E-05	5.53748	7.173E-06	1.90669E-05	6.74242	8.734E-06	2.32159E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.096412203	3.203E-07	2.60559E-06	0.0856837	2.846E-07	2.31565E-06	0.5667697	1.883E-06	1.53173E-05	0.5015575	1.666E-06	1.35549E-05	0.5872412	1.951E-06	1.58705E-05
Road 1	1	0100-0200	0.074337778	1.507E-07	1.22584E-06	0.066268	1.343E-07	1.09277E-06	0.4471653	9.064E-07	7.37383E-06	0.3968397	8.044E-07	6.54395E-06	0.4631077	9.387E-07	7.63672E-06
Road 1	1	0200-0300	0.07070039	1.022E-07	8.31216E-07	0.0629008	9.09E-08	7.39517E-07	0.4477732	6.471E-07	5.26441E-06	0.3953365	5.713E-07	4.64792E-06	0.4582373	6.622E-07	5.38744E-06
Road 1	1	0300-0400	0.060108182	6.205E-08	5.04775E-07	0.0534247	5.515E-08	4.48649E-07	0.3631473	3.749E-07	3.04963E-06	0.3204253	3.308E-07	2.69086E-06	0.37385	3.859E-07	3.13951E-06
Road 1	1	0400-0500	0.078493882	1.252E-07	1.01872E-06	0.0713388	1.138E-07	9.25862E-07	0.4458109	7.112E-07	5.7859E-06	0.4035022	6.437E-07	5.2368E-06	0.4748411	7.575E-07	6.16266E-06
Road 1	1	0500-0600	0.063447005	2.227E-07	1.81157E-06	0.0572259	2.008E-07	1.63394E-06	0.3714979	1.304E-06	1.06072E-05	0.3329637	1.169E-06	9.50692E-06	0.3901896	1.369E-06	1.11409E-05
Road 1	1	0600-0700	0.086506355	5.39E-07	4.38518E-06	0.0766055	4.773E-07	3.88329E-06	0.4618068	2.878E-06	2.34099E-05	0.4068811	2.535E-06	2.06256E-05	0.4834867	3.013E-06	2.45089E-05
Road 1	1	0700-0800	0.073984919	7.762E-07	6.31475E-06	0.0647607	6.795E-07	5.52745E-06	0.4060538	4.26E-06	3.46575E-05	0.3526717	3.7E-06	3.01012E-05	0.4174325	4.38E-06	3.56286E-05
Road 1	1	0800-0900	0.07986565	1.027E-06	8.35318E-06	0.0696587	8.956E-07	7.28563E-06	0.4236368	5.447E-06	4.43083E-05	0.3677516	4.728E-06	3.84633E-05	0.4374103	5.624E-06	4.57489E-05
Road 1	1	0900-1000	0.084843437	1.126E-06	9.15881E-06	0.0740799	9.83E-07	7.99689E-06	0.4743275	6.294E-06	5.12034E-05	0.4123384	5.472E-06	4.45117E-05	0.4864183	6.455E-06	5.25086E-05
Road 1	1	1000-1100	0.098226215	1.267E-06	1.03035E-05	0.0853305	1.1E-06	8.95081E-06	0.5271583	6.797E-06	5.52967E-05	0.4562816	5.883E-06	4.7862E-05	0.5416121	6.984E-06	5.68128E-05
Road 1	1	1100-1200	0.088682999	1.11E-06	9.03166E-06	0.0780097	9.766E-07	7.94467E-06	0.5085358	6.366E-06	5.17903E-05	0.445593	5.578E-06	4.53801E-05	0.5236027	6.555E-06	5.33248E-05
Road 1	1	1200-1300	0.090662621	1.123E-06	9.13637E-06	0.0800372	9.915E-07	8.06561E-06	0.5161741	6.394E-06	5.20165E-05	0.4542353	5.627E-06	4.57748E-05	0.5342725	6.618E-06	5.38404E-05
Road 1	1	1300-1400	0.095720028	1.261E-06	1.02599E-05	0.0837163	1.103E-06	8.97322E-06	0.5332154	7.025E-06	5.71533E-05	0.4646832	6.123E-06	4.98076E-05	0.5483995	7.226E-06	5.87808E-05
Road 1	1	1400-1500	0.091991124	1.321E-06	1.07451E-05	0.0790502	1.135E-06	9.23349E-06	0.5003379	7.184E-06	5.84421E-05	0.4283009	6.15E-06	5.00278E-05	0.5073511	7.285E-06	5.92613E-05
Road 1	1	1500-1600	0.098755501	1.314E-06	1.06908E-05	0.0859888	1.144E-06	9.30871E-06	0.5354669	7.125E-06	5.79669E-05	0.4642237	6.177E-06	5.02545E-05	0.5502125	7.322E-06	5.95632E-05
Road 1	1	1600-1700	0.092771096	1.302E-06	1.05954E-05	0.0812029	1.14E-06	9.27415E-06	0.5076841	7.127E-06	5.79824E-05	0.4425529	6.213E-06	5.05438E-05	0.5237557	7.353E-06	5.9818E-05
Road 1	1	1700-1800	0.075740427	1.066E-06	8.67342E-06	0.0650725	9.16E-07	7.45178E-06	0.4230061	5.954E-06	4.84406E-05	0.3610405	5.082E-06	4.13446E-05	0.426113	5.998E-06	4.87963E-05
Road 1	1	1800-1900	0.066938034	9.649E-07	7.84938E-06	0.0585005	8.432E-07	6.85996E-06	0.396999	5.723E-06	4.65535E-05	0.3441489	4.961E-06	4.03561E-05	0.4026493	5.804E-06	4.7216E-05
Road 1	1	1900-2000	0.078727389	8.659E-07	7.04409E-06	0.0693999	7.633E-07	6.20952E-06	0.4492039	4.941E-06	4.01923E-05	0.3935049	4.328E-06	3.52086E-05	0.4629048	5.091E-06	4.14181E-05
Road 1	1	2000-2100	0.071295181	6.637E-07	5.39937E-06	0.062315	5.801E-07	4.71928E-06	0.4178449	3.89E-06	3.16445E-05	0.362744	3.377E-06	2.74715E-05	0.425059	3.957E-06	3.21908E-05
Road 1	1	2100-2200	0.074470066	6.332E-07	5.15088E-06	0.0654922	5.568E-07	4.5299E-06	0.4388031	3.731E-06	3.03507E-05	0.38353	3.261E-06	2.65277E-05	0.4490222	3.818E-06	3.10576E-05
Road 1	1	2200-2300	0.072228863	5.843E-07	4.75324E-06	0.0650362	5.261E-07	4.2799E-06	0.4238759	3.429E-06	2.78944E-05	0.3793804	3.069E-06	2.49663E-05	0.4444166	3.595E-06	2.92462E-05
Road 1	1	2300-0000	0.064415714	4.655E-07	3.78664E-06	0.0567486	4.101E-07	3.33593E-06	0.3923347	2.835E-06	2.30632E-05	0.3425603	2.475E-06	2.01372E-05	0.3993089	2.885E-06	2.34731E-05
Road 2	2	0000-0100	0.161705686	1.909E-07	1.23283E-06	0.1436973	1.696E-07	1.09554E-06	0.6854376	8.092E-07	5.22572E-06	0.6071459	7.168E-07	4.62883E-06	0.7508431	8.864E-07	5.72436E-06
Road 2	2	0100-0200	0.114380303	8.737E-08	5.64252E-07	0.1019173	7.785E-08	5.0277E-07	0.5659194	4.323E-07	2.79175E-06	0.5023567	3.837E-07	2.47819E-06	0.6042739	4.616E-07	2.98096E-06
Road 2	2	0200-0300	0.113834348	6.061E-08	3.91389E-07	0.1013648	5.397E-08	3.48516E-07	0.618693	3.294E-07	2.12721E-06	0.5480965	2.918E-07	1.88448E-06	0.6494613	3.458E-07	2.233E-06
Road 2	2	0300-0400	0.099734	3.463E-08	2.23636E-07	0.08861	3.077E-08	1.98693E-07	0.3615467	1.255E-07	8.10706E-07	0.319408	1.109E-07	7.16217E-07	0.408018	1.417E-07	9.1491E-07
Road 2	2	0400-0500	0.134534444	8.408E-08	5.43006E-07	0.1222515	7.641E-08	4.9343E-07	0.650023	4.063E-07	2.62362E-06	0.5892685	3.683E-07	2.3784E-06	0.71152	4.447E-07	2.87183E-06
Road 2	2	0500-0600	0.10739	1.417E-07	9.15053E-07	0.0968789	1.278E-07	8.2549E-07	0.4728698	6.239E-07	4.02925E-06	0.4245928	5.602E-07	3.61789E-06	0.5214718	6.881E-07	4.44338E-06
Road 2	2	0600-0700	0.153592427	3.662E-07	2.36491E-06	0.1360057	3.243E-07	2.09412E-06	0.6221415	1.483E-06	9.57931E-06	0.5488942	1.309E-06	8.4515E-06	0.6848999	1.633E-06	1.05456E-05
Road 2	2	0700-0800	0.124228608	4.544E-07	2.93418E-06	0.1087339	3.977E-07	2.5682E-06	0.5231018	1.913E-06	1.23552E-05	0.4548922	1.664E-06	1.07442E-05	0.563626	2.061E-06	1.33124E-05
Road 2	2	0800-0900	0.141338067	9.815E-07	6.33852E-06	0.1232669	8.56E-07	5.52809E-06	0.5979539	4.152E-06	2.68162E-05	0.5188868	3.603E-06	2.32703E-05	0.6421537	4.459E-06	2.87984E-05
Road 2	2	0900-1000	0.16382561	9.329E-07	6.02455E-06	0.1429505	8.14E-07	5.25689E-06	0.7084074	4.034E-06	2.60511E-05	0.6162726	3.509E-06	2.26629E-05	0.7592232	4.323E-06	2.79198E-05
Road 2	2	1000-1100	0.181475543	7.73E-07	4.99164E-06	0.1576015	6.713E-07	4.33497E-06	0.7786831	3.317E-06	2.14184E-05	0.6746484	2.874E-06	1.85568E-05	0.8322499	3.545E-06	2.28918E-05
Road 2	2	1100-1200	0.219362265	9.191E-07	5.93538E-06	0.1928309	8.079E-07	5.21751E-06	0.8993038	3.768E-06	2.43328E-05	0.7896074	3.308E-06	2.13647E-05	0.9824383	4.116E-06	2.65822E-05
Road 2	2	1200-1300	0.166089309	7.228E-07	4.66775E-06	0.1466263	6.381E-07	4.12076E-06	0.7309791	3.181E-06	2.05433E-05	0.6435976	2.801E-06	1.80876E-05	0.7902239	3.439E-06	2.22083E-05
Road 2	2	1300-1400	0.185640591	9.454E-07	6.10525E-06	0.1621856	8.259E-07	5.33387E-06	0.767023	3.906E-06	2.52254E-05	0.6682402	3.403E-06	2.19767E-05	0.8304258	4.229E-06	2.73106E-05
Road 2	2	1400-1500	0.162647423	6.137E-07	3.96317E-06	0.1397552	5.273E-07	3.40536E-06	0.7035073	2.654E-06	1.71421E-05	0.6029705	2.275E-06	1.46924E-05	0.7427256	2.802E-06	1.80977E-05
Road 2	2	1500-1600	0.199904358	8.283E-07	5.34913E-06	0.1738068	7.202E-07	4.6508E-06	0.8030807	3.328E-06	2.14892E-05	0.6969286	2.888E-06	1.86487E-05	0.8707354	3.608E-06	2.32995E-05
Road 2	2	1600-1700	0.167991918	8.516E-07	5.49972E-06	0.1470653	7.455E-07	4.81462E-06	0.7102239	3.6E-06	2.32513E-05	0.6198253	3.142E-06	2.02918E-05	0.7668906	3.888E-06	2.51064E-05
Road 2	2	1700-1800	0.129732258	6.517E-07	4.20838E-06	0.1115328	5.602E-07	3.61801E-06	0.5166718	2.595E-06	1.67603E-05	0.4421126	2.221E-06	1.43417E-05	0.5536454	2.781E-06	1.79597E-05
Road 2	2	1800-1900	0.141415242	8.118E-07	5.24271E-06	0.1237363	7.103E-07	4.58729E-06	0.6523189	3.745E-06	2.41835E-05	0.5681253	3.261E-06	2.10622E-05	0.6918616	3.972E-06	2.56495E-05
Road 2	2	1900-2000	0.11886247	4.567E-07	2.94958E-06	0.1047799	4.026E-07	2.60012E-06	0.5455141	2.096E-06	1.3537E-05	0.4782257	1.838E-06	1.18672E-05	0.5830056	2.24E-06	1.44673E-05
Road 2	2	2000-2100	0.116956986	3.953E-07	2.55262E-06	0.1021676	3.453E-07	2.22984E-06	0.491655	1.662E-06	1.07305E-05	0.4264101	1.441E-06	9.30654E-06	0.5285777	1.786E-06	1.15364E-05
Road 2	2	2100-2200	0.089519474	3.15E-07	2.03408E-06	0.0786749	2.768E-07	1.78767E-06	0.4044647	1.423E-06	9.19035E-06	0.3521373	1.239E-06	8.00135E-06	0.4308122	1.516E-06	9.78902E-06
Road 2	2	2200-2300	0.12797768	3.703E-07	2.3914E-06	0.1152192	3.334E-07	2.15299E-06	0.5456427	1.579E-06	1.01959E-05	0.4890041	1.415E-06	9.13756E-06	0.6042233	1.748E-06	1.12906E-05
Road 2	2	2300-0000	0.118064182	3.006E-07	1.94142E-06	0.1039943	2.648E-07	1.71005E-06	0.5310536	1.352E-06	8.7325E-06	0.4646981	1.183E-06	7.64137E-06	0.5686924	1.448E-06	9.35143E-06
Road 3	3	0000-0100	0.100501048	3.691E-07	1.43478E-05	0.0893241	3.281E-07	1.27521E-05	0.5498656	2.02E-06	7.85002E-05	0.4867183	1.788E-06	6.94851E-05	0.5760424	2.116E-06	8.22373E-05
Road 3	3	0100-0200	0.075580851	1.709E-07	6.64369E-06	0.0669099	1.513E-07	5.8815E-06	0.437427	9.893E-07	3.84506E-05	0.3853841	8.716E-07	3.3876E-05	0.452294	1.023E-06	3.97575E-05
Road 3	3	0200-0300	0.07322899	1.163E-07	4.51957E-06	0.0659236	1.047E-07	4.06869E-06	0.4524519	7.185E-07	2.79246E-05	0.4045207	6.423E-07	2.49663E-05	0.4704443	7.47E-07	2.9035E-05
Road 3	3	0300-0400	0.062100435	6.873E-08	2.6713E-06	0.056319	6.233E-08	2.42261E-06	0.3351338	3.709E-07	1.4416E-05	0.3020871	3.343E-07	1.29945E-05	0.3584061	3.967E-07	1.54171E-05
Road 3	3	0400-0500	0.082761351	1.473E-07	5.72703E-06	0.0751347	1.338E-07	5.19927E-06	0.4534965	8.074E-07	3.13816E-05	0.4102271	7.304E-07	2.83874E-05	0.4853618	8.641E-07	3.35867E-05
Road 3	3	0500-0600	0.067718477	2.639E-07	1.02587E-05	0.0602624	2.349E-07	9.12917E-06	0.3719483	1.45E-06	5.63466E-05	0.3285985	1.281E-06	4.97795E-05	0.3888609	1.516E-06	5.89087E-05
Road 3	3	0600-0700	0.091988151	6.462E-07	2.5118E-05	0.0813627	5.716E-07	2.22166E-05	0.4569079	3.21E-06	0.000124762	0.4020391	2.824E-06	0.000109779	0.4834018	3.396E-06	0.000131996
Road 3	3	0700-0800	0.076954763	8.838E-07	3.435E-05	0.0684808	7.865E-07	3.05675E-05	0.3985083	4.577E-06	0.000177881	0.3522197	4.045E-06	0.000157219	0.4207005	4.831E-06	0.000187787
Road 3	3	0800-0900	0.084878948	1.346E-06	5.23329E-05	0.0753085	1.195E-06	4.64322E-05	0.4210875	6.68E-06	0.000259626	0.371928	5.9E-06	0.000229316	0.4472365	7.095E-06	0.000275748
Road 3	3	0900-1000	0.093622138	1.433E-06	5.56808E-05	0.081577	1.248E-06	4.85171E-05	0.4808493	7.358E-06	0.00028598	0.4173101	6.386E-06	0.000248191	0.4988872	7.634E-06	0.000296708
Road 3	3	1000-1100	0.104656529	1.46E-06	5.67629E-05	0.0909769	1.27E-06	4.93434E-05	0.5311841	7.412E-06	0.0002881	0.4603085	6.423E-06	0.000249659	0.5512854	7.693E-06	0.000299002
Road 3	3	1100-1200	0.102200508	1.387E-06	5.39017E-05	0.0899587	1.221E-06	4.74452E-05	0.5319246	7.218E-06	0.000280543	0.466828	6.335E-06	0.00024621	0.5567867	7.555E-06	0.000293655
Road 3	3	1200-1300	0.096962187	1.316E-06	5.11389E-05	0.0844427	1.146E-06	4.4536E-05	0.5162083	7.005E-06	0.000272254	0.4478807	6.077E-06	0.000236217	0.5323234	7.223E-06	0.000280753
Road 3	3	1300-1400	0.103385386	1.524E-06	5.92316E-05	0.0897889	1.324E-06	5.14419E-05	0.529829	7.81E-06	0.00030355	0.4584298	6.757E-06	0.000262644	0.5482187	8.081E-06	0.000314086

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.096199675	1.426E-06	5.54146E-05	0.0839593	1.244E-06	4.83637E-05	0.4988453	7.393E-06	0.000287354	0.4337108	6.428E-06	0.000249834	0.5176701	7.672E-06	0.000298197
Road 3	3	1500-1600	0.10755973	1.535E-06	5.96786E-05	0.0934284	1.334E-06	5.18379E-05	0.5429088	7.75E-06	0.000301228	0.4698208	6.707E-06	0.000260676	0.5632492	8.04E-06	0.000312514
Road 3	3	1600-1700	0.099436904	1.545E-06	6.0069E-05	0.0883907	1.374E-06	5.3396E-05	0.5113125	7.947E-06	0.000308879	0.4527224	7.036E-06	0.000273486	0.5411131	8.41E-06	0.000326882
Road 3	3	1700-1800	0.080557062	1.253E-06	4.8714E-05	0.069101	1.075E-06	4.17864E-05	0.4147109	6.452E-06	0.000250782	0.3534022	5.498E-06	0.000213707	0.4225032	6.573E-06	0.000255494
Road 3	3	1800-1900	0.075654405	1.234E-06	4.7966E-05	0.065846	1.074E-06	4.17473E-05	0.4167045	6.797E-06	0.000264197	0.3599616	5.872E-06	0.000228221	0.4258076	6.946E-06	0.000269968
Road 3	3	1900-2000	0.079322576	9.58E-07	3.72366E-05	0.070001	8.455E-07	3.28608E-05	0.4337504	5.239E-06	0.000203617	0.3804514	4.595E-06	0.000178596	0.4504524	5.44E-06	0.000211457
Road 3	3	2000-2100	0.07395278	7.639E-07	2.96906E-05	0.0648009	6.694E-07	2.60163E-05	0.4009	4.141E-06	0.000160954	0.3489637	3.605E-06	0.000140102	0.4137646	4.274E-06	0.000166118
Road 3	3	2100-2200	0.072188984	7.063E-07	2.74523E-05	0.0647878	6.339E-07	2.46378E-05	0.4044224	3.957E-06	0.000153796	0.3607971	3.53E-06	0.000137206	0.4255849	4.164E-06	0.000161843
Road 3	3	2200-2300	0.077197482	6.884E-07	2.67582E-05	0.0692351	6.174E-07	2.39983E-05	0.4175362	3.724E-06	0.000144726	0.3721514	3.319E-06	0.000128995	0.4413865	3.936E-06	0.000152993
Road 3	3	2300-0000	0.069552751	5.556E-07	2.15935E-05	0.0610256	4.875E-07	1.89461E-05	0.3912439	3.125E-06	0.000121466	0.3402614	2.718E-06	0.000105638	0.401287	3.205E-06	0.000124584
Road 4	4	0000-0100	0.256873143	2.081E-07	2.22841E-06	0.2280949	1.848E-07	1.97875E-06	1.3083383	1.06E-06	1.135E-05	1.1615371	9.411E-07	1.00765E-05	1.389632	1.126E-06	1.20552E-05
Road 4	4	0100-0200	0.243043	1.125E-07	1.20482E-06	0.2149875	9.953E-08	1.06574E-06	1.2404655	5.743E-07	6.14925E-06	1.097088	5.079E-07	5.4385E-06	1.3120755	6.074E-07	6.50424E-06
Road 4	4	0200-0300	0.262831538	7.909E-08	8.46893E-07	0.2367477	7.124E-08	7.62846E-07	1.2973708	3.904E-07	4.18037E-06	1.1683462	3.516E-07	3.76463E-06	1.4050938	4.228E-07	4.52748E-06
Road 4	4	0300-0400	0.235625714	3.818E-08	4.08816E-07	0.2138457	3.465E-08	3.71027E-07	1.2507843	2.027E-07	2.17014E-06	1.1349814	1.839E-07	1.96922E-06	1.3488271	2.186E-07	2.34025E-06
Road 4	4	0400-0500	0.241347143	7.821E-08	8.37486E-07	0.2190171	7.098E-08	7.6E-07	1.1917607	3.862E-07	4.13547E-06	1.0814421	3.505E-07	3.75266E-06	1.3004593	4.214E-07	4.51266E-06
Road 4	4	0500-0600	0.226200833	1.257E-07	1.34559E-06	0.2012979	1.118E-07	1.19745E-06	1.0715504	5.953E-07	6.37428E-06	0.9530629	5.295E-07	5.66944E-06	1.1543608	6.413E-07	6.86689E-06
Road 4	4	0600-0700	0.248847692	2.995E-07	3.20734E-06	0.2200581	2.649E-07	2.83627E-06	1.187515	1.429E-06	1.53056E-05	1.049499	1.263E-06	1.35267E-05	1.2695571	1.528E-06	1.6363E-05
Road 4	4	0700-0800	0.254193478	5.413E-07	5.79642E-06	0.2262484	4.818E-07	5.15918E-06	1.2647577	2.693E-06	2.88405E-05	1.124789	2.395E-06	2.56488E-05	1.3510374	2.877E-06	3.08079E-05
Road 4	4	0800-0900	0.25920634	9.18E-07	9.8298E-06	0.2299176	8.143E-07	8.71909E-06	1.2927809	4.579E-06	4.90257E-05	1.1462212	4.06E-06	4.34678E-05	1.3761389	4.874E-06	5.21869E-05
Road 4	4	0900-1000	0.271540743	9.303E-07	9.96103E-06	0.2360708	8.088E-07	8.65987E-06	1.279458	4.383E-06	4.69348E-05	1.1116878	3.809E-06	4.07805E-05	1.3477586	4.617E-06	4.94403E-05
Road 4	4	1000-1100	0.300478182	9.946E-07	1.06502E-05	0.2609642	8.638E-07	9.24963E-06	1.4190049	4.697E-06	5.02953E-05	1.2318002	4.077E-06	4.366E-05	1.4927644	4.941E-06	5.29096E-05
Road 4	4	1100-1200	0.277919419	9.972E-07	1.06772E-05	0.244375	8.768E-07	9.38849E-06	1.3035605	4.677E-06	5.00807E-05	1.1460293	4.112E-06	4.40286E-05	1.3904043	4.989E-06	5.34171E-05
Road 4	4	1200-1300	0.285706531	9.722E-07	1.04099E-05	0.2485437	8.457E-07	9.05582E-06	1.4018961	4.77E-06	5.10788E-05	1.2191984	4.149E-06	4.44221E-05	1.467742	4.994E-06	5.34779E-05
Road 4	4	1300-1400	0.294339195	1.015E-06	1.08703E-05	0.2553223	8.806E-07	9.42937E-06	1.4104815	4.865E-06	5.20908E-05	1.2230742	4.218E-06	4.51696E-05	1.4783964	5.099E-06	5.4599E-05
Road 4	4	1400-1500	0.269586087	8.612E-07	9.22113E-06	0.2349804	7.506E-07	8.03745E-06	1.3356843	4.267E-06	4.56868E-05	1.1636294	3.717E-06	3.98017E-05	1.3986099	4.468E-06	4.78391E-05
Road 4	4	1500-1600	0.302139113	8.673E-07	9.28616E-06	0.2620748	7.523E-07	8.05479E-06	1.4462765	4.151E-06	4.44509E-05	1.2541607	3.6E-06	3.85463E-05	1.5162355	4.352E-06	4.66011E-05
Road 4	4	1600-1700	0.278415565	7.992E-07	8.55702E-06	0.2472404	7.097E-07	7.59886E-06	1.347816	3.869E-06	4.14247E-05	1.1963643	3.434E-06	3.67699E-05	1.4436047	4.144E-06	4.43688E-05
Road 4	4	1700-1800	0.270463095	7.889E-07	8.44668E-06	0.2319799	6.766E-07	7.24483E-06	1.3311183	3.882E-06	4.15714E-05	1.1408311	3.327E-06	3.56287E-05	1.372811	4.004E-06	4.28735E-05
Road 4	4	1800-1900	0.296619906	7.278E-07	7.79316E-06	0.25829	6.338E-07	6.78611E-06	1.4800388	3.632E-06	3.88854E-05	1.2885592	3.162E-06	3.38546E-05	1.5468492	3.796E-06	4.06407E-05
Road 4	4	1900-2000	0.263016081	4.505E-07	4.82416E-06	0.2322524	3.978E-07	4.2599E-06	1.3060518	2.237E-06	2.39552E-05	1.1526716	1.974E-06	2.11419E-05	1.3849241	2.372E-06	2.54018E-05
Road 4	4	2000-2100	0.230882245	2.619E-07	2.8041E-06	0.2023135	2.295E-07	2.45713E-06	1.1526147	1.307E-06	1.39987E-05	1.0086447	1.144E-06	1.22502E-05	1.2109582	1.374E-06	1.47073E-05
Road 4	4	2100-2200	0.191024054	1.636E-07	1.75185E-06	0.1716154	1.47E-07	1.57386E-06	0.9704249	8.312E-07	8.89961E-06	0.8708254	7.458E-07	7.9862E-06	1.0424408	8.928E-07	9.56006E-06
Road 4	4	2200-2300	0.254818095	3.716E-07	3.97904E-06	0.2285171	3.333E-07	3.56835E-06	1.2493429	1.822E-06	1.95088E-05	1.1200194	1.633E-06	1.74893E-05	1.3485365	1.967E-06	2.10577E-05
Road 4	4	2300-0000	0.24126375	2.681E-07	2.87039E-06	0.2116546	2.352E-07	2.51812E-06	1.2143483	1.349E-06	1.44475E-05	1.064739	1.183E-06	1.26675E-05	1.2763935	1.418E-06	1.51856E-05
Road 5	5	0000-0100	0.085780311	3.107E-07	4.20204E-06	0.0762612	2.762E-07	3.73573E-06	0.4708572	1.706E-06	2.30654E-05	0.4162835	1.508E-06	2.03921E-05	0.4925447	1.784E-06	2.41278E-05
Road 5	5	0100-0200	0.058181074	1.321E-07	1.78682E-06	0.0515218	1.17E-07	1.58231E-06	0.3491711	7.93E-07	1.07235E-05	0.3070837	6.974E-07	9.43098E-06	0.3586055	8.144E-07	1.10133E-05
Road 5	5	0200-0300	0.054637558	8.819E-08	1.19263E-06	0.0491726	7.937E-08	1.07334E-06	0.3669963	5.924E-07	8.01078E-06	0.3271121	5.28E-07	7.14019E-06	0.3762847	6.074E-07	8.21353E-06
Road 5	5	0300-0400	0.049510161	5.761E-08	7.79114E-07	0.0448855	5.223E-08	7.06338E-07	0.2623131	3.052E-07	4.12787E-06	0.2357871	2.744E-07	3.71045E-06	0.2806726	3.266E-07	4.41679E-06
Road 5	5	0400-0500	0.068702577	1.251E-07	1.69145E-06	0.0623793	1.136E-07	1.53577E-06	0.383998	6.991E-07	9.454E-06	0.3469743	6.317E-07	8.54248E-06	0.4093536	7.453E-07	1.00783E-05
Road 5	5	0500-0600	0.055882661	2.286E-07	3.09206E-06	0.0497226	2.034E-07	2.75122E-06	0.3170093	1.297E-06	1.75406E-05	0.2794851	1.144E-06	1.54643E-05	0.3292077	1.347E-06	1.82155E-05
Road 5	5	0600-0700	0.080890753	5.845E-07	7.9045E-06	0.0715492	5.17E-07	6.99166E-06	0.3998409	2.889E-06	3.90717E-05	0.351369	2.539E-06	3.43352E-05	0.4229183	3.056E-06	4.13268E-05
Road 5	5	0700-0800	0.063303301	7.414E-07	1.0026E-05	0.0563338	6.598E-07	8.92214E-06	0.3253772	3.811E-06	5.15331E-05	0.2868787	3.36E-06	4.54357E-05	0.3432125	4.02E-06	5.43579E-05
Road 5	5	0800-0900	0.068282309	1.071E-06	1.44887E-05	0.0605907	9.507E-07	1.28566E-05	0.3304193	5.185E-06	7.01111E-05	0.2913169	4.571E-06	6.1814E-05	0.3519076	5.522E-06	7.46706E-05
Road 5	5	0900-1000	0.076324913	1.157E-06	1.56528E-05	0.0665548	1.009E-06	1.36492E-05	0.4005871	6.075E-06	8.21529E-05	0.3474893	5.27E-06	7.12636E-05	0.4140441	6.279E-06	8.49127E-05
Road 5	5	1000-1100	0.085941556	1.171E-06	1.58363E-05	0.0747635	1.019E-06	1.37766E-05	0.4429143	6.035E-06	8.16152E-05	0.3835124	5.226E-06	7.06693E-05	0.4582759	6.245E-06	8.44459E-05
Road 5	5	1100-1200	0.083796928	1.085E-06	1.46755E-05	0.0737899	9.556E-07	1.29229E-05	0.44852	5.809E-06	7.85499E-05	0.3933336	5.094E-06	6.8885E-05	0.4671234	6.049E-06	8.1808E-05
Road 5	5	1200-1300	0.078840258	1.034E-06	1.39875E-05	0.0686957	9.012E-07	1.21877E-05	0.4253897	5.581E-06	7.54708E-05	0.3686764	4.837E-06	6.5409E-05	0.4373721	5.738E-06	7.75967E-05
Road 5	5	1300-1400	0.085310587	1.228E-06	1.66078E-05	0.0741036	1.067E-06	1.44261E-05	0.4431151	6.379E-06	8.62634E-05	0.3830729	5.515E-06	7.45747E-05	0.4571765	6.581E-06	8.90009E-05
Road 5	5	1400-1500	0.081576845	1.203E-06	1.62744E-05	0.071221	1.051E-06	1.42084E-05	0.4235813	6.249E-06	8.45034E-05	0.3680363	5.429E-06	7.34223E-05	0.4392572	6.48E-06	8.76307E-05
Road 5	5	1500-1600	0.091752052	1.317E-06	1.78153E-05	0.0797168	1.145E-06	1.54784E-05	0.465779	6.688E-06	9.04391E-05	0.4027842	5.783E-06	7.82075E-05	0.482501	6.928E-06	9.3686E-05
Road 5	5	1600-1700	0.084912803	1.342E-06	1.81468E-05	0.0754699	1.193E-06	1.61288E-05	0.4405853	6.963E-06	9.41579E-05	0.389807	6.16E-06	8.3306E-05	0.4652769	7.353E-06	9.94348E-05
Road 5	5	1700-1800	0.064232903	1.018E-06	1.37599E-05	0.0550926	8.727E-07	1.18019E-05	0.3319028	5.258E-06	7.10998E-05	0.2821482	4.469E-06	6.04414E-05	0.3372408	5.342E-06	7.22433E-05
Road 5	5	1800-1900	0.059909824	1.023E-06	1.38374E-05	0.0521423	8.906E-07	1.20433E-05	0.3370935	5.757E-06	7.78586E-05	0.2903507	4.959E-06	6.70624E-05	0.342493	5.85E-06	7.91057E-05
Road 5	5	1900-2000	0.067957341	8.635E-07	1.16772E-05	0.0599676	7.62E-07	1.03043E-05	0.3775716	4.798E-06	6.48788E-05	0.3306243	4.201E-06	5.68118E-05	0.390592	4.963E-06	6.71161E-05
Road 5	5	2000-2100	0.065520623	7.305E-07	9.87823E-06	0.057416	6.401E-07	8.65634E-06	0.357671	3.988E-06	5.39244E-05	0.3110117	3.467E-06	4.68898E-05	0.3684277	4.107E-06	5.55461E-05
Road 5	5	2100-2200	0.067708004	7.256E-07	9.81276E-06	0.0607551	6.511E-07	8.80509E-06	0.3816539	4.09E-06	5.53122E-05	0.3402302	3.646E-06	4.93087E-05	0.4009853	4.297E-06	5.81138E-05
Road 5	5	2200-2300	0.065084654	6.01E-07	8.12753E-06	0.0583675	5.39E-07	7.28872E-06	0.35811	3.307E-06	4.47195E-05	0.3186239	2.942E-06	3.97886E-05	0.3769914	3.481E-06	4.70773E-05
Road 5	5	2300-0000	0.058657589	4.932E-07	6.66987E-06	0.0514725	4.328E-07	5.85286E-06	0.3360718	2.826E-06	3.82142E-05	0.2915827	2.452E-06	3.31554E-05	0.3430552	2.885E-06	3.90083E-05
Road 6	6	0000-0100	0.052073446	1.446E-07	5.1706E-06	0.0462114	1.284E-07	4.58852E-06	0.3258626	9.052E-07	3.23563E-05	0.286398	7.955E-07	2.84377E-05	0.3326093	9.239E-07	3.30262E-05
Road 6	6	0100-0200	0.067713363	1.436E-07	5.13352E-06	0.0599412	1.271E-07	4.5443E-06	0.3760441	7.975E-07	2.85089E-05	0.3301993	7.003E-07	2.50332E-05	0.3901405	8.274E-07	2.95775E-05
Road 6	6	0200-0300	0.062208354	9.224E-08	3.29715E-06	0.0560765	8.315E-08	2.97215E-06	0.3466922	5.141E-07	1.83753E-05	0.3100282	4.597E-07	1.6432E-05	0.3661047	5.428E-07	1.94042E-05
Road 6	6	0300-0400	0.062167097	7.234E-08	2.58592E-06	0.0565355	6.579E-08	2.35166E-06	0.3897918	4.536E-07	1.62139E-05	0.3522698	4.099E-07	1.46531E-05	0.4088053	4.757E-07	1.70048E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.067427556	1.139E-07	4.07139E-06	0.0612252	1.034E-07	3.69688E-06	0.3877008	6.549E-07	2.341E-05	0.3497587	5.908E-07	2.1119E-05	0.4109839	6.942E-07	2.48159E-05
Road 6	6	0500-0600	0.061673416	1.864E-07	6.66172E-06	0.0549289	1.66E-07	5.93321E-06	0.3648003	1.102E-06	3.94043E-05	0.3218894	9.727E-07	3.47692E-05	0.3768183	1.139E-06	4.07024E-05
Road 6	6	0600-0700	0.065322927	3.519E-07	1.2578E-05	0.0578047	3.114E-07	1.11303E-05	0.3970959	2.139E-06	7.6461E-05	0.3481612	1.875E-06	6.70386E-05	0.4059659	2.187E-06	7.81689E-05
Road 6	6	0700-0800	0.062681075	5.365E-07	1.91763E-05	0.0558052	4.776E-07	1.70727E-05	0.3483172	2.981E-06	0.000106562	0.3072511	2.63E-06	9.39985E-05	0.3630563	3.107E-06	0.000111071
Road 6	6	0800-0900	0.053316422	6.544E-07	2.33938E-05	0.047271	5.802E-07	2.07413E-05	0.3084888	3.787E-06	0.000135357	0.2705434	3.321E-06	0.000118707	0.3178144	3.901E-06	0.000139449
Road 6	6	0900-1000	0.056666115	6.679E-07	2.38751E-05	0.0493098	5.812E-07	2.07757E-05	0.3134413	3.694E-06	0.000132062	0.2697258	3.179E-06	0.000113644	0.3190356	3.76E-06	0.000134419
Road 6	6	1000-1100	0.075523778	7.541E-07	2.69562E-05	0.0656118	6.551E-07	2.34184E-05	0.4083405	4.077E-06	0.000145746	0.3525243	3.52E-06	0.000125824	0.4181361	4.175E-06	0.000149242
Road 6	6	1100-1200	0.085508807	8.474E-07	3.02906E-05	0.0753397	7.466E-07	2.66883E-05	0.4409407	4.37E-06	0.000156198	0.3866919	3.832E-06	0.000136981	0.4620316	4.579E-06	0.00016367
Road 6	6	1200-1300	0.083636318	8.1E-07	2.89539E-05	0.0729014	7.06E-07	2.52376E-05	0.4110089	3.98E-06	0.000142286	0.3566563	3.454E-06	0.00012347	0.4295577	4.16E-06	0.000148708
Road 6	6	1300-1400	0.097852	9.458E-07	3.38096E-05	0.0850081	8.217E-07	2.93718E-05	0.4897333	4.734E-06	0.000169211	0.4233917	4.092E-06	0.000146289	0.5083997	4.914E-06	0.000175661
Road 6	6	1400-1500	0.093355352	9.952E-07	3.55754E-05	0.0814899	8.687E-07	3.10538E-05	0.4642273	4.949E-06	0.000176906	0.4031994	4.298E-06	0.000153649	0.4846893	5.167E-06	0.000184703
Road 6	6	1500-1600	0.082458126	8.589E-07	3.07036E-05	0.0716115	7.46E-07	2.66648E-05	0.419009	4.365E-06	0.00015602	0.3616663	3.767E-06	0.000134668	0.4332778	4.513E-06	0.000161333
Road 6	6	1600-1700	0.085076725	9.07E-07	3.24206E-05	0.075629	8.063E-07	2.88204E-05	0.4133803	4.407E-06	0.000157529	0.3657214	3.899E-06	0.000139367	0.4413504	4.705E-06	0.000168188
Road 6	6	1700-1800	0.064356344	7.235E-07	2.58631E-05	0.0552402	6.21E-07	2.21996E-05	0.3220103	3.62E-06	0.000129407	0.2739306	3.08E-06	0.000110085	0.3291708	3.701E-06	0.000132285
Road 6	6	1800-1900	0.062955637	8.07E-07	2.88481E-05	0.0547956	7.024E-07	2.5109E-05	0.3251329	4.168E-06	0.000148986	0.2803809	3.594E-06	0.000128479	0.3351765	4.297E-06	0.000153588
Road 6	6	1900-2000	0.073382802	7.176E-07	2.56504E-05	0.0647393	6.331E-07	2.26291E-05	0.3781272	3.698E-06	0.000132172	0.3307614	3.234E-06	0.000115615	0.3955007	3.867E-06	0.000138244
Road 6	6	2000-2100	0.058635854	4.512E-07	1.61291E-05	0.0513389	3.951E-07	1.41219E-05	0.3275931	2.521E-06	9.01117E-05	0.284095	2.186E-06	7.81466E-05	0.3354339	2.581E-06	9.22685E-05
Road 6	6	2100-2200	0.08107514	5.417E-07	1.93642E-05	0.0727554	4.861E-07	1.73771E-05	0.4192503	2.801E-06	0.000100135	0.374018	2.499E-06	8.93316E-05	0.4467735	2.985E-06	0.000106709
Road 6	6	2200-2300	0.060637692	4.291E-07	1.53372E-05	0.0543355	3.845E-07	1.37432E-05	0.3330637	2.357E-06	8.42425E-05	0.2948919	2.087E-06	7.45876E-05	0.3492274	2.471E-06	8.83308E-05
Road 6	6	2300-0000	0.041404689	2.751E-07	9.83366E-06	0.0363379	2.414E-07	8.63029E-06	0.2526263	1.678E-06	5.9999E-05	0.2186331	1.453E-06	5.19256E-05	0.254971	1.694E-06	6.05559E-05
Road 7	7	0000-0100	0.074674946	1.995E-07	4.97987E-06	0.0662852	1.771E-07	4.42039E-06	0.4388195	1.172E-06	2.92637E-05	0.3871979	1.034E-06	2.58212E-05	0.4534831	1.211E-06	3.02416E-05
Road 7	7	0100-0200	0.089916499	1.867E-07	4.66016E-06	0.0797803	1.656E-07	4.13483E-06	0.4921414	1.022E-06	2.55065E-05	0.4345174	9.021E-07	2.252E-05	0.5142977	1.068E-06	2.66549E-05
Road 7	7	0200-0300	0.078123441	1.066E-07	2.66155E-06	0.0701357	9.572E-08	2.38942E-06	0.4383384	5.982E-07	1.49335E-05	0.3913495	5.341E-07	1.33327E-05	0.4614852	6.298E-07	1.57221E-05
Road 7	7	0300-0400	0.078136228	8.622E-08	2.15224E-06	0.0705442	7.784E-08	1.94312E-06	0.4688004	5.173E-07	1.2913E-05	0.4212499	4.648E-07	1.16032E-05	0.491794	5.427E-07	1.35464E-05
Road 7	7	0400-0500	0.086562525	1.395E-07	3.4824E-06	0.0786254	1.267E-07	3.16309E-06	0.4796616	7.73E-07	1.92967E-05	0.4337804	6.991E-07	1.74509E-05	0.5124057	8.258E-07	2.0614E-05
Road 7	7	0500-0600	0.079654057	2.267E-07	5.65835E-06	0.0712839	2.028E-07	5.06376E-06	0.4468705	1.272E-06	3.17441E-05	0.3974317	1.131E-06	2.82322E-05	0.4687156	1.334E-06	3.32959E-05
Road 7	7	0600-0700	0.083198901	4.228E-07	1.05539E-05	0.0736644	3.743E-07	9.34439E-06	0.4757983	2.418E-06	6.03555E-05	0.4184573	2.126E-06	5.30817E-05	0.4921217	2.501E-06	6.24261E-05
Road 7	7	0700-0800	0.081087321	6.593E-07	1.64576E-05	0.071778	5.836E-07	1.45682E-05	0.4373613	3.556E-06	8.87675E-05	0.3845565	3.127E-06	7.80502E-05	0.4563346	3.71E-06	9.26183E-05
Road 7	7	0800-0900	0.080332826	9.867E-07	2.46314E-05	0.0708246	8.699E-07	2.1716E-05	0.4361865	5.358E-06	0.000133742	0.3820983	4.693E-06	0.000117158	0.4529229	5.563E-06	0.000138874
Road 7	7	0900-1000	0.083565828	9.536E-07	2.38055E-05	0.0727403	8.301E-07	2.07216E-05	0.4362585	4.978E-06	0.000124277	0.3773875	4.307E-06	0.000107507	0.4501278	5.137E-06	0.000128228
Road 7	7	1000-1100	0.098349283	9.838E-07	2.45593E-05	0.0854295	8.546E-07	2.1333E-05	0.5169603	5.171E-06	0.000129093	0.4470287	4.472E-06	0.00011163	0.5324582	5.326E-06	0.000132963
Road 7	7	1100-1200	0.107284214	1.069E-06	2.66738E-05	0.0944081	9.403E-07	2.34725E-05	0.5531393	5.509E-06	0.000137526	0.4854012	4.834E-06	0.000120684	0.5798093	5.775E-06	0.000144157
Road 7	7	1200-1300	0.106046989	1.055E-06	2.63278E-05	0.0928304	9.232E-07	2.30466E-05	0.5349214	5.32E-06	0.000132802	0.4669558	4.644E-06	0.000115929	0.5597862	5.567E-06	0.000138976
Road 7	7	1300-1400	0.114301443	1.12E-06	2.79628E-05	0.0995042	9.751E-07	2.43428E-05	0.5748705	5.634E-06	0.000140637	0.4988264	4.889E-06	0.000122033	0.5983306	5.864E-06	0.000146376
Road 7	7	1400-1500	0.107181831	1.102E-06	2.7503E-05	0.0930289	9.563E-07	2.38713E-05	0.5453109	5.605E-06	0.000139927	0.4715579	4.847E-06	0.000121002	0.5645868	5.803E-06	0.000144874
Road 7	7	1500-1600	0.099181591	9.965E-07	2.4875E-05	0.0861593	8.656E-07	2.1609E-05	0.5087156	5.111E-06	0.000127587	0.440006	4.421E-06	0.000110355	0.5261653	5.286E-06	0.000131964
Road 7	7	1600-1700	0.101845154	1.059E-06	2.64289E-05	0.0900029	9.356E-07	2.33558E-05	0.5034642	5.234E-06	0.000130649	0.4434981	4.61E-06	0.000115088	0.533501	5.546E-06	0.000138444
Road 7	7	1700-1800	0.08013695	8.831E-07	2.20445E-05	0.0688037	7.582E-07	1.89269E-05	0.4108731	4.528E-06	0.000113025	0.3505503	3.863E-06	9.64313E-05	0.419354	4.621E-06	0.000115358
Road 7	7	1800-1900	0.073582614	8.418E-07	2.10149E-05	0.064161	7.34E-07	1.83241E-05	0.3854555	4.41E-06	0.000110084	0.3337903	3.819E-06	9.53291E-05	0.3979513	4.553E-06	0.000113653
Road 7	7	1900-2000	0.084281692	7.305E-07	1.82362E-05	0.0743397	6.443E-07	1.6085E-05	0.4425856	3.836E-06	9.57629E-05	0.3878953	3.362E-06	8.39295E-05	0.462235	4.006E-06	0.000100014
Road 7	7	2000-2100	0.077856325	5.516E-07	1.37702E-05	0.068118	4.826E-07	1.20478E-05	0.4186968	2.966E-06	7.40534E-05	0.3638515	2.578E-06	6.43531E-05	0.4319695	3.061E-06	7.64009E-05
Road 7	7	2100-2200	0.088937943	5.294E-07	1.32159E-05	0.0792501	4.717E-07	1.17763E-05	0.4667761	2.779E-06	6.93614E-05	0.4137895	2.463E-06	6.14878E-05	0.4930397	2.935E-06	7.32641E-05
Road 7	7	2200-2300	0.0745831	4.786E-07	1.19478E-05	0.0669481	4.296E-07	1.07247E-05	0.4047866	2.598E-06	6.48446E-05	0.3602432	2.312E-06	5.7709E-05	0.4271913	2.741E-06	6.84337E-05
Road 7	7	2300-0000	0.052498231	3.102E-07	7.74399E-06	0.0461459	2.727E-07	6.80696E-06	0.3098132	1.831E-06	4.57004E-05	0.2695885	1.593E-06	3.97669E-05	0.3157344	1.866E-06	4.65738E-05
Road 8	8	0000-0100	0.225792222	1.642E-07	2.70698E-06	0.2005183	1.458E-07	2.40398E-06	1.1534336	8.389E-07	1.38283E-05	1.0236942	7.445E-07	1.22729E-05	1.2242125	8.903E-07	1.46769E-05
Road 8	8	0100-0200	0.2342	1.419E-07	2.33982E-06	0.2072003	1.256E-07	2.07007E-06	1.1918107	7.223E-07	1.1907E-05	1.0541783	6.389E-07	1.0532E-05	1.2613787	7.645E-07	1.2602E-05
Road 8	8	0200-0300	0.221634667	6.716E-08	1.10714E-06	0.1997347	6.053E-08	9.97743E-07	1.1879767	3.6E-07	5.93435E-06	1.070174	3.243E-07	5.34588E-06	1.2699087	3.848E-07	6.34363E-06
Road 8	8	0300-0400	0.199595714	5.645E-08	9.30579E-07	0.1813214	5.128E-08	8.45378E-07	1.0434457	2.951E-07	4.86488E-06	0.9475843	2.68E-07	4.41794E-06	1.1289057	3.193E-07	5.26332E-06
Road 8	8	0400-0500	0.225330952	9.559E-08	1.57585E-06	0.20454	8.677E-08	1.43045E-06	1.1127681	4.721E-07	7.78212E-06	1.0100138	4.285E-07	7.06351E-06	1.2145538	5.153E-07	8.49395E-06
Road 8	8	0500-0600	0.217667353	1.495E-07	2.4646E-06	0.1937862	1.331E-07	2.1942E-06	1.0549271	7.246E-07	1.19447E-05	0.9386621	6.447E-07	1.06283E-05	1.1324482	7.778E-07	1.28225E-05
Road 8	8	0600-0700	0.241036774	3.019E-07	4.97678E-06	0.2132756	2.671E-07	4.40359E-06	1.154325	1.446E-06	2.38338E-05	1.0206805	1.278E-06	2.10744E-05	1.2339561	1.546E-06	2.5478E-05
Road 8	8	0700-0800	0.245398218	5.007E-07	8.25404E-06	0.2184664	4.458E-07	7.34818E-06	1.1883604	2.425E-06	3.99709E-05	1.0573876	2.157E-06	3.55655E-05	1.2758541	2.603E-06	4.29137E-05
Road 8	8	0800-0900	0.269965053	1.036E-06	1.70819E-05	0.2396396	9.198E-07	1.5163E-05	1.3121348	5.036E-06	8.30244E-05	1.1639164	4.468E-06	7.3646E-05	1.403556	5.387E-06	8.8809E-05
Road 8	8	0900-1000	0.293767771	9.317E-07	1.53595E-05	0.255476	8.103E-07	1.33575E-05	1.3586804	4.309E-06	7.1038E-05	1.1814817	3.747E-06	6.17733E-05	1.4369576	4.558E-06	7.51307E-05
Road 8	8	1000-1100	0.280036203	8.939E-07	1.47348E-05	0.2432475	7.764E-07	1.27991E-05	1.3291396	4.243E-06	6.99361E-05	1.1533966	3.682E-06	6.06889E-05	1.3966442	4.458E-06	7.3488E-05
Road 8	8	1100-1200	0.285366604	9.166E-07	1.51103E-05	0.2509107	8.06E-07	1.32859E-05	1.3738881	4.413E-06	7.27482E-05	1.2078367	3.88E-06	6.39557E-05	1.4587474	4.686E-06	7.72416E-05
Road 8	8	1200-1300	0.290257988	9.91E-07	1.6336E-05	0.2525281	8.622E-07	1.42125E-05	1.4116983	4.82E-06	7.94516E-05	1.2277625	4.192E-06	6.90995E-05	1.4802906	5.054E-06	8.3312E-05
Road 8	8	1300-1400	0.266586313	8.617E-07	1.42047E-05	0.231296	7.476E-07	1.23243E-05	1.2730229	4.115E-06	6.78313E-05	1.1040799	3.569E-06	5.88294E-05	1.3353759	4.316E-06	7.11537E-05
Road 8	8	1400-1500	0.259600576	7.29E-07	1.2017E-05	0.2263125	6.355E-07	1.0476E-05	1.2982496	3.646E-06	6.00962E-05	1.1314352	3.177E-06	5.23743E-05	1.3577477	3.813E-06	6.28504E-05
Road 8	8	1500-1600	0.267355109	7.4E-07	1.21978E-05	0.2318676	6.417E-07	1.05788E-05	1.3010035	3.601E-06	5.93571E-05	1.1275493	3.121E-06	5.14434E-05	1.3594169	3.762E-06	6.20222E-05
Road 8	8	1600-1700	0.264799041	7.81E-07	1.28749E-05	0.2351189	6.935E-07	1.14318E-05	1.2729134	3.754E-06	6.18907E-05	1.1297577	3.332E-06	5.49303E-05	1.3648766	4.026E-06	6.63621E-05
Road 8	8	1700-1800	0.219398141	6.914E-07	1.13981E-05	0.1880938	5.928E-07	9.77176E-06	1.1013359	3.471E-06	5.72161E-05	0.9427686	2.971E-06	4.89783E-05	1.1308624	3.564E-06	5.875E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.218738879	4.728E-07	7.79442E-06	0.1905856	4.12E-07	6.79122E-06	1.1233628	2.428E-06	4.00293E-05	0.9778207	2.114E-06	3.48431E-05	1.1684063	2.526E-06	4.16343E-05
Road 8	8	1900-2000	0.213763636	3.325E-07	5.48149E-06	0.1888079	2.937E-07	4.84155E-06	1.1256547	1.751E-06	2.88649E-05	0.9937474	1.546E-06	2.54824E-05	1.1825553	1.84E-06	3.0324E-05
Road 8	8	2000-2100	0.235671711	3.618E-07	5.96479E-06	0.206503	3.171E-07	5.22654E-06	1.1273793	1.731E-06	2.85337E-05	0.9867041	1.515E-06	2.49732E-05	1.1932071	1.832E-06	3.01997E-05
Road 8	8	2100-2200	0.192234906	2.058E-07	3.39299E-06	0.1726134	1.848E-07	3.04666E-06	1.0097309	1.081E-06	1.7822E-05	0.9053934	9.694E-07	1.59804E-05	1.0780068	1.154E-06	1.9027E-05
Road 8	8	2200-2300	0.23096125	2.986E-07	4.92258E-06	0.2071227	2.678E-07	4.4145E-06	1.1441016	1.479E-06	2.43848E-05	1.0252172	1.326E-06	2.18509E-05	1.2323398	1.593E-06	2.62654E-05
Road 8	8	2300-0000	0.188727115	1.983E-07	3.26822E-06	0.1656612	1.74E-07	2.86878E-06	0.9719056	1.021E-06	1.68307E-05	0.8523319	8.954E-07	1.476E-05	1.0179931	1.069E-06	1.76288E-05
Road 9	9	0000-0100	0.195837926	5.201E-08	1.55259E-06	0.1775833	4.716E-08	1.40786E-06	0.8957071	2.379E-07	7.10109E-06	0.8065397	2.142E-07	6.39417E-06	0.984123	2.614E-07	7.80204E-06
Road 9	9	0100-0200	0.212855445	4.442E-08	1.32589E-06	0.1931704	4.031E-08	1.20327E-06	0.9199857	1.92E-07	5.73066E-06	0.8285992	1.729E-07	5.1614E-06	1.0217697	2.132E-07	6.36468E-06
Road 9	9	0200-0300	0.083620546	7.931E-09	2.36763E-07	0.0755227	7.163E-09	2.13835E-07	0.5996793	5.688E-08	1.69793E-06	0.541766	5.139E-08	1.53395E-06	0.6172887	5.855E-08	1.74779E-06
Road 9	9	0300-0400	0.100247255	7.607E-09	2.27072E-07	0.0909728	6.903E-09	2.06064E-07	0.6229005	4.727E-08	1.41094E-06	0.5655909	4.292E-08	1.28113E-06	0.6565637	4.982E-08	1.48719E-06
Road 9	9	0400-0500	0.226817331	4.303E-08	1.28442E-06	0.2098492	3.981E-08	1.18833E-06	0.9419858	1.787E-07	5.33427E-06	0.8664802	1.644E-07	4.9067E-06	1.0763294	2.042E-07	6.09503E-06
Road 9	9	0500-0600	0.164676499	5.311E-08	1.5853E-06	0.150128	4.841E-08	1.44524E-06	0.8369207	2.699E-07	8.05683E-06	0.7605439	2.453E-07	7.32156E-06	0.9106719	2.937E-07	8.76681E-06
Road 9	9	0600-0700	0.192464384	1.168E-07	3.48764E-06	0.1751077	1.063E-07	3.17312E-06	1.0136466	6.153E-07	1.83682E-05	0.9178696	5.572E-07	1.66327E-05	1.0929773	6.635E-07	1.98058E-05
Road 9	9	0700-0800	0.16808183	1.53E-07	4.5687E-06	0.15412	1.403E-07	4.1892E-06	0.9706797	8.838E-07	2.63844E-05	0.8847378	8.056E-07	2.40484E-05	1.0388578	9.459E-07	2.82376E-05
Road 9	9	0800-0900	0.256090261	5.587E-07	1.66771E-05	0.2317741	5.056E-07	1.50936E-05	1.2469436	2.72E-06	8.12036E-05	1.1200497	2.443E-06	7.294E-05	1.3518239	2.949E-06	8.80336E-05
Road 9	9	0900-1000	0.267210828	4.359E-07	1.30132E-05	0.2408288	3.929E-07	1.17284E-05	1.1849107	1.933E-06	5.77052E-05	1.0581806	1.726E-06	5.15334E-05	1.2990094	2.119E-06	6.32618E-05
Road 9	9	1000-1100	0.277929151	3.743E-07	1.11744E-05	0.2465819	3.321E-07	9.91403E-06	1.2031631	1.62E-06	4.83742E-05	1.0620138	1.43E-06	4.26991E-05	1.3085957	1.762E-06	5.26132E-05
Road 9	9	1100-1200	0.192664359	2.705E-07	8.07354E-06	0.1709122	2.399E-07	7.16202E-06	1.0366107	1.455E-06	4.34388E-05	0.92488	1.298E-06	3.87568E-05	1.0957922	1.538E-06	4.59188E-05
Road 9	9	1200-1300	0.28867285	3.998E-07	1.19333E-05	0.2610199	3.615E-07	1.07901E-05	1.3368153	1.851E-06	5.52618E-05	1.2073063	1.672E-06	4.99081E-05	1.4683263	2.033E-06	6.06982E-05
Road 9	9	1300-1400	0.326452465	3.716E-07	1.10918E-05	0.2938406	3.344E-07	9.98375E-06	1.2618669	1.436E-06	4.28741E-05	1.1278642	1.284E-06	3.83212E-05	1.4217048	1.618E-06	4.83049E-05
Road 9	9	1400-1500	0.211674193	2.73E-07	8.15094E-06	0.1916083	2.472E-07	7.37826E-06	1.0525215	1.358E-06	4.05294E-05	0.9425786	1.216E-06	3.62959E-05	1.134187	1.463E-06	4.36741E-05
Road 9	9	1500-1600	0.177011292	1.914E-07	5.71356E-06	0.1584262	1.713E-07	5.11367E-06	0.9403987	1.017E-06	3.03541E-05	0.8398499	9.081E-07	2.71086E-05	0.998276	1.079E-06	3.22223E-05
Road 9	9	1600-1700	0.182250128	2.731E-07	8.15315E-06	0.167546	2.511E-07	7.49535E-06	1.0404998	1.559E-06	4.65479E-05	0.9524876	1.427E-06	4.26105E-05	1.1200336	1.678E-06	5.01059E-05
Road 9	9	1700-1800	0.161123035	2.078E-07	6.20436E-06	0.146228	1.886E-07	5.6308E-06	1.0099624	1.303E-06	3.88906E-05	0.9161302	1.182E-06	3.52774E-05	1.0623582	1.37E-06	4.09082E-05
Road 9	9	1800-1900	0.15866155	1.324E-07	3.95326E-06	0.1461531	1.22E-07	3.64159E-06	0.9796964	8.177E-07	2.44104E-05	0.9030166	7.537E-07	2.24998E-05	1.0491698	8.757E-07	2.61414E-05
Road 9	9	1900-2000	0.163328797	1.332E-07	3.97706E-06	0.1503722	1.227E-07	3.66156E-06	0.888813	7.25E-07	2.16426E-05	0.8101335	6.608E-07	1.97268E-05	0.9605057	7.835E-07	2.33883E-05
Road 9	9	2000-2100	0.174351837	9.591E-08	2.86322E-06	0.1566948	8.62E-08	2.57326E-06	0.785685	4.322E-07	1.29026E-05	0.7064716	3.886E-07	1.16017E-05	0.8631665	4.748E-07	1.4175E-05
Road 9	9	2100-2200	0.022713612	1.163E-08	3.47281E-07	0.0209191	1.071E-08	3.19843E-07	0.3159151	1.618E-07	4.8302E-06	0.2863092	1.466E-07	4.37754E-06	0.3072283	1.574E-07	4.69738E-06
Road 9	9	2200-2300	0.165938578	1.039E-07	3.10093E-06	0.1519037	9.509E-08	2.83866E-06	0.817914	5.12E-07	1.52845E-05	0.7450852	4.664E-07	1.39236E-05	0.8969889	5.615E-07	1.67622E-05
Road 9	9	2300-0000	0.136658449	7.777E-08	2.32161E-06	0.1238483	7.048E-08	2.10398E-06	0.7119387	4.052E-07	1.20947E-05	0.6390922	3.637E-07	1.08571E-05	0.7629405	4.342E-07	1.29611E-05
Road 10	10	0000-0100	0.273791106	2.105E-07	4.68054E-06	0.2444053	1.879E-07	4.17818E-06	1.4016088	1.078E-06	2.39609E-05	1.250178	9.612E-07	2.13721E-05	1.4945833	1.149E-06	2.55503E-05
Road 10	10	0100-0200	0.269200442	1.564E-07	3.47711E-06	0.2397688	1.393E-07	3.09696E-06	1.3662866	7.937E-07	1.76476E-05	1.2158188	7.063E-07	1.5704E-05	1.4555877	8.456E-07	1.8801E-05
Road 10	10	0200-0300	0.267416272	8.681E-08	1.93021E-06	0.2409828	7.823E-08	1.73942E-06	1.3403169	4.351E-07	9.67442E-06	1.2082725	3.922E-07	8.72132E-06	1.4492553	4.705E-07	1.04607E-05
Road 10	10	0300-0400	0.239645997	4.913E-08	1.09248E-06	0.2176257	4.462E-08	9.92099E-07	1.2963413	2.658E-07	5.90969E-06	1.1776669	2.415E-07	5.36868E-06	1.3952927	2.861E-07	6.36078E-06
Road 10	10	0400-0500	0.28111625	1.105E-07	2.45628E-06	0.2568881	1.009E-07	2.24458E-06	1.3517264	5.312E-07	1.18108E-05	1.2319584	4.841E-07	1.07643E-05	1.4888465	5.851E-07	1.30089E-05
Road 10	10	0500-0600	0.259864688	1.82E-07	4.04757E-06	0.2337339	1.637E-07	3.64057E-06	1.2559378	8.798E-07	1.95621E-05	1.1263348	7.89E-07	1.75435E-05	1.3600687	9.527E-07	2.1184E-05
Road 10	10	0600-0700	0.313195993	4.388E-07	9.75649E-06	0.282048	3.952E-07	8.78619E-06	1.5681	2.197E-06	4.88485E-05	1.413434	1.98E-06	4.40305E-05	1.695482	2.375E-06	5.28166E-05
Road 10	10	0700-0800	0.314170819	6.924E-07	1.53964E-05	0.2837353	6.254E-07	1.39049E-05	1.5858758	3.495E-06	7.77182E-05	1.4323313	3.157E-06	7.01935E-05	1.7160666	3.782E-06	8.40984E-05
Road 10	10	0800-0900	0.332685149	1.404E-06	3.12172E-05	0.2966461	1.252E-06	2.78355E-05	1.6479251	6.955E-06	0.000154632	1.4680897	6.196E-06	0.000137757	1.7647358	7.447E-06	0.000165592
Road 10	10	0900-1000	0.378068011	1.266E-06	2.81507E-05	0.3344248	1.12E-06	2.49011E-05	1.8285004	6.123E-06	0.000136149	1.6160491	5.412E-06	0.00012033	1.9504739	6.532E-06	0.000145231
Road 10	10	1000-1100	0.373745039	1.36E-06	3.02426E-05	0.3287639	1.196E-06	2.66028E-05	1.6919382	6.157E-06	0.000136908	1.4831409	5.398E-06	0.000120012	1.8119048	6.594E-06	0.000146615
Road 10	10	1100-1200	0.360888337	1.313E-06	2.92022E-05	0.3195712	1.163E-06	2.5859E-05	1.6958396	6.172E-06	0.000137223	1.4994556	5.457E-06	0.000121332	1.8190268	6.62E-06	0.000147191
Road 10	10	1200-1300	0.379137749	1.425E-06	3.16872E-05	0.3344056	1.257E-06	2.79486E-05	1.8076395	6.795E-06	0.000151077	1.5944459	5.993E-06	0.000133259	1.9288515	7.25E-06	0.000161207
Road 10	10	1300-1400	0.370667688	1.216E-06	2.70365E-05	0.3266058	1.071E-06	2.38226E-05	1.7254554	5.66E-06	0.000125854	1.5174198	4.978E-06	0.00011068	1.8440256	6.049E-06	0.000134503
Road 10	10	1400-1500	0.344260092	1.059E-06	2.35409E-05	0.3058538	9.406E-07	2.09146E-05	1.7246693	5.304E-06	0.000117935	1.5313405	4.71E-06	0.000104715	1.8371943	5.65E-06	0.000125629
Road 10	10	1500-1600	0.342990514	1.078E-06	2.39753E-05	0.3009734	9.462E-07	2.10383E-05	1.6545331	5.201E-06	0.000115653	1.4516592	4.564E-06	0.000101472	1.7526326	5.51E-06	0.00012251
Road 10	10	1600-1700	0.32459783	1.137E-06	2.52792E-05	0.292412	1.024E-06	2.27726E-05	1.5884463	5.564E-06	0.000123706	1.4279807	5.002E-06	0.000111209	1.7203927	6.026E-06	0.000133982
Road 10	10	1700-1800	0.305225403	1.001E-06	2.22631E-05	0.2677942	8.785E-07	1.95329E-05	1.5901017	5.216E-06	0.000115982	1.3997584	4.592E-06	0.000102098	1.6675526	5.47E-06	0.000121631
Road 10	10	1800-1900	0.308514552	6.378E-07	1.41816E-05	0.2729298	5.642E-07	1.25459E-05	1.5615705	3.228E-06	7.17812E-05	1.3823202	2.858E-06	6.35415E-05	1.6552501	3.422E-06	7.60874E-05
Road 10	10	1900-2000	0.264755954	4.931E-07	1.09632E-05	0.237744	4.428E-07	9.84464E-06	1.4065136	2.619E-06	5.82417E-05	1.263414	2.353E-06	5.23162E-05	1.501158	2.796E-06	6.21608E-05
Road 10	10	2000-2100	0.307266443	3.78E-07	8.40449E-06	0.2707305	3.33E-07	7.40514E-06	1.4881835	1.831E-06	4.07055E-05	1.3096409	1.611E-06	3.58219E-05	1.5803714	1.944E-06	4.3227E-05
Road 10	10	2100-2200	0.255035029	3.137E-07	6.97583E-06	0.2348652	2.889E-07	6.42414E-06	1.4271273	1.756E-06	3.90354E-05	1.3169673	1.62E-06	3.60223E-05	1.5518325	1.909E-06	4.24464E-05
Road 10	10	2200-2300	0.267205044	3.424E-07	7.61324E-06	0.2428276	3.112E-07	6.91868E-06	1.3755871	1.763E-06	3.91934E-05	1.2525088	1.605E-06	3.56867E-05	1.4953364	1.916E-06	4.26053E-05
Road 10	10	2300-0000	0.248788413	2.976E-07	6.61595E-06	0.219957	2.631E-07	5.84924E-06	1.2599247	1.507E-06	3.35047E-05	1.1115567	1.329E-06	2.95592E-05	1.3315137	1.592E-06	3.54085E-05
Road 11	11	0000-0100	0.306512067	2.341E-07	1.94222E-06	0.2733765	2.088E-07	1.73226E-06	1.537225	1.174E-06	9.74066E-06	1.3684467	1.045E-06	8.67119E-06	1.6418232	1.254E-06	1.04034E-05
Road 11	11	0100-0200	0.306647218	1.65E-07	1.36899E-06	0.2727907	1.468E-07	1.21784E-06	1.5115702	8.135E-07	6.7482E-06	1.3414674	7.22E-07	5.9888E-06	1.6142581	8.688E-07	7.20664E-06
Road 11	11	0200-0300	0.267354131	6.962E-08	5.77532E-07	0.2409432	6.275E-08	5.2048E-07	1.428105	3.719E-07	3.08496E-06	1.2873756	3.353E-07	2.78096E-06	1.5283188	3.98E-07	3.30144E-06
Road 11	11	0300-0400	0.282306029	6.862E-08	5.69176E-07	0.2563113	6.23E-08	5.16766E-07	1.4784928	3.594E-07	2.98089E-06	1.3427333	3.264E-07	2.70717E-06	1.5990446	3.887E-07	3.22394E-06
Road 11	11	0400-0500	0.290918188	1.01E-07	8.37913E-07	0.2659749	9.235E-08	7.66071E-07	1.3811315	4.796E-07	3.97799E-06	1.2591353	4.372E-07	3.62661E-06	1.5251102	5.296E-07	4.39268E-06
Road 11	11	0500-0600	0.237511364	1.113E-07	9.2352E-07	0.2133677	1E-07	8.29642E-07	1.2134886	5.688E-07	4.71843E-06	1.0881627	5.101E-07	4.23112E-06	1.3015303	6.101E-07	5.06077E-06
Road 11	11	0600-0700	0.256121413	2.312E-07	1.91799E-06	0.2294639	2.072E-07	1.71837E-06	1.3297994	1.201E-06	9.95836E-06	1.188977	1.073E-06	8.90379E-06	1.4184409	1.281E-06	1.06222E-05
Road 11	11	0700-0800	0.304639147	5.712E-07	4.73814E-06	0.2733344	5.125E-07	4.25125E-06	1.5893383	2.98E-06	2.47194E-05	1.424801	2.672E-06	2.21603E-05	1.6981354	3.184E-06	2.64116E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.33006679	1.175E-06	9.74437E-06	0.295823	1.053E-06	8.73341E-06	1.6296337	5.8E-06	4.81107E-05	1.4556438	5.181E-06	4.29741E-05	1.7514667	6.234E-06	5.17075E-05
Road 11	11	0900-1000	0.338783129	8.587E-07	7.12316E-06	0.299443	7.59E-07	6.29601E-06	1.6053355	4.069E-06	3.37533E-05	1.4116564	3.578E-06	2.96811E-05	1.7110994	4.337E-06	3.59771E-05
Road 11	11	1000-1100	0.347881303	7.187E-07	5.96178E-06	0.3051092	6.303E-07	5.22878E-06	1.6233637	3.354E-06	2.78202E-05	1.4195837	2.933E-06	2.4328E-05	1.7246929	3.563E-06	2.95568E-05
Road 11	11	1100-1200	0.304476021	7.083E-07	5.87565E-06	0.2685184	6.247E-07	5.18176E-06	1.5641889	3.639E-06	3.01851E-05	1.3825381	3.216E-06	2.66796E-05	1.6510565	3.841E-06	3.18614E-05
Road 11	11	1200-1300	0.373739947	1.058E-06	8.77314E-06	0.3291089	9.313E-07	7.72548E-06	1.8148863	5.136E-06	4.26025E-05	1.5966928	4.518E-06	3.74807E-05	1.9258017	5.45E-06	4.52061E-05
Road 11	11	1300-1400	0.390193777	8.129E-07	6.7431E-06	0.3435223	7.157E-07	5.93655E-06	1.7594347	3.665E-06	3.04055E-05	1.5414231	3.211E-06	2.6638E-05	1.8849454	3.927E-06	3.25745E-05
Road 11	11	1400-1500	0.308506146	6.213E-07	5.15371E-06	0.2733269	5.505E-07	4.56603E-06	1.542218	3.106E-06	2.57633E-05	1.3602702	2.739E-06	2.27238E-05	1.6335972	3.29E-06	2.72898E-05
Road 11	11	1500-1600	0.276930313	5.625E-07	4.66611E-06	0.242475	4.925E-07	4.08555E-06	1.4360997	2.917E-06	2.41974E-05	1.2568291	2.553E-06	2.11768E-05	1.4993041	3.045E-06	2.52624E-05
Road 11	11	1600-1700	0.261333526	6.306E-07	5.23128E-06	0.2354671	5.682E-07	4.7135E-06	1.4002754	3.379E-06	2.80302E-05	1.2607561	3.042E-06	2.52374E-05	1.4962233	3.611E-06	2.99509E-05
Road 11	11	1700-1800	0.265539264	6.546E-07	5.43019E-06	0.231469	5.706E-07	4.73347E-06	1.4505363	3.576E-06	2.9663E-05	1.2673195	3.124E-06	2.59163E-05	1.4987886	3.695E-06	3.06497E-05
Road 11	11	1800-1900	0.2840107	5.818E-07	4.82631E-06	0.2502698	5.127E-07	4.25293E-06	1.5195472	3.113E-06	2.58223E-05	1.3414858	2.748E-06	2.27964E-05	1.5917556	3.261E-06	2.70493E-05
Road 11	11	1900-2000	0.267128366	4.22E-07	3.50074E-06	0.2387259	3.772E-07	3.12852E-06	1.3938454	2.202E-06	1.82664E-05	1.2423827	1.963E-06	1.62815E-05	1.4811086	2.34E-06	1.941E-05
Road 11	11	2000-2100	0.276717767	3.891E-07	3.2279E-06	0.2439354	3.43E-07	2.8455E-06	1.3835418	1.946E-06	1.6139E-05	1.2190928	1.714E-06	1.42207E-05	1.4630282	2.057E-06	1.70662E-05
Road 11	11	2100-2200	0.198730496	1.967E-07	1.63131E-06	0.1787293	1.769E-07	1.46713E-06	1.1134527	1.102E-06	9.13997E-06	1.0015175	9.911E-07	8.22113E-06	1.1802468	1.168E-06	9.68826E-06
Road 11	11	2200-2300	0.256520208	2.806E-07	2.32734E-06	0.2315798	2.533E-07	2.10106E-06	1.2980026	1.42E-06	1.17764E-05	1.1696811	1.279E-06	1.06122E-05	1.4012609	1.533E-06	1.27133E-05
Road 11	11	2300-0000	0.249659225	2.601E-07	2.15723E-06	0.2209116	2.301E-07	1.90883E-06	1.2856144	1.339E-06	1.11086E-05	1.1346068	1.182E-06	9.80381E-06	1.3555185	1.412E-06	1.17126E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.29031	2.425E-06	3.64791E-06	1.14826	2.158E-06	3.24632E-06	5.92963	1.115E-05	1.6764E-05	5.27688	9.919E-06	1.49186E-05	6.42514	1.208E-05	1.81649E-05
Haul Road 1	HR1	0800-0900	1.29031	2.425E-06	3.64791E-06	1.14416	2.151E-06	3.23472E-06	5.92963	1.115E-05	1.6764E-05	5.25809	9.884E-06	1.48655E-05	6.40225	1.203E-05	1.81002E-05
Haul Road 1	HR1	0900-1000	1.31939	2.48E-06	3.73013E-06	1.14666	2.155E-06	3.24179E-06	6.06288	1.14E-05	1.71407E-05	5.26918	9.904E-06	1.48968E-05	6.41584	1.206E-05	1.81386E-05
Haul Road 1	HR1	1000-1100	1.3136	2.469E-06	3.71376E-06	1.13986	2.143E-06	3.22257E-06	6.03629	1.135E-05	1.70656E-05	5.2384	9.847E-06	1.48098E-05	6.37826	1.199E-05	1.80324E-05
Haul Road 1	HR1	1100-1200	1.3097	2.462E-06	3.70273E-06	1.15116	2.164E-06	3.25451E-06	6.01859	1.131E-05	1.70155E-05	5.29007	9.944E-06	1.49559E-05	6.44123	1.211E-05	1.82104E-05
Haul Road 1	HR1	1200-1300	1.3174	2.476E-06	3.7245E-06	1.14556	2.153E-06	3.23868E-06	6.05418	1.138E-05	1.71161E-05	5.26419	9.895E-06	1.48827E-05	6.40975	1.205E-05	1.81214E-05
Haul Road 1	HR1	1300-1400	1.32129	2.484E-06	3.7355E-06	1.14556	2.153E-06	3.23868E-06	6.07188	1.141E-05	1.71662E-05	5.26419	9.895E-06	1.48827E-05	6.40975	1.205E-05	1.81214E-05
Haul Road 1	HR1	1400-1500	1.32129	2.484E-06	3.7355E-06	1.15116	2.164E-06	3.25451E-06	6.07188	1.141E-05	1.71662E-05	5.29007	9.944E-06	1.49559E-05	6.44123	1.211E-05	1.82104E-05
Haul Road 1	HR1	1500-1600	1.32129	2.484E-06	3.7355E-06	1.14556	2.153E-06	3.23868E-06	6.07188	1.141E-05	1.71662E-05	5.26419	9.895E-06	1.48827E-05	6.40975	1.205E-05	1.81214E-05
Haul Road 1	HR1	1600-1700	1.2981	2.44E-06	3.66994E-06	1.15196	2.165E-06	3.25678E-06	5.96532	1.121E-05	1.68649E-05	5.29357	9.95E-06	1.49658E-05	6.44553	1.212E-05	1.82225E-05
Haul Road 1	HR1	1700-1800	1.31939	2.48E-06	3.73013E-06	1.13077	2.126E-06	3.19687E-06	6.06288	1.14E-05	1.71407E-05	5.19631	9.768E-06	1.46908E-05	6.32708	1.189E-05	1.78877E-05
Haul Road 1	HR1	1800-1900	1.3085	2.46E-06	3.69934E-06	1.13926	2.141E-06	3.22087E-06	6.0129	1.13E-05	1.69994E-05	5.2351	9.84E-06	1.48005E-05	6.37436	1.198E-05	1.80213E-05
Haul Road 1	HR1	1900-2000	1.27951	2.405E-06	3.61738E-06	1.12927	2.123E-06	3.19263E-06	5.87965	1.105E-05	1.66227E-05	5.18941	9.755E-06	1.46713E-05	6.31868	1.188E-05	1.78639E-05
Haul Road 1	HR1	2000-2100	1.28311	2.412E-06	3.62756E-06	1.12427	2.113E-06	3.17849E-06	5.89634	1.108E-05	1.66699E-05	5.16652	9.712E-06	1.46066E-05	6.29079	1.182E-05	1.77851E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.29031	1.671E-06	4.44907E-06	1.14826	1.487E-06	3.95927E-06	5.92963	7.681E-06	2.04457E-05	5.27688	6.835E-06	1.8195E-05	6.42514	8.323E-06	2.21543E-05
Haul Road 2	HR2	0800-0900	1.29031	1.671E-06	4.44907E-06	1.14416	1.482E-06	3.94513E-06	5.92963	7.681E-06	2.04457E-05	5.25809	6.811E-06	1.81302E-05	6.40225	8.293E-06	2.20753E-05
Haul Road 2	HR2	0900-1000	1.31939	1.709E-06	4.54934E-06	1.14666	1.485E-06	3.95375E-06	6.06288	7.853E-06	2.09052E-05	5.26918	6.825E-06	1.81684E-05	6.41584	8.311E-06	2.21222E-05
Haul Road 2	HR2	1000-1100	1.3136	1.702E-06	4.52937E-06	1.13986	1.477E-06	3.93031E-06	6.03629	7.819E-06	2.08135E-05	5.2384	6.785E-06	1.80623E-05	6.37826	8.262E-06	2.19926E-05
Haul Road 2	HR2	1100-1200	1.3097	1.697E-06	4.51592E-06	1.15116	1.491E-06	3.96927E-06	6.01859	7.796E-06	2.07525E-05	5.29007	6.852E-06	1.82405E-05	6.44123	8.344E-06	2.22097E-05
Haul Road 2	HR2	1200-1300	1.3174	1.706E-06	4.54247E-06	1.14556	1.484E-06	3.94996E-06	6.05418	7.842E-06	2.08752E-05	5.26419	6.819E-06	1.81512E-05	6.40975	8.303E-06	2.21012E-05
Haul Road 2	HR2	1300-1400	1.32129	1.712E-06	4.55589E-06	1.14556	1.484E-06	3.94996E-06	6.07188	7.865E-06	2.09362E-05	5.26419	6.819E-06	1.81512E-05	6.40975	8.303E-06	2.21012E-05
Haul Road 2	HR2	1400-1500	1.32129	1.712E-06	4.55589E-06	1.15116	1.491E-06	3.96927E-06	6.07188	7.865E-06	2.09362E-05	5.29007	6.852E-06	1.82405E-05	6.44123	8.344E-06	2.22097E-05
Haul Road 2	HR2	1500-1600	1.32129	1.712E-06	4.55589E-06	1.14556	1.484E-06	3.94996E-06	6.07188	7.865E-06	2.09362E-05	5.26419	6.819E-06	1.81512E-05	6.40975	8.303E-06	2.21012E-05
Haul Road 2	HR2	1600-1700	1.2981	1.681E-06	4.47593E-06	1.15196	1.492E-06	3.97203E-06	5.96532	7.727E-06	2.05688E-05	5.29357	6.857E-06	1.82525E-05	6.44553	8.349E-06	2.22246E-05
Haul Road 2	HR2	1700-1800	1.31939	1.709E-06	4.54934E-06	1.13077	1.465E-06	3.89896E-06	6.06288	7.853E-06	2.09052E-05	5.19631	6.731E-06	1.79172E-05	6.32708	8.196E-06	2.18162E-05
Haul Road 2	HR2	1800-1900	1.3085	1.695E-06	4.51179E-06	1.13926	1.476E-06	3.92824E-06	6.0129	7.789E-06	2.07328E-05	5.2351	6.781E-06	1.80509E-05	6.37436	8.257E-06	2.19792E-05
Haul Road 2	HR2	1900-2000	1.27951	1.657E-06	4.41183E-06	1.12927	1.463E-06	3.89379E-06	5.87965	7.616E-06	2.02734E-05	5.18941	6.722E-06	1.78934E-05	6.31868	8.185E-06	2.17872E-05
Haul Road 2	HR2	2000-2100	1.28311	1.662E-06	4.42424E-06	1.12427	1.456E-06	3.87655E-06	5.89634	7.638E-06	2.03309E-05	5.16652	6.692E-06	1.78145E-05	6.29079	8.149E-06	2.1691E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (April) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.29031	1.671E-06	4.44286E-06	1.14826	1.487E-06	3.95375E-06	5.92963	7.681E-06	2.04172E-05	5.27688	6.835E-06	1.81696E-05	6.42514	8.323E-06	2.21234E-05
Haul Road 3	HR3	0800-0900	1.29031	1.671E-06	4.44286E-06	1.14416	1.482E-06	3.93963E-06	5.92963	7.681E-06	2.04172E-05	5.25809	6.811E-06	1.81049E-05	6.40225	8.293E-06	2.20446E-05
Haul Road 3	HR3	0900-1000	1.31939	1.709E-06	4.54299E-06	1.14666	1.485E-06	3.94824E-06	6.06288	7.853E-06	2.0876E-05	5.26918	6.825E-06	1.81431E-05	6.41584	8.311E-06	2.20914E-05
Haul Road 3	HR3	1000-1100	1.3136	1.702E-06	4.52306E-06	1.13986	1.477E-06	3.92483E-06	6.03629	7.819E-06	2.07845E-05	5.2384	6.785E-06	1.80371E-05	6.37826	8.262E-06	2.1962E-05
Haul Road 3	HR3	1100-1200	1.3097	1.697E-06	4.50963E-06	1.15116	1.491E-06	3.96373E-06	6.01859	7.796E-06	2.07235E-05	5.29007	6.852E-06	1.8215E-05	6.44123	8.344E-06	2.21788E-05
Haul Road 3	HR3	1200-1300	1.3174	1.706E-06	4.53614E-06	1.14556	1.484E-06	3.94445E-06	6.05418	7.842E-06	2.08461E-05	5.26419	6.819E-06	1.81259E-05	6.40975	8.303E-06	2.20704E-05
Haul Road 3	HR3	1300-1400	1.32129	1.712E-06	4.54954E-06	1.14556	1.484E-06	3.94445E-06	6.07188	7.865E-06	2.0907E-05	5.26419	6.819E-06	1.81259E-05	6.40975	8.303E-06	2.20704E-05
Haul Road 3	HR3	1400-1500	1.32129	1.712E-06	4.54954E-06	1.15116	1.491E-06	3.96373E-06	6.07188	7.865E-06	2.0907E-05	5.29007	6.852E-06	1.8215E-05	6.44123	8.344E-06	2.21788E-05
Haul Road 3	HR3	1500-1600	1.32129	1.712E-06	4.54954E-06	1.14556	1.484E-06	3.94445E-06	6.07188	7.865E-06	2.0907E-05	5.26419	6.819E-06	1.81259E-05	6.40975	8.303E-06	2.20704E-05
Haul Road 3	HR3	1600-1700	1.2981	1.681E-06	4.46969E-06	1.15196	1.492E-06	3.96649E-06	5.96532	7.727E-06	2.05401E-05	5.29357	6.857E-06	1.82271E-05	6.44553	8.349E-06	2.21936E-05
Haul Road 3	HR3	1700-1800	1.31939	1.709E-06	4.54299E-06	1.13077	1.465E-06	3.89353E-06	6.06288	7.853E-06	2.0876E-05	5.19631	6.731E-06	1.78922E-05	6.32708	8.196E-06	2.17857E-05
Haul Road 3	HR3	1800-1900	1.3085	1.695E-06	4.5055E-06	1.13926	1.476E-06	3.92276E-06	6.0129	7.789E-06	2.07039E-05	5.2351	6.781E-06	1.80258E-05	6.37436	8.257E-06	2.19485E-05
Haul Road 3	HR3	1900-2000	1.27951	1.657E-06	4.40568E-06	1.12927	1.463E-06	3.88836E-06	5.87965	7.616E-06	2.02451E-05	5.18941	6.722E-06	1.78685E-05	6.31868	8.185E-06	2.17568E-05
Haul Road 3	HR3	2000-2100	1.28311	1.662E-06	4.41807E-06	1.12427	1.456E-06	3.87115E-06	5.89634	7.638E-06	2.03026E-05	5.16652	6.692E-06	1.77896E-05	6.29079	8.149E-06	2.16608E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.096020113	3.19E-07	2.595E-06	0.0841594	2.796E-07	2.27445E-06	0.564451	1.875E-06	1.52546E-05	0.4923947	1.636E-06	1.33072E-05	0.5765542	1.915E-06	1.55817E-05
Road 1	1	0100-0200	0.074258889	1.505E-07	1.22454E-06	0.0648107	1.314E-07	1.06874E-06	0.4466183	9.053E-07	7.36481E-06	0.3877584	7.86E-07	6.3942E-06	0.4525692	9.174E-07	7.46294E-06
Road 1	1	0200-0300	0.071118312	1.028E-07	8.36129E-07	0.0612239	8.848E-08	7.19802E-07	0.4504701	6.51E-07	5.29612E-06	0.3840403	5.55E-07	4.51511E-06	0.4452642	6.435E-07	5.23492E-06
Road 1	1	0300-0400	0.060207091	6.215E-08	5.05605E-07	0.052178	5.386E-08	4.38179E-07	0.36377	3.755E-07	3.05486E-06	0.3127473	3.228E-07	2.62638E-06	0.3649253	3.767E-07	3.06456E-06
Road 1	1	0400-0500	0.080323529	1.281E-07	1.04247E-06	0.0685788	1.094E-07	8.90041E-07	0.4564221	7.282E-07	5.92362E-06	0.3873667	6.18E-07	5.02739E-06	0.4559455	7.274E-07	5.91743E-06
Road 1	1	0500-0600	0.065350374	2.294E-07	1.86591E-06	0.0564708	1.982E-07	1.61238E-06	0.3830049	1.344E-06	1.09357E-05	0.3283561	1.152E-06	9.37536E-06	0.3848269	1.351E-06	1.09877E-05
Road 1	1	0600-0700	0.08881494	5.534E-07	4.50221E-06	0.0755889	4.71E-07	3.83175E-06	0.4744384	2.956E-06	2.40502E-05	0.4012066	2.5E-06	2.0338E-05	0.4767955	2.971E-06	2.41697E-05
Road 1	1	0700-0800	0.075747925	7.947E-07	6.46523E-06	0.0636425	6.677E-07	5.43201E-06	0.4163401	4.368E-06	3.55354E-05	0.346304	3.633E-06	2.95577E-05	0.4099465	4.301E-06	3.49897E-05
Road 1	1	0800-0900	0.081756847	1.051E-06	8.55098E-06	0.0685192	8.809E-07	7.16645E-06	0.4341573	5.582E-06	4.54087E-05	0.361546	4.648E-06	3.78142E-05	0.4300652	5.529E-06	4.49807E-05
Road 1	1	0900-1000	0.083852291	1.113E-06	9.05181E-06	0.0729606	9.682E-07	7.87606E-06	0.4685791	6.218E-06	5.05829E-05	0.4061101	5.389E-06	4.38394E-05	0.4790707	6.357E-06	5.17154E-05
Road 1	1	1000-1100	0.098232533	1.267E-06	1.03042E-05	0.0840453	1.084E-06	8.816E-06	0.5272732	6.799E-06	5.53087E-05	0.4493815	5.794E-06	4.71382E-05	0.5334268	6.878E-06	5.59542E-05
Road 1	1	1100-1200	0.089252924	1.117E-06	9.0897E-06	0.0765115	9.578E-07	7.79208E-06	0.5121005	6.411E-06	5.21534E-05	0.4368285	5.469E-06	4.44875E-05	0.51334	6.426E-06	5.22796E-05
Road 1	1	1200-1300	0.092731576	1.149E-06	9.34486E-06	0.0777513	9.631E-07	7.83525E-06	0.5284107	6.546E-06	5.32497E-05	0.4410307	5.463E-06	4.44441E-05	0.518782	6.426E-06	5.22793E-05
Road 1	1	1300-1400	0.096948889	1.277E-06	1.03916E-05	0.0808669	1.065E-06	8.66781E-06	0.5403823	7.12E-06	5.79215E-05	0.4486482	5.911E-06	4.80888E-05	0.5295151	6.977E-06	5.67566E-05
Road 1	1	1400-1500	0.092903686	1.334E-06	1.08516E-05	0.0770306	1.106E-06	8.99758E-06	0.5055677	7.259E-06	5.9053E-05	0.4170224	5.988E-06	4.87104E-05	0.494053	7.094E-06	5.7708E-05
Road 1	1	1500-1600	0.099697828	1.327E-06	1.07928E-05	0.0842847	1.122E-06	9.12423E-06	0.5407823	7.196E-06	5.85423E-05	0.4549231	6.054E-06	4.92476E-05	0.5392078	7.175E-06	5.83719E-05
Road 1	1	1600-1700	0.096086404	1.349E-06	1.0974E-05	0.0794953	1.116E-06	9.07913E-06	0.5267251	7.395E-06	6.01571E-05	0.4331099	6.08E-06	4.94653E-05	0.5126052	7.196E-06	5.85445E-05
Road 1	1	1700-1800	0.075588667	1.064E-06	8.65604E-06	0.0640287	9.013E-07	7.33225E-06	0.4221116	5.942E-06	4.83381E-05	0.3550668	4.998E-06	4.06605E-05	0.4190956	5.899E-06	4.79927E-05
Road 1	1	1800-1900	0.066479271	9.583E-07	7.79559E-06	0.0572839	8.257E-07	6.71731E-06	0.3941994	5.682E-06	4.62252E-05	0.3365538	4.851E-06	3.94654E-05	0.3938377	5.677E-06	4.61828E-05
Road 1	1	1900-2000	0.079416724	8.735E-07	7.10576E-06	0.0679053	7.469E-07	6.07579E-06	0.4533906	4.987E-06	4.05669E-05	0.3846191	4.23E-06	3.44136E-05	0.4525244	4.977E-06	4.04894E-05
Road 1	1	2000-2100	0.069941915	6.511E-07	5.29688E-06	0.0609063	5.67E-07	4.61259E-06	0.409725	3.814E-06	3.10295E-05	0.3543139	3.298E-06	2.68331E-05	0.4152202	3.865E-06	3.14457E-05
Road 1	1	2100-2200	0.072941832	6.202E-07	5.04517E-06	0.0652132	5.545E-07	4.51061E-06	0.4293753	3.651E-06	2.96986E-05	0.3817172	3.245E-06	2.64023E-05	0.4469305	3.8E-06	3.09129E-05
Road 1	1	2200-2300	0.071916032	5.818E-07	4.73265E-06	0.0633431	5.124E-07	4.16848E-06	0.4218611	3.413E-06	2.77618E-05	0.3690621	2.985E-06	2.42872E-05	0.4324052	3.498E-06	2.84557E-05
Road 1	1	2300-0000	0.063154987	4.564E-07	3.71253E-06	0.0554912	4.01E-07	3.26202E-06	0.3843381	2.777E-06	2.25931E-05	0.3346431	2.418E-06	1.96718E-05	0.3901343	2.819E-06	2.29338E-05
Road 2	2	0000-0100	0.161072941	1.902E-07	1.22801E-06	0.1411284	1.666E-07	1.07595E-06	0.6826214	8.059E-07	5.20425E-06	0.596151	7.038E-07	4.545E-06	0.7372794	8.704E-07	5.62095E-06
Road 2	2	0100-0200	0.11425697	8.728E-08	5.63643E-07	0.0996427	7.612E-08	4.9155E-07	0.5652267	4.318E-07	2.78833E-06	0.4909285	3.75E-07	2.42181E-06	0.5905712	4.511E-07	2.91336E-06
Road 2	2	0200-0300	0.11449087	6.096E-08	3.93647E-07	0.098673	5.253E-08	3.39261E-07	0.6223378	3.313E-07	2.13974E-06	0.532853	2.837E-07	1.83207E-06	0.6315261	3.362E-07	2.17134E-06
Road 2	2	0300-0400	0.0999	3.469E-08	2.24008E-07	0.0866	3.007E-08	1.94186E-07	0.3621953	1.258E-07	8.1216E-07	0.3117947	1.083E-07	6.99146E-07	0.3983947	1.383E-07	8.93331E-07
Road 2	2	0400-0500	0.137665556	8.604E-08	5.55644E-07	0.117513	7.345E-08	4.74305E-07	0.6653059	4.158E-07	2.6853E-06	0.5659819	3.537E-07	2.28441E-06	0.6834948	4.272E-07	2.75871E-06
Road 2	2	0500-0600	0.110523158	1.458E-07	9.41751E-07	0.0956042	1.261E-07	8.14629E-07	0.4873651	6.431E-07	4.15276E-06	0.4187958	5.526E-07	3.56849E-06	0.5144	6.787E-07	4.38312E-06
Road 2	2	0600-0700	0.157638738	3.759E-07	2.42721E-06	0.1341856	3.199E-07	2.0661E-06	0.6390415	1.524E-06	9.83952E-06	0.5413529	1.291E-06	8.33538E-06	0.6755385	1.611E-06	1.04015E-05
Road 2	2	0700-0800	0.127212468	4.653E-07	3.00465E-06	0.1068587	3.908E-07	2.52391E-06	0.5362059	1.961E-06	1.26647E-05	0.4467241	1.634E-06	1.05513E-05	0.5535827	2.025E-06	1.30752E-05
Road 2	2	0800-0900	0.144722433	1.005E-06	6.4903E-06	0.1212167	8.418E-07	5.43615E-06	0.6126175	4.254E-06	2.74738E-05	0.510087	3.542E-06	2.28756E-05	0.6313037	4.384E-06	2.83118E-05
Road 2	2	0900-1000	0.16191435	9.22E-07	5.95427E-06	0.1407895	8.017E-07	5.17742E-06	0.6998842	3.985E-06	2.57377E-05	0.6069631	3.456E-06	2.23206E-05	0.7477526	4.258E-06	2.7498E-05
Road 2	2	1000-1100	0.181484293	7.73E-07	4.99189E-06	0.1552432	6.612E-07	4.2701E-06	0.7788884	3.317E-06	2.1424E-05	0.6644809	2.83E-06	1.82771E-05	0.819724	3.491E-06	2.25472E-05
Road 2	2	1100-1200	0.220760994	9.249E-07	5.97322E-06	0.1890979	7.923E-07	5.1165E-06	0.905301	3.793E-06	2.44951E-05	0.7741906	3.244E-06	2.09476E-05	0.9632885	4.036E-06	2.60641E-05
Road 2	2	1200-1300	0.16985984	7.392E-07	4.77371E-06	0.1424094	6.197E-07	4.00225E-06	0.7482793	3.256E-06	2.10295E-05	0.6249605	2.72E-06	1.75638E-05	0.7673698	3.339E-06	2.1566E-05
Road 2	2	1300-1400	0.188049045	9.577E-07	6.18446E-06	0.1566025	7.975E-07	5.15026E-06	0.7772116	3.958E-06	2.55605E-05	0.6449947	3.285E-06	2.12122E-05	0.8015973	4.082E-06	2.63625E-05
Road 2	2	1400-1500	0.16425773	6.198E-07	4.00241E-06	0.1361384	5.137E-07	3.31723E-06	0.7106945	2.682E-06	1.73172E-05	0.5872031	2.216E-06	1.43082E-05	0.7233415	2.729E-06	1.76254E-05
Road 2	2	1500-1600	0.20181352	8.362E-07	5.40021E-06	0.1703568	7.059E-07	4.55848E-06	0.8110044	3.36E-06	2.17012E-05	0.682957	2.83E-06	1.82749E-05	0.8533138	3.536E-06	2.28333E-05
Road 2	2	1600-1700	0.17403484	8.823E-07	5.69755E-06	0.1439599	7.298E-07	4.71295E-06	0.7364057	3.733E-06	2.41084E-05	0.6066845	3.076E-06	1.98616E-05	0.7506443	3.805E-06	2.45746E-05
Road 2	2	1700-1800	0.12947894	6.504E-07	4.20017E-06	0.1096974	5.51E-07	3.55847E-06	0.5155929	2.59E-06	1.67253E-05	0.4348582	2.184E-06	1.41064E-05	0.5445557	2.735E-06	1.76648E-05
Road 2	2	1800-1900	0.140482863	8.065E-07	5.20814E-06	0.1211247	6.953E-07	4.49047E-06	0.6479257	3.72E-06	2.40206E-05	0.5559963	3.192E-06	2.06125E-05	0.677121	3.887E-06	2.5103E-05
Road 2	2	1900-2000	0.11990741	4.608E-07	2.97551E-06	0.1025177	3.939E-07	2.54399E-06	0.5505475	2.116E-06	1.36619E-05	0.4674959	1.796E-06	1.1601E-05	0.5700136	2.19E-06	1.41449E-05
Road 2	2	2000-2100	0.11476411	3.879E-07	2.50476E-06	0.099877	3.375E-07	2.17985E-06	0.4819623	1.629E-06	1.0519E-05	0.4164251	1.407E-06	9.08861E-06	0.5163021	1.745E-06	1.12685E-05
Road 2	2	2100-2200	0.087664276	3.084E-07	1.99193E-06	0.0783376	2.756E-07	1.78001E-06	0.3954974	1.392E-06	8.98659E-06	0.3503808	1.233E-06	7.96144E-06	0.4287184	1.508E-06	9.74145E-06
Road 2	2	2200-2300	0.12741584	3.687E-07	2.3809E-06	0.112247	3.248E-07	2.09745E-06	0.5431318	1.572E-06	1.0149E-05	0.4757966	1.377E-06	8.89076E-06	0.5880437	1.702E-06	1.09882E-05
Road 2	2	2300-0000	0.115814545	2.949E-07	1.90442E-06	0.1017431	2.591E-07	1.67304E-06	0.5203635	1.325E-06	8.55672E-06	0.4540485	1.156E-06	7.46625E-06	0.5557916	1.415E-06	9.13929E-06
Road 3	3	0000-0100	0.100091965	3.676E-07	1.42894E-05	0.0873657	3.209E-07	1.24726E-05	0.5476294	2.011E-06	7.8181E-05	0.4755956	1.747E-06	6.78972E-05	0.5629613	2.068E-06	8.03698E-05
Road 3	3	0100-0200	0.075275177	1.702E-07	6.61682E-06	0.0656926	1.486E-07	5.77449E-06	0.435622	9.852E-07	3.8292E-05	0.3781921	8.553E-07	3.32438E-05	0.4438847	1.004E-06	3.90183E-05
Road 3	3	0200-0300	0.07322899	1.163E-07	4.51957E-06	0.064534	1.025E-07	3.98293E-06	0.4524519	7.185E-07	2.79246E-05	0.3955361	6.281E-07	2.44118E-05	0.4600701	7.306E-07	2.83947E-05
Road 3	3	0300-0400	0.063172464	6.991E-08	2.71741E-06	0.0551201	6.1E-08	2.37104E-06	0.3412446	3.777E-07	1.46789E-05	0.2952206	3.267E-07	1.26991E-05	0.3503407	3.877E-07	1.50702E-05
Road 3	3	0400-0500	0.084928198	1.512E-07	5.87697E-06	0.0738596	1.315E-07	5.11104E-06	0.4656504	8.29E-07	3.22227E-05	0.4029377	7.174E-07	2.7883E-05	0.4767974	8.489E-07	3.2994E-05
Road 3	3	0500-0600	0.069774403	2.72E-07	1.05701E-05	0.0594535	2.317E-07	9.00664E-06	0.3835901	1.495E-06	5.81102E-05	0.323986	1.263E-06	4.90808E-05	0.3834395	1.494E-06	5.80874E-05
Road 3	3	0600-0700	0.094697831	6.653E-07	2.58579E-05	0.080226	5.636E-07	2.19063E-05	0.470786	3.307E-06	0.000128551	0.3963579	2.785E-06	0.000108228	0.4765839	3.348E-06	0.000130134
Road 3	3	0700-0800	0.078797151	9.049E-07	3.51724E-05	0.0658839	7.566E-07	2.94084E-05	0.408582	4.692E-06	0.000182377	0.338134	3.883E-06	0.000150932	0.4040179	4.64E-06	0.00018034
Road 3	3	0800-0900	0.087392497	1.386E-06	5.38827E-05	0.0744431	1.181E-06	4.58986E-05	0.433984	6.884E-06	0.000267577	0.3675348	5.83E-06	0.000226607	0.4419779	7.011E-06	0.000272506
Road 3	3	0900-1000	0.092772809	1.42E-06	5.51757E-05	0.0799444	1.223E-06	4.75461E-05	0.4763792	7.289E-06	0.000283322	0.4087412	6.254E-06	0.000243095	0.4886856	7.478E-06	0.000290641
Road 3	3	1000-1100	0.104891862	1.464E-06	5.68905E-05	0.0895905	1.25E-06	4.85914E-05	0.5325987	7.432E-06	0.000288867	0.4531843	6.324E-06	0.000245795	0.5427748	7.574E-06	0.000294386
Road 3	3	1100-1200	0.103439645	1.404E-06	5.45552E-05	0.0882001	1.197E-06	4.65177E-05	0.5388805	7.312E-06	0.000284211	0.4574324	6.207E-06	0.000241255	0.5456325	7.404E-06	0.000287773
Road 3	3	1200-1300	0.098793381	1.341E-06	5.21047E-05	0.083634	1.135E-06	4.41095E-05	0.526267	7.141E-06	0.000277559	0.4434907	6.018E-06	0.000233902	0.5271247	7.153E-06	0.000278011
Road 3	3	1300-1400	0.104705974	1.543E-06	5.99882E-05	0.0884526	1.304E-06	5.06763E-05	0.5366955	7.911E-06	0.000307484	0.4514873	6.655E-06	0.000258666	0.5399399	7.959E-06	0.000309343

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.097430195	1.444E-06	5.61234E-05	0.0823015	1.22E-06	4.74087E-05	0.5053245	7.489E-06	0.000291086	0.4250174	6.299E-06	0.000244826	0.5073189	7.519E-06	0.000292235
Road 3	3	1500-1600	0.109484899	1.563E-06	6.07467E-05	0.0915442	1.307E-06	5.07925E-05	0.5528905	7.893E-06	0.000306766	0.460207	6.57E-06	0.000255342	0.5517512	7.876E-06	0.000306134
Road 3	3	1600-1700	0.102702528	1.596E-06	6.20417E-05	0.084772	1.318E-06	5.121E-05	0.5287251	8.218E-06	0.000319398	0.433895	6.744E-06	0.000262112	0.5186669	8.061E-06	0.000313322
Road 3	3	1700-1800	0.080861825	1.258E-06	4.88983E-05	0.0679609	1.057E-06	4.10969E-05	0.4164004	6.479E-06	0.000251803	0.347403	5.405E-06	0.00021008	0.4153639	6.462E-06	0.000251177
Road 3	3	1800-1900	0.075147463	1.226E-06	4.76446E-05	0.0644556	1.051E-06	4.08658E-05	0.4137991	6.75E-06	0.000262355	0.3519277	5.741E-06	0.000223128	0.4163833	6.792E-06	0.000263993
Road 3	3	1900-2000	0.080229296	9.69E-07	3.76623E-05	0.0687891	8.308E-07	3.22919E-05	0.4389726	5.302E-06	0.000206068	0.3736388	4.513E-06	0.000175398	0.442428	5.344E-06	0.00020769
Road 3	3	2000-2100	0.072766227	7.516E-07	2.92142E-05	0.0630495	6.513E-07	2.53131E-05	0.3942384	4.072E-06	0.000158279	0.3391099	3.503E-06	0.000136146	0.4021593	4.154E-06	0.000161459
Road 3	3	2100-2200	0.071668738	7.012E-07	2.72545E-05	0.0631151	6.175E-07	2.40017E-05	0.4013105	3.926E-06	0.000152612	0.350905	3.433E-06	0.000133444	0.41402	4.051E-06	0.000157445
Road 3	3	2200-2300	0.076633831	6.834E-07	2.65628E-05	0.067413	6.012E-07	2.33667E-05	0.4142409	3.694E-06	0.000143584	0.3618538	3.227E-06	0.000125426	0.4292667	3.828E-06	0.000148792
Road 3	3	2300-0000	0.068001345	5.432E-07	2.11118E-05	0.0596652	4.766E-07	1.85238E-05	0.3820453	3.052E-06	0.00011861	0.3322469	2.654E-06	0.00010315	0.3919121	3.13E-06	0.000121674
Road 4	4	0000-0100	0.255850857	2.073E-07	2.21954E-06	0.2230463	1.807E-07	1.93495E-06	1.3031214	1.056E-06	1.13047E-05	1.135634	9.201E-07	9.85176E-06	1.3586803	1.101E-06	1.17867E-05
Road 4	4	0100-0200	0.2420935	1.121E-07	1.20011E-06	0.2110925	9.773E-08	1.04643E-06	1.235562	5.72E-07	6.12494E-06	1.077105	4.987E-07	5.33944E-06	1.2881975	5.964E-07	6.38587E-06
Road 4	4	0200-0300	0.262831538	7.909E-08	8.46893E-07	0.2317531	6.974E-08	7.46752E-07	1.2973708	3.904E-07	4.18037E-06	1.1437815	3.442E-07	3.68548E-06	1.3755346	4.139E-07	4.43223E-06
Road 4	4	0300-0400	0.239682857	3.884E-08	4.15856E-07	0.2092814	3.391E-08	3.63108E-07	1.27236	2.062E-07	2.20758E-06	1.1107043	1.8E-07	1.9271E-06	1.3199857	2.139E-07	2.29021E-06
Road 4	4	0400-0500	0.247653571	8.026E-08	8.5937E-07	0.2152364	6.975E-08	7.46881E-07	1.2228179	3.963E-07	4.24324E-06	1.0627407	3.444E-07	3.68776E-06	1.2779771	4.142E-07	4.43464E-06
Road 4	4	0500-0600	0.232947917	1.294E-07	1.38573E-06	0.1985946	1.103E-07	1.18137E-06	1.1036438	6.131E-07	6.5652E-06	0.9401371	5.223E-07	5.59255E-06	1.1387317	6.326E-07	6.77392E-06
Road 4	4	0600-0700	0.256155769	3.083E-07	3.30153E-06	0.2169935	2.612E-07	2.79677E-06	1.2226306	1.472E-06	1.57582E-05	1.0349979	1.246E-06	1.33398E-05	1.2519913	1.507E-06	1.61366E-05
Road 4	4	0700-0800	0.260262717	5.543E-07	5.93482E-06	0.2176187	4.634E-07	4.9624E-06	1.2952522	2.758E-06	2.95359E-05	1.0815265	2.303E-06	2.46622E-05	1.2991452	2.767E-06	2.96246E-05
Road 4	4	0800-0900	0.266873137	9.452E-07	1.01205E-05	0.227229	8.048E-07	8.61713E-06	1.3311863	4.715E-06	5.04821E-05	1.1328008	4.012E-06	4.29588E-05	1.3600298	4.817E-06	5.1576E-05
Road 4	4	0900-1000	0.269021284	9.216E-07	9.86861E-06	0.2312416	7.922E-07	8.48272E-06	1.2675916	4.343E-06	4.64995E-05	1.0887663	3.73E-06	3.99396E-05	1.3200078	4.522E-06	4.84223E-05
Road 4	4	1000-1100	0.301183217	9.97E-07	1.06752E-05	0.2568629	8.503E-07	9.10427E-06	1.4222843	4.708E-06	5.04115E-05	1.2127056	4.014E-06	4.29832E-05	1.4695685	4.865E-06	5.20875E-05
Road 4	4	1100-1200	0.281332839	1.009E-06	1.08084E-05	0.2394813	8.593E-07	9.20049E-06	1.3198025	4.735E-06	5.07047E-05	1.123139	4.03E-06	4.31492E-05	1.3626203	4.889E-06	5.23497E-05
Road 4	4	1200-1300	0.29106517	9.904E-07	1.06051E-05	0.2460557	8.373E-07	8.96517E-06	1.428352	4.86E-06	5.20427E-05	1.207087	4.107E-06	4.39808E-05	1.4531427	4.945E-06	5.2946E-05
Road 4	4	1300-1400	0.29800651	1.028E-06	1.10057E-05	0.2514314	8.672E-07	9.28567E-06	1.4282216	4.926E-06	5.2746E-05	1.2045336	4.155E-06	4.44849E-05	1.455965	5.022E-06	5.37706E-05
Road 4	4	1400-1500	0.272945652	8.719E-07	9.33604E-06	0.2302749	7.356E-07	7.8765E-06	1.3525503	4.321E-06	4.62637E-05	1.140352	3.643E-06	3.90055E-05	1.370627	4.378E-06	4.6882E-05
Road 4	4	1500-1600	0.307585887	8.829E-07	9.45356E-06	0.2567502	7.37E-07	7.89114E-06	1.4722977	4.226E-06	4.52506E-05	1.2286064	3.527E-06	3.77609E-05	1.4853565	4.264E-06	4.5652E-05
Road 4	4	1600-1700	0.287600565	8.255E-07	8.83932E-06	0.2370702	6.805E-07	7.28629E-06	1.3922225	3.996E-06	4.27896E-05	1.1469394	3.292E-06	3.52509E-05	1.3840096	3.973E-06	4.25371E-05
Road 4	4	1700-1800	0.271516667	7.919E-07	8.47958E-06	0.2281163	6.653E-07	7.12417E-06	1.3362339	3.897E-06	4.17312E-05	1.1217513	3.272E-06	3.50328E-05	1.3498675	3.937E-06	4.2157E-05
Road 4	4	1800-1900	0.294676415	7.23E-07	7.7421E-06	0.2527848	6.203E-07	6.64147E-06	1.4702139	3.607E-06	3.86273E-05	1.261047	3.094E-06	3.31318E-05	1.5138318	3.714E-06	3.97732E-05
Road 4	4	1900-2000	0.266063514	4.558E-07	4.88005E-06	0.2282095	3.909E-07	4.18575E-06	1.3210653	2.263E-06	2.42306E-05	1.1326219	1.94E-06	2.07742E-05	1.3608314	2.331E-06	2.49599E-05
Road 4	4	2000-2100	0.227216122	2.577E-07	2.75958E-06	0.1967749	2.232E-07	2.38986E-06	1.133991	1.286E-06	1.37725E-05	0.9810496	1.113E-06	1.1915E-05	1.1778245	1.336E-06	1.43049E-05
Road 4	4	2100-2200	0.189667027	1.624E-07	1.73941E-06	0.1672046	1.432E-07	1.53341E-06	0.9633527	8.251E-07	8.83476E-06	0.8480876	7.264E-07	7.77768E-06	1.0152922	8.696E-07	9.31108E-06
Road 4	4	2200-2300	0.252923175	3.688E-07	3.94945E-06	0.2225306	3.245E-07	3.47486E-06	1.2400522	1.808E-06	1.93637E-05	1.0904302	1.59E-06	1.70273E-05	1.3129608	1.915E-06	2.05022E-05
Road 4	4	2300-0000	0.235917708	2.621E-07	2.80679E-06	0.2069488	2.299E-07	2.46213E-06	1.1874358	1.319E-06	1.41273E-05	1.0409531	1.157E-06	1.23845E-05	1.2479019	1.387E-06	1.48467E-05
Road 5	5	0000-0100	0.085428394	3.095E-07	4.1848E-06	0.0745885	2.702E-07	3.65379E-06	0.4689101	1.699E-06	2.297E-05	0.4067062	1.473E-06	1.99229E-05	0.4812947	1.743E-06	2.35767E-05
Road 5	5	0100-0200	0.057943058	1.316E-07	1.77951E-06	0.0505915	1.149E-07	1.55374E-06	0.3476999	7.896E-07	1.06784E-05	0.3012846	6.842E-07	9.25289E-06	0.3518761	7.991E-07	1.08066E-05
Road 5	5	0200-0300	0.054637558	8.819E-08	1.19263E-06	0.0481322	7.769E-08	1.05063E-06	0.3669963	5.924E-07	8.01078E-06	0.3196857	5.16E-07	6.97809E-06	0.3678179	5.937E-07	8.02872E-06
Road 5	5	0300-0400	0.050359839	5.86E-08	7.92485E-07	0.0439305	5.112E-08	6.9131E-07	0.2672161	3.109E-07	4.20503E-06	0.230296	2.68E-07	3.62404E-06	0.2742265	3.191E-07	4.31535E-06
Road 5	5	0400-0500	0.070499485	1.283E-07	1.73569E-06	0.0613243	1.116E-07	1.5098E-06	0.3943895	7.18E-07	9.70984E-06	0.3407567	6.204E-07	8.3894E-06	0.402081	7.32E-07	9.8992E-06
Road 5	5	0500-0600	0.057585183	2.356E-07	3.18627E-06	0.0490571	2.007E-07	2.7144E-06	0.3270625	1.338E-06	1.80968E-05	0.2755178	1.127E-06	1.52448E-05	0.3245749	1.328E-06	1.79592E-05
Road 5	5	0600-0700	0.083273766	6.017E-07	8.13736E-06	0.0705527	5.098E-07	6.89428E-06	0.4120883	2.978E-06	4.02685E-05	0.3463699	2.503E-06	3.38467E-05	0.4169226	3.013E-06	4.07409E-05
Road 5	5	0700-0800	0.064810801	7.59E-07	1.02647E-05	0.0542	6.348E-07	8.58419E-06	0.3337671	3.909E-06	5.28619E-05	0.2752465	3.224E-06	4.35934E-05	0.3294465	3.858E-06	5.21776E-05
Road 5	5	0800-0900	0.070284737	1.103E-06	1.49136E-05	0.0598987	9.399E-07	1.27098E-05	0.3407228	5.346E-06	7.22973E-05	0.2878635	4.517E-06	6.10812E-05	0.3477622	5.457E-06	7.3791E-05
Road 5	5	0900-1000	0.075627871	1.147E-06	1.55099E-05	0.065237	9.893E-07	1.33789E-05	0.3968693	6.019E-06	8.13905E-05	0.3403706	5.162E-06	6.98037E-05	0.4056077	6.151E-06	8.31826E-05
Road 5	5	1000-1100	0.086143499	1.174E-06	1.58735E-05	0.0736252	1.003E-06	1.35668E-05	0.444121	6.052E-06	8.18376E-05	0.3775491	5.145E-06	6.95705E-05	0.4511743	6.148E-06	8.31373E-05
Road 5	5	1100-1200	0.084797957	1.098E-06	1.48508E-05	0.0723527	9.37E-07	1.26712E-05	0.4545062	5.886E-06	7.95983E-05	0.3854098	4.991E-06	6.74973E-05	0.4577625	5.928E-06	8.01686E-05
Road 5	5	1200-1300	0.080306423	1.054E-06	1.42476E-05	0.0680229	8.924E-07	1.20683E-05	0.433815	5.691E-06	7.69656E-05	0.3650999	4.79E-06	6.47745E-05	0.4331229	5.682E-06	7.68428E-05
Road 5	5	1300-1400	0.08636678	1.243E-06	1.68135E-05	0.0730156	1.051E-06	1.42143E-05	0.4489804	6.463E-06	8.74053E-05	0.3772622	5.431E-06	7.34435E-05	0.4502778	6.482E-06	8.76578E-05
Road 5	5	1400-1500	0.082586896	1.218E-06	1.64759E-05	0.0698137	1.03E-06	1.39277E-05	0.4291926	6.332E-06	8.56228E-05	0.3606283	5.32E-06	7.19444E-05	0.430442	6.35E-06	8.58721E-05
Road 5	5	1500-1600	0.093372889	1.341E-06	1.813E-05	0.0781292	1.122E-06	1.51701E-05	0.4744263	6.812E-06	9.21181E-05	0.3945221	5.665E-06	7.66033E-05	0.4726513	6.786E-06	9.17735E-05
Road 5	5	1600-1700	0.087670784	1.385E-06	1.87362E-05	0.0724077	1.144E-06	1.54743E-05	0.4557775	7.203E-06	9.74047E-05	0.3735463	5.903E-06	7.9831E-05	0.445954	7.048E-06	9.53053E-05
Road 5	5	1700-1800	0.06447013	1.021E-06	1.38107E-05	0.0541809	8.583E-07	1.16066E-05	0.3332651	5.279E-06	7.13916E-05	0.2773677	4.394E-06	5.94173E-05	0.3315486	5.252E-06	7.10239E-05
Road 5	5	1800-1900	0.05951867	1.017E-06	1.3747E-05	0.0510529	8.72E-07	1.17917E-05	0.3346566	5.716E-06	7.72958E-05	0.2837536	4.846E-06	6.55387E-05	0.3348066	5.718E-06	7.73304E-05
Road 5	5	1900-2000	0.068739823	8.734E-07	1.18117E-05	0.0589318	7.488E-07	1.01264E-05	0.3821576	4.856E-06	6.56668E-05	0.3246579	4.125E-06	5.57865E-05	0.3835896	4.874E-06	6.59129E-05
Road 5	5	2000-2100	0.064448872	7.185E-07	9.71665E-06	0.0558688	6.229E-07	8.42308E-06	0.3517118	3.921E-06	5.30259E-05	0.3021446	3.369E-06	4.55529E-05	0.3580135	3.991E-06	5.3976E-05
Road 5	5	2100-2200	0.067218301	7.204E-07	9.74178E-06	0.059185	6.343E-07	8.57753E-06	0.3786951	4.058E-06	5.48834E-05	0.3308382	3.546E-06	4.79476E-05	0.3900232	4.18E-06	5.65251E-05
Road 5	5	2200-2300	0.064610386	5.966E-07	8.0683E-06	0.0568338	5.248E-07	7.09719E-06	0.3552377	3.28E-06	4.43608E-05	0.3096784	2.86E-06	3.86715E-05	0.3665122	3.384E-06	4.57687E-05
Road 5	5	2300-0000	0.057344464	4.822E-07	6.52055E-06	0.0503193	4.231E-07	5.72173E-06	0.3280367	2.758E-06	3.73006E-05	0.2846098	2.393E-06	3.23625E-05	0.3349291	2.816E-06	3.80843E-05
Road 6	6	0000-0100	0.051850405	1.44E-07	5.14845E-06	0.0451951	1.255E-07	4.48761E-06	0.324458	9.013E-07	3.22168E-05	0.2795103	7.764E-07	2.77538E-05	0.3247054	9.02E-07	3.22414E-05
Road 6	6	0100-0200	0.06743292	1.43E-07	5.11226E-06	0.0588592	1.248E-07	4.46227E-06	0.3744553	7.942E-07	2.83884E-05	0.3238974	6.869E-07	2.45555E-05	0.3827566	8.118E-07	2.90178E-05
Road 6	6	0200-0300	0.062208354	9.224E-08	3.29715E-06	0.0549099	8.142E-08	2.91032E-06	0.3466922	5.141E-07	1.83753E-05	0.3031684	4.495E-07	1.60684E-05	0.3580782	5.309E-07	1.89787E-05
Road 6	6	0300-0400	0.063206935	7.355E-08	2.62917E-06	0.0553637	6.442E-08	2.30292E-06	0.3967492	4.617E-07	1.65033E-05	0.3444739	4.009E-07	1.43288E-05	0.3998376	4.653E-07	1.66317E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.069186556	1.169E-07	4.1776E-06	0.0601922	1.017E-07	3.63451E-06	0.3982843	6.728E-07	2.40491E-05	0.3434244	5.801E-07	2.07365E-05	0.4036167	6.818E-07	2.4371E-05
Road 6	6	0500-0600	0.063522298	1.919E-07	6.86143E-06	0.0542043	1.638E-07	5.85494E-06	0.3763075	1.137E-06	4.06473E-05	0.3173423	9.589E-07	3.42781E-05	0.3715466	1.123E-06	4.0133E-05
Road 6	6	0600-0700	0.067238258	3.622E-07	1.29468E-05	0.0570111	3.071E-07	1.09775E-05	0.4095475	2.206E-06	7.88586E-05	0.343117	1.848E-06	6.60673E-05	0.4001282	2.155E-06	7.70448E-05
Road 6	6	0700-0800	0.064177961	5.493E-07	1.96342E-05	0.0536882	4.595E-07	1.6425E-05	0.3573412	3.058E-06	0.000109323	0.2948622	2.524E-06	9.02083E-05	0.3485505	2.983E-06	0.000106633
Road 6	6	0800-0900	0.054903746	6.739E-07	2.40903E-05	0.046716	5.734E-07	2.04977E-05	0.3186476	3.911E-06	0.000139814	0.2673298	3.281E-06	0.000117297	0.3140458	3.855E-06	0.000137795
Road 6	6	0900-1000	0.056160621	6.62E-07	2.36621E-05	0.0482983	5.693E-07	2.03495E-05	0.3103953	3.659E-06	0.000130779	0.2640335	3.112E-06	0.000111245	0.3123318	3.681E-06	0.000131595
Road 6	6	1000-1100	0.075681955	7.557E-07	2.70126E-05	0.0646228	6.453E-07	2.30654E-05	0.4097145	4.091E-06	0.000146236	0.3470132	3.465E-06	0.000123857	0.411636	4.11E-06	0.000146922
Road 6	6	1100-1200	0.086553769	8.577E-07	3.06607E-05	0.0738687	7.32E-07	2.61672E-05	0.4468865	4.429E-06	0.000158305	0.3789444	3.755E-06	0.000134237	0.452813	4.487E-06	0.000160404
Road 6	6	1200-1300	0.085194167	8.251E-07	2.94932E-05	0.0721951	6.992E-07	2.49931E-05	0.4190966	4.059E-06	0.000145086	0.3531987	3.421E-06	0.000122273	0.4253938	4.12E-06	0.000147266
Road 6	6	1300-1400	0.09908468	9.577E-07	3.42355E-05	0.0837419	8.094E-07	2.89343E-05	0.496181	4.796E-06	0.000171439	0.4169924	4.031E-06	0.000144078	0.5007343	4.84E-06	0.000173012
Road 6	6	1400-1500	0.094531655	1.008E-06	3.60237E-05	0.0798912	8.517E-07	3.04446E-05	0.4703631	5.014E-06	0.000179244	0.3950805	4.212E-06	0.000150555	0.4749717	5.064E-06	0.000181
Road 6	6	1500-1600	0.083939063	8.744E-07	3.1255E-05	0.0701813	7.311E-07	2.61322E-05	0.4268834	4.447E-06	0.000158952	0.354165	3.689E-06	0.000131875	0.4243463	4.42E-06	0.000158007
Road 6	6	1600-1700	0.087861673	9.367E-07	3.34819E-05	0.0725524	7.735E-07	2.76479E-05	0.4275129	4.558E-06	0.000162915	0.3504436	3.736E-06	0.000133545	0.4229961	4.509E-06	0.000161193
Road 6	6	1700-1800	0.064609349	7.264E-07	2.59648E-05	0.0543453	6.11E-07	2.18399E-05	0.3233521	3.635E-06	0.000129947	0.2692754	3.027E-06	0.000108215	0.3236207	3.638E-06	0.000130055
Road 6	6	1800-1900	0.062540293	8.017E-07	2.86578E-05	0.0536297	6.875E-07	2.45747E-05	0.3227842	4.138E-06	0.000147909	0.2740672	3.513E-06	0.000125586	0.3276969	4.201E-06	0.00015016
Road 6	6	1900-2000	0.074223551	7.258E-07	2.59443E-05	0.0636152	6.221E-07	2.22362E-05	0.3827072	3.742E-06	0.000133773	0.3247309	3.175E-06	0.000113507	0.3883462	3.797E-06	0.000135744
Road 6	6	2000-2100	0.057686951	4.439E-07	1.58681E-05	0.0499705	3.845E-07	1.37455E-05	0.3219794	2.478E-06	8.85675E-05	0.2758279	2.123E-06	7.58725E-05	0.3257984	2.507E-06	8.9618E-05
Road 6	6	2100-2200	0.080485787	5.378E-07	1.92235E-05	0.070855	4.734E-07	1.69232E-05	0.4160162	2.78E-06	9.93626E-05	0.3638181	2.431E-06	8.68954E-05	0.4346731	2.904E-06	0.000103819
Road 6	6	2200-2300	0.060198355	4.26E-07	1.52261E-05	0.052893	3.743E-07	1.33783E-05	0.3302459	2.337E-06	8.35298E-05	0.2862901	2.026E-06	7.24119E-05	0.3391831	2.4E-06	8.57903E-05
Road 6	6	2300-0000	0.040467288	2.689E-07	9.61103E-06	0.0355296	2.361E-07	8.43832E-06	0.24647	1.638E-06	5.85369E-05	0.2133209	1.417E-06	5.0664E-05	0.2488505	1.653E-06	5.91023E-05
Road 7	7	0000-0100	0.074365163	1.987E-07	4.95922E-06	0.0649179	1.734E-07	4.3292E-06	0.4369838	1.167E-06	2.91413E-05	0.3787907	1.012E-06	2.52605E-05	0.4437086	1.185E-06	2.95898E-05
Road 7	7	0100-0200	0.089646294	1.861E-07	4.64616E-06	0.0782197	1.624E-07	4.05394E-06	0.4906231	1.019E-06	2.54279E-05	0.4257261	8.839E-07	2.20644E-05	0.5039457	1.046E-06	2.61183E-05
Road 7	7	0200-0300	0.07828266	1.068E-07	2.66698E-06	0.0685385	9.354E-08	2.33501E-06	0.4392544	5.995E-07	1.49648E-05	0.3820119	5.213E-07	1.30146E-05	0.4505504	6.149E-07	1.53496E-05
Road 7	7	0300-0400	0.079034446	8.721E-08	2.17699E-06	0.0690432	7.618E-08	1.90178E-06	0.4744021	5.235E-07	1.30673E-05	0.4118565	4.544E-07	1.13445E-05	0.4808997	5.306E-07	1.32463E-05
Road 7	7	0400-0500	0.088733694	1.43E-07	3.56974E-06	0.0766867	1.236E-07	3.0851E-06	0.4920188	7.929E-07	1.97939E-05	0.422613	6.811E-07	1.70017E-05	0.4992998	8.047E-07	2.00868E-05
Road 7	7	0500-0600	0.082029097	2.334E-07	5.82706E-06	0.0703426	2.002E-07	4.99689E-06	0.4606406	1.311E-06	3.27223E-05	0.3919377	1.115E-06	2.78419E-05	0.4622803	1.315E-06	3.28388E-05
Road 7	7	0600-0700	0.085555029	4.347E-07	1.08527E-05	0.0726498	3.692E-07	9.21569E-06	0.4899019	2.489E-06	6.21445E-05	0.4125673	2.096E-06	5.23345E-05	0.4852171	2.466E-06	6.15502E-05
Road 7	7	0700-0800	0.083015536	6.75E-07	1.6849E-05	0.0695733	5.657E-07	1.41207E-05	0.4484183	3.646E-06	9.10117E-05	0.3722508	3.027E-06	7.55526E-05	0.4418241	3.592E-06	8.96733E-05
Road 7	7	0800-0900	0.082544669	1.014E-06	2.53096E-05	0.0698885	8.584E-07	2.1429E-05	0.4489479	5.514E-06	0.000137655	0.3768913	4.629E-06	0.000115561	0.4467799	5.488E-06	0.00013699
Road 7	7	0900-1000	0.082719695	9.44E-07	2.35644E-05	0.0713973	8.148E-07	2.0339E-05	0.4316992	4.926E-06	0.000122979	0.3702541	4.225E-06	0.000105475	0.4416513	5.04E-06	0.000125814
Road 7	7	1000-1100	0.098500509	9.853E-07	2.45971E-05	0.0841239	8.415E-07	2.1007E-05	0.5180123	5.182E-06	0.000129356	0.440118	4.403E-06	0.000109904	0.524242	5.244E-06	0.000130911
Road 7	7	1100-1200	0.108362536	1.079E-06	2.69419E-05	0.0925662	9.219E-07	2.30145E-05	0.5591861	5.569E-06	0.000139029	0.4757507	4.738E-06	0.000118285	0.568317	5.66E-06	0.000141299
Road 7	7	1200-1300	0.108194453	1.076E-06	2.68609E-05	0.0912869	9.079E-07	2.26634E-05	0.5460449	5.431E-06	0.000135564	0.4591998	4.567E-06	0.000114003	0.5504868	5.475E-06	0.000136667
Road 7	7	1300-1400	0.115747359	1.134E-06	2.83166E-05	0.0973285	9.538E-07	2.38106E-05	0.5823995	5.708E-06	0.000142479	0.4878227	4.781E-06	0.000119341	0.5851512	5.735E-06	0.000143152
Road 7	7	1400-1500	0.108419812	1.114E-06	2.78207E-05	0.0909886	9.353E-07	2.33478E-05	0.5519078	5.673E-06	0.00014162	0.4610651	4.739E-06	0.00011831	0.5520537	5.675E-06	0.000141658
Road 7	7	1500-1600	0.10066346	1.011E-06	2.52466E-05	0.0844396	8.484E-07	2.11777E-05	0.5166088	5.19E-06	0.000129567	0.430981	4.33E-06	0.000108091	0.5154206	5.178E-06	0.000129269
Road 7	7	1600-1700	0.105272567	1.094E-06	2.73183E-05	0.0869727	9.041E-07	2.25695E-05	0.5210929	5.417E-06	0.000135224	0.428178	4.451E-06	0.000111113	0.5151507	5.355E-06	0.000133682
Road 7	7	1700-1800	0.080270245	8.845E-07	2.20812E-05	0.0676816	7.458E-07	1.86182E-05	0.4116314	4.536E-06	0.000113234	0.3446666	3.798E-06	9.48127E-05	0.4123482	4.544E-06	0.000113431
Road 7	7	1800-1900	0.073084264	8.361E-07	2.08726E-05	0.0628115	7.186E-07	1.79387E-05	0.3827382	4.379E-06	0.000109308	0.3264076	3.734E-06	9.32206E-05	0.3892191	4.453E-06	0.000111159
Road 7	7	1900-2000	0.085167102	7.382E-07	1.84277E-05	0.0729382	6.322E-07	1.57817E-05	0.4474463	3.878E-06	9.68146E-05	0.3802712	3.296E-06	8.22798E-05	0.4532093	3.928E-06	9.80616E-05
Road 7	7	2000-2100	0.076504959	5.42E-07	1.35312E-05	0.0663783	4.703E-07	1.17401E-05	0.4112546	2.914E-06	7.27371E-05	0.3541535	2.509E-06	6.26379E-05	0.4205318	2.979E-06	7.4378E-05
Road 7	7	2100-2200	0.087872481	5.231E-07	1.30576E-05	0.0777882	4.63E-07	1.15591E-05	0.4609203	2.744E-06	6.84913E-05	0.4058468	2.416E-06	6.03075E-05	0.483635	2.879E-06	7.18666E-05
Road 7	7	2200-2300	0.074116989	4.756E-07	1.18731E-05	0.0651815	4.183E-07	1.04417E-05	0.401941	2.579E-06	6.43888E-05	0.3500982	2.247E-06	5.60838E-05	0.4152797	2.665E-06	6.65256E-05
Road 7	7	2300-0000	0.051370227	3.035E-07	7.5776E-06	0.0451244	2.666E-07	6.65628E-06	0.3028166	1.789E-06	4.46683E-05	0.2632493	1.556E-06	3.88318E-05	0.3083737	1.822E-06	4.54881E-05
Road 8	8	0000-0100	0.224909444	1.636E-07	2.6964E-06	0.1960442	1.426E-07	2.35034E-06	1.1488136	8.355E-07	1.37729E-05	1.0008233	7.279E-07	1.19987E-05	1.1968675	8.704E-07	1.4349E-05
Road 8	8	0100-0200	0.233290667	1.414E-07	2.33073E-06	0.2034447	1.233E-07	2.03255E-06	1.1870977	7.195E-07	1.18599E-05	1.035	6.273E-07	1.03404E-05	1.2384447	7.506E-07	1.23729E-05
Road 8	8	0200-0300	0.221634667	6.716E-08	1.10714E-06	0.1955467	5.926E-08	9.76822E-07	1.1879767	3.6E-07	5.93435E-06	1.047736	3.175E-07	5.2338E-06	1.2432827	3.768E-07	6.21062E-06
Road 8	8	0300-0400	0.202993571	5.741E-08	9.46421E-07	0.1774943	5.02E-08	8.27535E-07	1.0613157	3.002E-07	4.94819E-06	0.9274864	2.623E-07	4.32424E-06	1.1049807	3.125E-07	5.15177E-06
Road 8	8	0400-0500	0.231194762	9.808E-08	1.61686E-06	0.2010314	8.529E-08	1.40591E-06	1.1417095	4.844E-07	7.98452E-06	0.9925852	4.211E-07	6.94162E-06	1.1936167	5.064E-07	8.34753E-06
Road 8	8	0500-0600	0.224136765	1.54E-07	2.53785E-06	0.1911968	1.313E-07	2.16488E-06	1.0863541	7.462E-07	1.23005E-05	0.9259735	6.36E-07	1.04846E-05	1.1171703	7.673E-07	1.26495E-05
Road 8	8	0600-0700	0.248113548	3.108E-07	5.1229E-06	0.2103211	2.634E-07	4.34259E-06	1.1883171	1.488E-06	2.45357E-05	1.0065853	1.261E-06	2.07834E-05	1.2169065	1.524E-06	2.5126E-05
Road 8	8	0700-0800	0.251243465	5.126E-07	8.45065E-06	0.2101491	4.288E-07	7.06843E-06	1.2169174	2.483E-06	4.09314E-05	1.0168761	2.075E-06	3.42029E-05	1.2270252	2.504E-06	4.12714E-05
Road 8	8	0800-0900	0.277895895	1.067E-06	1.75837E-05	0.2368496	9.091E-07	1.49865E-05	1.3509138	5.185E-06	8.54781E-05	1.1503613	4.416E-06	7.27883E-05	1.3872109	5.325E-06	8.77748E-05
Road 8	8	0900-1000	0.291056433	9.231E-07	1.52178E-05	0.2502582	7.937E-07	1.30846E-05	1.34621	4.27E-06	7.0386E-05	1.1572406	3.67E-06	6.05058E-05	1.4074987	4.464E-06	7.35905E-05
Road 8	8	1000-1100	0.280695127	8.96E-07	1.47695E-05	0.2394278	7.642E-07	1.25981E-05	1.3321233	4.252E-06	7.00931E-05	1.1354783	3.624E-06	5.97461E-05	1.3749061	4.389E-06	7.23442E-05
Road 8	8	1100-1200	0.288868679	9.279E-07	1.52958E-05	0.2458797	7.898E-07	1.30195E-05	1.3909573	4.468E-06	7.3652E-05	1.1836981	3.802E-06	6.26775E-05	1.4295778	4.592E-06	7.5697E-05
Road 8	8	1200-1300	0.295723609	1.01E-06	1.66436E-05	0.2500017	8.535E-07	1.40703E-05	1.4383547	4.911E-06	8.09518E-05	1.2155562	4.15E-06	6.84125E-05	1.4655579	5.004E-06	8.24828E-05
Road 8	8	1300-1400	0.269905438	8.724E-07	1.43815E-05	0.2277711	7.362E-07	1.21365E-05	1.2890167	4.167E-06	6.86835E-05	1.0873757	3.515E-06	5.79393E-05	1.3151468	4.251E-06	7.00758E-05
Road 8	8	1400-1500	0.262831655	7.381E-07	1.21665E-05	0.2217806	6.228E-07	1.02663E-05	1.314593	3.691E-06	6.08527E-05	1.1088503	3.114E-06	5.13289E-05	1.3306309	3.737E-06	6.15951E-05
Road 8	8	1500-1600	0.272136131	7.532E-07	1.2416E-05	0.2271209	6.286E-07	1.03622E-05	1.3245009	3.666E-06	6.04292E-05	1.1045453	3.057E-06	5.03939E-05	1.3316663	3.686E-06	6.07561E-05
Road 8	8	1600-1700	0.27351637	8.067E-07	1.32987E-05	0.2254526	6.65E-07	1.09618E-05	1.3148879	3.878E-06	6.39316E-05	1.0830029	3.194E-06	5.2657E-05	1.3084555	3.859E-06	6.36188E-05
Road 8	8	1700-1800	0.220222692	6.94E-07	1.14409E-05	0.1849735	5.829E-07	9.60966E-06	1.1054811	3.484E-06	5.74314E-05	0.9268573	2.921E-06	4.81517E-05	1.1118308	3.504E-06	5.77613E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.217302243	4.697E-07	7.74322E-06	0.1865505	4.033E-07	6.64743E-06	1.1158368	2.412E-06	3.97611E-05	0.9569497	2.069E-06	3.40994E-05	1.1435002	2.472E-06	4.07468E-05
Road 8	8	1900-2000	0.216226104	3.364E-07	5.54463E-06	0.1855234	2.886E-07	4.75733E-06	1.1386003	1.771E-06	2.91968E-05	0.9765101	1.519E-06	2.50404E-05	1.1620335	1.808E-06	2.97977E-05
Road 8	8	2000-2100	0.231933421	3.561E-07	5.87017E-06	0.2008512	3.084E-07	5.08349E-06	1.1091745	1.703E-06	2.80729E-05	0.9597199	1.474E-06	2.42902E-05	1.1605711	1.782E-06	2.93737E-05
Road 8	8	2100-2200	0.190849245	2.043E-07	3.36853E-06	0.1681349	1.8E-07	2.96762E-06	1.0023292	1.073E-06	1.76913E-05	0.8816225	9.44E-07	1.55608E-05	1.0497574	1.124E-06	1.85284E-05
Road 8	8	2200-2300	0.229243438	2.964E-07	4.88597E-06	0.2016972	2.608E-07	4.29886E-06	1.1355255	1.468E-06	2.4202E-05	0.9980458	1.29E-06	2.12718E-05	1.199743	1.551E-06	2.55707E-05
Road 8	8	2300-0000	0.184555962	1.939E-07	3.19599E-06	0.1619946	1.702E-07	2.80529E-06	0.9503608	9.984E-07	1.64576E-05	0.8333462	8.754E-07	1.44312E-05	0.9953408	1.046E-06	1.72365E-05
Road 9	9	0000-0100	0.195156725	5.183E-08	1.54719E-06	0.1745283	4.635E-08	1.38364E-06	0.8919093	2.369E-07	7.07098E-06	0.791712	2.103E-07	6.27662E-06	0.9662403	2.566E-07	7.66027E-06
Road 9	9	0100-0200	0.212268803	4.429E-08	1.32224E-06	0.1902118	3.969E-08	1.18484E-06	0.9167217	1.913E-07	5.71033E-06	0.814865	1.7E-07	5.07585E-06	1.0050768	2.097E-07	6.2607E-06
Road 9	9	0200-0300	0.083742394	7.943E-09	2.37108E-07	0.0738912	7.008E-09	2.09215E-07	0.6005151	5.696E-08	1.7003E-06	0.5303503	5.03E-08	1.50163E-06	0.6042415	5.731E-08	1.71085E-06
Road 9	9	0300-0400	0.101470804	7.699E-09	2.29843E-07	0.0891155	6.762E-09	2.01857E-07	0.6300335	4.781E-08	1.4271E-06	0.5540452	4.204E-08	1.25498E-06	0.6431607	4.88E-08	1.45683E-06
Road 9	9	0400-0500	0.231411683	4.39E-08	1.31044E-06	0.2059414	3.907E-08	1.1662E-06	0.9611722	1.823E-07	5.44292E-06	0.8491363	1.611E-07	4.80848E-06	1.0550776	2.001E-07	5.97469E-06
Road 9	9	0500-0600	0.168504237	5.434E-08	1.62215E-06	0.1485572	4.791E-08	1.43012E-06	0.8539863	2.754E-07	8.22111E-06	0.7522043	2.426E-07	7.24128E-06	0.9007614	2.905E-07	8.6714E-06
Road 9	9	0600-0700	0.196658459	1.194E-07	3.56364E-06	0.1732963	1.052E-07	3.14029E-06	1.0325582	6.268E-07	1.87109E-05	0.9084618	5.515E-07	1.64622E-05	1.0817582	6.567E-07	1.96025E-05
Road 9	9	0700-0800	0.17088478	1.556E-07	4.64489E-06	0.1506228	1.371E-07	4.09414E-06	0.9829585	8.95E-07	2.67182E-05	0.865424	7.88E-07	2.35234E-05	1.0160468	9.252E-07	2.76176E-05
Road 9	9	0800-0900	0.261785009	5.711E-07	1.7048E-05	0.2293968	5.004E-07	1.49388E-05	1.273012	2.777E-06	8.29012E-05	1.1079965	2.417E-06	7.21551E-05	1.3373932	2.918E-06	8.70939E-05
Road 9	9	0900-1000	0.265099987	4.325E-07	1.29104E-05	0.2374896	3.874E-07	1.15658E-05	1.1702317	1.909E-06	5.69903E-05	1.0429309	1.701E-06	5.07908E-05	1.2804206	2.089E-06	6.23565E-05
Road 9	9	1000-1100	0.278292687	3.748E-07	1.1189E-05	0.2434101	3.278E-07	9.78651E-06	1.2026505	1.62E-06	4.83536E-05	1.0481579	1.412E-06	4.21421E-05	1.291568	1.74E-06	5.19286E-05
Road 9	9	1100-1200	0.194485088	2.73E-07	8.14983E-06	0.167804	2.356E-07	7.03177E-06	1.0420966	1.463E-06	4.36687E-05	0.9095411	1.277E-06	3.8114E-05	1.0773451	1.512E-06	4.51458E-05
Road 9	9	1200-1300	0.292947217	4.057E-07	1.211E-05	0.2581236	3.574E-07	1.06704E-05	1.3550998	1.877E-06	5.60176E-05	1.1942983	1.654E-06	4.93704E-05	1.4524219	2.011E-06	6.00408E-05
Road 9	9	1300-1400	0.329558083	3.751E-07	1.11973E-05	0.2893891	3.294E-07	9.8325E-06	1.272859	1.449E-06	4.32476E-05	1.1099175	1.263E-06	3.77114E-05	1.3993066	1.593E-06	4.75439E-05
Road 9	9	1400-1500	0.213364152	2.752E-07	8.21601E-06	0.1888013	2.435E-07	7.27017E-06	1.0586875	1.366E-06	4.07669E-05	0.9278549	1.197E-06	3.57289E-05	1.1166562	1.44E-06	4.29991E-05
Road 9	9	1500-1600	0.179166983	1.937E-07	5.78314E-06	0.1559808	1.687E-07	5.03473E-06	0.9487777	1.026E-06	3.06246E-05	0.8274198	8.947E-07	2.67074E-05	0.9834005	1.063E-06	3.17421E-05
Road 9	9	1600-1700	0.186517039	2.795E-07	8.34404E-06	0.1635476	2.451E-07	7.31648E-06	1.0636587	1.594E-06	4.75839E-05	0.9296993	1.393E-06	4.15911E-05	1.093247	1.638E-06	4.89076E-05
Road 9	9	1700-1800	0.161161971	2.079E-07	6.20586E-06	0.1447573	1.867E-07	5.57417E-06	1.0050831	1.296E-06	3.87027E-05	0.9077798	1.171E-06	3.49559E-05	1.0525371	1.358E-06	4.053E-05
Road 9	9	1800-1900	0.1578739	1.318E-07	3.93363E-06	0.1443709	1.205E-07	3.59719E-06	0.9710561	8.105E-07	2.41951E-05	0.8927834	7.452E-07	2.22448E-05	1.0371543	8.657E-07	2.5842E-05
Road 9	9	1900-2000	0.164295295	1.34E-07	4.00059E-06	0.148616	1.212E-07	3.6188E-06	0.8918183	7.275E-07	2.17158E-05	0.8002569	6.528E-07	1.94863E-05	0.9488729	7.74E-07	2.31051E-05
Road 9	9	2000-2100	0.171777562	9.45E-08	2.82095E-06	0.1535393	8.447E-08	2.52144E-06	0.7711155	4.242E-07	1.26633E-05	0.6931679	3.813E-07	1.13833E-05	0.8467072	4.658E-07	1.39047E-05
Road 9	9	2100-2200	0.022484332	1.152E-08	3.43775E-07	0.0206103	1.056E-08	3.15122E-07	0.3116131	1.596E-07	4.76442E-06	0.2816833	1.443E-07	4.30681E-06	0.3022936	1.548E-07	4.62193E-06
Road 9	9	2200-2300	0.164985011	1.033E-07	3.08311E-06	0.148675	9.307E-08	2.77832E-06	0.8118466	5.082E-07	1.51712E-05	0.729042	4.564E-07	1.36238E-05	0.877717	5.495E-07	1.64021E-05
Road 9	9	2300-0000	0.134286361	7.642E-08	2.28131E-06	0.1218168	6.932E-08	2.06947E-06	0.6968178	3.966E-07	1.18378E-05	0.6281512	3.575E-07	1.06713E-05	0.749968	4.268E-07	1.27407E-05
Road 10	10	0000-0100	0.272722725	2.097E-07	4.66227E-06	0.2392157	1.839E-07	4.08946E-06	1.3955298	1.073E-06	2.3857E-05	1.2236969	9.408E-07	2.09194E-05	1.4629126	1.125E-06	2.50089E-05
Road 10	10	0100-0200	0.268155736	1.558E-07	3.46362E-06	0.2357079	1.369E-07	3.04451E-06	1.3603354	7.902E-07	1.75707E-05	1.1950756	6.942E-07	1.54361E-05	1.4307835	8.312E-07	1.84806E-05
Road 10	10	0200-0300	0.267416272	8.681E-08	1.93021E-06	0.235913	7.658E-08	1.70282E-06	1.3403169	4.351E-07	9.67442E-06	1.1830461	3.84E-07	8.53924E-06	1.4189591	4.606E-07	1.02421E-05
Road 10	10	0300-0400	0.243735164	4.997E-08	1.11113E-06	0.2130136	4.367E-08	9.71074E-07	1.3181521	2.703E-07	6.00912E-06	1.1527364	2.363E-07	5.25503E-06	1.3657499	2.8E-07	6.2261E-06
Road 10	10	0400-0500	0.287896384	1.131E-07	2.51552E-06	0.2527618	9.933E-08	2.20853E-06	1.3848504	5.442E-07	1.21003E-05	1.2116152	4.761E-07	1.05866E-05	1.4643771	5.755E-07	1.27951E-05
Road 10	10	0500-0600	0.266858995	1.869E-07	4.15652E-06	0.2308664	1.617E-07	3.59591E-06	1.2891287	9.031E-07	2.00791E-05	1.1123048	7.792E-07	1.73249E-05	1.3431712	9.409E-07	2.09208E-05
Road 10	10	0600-0700	0.321045069	4.498E-07	1.0001E-05	0.2787332	3.905E-07	8.68293E-06	1.6050497	2.249E-06	4.99995E-05	1.397485	1.958E-06	4.35336E-05	1.6762183	2.348E-06	5.22165E-05
Road 10	10	0700-0800	0.320709437	7.069E-07	1.57168E-05	0.2743455	6.047E-07	1.34447E-05	1.6167779	3.563E-06	7.92326E-05	1.3860402	3.055E-06	6.79249E-05	1.6603857	3.66E-06	8.13696E-05
Road 10	10	0800-0900	0.342067968	1.444E-06	3.20976E-05	0.2933417	1.238E-06	2.75255E-05	1.6926015	7.143E-06	0.000158824	1.4517598	6.127E-06	0.000136225	1.7451015	7.365E-06	0.00016375
Road 10	10	0900-1000	0.374920245	1.256E-06	2.79164E-05	0.3284401	1.1E-06	2.44555E-05	1.8111049	6.065E-06	0.000134854	1.5875126	5.316E-06	0.000118205	1.9159527	6.416E-06	0.000142661
Road 10	10	1000-1100	0.374527074	1.363E-06	3.03059E-05	0.3241733	1.18E-06	2.62313E-05	1.6940846	6.165E-06	0.000137081	1.4620187	5.321E-06	0.000118303	1.7861921	6.5E-06	0.000144534
Road 10	10	1100-1200	0.365094968	1.329E-06	2.95426E-05	0.3136065	1.141E-06	2.53763E-05	1.7145662	6.24E-06	0.000138739	1.4711148	5.354E-06	0.000119039	1.7847213	6.495E-06	0.000144415
Road 10	10	1200-1300	0.385552571	1.449E-06	3.22233E-05	0.3313858	1.246E-06	2.76962E-05	1.8373428	6.906E-06	0.000153559	1.5804933	5.941E-06	0.000132093	1.9118792	7.186E-06	0.000159789
Road 10	10	1300-1400	0.37480206	1.23E-06	2.7338E-05	0.3222478	1.057E-06	2.35047E-05	1.7439006	5.721E-06	0.0001272	1.4969402	4.911E-06	0.000109187	1.819188	5.968E-06	0.000132691
Road 10	10	1400-1500	0.347968848	1.07E-06	2.37945E-05	0.3006521	9.246E-07	2.05589E-05	1.7418208	5.357E-06	0.000119108	1.5055498	4.63E-06	0.000102951	1.8062019	5.555E-06	0.00012351
Road 10	10	1500-1600	0.348642095	1.096E-06	2.43703E-05	0.2953931	9.286E-07	2.06482E-05	1.6812354	5.285E-06	0.00011752	1.4249199	4.48E-06	9.96029E-05	1.720313	5.408E-06	0.000120251
Road 10	10	1600-1700	0.333994704	1.17E-06	2.6011E-05	0.2819473	9.875E-07	2.19576E-05	1.6342677	5.724E-06	0.000127274	1.3762329	4.82E-06	0.000107179	1.6581802	5.808E-06	0.000129137
Road 10	10	1700-1800	0.306154744	1.004E-06	2.23309E-05	0.2640547	8.662E-07	1.92601E-05	1.5926713	5.225E-06	0.000116169	1.3810632	4.531E-06	0.000100735	1.6451179	5.397E-06	0.000119995
Road 10	10	1800-1900	0.30663393	6.339E-07	1.40951E-05	0.2678476	5.537E-07	1.23122E-05	1.5503659	3.205E-06	7.12662E-05	1.3569075	2.805E-06	6.23734E-05	1.6247551	3.359E-06	7.46856E-05
Road 10	10	1900-2000	0.267303263	4.978E-07	1.10686E-05	0.2342035	4.362E-07	9.69803E-06	1.4184624	2.642E-06	5.87365E-05	1.2452076	2.319E-06	5.15623E-05	1.4794111	2.755E-06	6.12603E-05
Road 10	10	2000-2100	0.302484059	3.721E-07	8.27368E-06	0.2637235	3.244E-07	7.21348E-06	1.4643172	1.801E-06	4.00527E-05	1.2755767	1.569E-06	3.48901E-05	1.5393002	1.894E-06	4.21036E-05
Road 10	10	2100-2200	0.253565449	3.119E-07	6.93564E-06	0.2302558	2.833E-07	6.29806E-06	1.4185522	1.745E-06	3.88009E-05	1.2922838	1.59E-06	3.53471E-05	1.5225396	1.873E-06	4.16452E-05
Road 10	10	2200-2300	0.265418005	3.401E-07	7.56233E-06	0.2372514	3.04E-07	6.7598E-06	1.366105	1.751E-06	3.89232E-05	1.224675	1.569E-06	3.48936E-05	1.4619264	1.873E-06	4.16534E-05
Road 10	10	2300-0000	0.243519926	2.912E-07	6.47584E-06	0.215389	2.576E-07	5.72777E-06	1.2321114	1.474E-06	3.27651E-05	1.0882916	1.302E-06	2.89406E-05	1.3036805	1.559E-06	3.46683E-05
Road 11	11	0000-0100	0.305340776	2.332E-07	1.9348E-06	0.2675076	2.043E-07	1.69507E-06	1.5310393	1.17E-06	9.70146E-06	1.3386557	1.023E-06	8.48242E-06	1.6061633	1.227E-06	1.01775E-05
Road 11	11	0100-0200	0.30548893	1.644E-07	1.36381E-06	0.2681268	1.443E-07	1.19702E-06	1.5054819	8.102E-07	6.72102E-06	1.3177198	7.092E-07	5.88278E-06	1.5858466	8.535E-07	7.0798E-06
Road 11	11	0200-0300	0.267354131	6.962E-08	5.77532E-07	0.2358989	6.143E-08	5.09583E-07	1.428105	3.719E-07	3.08496E-06	1.2604691	3.282E-07	2.72284E-06	1.496368	3.897E-07	3.23242E-06
Road 11	11	0300-0400	0.2871346	6.979E-08	5.78911E-07	0.2508606	6.097E-08	5.05776E-07	1.5036942	3.655E-07	3.0317E-06	1.3141889	3.194E-07	2.64962E-06	1.5650495	3.804E-07	3.1554E-06
Road 11	11	0400-0500	0.297885842	1.034E-07	8.57982E-07	0.2617246	9.088E-08	7.53829E-07	1.4147811	4.912E-07	4.0749E-06	1.2384002	4.3E-07	3.56689E-06	1.5001248	5.209E-07	4.32071E-06
Road 11	11	0500-0600	0.24393814	1.143E-07	9.48509E-07	0.2107388	9.878E-08	8.1942E-07	1.2446818	5.834E-07	4.83972E-06	1.0746716	5.038E-07	4.17867E-06	1.2854105	6.025E-07	4.99809E-06
Road 11	11	0600-0700	0.262851359	2.373E-07	1.96839E-06	0.22669	2.047E-07	1.69759E-06	1.3626012	1.23E-06	1.0204E-05	1.1745077	1.06E-06	8.79544E-06	1.4011977	1.265E-06	1.0493E-05
Road 11	11	0700-0800	0.311378606	5.838E-07	4.84296E-06	0.2636987	4.944E-07	4.10138E-06	1.6225817	3.042E-06	2.52365E-05	1.3751902	2.578E-06	2.13887E-05	1.6388888	3.073E-06	2.54901E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.338955684	1.206E-06	1.00068E-05	0.2926386	1.042E-06	8.6394E-06	1.6727499	5.953E-06	4.93836E-05	1.4398883	5.125E-06	4.2509E-05	1.7325269	6.166E-06	5.11484E-05
Road 11	11	0900-1000	0.335979582	8.516E-07	7.06421E-06	0.2940836	7.454E-07	6.18332E-06	1.5887345	4.027E-06	3.34043E-05	1.3857529	3.512E-06	2.91365E-05	1.6798365	4.258E-06	3.53198E-05
Road 11	11	1000-1100	0.348606189	7.202E-07	5.97421E-06	0.3007296	6.213E-07	5.15373E-06	1.6255746	3.358E-06	2.78581E-05	1.3990182	2.89E-06	2.39755E-05	1.6997478	3.512E-06	2.91293E-05
Road 11	11	1100-1200	0.308094153	7.167E-07	5.94547E-06	0.2633105	6.126E-07	5.08126E-06	1.5804016	3.677E-06	3.04979E-05	1.35655	3.156E-06	2.61781E-05	1.6198605	3.768E-06	3.12594E-05
Road 11	11	1200-1300	0.38015775	1.076E-06	8.9238E-06	0.3261862	9.231E-07	7.65687E-06	1.845303	5.222E-06	4.33165E-05	1.5823338	4.478E-06	3.71436E-05	1.9085201	5.401E-06	4.48005E-05
Road 11	11	1300-1400	0.39457548	8.22E-07	6.81882E-06	0.3388875	7.06E-07	5.85646E-06	1.7790697	3.706E-06	3.07448E-05	1.5199498	3.167E-06	2.62669E-05	1.8588373	3.873E-06	3.21233E-05
Road 11	11	1400-1500	0.311871327	6.281E-07	5.20993E-06	0.2685866	5.409E-07	4.48684E-06	1.5578111	3.137E-06	2.60238E-05	1.3361027	2.691E-06	2.23201E-05	1.6046894	3.232E-06	2.68069E-05
Road 11	11	1500-1600	0.281627621	5.721E-07	4.74525E-06	0.2379493	4.833E-07	4.0093E-06	1.4588473	2.963E-06	2.45807E-05	1.233363	2.505E-06	2.07814E-05	1.4713123	2.989E-06	2.47907E-05
Road 11	11	1600-1700	0.26891887	6.49E-07	5.38312E-06	0.2270529	5.479E-07	4.54506E-06	1.4398232	3.475E-06	2.88219E-05	1.2159622	2.934E-06	2.43407E-05	1.4430151	3.482E-06	2.88858E-05
Road 11	11	1700-1800	0.266394204	6.567E-07	5.44768E-06	0.2280234	5.621E-07	4.66301E-06	1.4523831	3.581E-06	2.97008E-05	1.2494629	3.08E-06	2.55511E-05	1.4774863	3.642E-06	3.02141E-05
Road 11	11	1800-1900	0.282251239	5.782E-07	4.79641E-06	0.2453921	5.027E-07	4.17005E-06	1.5085917	3.091E-06	2.56361E-05	1.3162259	2.696E-06	2.23671E-05	1.561618	3.199E-06	2.65372E-05
Road 11	11	1900-2000	0.269783274	4.262E-07	3.53553E-06	0.234997	3.713E-07	3.07965E-06	1.4066993	2.222E-06	1.84349E-05	1.2230963	1.932E-06	1.60288E-05	1.4580933	2.304E-06	1.91084E-05
Road 11	11	2000-2100	0.272389859	3.83E-07	3.17742E-06	0.2376517	3.342E-07	2.7722E-06	1.360934	1.914E-06	1.58752E-05	1.1879181	1.671E-06	1.3857E-05	1.4255698	2.005E-06	1.66292E-05
Road 11	11	2100-2200	0.197284402	1.952E-07	1.61944E-06	0.174164	1.723E-07	1.42966E-06	1.105031	1.094E-06	9.07084E-06	0.9761994	9.66E-07	8.0133E-06	1.1503633	1.138E-06	9.44296E-06
Road 11	11	2200-2300	0.254675313	2.786E-07	2.3106E-06	0.2258867	2.471E-07	2.04941E-06	1.2881071	1.409E-06	1.16867E-05	1.1406823	1.248E-06	1.03491E-05	1.366569	1.495E-06	1.23985E-05
Road 11	11	2300-0000	0.244382195	2.546E-07	2.11164E-06	0.216344	2.254E-07	1.86937E-06	1.2572889	1.31E-06	1.08639E-05	1.1109293	1.157E-06	9.59922E-06	1.3272734	1.383E-06	1.14686E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.32129	2.484E-06	3.7355E-06	1.10428	2.076E-06	3.12198E-06	6.07188	1.141E-05	1.71662E-05	5.07475	9.539E-06	1.43471E-05	6.17903	1.161E-05	1.74691E-05
Haul Road 1	HR1	0800-0900	1.32859	2.497E-06	3.75614E-06	1.13077	2.126E-06	3.19687E-06	6.10566	1.148E-05	1.72617E-05	5.19631	9.768E-06	1.46908E-05	6.32708	1.189E-05	1.78877E-05
Haul Road 1	HR1	0900-1000	1.3072	2.457E-06	3.69566E-06	1.12307	2.111E-06	3.1751E-06	6.007	1.129E-05	1.69828E-05	5.16072	9.701E-06	1.45902E-05	6.28379	1.181E-05	1.77653E-05
Haul Road 1	HR1	1000-1100	1.3166	2.475E-06	3.72224E-06	1.12217	2.109E-06	3.17255E-06	6.05038	1.137E-05	1.71054E-05	5.15653	9.693E-06	1.45783E-05	6.2787	1.18E-05	1.77509E-05
Haul Road 1	HR1	1100-1200	1.32599	2.492E-06	3.74879E-06	1.12807	2.12E-06	3.18924E-06	6.09337	1.145E-05	1.72269E-05	5.18411	9.745E-06	1.46563E-05	6.31218	1.187E-05	1.78455E-05
Haul Road 1	HR1	1200-1300	1.34229	2.523E-06	3.79487E-06	1.13407	2.132E-06	3.2062E-06	6.16853	1.159E-05	1.74394E-05	5.2115	9.796E-06	1.47337E-05	6.34557	1.193E-05	1.79399E-05
Haul Road 1	HR1	1300-1400	1.33789	2.515E-06	3.78243E-06	1.12807	2.12E-06	3.18924E-06	6.14834	1.156E-05	1.73823E-05	5.18411	9.745E-06	1.46563E-05	6.31218	1.187E-05	1.78455E-05
Haul Road 1	HR1	1400-1500	1.33789	2.515E-06	3.78243E-06	1.12807	2.12E-06	3.18924E-06	6.14834	1.156E-05	1.73823E-05	5.18411	9.745E-06	1.46563E-05	6.31218	1.187E-05	1.78455E-05
Haul Road 1	HR1	1500-1600	1.34508	2.528E-06	3.80276E-06	1.12217	2.109E-06	3.17255E-06	6.18144	1.162E-05	1.74759E-05	5.15653	9.693E-06	1.45783E-05	6.2787	1.18E-05	1.77509E-05
Haul Road 1	HR1	1600-1700	1.34099	2.521E-06	3.79119E-06	1.10418	2.076E-06	3.12169E-06	6.16244	1.158E-05	1.74222E-05	5.07425	9.538E-06	1.43457E-05	6.17843	1.161E-05	1.74674E-05
Haul Road 1	HR1	1700-1800	1.32449	2.49E-06	3.74455E-06	1.11177	2.09E-06	3.14315E-06	6.08667	1.144E-05	1.7208E-05	5.10915	9.604E-06	1.44444E-05	6.22092	1.169E-05	1.75875E-05
Haul Road 1	HR1	1800-1900	1.2998	2.443E-06	3.67474E-06	1.11487	2.096E-06	3.15192E-06	5.97302	1.123E-05	1.68867E-05	5.12334	9.63E-06	1.44845E-05	6.23821	1.173E-05	1.76364E-05
Haul Road 1	HR1	1900-2000	1.2942	2.433E-06	3.65891E-06	1.10958	2.086E-06	3.13696E-06	5.94753	1.118E-05	1.68146E-05	5.09904	9.585E-06	1.44158E-05	6.20862	1.167E-05	1.75528E-05
Haul Road 1	HR1	2000-2100	1.26272	2.374E-06	3.56991E-06	1.09368	2.056E-06	3.09201E-06	5.80257	1.091E-05	1.64048E-05	5.02608	9.448E-06	1.42095E-05	6.11976	1.15E-05	1.73015E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.32129	1.712E-06	4.55589E-06	1.10428	1.43E-06	3.80762E-06	6.07188	7.865E-06	2.09362E-05	5.07475	6.574E-06	1.7498E-05	6.17903	8.004E-06	2.13057E-05
Haul Road 2	HR2	0800-0900	1.32859	1.721E-06	4.58106E-06	1.13077	1.465E-06	3.89896E-06	6.10566	7.909E-06	2.10527E-05	5.19631	6.731E-06	1.79172E-05	6.32708	8.196E-06	2.18162E-05
Haul Road 2	HR2	0900-1000	1.3072	1.693E-06	4.5073E-06	1.12307	1.455E-06	3.87241E-06	6.007	7.781E-06	2.07125E-05	5.16072	6.685E-06	1.77945E-05	6.28379	8.14E-06	2.16669E-05
Haul Road 2	HR2	1000-1100	1.3166	1.705E-06	4.53972E-06	1.12217	1.454E-06	3.86931E-06	6.05038	7.837E-06	2.08621E-05	5.15653	6.679E-06	1.778E-05	6.2787	8.133E-06	2.16493E-05
Haul Road 2	HR2	1100-1200	1.32599	1.718E-06	4.57209E-06	1.12807	1.461E-06	3.88965E-06	6.09337	7.893E-06	2.10103E-05	5.18411	6.715E-06	1.78751E-05	6.31218	8.176E-06	2.17648E-05
Haul Road 2	HR2	1200-1300	1.34229	1.739E-06	4.6283E-06	1.13407	1.469E-06	3.91034E-06	6.16853	7.99E-06	2.12695E-05	5.2115	6.751E-06	1.79696E-05	6.34557	8.22E-06	2.18799E-05
Haul Road 2	HR2	1300-1400	1.33789	1.733E-06	4.61313E-06	1.12807	1.461E-06	3.88965E-06	6.14834	7.964E-06	2.11998E-05	5.18411	6.715E-06	1.78751E-05	6.31218	8.176E-06	2.17648E-05
Haul Road 2	HR2	1400-1500	1.33789	1.733E-06	4.61313E-06	1.12807	1.461E-06	3.88965E-06	6.14834	7.964E-06	2.11998E-05	5.18411	6.715E-06	1.78751E-05	6.31218	8.176E-06	2.17648E-05
Haul Road 2	HR2	1500-1600	1.34508	1.742E-06	4.63792E-06	1.12217	1.454E-06	3.86931E-06	6.18144	8.007E-06	2.1314E-05	5.15653	6.679E-06	1.778E-05	6.2787	8.133E-06	2.16493E-05
Haul Road 2	HR2	1600-1700	1.34099	1.737E-06	4.62381E-06	1.10418	1.43E-06	3.80728E-06	6.16244	7.982E-06	2.12485E-05	5.07425	6.573E-06	1.74963E-05	6.17843	8.003E-06	2.13036E-05
Haul Road 2	HR2	1700-1800	1.32449	1.716E-06	4.56692E-06	1.11177	1.44E-06	3.83345E-06	6.08667	7.884E-06	2.09872E-05	5.10915	6.618E-06	1.76167E-05	6.22092	8.058E-06	2.14501E-05
Haul Road 2	HR2	1800-1900	1.2998	1.684E-06	4.48179E-06	1.11487	1.444E-06	3.84414E-06	5.97302	7.737E-06	2.05953E-05	5.12334	6.636E-06	1.76656E-05	6.23821	8.081E-06	2.15097E-05
Haul Road 2	HR2	1900-2000	1.2942	1.676E-06	4.46248E-06	1.10958	1.437E-06	3.8259E-06	5.94753	7.704E-06	2.05074E-05	5.09904	6.605E-06	1.75818E-05	6.20862	8.042E-06	2.14077E-05
Haul Road 2	HR2	2000-2100	1.26272	1.636E-06	4.35393E-06	1.09368	1.417E-06	3.77107E-06	5.80257	7.516E-06	2.00076E-05	5.02608	6.51E-06	1.73302E-05	6.11976	7.927E-06	2.11013E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (May) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.32129	1.712E-06	4.54954E-06	1.10428	1.43E-06	3.80232E-06	6.07188	7.865E-06	2.0907E-05	5.07475	6.574E-06	1.74736E-05	6.17903	8.004E-06	2.1276E-05
Haul Road 3	HR3	0800-0900	1.32859	1.721E-06	4.57467E-06	1.13077	1.465E-06	3.89353E-06	6.10566	7.909E-06	2.10233E-05	5.19631	6.731E-06	1.78922E-05	6.32708	8.196E-06	2.17857E-05
Haul Road 3	HR3	0900-1000	1.3072	1.693E-06	4.50102E-06	1.12307	1.455E-06	3.86701E-06	6.007	7.781E-06	2.06836E-05	5.16072	6.685E-06	1.77697E-05	6.28379	8.14E-06	2.16367E-05
Haul Road 3	HR3	1000-1100	1.3166	1.705E-06	4.53339E-06	1.12217	1.454E-06	3.86392E-06	6.05038	7.837E-06	2.0833E-05	5.15653	6.679E-06	1.77552E-05	6.2787	8.133E-06	2.16192E-05
Haul Road 3	HR3	1100-1200	1.32599	1.718E-06	4.56572E-06	1.12807	1.461E-06	3.88423E-06	6.09337	7.893E-06	2.0981E-05	5.18411	6.715E-06	1.78502E-05	6.31218	8.176E-06	2.17344E-05
Haul Road 3	HR3	1200-1300	1.34229	1.739E-06	4.62184E-06	1.13407	1.469E-06	3.90489E-06	6.16853	7.99E-06	2.12398E-05	5.2115	6.751E-06	1.79445E-05	6.34557	8.22E-06	2.18494E-05
Haul Road 3	HR3	1300-1400	1.33789	1.733E-06	4.60669E-06	1.12807	1.461E-06	3.88423E-06	6.14834	7.964E-06	2.11703E-05	5.18411	6.715E-06	1.78502E-05	6.31218	8.176E-06	2.17344E-05
Haul Road 3	HR3	1400-1500	1.33789	1.733E-06	4.60669E-06	1.12807	1.461E-06	3.88423E-06	6.14834	7.964E-06	2.11703E-05	5.18411	6.715E-06	1.78502E-05	6.31218	8.176E-06	2.17344E-05
Haul Road 3	HR3	1500-1600	1.34508	1.742E-06	4.63145E-06	1.12217	1.454E-06	3.86392E-06	6.18144	8.007E-06	2.12843E-05	5.15653	6.679E-06	1.77552E-05	6.2787	8.133E-06	2.16192E-05
Haul Road 3	HR3	1600-1700	1.34099	1.737E-06	4.61737E-06	1.10418	1.43E-06	3.80197E-06	6.16244	7.982E-06	2.12188E-05	5.07425	6.573E-06	1.74719E-05	6.17843	8.003E-06	2.12739E-05
Haul Road 3	HR3	1700-1800	1.32449	1.716E-06	4.56055E-06	1.11177	1.44E-06	3.82811E-06	6.08667	7.884E-06	2.09579E-05	5.10915	6.618E-06	1.75921E-05	6.22092	8.058E-06	2.14202E-05
Haul Road 3	HR3	1800-1900	1.2998	1.684E-06	4.47554E-06	1.11487	1.444E-06	3.83878E-06	5.97302	7.737E-06	2.05666E-05	5.12334	6.636E-06	1.7641E-05	6.23821	8.081E-06	2.14797E-05
Haul Road 3	HR3	1900-2000	1.2942	1.676E-06	4.45626E-06	1.10958	1.437E-06	3.82056E-06	5.94753	7.704E-06	2.04788E-05	5.09904	6.605E-06	1.75573E-05	6.20862	8.042E-06	2.13778E-05
Haul Road 3	HR3	2000-2100	1.26272	1.636E-06	4.34786E-06	1.09368	1.417E-06	3.76582E-06	5.80257	7.516E-06	1.99797E-05	5.02608	6.51E-06	1.73061E-05	6.11976	7.927E-06	2.10719E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.088281582	2.933E-07	2.38586E-06	0.0770634	2.56E-07	2.08268E-06	0.5175531	1.719E-06	1.39872E-05	0.4495564	1.493E-06	1.21495E-05	0.5266198	1.749E-06	1.42322E-05
Road 1	1	0100-0200	0.068986111	1.398E-07	1.13759E-06	0.0609894	1.236E-07	1.00573E-06	0.4138064	8.388E-07	6.82374E-06	0.3642423	7.383E-07	6.00642E-06	0.4252318	8.62E-07	7.01214E-06
Road 1	1	0200-0300	0.06484974	9.372E-08	7.6243E-07	0.0578173	8.356E-08	6.79751E-07	0.4086671	5.906E-07	4.80465E-06	0.3616866	5.227E-07	4.25231E-06	0.4195039	6.063E-07	4.93206E-06
Road 1	1	0300-0400	0.055516909	5.731E-08	4.66218E-07	0.0493016	5.089E-08	4.14024E-07	0.3341611	3.449E-07	2.80621E-06	0.294626	3.041E-07	2.4742E-06	0.3439276	3.55E-07	2.88822E-06
Road 1	1	0400-0500	0.072262235	1.153E-07	9.37846E-07	0.0641716	1.024E-07	8.32843E-07	0.4092712	6.529E-07	5.31167E-06	0.3616834	5.77E-07	4.69406E-06	0.4258551	6.794E-07	5.5269E-06
Road 1	1	0500-0600	0.058588128	2.056E-07	1.67283E-06	0.0516367	1.812E-07	1.47435E-06	0.3414894	1.199E-06	9.75035E-06	0.2988473	1.049E-06	8.53281E-06	0.3504841	1.23E-06	1.00072E-05
Road 1	1	0600-0700	0.081053584	5.051E-07	4.10877E-06	0.0708519	4.415E-07	3.59163E-06	0.4314802	2.689E-06	2.18726E-05	0.3752205	2.338E-06	1.90207E-05	0.4460725	2.78E-06	2.26123E-05
Road 1	1	0700-0800	0.070121199	7.357E-07	5.98498E-06	0.0599247	6.287E-07	5.11468E-06	0.383822	4.027E-06	3.27599E-05	0.3251395	3.411E-06	2.77513E-05	0.3850641	4.04E-06	3.28659E-05
Road 1	1	0800-0900	0.076728496	9.865E-07	8.02506E-06	0.0641691	8.25E-07	6.71147E-06	0.4065851	5.227E-06	4.25249E-05	0.3378749	4.344E-06	3.53385E-05	0.402044	5.169E-06	4.20499E-05
Road 1	1	0900-1000	0.08121488	1.078E-06	8.76711E-06	0.068277	9.06E-07	7.37047E-06	0.4533933	6.016E-06	4.89436E-05	0.3791608	5.031E-06	4.09302E-05	0.4474378	5.937E-06	4.83007E-05
Road 1	1	1000-1100	0.095135371	1.227E-06	9.9793E-06	0.0789236	1.018E-06	8.27875E-06	0.5101401	6.578E-06	5.35115E-05	0.4214149	5.434E-06	4.42046E-05	0.5003385	6.451E-06	5.24834E-05
Road 1	1	1100-1200	0.084466957	1.057E-06	8.60229E-06	0.0714838	8.949E-07	7.28006E-06	0.4835618	6.054E-06	4.92469E-05	0.4072966	5.099E-06	4.14799E-05	0.4787804	5.994E-06	4.876E-05
Road 1	1	1200-1300	0.086967985	1.077E-06	8.76404E-06	0.0742595	9.199E-07	7.48337E-06	0.4946871	6.128E-06	4.98512E-05	0.4206515	5.211E-06	4.23904E-05	0.4949111	6.131E-06	4.98738E-05
Road 1	1	1300-1400	0.091766567	1.209E-06	9.8361E-06	0.0776785	1.023E-06	8.32605E-06	0.5109639	6.732E-06	5.47682E-05	0.4304542	5.672E-06	4.61387E-05	0.5081327	6.695E-06	5.44647E-05
Road 1	1	1400-1500	0.087924471	1.262E-06	1.027E-05	0.0730532	1.049E-06	8.53301E-06	0.4779814	6.863E-06	5.58308E-05	0.3950045	5.672E-06	4.61386E-05	0.4680578	6.72E-06	5.46716E-05
Road 1	1	1500-1600	0.093854316	1.249E-06	1.01602E-05	0.0796654	1.06E-06	8.62417E-06	0.5083946	6.765E-06	5.50362E-05	0.4293573	5.713E-06	4.648E-05	0.5090227	6.774E-06	5.51042E-05
Road 1	1	1600-1700	0.08875242	1.246E-06	1.01364E-05	0.0753647	1.058E-06	8.60738E-06	0.4856955	6.819E-06	5.54711E-05	0.4101078	5.758E-06	4.68383E-05	0.4854725	6.816E-06	5.54456E-05
Road 1	1	1700-1800	0.072341987	1.018E-06	8.28425E-06	0.0607236	8.548E-07	6.95377E-06	0.4034975	5.68E-06	4.62065E-05	0.336228	4.733E-06	3.85032E-05	0.3969517	5.588E-06	4.54569E-05
Road 1	1	1800-1900	0.061631328	8.884E-07	7.2271E-06	0.0529001	7.625E-07	6.20324E-06	0.3641994	5.25E-06	4.27073E-05	0.3095989	4.463E-06	3.63046E-05	0.3624989	5.225E-06	4.25079E-05
Road 1	1	1900-2000	0.072757389	8.002E-07	6.50992E-06	0.0650294	7.152E-07	5.81847E-06	0.414019	4.554E-06	3.70441E-05	0.3678902	4.046E-06	3.29168E-05	0.4329196	4.761E-06	3.87352E-05
Road 1	1	2000-2100	0.066446452	6.186E-07	5.03216E-06	0.0579091	5.391E-07	4.38561E-06	0.3883685	3.615E-06	2.94122E-05	0.3362403	3.13E-06	2.54644E-05	0.3941494	3.669E-06	2.985E-05
Road 1	1	2100-2200	0.068995673	5.866E-07	4.77223E-06	0.0607828	5.168E-07	4.20417E-06	0.4053567	3.446E-06	2.80373E-05	0.3548872	3.017E-06	2.45465E-05	0.41567	3.534E-06	2.87507E-05
Road 1	1	2200-2300	0.066473248	5.377E-07	4.37447E-06	0.0589834	4.771E-07	3.88158E-06	0.3885568	3.143E-06	2.55701E-05	0.3426166	2.772E-06	2.25469E-05	0.4016	3.249E-06	2.64285E-05
Road 1	1	2300-0000	0.056850468	4.108E-07	3.34192E-06	0.051403	3.714E-07	3.02169E-06	0.343684	2.483E-06	2.02033E-05	0.3085759	2.23E-06	1.81394E-05	0.3599789	2.601E-06	2.11611E-05
Road 2	2	0000-0100	0.148051765	1.748E-07	1.12873E-06	0.129179	1.525E-07	9.8485E-07	0.6263112	7.394E-07	4.77494E-06	0.5446292	6.43E-07	4.15221E-06	0.6738082	7.955E-07	5.13706E-06
Road 2	2	0100-0200	0.106104545	8.105E-08	5.23426E-07	0.0937415	7.161E-08	4.62438E-07	0.5237985	4.001E-07	2.58396E-06	0.4611994	3.523E-07	2.27515E-06	0.5549409	4.239E-07	2.73759E-06
Road 2	2	0200-0300	0.10447	5.562E-08	3.59192E-07	0.09322	4.963E-08	3.20512E-07	0.56586	3.013E-07	1.94556E-06	0.502517	2.675E-07	1.72777E-06	0.595737	3.172E-07	2.04828E-06
Road 2	2	0300-0400	0.092144	3.199E-08	2.06617E-07	0.0817753	2.839E-08	1.83367E-07	0.3329153	1.156E-07	7.46505E-07	0.2938367	1.02E-07	6.58878E-07	0.375612	1.304E-07	8.42245E-07
Road 2	2	0400-0500	0.123842593	7.74E-08	4.99852E-07	0.1099478	6.872E-08	4.4377E-07	0.5973896	3.734E-07	2.41118E-06	0.5288811	3.306E-07	2.13466E-06	0.6388289	3.993E-07	2.57843E-06
Road 2	2	0500-0600	0.099155439	1.308E-07	8.44888E-07	0.0874544	1.154E-07	7.45185E-07	0.4352547	5.743E-07	3.70874E-06	0.3816667	5.036E-07	3.25212E-06	0.4691211	6.19E-07	3.99731E-06
Road 2	2	0600-0700	0.143877961	3.43E-07	2.21533E-06	0.1257764	2.999E-07	1.93662E-06	0.581725	1.387E-06	8.957E-06	0.5065873	1.208E-06	7.80008E-06	0.6323637	1.508E-06	9.7367E-06
Road 2	2	0700-0800	0.11779038	4.308E-07	2.78211E-06	0.1006089	3.68E-07	2.3763E-06	0.4946525	1.809E-06	1.16833E-05	0.4195891	1.535E-06	9.91035E-06	0.520198	1.903E-06	1.22867E-05
Road 2	2	0800-0900	0.1358138	9.432E-07	6.09078E-06	0.1134924	7.881E-07	5.08974E-06	0.5736927	3.984E-06	2.57281E-05	0.4766081	3.31E-06	2.13742E-05	0.5901005	4.098E-06	2.6464E-05
Road 2	2	0900-1000	0.156771789	8.927E-07	5.76515E-06	0.1316691	7.498E-07	4.84202E-06	0.6773198	3.857E-06	2.49079E-05	0.5668988	3.228E-06	2.08472E-05	0.6985679	3.978E-06	2.56893E-05
Road 2	2	1000-1100	0.175760543	7.486E-07	4.83445E-06	0.1457571	6.208E-07	4.00918E-06	0.7537662	3.21E-06	2.0733E-05	0.6233689	2.655E-06	1.71463E-05	0.769126	3.276E-06	2.11555E-05
Road 2	2	1100-1200	0.20882337	8.749E-07	5.65022E-06	0.1765987	7.399E-07	4.7783E-06	0.8557942	3.586E-06	2.31556E-05	0.7225359	3.027E-06	1.955E-05	0.8991346	3.767E-06	2.43283E-05
Road 2	2	1200-1300	0.159282819	6.932E-07	4.47646E-06	0.1360054	5.919E-07	3.82227E-06	0.7006989	3.049E-06	1.96923E-05	0.5962045	2.595E-06	1.67556E-05	0.7322099	3.186E-06	2.05779E-05
Road 2	2	1300-1400	0.17788	9.059E-07	5.85002E-06	0.1503582	7.657E-07	4.9449E-06	0.7347624	3.742E-06	2.41645E-05	0.6188035	3.151E-06	2.03509E-05	0.7691618	3.917E-06	2.52958E-05
Road 2	2	1400-1500	0.155422761	5.864E-07	3.78713E-06	0.129082	4.87E-07	3.14529E-06	0.672071	2.536E-06	1.63761E-05	0.5563921	2.099E-06	1.35574E-05	0.6854741	2.586E-06	1.67027E-05
Road 2	2	1500-1600	0.189841844	7.866E-07	5.07987E-06	0.1608964	6.667E-07	4.30534E-06	0.7625058	3.159E-06	2.04035E-05	0.6446842	2.671E-06	1.72507E-05	0.8055806	3.338E-06	2.15561E-05
Road 2	2	1600-1700	0.160727945	8.148E-07	5.26191E-06	0.1364918	6.919E-07	4.46846E-06	0.6793347	3.444E-06	2.224E-05	0.574617	2.913E-06	1.88118E-05	0.7111088	3.605E-06	2.32803E-05
Road 2	2	1700-1800	0.123917558	6.225E-07	4.01976E-06	0.1040889	5.229E-07	3.37654E-06	0.4930508	2.477E-06	1.59941E-05	0.4120335	2.07E-06	1.3366E-05	0.5161224	2.593E-06	1.67425E-05
Road 2	2	1800-1900	0.130279274	7.479E-07	4.82986E-06	0.1118801	6.423E-07	4.14775E-06	0.5998107	3.443E-06	2.22369E-05	0.5126056	2.943E-06	1.90039E-05	0.6244857	3.585E-06	2.31516E-05
Road 2	2	1900-2000	0.109848916	4.221E-07	2.72591E-06	0.0981745	3.772E-07	2.43621E-06	0.5029697	1.933E-06	1.24812E-05	0.4472299	1.719E-06	1.1098E-05	0.5454043	2.096E-06	1.35343E-05
Road 2	2	2000-2100	0.108957945	3.682E-07	2.37804E-06	0.094916	3.208E-07	2.07157E-06	0.4567599	1.544E-06	9.96893E-06	0.3950701	1.335E-06	8.62253E-06	0.489986	1.656E-06	1.06941E-05
Road 2	2	2100-2200	0.082923355	2.918E-07	1.88421E-06	0.072978	2.568E-07	1.65822E-06	0.3728386	1.312E-06	8.47173E-06	0.3252526	1.144E-06	7.39047E-06	0.3982305	1.401E-06	9.04869E-06
Road 2	2	2200-2300	0.117798	3.409E-07	2.20118E-06	0.1044984	3.024E-07	1.95266E-06	0.5005801	1.448E-06	9.35387E-06	0.4419535	1.279E-06	8.25837E-06	0.5464519	1.581E-06	1.0211E-05
Road 2	2	2300-0000	0.104179	2.653E-07	1.71309E-06	0.0941906	2.398E-07	1.54885E-06	0.4660261	1.187E-06	7.66321E-06	0.4190914	1.067E-06	6.89143E-06	0.513282	1.307E-06	8.44027E-06
Road 3	3	0000-0100	0.092425939	3.395E-07	1.3195E-05	0.0822214	3.02E-07	1.17381E-05	0.5043859	1.853E-06	7.20074E-05	0.4468078	1.641E-06	6.37874E-05	0.5290292	1.943E-06	7.55255E-05
Road 3	3	0100-0200	0.06965461	1.575E-07	6.12277E-06	0.0614865	1.391E-07	5.40478E-06	0.4019398	9.09E-07	3.53312E-05	0.3532564	7.989E-07	3.10519E-05	0.4147429	9.38E-07	3.64567E-05
Road 3	3	0200-0300	0.06678697	1.061E-07	4.12198E-06	0.0592383	9.407E-08	3.65609E-06	0.4106218	6.52E-07	2.53429E-05	0.3614794	5.74E-07	2.23099E-05	0.4207177	6.681E-07	2.5966E-05
Road 3	3	0300-0400	0.05752087	6.366E-08	2.47431E-06	0.050808	5.623E-08	2.18554E-06	0.3093035	3.423E-07	1.33049E-05	0.2710383	3E-07	1.16589E-05	0.3218462	3.562E-07	1.38445E-05
Road 3	3	0400-0500	0.076406667	1.36E-07	5.28729E-06	0.0678516	1.208E-07	4.69528E-06	0.4176709	7.436E-07	2.89025E-05	0.3692468	6.574E-07	2.55516E-05	0.4370985	7.782E-07	3.02469E-05
Road 3	3	0500-0600	0.061924527	2.414E-07	9.38097E-06	0.0545887	2.128E-07	8.26966E-06	0.338409	1.319E-06	5.12657E-05	0.2962411	1.155E-06	4.48777E-05	0.3508298	1.367E-06	5.31473E-05
Road 3	3	0600-0700	0.085725571	6.022E-07	2.34079E-05	0.0751359	5.279E-07	2.05164E-05	0.4247494	2.984E-06	0.000115981	0.3703168	2.602E-06	0.000101117	0.4454526	3.129E-06	0.000121634
Road 3	3	0700-0800	0.072403492	8.315E-07	3.23185E-05	0.0616159	7.076E-07	2.75033E-05	0.3736114	4.291E-06	0.000166768	0.3151595	3.619E-06	0.000140677	0.3767754	4.327E-06	0.00016818
Road 3	3	0800-0900	0.081081618	1.286E-06	4.99916E-05	0.0699951	1.11E-06	4.31562E-05	0.4016562	6.372E-06	0.000247645	0.3447668	5.469E-06	0.000212569	0.4147619	6.579E-06	0.000255725
Road 3	3	0900-1000	0.089194969	1.365E-06	5.30478E-05	0.0746252	1.142E-06	4.43826E-05	0.4575138	7.001E-06	0.000272102	0.3808567	5.828E-06	0.000226511	0.4554819	6.97E-06	0.000270893
Road 3	3	1000-1100	0.101220529	1.412E-06	5.48993E-05	0.0856904	1.196E-06	4.64761E-05	0.5133278	7.163E-06	0.000278415	0.4327779	6.039E-06	0.000234727	0.5184682	7.235E-06	0.000281203
Road 3	3	1100-1200	0.097498168	1.323E-06	5.14216E-05	0.0822959	1.117E-06	4.34038E-05	0.5069183	6.879E-06	0.000267354	0.4261459	5.783E-06	0.000224754	0.5084418	6.899E-06	0.000268158
Road 3	3	1200-1300	0.0922424	1.252E-06	4.86496E-05	0.0781135	1.06E-06	4.11979E-05	0.4905917	6.657E-06	0.000258743	0.4135415	5.612E-06	0.000218106	0.4916551	6.671E-06	0.000259304
Road 3	3	1300-1400	0.09938407	1.465E-06	5.69392E-05	0.0830556	1.224E-06	4.75842E-05	0.5091875	7.506E-06	0.000291724	0.4233487	6.24E-06	0.000242545	0.5064044	7.465E-06	0.000290129

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.093553712	1.387E-06	5.38904E-05	0.077777	1.153E-06	4.48025E-05	0.4849492	7.187E-06	0.000279349	0.4011058	5.945E-06	0.000231052	0.4788829	7.097E-06	0.000275854
Road 3	3	1500-1600	0.101600629	1.45E-06	5.63722E-05	0.0864405	1.234E-06	4.79607E-05	0.5122713	7.313E-06	0.000284229	0.433858	6.193E-06	0.000240722	0.5202985	7.427E-06	0.000288683
Road 3	3	1600-1700	0.096006945	1.492E-06	5.79969E-05	0.0802919	1.248E-06	4.85036E-05	0.4934353	7.669E-06	0.00029808	0.4104112	6.379E-06	0.000247926	0.4907031	7.627E-06	0.000296429
Road 3	3	1700-1800	0.076513784	1.19E-06	4.6269E-05	0.0644145	1.002E-06	3.89524E-05	0.3932943	6.119E-06	0.000237831	0.3286531	5.113E-06	0.000198741	0.3930676	6.115E-06	0.000237694
Road 3	3	1800-1900	0.069074061	1.127E-06	4.3794E-05	0.0611046	9.968E-07	3.87413E-05	0.378877	6.18E-06	0.000240214	0.3327288	5.428E-06	0.000210955	0.3938334	6.424E-06	0.000249696
Road 3	3	1900-2000	0.074652709	9.016E-07	3.50445E-05	0.0655065	7.912E-07	3.07509E-05	0.4072342	4.918E-06	0.000191169	0.3552278	4.29E-06	0.000166756	0.4207342	5.082E-06	0.000197507
Road 3	3	2000-2100	0.068829534	7.11E-07	2.76337E-05	0.0598749	6.185E-07	2.40386E-05	0.3720263	3.843E-06	0.000149361	0.3214689	3.321E-06	0.000129064	0.3813438	3.939E-06	0.000153102
Road 3	3	2100-2200	0.067102377	6.565E-07	2.5518E-05	0.0587528	5.748E-07	2.23428E-05	0.3745597	3.665E-06	0.000142439	0.3257166	3.187E-06	0.000123865	0.3844694	3.762E-06	0.000146208
Road 3	3	2200-2300	0.071043094	6.336E-07	2.4625E-05	0.0626903	5.591E-07	2.17297E-05	0.3828212	3.414E-06	0.000132693	0.3355314	2.992E-06	0.000116302	0.3982217	3.551E-06	0.000138032
Road 3	3	2300-0000	0.062345141	4.98E-07	1.93558E-05	0.0551913	4.409E-07	1.71348E-05	0.3484474	2.783E-06	0.00010818	0.3059996	2.444E-06	9.50011E-05	0.3611908	2.885E-06	0.000112136
Road 4	4	0000-0100	0.236055714	1.912E-07	2.04781E-06	0.209808	1.7E-07	1.82011E-06	1.202264	9.741E-07	1.04298E-05	1.0680811	8.653E-07	9.26573E-06	1.2778891	1.035E-06	1.10858E-05
Road 4	4	0100-0200	0.2238715	1.036E-07	1.10978E-06	0.1975195	9.144E-08	9.79146E-07	1.14262	5.29E-07	5.66421E-06	1.0076325	4.665E-07	4.99505E-06	1.205152	5.579E-07	5.97419E-06
Road 4	4	0200-0300	0.239851538	7.218E-08	7.72847E-07	0.2128523	6.405E-08	6.8585E-07	1.1836608	3.562E-07	3.81398E-06	1.0502869	3.161E-07	3.38422E-06	1.2631392	3.801E-07	4.07007E-06
Road 4	4	0300-0400	0.218425714	3.539E-08	3.78974E-07	0.1930171	3.128E-08	3.34889E-07	1.1591743	1.878E-07	2.0112E-06	1.0241686	1.66E-07	1.77696E-06	1.2171857	1.972E-07	2.11185E-06
Road 4	4	0400-0500	0.222760714	7.219E-08	7.7299E-07	0.1976814	6.406E-08	6.85964E-07	1.0998129	3.564E-07	3.8164E-06	0.9758414	3.162E-07	3.38622E-06	1.1735229	3.803E-07	4.07218E-06
Road 4	4	0500-0600	0.206832083	1.149E-07	1.23037E-06	0.1823779	1.013E-07	1.0849E-06	0.9795071	5.442E-07	5.82675E-06	0.8629571	4.794E-07	5.13343E-06	1.045335	5.807E-07	6.21834E-06
Road 4	4	0600-0700	0.231931923	2.792E-07	2.98931E-06	0.2031906	2.446E-07	2.61887E-06	1.1064596	1.332E-06	1.42609E-05	0.9688377	1.166E-06	1.24871E-05	1.1720283	1.411E-06	1.5106E-05
Road 4	4	0700-0800	0.239114239	5.092E-07	5.45256E-06	0.2035214	4.334E-07	4.64093E-06	1.1892693	2.533E-06	2.71191E-05	1.0109223	2.153E-06	2.30522E-05	1.2144437	2.586E-06	2.76932E-05
Road 4	4	0800-0900	0.247620261	8.77E-07	9.39042E-06	0.2135425	7.563E-07	8.0981E-06	1.2347189	4.373E-06	4.68238E-05	1.0643173	3.769E-06	4.03618E-05	1.2778597	4.526E-06	4.84599E-05
Road 4	4	0900-1000	0.258469189	8.855E-07	9.48152E-06	0.2155753	7.385E-07	7.90803E-06	1.217727	4.172E-06	4.46703E-05	1.014845	3.477E-06	3.72279E-05	1.2304203	4.215E-06	4.5136E-05
Road 4	4	1000-1100	0.290564825	9.618E-07	1.02988E-05	0.2455031	8.127E-07	8.70163E-06	1.3718415	4.541E-06	4.86236E-05	1.1588768	3.836E-06	4.10753E-05	1.4043799	4.649E-06	4.97769E-05
Road 4	4	1100-1200	0.264986258	9.508E-07	1.01803E-05	0.2233044	8.012E-07	8.579E-06	1.2429699	4.46E-06	4.77529E-05	1.047147	3.757E-06	4.02297E-05	1.2704514	4.558E-06	4.88087E-05
Road 4	4	1200-1300	0.271647619	9.244E-07	9.89762E-06	0.2297028	7.816E-07	8.36934E-06	1.3328888	4.536E-06	4.85645E-05	1.1265924	3.834E-06	4.1048E-05	1.3562952	4.615E-06	4.94173E-05
Road 4	4	1300-1400	0.282800134	9.754E-07	1.04442E-05	0.2359736	8.139E-07	8.7148E-06	1.3550409	4.674E-06	5.00433E-05	1.1301704	3.898E-06	4.17386E-05	1.366144	4.712E-06	5.04534E-05
Road 4	4	1400-1500	0.262050507	8.371E-07	8.96338E-06	0.2174982	6.948E-07	7.43947E-06	1.2982996	4.147E-06	4.4408E-05	1.0766283	3.439E-06	3.68258E-05	1.2941265	4.134E-06	4.42653E-05
Road 4	4	1500-1600	0.28515	8.185E-07	8.764E-06	0.2422028	6.952E-07	7.44403E-06	1.3648769	3.918E-06	4.19491E-05	1.1588918	3.326E-06	3.56182E-05	1.4010946	4.022E-06	4.30622E-05
Road 4	4	1600-1700	0.268716371	7.713E-07	8.25892E-06	0.224403	6.441E-07	6.89696E-06	1.3005277	3.733E-06	3.99713E-05	1.0854877	3.116E-06	3.33622E-05	1.3098907	3.76E-06	4.02591E-05
Road 4	4	1700-1800	0.256829841	7.491E-07	8.02091E-06	0.2161223	6.304E-07	6.74959E-06	1.2636067	3.686E-06	3.9463E-05	1.0626475	3.099E-06	3.31869E-05	1.2787698	3.73E-06	3.99365E-05
Road 4	4	1800-1900	0.270751509	6.643E-07	7.11352E-06	0.2395504	5.878E-07	6.29376E-06	1.350871	3.315E-06	3.54917E-05	1.1949173	2.932E-06	3.13943E-05	1.4344676	3.52E-06	3.76881E-05
Road 4	4	1900-2000	0.247512568	4.24E-07	4.5398E-06	0.2173054	3.722E-07	3.98575E-06	1.2289639	2.105E-06	2.25413E-05	1.0784122	1.847E-06	1.97799E-05	1.2957176	2.22E-06	2.37656E-05
Road 4	4	2000-2100	0.21486551	2.437E-07	2.60958E-06	0.1868751	2.12E-07	2.26963E-06	1.0718102	1.216E-06	1.30173E-05	0.9311433	1.056E-06	1.13089E-05	1.1180184	1.268E-06	1.35785E-05
Road 4	4	2100-2200	0.177645946	1.522E-07	1.62916E-06	0.155693	1.333E-07	1.42784E-06	0.9017403	7.723E-07	8.26972E-06	0.7893914	6.761E-07	7.23938E-06	0.9450843	8.094E-07	8.66722E-06
Road 4	4	2200-2300	0.234543016	3.42E-07	3.66244E-06	0.206857	3.017E-07	3.23012E-06	1.1495671	1.676E-06	1.79507E-05	1.0135951	1.478E-06	1.58275E-05	1.2204521	1.78E-06	1.90576E-05
Road 4	4	2300-0000	0.216223958	2.402E-07	2.57248E-06	0.1913106	2.126E-07	2.27608E-06	1.0880544	1.209E-06	1.29449E-05	0.9618898	1.069E-06	1.14439E-05	1.1532004	1.281E-06	1.372E-05
Road 5	5	0000-0100	0.078891762	2.858E-07	3.86459E-06	0.0702094	2.543E-07	3.43928E-06	0.4316203	1.563E-06	2.11434E-05	0.3819284	1.383E-06	1.87092E-05	0.4521378	1.638E-06	2.21484E-05
Road 5	5	0100-0200	0.053624298	1.218E-07	1.64688E-06	0.0473627	1.076E-07	1.45458E-06	0.3204912	7.278E-07	9.84275E-06	0.2812074	6.386E-07	8.63628E-06	0.3285701	7.462E-07	1.00909E-05
Road 5	5	0200-0300	0.049822209	8.042E-08	1.08752E-06	0.0441809	7.131E-08	9.6438E-07	0.3323128	5.364E-07	7.25371E-06	0.2915559	4.706E-07	6.36407E-06	0.3357369	5.419E-07	7.32845E-06
Road 5	5	0300-0400	0.045847581	5.335E-08	7.21478E-07	0.0404926	4.712E-08	6.37209E-07	0.2416792	2.812E-07	3.80317E-06	0.2110397	2.456E-07	3.32101E-06	0.2515323	2.927E-07	3.95822E-06
Road 5	5	0400-0500	0.063437938	1.155E-07	1.56184E-06	0.0563514	1.026E-07	1.38737E-06	0.3534093	6.434E-07	8.70091E-06	0.3120319	5.681E-07	7.6822E-06	0.3683833	6.707E-07	9.06957E-06
Road 5	5	0500-0600	0.05109445	2.091E-07	2.82713E-06	0.0450467	1.843E-07	2.4925E-06	0.2880151	1.178E-06	1.59363E-05	0.2516138	1.03E-06	1.39221E-05	0.2966606	1.214E-06	1.64146E-05
Road 5	5	0600-0700	0.075382026	5.447E-07	7.3662E-06	0.0660776	4.775E-07	6.45699E-06	0.3714458	2.684E-06	3.6297E-05	0.3234314	2.337E-06	3.16051E-05	0.389509	2.815E-06	3.80621E-05
Road 5	5	0700-0800	0.05955766	6.975E-07	9.43272E-06	0.0506923	5.937E-07	8.02863E-06	0.3047087	3.569E-06	4.82597E-05	0.2562695	3.001E-06	4.05879E-05	0.3069618	3.595E-06	4.86165E-05
Road 5	5	0800-0900	0.065219199	1.023E-06	1.38387E-05	0.0563108	8.836E-07	1.19485E-05	0.3150189	4.943E-06	6.68433E-05	0.2698654	4.234E-06	5.72622E-05	0.3261762	5.118E-06	6.92107E-05
Road 5	5	0900-1000	0.072755	1.103E-06	1.49207E-05	0.0609369	9.241E-07	1.2497E-05	0.3810602	5.779E-06	7.81483E-05	0.3171129	4.809E-06	6.50339E-05	0.3780498	5.733E-06	7.7531E-05
Road 5	5	1000-1100	0.08315314	1.133E-06	1.53225E-05	0.0704238	9.596E-07	1.29769E-05	0.4279142	5.831E-06	7.88512E-05	0.3604894	4.912E-06	6.64269E-05	0.4309132	5.872E-06	7.94038E-05
Road 5	5	1100-1200	0.079932507	1.035E-06	1.39987E-05	0.0675363	8.746E-07	1.18277E-05	0.427368	5.535E-06	7.48455E-05	0.3589221	4.648E-06	6.28585E-05	0.4264585	5.523E-06	7.46863E-05
Road 5	5	1200-1300	0.074997654	9.839E-07	1.33058E-05	0.0635796	8.341E-07	1.128E-05	0.4042108	5.303E-06	7.17133E-05	0.3402687	4.464E-06	6.0369E-05	0.4038483	5.298E-06	7.1649E-05
Road 5	5	1300-1400	0.082022686	1.181E-06	1.59678E-05	0.0685961	9.875E-07	1.33539E-05	0.4259251	6.131E-06	8.2917E-05	0.353656	5.091E-06	6.8848E-05	0.4222521	6.079E-06	8.22019E-05
Road 5	5	1400-1500	0.079331298	1.17E-06	1.58264E-05	0.065996	9.736E-07	1.3166E-05	0.4118283	6.075E-06	8.21587E-05	0.3402887	5.02E-06	6.78867E-05	0.4062846	5.994E-06	8.10528E-05
Road 5	5	1500-1600	0.086675856	1.245E-06	1.68296E-05	0.0737963	1.06E-06	1.43288E-05	0.4394787	6.31E-06	8.53324E-05	0.3718839	5.34E-06	7.22077E-05	0.4456802	6.399E-06	8.65366E-05
Road 5	5	1600-1700	0.08198652	1.296E-06	1.75214E-05	0.0685904	1.084E-06	1.46585E-05	0.4252053	6.72E-06	9.08711E-05	0.3532938	5.583E-06	7.55028E-05	0.4218842	6.667E-06	9.01613E-05
Road 5	5	1700-1800	0.061006363	9.664E-07	1.30687E-05	0.0513496	8.134E-07	1.1E-05	0.3146216	4.984E-06	6.73978E-05	0.2622673	4.155E-06	5.61826E-05	0.3136169	4.968E-06	6.71826E-05
Road 5	5	1800-1900	0.054705088	9.343E-07	1.26353E-05	0.0483897	8.265E-07	1.11766E-05	0.3060697	5.228E-06	7.0693E-05	0.2680711	4.579E-06	6.19165E-05	0.3164609	5.405E-06	7.30931E-05
Road 5	5	1900-2000	0.06394065	8.125E-07	1.0987E-05	0.056105	7.129E-07	9.64062E-06	0.3542948	4.502E-06	6.08791E-05	0.3085404	3.92E-06	5.3017E-05	0.3646453	4.633E-06	6.26577E-05
Road 5	5	2000-2100	0.060967054	6.797E-07	9.19171E-06	0.0530554	5.915E-07	7.99892E-06	0.3317773	3.699E-06	5.00205E-05	0.2863463	3.192E-06	4.31711E-05	0.3394017	3.784E-06	5.117E-05
Road 5	5	2100-2200	0.062926883	6.744E-07	9.11984E-06	0.0550722	5.902E-07	7.98147E-06	0.3533227	3.787E-06	5.12062E-05	0.3069865	3.29E-06	4.44908E-05	0.3620587	3.88E-06	5.24723E-05
Road 5	5	2200-2300	0.059893963	5.531E-07	7.47934E-06	0.0528531	4.881E-07	6.6001E-06	0.3279704	3.029E-06	4.09557E-05	0.2869378	2.65E-06	3.58317E-05	0.3397909	3.138E-06	4.24318E-05
Road 5	5	2300-0000	0.052585335	4.422E-07	5.9794E-06	0.046523	3.912E-07	5.29006E-06	0.2988098	2.513E-06	3.39772E-05	0.261928	2.202E-06	2.97834E-05	0.308451	2.594E-06	3.50735E-05
Road 6	6	0000-0100	0.047830068	1.329E-07	4.74925E-06	0.0425007	1.181E-07	4.22008E-06	0.2976514	8.268E-07	2.95551E-05	0.2618093	7.272E-07	2.59962E-05	0.30431	8.453E-07	3.02162E-05
Road 6	6	0100-0200	0.062400619	1.323E-07	4.73075E-06	0.0550961	1.169E-07	4.17698E-06	0.3448346	7.313E-07	2.61428E-05	0.302094	6.407E-07	2.29025E-05	0.3571901	7.576E-07	2.70795E-05
Road 6	6	0200-0300	0.056806456	8.423E-08	3.01084E-06	0.0504661	7.483E-08	2.67479E-06	0.314773	4.667E-07	1.66835E-05	0.2771792	4.11E-07	1.4691E-05	0.3276453	4.858E-07	1.73658E-05
Road 6	6	0300-0400	0.057712419	6.716E-08	2.40062E-06	0.0511687	5.954E-08	2.12843E-06	0.3604387	4.194E-07	1.49929E-05	0.3169744	3.689E-07	1.31849E-05	0.3681431	4.284E-07	1.53134E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.062267	1.052E-07	3.75979E-06	0.0553176	9.344E-08	3.34017E-06	0.3563848	6.02E-07	2.15191E-05	0.3141291	5.306E-07	1.89676E-05	0.3694467	6.241E-07	2.23078E-05
Road 6	6	0500-0600	0.056434348	1.705E-07	6.09582E-06	0.0498141	1.505E-07	5.38072E-06	0.3316225	1.002E-06	3.58206E-05	0.2900212	8.764E-07	3.1327E-05	0.3398353	1.027E-06	3.67077E-05
Road 6	6	0600-0700	0.060895889	3.28E-07	1.17255E-05	0.0534159	2.877E-07	1.02852E-05	0.3685271	1.985E-06	7.09601E-05	0.3201189	1.724E-06	6.1639E-05	0.3735347	2.012E-06	7.19243E-05
Road 6	6	0700-0800	0.058968443	5.047E-07	1.80404E-05	0.0502331	4.299E-07	1.5368E-05	0.3263736	2.793E-06	9.98487E-05	0.2745995	2.35E-06	8.40093E-05	0.3248326	2.78E-06	9.93773E-05
Road 6	6	0800-0900	0.050931009	6.252E-07	2.23472E-05	0.043924	5.392E-07	1.92727E-05	0.2936687	3.605E-06	0.000128854	0.2500106	3.069E-06	0.000109698	0.2939345	3.608E-06	0.000128971
Road 6	6	0900-1000	0.053945796	6.358E-07	2.2729E-05	0.0450714	5.312E-07	1.89899E-05	0.2974621	3.506E-06	0.00012533	0.2450705	2.889E-06	0.000103256	0.2901419	3.42E-06	0.000122245
Road 6	6	1000-1100	0.073034831	7.293E-07	2.60678E-05	0.0617882	6.17E-07	2.20536E-05	0.3943349	3.937E-06	0.000140747	0.330971	3.305E-06	0.000118131	0.3927592	3.922E-06	0.000140185
Road 6	6	1100-1200	0.081597784	8.086E-07	2.89051E-05	0.0689569	6.834E-07	2.44272E-05	0.4201619	4.164E-06	0.000148838	0.3529151	3.497E-06	0.000125016	0.421872	4.181E-06	0.000149444
Road 6	6	1200-1300	0.079593643	7.708E-07	2.75544E-05	0.0674592	6.533E-07	2.33536E-05	0.390699	3.784E-06	0.000135255	0.3294173	3.19E-06	0.00011404	0.3968765	3.844E-06	0.000137394
Road 6	6	1300-1400	0.094074524	9.093E-07	3.25044E-05	0.0786344	7.601E-07	2.71695E-05	0.4707287	4.55E-06	0.000162645	0.39091	3.779E-06	0.000135066	0.4695444	4.539E-06	0.000162236
Road 6	6	1400-1500	0.090807095	9.681E-07	3.46044E-05	0.0755075	8.05E-07	2.87741E-05	0.4513154	4.811E-06	0.000171985	0.3727642	3.974E-06	0.000142051	0.4482717	4.779E-06	0.000170825
Road 6	6	1500-1600	0.077867856	8.111E-07	2.89944E-05	0.0662348	6.899E-07	2.46628E-05	0.3951975	4.117E-06	0.000147153	0.3336721	3.476E-06	0.000124244	0.3999068	4.166E-06	0.000148907
Road 6	6	1600-1700	0.082140158	8.757E-07	3.13016E-05	0.0687217	7.326E-07	2.61882E-05	0.3988571	4.252E-06	0.000151995	0.3314123	3.533E-06	0.000126293	0.400134	4.266E-06	0.000152481
Road 6	6	1700-1800	0.061136711	6.873E-07	2.45692E-05	0.0515102	5.791E-07	2.07006E-05	0.3053457	3.433E-06	0.00012271	0.2547002	2.863E-06	0.000102357	0.3062103	3.443E-06	0.000123058
Road 6	6	1800-1900	0.057471127	7.367E-07	2.6335E-05	0.050813	6.514E-07	2.3284E-05	0.2953306	3.786E-06	0.000135329	0.2590088	3.32E-06	0.000118686	0.3098217	3.972E-06	0.00014197
Road 6	6	1900-2000	0.069036987	6.751E-07	2.41314E-05	0.0605579	5.922E-07	2.11676E-05	0.3545258	3.467E-06	0.000123922	0.3084682	3.016E-06	0.000107823	0.3690261	3.609E-06	0.00012899
Road 6	6	2000-2100	0.054553146	4.198E-07	1.5006E-05	0.0474395	3.651E-07	1.30493E-05	0.303457	2.335E-06	8.34725E-05	0.2611709	2.01E-06	7.18408E-05	0.3086104	2.375E-06	8.48901E-05
Road 6	6	2100-2200	0.075322247	5.033E-07	1.79902E-05	0.06595	4.407E-07	1.57517E-05	0.3882997	2.594E-06	9.27427E-05	0.3376441	2.256E-06	8.06439E-05	0.4035941	2.697E-06	9.63956E-05
Road 6	6	2200-2300	0.055772334	3.946E-07	1.41066E-05	0.0491678	3.479E-07	1.24361E-05	0.3040018	2.151E-06	7.68918E-05	0.2646221	1.872E-06	6.69314E-05	0.3137899	2.22E-06	7.93675E-05
Road 6	6	2300-0000	0.03712096	2.466E-07	8.81627E-06	0.0328556	2.183E-07	7.80326E-06	0.2241925	1.49E-06	5.3246E-05	0.1961259	1.303E-06	4.65801E-05	0.2289815	1.521E-06	5.43834E-05
Road 7	7	0000-0100	0.0685013	1.83E-07	4.56817E-06	0.0604605	1.615E-07	4.03195E-06	0.4011094	1.072E-06	2.67489E-05	0.3517409	9.396E-07	2.34567E-05	0.4122014	1.101E-06	2.74886E-05
Road 7	7	0100-0200	0.083065923	1.725E-07	4.30511E-06	0.0733458	1.523E-07	3.80134E-06	0.4532419	9.41E-07	2.34905E-05	0.3983771	8.271E-07	2.0647E-05	0.4717229	9.794E-07	2.44483E-05
Road 7	7	0200-0300	0.07147383	9.754E-08	2.43501E-06	0.0636072	8.681E-08	2.16701E-06	0.3995244	5.452E-07	1.36112E-05	0.3535003	4.824E-07	1.20432E-05	0.4171076	5.692E-07	1.42102E-05
Road 7	7	0300-0400	0.072448947	7.994E-08	1.99559E-06	0.0643092	7.096E-08	1.77138E-06	0.4334449	4.783E-07	1.19391E-05	0.3826603	4.222E-07	1.05403E-05	0.4469694	4.932E-07	1.23117E-05
Road 7	7	0400-0500	0.079844685	1.287E-07	3.21214E-06	0.0709146	1.143E-07	2.85288E-06	0.4410856	7.108E-07	1.77448E-05	0.3897309	6.281E-07	1.56788E-05	0.4606455	7.424E-07	1.85317E-05
Road 7	7	0500-0600	0.073143112	2.081E-07	5.19583E-06	0.0645364	1.836E-07	4.58444E-06	0.4084908	1.162E-06	2.90178E-05	0.3582063	1.019E-06	2.54457E-05	0.4227427	1.203E-06	3.00302E-05
Road 7	7	0600-0700	0.07770718	3.949E-07	9.85723E-06	0.0680889	3.46E-07	8.63714E-06	0.4429779	2.251E-06	5.61922E-05	0.3854819	1.959E-06	4.88987E-05	0.4535707	2.305E-06	5.75359E-05
Road 7	7	0700-0800	0.076491926	6.219E-07	1.55249E-05	0.0652391	5.304E-07	1.3241E-05	0.4115059	3.346E-06	8.35199E-05	0.3480569	2.83E-06	7.06422E-05	0.4132961	3.36E-06	8.38832E-05
Road 7	7	0800-0900	0.076883569	9.443E-07	2.35738E-05	0.0655972	8.057E-07	2.01132E-05	0.4167976	5.119E-06	0.000127797	0.3527815	4.333E-06	0.000108169	0.4183787	5.139E-06	0.000128282
Road 7	7	0900-1000	0.07968854	9.094E-07	2.2701E-05	0.0666369	7.604E-07	1.89829E-05	0.4153032	4.739E-06	0.000118308	0.3446258	3.933E-06	9.81739E-05	0.4112627	4.693E-06	0.000117157
Road 7	7	1000-1100	0.09515266	9.518E-07	2.37611E-05	0.079904	7.993E-07	1.99532E-05	0.4996722	4.998E-06	0.000124776	0.4173577	4.175E-06	0.000104221	0.4972617	4.974E-06	0.000124174
Road 7	7	1100-1200	0.102278212	1.019E-06	2.54292E-05	0.086411	8.606E-07	2.14842E-05	0.526844	5.247E-06	0.000130988	0.4434443	4.417E-06	0.000110253	0.5298554	5.277E-06	0.000131737
Road 7	7	1200-1300	0.101187329	1.006E-06	2.51213E-05	0.0859524	8.548E-07	2.1339E-05	0.5100499	5.073E-06	0.000126628	0.4318464	4.295E-06	0.000107213	0.5177988	5.15E-06	0.000128552
Road 7	7	1300-1400	0.109751185	1.076E-06	2.68497E-05	0.0921252	9.028E-07	2.25376E-05	0.5519026	5.409E-06	0.000135018	0.461211	4.52E-06	0.000112831	0.5533362	5.423E-06	0.000135369
Road 7	7	1400-1500	0.103586886	1.065E-06	2.65805E-05	0.0860904	8.849E-07	2.20909E-05	0.5268643	5.416E-06	0.000135194	0.4357069	4.479E-06	0.000111803	0.5217973	5.364E-06	0.000133894
Road 7	7	1500-1600	0.093849933	9.429E-07	2.35378E-05	0.0797154	8.009E-07	1.99928E-05	0.4809297	4.832E-06	0.000120618	0.4063206	4.082E-06	0.000101906	0.486036	4.883E-06	0.000121899
Road 7	7	1600-1700	0.097990441	1.019E-06	2.54286E-05	0.0823882	8.565E-07	2.13798E-05	0.4842715	5.034E-06	0.000125669	0.4051864	4.212E-06	0.000105146	0.4875746	5.068E-06	0.000126526
Road 7	7	1700-1800	0.076271587	8.405E-07	2.09812E-05	0.0641619	7.07E-07	1.765E-05	0.3904854	4.303E-06	0.000107417	0.3262501	3.595E-06	8.97466E-05	0.3904119	4.302E-06	0.000107397
Road 7	7	1800-1900	0.067377325	7.708E-07	1.92427E-05	0.0589789	6.748E-07	1.68441E-05	0.3517564	4.024E-06	0.00010046	0.3057885	3.498E-06	8.73319E-05	0.3647674	4.173E-06	0.000104176
Road 7	7	1900-2000	0.078792711	6.829E-07	1.70485E-05	0.069579	6.031E-07	1.50549E-05	0.4126383	3.577E-06	8.92832E-05	0.3622395	3.14E-06	7.83783E-05	0.4318185	3.743E-06	9.34332E-05
Road 7	7	2000-2100	0.072459695	5.134E-07	1.28157E-05	0.0630434	4.467E-07	1.11503E-05	0.3885655	2.753E-06	6.87242E-05	0.3357399	2.379E-06	5.93811E-05	0.3987833	2.825E-06	7.05314E-05
Road 7	7	2100-2200	0.082551098	4.914E-07	1.22668E-05	0.07244	4.312E-07	1.07644E-05	0.4321168	2.572E-06	6.42112E-05	0.3770284	2.244E-06	5.60252E-05	0.4494685	2.676E-06	6.67896E-05
Road 7	7	2200-2300	0.068612783	4.403E-07	1.09914E-05	0.0606262	3.891E-07	9.712E-06	0.3703159	2.376E-06	5.93226E-05	0.3242733	2.081E-06	5.19468E-05	0.3848995	2.47E-06	6.16588E-05
Road 7	7	2300-0000	0.046814533	2.766E-07	6.90559E-06	0.0417609	2.468E-07	6.16013E-06	0.2741408	1.62E-06	4.04384E-05	0.2425107	1.433E-06	3.57726E-05	0.2842716	1.68E-06	4.19328E-05
Road 8	8	0000-0100	0.207524722	1.509E-07	2.48798E-06	0.1843917	1.341E-07	2.21064E-06	1.0596092	7.706E-07	1.27035E-05	0.9411394	6.845E-07	1.12831E-05	1.1255311	8.186E-07	1.34938E-05
Road 8	8	0100-0200	0.215745	1.308E-07	2.15544E-06	0.1903763	1.154E-07	1.90199E-06	1.097893	6.654E-07	1.09687E-05	0.968312	5.869E-07	9.6741E-06	1.1586883	7.022E-07	1.15761E-05
Road 8	8	0200-0300	0.202349333	6.132E-08	1.0108E-06	0.179676	5.445E-08	8.97543E-07	1.0841553	3.285E-07	5.41573E-06	0.96238	2.916E-07	4.80742E-06	1.142056	3.461E-07	5.70496E-06
Road 8	8	0300-0400	0.185163571	5.237E-08	8.63291E-07	0.1638629	4.635E-08	7.63981E-07	0.9676207	2.737E-07	4.51136E-06	0.8558379	2.421E-07	3.99019E-06	1.0197007	2.884E-07	4.75417E-06
Road 8	8	0400-0500	0.208027619	8.825E-08	1.45484E-06	0.1846814	7.835E-08	1.29157E-06	1.0271267	4.358E-07	7.18319E-06	0.9116471	3.868E-07	6.37558E-06	1.0963286	4.651E-07	7.66715E-06
Road 8	8	0500-0600	0.199088529	1.367E-07	2.25423E-06	0.1756424	1.206E-07	1.98876E-06	0.9645435	6.625E-07	1.09213E-05	0.8502335	5.84E-07	9.627E-06	1.0258759	7.046E-07	1.16158E-05
Road 8	8	0600-0700	0.224746452	2.815E-07	4.64043E-06	0.1970053	2.468E-07	4.06765E-06	1.0757789	1.347E-06	2.2212E-05	0.9425092	1.181E-06	1.94604E-05	1.1395145	1.427E-06	2.3528E-05
Road 8	8	0700-0800	0.230861584	4.711E-07	7.7651E-06	0.1965639	4.011E-07	6.61148E-06	1.1177305	2.281E-06	3.75952E-05	0.9507651	1.94E-06	3.19793E-05	1.147329	2.341E-06	3.85907E-05
Road 8	8	0800-0900	0.257966579	9.902E-07	1.63227E-05	0.2226371	8.546E-07	1.40872E-05	1.2534128	4.811E-06	7.93088E-05	1.0811053	4.15E-06	6.84062E-05	1.3037424	5.004E-06	8.24934E-05
Road 8	8	0900-1000	0.279660318	8.87E-07	1.46219E-05	0.2333455	7.401E-07	1.22004E-05	1.2935227	4.103E-06	6.76313E-05	1.0790855	3.423E-06	5.64195E-05	1.312431	4.163E-06	6.86199E-05
Road 8	8	1000-1100	0.270806899	8.644E-07	1.42492E-05	0.2288537	7.305E-07	1.20417E-05	1.2848051	4.101E-06	6.76033E-05	1.0849671	3.463E-06	5.70884E-05	1.3138208	4.194E-06	6.91301E-05
Road 8	8	1100-1200	0.272082704	8.74E-07	1.44069E-05	0.2292652	7.364E-07	1.21397E-05	1.3100052	4.208E-06	6.93656E-05	1.1035938	3.545E-06	5.8436E-05	1.3328589	4.281E-06	7.05757E-05
Road 8	8	1200-1300	0.275975444	9.422E-07	1.55321E-05	0.2333615	7.967E-07	1.31338E-05	1.3422464	4.583E-06	7.55428E-05	1.1344767	3.873E-06	6.38493E-05	1.3678383	4.67E-06	7.69831E-05
Road 8	8	1300-1400	0.256151813	8.28E-07	1.36487E-05	0.2137974	6.911E-07	1.13919E-05	1.2230463	3.953E-06	6.51684E-05	1.0203396	3.298E-06	5.43674E-05	1.2341371	3.989E-06	6.57593E-05
Road 8	8	1400-1500	0.252352734	7.086E-07	1.16814E-05	0.2094886	5.883E-07	9.69726E-06	1.261963	3.544E-06	5.84165E-05	1.0470245	2.94E-06	4.84669E-05	1.256513	3.528E-06	5.81642E-05
Road 8	8	1500-1600	0.252308467	6.983E-07	1.15113E-05	0.2142745	5.93E-07	9.77608E-06	1.2275282	3.397E-06	5.60049E-05	1.0416213	2.883E-06	4.7523E-05	1.2558958	3.476E-06	5.72991E-05
Road 8	8	1600-1700	0.255541233	7.537E-07	1.24248E-05	0.2133968	6.294E-07	1.03756E-05	1.2281892	3.623E-06	5.97162E-05	1.0249251	3.023E-06	4.98332E-05	1.2383219	3.652E-06	6.02088E-05
Road 8	8	1700-1800	0.208285577	6.564E-07	1.08208E-05	0.1752219	5.522E-07	9.10305E-06	1.044975	3.293E-06	5.42881E-05	0.8777563	2.766E-06	4.56008E-05	1.0529782	3.318E-06	5.47038E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.199736636	4.318E-07	7.1173E-06	0.1768347	3.822E-07	6.30123E-06	1.0252188	2.216E-06	3.65321E-05	0.906762	1.96E-06	3.2311E-05	1.0835966	2.342E-06	3.86123E-05
Road 8	8	1900-2000	0.201215325	3.13E-07	5.15971E-06	0.1766825	2.748E-07	4.53062E-06	1.0593288	1.648E-06	2.71641E-05	0.9298416	1.446E-06	2.38437E-05	1.106524	1.721E-06	2.83743E-05
Road 8	8	2000-2100	0.219311184	3.367E-07	5.55071E-06	0.1907316	2.928E-07	4.82736E-06	1.0484037	1.61E-06	2.65348E-05	0.9109414	1.399E-06	2.30557E-05	1.101673	1.691E-06	2.7883E-05
Road 8	8	2100-2200	0.17868	1.913E-07	3.15374E-06	0.1565132	1.676E-07	2.76249E-06	0.937796	1.004E-06	1.65523E-05	0.8201747	8.782E-07	1.44763E-05	0.9766879	1.046E-06	1.72387E-05
Road 8	8	2200-2300	0.21258125	2.749E-07	4.53084E-06	0.187495	2.424E-07	3.99617E-06	1.0523634	1.361E-06	2.24295E-05	0.9274995	1.199E-06	1.97682E-05	1.1149945	1.442E-06	2.37644E-05
Road 8	8	2300-0000	0.169219615	1.778E-07	2.93041E-06	0.1498173	1.574E-07	2.59441E-06	0.8709488	9.149E-07	1.50824E-05	0.7701892	8.091E-07	1.33375E-05	0.9200065	9.665E-07	1.59319E-05
Road 9	9	0000-0100	0.182433212	4.845E-08	1.44631E-06	0.1651414	4.386E-08	1.30923E-06	0.8295705	2.203E-07	6.57676E-06	0.7465564	1.983E-07	5.91863E-06	0.9116977	2.421E-07	7.22786E-06
Road 9	9	0100-0200	0.19950583	4.163E-08	1.24274E-06	0.1807879	3.772E-08	1.12614E-06	0.8573584	1.789E-07	5.34055E-06	0.771814	1.611E-07	4.80769E-06	0.9526019	1.988E-07	5.93383E-06
Road 9	9	0200-0300	0.076722301	7.277E-09	2.17231E-07	0.0687672	6.522E-09	1.94707E-07	0.5493559	5.211E-08	1.55544E-06	0.4950198	4.695E-08	1.4016E-06	0.563787	5.347E-08	1.5963E-06
Road 9	9	0300-0400	0.093172111	7.07E-09	2.11046E-07	0.0831166	6.307E-09	1.88269E-07	0.5784791	4.389E-08	1.31032E-06	0.5175071	3.927E-08	1.17221E-06	0.6006237	4.557E-08	1.36048E-06
Road 9	9	0400-0500	0.212452032	4.03E-08	1.20307E-06	0.1934305	3.669E-08	1.09536E-06	0.8772408	1.664E-07	4.96763E-06	0.7943619	1.507E-07	4.49831E-06	0.9877923	1.874E-07	5.59366E-06
Road 9	9	0500-0600	0.153314628	4.944E-08	1.47592E-06	0.1388344	4.477E-08	1.33652E-06	0.7753426	2.5E-07	7.46403E-06	0.7043659	2.271E-07	6.78075E-06	0.8432003	2.719E-07	8.11728E-06
Road 9	9	0600-0700	0.182372876	1.107E-07	3.30477E-06	0.1650568	1.002E-07	2.99098E-06	0.9549047	5.797E-07	1.73038E-05	0.8664864	5.26E-07	1.57015E-05	1.0315432	6.262E-07	1.86925E-05
Road 9	9	0700-0800	0.160966236	1.466E-07	4.37529E-06	0.1441133	1.312E-07	3.9172E-06	0.9223987	8.399E-07	2.50721E-05	0.8301528	7.559E-07	2.25647E-05	0.9742661	8.871E-07	2.64819E-05
Road 9	9	0800-0900	0.247039537	5.389E-07	1.60877E-05	0.2183788	4.764E-07	1.42213E-05	1.1973606	2.612E-06	7.79747E-05	1.0528431	2.297E-06	6.85634E-05	1.2712219	2.773E-06	8.27847E-05
Road 9	9	0900-1000	0.257662258	4.203E-07	1.25482E-05	0.2259569	3.686E-07	1.10041E-05	1.1358488	1.853E-06	5.53159E-05	0.9903967	1.616E-06	4.82323E-05	1.2163536	1.984E-06	5.92364E-05
Road 9	9	1000-1100	0.270123294	3.638E-07	1.08605E-05	0.2334647	3.144E-07	9.38664E-06	1.1664508	1.571E-06	4.68981E-05	1.0044907	1.353E-06	4.03864E-05	1.2379553	1.667E-06	4.9773E-05
Road 9	9	1100-1200	0.184133517	2.585E-07	7.71605E-06	0.1574376	2.21E-07	6.59737E-06	0.9907325	1.391E-06	4.15163E-05	0.8587303	1.205E-06	3.59848E-05	1.0161679	1.426E-06	4.25822E-05
Road 9	9	1200-1300	0.278382061	3.855E-07	1.15079E-05	0.2467629	3.417E-07	1.02008E-05	1.2872844	1.783E-06	5.32143E-05	1.1427585	1.582E-06	4.72398E-05	1.3895215	1.924E-06	5.74406E-05
Road 9	9	1300-1400	0.316466139	3.602E-07	1.07525E-05	0.2776341	3.16E-07	9.43311E-06	1.2196386	1.388E-06	4.14394E-05	1.0622649	1.209E-06	3.60923E-05	1.339899	1.525E-06	4.55254E-05
Road 9	9	1400-1500	0.206632725	2.665E-07	7.95681E-06	0.1817909	2.345E-07	7.00022E-06	1.0223126	1.319E-06	3.93662E-05	0.8918275	1.15E-06	3.43416E-05	1.0736184	1.385E-06	4.13418E-05
Road 9	9	1500-1600	0.169267257	1.83E-07	5.4636E-06	0.1492872	1.614E-07	4.81868E-06	0.8959591	9.688E-07	2.89197E-05	0.7938558	8.584E-07	2.5624E-05	0.9431429	1.02E-06	3.04427E-05
Road 9	9	1600-1700	0.177452149	2.659E-07	7.93851E-06	0.1578289	2.365E-07	7.06065E-06	1.0098649	1.513E-06	4.51774E-05	0.897335	1.345E-06	4.01432E-05	1.055164	1.581E-06	4.72039E-05
Road 9	9	1700-1800	0.155806373	2.01E-07	5.99964E-06	0.1402208	1.809E-07	5.39948E-06	0.9714291	1.253E-06	3.74068E-05	0.8822152	1.138E-06	3.39715E-05	1.0224361	1.319E-06	3.93709E-05
Road 9	9	1800-1900	0.150299828	1.255E-07	3.74491E-06	0.1395695	1.165E-07	3.47755E-06	0.9260672	7.73E-07	2.30742E-05	0.8664413	7.232E-07	2.15885E-05	1.0060108	8.397E-07	2.50661E-05
Road 9	9	1900-2000	0.156131818	1.274E-07	3.80181E-06	0.1443498	1.177E-07	3.51492E-06	0.8417694	6.866E-07	2.04971E-05	0.777585	6.343E-07	1.89342E-05	0.9219347	7.52E-07	2.24491E-05
Road 9	9	2000-2100	0.164404915	9.044E-08	2.69987E-06	0.1475911	8.119E-08	2.42376E-06	0.7382888	4.061E-07	1.21243E-05	0.6694988	3.683E-07	1.09946E-05	0.8170898	4.495E-07	1.34183E-05
Road 9	9	2100-2200	0.021416503	1.097E-08	3.27449E-07	0.0197003	1.009E-08	3.01209E-07	0.2945135	1.508E-07	4.50298E-06	0.2675837	1.371E-07	4.09123E-06	0.2872841	1.471E-07	4.39244E-06
Road 9	9	2200-2300	0.154937309	9.699E-08	2.89535E-06	0.1403791	8.788E-08	2.6233E-06	0.7597429	4.756E-07	1.41975E-05	0.6886155	4.311E-07	1.28683E-05	0.8289947	5.19E-07	1.54916E-05
Road 9	9	2300-0000	0.12529327	7.13E-08	2.12853E-06	0.1151884	6.555E-08	1.95686E-06	0.6463106	3.678E-07	1.09798E-05	0.5933045	3.376E-07	1.00793E-05	0.7084929	4.032E-07	1.20361E-05
Road 10	10	0000-0100	0.252517029	1.941E-07	4.31685E-06	0.2256712	1.735E-07	3.85791E-06	1.2913543	9.929E-07	2.20761E-05	1.1549988	8.88E-07	1.9745E-05	1.38067	1.062E-06	2.36029E-05
Road 10	10	0100-0200	0.249106176	1.447E-07	3.21756E-06	0.2215066	1.287E-07	2.86108E-06	1.2627594	7.336E-07	1.63104E-05	1.123398	6.526E-07	1.45103E-05	1.3449046	7.813E-07	1.73714E-05
Road 10	10	0200-0300	0.244099249	7.924E-08	1.76191E-06	0.2167895	7.038E-08	1.56479E-06	1.2233479	3.971E-07	8.83013E-06	1.0878311	3.531E-07	7.85197E-06	1.3046205	4.235E-07	9.41676E-06
Road 10	10	0300-0400	0.222208459	4.556E-08	1.01299E-06	0.1966138	4.031E-08	8.96312E-07	1.2016658	2.464E-07	5.47808E-06	1.0648113	2.183E-07	4.8542E-06	1.2614251	2.586E-07	5.75051E-06
Road 10	10	0400-0500	0.260907405	1.025E-07	2.2797E-06	0.2337385	9.185E-08	2.04231E-06	1.2513845	4.918E-07	1.09341E-05	1.1177537	4.392E-07	9.76647E-06	1.3514922	5.311E-07	1.18088E-05
Road 10	10	0500-0600	0.239521012	1.678E-07	3.73071E-06	0.2139285	1.499E-07	3.33209E-06	1.1541768	8.085E-07	1.79771E-05	1.0297691	7.214E-07	1.60394E-05	1.2436976	8.712E-07	1.93715E-05
Road 10	10	0600-0700	0.294843402	4.131E-07	9.18479E-06	0.2638546	3.697E-07	8.21944E-06	1.4756312	2.067E-06	4.5968E-05	1.3252017	1.857E-06	4.12819E-05	1.5890563	2.226E-06	4.95013E-05
Road 10	10	0700-0800	0.297703534	6.562E-07	1.45894E-05	0.2590417	5.709E-07	1.26947E-05	1.5009928	3.308E-06	7.35584E-05	1.3110361	2.89E-06	6.42493E-05	1.5700778	3.461E-06	7.6944E-05
Road 10	10	0800-0900	0.318399728	1.344E-06	2.98768E-05	0.2765463	1.167E-06	2.59495E-05	1.5751572	6.647E-06	0.000147803	1.3690976	5.778E-06	0.000128468	1.6456439	6.945E-06	0.000154418
Road 10	10	0900-1000	0.361960204	1.212E-06	2.69514E-05	0.3092165	1.036E-06	2.30241E-05	1.7487016	5.856E-06	0.000130207	1.4952973	5.007E-06	0.000111339	1.8045138	6.043E-06	0.000134363
Road 10	10	1000-1100	0.362399609	1.319E-06	2.93245E-05	0.3112522	1.133E-06	2.51858E-05	1.638318	5.962E-06	0.000132569	1.4025707	5.104E-06	0.000113493	1.7138229	6.237E-06	0.000138679
Road 10	10	1100-1200	0.344966846	1.255E-06	2.79139E-05	0.2936868	1.069E-06	2.37644E-05	1.619404	5.893E-06	0.000131038	1.3773344	5.012E-06	0.000111451	1.6710212	6.081E-06	0.000135215
Road 10	10	1200-1300	0.362193334	1.361E-06	3.0271E-05	0.3117178	1.172E-06	2.60524E-05	1.7262881	6.489E-06	0.000144278	1.4875111	5.591E-06	0.000124322	1.7992289	6.763E-06	0.000150374
Road 10	10	1300-1400	0.357610267	1.173E-06	2.6084E-05	0.3047928	9.999E-07	2.22315E-05	1.6629827	5.455E-06	0.000121298	1.4150617	4.642E-06	0.000103214	1.7198545	5.642E-06	0.000125446
Road 10	10	1400-1500	0.335845613	1.033E-06	2.29655E-05	0.2864517	8.81E-07	1.95879E-05	1.6810913	5.17E-06	0.000114955	1.4351312	4.414E-06	9.81359E-05	1.7215829	5.295E-06	0.000117724
Road 10	10	1500-1600	0.325177862	1.022E-06	2.27302E-05	0.2801849	8.808E-07	1.95851E-05	1.5676652	4.928E-06	0.000109581	1.3522679	4.251E-06	9.45245E-05	1.6324528	5.132E-06	0.00011411
Road 10	10	1600-1700	0.314531907	1.102E-06	2.44953E-05	0.2688833	9.418E-07	2.09402E-05	1.5371941	5.384E-06	0.000119714	1.3121342	4.596E-06	0.000102187	1.5810175	5.538E-06	0.000123127
Road 10	10	1700-1800	0.29189855	9.576E-07	2.1291E-05	0.2524674	8.282E-07	1.84149E-05	1.520042	4.986E-06	0.000110872	1.3234313	4.341E-06	9.65309E-05	1.5758987	5.17E-06	0.000114946
Road 10	10	1800-1900	0.284456078	5.881E-07	1.30757E-05	0.2555853	5.284E-07	1.17486E-05	1.4394932	2.976E-06	6.61696E-05	1.2963502	2.68E-06	5.95897E-05	1.5519356	3.208E-06	7.13383E-05
Road 10	10	1900-2000	0.251070616	4.676E-07	1.03965E-05	0.22472	4.185E-07	9.30533E-06	1.332179	2.481E-06	5.51636E-05	1.1966685	2.229E-06	4.95523E-05	1.4213885	2.647E-06	5.88577E-05
Road 10	10	2000-2100	0.286720493	3.527E-07	7.84251E-06	0.2510544	3.088E-07	6.86695E-06	1.3871647	1.706E-06	3.79424E-05	1.2144131	1.494E-06	3.32172E-05	1.4654676	1.803E-06	4.00841E-05
Road 10	10	2100-2200	0.241042844	2.965E-07	6.59311E-06	0.2183702	2.686E-07	5.97296E-06	1.3499362	1.661E-06	3.69241E-05	1.2289858	1.512E-06	3.36158E-05	1.447356	1.78E-06	3.95887E-05
Road 10	10	2200-2300	0.248356994	3.183E-07	7.07622E-06	0.2227585	2.854E-07	6.34687E-06	1.2798552	1.64E-06	3.64658E-05	1.1529327	1.477E-06	3.28495E-05	1.3756912	1.763E-06	3.91964E-05
Road 10	10	2300-0000	0.224354821	2.683E-07	5.96619E-06	0.2002087	2.394E-07	5.32408E-06	1.133913	1.356E-06	3.01538E-05	1.0116056	1.21E-06	2.69013E-05	1.2118143	1.449E-06	3.22254E-05
Road 11	11	0000-0100	0.282537603	2.158E-07	1.79031E-06	0.2521695	1.926E-07	1.59788E-06	1.4149	1.081E-06	8.96554E-06	1.2612211	9.634E-07	7.99175E-06	1.5133906	1.156E-06	9.58963E-06
Road 11	11	0100-0200	0.283551984	1.526E-07	1.26588E-06	0.2517469	1.355E-07	1.12389E-06	1.3952058	7.509E-07	6.22871E-06	1.2356766	6.65E-07	5.51651E-06	1.4874235	8.005E-07	6.6404E-06
Road 11	11	0200-0300	0.244087434	6.356E-08	5.27272E-07	0.2168164	5.646E-08	4.68362E-07	1.3034253	3.394E-07	2.81563E-06	1.1590084	3.018E-07	2.50366E-06	1.3758248	3.583E-07	2.97203E-06
Road 11	11	0300-0400	0.261742032	6.362E-08	5.27715E-07	0.2314927	5.627E-08	4.66728E-07	1.3707512	3.332E-07	2.76366E-06	1.2128925	2.948E-07	2.44539E-06	1.4443853	3.511E-07	2.91212E-06
Road 11	11	0400-0500	0.270111016	9.379E-08	7.77984E-07	0.2421602	8.408E-08	6.97479E-07	1.2788504	4.44E-07	3.68339E-06	1.1428459	3.968E-07	3.29167E-06	1.3850062	4.809E-07	3.98915E-06
Road 11	11	0500-0600	0.218705506	1.025E-07	8.50397E-07	0.1951513	9.148E-08	7.58811E-07	1.1146453	5.225E-07	4.3341E-06	0.9958341	4.668E-07	3.87212E-06	1.1909854	5.583E-07	4.63093E-06
Road 11	11	0600-0700	0.240453703	2.171E-07	1.80067E-06	0.2139206	1.931E-07	1.60197E-06	1.2450109	1.124E-06	9.32341E-06	1.1093851	1.002E-06	8.30776E-06	1.3233058	1.195E-06	9.90973E-06
Road 11	11	0700-0800	0.287747094	5.395E-07	4.47541E-06	0.2479044	4.648E-07	3.85573E-06	1.4984862	2.81E-06	2.33064E-05	1.2946741	2.428E-06	2.01364E-05	1.5425785	2.892E-06	2.39922E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.316438327	1.126E-06	9.34203E-06	0.2766778	9.847E-07	8.1682E-06	1.5591863	5.549E-06	4.6031E-05	1.3599837	4.84E-06	4.015E-05	1.6366615	5.825E-06	4.83182E-05
Road 11	11	0900-1000	0.324317421	8.221E-07	6.81901E-06	0.2767862	7.016E-07	5.81963E-06	1.5320288	3.883E-06	3.2212E-05	1.3021755	3.301E-06	2.73792E-05	1.5789617	4.002E-06	3.31988E-05
Road 11	11	1000-1100	0.337105684	6.965E-07	5.77712E-06	0.2884953	5.96E-07	4.94406E-06	1.5710528	3.246E-06	2.69238E-05	1.3409754	2.77E-06	2.29808E-05	1.6294707	3.366E-06	2.79249E-05
Road 11	11	1100-1200	0.290578626	6.76E-07	5.60747E-06	0.2459613	5.722E-07	4.74646E-06	1.4929278	3.473E-06	2.88099E-05	1.270492	2.956E-06	2.45174E-05	1.5164532	3.528E-06	2.92639E-05
Road 11	11	1200-1300	0.356858201	1.01E-06	8.37686E-06	0.3065272	8.674E-07	7.1954E-06	1.731606	4.9E-06	4.06476E-05	1.4872349	4.209E-06	3.49112E-05	1.7937621	5.076E-06	4.21066E-05
Road 11	11	1300-1400	0.376380653	7.841E-07	6.50439E-06	0.3203277	6.673E-07	5.53572E-06	1.6942555	3.53E-06	2.92791E-05	1.4339475	2.987E-06	2.47806E-05	1.7542753	3.655E-06	3.03164E-05
Road 11	11	1400-1500	0.300806868	6.058E-07	5.02509E-06	0.2555695	5.147E-07	4.26938E-06	1.500695	3.022E-06	2.50697E-05	1.270249	2.558E-06	2.122E-05	1.5258185	3.073E-06	2.54894E-05
Road 11	11	1500-1600	0.262339029	5.329E-07	4.42025E-06	0.2254503	4.579E-07	3.7987E-06	1.3586425	2.76E-06	2.28923E-05	1.1697458	2.376E-06	1.97095E-05	1.3951961	2.834E-06	2.35082E-05
Road 11	11	1600-1700	0.253254053	6.112E-07	5.06955E-06	0.2165832	5.227E-07	4.33549E-06	1.3554158	3.271E-06	2.71322E-05	1.1605223	2.801E-06	2.32309E-05	1.3771055	3.323E-06	2.75664E-05
Road 11	11	1700-1800	0.253381708	6.247E-07	5.18157E-06	0.217482	5.362E-07	4.44744E-06	1.3826249	3.409E-06	2.82742E-05	1.1942425	2.944E-06	2.44219E-05	1.4117245	3.48E-06	2.88693E-05
Road 11	11	1800-1900	0.261228723	5.352E-07	4.43916E-06	0.2337495	4.789E-07	3.9722E-06	1.3983358	2.865E-06	2.37625E-05	1.256004	2.573E-06	2.13438E-05	1.4897535	3.052E-06	2.5316E-05
Road 11	11	1900-2000	0.252737907	3.993E-07	3.31215E-06	0.2250129	3.555E-07	2.94881E-06	1.3153866	2.078E-06	1.72382E-05	1.1715201	1.851E-06	1.53529E-05	1.396533	2.206E-06	1.83017E-05
Road 11	11	2000-2100	0.25825404	3.632E-07	3.01252E-06	0.2262736	3.182E-07	2.63947E-06	1.2899743	1.814E-06	1.50475E-05	1.1321622	1.592E-06	1.32066E-05	1.3584357	1.91E-06	1.58461E-05
Road 11	11	2100-2200	0.184865712	1.829E-07	1.5175E-06	0.1623175	1.606E-07	1.33241E-06	1.0353222	1.025E-06	8.49862E-06	0.9111492	9.017E-07	7.47933E-06	1.0734667	1.062E-06	8.81174E-06
Road 11	11	2200-2300	0.237238591	2.595E-07	2.15241E-06	0.2110539	2.308E-07	1.91484E-06	1.1981796	1.311E-06	1.08708E-05	1.0659758	1.166E-06	9.67133E-06	1.2770296	1.397E-06	1.15862E-05
Road 11	11	2300-0000	0.225339373	2.347E-07	1.94709E-06	0.2011741	2.096E-07	1.73829E-06	1.1573245	1.206E-06	1.00001E-05	1.0330231	1.076E-06	8.92605E-06	1.2341972	1.286E-06	1.06643E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.21374	2.281E-06	3.43144E-06	1.0325	1.941E-06	2.91904E-06	5.57766	1.048E-05	1.57689E-05	4.74489	8.919E-06	1.34146E-05	5.77739	1.086E-05	1.63336E-05
Haul Road 1	HR1	0800-0900	1.23243	2.317E-06	3.48428E-06	1.06239	1.997E-06	3.00355E-06	5.66363	1.065E-05	1.6012E-05	4.88213	9.177E-06	1.38026E-05	5.94452	1.117E-05	1.68061E-05
Haul Road 1	HR1	0900-1000	1.25582	2.361E-06	3.5504E-06	1.0468	1.968E-06	2.95947E-06	5.77109	1.085E-05	1.63158E-05	4.81056	9.042E-06	1.36002E-05	5.85736	1.101E-05	1.65597E-05
Haul Road 1	HR1	1000-1100	1.26981	2.387E-06	3.58996E-06	1.07219	2.015E-06	3.03125E-06	5.83557	1.097E-05	1.64981E-05	4.92711	9.261E-06	1.39297E-05	5.9993	1.128E-05	1.6961E-05
Haul Road 1	HR1	1100-1200	1.24872	2.347E-06	3.53033E-06	1.0516	1.977E-06	2.97304E-06	5.7382	1.079E-05	1.62228E-05	4.83245	9.084E-06	1.36621E-05	5.88405	1.106E-05	1.66352E-05
Haul Road 1	HR1	1200-1300	1.25252	2.354E-06	3.54108E-06	1.05829	1.989E-06	2.99196E-06	5.7556	1.082E-05	1.6272E-05	4.86344	9.142E-06	1.37497E-05	5.92173	1.113E-05	1.67417E-05
Haul Road 1	HR1	1300-1400	1.26931	2.386E-06	3.58854E-06	1.05829	1.989E-06	2.99196E-06	5.83277	1.096E-05	1.64902E-05	4.86344	9.142E-06	1.37497E-05	5.92173	1.113E-05	1.67417E-05
Haul Road 1	HR1	1400-1500	1.28421	2.414E-06	3.63067E-06	1.06499	2.002E-06	3.0109E-06	5.90154	1.109E-05	1.66846E-05	4.89433	9.2E-06	1.38371E-05	5.95932	1.12E-05	1.6848E-05
Haul Road 1	HR1	1500-1600	1.24672	2.343E-06	3.52468E-06	1.05829	1.989E-06	2.99196E-06	5.72941	1.077E-05	1.6198E-05	4.86344	9.142E-06	1.37497E-05	5.92173	1.113E-05	1.67417E-05
Haul Road 1	HR1	1600-1700	1.25252	2.354E-06	3.54108E-06	1.0449	1.964E-06	2.9541E-06	5.7556	1.082E-05	1.6272E-05	4.80156	9.025E-06	1.35748E-05	5.84646	1.099E-05	1.65289E-05
Haul Road 1	HR1	1700-1800	1.25252	2.354E-06	3.54108E-06	1.0532	1.98E-06	2.97757E-06	5.7556	1.082E-05	1.6272E-05	4.83964	9.097E-06	1.36824E-05	5.89284	1.108E-05	1.666E-05
Haul Road 1	HR1	1800-1900	1.19424	2.245E-06	3.37631E-06	1.0564	1.986E-06	2.98661E-06	5.4881	1.032E-05	1.55157E-05	4.85464	9.125E-06	1.37248E-05	5.91104	1.111E-05	1.67115E-05
Haul Road 1	HR1	1900-2000	1.20394	2.263E-06	3.40373E-06	1.0564	1.986E-06	2.98661E-06	5.53238	1.04E-05	1.56409E-05	4.85464	9.125E-06	1.37248E-05	5.91104	1.111E-05	1.67115E-05
Haul Road 1	HR1	2000-2100	1.19394	2.244E-06	3.37546E-06	1.0385	1.952E-06	2.93601E-06	5.4867	1.031E-05	1.55118E-05	4.77228	8.97E-06	1.3492E-05	5.81078	1.092E-05	1.6428E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.21374	1.572E-06	4.18505E-06	1.0325	1.337E-06	3.56012E-06	5.57766	7.225E-06	1.92321E-05	4.74489	6.146E-06	1.63607E-05	5.77739	7.484E-06	1.99208E-05
Haul Road 2	HR2	0800-0900	1.23243	1.596E-06	4.24949E-06	1.06239	1.376E-06	3.66318E-06	5.66363	7.336E-06	1.95285E-05	4.88213	6.324E-06	1.68339E-05	5.94452	7.7E-06	2.04971E-05
Haul Road 2	HR2	0900-1000	1.25582	1.627E-06	4.33014E-06	1.0468	1.356E-06	3.60943E-06	5.77109	7.476E-06	1.98991E-05	4.81056	6.231E-06	1.65871E-05	5.85736	7.587E-06	2.01965E-05
Haul Road 2	HR2	1000-1100	1.26981	1.645E-06	4.37838E-06	1.07219	1.389E-06	3.69698E-06	5.83557	7.559E-06	2.01214E-05	4.92711	6.382E-06	1.6989E-05	5.9993	7.771E-06	2.06859E-05
Haul Road 2	HR2	1100-1200	1.24872	1.618E-06	4.30566E-06	1.0516	1.362E-06	3.62598E-06	5.7382	7.433E-06	1.97857E-05	4.83245	6.26E-06	1.66626E-05	5.88405	7.622E-06	2.02886E-05
Haul Road 2	HR2	1200-1300	1.25252	1.622E-06	4.31876E-06	1.05829	1.371E-06	3.64905E-06	5.7556	7.455E-06	1.98457E-05	4.86344	6.3E-06	1.67694E-05	5.92173	7.671E-06	2.04185E-05
Haul Road 2	HR2	1300-1400	1.26931	1.644E-06	4.37666E-06	1.05829	1.371E-06	3.64905E-06	5.83277	7.555E-06	2.01117E-05	4.86344	6.3E-06	1.67694E-05	5.92173	7.671E-06	2.04185E-05
Haul Road 2	HR2	1400-1500	1.28421	1.663E-06	4.42803E-06	1.06499	1.38E-06	3.67215E-06	5.90154	7.644E-06	2.03489E-05	4.89433	6.34E-06	1.68759E-05	5.95932	7.719E-06	2.05481E-05
Haul Road 2	HR2	1500-1600	1.24672	1.615E-06	4.29877E-06	1.05829	1.371E-06	3.64905E-06	5.72941	7.422E-06	1.97554E-05	4.86344	6.3E-06	1.67694E-05	5.92173	7.671E-06	2.04185E-05
Haul Road 2	HR2	1600-1700	1.25252	1.622E-06	4.31876E-06	1.0449	1.353E-06	3.60288E-06	5.7556	7.455E-06	1.98457E-05	4.80156	6.22E-06	1.65561E-05	5.84646	7.573E-06	2.01589E-05
Haul Road 2	HR2	1700-1800	1.25252	1.622E-06	4.31876E-06	1.0532	1.364E-06	3.6315E-06	5.7556	7.455E-06	1.98457E-05	4.83964	6.269E-06	1.66874E-05	5.89284	7.633E-06	2.03189E-05
Haul Road 2	HR2	1800-1900	1.19424	1.547E-06	4.11781E-06	1.0564	1.368E-06	3.64253E-06	5.4881	7.109E-06	1.89233E-05	4.85464	6.288E-06	1.67391E-05	5.91104	7.657E-06	2.03816E-05
Haul Road 2	HR2	1900-2000	1.20394	1.56E-06	4.15126E-06	1.0564	1.368E-06	3.64253E-06	5.53238	7.166E-06	1.9076E-05	4.85464	6.288E-06	1.67391E-05	5.91104	7.657E-06	2.03816E-05
Haul Road 2	HR2	2000-2100	1.19394	1.547E-06	4.11678E-06	1.0385	1.345E-06	3.58081E-06	5.4867	7.107E-06	1.89185E-05	4.77228	6.182E-06	1.64551E-05	5.81078	7.527E-06	2.00359E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (June) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.21374	1.572E-06	4.17921E-06	1.0325	1.337E-06	3.55516E-06	5.57766	7.225E-06	1.92053E-05	4.74489	6.146E-06	1.63379E-05	5.77739	7.484E-06	1.9893E-05
Haul Road 3	HR3	0800-0900	1.23243	1.596E-06	4.24357E-06	1.06239	1.376E-06	3.65808E-06	5.66363	7.336E-06	1.95013E-05	4.88213	6.324E-06	1.68104E-05	5.94452	7.7E-06	2.04685E-05
Haul Road 3	HR3	0900-1000	1.25582	1.627E-06	4.32411E-06	1.0468	1.356E-06	3.6044E-06	5.77109	7.476E-06	1.98713E-05	4.81056	6.231E-06	1.6564E-05	5.85736	7.587E-06	2.01684E-05
Haul Road 3	HR3	1000-1100	1.26981	1.645E-06	4.37228E-06	1.07219	1.389E-06	3.69182E-06	5.83557	7.559E-06	2.00933E-05	4.92711	6.382E-06	1.69653E-05	5.9993	7.771E-06	2.06571E-05
Haul Road 3	HR3	1100-1200	1.24872	1.618E-06	4.29966E-06	1.0516	1.362E-06	3.62092E-06	5.7382	7.433E-06	1.97581E-05	4.83245	6.26E-06	1.66393E-05	5.88405	7.622E-06	2.02603E-05
Haul Road 3	HR3	1200-1300	1.25252	1.622E-06	4.31274E-06	1.05829	1.371E-06	3.64396E-06	5.7556	7.455E-06	1.9818E-05	4.86344	6.3E-06	1.67461E-05	5.92173	7.671E-06	2.039E-05
Haul Road 3	HR3	1300-1400	1.26931	1.644E-06	4.37056E-06	1.05829	1.371E-06	3.64396E-06	5.83277	7.555E-06	2.00837E-05	4.86344	6.3E-06	1.67461E-05	5.92173	7.671E-06	2.039E-05
Haul Road 3	HR3	1400-1500	1.28421	1.663E-06	4.42186E-06	1.06499	1.38E-06	3.66703E-06	5.90154	7.644E-06	2.03205E-05	4.89433	6.34E-06	1.68524E-05	5.95932	7.719E-06	2.05194E-05
Haul Road 3	HR3	1500-1600	1.24672	1.615E-06	4.29277E-06	1.05829	1.371E-06	3.64396E-06	5.72941	7.422E-06	1.97278E-05	4.86344	6.3E-06	1.67461E-05	5.92173	7.671E-06	2.039E-05
Haul Road 3	HR3	1600-1700	1.25252	1.622E-06	4.31274E-06	1.0449	1.353E-06	3.59785E-06	5.7556	7.455E-06	1.9818E-05	4.80156	6.22E-06	1.6533E-05	5.84646	7.573E-06	2.01308E-05
Haul Road 3	HR3	1700-1800	1.25252	1.622E-06	4.31274E-06	1.0532	1.364E-06	3.62643E-06	5.7556	7.455E-06	1.9818E-05	4.83964	6.269E-06	1.66641E-05	5.89284	7.633E-06	2.02905E-05
Haul Road 3	HR3	1800-1900	1.19424	1.547E-06	4.11207E-06	1.0564	1.368E-06	3.63745E-06	5.4881	7.109E-06	1.88969E-05	4.85464	6.288E-06	1.67158E-05	5.91104	7.657E-06	2.03532E-05
Haul Road 3	HR3	1900-2000	1.20394	1.56E-06	4.14547E-06	1.0564	1.368E-06	3.63745E-06	5.53238	7.166E-06	1.90494E-05	4.85464	6.288E-06	1.67158E-05	5.91104	7.657E-06	2.03532E-05
Haul Road 3	HR3	2000-2100	1.19394	1.547E-06	4.11104E-06	1.0385	1.345E-06	3.57582E-06	5.4867	7.107E-06	1.88921E-05	4.77228	6.182E-06	1.64322E-05	5.81078	7.527E-06	2.0008E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.087773277	2.916E-07	2.37212E-06	0.0797382	2.649E-07	2.15497E-06	0.5145912	1.71E-06	1.39071E-05	0.4660437	1.548E-06	1.25951E-05	0.5457819	1.813E-06	1.47501E-05
Road 1	1	0100-0200	0.065897407	1.336E-07	1.08666E-06	0.0613428	1.243E-07	1.01155E-06	0.3949229	8.005E-07	6.51234E-06	0.3665045	7.429E-07	6.04372E-06	0.4278473	8.673E-07	7.05527E-06
Road 1	1	0200-0300	0.061627143	8.906E-08	7.24543E-07	0.0578352	8.358E-08	6.79961E-07	0.3873522	5.598E-07	4.55405E-06	0.361954	5.231E-07	4.25545E-06	0.4197892	6.067E-07	4.93541E-06
Road 1	1	0300-0400	0.052013273	5.369E-08	4.36795E-07	0.0490195	5.06E-08	4.11654E-07	0.3119182	3.22E-07	2.61942E-06	0.2930033	3.025E-07	2.46057E-06	0.3420227	3.531E-07	2.87223E-06
Road 1	1	0400-0500	0.069045294	1.102E-07	8.96095E-07	0.064524	1.029E-07	8.37416E-07	0.3905369	6.23E-07	5.06853E-06	0.3638868	5.805E-07	4.72266E-06	0.4284108	6.835E-07	5.56007E-06
Road 1	1	0500-0600	0.057075134	2.003E-07	1.62963E-06	0.0516196	1.812E-07	1.47386E-06	0.3324209	1.167E-06	9.49142E-06	0.2989571	1.049E-06	8.53595E-06	0.3505767	1.23E-06	1.00098E-05
Road 1	1	0600-0700	0.076950422	4.795E-07	3.90077E-06	0.070869	4.416E-07	3.59249E-06	0.4091305	2.549E-06	2.07396E-05	0.3754693	2.34E-06	1.90333E-05	0.4463383	2.781E-06	2.26258E-05
Road 1	1	0700-0800	0.068793417	7.218E-07	5.87165E-06	0.0600657	6.302E-07	5.12672E-06	0.3764069	3.949E-06	3.2127E-05	0.3262928	3.423E-06	2.78497E-05	0.3863586	4.054E-06	3.29764E-05
Road 1	1	0800-0900	0.075501051	9.707E-07	7.89669E-06	0.064437	8.284E-07	6.73949E-06	0.3999753	5.142E-06	4.18336E-05	0.3396866	4.367E-06	3.5528E-05	0.4041236	5.196E-06	4.22674E-05
Road 1	1	0900-1000	0.079078119	1.049E-06	8.53644E-06	0.0686396	9.108E-07	7.40961E-06	0.4413648	5.857E-06	4.76451E-05	0.381465	5.062E-06	4.1179E-05	0.4501047	5.973E-06	4.85886E-05
Road 1	1	1000-1100	0.093170131	1.201E-06	9.77315E-06	0.0789851	1.018E-06	8.2852E-06	0.4995699	6.442E-06	5.24028E-05	0.421973	5.441E-06	4.42632E-05	0.5009581	6.459E-06	5.25484E-05
Road 1	1	1100-1200	0.084010435	1.052E-06	8.55579E-06	0.0725038	9.077E-07	7.38393E-06	0.4812692	6.025E-06	4.90134E-05	0.4136262	5.178E-06	4.21245E-05	0.48613	6.086E-06	4.95085E-05
Road 1	1	1200-1300	0.086598061	1.073E-06	8.72677E-06	0.0743737	9.213E-07	7.49488E-06	0.4927742	6.104E-06	4.96585E-05	0.4215763	5.222E-06	4.24836E-05	0.49595	6.144E-06	4.99785E-05
Road 1	1	1300-1400	0.090965313	1.199E-06	9.75021E-06	0.0782867	1.031E-06	8.39124E-06	0.5063255	6.671E-06	5.4271E-05	0.4343768	5.723E-06	4.65591E-05	0.5126634	6.755E-06	5.49504E-05
Road 1	1	1400-1500	0.087496693	1.256E-06	1.02201E-05	0.0750007	1.077E-06	8.76048E-06	0.475335	6.825E-06	5.55217E-05	0.4061181	5.831E-06	4.74368E-05	0.4811187	6.908E-06	5.61972E-05
Road 1	1	1500-1600	0.094217574	1.254E-06	1.01995E-05	0.0797596	1.061E-06	8.63437E-06	0.5102324	6.79E-06	5.52351E-05	0.4301344	5.724E-06	4.65641E-05	0.5098941	6.785E-06	5.51985E-05
Road 1	1	1600-1700	0.089925922	1.262E-06	1.02704E-05	0.0754118	1.059E-06	8.61276E-06	0.4920776	6.908E-06	5.62E-05	0.4105995	5.764E-06	4.68944E-05	0.4860113	6.823E-06	5.55072E-05
Road 1	1	1700-1800	0.069918133	9.842E-07	8.00668E-06	0.0602933	8.487E-07	6.90449E-06	0.389396	5.481E-06	4.45917E-05	0.3339052	4.7E-06	3.82372E-05	0.3941985	5.549E-06	4.51416E-05
Road 1	1	1800-1900	0.061372344	8.846E-07	7.19673E-06	0.0545472	7.863E-07	6.39639E-06	0.3624555	5.225E-06	4.25028E-05	0.319977	4.612E-06	3.75216E-05	0.3745241	5.399E-06	4.3918E-05
Road 1	1	1900-2000	0.073085171	8.038E-07	6.53925E-06	0.0648546	7.133E-07	5.80283E-06	0.4159833	4.575E-06	3.72199E-05	0.3672599	4.039E-06	3.28604E-05	0.4321145	4.753E-06	3.86632E-05
Road 1	1	2000-2100	0.06500004	6.051E-07	4.92262E-06	0.057704	5.372E-07	4.37008E-06	0.3798121	3.536E-06	2.87642E-05	0.3352547	3.121E-06	2.53897E-05	0.3929587	3.658E-06	2.97598E-05
Road 1	1	2100-2200	0.069606755	5.918E-07	4.8145E-06	0.0605291	5.146E-07	4.18662E-06	0.4092691	3.48E-06	2.8308E-05	0.3537133	3.007E-06	2.44653E-05	0.4142424	3.522E-06	2.86519E-05
Road 1	1	2200-2300	0.069432111	5.617E-07	4.56919E-06	0.0603407	4.881E-07	3.9709E-06	0.4070776	3.293E-06	2.67889E-05	0.351182	2.841E-06	2.31106E-05	0.4115227	3.329E-06	2.70815E-05
Road 1	1	2300-0000	0.058690364	4.241E-07	3.45008E-06	0.0525903	3.8E-07	3.09149E-06	0.3558464	2.571E-06	2.09182E-05	0.3164069	2.286E-06	1.85998E-05	0.3689972	2.666E-06	2.16913E-05
Road 2	2	0000-0100	0.147192941	1.738E-07	1.12219E-06	0.1337178	1.579E-07	1.01945E-06	0.6227029	7.351E-07	4.74743E-06	0.5643512	6.662E-07	4.30256E-06	0.698069	8.241E-07	5.32202E-06
Road 2	2	0100-0200	0.10135697	7.743E-08	5.00006E-07	0.09429	7.203E-08	4.65144E-07	0.4998264	3.818E-07	2.4657E-06	0.4639976	3.544E-07	2.28896E-06	0.5582876	4.265E-07	2.7541E-06
Road 2	2	0200-0300	0.099284783	5.286E-08	3.41364E-07	0.0932296	4.964E-08	3.20545E-07	0.5369278	2.859E-07	1.84608E-06	0.5026839	2.676E-07	1.72835E-06	0.5959135	3.173E-07	2.04889E-06
Road 2	2	0300-0400	0.086265333	2.995E-08	1.93435E-07	0.0812973	2.823E-08	1.82295E-07	0.310886	1.079E-07	6.97108E-07	0.2922073	1.015E-07	6.55224E-07	0.3735047	1.297E-07	8.3752E-07
Road 2	2	0400-0500	0.118300741	7.394E-08	4.77484E-07	0.1105356	6.908E-08	4.46142E-07	0.5703126	3.564E-07	2.30189E-06	0.5319337	3.325E-07	2.14698E-06	0.6424693	4.015E-07	2.59313E-06
Road 2	2	0500-0600	0.096607719	1.275E-07	8.23179E-07	0.0874035	1.153E-07	7.44752E-07	0.4238067	5.592E-07	3.61119E-06	0.381734	5.037E-07	3.2527E-06	0.4691375	6.19E-07	3.99745E-06
Road 2	2	0600-0700	0.136590388	3.257E-07	2.10313E-06	0.1257927	2.999E-07	1.93687E-06	0.5517583	1.316E-06	8.4956E-06	0.5068778	1.209E-06	7.80456E-06	0.6326705	1.508E-06	9.74143E-06
Road 2	2	0700-0800	0.115504177	4.224E-07	2.72811E-06	0.1008398	3.688E-07	2.38175E-06	0.4851167	1.774E-06	1.14581E-05	0.421002	1.54E-06	9.94372E-06	0.5218418	1.909E-06	1.23255E-05
Road 2	2	0800-0900	0.1336065	9.278E-07	5.99179E-06	0.1139845	7.916E-07	5.11181E-06	0.5642981	3.919E-06	2.53068E-05	0.4790346	3.327E-06	2.1483E-05	0.5930191	4.118E-06	2.65949E-05
Road 2	2	0900-1000	0.152637602	8.692E-07	5.61312E-06	0.1323434	7.536E-07	4.86682E-06	0.6593064	3.754E-06	2.42454E-05	0.5702252	3.247E-06	2.09696E-05	0.7025686	4.001E-06	2.58364E-05
Road 2	2	1000-1100	0.172123207	7.331E-07	4.7344E-06	0.1458664	6.213E-07	4.01218E-06	0.7381801	3.144E-06	2.03043E-05	0.6241416	2.658E-06	1.71676E-05	0.770008	3.28E-06	2.11797E-05
Road 2	2	1100-1200	0.207701989	8.702E-07	5.61988E-06	0.179056	7.502E-07	4.84479E-06	0.8513623	3.567E-06	2.30357E-05	0.7331021	3.072E-06	1.98358E-05	0.9121581	3.822E-06	2.46806E-05
Road 2	2	1200-1300	0.15860633	6.902E-07	4.45745E-06	0.1361903	5.927E-07	3.82747E-06	0.6979714	3.037E-06	1.96157E-05	0.5974898	2.6E-06	1.67918E-05	0.7336801	3.193E-06	2.06192E-05
Road 2	2	1300-1400	0.176312409	8.979E-07	5.79847E-06	0.1515621	7.718E-07	4.98449E-06	0.7280856	3.708E-06	2.39449E-05	0.6243155	3.179E-06	2.05322E-05	0.7758775	3.951E-06	2.55166E-05
Road 2	2	1400-1500	0.154661534	5.836E-07	3.76858E-06	0.1325358	5.001E-07	3.22945E-06	0.6685163	2.522E-06	1.62895E-05	0.5717473	2.157E-06	1.39316E-05	0.7042831	2.657E-06	1.7161E-05
Road 2	2	1500-1600	0.190575475	7.897E-07	5.0995E-06	0.1610605	6.674E-07	4.30973E-06	0.7653995	3.171E-06	2.04809E-05	0.6456623	2.675E-06	1.72769E-05	0.8067228	3.343E-06	2.15866E-05
Road 2	2	1600-1700	0.162863333	8.256E-07	5.33182E-06	0.1365455	6.922E-07	4.47022E-06	0.6883119	3.489E-06	2.25339E-05	0.5751123	2.915E-06	1.8828E-05	0.7116578	3.608E-06	2.32982E-05
Road 2	2	1700-1800	0.119782304	6.017E-07	3.88562E-06	0.1033242	5.19E-07	3.35173E-06	0.4761016	2.392E-06	1.54443E-05	0.4091202	2.055E-06	1.32715E-05	0.5124444	2.574E-06	1.66232E-05
Road 2	2	1800-1900	0.129708347	7.446E-07	4.8087E-06	0.1153277	6.621E-07	4.27556E-06	0.5970598	3.428E-06	2.21349E-05	0.5290042	3.037E-06	1.96118E-05	0.644332	3.699E-06	2.38874E-05
Road 2	2	1900-2000	0.110329699	4.24E-07	2.73784E-06	0.0979357	3.763E-07	2.43028E-06	0.5053316	1.942E-06	1.25398E-05	0.4463828	1.715E-06	1.1077E-05	0.5443184	2.092E-06	1.35073E-05
Road 2	2	2000-2100	0.106622877	3.603E-07	2.32708E-06	0.0945576	3.196E-07	2.06375E-06	0.4465696	1.509E-06	9.74652E-06	0.3939286	1.331E-06	8.59762E-06	0.4884862	1.651E-06	1.06614E-05
Road 2	2	2100-2200	0.083627434	2.942E-07	1.9002E-06	0.0726941	2.558E-07	1.65177E-06	0.3766344	1.325E-06	8.55798E-06	0.3242646	1.141E-06	7.36802E-06	0.3969588	1.397E-06	9.0198E-06
Road 2	2	2200-2300	0.12297272	3.558E-07	2.29788E-06	0.106901	3.093E-07	1.99756E-06	0.5241245	1.517E-06	9.79382E-06	0.4528074	1.31E-06	8.46119E-06	0.5597085	1.62E-06	1.04587E-05
Road 2	2	2300-0000	0.107589909	2.74E-07	1.76918E-06	0.096374	2.454E-07	1.58475E-06	0.4821741	1.228E-06	7.92874E-06	0.4295098	1.094E-06	7.06274E-06	0.5258838	1.339E-06	8.64749E-06
Road 3	3	0000-0100	0.091094279	3.346E-07	1.30048E-05	0.0826923	3.037E-07	1.18054E-05	0.4969531	1.825E-06	7.09463E-05	0.4495989	1.651E-06	6.41859E-05	0.5322912	1.955E-06	7.59912E-05
Road 3	3	0100-0200	0.066468936	1.503E-07	5.84274E-06	0.0618208	1.398E-07	5.43416E-06	0.3831548	8.665E-07	3.368E-05	0.3553406	8.036E-07	3.12351E-05	0.4171613	9.434E-07	3.66692E-05
Road 3	3	0200-0300	0.06313697	1.003E-07	3.89671E-06	0.0592181	9.403E-08	3.65484E-06	0.3871446	6.148E-07	2.38939E-05	0.361616	5.742E-07	2.23183E-05	0.420834	6.682E-07	2.59732E-05
Road 3	3	0300-0400	0.053591449	5.931E-08	2.30528E-06	0.0507862	5.621E-08	2.18461E-06	0.287073	3.177E-07	1.23487E-05	0.2711567	3.001E-07	1.1664E-05	0.3219429	3.563E-07	1.38486E-05
Road 3	3	0400-0500	0.072644324	1.293E-07	5.02694E-06	0.0678273	1.208E-07	4.6936E-06	0.3964935	7.059E-07	2.74371E-05	0.3692562	6.574E-07	2.55523E-05	0.4370835	7.782E-07	3.02459E-05
Road 3	3	0500-0600	0.06005177	2.341E-07	9.09726E-06	0.0557744	2.174E-07	8.44929E-06	0.3277871	1.278E-06	4.96566E-05	0.3032041	1.182E-06	4.59325E-05	0.3589786	1.399E-06	5.43818E-05
Road 3	3	0600-0700	0.083310183	5.853E-07	2.27484E-05	0.0755623	5.308E-07	2.06328E-05	0.4124124	2.897E-06	0.000112612	0.3726727	2.618E-06	0.000101761	0.4482349	3.149E-06	0.000122394
Road 3	3	0700-0800	0.071243687	8.182E-07	3.18008E-05	0.0621003	7.132E-07	2.77195E-05	0.3676544	4.222E-06	0.000164109	0.3180995	3.653E-06	0.000141989	0.3801998	4.366E-06	0.000169708
Road 3	3	0800-0900	0.080312568	1.274E-06	4.95175E-05	0.069809	1.107E-06	4.30414E-05	0.3980239	6.314E-06	0.000245405	0.3440668	5.458E-06	0.000212138	0.4138757	6.565E-06	0.000255179
Road 3	3	0900-1000	0.087510126	1.339E-06	5.20458E-05	0.0754457	1.154E-06	4.48706E-05	0.4486789	6.866E-06	0.000266847	0.3853632	5.897E-06	0.000229191	0.4608089	7.051E-06	0.000274061
Road 3	3	1000-1100	0.099448782	1.388E-06	5.39383E-05	0.0856522	1.195E-06	4.64554E-05	0.5042577	7.037E-06	0.000273496	0.4328544	6.04E-06	0.000234768	0.5185066	7.235E-06	0.000281224
Road 3	3	1100-1200	0.097359716	1.321E-06	5.13486E-05	0.0823381	1.117E-06	4.3426E-05	0.5065119	6.873E-06	0.00026714	0.4265566	5.788E-06	0.000224971	0.5088946	6.905E-06	0.000268397
Road 3	3	1200-1300	0.0922424	1.252E-06	4.86496E-05	0.0781854	1.061E-06	4.12359E-05	0.4905917	6.657E-06	0.000258743	0.4141033	5.619E-06	0.000218403	0.4922887	6.68E-06	0.000259638
Road 3	3	1300-1400	0.098081708	1.446E-06	5.6193E-05	0.0836775	1.233E-06	4.79405E-05	0.5022618	7.404E-06	0.000287756	0.426881	6.292E-06	0.000244569	0.5105585	7.526E-06	0.000292509

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.091646234	1.358E-06	5.27917E-05	0.0778599	1.154E-06	4.48502E-05	0.4747103	7.035E-06	0.000273451	0.4018517	5.956E-06	0.000231482	0.4797116	7.11E-06	0.000276332
Road 3	3	1500-1600	0.102894472	1.469E-06	5.70901E-05	0.0865066	1.235E-06	4.79974E-05	0.5188959	7.407E-06	0.000287905	0.4344535	6.202E-06	0.000241053	0.5209601	7.437E-06	0.00028905
Road 3	3	1600-1700	0.095608359	1.486E-06	5.77562E-05	0.0818236	1.272E-06	4.94289E-05	0.4913054	7.636E-06	0.000296793	0.4186569	6.507E-06	0.000252907	0.5004805	7.779E-06	0.000302336
Road 3	3	1700-1800	0.074557515	1.16E-06	4.5086E-05	0.0639189	9.945E-07	3.86527E-05	0.3829566	5.958E-06	0.000231579	0.3262236	5.076E-06	0.000197272	0.3901425	6.07E-06	0.000235925
Road 3	3	1800-1900	0.070472842	1.15E-06	4.46809E-05	0.0613098	1E-06	3.88713E-05	0.3869499	6.312E-06	0.000245332	0.3341878	5.451E-06	0.00021188	0.3954976	6.451E-06	0.000250751
Road 3	3	1900-2000	0.073728606	8.905E-07	3.46106E-05	0.0653225	7.89E-07	3.06645E-05	0.4021334	4.857E-06	0.000188775	0.354468	4.281E-06	0.000166399	0.4197905	5.07E-06	0.000197064
Road 3	3	2000-2100	0.067301491	6.952E-07	2.70202E-05	0.0596259	6.159E-07	2.39387E-05	0.3636823	3.757E-06	0.000146011	0.3204231	3.31E-06	0.000128644	0.380049	3.926E-06	0.000152582
Road 3	3	2100-2200	0.067374361	6.592E-07	2.56214E-05	0.060093	5.88E-07	2.28524E-05	0.376407	3.683E-06	0.000143142	0.3338447	3.266E-06	0.000126956	0.3939377	3.854E-06	0.000149808
Road 3	3	2200-2300	0.073887932	6.589E-07	2.5611E-05	0.0641303	5.719E-07	2.22288E-05	0.3991525	3.56E-06	0.000138354	0.3439166	3.067E-06	0.000119208	0.4080469	3.639E-06	0.000141437
Road 3	3	2300-0000	0.063084076	5.039E-07	1.95852E-05	0.056462	4.51E-07	1.75293E-05	0.3532418	2.822E-06	0.000109668	0.3138064	2.507E-06	9.74249E-05	0.3702684	2.958E-06	0.000114954
Road 4	4	0000-0100	0.232614286	1.885E-07	2.01796E-06	0.2109526	1.709E-07	1.83004E-06	1.1846689	9.598E-07	1.02771E-05	1.074084	8.702E-07	9.31781E-06	1.2850366	1.041E-06	1.11478E-05
Road 4	4	0100-0200	0.2135925	9.889E-08	1.05882E-06	0.1985495	9.192E-08	9.84252E-07	1.089792	5.045E-07	5.40233E-06	1.012975	4.69E-07	5.02153E-06	1.2115245	5.609E-07	6.00578E-06
Road 4	4	0200-0300	0.226714615	6.822E-08	7.30517E-07	0.2126985	6.401E-08	6.85354E-07	1.1190038	3.367E-07	3.60564E-06	1.0498377	3.159E-07	3.38277E-06	1.2625362	3.799E-07	4.06813E-06
Road 4	4	0300-0400	0.203525714	3.298E-08	3.53122E-07	0.19286	3.125E-08	3.34617E-07	1.0800443	1.75E-07	1.8739E-06	1.0237486	1.659E-07	1.77623E-06	1.2166086	1.971E-07	2.11085E-06
Road 4	4	0400-0500	0.211672143	6.86E-08	7.34513E-07	0.1975386	6.402E-08	6.85468E-07	1.0450393	3.387E-07	3.62634E-06	0.9754286	3.161E-07	3.38478E-06	1.1729671	3.801E-07	4.07025E-06
Road 4	4	0500-0600	0.200580417	1.114E-07	1.19318E-06	0.1863279	1.035E-07	1.1084E-06	0.9496108	5.276E-07	5.64891E-06	0.8819271	4.9E-07	5.24628E-06	1.068255	5.935E-07	6.35468E-06
Road 4	4	0600-0700	0.225308846	2.712E-07	2.90395E-06	0.204325	2.459E-07	2.63349E-06	1.0748975	1.294E-06	1.38541E-05	0.9743087	1.173E-06	1.25576E-05	1.1786337	1.419E-06	1.51911E-05
Road 4	4	0700-0800	0.235300217	5.011E-07	5.36559E-06	0.2050889	4.368E-07	4.67668E-06	1.1701453	2.492E-06	2.6683E-05	1.0188136	2.17E-06	2.32322E-05	1.2239025	2.606E-06	2.79089E-05
Road 4	4	0800-0900	0.245250327	8.686E-07	9.30055E-06	0.2129569	7.542E-07	8.0759E-06	1.223075	4.332E-06	4.63823E-05	1.0615007	3.759E-06	4.02549E-05	1.2744576	4.514E-06	4.83308E-05
Road 4	4	0900-1000	0.253447027	8.683E-07	9.29729E-06	0.217945	7.467E-07	7.99496E-06	1.1939457	4.09E-06	4.3798E-05	1.0260812	3.515E-06	3.76401E-05	1.2440262	4.262E-06	4.56351E-05
Road 4	4	1000-1100	0.285387203	9.447E-07	1.01153E-05	0.2454107	8.124E-07	8.69835E-06	1.3474485	4.46E-06	4.77591E-05	1.1584202	3.835E-06	4.10591E-05	1.4038309	4.647E-06	4.97575E-05
Road 4	4	1100-1200	0.264615742	9.494E-07	1.01661E-05	0.2233915	8.015E-07	8.58234E-06	1.2411317	4.453E-06	4.76823E-05	1.0474734	3.758E-06	4.02422E-05	1.2708648	4.56E-06	4.88246E-05
Road 4	4	1200-1300	0.271647619	9.244E-07	9.89762E-06	0.2298681	7.822E-07	8.37536E-06	1.3328888	4.536E-06	4.85645E-05	1.1273484	3.836E-06	4.10755E-05	1.3572165	4.618E-06	4.94509E-05
Road 4	4	1300-1400	0.279047651	9.625E-07	1.03056E-05	0.2377026	8.199E-07	8.77865E-06	1.3370714	4.612E-06	4.93797E-05	1.1385384	3.927E-06	4.20476E-05	1.376241	4.747E-06	5.08263E-05
Road 4	4	1400-1500	0.256651159	8.199E-07	8.77869E-06	0.217703	6.954E-07	7.44648E-06	1.2715109	4.062E-06	4.34917E-05	1.0778738	3.443E-06	3.68684E-05	1.2955768	4.139E-06	4.43149E-05
Road 4	4	1500-1600	0.288836048	8.291E-07	8.87729E-06	0.2423493	6.956E-07	7.44854E-06	1.38266	3.969E-06	4.24957E-05	1.1597055	3.329E-06	3.56432E-05	1.4020548	4.024E-06	4.30918E-05
Road 4	4	1600-1700	0.26757621	7.68E-07	8.22388E-06	0.2286996	6.565E-07	7.02902E-06	1.2950578	3.717E-06	3.98032E-05	1.1064298	3.176E-06	3.40058E-05	1.3351294	3.832E-06	4.10348E-05
Road 4	4	1700-1800	0.250324524	7.301E-07	7.81774E-06	0.214458	6.255E-07	6.69762E-06	1.2316061	3.592E-06	3.84636E-05	1.054289	3.075E-06	3.29259E-05	1.268747	3.701E-06	3.96235E-05
Road 4	4	1800-1900	0.27633717	6.78E-07	7.26027E-06	0.2402694	5.896E-07	6.31265E-06	1.3786206	3.383E-06	3.62208E-05	1.1984365	2.941E-06	3.14868E-05	1.4387059	3.53E-06	3.77994E-05
Road 4	4	1900-2000	0.244462027	4.188E-07	4.48385E-06	0.216623	3.711E-07	3.97323E-06	1.2137534	2.079E-06	2.22623E-05	1.075172	1.842E-06	1.97205E-05	1.291795	2.213E-06	2.36937E-05
Road 4	4	2000-2100	0.210157143	2.384E-07	2.55239E-06	0.1860692	2.111E-07	2.25984E-06	1.0481657	1.189E-06	1.27302E-05	0.927349	1.052E-06	1.12628E-05	1.1134182	1.263E-06	1.35227E-05
Road 4	4	2100-2200	0.178339459	1.527E-07	1.63552E-06	0.1592843	1.364E-07	1.46077E-06	0.9054551	7.755E-07	8.30379E-06	0.8077749	6.918E-07	7.40798E-06	0.9670592	8.283E-07	8.86875E-06
Road 4	4	2200-2300	0.24382	3.556E-07	3.8073E-06	0.211704	3.087E-07	3.3058E-06	1.1952213	1.743E-06	1.86636E-05	1.0372152	1.513E-06	1.61963E-05	1.2489192	1.821E-06	1.95021E-05
Road 4	4	2300-0000	0.218788958	2.431E-07	2.603E-06	0.1957731	2.175E-07	2.32917E-06	1.1010413	1.223E-06	1.30994E-05	0.9844971	1.094E-06	1.17129E-05	1.1802702	1.311E-06	1.4042E-05
Road 5	5	0000-0100	0.077771295	2.817E-07	3.80971E-06	0.0706128	2.558E-07	3.45904E-06	0.4252727	1.54E-06	2.08324E-05	0.3843959	1.392E-06	1.883E-05	0.4550088	1.648E-06	2.22891E-05
Road 5	5	0100-0200	0.051194545	1.163E-07	1.57226E-06	0.0476208	1.081E-07	1.4625E-06	0.3054169	6.936E-07	9.3798E-06	0.2829492	6.426E-07	8.68978E-06	0.33057	7.507E-07	1.01523E-05
Road 5	5	0200-0300	0.04709593	7.602E-08	1.02801E-06	0.044167	7.129E-08	9.64075E-07	0.3129563	5.051E-07	6.8312E-06	0.2917812	4.71E-07	6.36899E-06	0.3359481	5.423E-07	7.33307E-06
Road 5	5	0300-0400	0.042710806	4.97E-08	6.72116E-07	0.0404748	4.71E-08	6.3693E-07	0.223936	2.606E-07	3.52396E-06	0.2112079	2.458E-07	3.32366E-06	0.2516827	2.929E-07	3.96059E-06
Road 5	5	0400-0500	0.060324227	1.098E-07	1.48518E-06	0.0563319	1.026E-07	1.38689E-06	0.3353857	6.106E-07	8.25717E-06	0.3121024	5.682E-07	7.68393E-06	0.3684342	6.708E-07	9.07082E-06
Road 5	5	0500-0600	0.049555321	2.028E-07	2.74196E-06	0.0460209	1.883E-07	2.5464E-06	0.2788916	1.141E-06	1.54315E-05	0.2576526	1.054E-06	1.42563E-05	0.3036735	1.243E-06	1.68027E-05
Road 5	5	0600-0700	0.073265532	5.294E-07	7.15938E-06	0.066451	4.802E-07	6.49347E-06	0.3605985	2.606E-06	3.5237E-05	0.3255584	2.352E-06	3.1813E-05	0.3920093	2.833E-06	3.83065E-05
Road 5	5	0700-0800	0.058613942	6.865E-07	9.28326E-06	0.0510865	5.983E-07	8.09107E-06	0.2998556	3.512E-06	4.7491E-05	0.2588109	3.031E-06	4.09904E-05	0.3098974	3.629E-06	4.90815E-05
Road 5	5	0800-0900	0.064621722	1.014E-06	1.3712E-05	0.0561853	8.816E-07	1.19218E-05	0.3121765	4.898E-06	6.62401E-05	0.2693802	4.227E-06	5.71593E-05	0.3255655	5.108E-06	6.90811E-05
Road 5	5	0900-1000	0.071341163	1.082E-06	1.46307E-05	0.0616105	9.343E-07	1.26352E-05	0.3738244	5.669E-06	7.66644E-05	0.3209788	4.868E-06	6.58268E-05	0.3825893	5.802E-06	7.84619E-05
Road 5	5	1000-1100	0.081681446	1.113E-06	1.50513E-05	0.0704012	9.593E-07	1.29727E-05	0.4204182	5.729E-06	7.74699E-05	0.3606428	4.914E-06	6.64552E-05	0.4310439	5.873E-06	7.94279E-05
Road 5	5	1100-1200	0.079828362	1.034E-06	1.39805E-05	0.0675842	8.752E-07	1.18361E-05	0.4271262	5.531E-06	7.48032E-05	0.3593564	4.654E-06	6.29346E-05	0.4269406	5.529E-06	7.47707E-05
Road 5	5	1200-1300	0.074997654	9.839E-07	1.33058E-05	0.0636206	8.347E-07	1.12873E-05	0.4042108	5.303E-06	7.17133E-05	0.3408733	4.472E-06	6.04763E-05	0.4044939	5.307E-06	7.17636E-05
Road 5	5	1300-1400	0.080951969	1.165E-06	1.57593E-05	0.0690969	9.947E-07	1.34514E-05	0.4200787	6.047E-06	8.17788E-05	0.3567694	5.136E-06	6.94541E-05	0.4258663	6.131E-06	8.29055E-05
Road 5	5	1400-1500	0.077716997	1.147E-06	1.55043E-05	0.0660661	9.746E-07	1.318E-05	0.4030636	5.946E-06	8.04102E-05	0.3410316	5.031E-06	6.8035E-05	0.4070977	6.006E-06	8.1215E-05
Road 5	5	1500-1600	0.087785333	1.26E-06	1.7045E-05	0.0738464	1.06E-06	1.43386E-05	0.4451434	6.391E-06	8.64323E-05	0.3724732	5.348E-06	7.23221E-05	0.4463196	6.408E-06	8.66607E-05
Road 5	5	1600-1700	0.081666473	1.291E-06	1.7453E-05	0.0698953	1.105E-06	1.49374E-05	0.423326	6.69E-06	9.04694E-05	0.3604551	5.696E-06	7.70332E-05	0.4303504	6.801E-06	9.19706E-05
Road 5	5	1700-1800	0.059450877	9.418E-07	1.27355E-05	0.050957	8.072E-07	1.09159E-05	0.3062056	4.851E-06	6.55949E-05	0.2603951	4.125E-06	5.57815E-05	0.3113521	4.932E-06	6.66974E-05
Road 5	5	1800-1900	0.055814209	9.533E-07	1.28914E-05	0.0485639	8.295E-07	1.12168E-05	0.3126471	5.34E-06	7.22122E-05	0.269393	4.601E-06	6.22218E-05	0.3179569	5.431E-06	7.34386E-05
Road 5	5	1900-2000	0.063162083	8.026E-07	1.08533E-05	0.055967	7.111E-07	9.61691E-06	0.3498419	4.445E-06	6.0114E-05	0.3079346	3.913E-06	5.2913E-05	0.3639016	4.624E-06	6.25299E-05
Road 5	5	2000-2100	0.05962771	6.648E-07	8.98979E-06	0.0528341	5.89E-07	7.96554E-06	0.3242869	3.615E-06	4.88912E-05	0.2854696	3.183E-06	4.30389E-05	0.3383037	3.772E-06	5.10044E-05
Road 5	5	2100-2200	0.063191926	6.772E-07	9.15825E-06	0.0563468	6.039E-07	8.16621E-06	0.355101	3.806E-06	5.14639E-05	0.3146915	3.373E-06	4.56075E-05	0.3710383	3.976E-06	5.37737E-05
Road 5	5	2200-2300	0.062301768	5.753E-07	7.78001E-06	0.0540707	4.993E-07	6.75215E-06	0.3422665	3.161E-06	4.2741E-05	0.2942451	2.717E-06	3.67442E-05	0.3483158	3.216E-06	4.34964E-05
Road 5	5	2300-0000	0.053208906	4.474E-07	6.0503E-06	0.0476179	4.004E-07	5.41456E-06	0.3030568	2.548E-06	3.44601E-05	0.268702	2.259E-06	3.05537E-05	0.31632	2.66E-06	3.59683E-05
Road 6	6	0000-0100	0.047158514	1.31E-07	4.68257E-06	0.0427545	1.188E-07	4.24527E-06	0.2931822	8.144E-07	2.91113E-05	0.2637599	7.327E-07	2.61899E-05	0.3065143	8.514E-07	3.04351E-05
Road 6	6	0100-0200	0.059565664	1.263E-07	4.51582E-06	0.0554013	1.175E-07	4.20012E-06	0.3285671	6.968E-07	2.49095E-05	0.304074	6.449E-07	2.30526E-05	0.3594753	7.624E-07	2.72527E-05
Road 6	6	0200-0300	0.053744304	7.969E-08	2.84854E-06	0.0504484	7.48E-08	2.67385E-06	0.2968735	4.402E-07	1.57348E-05	0.2773451	4.112E-07	1.46998E-05	0.3277934	4.86E-07	1.73736E-05
Road 6	6	0300-0400	0.053880645	6.27E-08	2.24123E-06	0.0511494	5.952E-08	2.12762E-06	0.335149	3.9E-07	1.39409E-05	0.3170613	3.69E-07	1.31886E-05	0.3682106	4.285E-07	1.53162E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.059214111	1E-07	3.57545E-06	0.0552998	9.341E-08	3.33909E-06	0.3380214	5.71E-07	2.04103E-05	0.3142367	5.308E-07	1.89741E-05	0.3695364	6.242E-07	2.23132E-05
Road 6	6	0500-0600	0.054736646	1.654E-07	5.91244E-06	0.0508871	1.538E-07	5.49662E-06	0.3212139	9.706E-07	3.46963E-05	0.2969255	8.972E-07	3.20727E-05	0.3478125	1.051E-06	3.75694E-05
Road 6	6	0600-0700	0.059207875	3.189E-07	1.14005E-05	0.0537267	2.894E-07	1.03451E-05	0.3577242	1.927E-06	6.88799E-05	0.3224163	1.737E-06	6.20814E-05	0.376143	2.026E-06	7.24265E-05
Road 6	6	0700-0800	0.058054386	4.969E-07	1.77608E-05	0.0506214	4.332E-07	1.54868E-05	0.321263	2.75E-06	9.82852E-05	0.2774368	2.374E-06	8.48773E-05	0.3280582	2.808E-06	0.000100364
Road 6	6	0800-0900	0.050458394	6.194E-07	2.21398E-05	0.0438019	5.377E-07	1.92191E-05	0.2911886	3.574E-06	0.000127766	0.2498424	3.067E-06	0.000109624	0.2936443	3.604E-06	0.000128843
Road 6	6	0900-1000	0.052924634	6.238E-07	2.22987E-05	0.0455792	5.372E-07	1.92039E-05	0.291703	3.438E-06	0.000122903	0.2486014	2.93E-06	0.000104743	0.2941806	3.467E-06	0.000123947
Road 6	6	1000-1100	0.07173032	7.162E-07	2.56022E-05	0.0617604	6.167E-07	2.20437E-05	0.3874343	3.869E-06	0.000138284	0.3313673	3.309E-06	0.000118273	0.3931277	3.925E-06	0.000140316
Road 6	6	1100-1200	0.081481288	8.075E-07	2.88639E-05	0.069	6.838E-07	2.44425E-05	0.4200124	4.162E-06	0.000148785	0.3534325	3.502E-06	0.0001252	0.4224325	4.186E-06	0.000149642
Road 6	6	1200-1300	0.079593643	7.708E-07	2.75544E-05	0.0675348	6.541E-07	2.33797E-05	0.390699	3.784E-06	0.000135255	0.329969	3.196E-06	0.000114231	0.3975037	3.85E-06	0.000137611
Road 6	6	1300-1400	0.092832951	8.973E-07	3.20754E-05	0.0792432	7.66E-07	2.73799E-05	0.464278	4.488E-06	0.000160416	0.3943083	3.811E-06	0.00013624	0.4735516	4.577E-06	0.00016362
Road 6	6	1400-1500	0.08893125	9.481E-07	3.38895E-05	0.0756017	8.06E-07	2.881E-05	0.4417071	4.709E-06	0.000168324	0.3735623	3.982E-06	0.000142355	0.449164	4.788E-06	0.000171165
Road 6	6	1500-1600	0.078883676	8.217E-07	2.93726E-05	0.0663099	6.907E-07	2.46907E-05	0.400272	4.169E-06	0.000149043	0.3343047	3.482E-06	0.00012448	0.4006145	4.173E-06	0.00014917
Road 6	6	1600-1700	0.081778732	8.718E-07	3.11639E-05	0.0700383	7.467E-07	2.66899E-05	0.3971508	4.234E-06	0.000151344	0.3381124	3.605E-06	0.000128846	0.4081507	4.351E-06	0.000155536
Road 6	6	1700-1800	0.05960611	6.701E-07	2.39541E-05	0.0511246	5.748E-07	2.05456E-05	0.2971931	3.341E-06	0.000119434	0.252892	2.843E-06	0.000101631	0.3040166	3.418E-06	0.000122176
Road 6	6	1800-1900	0.058634993	7.516E-07	2.68683E-05	0.0509709	6.534E-07	2.33564E-05	0.3016728	3.867E-06	0.000138235	0.260211	3.336E-06	0.000119236	0.3111819	3.989E-06	0.000142593
Road 6	6	1900-2000	0.068187678	6.668E-07	2.38345E-05	0.0603845	5.905E-07	2.1107E-05	0.3500367	3.423E-06	0.000122353	0.3078438	3.01E-06	0.000107605	0.3682283	3.601E-06	0.000128712
Road 6	6	2000-2100	0.053351512	4.106E-07	1.46755E-05	0.047242	3.635E-07	1.2995E-05	0.2964992	2.282E-06	8.15587E-05	0.2604076	2.004E-06	7.16308E-05	0.3076496	2.367E-06	8.46258E-05
Road 6	6	2100-2200	0.075656798	5.055E-07	1.80701E-05	0.0674769	4.509E-07	1.61164E-05	0.390193	2.607E-06	9.31949E-05	0.3460922	2.312E-06	8.26617E-05	0.413569	2.763E-06	9.87781E-05
Road 6	6	2200-2300	0.058038833	4.107E-07	1.46799E-05	0.0503222	3.561E-07	1.27281E-05	0.3179959	2.25E-06	8.04314E-05	0.2716922	1.922E-06	6.87197E-05	0.3220144	2.279E-06	8.14478E-05
Road 6	6	2300-0000	0.037558446	2.495E-07	8.92018E-06	0.0336255	2.234E-07	7.98611E-06	0.2274818	1.511E-06	5.40272E-05	0.2013027	1.337E-06	4.78096E-05	0.2349282	1.561E-06	5.57957E-05
Road 7	7	0000-0100	0.067726866	1.809E-07	4.51653E-06	0.0614337	1.641E-07	4.09685E-06	0.3964532	1.059E-06	2.64384E-05	0.357922	9.562E-07	2.38689E-05	0.4193557	1.12E-06	2.79657E-05
Road 7	7	0100-0200	0.079284058	1.646E-07	4.10911E-06	0.0737578	1.531E-07	3.8227E-06	0.432236	8.974E-07	2.24018E-05	0.4008243	8.322E-07	2.07738E-05	0.4745821	9.853E-07	2.45965E-05
Road 7	7	0200-0300	0.067738222	9.245E-08	2.30774E-06	0.0635971	8.679E-08	2.16666E-06	0.3778516	5.157E-07	1.28729E-05	0.353614	4.826E-07	1.20471E-05	0.4172111	5.694E-07	1.42138E-05
Road 7	7	0300-0400	0.067739944	7.475E-08	1.86588E-06	0.0641683	7.08E-08	1.7675E-06	0.404154	4.459E-07	1.11323E-05	0.381917	4.214E-07	1.05198E-05	0.4460853	4.922E-07	1.22873E-05
Road 7	7	0400-0500	0.076050815	1.226E-07	3.05951E-06	0.0710393	1.145E-07	2.8579E-06	0.4194239	6.759E-07	1.68734E-05	0.3905808	6.294E-07	1.5713E-05	0.46162	7.439E-07	1.85709E-05
Road 7	7	0500-0600	0.071050032	2.022E-07	5.04715E-06	0.0654317	1.862E-07	4.64804E-06	0.3964962	1.128E-06	2.81657E-05	0.3635738	1.035E-06	2.5827E-05	0.4290055	1.221E-06	3.04751E-05
Road 7	7	0600-0700	0.074916618	3.807E-07	9.50324E-06	0.0683468	3.473E-07	8.66986E-06	0.4265332	2.167E-06	5.41061E-05	0.387271	1.968E-06	4.91257E-05	0.4556178	2.315E-06	5.77955E-05
Road 7	7	0700-0800	0.075209001	6.115E-07	1.52645E-05	0.0656311	5.336E-07	1.33206E-05	0.4045039	3.289E-06	8.20987E-05	0.3505765	2.85E-06	7.11535E-05	0.4162076	3.384E-06	8.44741E-05
Road 7	7	0800-0900	0.075992058	9.334E-07	2.33004E-05	0.0655955	8.057E-07	2.01127E-05	0.4119763	5.06E-06	0.000126319	0.3531227	4.337E-06	0.000108273	0.4187183	5.143E-06	0.000128386
Road 7	7	0900-1000	0.07794916	8.895E-07	2.22055E-05	0.0672669	7.676E-07	1.91624E-05	0.4061443	4.635E-06	0.000115699	0.3483264	3.975E-06	9.92281E-05	0.4155933	4.743E-06	0.00011839
Road 7	7	1000-1100	0.093359246	9.339E-07	2.33132E-05	0.0799091	7.994E-07	1.99545E-05	0.4903024	4.905E-06	0.000122436	0.4177732	4.179E-06	0.000104324	0.4976824	4.978E-06	0.000124279
Road 7	7	1100-1200	0.101989286	1.016E-06	2.53574E-05	0.0868864	8.654E-07	2.16024E-05	0.5256577	5.235E-06	0.000130693	0.4461285	4.443E-06	0.00011092	0.533015	5.309E-06	0.000132522
Road 7	7	1200-1300	0.101033205	1.005E-06	2.5083E-05	0.0860418	8.557E-07	2.13612E-05	0.5093411	5.066E-06	0.000126452	0.4325252	4.302E-06	0.000107381	0.518567	5.157E-06	0.000128742
Road 7	7	1300-1400	0.108482518	1.063E-06	2.65393E-05	0.0928414	9.098E-07	2.27128E-05	0.5453224	5.344E-06	0.000133408	0.4651326	4.558E-06	0.000113791	0.557974	5.468E-06	0.000136503
Road 7	7	1400-1500	0.102036486	1.049E-06	2.61827E-05	0.0869602	8.939E-07	2.23141E-05	0.5186395	5.331E-06	0.000133084	0.4405347	4.528E-06	0.000113042	0.5274949	5.422E-06	0.000135356
Road 7	7	1500-1600	0.094777587	9.522E-07	2.37704E-05	0.0797919	8.017E-07	2.0012E-05	0.4855199	4.878E-06	0.00012177	0.4069964	4.089E-06	0.000102076	0.4867883	4.891E-06	0.000122088
Road 7	7	1600-1700	0.098187185	1.021E-06	2.54797E-05	0.0834203	8.672E-07	2.16476E-05	0.4851806	5.044E-06	0.000125905	0.4104997	4.267E-06	0.000106525	0.49392	5.134E-06	0.000128173
Road 7	7	1700-1800	0.074119763	8.168E-07	2.03893E-05	0.0636854	7.018E-07	1.75189E-05	0.3790599	4.177E-06	0.000104274	0.3238883	3.569E-06	8.90969E-05	0.3875736	4.271E-06	0.000106616
Road 7	7	1800-1900	0.068160449	7.798E-07	1.94663E-05	0.059732	6.834E-07	1.70592E-05	0.3559424	4.072E-06	0.000101656	0.3101242	3.548E-06	8.85702E-05	0.3698562	4.231E-06	0.000105629
Road 7	7	1900-2000	0.078287327	6.786E-07	1.69391E-05	0.0693857	6.014E-07	1.50131E-05	0.4099658	3.553E-06	8.87049E-05	0.3614607	3.133E-06	7.82098E-05	0.4308463	3.734E-06	9.32229E-05
Road 7	7	2000-2100	0.070867601	5.021E-07	1.25341E-05	0.0627921	4.449E-07	1.11058E-05	0.379844	2.691E-06	6.71817E-05	0.3346538	2.371E-06	5.9189E-05	0.3974458	2.816E-06	7.02948E-05
Road 7	7	2100-2200	0.083042573	4.943E-07	1.23399E-05	0.073408	4.37E-07	1.09082E-05	0.4348851	2.589E-06	6.46225E-05	0.3825584	2.277E-06	5.6847E-05	0.4559664	2.714E-06	6.77552E-05
Road 7	7	2200-2300	0.071486266	4.587E-07	1.14517E-05	0.062036	3.981E-07	9.93783E-06	0.387328	2.486E-06	6.20479E-05	0.3326233	2.135E-06	5.32845E-05	0.3946593	2.533E-06	6.32223E-05
Road 7	7	2300-0000	0.047701081	2.819E-07	7.03636E-06	0.0427305	2.525E-07	6.30315E-06	0.2800271	1.655E-06	4.13067E-05	0.248694	1.47E-06	3.66847E-05	0.2914245	1.722E-06	4.29879E-05
Road 8	8	0000-0100	0.204475556	1.487E-07	2.45142E-06	0.1854136	1.348E-07	2.22289E-06	1.0440511	7.593E-07	1.25169E-05	0.9463858	6.883E-07	1.1346E-05	1.1317994	8.231E-07	1.35689E-05
Road 8	8	0100-0200	0.205854	1.248E-07	2.05662E-06	0.191366	1.16E-07	1.91188E-06	1.0471663	6.346E-07	1.04619E-05	0.973452	5.9E-07	9.72545E-06	1.164818	7.06E-07	1.16373E-05
Road 8	8	0200-0300	0.191313333	5.797E-08	9.55675E-07	0.1795433	5.441E-08	8.9688E-07	1.0251287	3.106E-07	5.12087E-06	0.9619807	2.915E-07	4.80542E-06	1.141524	3.459E-07	5.7023E-06
Road 8	8	0300-0400	0.172663571	4.883E-08	8.05012E-07	0.1637357	4.631E-08	7.63388E-07	0.9020993	2.551E-07	4.20587E-06	0.8554879	2.42E-07	3.98856E-06	1.0192236	2.883E-07	4.75194E-06
Road 8	8	0400-0500	0.197709048	8.388E-08	1.38267E-06	0.1845533	7.83E-08	1.29067E-06	0.9761052	4.141E-07	6.82637E-06	0.91126	3.866E-07	6.37288E-06	1.0958133	4.649E-07	7.66355E-06
Road 8	8	0500-0600	0.193095588	1.326E-07	2.18638E-06	0.1794276	1.232E-07	2.03162E-06	0.9351703	6.423E-07	1.05887E-05	0.8688221	5.968E-07	9.83747E-06	1.0482497	7.2E-07	1.18691E-05
Road 8	8	0600-0700	0.218378548	2.735E-07	4.50895E-06	0.198115	2.481E-07	4.09056E-06	1.0452411	1.309E-06	2.15815E-05	0.9477965	1.187E-06	1.95695E-05	1.1459115	1.435E-06	2.36601E-05
Road 8	8	0700-0800	0.227186733	4.636E-07	7.64149E-06	0.1980737	4.042E-07	6.66227E-06	1.0998047	2.244E-06	3.69923E-05	0.9581272	1.955E-06	3.22269E-05	1.1562009	2.359E-06	3.88892E-05
Road 8	8	0800-0900	0.255494579	9.807E-07	1.61662E-05	0.2220642	8.524E-07	1.4051E-05	1.2415574	4.766E-06	7.85587E-05	1.078186	4.138E-06	6.82215E-05	1.3002502	4.991E-06	8.22724E-05
Road 8	8	0900-1000	0.274232548	8.698E-07	1.43381E-05	0.2358965	7.482E-07	1.23337E-05	1.2683457	4.023E-06	6.63149E-05	1.0908875	3.46E-06	5.70366E-05	1.326784	4.208E-06	6.93703E-05
Road 8	8	1000-1100	0.265987405	8.49E-07	1.39956E-05	0.228767	7.302E-07	1.20372E-05	1.2619006	4.028E-06	6.63982E-05	1.0845228	3.462E-06	5.7065E-05	1.3132897	4.192E-06	6.91021E-05
Road 8	8	1100-1200	0.271696604	8.727E-07	1.43865E-05	0.2293531	7.367E-07	1.21444E-05	1.3080119	4.201E-06	6.926E-05	1.1038994	3.546E-06	5.84521E-05	1.3332525	4.283E-06	7.05965E-05
Road 8	8	1200-1300	0.275975444	9.422E-07	1.55321E-05	0.2335295	7.973E-07	1.31432E-05	1.3422464	4.583E-06	7.55428E-05	1.1352848	3.876E-06	6.38948E-05	1.3688143	4.673E-06	7.7038E-05
Road 8	8	1300-1400	0.252755438	8.17E-07	1.34677E-05	0.2153601	6.961E-07	1.14752E-05	1.2068498	3.901E-06	6.43053E-05	1.0278911	3.322E-06	5.47698E-05	1.2432513	4.019E-06	6.62449E-05
Road 8	8	1400-1500	0.24715482	6.94E-07	1.14408E-05	0.2096878	5.888E-07	9.70648E-06	1.2360083	3.471E-06	5.7215E-05	1.0481739	2.943E-06	4.85201E-05	1.2578617	3.532E-06	5.82266E-05
Road 8	8	1500-1600	0.25557365	7.073E-07	1.16603E-05	0.2144294	5.935E-07	9.78315E-06	1.2435412	3.442E-06	5.67355E-05	1.0423628	2.885E-06	4.75569E-05	1.2567923	3.478E-06	5.734E-05
Road 8	8	1600-1700	0.25447089	7.506E-07	1.23727E-05	0.2174999	6.415E-07	1.05751E-05	1.2230311	3.607E-06	5.94654E-05	1.0446618	3.081E-06	5.07928E-05	1.2621618	3.723E-06	6.1368E-05
Road 8	8	1700-1800	0.203008846	6.398E-07	1.05466E-05	0.1738707	5.48E-07	9.03285E-06	1.0183417	3.209E-06	5.29044E-05	0.8707955	2.744E-06	4.52392E-05	1.0446662	3.292E-06	5.4272E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.203831589	4.406E-07	7.26322E-06	0.1773603	3.834E-07	6.31996E-06	1.0462781	2.262E-06	3.72825E-05	0.9095012	1.966E-06	3.24086E-05	1.0868615	2.349E-06	3.87286E-05
Road 8	8	1900-2000	0.198751169	3.092E-07	5.09653E-06	0.1761471	2.74E-07	4.5169E-06	1.0462109	1.627E-06	2.68277E-05	0.9270526	1.442E-06	2.37722E-05	1.1031997	1.716E-06	2.82891E-05
Road 8	8	2000-2100	0.214512763	3.294E-07	5.42926E-06	0.1899111	2.916E-07	4.8066E-06	1.0252863	1.574E-06	2.59497E-05	0.9071887	1.393E-06	2.29607E-05	1.0970997	1.684E-06	2.77673E-05
Road 8	8	2100-2200	0.179398679	1.921E-07	3.16642E-06	0.1601389	1.715E-07	2.82648E-06	0.9416772	1.008E-06	1.66208E-05	0.8394191	8.988E-07	1.48159E-05	0.9995579	1.07E-06	1.76424E-05
Road 8	8	2200-2300	0.220991094	2.857E-07	4.71008E-06	0.1918906	2.481E-07	4.08985E-06	1.0943038	1.415E-06	2.33234E-05	0.9491919	1.227E-06	2.02306E-05	1.1410825	1.475E-06	2.43204E-05
Road 8	8	2300-0000	0.1712125	1.799E-07	2.96492E-06	0.1532983	1.61E-07	2.65469E-06	0.8813162	9.258E-07	1.52619E-05	0.7882406	8.281E-07	1.36501E-05	0.9415388	9.891E-07	1.63048E-05
Road 9	9	0000-0100	0.180610229	4.797E-08	1.43186E-06	0.1669302	4.433E-08	1.32341E-06	0.8206304	2.179E-07	6.50588E-06	0.755365	2.006E-07	5.98847E-06	0.9222952	2.449E-07	7.31187E-06
Road 9	9	0100-0200	0.192188991	4.01E-08	1.19716E-06	0.1815418	3.788E-08	1.13084E-06	0.8237893	1.719E-07	5.13144E-06	0.7754931	1.618E-07	4.8306E-06	0.957035	1.997E-07	5.96144E-06
Road 9	9	0200-0300	0.072919305	6.916E-09	2.06463E-07	0.0687576	6.522E-09	1.9468E-07	0.5233325	4.964E-08	1.48176E-06	0.4953807	4.699E-08	1.40262E-06	0.5641383	5.351E-08	1.5973E-06
Road 9	9	0300-0400	0.087335382	6.627E-09	1.97825E-07	0.0829746	6.296E-09	1.87947E-07	0.5428519	4.119E-08	1.22962E-06	0.5167229	3.921E-08	1.17044E-06	0.5996975	4.55E-08	1.35839E-06
Road 9	9	0400-0500	0.204275982	3.875E-08	1.15677E-06	0.1936027	3.673E-08	1.09633E-06	0.8415438	1.596E-07	4.76549E-06	0.7953773	1.509E-07	4.50406E-06	0.98898	1.876E-07	5.60039E-06
Road 9	9	0500-0600	0.149720477	4.828E-08	1.44132E-06	0.1405099	4.531E-08	1.35265E-06	0.7574165	2.443E-07	7.29146E-06	0.7126931	2.298E-07	6.86092E-06	0.853203	2.751E-07	8.21357E-06
Road 9	9	0600-0700	0.177540756	1.078E-07	3.21721E-06	0.1655583	1.005E-07	3.00007E-06	0.9301159	5.646E-07	1.68546E-05	0.8693472	5.277E-07	1.57534E-05	1.0349054	6.282E-07	1.87535E-05
Road 9	9	0700-0800	0.159018416	1.448E-07	4.32234E-06	0.1447301	1.318E-07	3.93397E-06	0.9116547	8.301E-07	2.47801E-05	0.834101	7.595E-07	2.2672E-05	0.9788311	8.913E-07	2.6606E-05
Road 9	9	0800-0900	0.24479167	5.34E-07	1.59414E-05	0.2182249	4.761E-07	1.42113E-05	1.1857809	2.587E-06	7.72206E-05	1.0526668	2.296E-06	6.85519E-05	1.2708917	2.772E-06	8.27632E-05
Road 9	9	0900-1000	0.253514428	4.136E-07	1.23462E-05	0.2274458	3.711E-07	1.10766E-05	1.116579	1.822E-06	5.43774E-05	0.9979259	1.628E-06	4.8599E-05	1.2253717	1.999E-06	5.96756E-05
Road 9	9	1000-1100	0.265831169	3.58E-07	1.0688E-05	0.2334354	3.144E-07	9.38546E-06	1.1472672	1.545E-06	4.61268E-05	1.0049871	1.354E-06	4.04063E-05	1.2384225	1.668E-06	4.97918E-05
Road 9	9	1100-1200	0.183715194	2.579E-07	7.69852E-06	0.1580609	2.219E-07	6.62349E-06	0.9884691	1.388E-06	4.14215E-05	0.8622437	1.21E-06	3.6132E-05	1.0203046	1.432E-06	4.27555E-05
Road 9	9	1200-1300	0.278139998	3.852E-07	1.14979E-05	0.2469563	3.42E-07	1.02088E-05	1.2862026	1.781E-06	5.31695E-05	1.1442733	1.585E-06	4.73024E-05	1.3912296	1.927E-06	5.75112E-05
Road 9	9	1300-1400	0.313577622	3.569E-07	1.06544E-05	0.2791374	3.177E-07	9.48418E-06	1.2080096	1.375E-06	4.10443E-05	1.0685963	1.216E-06	3.63074E-05	1.3477337	1.534E-06	4.57916E-05
Road 9	9	1400-1500	0.204264198	2.635E-07	7.8656E-06	0.1828162	2.358E-07	7.0397E-06	1.0096103	1.302E-06	3.88771E-05	0.8977986	1.158E-06	3.45715E-05	1.0806148	1.394E-06	4.16112E-05
Road 9	9	1500-1600	0.170658405	1.845E-07	5.5085E-06	0.1494043	1.615E-07	4.82246E-06	0.902986	9.764E-07	2.91465E-05	0.7951821	8.598E-07	2.56668E-05	0.9445863	1.021E-06	3.04893E-05
Road 9	9	1600-1700	0.177525139	2.66E-07	7.94178E-06	0.1592612	2.387E-07	7.12472E-06	1.010271	1.514E-06	4.51956E-05	0.9057323	1.357E-06	4.05189E-05	1.0649935	1.596E-06	4.76436E-05
Road 9	9	1700-1800	0.153109766	1.975E-07	5.8958E-06	0.1395929	1.801E-07	5.3753E-06	0.9558694	1.233E-06	3.68077E-05	0.8790623	1.134E-06	3.385E-05	1.0186552	1.314E-06	3.92254E-05
Road 9	9	1800-1900	0.151483518	1.264E-07	3.77441E-06	0.1403847	1.172E-07	3.49787E-06	0.9329269	7.787E-07	2.32451E-05	0.8715383	7.274E-07	2.17155E-05	1.011923	8.446E-07	2.52134E-05
Road 9	9	1900-2000	0.155352046	1.267E-07	3.78282E-06	0.1440991	1.175E-07	3.50882E-06	0.8373666	6.83E-07	2.03899E-05	0.7771555	6.339E-07	1.89237E-05	0.9212546	7.515E-07	2.24326E-05
Road 9	9	2000-2100	0.161579562	8.889E-08	2.65348E-06	0.14715	8.095E-08	2.41651E-06	0.7263619	3.996E-07	1.19284E-05	0.6686656	3.678E-07	1.09809E-05	0.8158157	4.488E-07	1.33974E-05
Road 9	9	2100-2200	0.021499675	1.101E-08	3.2872E-07	0.0199134	1.02E-08	3.04467E-07	0.2952799	1.512E-07	4.51469E-06	0.2708402	1.387E-07	4.14102E-06	0.2907536	1.489E-07	4.44549E-06
Road 9	9	2200-2300	0.160033963	1.002E-07	2.99059E-06	0.1429373	8.948E-08	2.6711E-06	0.7845063	4.911E-07	1.46602E-05	0.7011923	4.389E-07	1.31033E-05	0.8441296	5.284E-07	1.57744E-05
Road 9	9	2300-0000	0.126880309	7.221E-08	2.15549E-06	0.1170731	6.663E-08	1.98888E-06	0.654607	3.725E-07	1.11207E-05	0.6033604	3.434E-07	1.02501E-05	0.7204335	4.1E-07	1.2239E-05
Road 10	10	0000-0100	0.248961407	1.914E-07	4.25607E-06	0.2268894	1.744E-07	3.87874E-06	1.2733866	9.791E-07	2.17689E-05	1.1611576	8.928E-07	1.98503E-05	1.388047	1.067E-06	2.37291E-05
Road 10	10	0100-0200	0.238271567	1.384E-07	3.07762E-06	0.2225908	1.293E-07	2.87508E-06	1.2081815	7.018E-07	1.56054E-05	1.1289725	6.558E-07	1.45823E-05	1.3515634	7.851E-07	1.74574E-05
Road 10	10	0200-0300	0.230850525	7.494E-08	1.66628E-06	0.216675	7.034E-08	1.56396E-06	1.1576411	3.758E-07	8.35586E-06	1.0874704	3.53E-07	7.84937E-06	1.3041454	4.234E-07	9.41333E-06
Road 10	10	0300-0400	0.207185479	4.248E-08	9.44505E-07	0.1964992	4.029E-08	8.95789E-07	1.1213688	2.299E-07	5.11203E-06	1.0645409	2.183E-07	4.85297E-06	1.2610401	2.585E-07	5.74876E-06
Road 10	10	0400-0500	0.248908025	9.781E-08	2.17486E-06	0.2336265	9.181E-08	2.04133E-06	1.1923181	4.685E-07	1.0418E-05	1.1173693	4.391E-07	9.76311E-06	1.3509958	5.309E-07	1.18044E-05
Road 10	10	0500-0600	0.232926008	1.632E-07	3.62799E-06	0.2180658	1.528E-07	3.39653E-06	1.1220119	7.86E-07	1.74761E-05	1.0499374	7.355E-07	1.63535E-05	1.2680032	8.883E-07	1.975E-05
Road 10	10	0600-0700	0.287719526	4.031E-07	8.96287E-06	0.2650431	3.713E-07	8.25646E-06	1.4409578	2.019E-06	4.48879E-05	1.3313262	1.865E-06	4.14727E-05	1.5963693	2.237E-06	4.97291E-05
Road 10	10	0700-0800	0.293520798	6.469E-07	1.43844E-05	0.2607223	5.746E-07	1.27771E-05	1.480475	3.263E-06	7.25529E-05	1.3197315	2.909E-06	6.46754E-05	1.5804538	3.483E-06	7.74525E-05
Road 10	10	0800-0900	0.31549357	1.331E-06	2.96041E-05	0.2758166	1.164E-06	2.5881E-05	1.5608453	6.587E-06	0.000146461	1.3658034	5.764E-06	0.000128159	1.64162	6.928E-06	0.00015404
Road 10	10	0900-1000	0.355772621	1.191E-06	2.64906E-05	0.3121267	1.045E-06	2.32408E-05	1.7188666	5.756E-06	0.000127986	1.5095161	5.055E-06	0.000112398	1.8216428	6.1E-06	0.000135639
Road 10	10	1000-1100	0.356540035	1.298E-06	2.88504E-05	0.311113	1.132E-06	2.51745E-05	1.6111013	5.863E-06	0.000130367	1.4023303	5.103E-06	0.000113473	1.7134432	6.236E-06	0.000138648
Road 10	10	1100-1200	0.344491863	1.254E-06	2.78755E-05	0.2937395	1.069E-06	2.37687E-05	1.6170563	5.885E-06	0.000130848	1.3779392	5.015E-06	0.0001115	1.6716786	6.084E-06	0.000135268
Road 10	10	1200-1300	0.362193334	1.361E-06	3.0271E-05	0.3119169	1.172E-06	2.60691E-05	1.7262881	6.489E-06	0.000144278	1.4886948	5.596E-06	0.000124421	1.8006117	6.768E-06	0.00015049
Road 10	10	1300-1400	0.353376153	1.159E-06	2.57752E-05	0.3067473	1.006E-06	2.23741E-05	1.6431302	5.39E-06	0.00011985	1.4244755	4.673E-06	0.000103901	1.7312228	5.679E-06	0.000126275
Road 10	10	1400-1500	0.329880613	1.015E-06	2.25576E-05	0.2867156	8.818E-07	1.96059E-05	1.6512953	5.078E-06	0.000112917	1.4368271	4.419E-06	9.82519E-05	1.7235427	5.301E-06	0.000117858
Road 10	10	1500-1600	0.329049335	1.034E-06	2.30008E-05	0.280379	8.814E-07	1.95987E-05	1.5862753	4.987E-06	0.000110882	1.3533986	4.255E-06	9.46035E-05	1.6337776	5.136E-06	0.000114202
Road 10	10	1600-1700	0.313353175	1.098E-06	2.44035E-05	0.2733231	9.573E-07	2.1286E-05	1.531475	5.364E-06	0.000119269	1.3340586	4.673E-06	0.000103894	1.6073817	5.63E-06	0.00012518
Road 10	10	1700-1800	0.285607717	9.369E-07	2.08322E-05	0.2508417	8.229E-07	1.82964E-05	1.4886918	4.884E-06	0.000108585	1.3155127	4.315E-06	9.59533E-05	1.5663543	5.138E-06	0.00011425
Road 10	10	1800-1900	0.289642066	5.988E-07	1.33141E-05	0.2562183	5.297E-07	1.17777E-05	1.4650816	3.029E-06	6.73459E-05	1.2998175	2.687E-06	5.97491E-05	1.5560358	3.217E-06	7.15268E-05
Road 10	10	1900-2000	0.248397725	4.626E-07	1.02858E-05	0.2241338	4.174E-07	9.28106E-06	1.318356	2.455E-06	5.45912E-05	1.1942126	2.224E-06	4.94506E-05	1.4183464	2.641E-06	5.87317E-05
Road 10	10	2000-2100	0.28071902	3.453E-07	7.67835E-06	0.2500562	3.076E-07	6.83965E-06	1.3579806	1.671E-06	3.71441E-05	1.209893	1.488E-06	3.30935E-05	1.4599492	1.796E-06	3.99332E-05
Road 10	10	2100-2200	0.241753509	2.974E-07	6.61255E-06	0.2220785	2.732E-07	6.07439E-06	1.3536253	1.665E-06	3.7025E-05	1.2487505	1.536E-06	3.41564E-05	1.4708291	1.809E-06	4.02308E-05
Road 10	10	2200-2300	0.256911693	3.292E-07	7.31996E-06	0.2272226	2.912E-07	6.47406E-06	1.3222939	1.694E-06	3.7675E-05	1.1749848	1.506E-06	3.34778E-05	1.4022074	1.797E-06	3.99519E-05
Road 10	10	2300-0000	0.226846163	2.713E-07	6.03244E-06	0.2045206	2.446E-07	5.43875E-06	1.1463012	1.371E-06	3.04832E-05	1.0335472	1.236E-06	2.74848E-05	1.2380678	1.481E-06	3.29235E-05
Road 11	11	0000-0100	0.27850666	2.127E-07	1.76476E-06	0.2535628	1.937E-07	1.60671E-06	1.3947302	1.065E-06	8.83774E-06	1.2680795	9.687E-07	8.03521E-06	1.5216423	1.162E-06	9.64192E-06
Road 11	11	0100-0200	0.271074018	1.459E-07	1.21017E-06	0.2529783	1.362E-07	1.12939E-06	1.3327337	7.173E-07	5.94981E-06	1.2420517	6.685E-07	5.54497E-06	1.4950301	8.046E-07	6.67436E-06
Road 11	11	0200-0300	0.230861717	6.012E-08	4.98702E-07	0.216678	5.643E-08	4.68063E-07	1.2334204	3.212E-07	2.66441E-06	1.1586521	3.017E-07	2.50289E-06	1.3753301	3.582E-07	2.97096E-06
Road 11	11	0300-0400	0.24397846	5.93E-08	4.91901E-07	0.2313427	5.623E-08	4.66425E-07	1.2781111	3.107E-07	2.57688E-06	1.2123708	2.947E-07	2.44434E-06	1.4437136	3.509E-07	2.91077E-06
Road 11	11	0400-0500	0.257764728	8.95E-08	7.42423E-07	0.2420264	8.404E-08	6.97093E-07	1.2187274	4.232E-07	3.51022E-06	1.1424833	3.967E-07	3.29062E-06	1.3845098	4.807E-07	3.98772E-06
Road 11	11	0500-0600	0.212646419	9.968E-08	8.26837E-07	0.1989543	9.326E-08	7.73598E-07	1.08386	5.081E-07	4.21439E-06	1.0150908	4.758E-07	3.947E-06	1.214045	5.691E-07	4.72059E-06
Road 11	11	0600-0700	0.23432643	2.115E-07	1.75478E-06	0.2149935	1.941E-07	1.61E-06	1.213777	1.096E-06	9.08951E-06	1.1149137	1.007E-06	8.34916E-06	1.3299072	1.201E-06	9.95916E-06
Road 11	11	0700-0800	0.283441348	5.315E-07	4.40844E-06	0.2496467	4.681E-07	3.88282E-06	1.476493	2.768E-06	2.29643E-05	1.3039355	2.445E-06	2.02805E-05	1.5535822	2.913E-06	2.41633E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.313719719	1.117E-06	9.26177E-06	0.2759918	9.823E-07	8.14795E-06	1.54533	5.5E-06	4.56219E-05	1.3568883	4.829E-06	4.00586E-05	1.6328801	5.811E-06	4.82066E-05
Road 11	11	0900-1000	0.318693019	8.078E-07	6.70075E-06	0.2793886	7.082E-07	5.87435E-06	1.5049538	3.815E-06	3.16427E-05	1.3152058	3.334E-06	2.76532E-05	1.5945944	4.042E-06	3.35275E-05
Road 11	11	1000-1100	0.331476689	6.848E-07	5.68065E-06	0.2883695	5.958E-07	4.94191E-06	1.5445442	3.191E-06	2.64695E-05	1.3408457	2.77E-06	2.29786E-05	1.6292152	3.366E-06	2.79205E-05
Road 11	11	1100-1200	0.29016839	6.75E-07	5.59955E-06	0.2460571	5.724E-07	4.74831E-06	1.4907321	3.468E-06	2.87675E-05	1.2710852	2.957E-06	2.45289E-05	1.5171423	3.529E-06	2.92772E-05
Road 11	11	1200-1300	0.356858201	1.01E-06	8.37686E-06	0.3067538	8.681E-07	7.20072E-06	1.731606	4.9E-06	4.06476E-05	1.4884722	4.212E-06	3.49403E-05	1.795226	5.08E-06	4.2141E-05
Road 11	11	1300-1400	0.37185357	7.747E-07	6.42616E-06	0.3224236	6.717E-07	5.57194E-06	1.6734653	3.486E-06	2.89199E-05	1.4436931	3.008E-06	2.49491E-05	1.7661168	3.679E-06	3.0521E-05
Road 11	11	1400-1500	0.295332385	5.948E-07	4.93364E-06	0.2558176	5.152E-07	4.27353E-06	1.4727342	2.966E-06	2.46026E-05	1.2720054	2.562E-06	2.12493E-05	1.527823	3.077E-06	2.55229E-05
Road 11	11	1500-1600	0.265479736	5.393E-07	4.47317E-06	0.2256022	4.583E-07	3.80126E-06	1.3749983	2.793E-06	2.31679E-05	1.1708791	2.378E-06	1.97286E-05	1.3964814	2.837E-06	2.35299E-05
Road 11	11	1600-1700	0.252318082	6.089E-07	5.05081E-06	0.2201562	5.313E-07	4.40701E-06	1.3504009	3.259E-06	2.70318E-05	1.1795141	2.846E-06	2.36111E-05	1.3996703	3.378E-06	2.80181E-05
Road 11	11	1700-1800	0.247643187	6.105E-07	5.06422E-06	0.2160093	5.325E-07	4.41732E-06	1.3525777	3.334E-06	2.76598E-05	1.1866385	2.925E-06	2.42664E-05	1.4026478	3.458E-06	2.86837E-05
Road 11	11	1800-1900	0.266101499	5.451E-07	4.52197E-06	0.234385	4.802E-07	3.983E-06	1.4238556	2.917E-06	2.41961E-05	1.2594657	2.58E-06	2.14026E-05	1.4938508	3.06E-06	2.53856E-05
Road 11	11	1900-2000	0.249930412	3.949E-07	3.27536E-06	0.2244112	3.545E-07	2.94093E-06	1.3007394	2.055E-06	1.70463E-05	1.1688238	1.847E-06	1.53175E-05	1.393235	2.201E-06	1.82585E-05
Road 11	11	2000-2100	0.252854915	3.556E-07	2.94954E-06	0.2254005	3.17E-07	2.62929E-06	1.2632466	1.776E-06	1.47357E-05	1.1281441	1.586E-06	1.31598E-05	1.3535446	1.903E-06	1.5789E-05
Road 11	11	2100-2200	0.185579992	1.836E-07	1.52337E-06	0.1659881	1.643E-07	1.36254E-06	1.0390794	1.028E-06	8.52946E-06	0.9314153	9.217E-07	7.64568E-06	1.0974034	1.086E-06	9.00823E-06
Road 11	11	2200-2300	0.245973232	2.69E-07	2.23165E-06	0.2156278	2.358E-07	1.95634E-06	1.2424421	1.359E-06	1.12724E-05	1.0889421	1.191E-06	9.87969E-06	1.3045699	1.427E-06	1.1836E-05
Road 11	11	2300-0000	0.227768939	2.373E-07	1.96809E-06	0.2055161	2.141E-07	1.7758E-06	1.1699226	1.219E-06	1.0109E-05	1.0552395	1.099E-06	9.11802E-06	1.2607556	1.313E-06	1.08938E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.19424	2.245E-06	3.37631E-06	1.0405	1.956E-06	2.94166E-06	5.4881	1.032E-05	1.55157E-05	4.78147	8.988E-06	1.3518E-05	5.82197	1.094E-05	1.64596E-05
Haul Road 1	HR1	0800-0900	1.22073	2.295E-06	3.4512E-06	1.05949	1.992E-06	2.99535E-06	5.60965	1.054E-05	1.58594E-05	4.86884	9.152E-06	1.3765E-05	5.92833	1.114E-05	1.67603E-05
Haul Road 1	HR1	0900-1000	1.23133	2.315E-06	3.48117E-06	1.05829	1.989E-06	2.99196E-06	5.65833	1.064E-05	1.5997E-05	4.86344	9.142E-06	1.37497E-05	5.92173	1.113E-05	1.67417E-05
Haul Road 1	HR1	1000-1100	1.24722	2.344E-06	3.52609E-06	1.07179	2.015E-06	3.03012E-06	5.73131	1.077E-05	1.62033E-05	4.92521	9.258E-06	1.39244E-05	5.997	1.127E-05	1.69545E-05
Haul Road 1	HR1	1100-1200	1.24672	2.343E-06	3.52468E-06	1.0519	1.977E-06	2.97389E-06	5.72941	1.077E-05	1.6198E-05	4.83375	9.086E-06	1.36658E-05	5.88565	1.106E-05	1.66397E-05
Haul Road 1	HR1	1200-1300	1.25252	2.354E-06	3.54108E-06	1.05899	1.991E-06	2.99393E-06	5.7556	1.082E-05	1.6272E-05	4.86654	9.148E-06	1.37585E-05	5.92553	1.114E-05	1.67524E-05
Haul Road 1	HR1	1300-1400	1.25242	2.354E-06	3.54079E-06	1.06609	2.004E-06	3.01401E-06	5.7552	1.082E-05	1.62709E-05	4.89933	9.209E-06	1.38512E-05	5.96542	1.121E-05	1.68652E-05
Haul Road 1	HR1	1400-1500	1.25772	2.364E-06	3.55578E-06	1.06609	2.004E-06	3.01401E-06	5.77999	1.086E-05	1.6341E-05	4.89933	9.209E-06	1.38512E-05	5.96542	1.121E-05	1.68652E-05
Haul Road 1	HR1	1500-1600	1.26302	2.374E-06	3.57076E-06	1.05899	1.991E-06	2.99393E-06	5.80427	1.091E-05	1.64096E-05	4.86654	9.148E-06	1.37585E-05	5.92553	1.114E-05	1.67524E-05
Haul Road 1	HR1	1600-1700	1.24722	2.344E-06	3.52609E-06	1.06499	2.002E-06	3.0109E-06	5.73131	1.077E-05	1.62033E-05	4.89433	9.2E-06	1.38371E-05	5.95932	1.12E-05	1.6848E-05
Haul Road 1	HR1	1700-1800	1.22073	2.295E-06	3.4512E-06	1.0449	1.964E-06	2.9541E-06	5.60965	1.054E-05	1.58594E-05	4.80156	9.025E-06	1.35748E-05	5.84646	1.099E-05	1.65289E-05
Haul Road 1	HR1	1800-1900	1.21883	2.291E-06	3.44583E-06	1.05949	1.992E-06	2.99535E-06	5.60096	1.053E-05	1.58348E-05	4.86884	9.152E-06	1.3765E-05	5.92833	1.114E-05	1.67603E-05
Haul Road 1	HR1	1900-2000	1.18894	2.235E-06	3.36132E-06	1.0532	1.98E-06	2.97757E-06	5.46381	1.027E-05	1.54471E-05	4.83964	9.097E-06	1.36824E-05	5.89284	1.108E-05	1.666E-05
Haul Road 1	HR1	2000-2100	1.16785	2.195E-06	3.3017E-06	1.0341	1.944E-06	2.92357E-06	5.36645	1.009E-05	1.51718E-05	4.75238	8.933E-06	1.34357E-05	5.78648	1.088E-05	1.63593E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.19424	1.547E-06	4.11781E-06	1.0405	1.348E-06	3.58771E-06	5.4881	7.109E-06	1.89233E-05	4.78147	6.194E-06	1.64868E-05	5.82197	7.541E-06	2.00745E-05
Haul Road 2	HR2	0800-0900	1.22073	1.581E-06	4.20915E-06	1.05949	1.372E-06	3.65319E-06	5.60965	7.266E-06	1.93424E-05	4.86884	6.307E-06	1.67881E-05	5.92833	7.679E-06	2.04412E-05
Haul Road 2	HR2	0900-1000	1.23133	1.595E-06	4.2457E-06	1.05829	1.371E-06	3.64905E-06	5.65833	7.329E-06	1.95103E-05	4.86344	6.3E-06	1.67694E-05	5.92173	7.671E-06	2.04185E-05
Haul Road 2	HR2	1000-1100	1.24722	1.616E-06	4.30049E-06	1.07179	1.388E-06	3.6956E-06	5.73131	7.424E-06	1.97619E-05	4.92521	6.38E-06	1.69824E-05	5.997	7.768E-06	2.0678E-05
Haul Road 2	HR2	1100-1200	1.24672	1.615E-06	4.29877E-06	1.0519	1.363E-06	3.62701E-06	5.72941	7.422E-06	1.97554E-05	4.83375	6.261E-06	1.66671E-05	5.88565	7.624E-06	2.02941E-05
Haul Road 2	HR2	1200-1300	1.25252	1.622E-06	4.31876E-06	1.05899	1.372E-06	3.65146E-06	5.7556	7.455E-06	1.98457E-05	4.86654	6.304E-06	1.67801E-05	5.92553	7.676E-06	2.04316E-05
Haul Road 2	HR2	1300-1400	1.25242	1.622E-06	4.31842E-06	1.06609	1.381E-06	3.67594E-06	5.7552	7.455E-06	1.98443E-05	4.89933	6.346E-06	1.68932E-05	5.96542	7.727E-06	2.05691E-05
Haul Road 2	HR2	1400-1500	1.25772	1.629E-06	4.33669E-06	1.06609	1.381E-06	3.67594E-06	5.77999	7.487E-06	1.99298E-05	4.89933	6.346E-06	1.68932E-05	5.96542	7.727E-06	2.05691E-05
Haul Road 2	HR2	1500-1600	1.26302	1.636E-06	4.35497E-06	1.05899	1.372E-06	3.65146E-06	5.80427	7.518E-06	2.00135E-05	4.86654	6.304E-06	1.67801E-05	5.92553	7.676E-06	2.04316E-05
Haul Road 2	HR2	1600-1700	1.24722	1.616E-06	4.30049E-06	1.06499	1.38E-06	3.67215E-06	5.73131	7.424E-06	1.97619E-05	4.89433	6.34E-06	1.68759E-05	5.95932	7.719E-06	2.05481E-05
Haul Road 2	HR2	1700-1800	1.22073	1.581E-06	4.20915E-06	1.0449	1.353E-06	3.60288E-06	5.60965	7.266E-06	1.93424E-05	4.80156	6.22E-06	1.65561E-05	5.84646	7.573E-06	2.01589E-05
Haul Road 2	HR2	1800-1900	1.21883	1.579E-06	4.2026E-06	1.05949	1.372E-06	3.65319E-06	5.60096	7.255E-06	1.93124E-05	4.86884	6.307E-06	1.67881E-05	5.92833	7.679E-06	2.04412E-05
Haul Road 2	HR2	1900-2000	1.18894	1.54E-06	4.09954E-06	1.0532	1.364E-06	3.6315E-06	5.46381	7.077E-06	1.88395E-05	4.83964	6.269E-06	1.66874E-05	5.89284	7.633E-06	2.03189E-05
Haul Road 2	HR2	2000-2100	1.16785	1.513E-06	4.02682E-06	1.0341	1.34E-06	3.56564E-06	5.36645	6.951E-06	1.85038E-05	4.75238	6.156E-06	1.63865E-05	5.78648	7.495E-06	1.99521E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (July) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.19424	1.547E-06	4.11207E-06	1.0405	1.348E-06	3.5827E-06	5.4881	7.109E-06	1.88969E-05	4.78147	6.194E-06	1.64638E-05	5.82197	7.541E-06	2.00465E-05
Haul Road 3	HR3	0800-0900	1.22073	1.581E-06	4.20328E-06	1.05949	1.372E-06	3.64809E-06	5.60965	7.266E-06	1.93154E-05	4.86884	6.307E-06	1.67646E-05	5.92833	7.679E-06	2.04127E-05
Haul Road 3	HR3	0900-1000	1.23133	1.595E-06	4.23978E-06	1.05829	1.371E-06	3.64396E-06	5.65833	7.329E-06	1.94831E-05	4.86344	6.3E-06	1.67461E-05	5.92173	7.671E-06	2.039E-05
Haul Road 3	HR3	1000-1100	1.24722	1.616E-06	4.29449E-06	1.07179	1.388E-06	3.69044E-06	5.73131	7.424E-06	1.97343E-05	4.92521	6.38E-06	1.69587E-05	5.997	7.768E-06	2.06492E-05
Haul Road 3	HR3	1100-1200	1.24672	1.615E-06	4.29277E-06	1.0519	1.363E-06	3.62196E-06	5.72941	7.422E-06	1.97278E-05	4.83375	6.261E-06	1.66438E-05	5.88565	7.624E-06	2.02658E-05
Haul Road 3	HR3	1200-1300	1.25252	1.622E-06	4.31274E-06	1.05899	1.372E-06	3.64637E-06	5.7556	7.455E-06	1.9818E-05	4.86654	6.304E-06	1.67567E-05	5.92553	7.676E-06	2.04031E-05
Haul Road 3	HR3	1300-1400	1.25242	1.622E-06	4.3124E-06	1.06609	1.381E-06	3.67082E-06	5.7552	7.455E-06	1.98166E-05	4.89933	6.346E-06	1.68696E-05	5.96542	7.727E-06	2.05404E-05
Haul Road 3	HR3	1400-1500	1.25772	1.629E-06	4.33065E-06	1.06609	1.381E-06	3.67082E-06	5.77999	7.487E-06	1.9902E-05	4.89933	6.346E-06	1.68696E-05	5.96542	7.727E-06	2.05404E-05
Haul Road 3	HR3	1500-1600	1.26302	1.636E-06	4.3489E-06	1.05899	1.372E-06	3.64637E-06	5.80427	7.518E-06	1.99856E-05	4.86654	6.304E-06	1.67567E-05	5.92553	7.676E-06	2.04031E-05
Haul Road 3	HR3	1600-1700	1.24722	1.616E-06	4.29449E-06	1.06499	1.38E-06	3.66703E-06	5.73131	7.424E-06	1.97343E-05	4.89433	6.34E-06	1.68524E-05	5.95932	7.719E-06	2.05194E-05
Haul Road 3	HR3	1700-1800	1.22073	1.581E-06	4.20328E-06	1.0449	1.353E-06	3.59785E-06	5.60965	7.266E-06	1.93154E-05	4.80156	6.22E-06	1.6533E-05	5.84646	7.573E-06	2.01308E-05
Haul Road 3	HR3	1800-1900	1.21883	1.579E-06	4.19674E-06	1.05949	1.372E-06	3.64809E-06	5.60096	7.255E-06	1.92855E-05	4.86884	6.307E-06	1.67646E-05	5.92833	7.679E-06	2.04127E-05
Haul Road 3	HR3	1900-2000	1.18894	1.54E-06	4.09382E-06	1.0532	1.364E-06	3.62643E-06	5.46381	7.077E-06	1.88133E-05	4.83964	6.269E-06	1.66641E-05	5.89284	7.633E-06	2.02905E-05
Haul Road 3	HR3	2000-2100	1.16785	1.513E-06	4.0212E-06	1.0341	1.34E-06	3.56067E-06	5.36645	6.951E-06	1.8478E-05	4.75238	6.156E-06	1.63636E-05	5.78648	7.495E-06	1.99243E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August)

Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.088570113	2.942E-07	2.39366E-06	0.0793169	2.635E-07	2.14358E-06	0.5194586	1.726E-06	1.40387E-05	0.4632649	1.539E-06	1.252E-05	0.5425819	1.802E-06	1.46636E-05
Road 1	1	0100-0200	0.06849213	1.388E-07	1.12945E-06	0.0613428	1.243E-07	1.01155E-06	0.4109846	8.331E-07	6.7772E-06	0.3665045	7.429E-07	6.04372E-06	0.4278473	8.673E-07	7.05527E-06
Road 1	1	0200-0300	0.063874675	9.231E-08	7.50967E-07	0.0578352	8.358E-08	6.79961E-07	0.402343	5.815E-07	4.7303E-06	0.361954	5.231E-07	4.25545E-06	0.4197892	6.067E-07	4.93541E-06
Road 1	1	0300-0400	0.055288909	5.707E-08	4.64303E-07	0.0501089	5.173E-08	4.20803E-07	0.3326444	3.434E-07	2.79347E-06	0.2998087	3.095E-07	2.51772E-06	0.3499176	3.612E-07	2.93853E-06
Road 1	1	0400-0500	0.070535412	1.125E-07	9.15435E-07	0.0655624	1.046E-07	8.50893E-07	0.3991735	6.368E-07	5.18062E-06	0.3699347	5.902E-07	4.80115E-06	0.4354971	6.948E-07	5.65204E-06
Road 1	1	0500-0600	0.056802888	1.994E-07	1.62186E-06	0.0530491	1.862E-07	1.51468E-06	0.3307731	1.161E-06	9.44437E-06	0.3076448	1.08E-06	8.784E-06	0.3606939	1.266E-06	1.02987E-05
Road 1	1	0600-0700	0.077768434	4.846E-07	3.94224E-06	0.070869	4.416E-07	3.59249E-06	0.413577	2.577E-06	2.0965E-05	0.3754693	2.34E-06	1.90333E-05	0.4463383	2.781E-06	2.26258E-05
Road 1	1	0700-0800	0.066656619	6.993E-07	5.68927E-06	0.0600657	6.302E-07	5.12672E-06	0.3642956	3.822E-06	3.10933E-05	0.3262928	3.423E-06	2.78497E-05	0.3863586	4.054E-06	3.29764E-05
Road 1	1	0800-0900	0.075501051	9.707E-07	7.89669E-06	0.0664937	8.549E-07	6.9546E-06	0.3999753	5.142E-06	4.18336E-05	0.3507976	4.51E-06	3.66901E-05	0.4172913	5.365E-06	4.36447E-05
Road 1	1	0900-1000	0.078985332	1.048E-06	8.52643E-06	0.0703396	9.334E-07	7.59312E-06	0.4411747	5.854E-06	4.76246E-05	0.3913503	5.193E-06	4.22461E-05	0.4616899	6.126E-06	4.98392E-05
Road 1	1	1000-1100	0.094599156	1.22E-06	9.92305E-06	0.0805664	1.039E-06	8.45108E-06	0.5077003	6.546E-06	5.32556E-05	0.4306932	5.553E-06	4.51779E-05	0.5112596	6.592E-06	5.3629E-05
Road 1	1	1100-1200	0.085508741	1.07E-06	8.70838E-06	0.0732589	9.171E-07	7.46083E-06	0.4906484	6.142E-06	4.99686E-05	0.4185426	5.24E-06	4.26252E-05	0.4918015	6.157E-06	5.00861E-05
Road 1	1	1200-1300	0.088730818	1.099E-06	8.94169E-06	0.0746283	9.245E-07	7.52054E-06	0.5055267	6.262E-06	5.09436E-05	0.4234293	5.245E-06	4.26703E-05	0.4980576	6.17E-06	5.01909E-05
Road 1	1	1300-1400	0.093622934	1.234E-06	1.00351E-05	0.0780778	1.029E-06	8.36885E-06	0.5220095	6.878E-06	5.59522E-05	0.4333232	5.709E-06	4.64462E-05	0.511401	6.738E-06	5.48151E-05
Road 1	1	1400-1500	0.089851582	1.29E-06	1.04951E-05	0.07477	1.074E-06	8.73353E-06	0.4888485	7.019E-06	5.71001E-05	0.4051677	5.817E-06	4.73257E-05	0.4799377	6.891E-06	5.60593E-05
Road 1	1	1500-1600	0.096549972	1.285E-06	1.0452E-05	0.0807933	1.075E-06	8.74627E-06	0.5233834	6.965E-06	5.66588E-05	0.4360724	5.803E-06	4.7207E-05	0.5168657	6.878E-06	5.59532E-05
Road 1	1	1600-1700	0.09035373	1.268E-06	1.03193E-05	0.075918	1.066E-06	8.67057E-06	0.4947616	6.946E-06	5.65066E-05	0.4135019	5.805E-06	4.72259E-05	0.4894198	6.871E-06	5.58965E-05
Road 1	1	1700-1800	0.071416093	1.005E-06	8.17822E-06	0.0610796	8.598E-07	6.99453E-06	0.3983198	5.607E-06	4.56136E-05	0.3384096	4.764E-06	3.8753E-05	0.3994891	5.623E-06	4.57475E-05
Road 1	1	1800-1900	0.061482122	8.862E-07	7.2096E-06	0.0541904	7.811E-07	6.35455E-06	0.3634963	5.24E-06	4.26248E-05	0.3179129	4.583E-06	3.72795E-05	0.3721033	5.364E-06	4.36341E-05
Road 1	1	1900-2000	0.075027986	8.252E-07	6.71309E-06	0.0644674	7.09E-07	5.76818E-06	0.4276348	4.703E-06	3.82624E-05	0.3648947	4.013E-06	3.26487E-05	0.4293621	4.722E-06	3.84169E-05
Road 1	1	2000-2100	0.065073226	6.058E-07	4.92817E-06	0.0580481	5.404E-07	4.39613E-06	0.3802705	3.54E-06	2.87989E-05	0.3374707	3.142E-06	2.55575E-05	0.3955188	3.682E-06	2.99537E-05
Road 1	1	2100-2200	0.070232428	5.971E-07	4.85777E-06	0.062167	5.286E-07	4.29991E-06	0.4131182	3.512E-06	2.85742E-05	0.3636694	3.092E-06	2.5154E-05	0.4258364	3.621E-06	2.94539E-05
Road 1	1	2200-2300	0.070186891	5.678E-07	4.61886E-06	0.0603407	4.881E-07	3.9709E-06	0.4115498	3.329E-06	2.70833E-05	0.351182	2.841E-06	2.31106E-05	0.4115227	3.329E-06	2.70815E-05
Road 1	1	2300-0000	0.059990416	4.335E-07	3.5265E-06	0.0525903	3.8E-07	3.09149E-06	0.3639724	2.63E-06	2.13959E-05	0.3164069	2.286E-06	1.85998E-05	0.3689972	2.666E-06	2.16913E-05
Road 2	2	0000-0100	0.148521961	1.753E-07	1.13232E-06	0.1329716	1.57E-07	1.01376E-06	0.6285471	7.42E-07	4.79199E-06	0.561059	6.624E-07	4.27746E-06	0.6940306	8.193E-07	5.29123E-06
Road 2	2	0100-0200	0.105342727	8.047E-08	5.19668E-07	0.09429	7.203E-08	4.65144E-07	0.5201848	3.974E-07	2.56613E-06	0.4639976	3.544E-07	2.28896E-06	0.5582876	4.265E-07	2.7541E-06
Road 2	2	0200-0300	0.102919565	5.48E-08	3.53862E-07	0.0932296	4.964E-08	3.20545E-07	0.5572283	2.967E-07	1.91588E-06	0.5026839	2.676E-07	1.72835E-06	0.5959135	3.173E-07	2.04889E-06
Road 2	2	0300-0400	0.091751333	3.186E-08	2.05737E-07	0.0831187	2.886E-08	1.86379E-07	0.3314107	1.151E-07	7.43131E-07	0.298954	1.038E-07	6.70353E-07	0.3820727	1.327E-07	8.56732E-07
Road 2	2	0400-0500	0.12088037	7.555E-08	4.87896E-07	0.1123544	7.022E-08	4.53484E-07	0.5828222	3.643E-07	2.35238E-06	0.5406878	3.379E-07	2.18232E-06	0.6530422	4.082E-07	2.6358E-06
Road 2	2	0500-0600	0.096167544	1.269E-07	8.19429E-07	0.0898174	1.185E-07	7.6532E-07	0.4217023	5.564E-07	3.59326E-06	0.3927065	5.182E-07	3.34619E-06	0.4825239	6.367E-07	4.11151E-06
Road 2	2	0600-0700	0.138075437	3.292E-07	2.12599E-06	0.1257927	2.999E-07	1.93687E-06	0.5577329	1.33E-06	8.58759E-06	0.5068778	1.209E-06	7.80456E-06	0.6326705	1.508E-06	9.74143E-06
Road 2	2	0700-0800	0.111960063	4.095E-07	2.6444E-06	0.1008398	3.688E-07	2.38175E-06	0.4695792	1.717E-06	1.10911E-05	0.421002	1.54E-06	9.94372E-06	0.5218418	1.909E-06	1.23255E-05
Road 2	2	0800-0900	0.1336065	9.278E-07	5.99179E-06	0.1176067	8.167E-07	5.27425E-06	0.5642981	3.919E-06	2.53068E-05	0.4947906	3.436E-06	2.21896E-05	0.6123973	4.253E-06	2.74639E-05
Road 2	2	0900-1000	0.152460935	8.682E-07	5.60662E-06	0.1356514	7.725E-07	4.98847E-06	0.6589165	3.752E-06	2.42311E-05	0.584854	3.33E-06	2.15075E-05	0.7205054	4.103E-06	2.6496E-05
Road 2	2	1000-1100	0.174745	7.443E-07	4.80652E-06	0.1487613	6.336E-07	4.09181E-06	0.7500515	3.195E-06	2.06308E-05	0.6369849	2.713E-06	1.75208E-05	0.7857462	3.347E-06	2.16126E-05
Road 2	2	1100-1200	0.211343702	8.855E-07	5.71841E-06	0.1809346	7.581E-07	4.89562E-06	0.8669222	3.632E-06	2.34567E-05	0.7410863	3.105E-06	2.00519E-05	0.9220209	3.863E-06	2.49475E-05
Road 2	2	1200-1300	0.162521436	7.073E-07	4.56748E-06	0.1366648	5.947E-07	3.84081E-06	0.7159502	3.116E-06	2.01209E-05	0.6001085	2.612E-06	1.68654E-05	0.7367734	3.206E-06	2.07062E-05
Road 2	2	1300-1400	0.181512955	9.244E-07	5.9695E-06	0.1510886	7.694E-07	4.96892E-06	0.7505114	3.822E-06	2.46824E-05	0.6226745	3.171E-06	2.04782E-05	0.7737631	3.94E-06	2.54471E-05
Road 2	2	1400-1500	0.15883092	5.993E-07	3.87017E-06	0.1321175	4.985E-07	3.21926E-06	0.6871599	2.593E-06	1.67438E-05	0.5702221	2.152E-06	1.38944E-05	0.7023396	2.65E-06	1.71136E-05
Road 2	2	1500-1600	0.195346425	8.094E-07	5.22717E-06	0.1632011	6.762E-07	4.36701E-06	0.7849104	3.252E-06	2.1003E-05	0.6544432	2.712E-06	1.75119E-05	0.8176443	3.388E-06	2.18789E-05
Road 2	2	1600-1700	0.163621233	8.295E-07	5.35663E-06	0.137443	6.968E-07	4.49961E-06	0.6918657	3.507E-06	2.26503E-05	0.5791568	2.936E-06	1.89604E-05	0.7165998	3.633E-06	2.346E-05
Road 2	2	1700-1800	0.122328387	6.145E-07	3.96821E-06	0.1046315	5.256E-07	3.39414E-06	0.4867455	2.445E-06	1.57895E-05	0.414547	2.082E-06	1.34475E-05	0.5191785	2.608E-06	1.68416E-05
Road 2	2	1800-1900	0.12996371	7.461E-07	4.81816E-06	0.1146398	6.581E-07	4.25006E-06	0.5985192	3.436E-06	2.2189E-05	0.5257236	3.018E-06	1.94902E-05	0.6403634	3.676E-06	2.37403E-05
Road 2	2	1900-2000	0.113286265	4.353E-07	2.81121E-06	0.0973196	3.74E-07	2.41499E-06	0.5194093	1.996E-06	1.28892E-05	0.4435839	1.705E-06	1.10076E-05	0.5409034	2.078E-06	1.34226E-05
Road 2	2	2000-2100	0.106692192	3.606E-07	2.32859E-06	0.0951368	3.215E-07	2.07639E-06	0.4471585	1.511E-06	9.75938E-06	0.3965228	1.34E-06	8.65424E-06	0.4916596	1.662E-06	1.07306E-05
Road 2	2	2100-2200	0.084372237	2.969E-07	1.91713E-06	0.0746768	2.628E-07	1.69683E-06	0.3803058	1.338E-06	8.6414E-06	0.3335534	1.174E-06	7.57908E-06	0.4082303	1.436E-06	9.27591E-06
Road 2	2	2200-2300	0.12434824	3.598E-07	2.32358E-06	0.106901	3.093E-07	1.99756E-06	0.529863	1.533E-06	9.90105E-06	0.4528074	1.31E-06	8.46119E-06	0.5597085	1.62E-06	1.04587E-05
Road 2	2	2300-0000	0.109934273	2.799E-07	1.80773E-06	0.096374	2.454E-07	1.58475E-06	0.493091	1.256E-06	8.10826E-06	0.4295098	1.094E-06	7.06274E-06	0.5258838	1.339E-06	8.64749E-06
Road 3	3	0000-0100	0.091924236	3.376E-07	1.31233E-05	0.0822283	3.02E-07	1.17391E-05	0.5016657	1.843E-06	7.16191E-05	0.4469386	1.642E-06	6.38061E-05	0.5291669	1.944E-06	7.55452E-05
Road 3	3	0100-0200	0.068803688	1.556E-07	6.04797E-06	0.0634736	1.436E-07	5.57945E-06	0.3970961	8.981E-07	3.49055E-05	0.3652142	8.26E-07	3.2103E-05	0.4286878	9.695E-07	3.76824E-05
Road 3	3	0200-0300	0.065784545	1.045E-07	4.06011E-06	0.0608639	9.665E-08	3.75642E-06	0.4042816	6.42E-07	2.49516E-05	0.3721616	5.91E-07	2.29692E-05	0.4330256	6.876E-07	2.67256E-05
Road 3	3	0300-0400	0.057045072	6.313E-08	2.45384E-06	0.0519165	5.746E-08	2.23323E-06	0.3064588	3.392E-07	1.31826E-05	0.2774664	3.071E-07	1.19354E-05	0.3293829	3.645E-07	1.41687E-05
Road 3	3	0400-0500	0.075746667	1.349E-07	5.24162E-06	0.0693221	1.234E-07	4.79704E-06	0.4139552	7.37E-07	2.86454E-05	0.3776383	6.723E-07	2.61323E-05	0.4469604	7.958E-07	3.09293E-05
Road 3	3	0500-0600	0.059763374	2.329E-07	9.05357E-06	0.0557744	2.174E-07	8.44929E-06	0.3261705	1.271E-06	4.94117E-05	0.3032041	1.182E-06	4.59325E-05	0.3589786	1.399E-06	5.43818E-05
Road 3	3	0600-0700	0.082542648	5.799E-07	2.25388E-05	0.0751355	5.279E-07	2.05163E-05	0.4084692	2.87E-06	0.000111535	0.3704206	2.602E-06	0.000101146	0.4455561	3.13E-06	0.000121662
Road 3	3	0700-0800	0.069007668	7.925E-07	3.08027E-05	0.063746	7.321E-07	2.84541E-05	0.3556231	4.084E-06	0.000158738	0.3269222	3.754E-06	0.000145927	0.3906682	4.487E-06	0.000174381
Road 3	3	0800-0900	0.079974833	1.269E-06	4.93092E-05	0.0706408	1.121E-06	4.35543E-05	0.3962444	6.286E-06	0.000244308	0.3483693	5.526E-06	0.00021479	0.4190101	6.647E-06	0.000258345
Road 3	3	0900-1000	0.086575126	1.325E-06	5.14897E-05	0.0768533	1.176E-06	4.57077E-05	0.4440601	6.795E-06	0.0002641	0.3929027	6.012E-06	0.000233675	0.469756	7.188E-06	0.000279383
Road 3	3	1000-1100	0.100907667	1.408E-06	5.47296E-05	0.0857671	1.197E-06	4.65177E-05	0.5122289	7.148E-06	0.000277819	0.4337651	6.053E-06	0.000235262	0.5195322	7.25E-06	0.00028178
Road 3	3	1100-1200	0.098580768	1.338E-06	5.19926E-05	0.0856292	1.162E-06	4.51618E-05	0.5136106	6.969E-06	0.000270884	0.4444498	6.031E-06	0.000234408	0.530079	7.193E-06	0.000279569
Road 3	3	1200-1300	0.094699196	1.285E-06	4.99454E-05	0.0802523	1.089E-06	4.23259E-05	0.5043592	6.844E-06	0.000266005	0.425657	5.776E-06	0.000224496	0.5059093	6.865E-06	0.000266822
Road 3	3	1300-1400	0.100044483	1.475E-06	5.73175E-05	0.0853278	1.258E-06	4.8886E-05	0.5128148	7.559E-06	0.000293802	0.4357116	6.423E-06	0.000249628	0.5210394	7.68E-06	0.000298514

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.093693496	1.389E-06	5.3971E-05	0.0793949	1.177E-06	4.57345E-05	0.4859321	7.202E-06	0.000279915	0.4101798	6.079E-06	0.000236279	0.4895747	7.256E-06	0.000282013
Road 3	3	1500-1600	0.104160011	1.487E-06	5.77923E-05	0.0876401	1.251E-06	4.86264E-05	0.5255492	7.502E-06	0.000291596	0.4404859	6.288E-06	0.0002444	0.528126	7.539E-06	0.000293026
Road 3	3	1600-1700	0.097607802	1.517E-06	5.8964E-05	0.0808338	1.256E-06	4.8831E-05	0.5020149	7.802E-06	0.000303263	0.4136617	6.429E-06	0.000249889	0.4944955	7.686E-06	0.00029872
Road 3	3	1700-1800	0.077158031	1.2E-06	4.66586E-05	0.0647345	1.007E-06	3.91459E-05	0.3967378	6.173E-06	0.000239913	0.3306641	5.145E-06	0.000199957	0.3953986	6.152E-06	0.000239103
Road 3	3	1800-1900	0.069177719	1.128E-06	4.38597E-05	0.0613098	1E-06	3.88713E-05	0.3798306	6.196E-06	0.000240818	0.3341878	5.451E-06	0.00021188	0.3954976	6.451E-06	0.000250751
Road 3	3	1900-2000	0.075689323	9.142E-07	3.55311E-05	0.064922	7.841E-07	3.04765E-05	0.4134936	4.994E-06	0.000194108	0.352179	4.254E-06	0.000165324	0.417101	5.038E-06	0.000195801
Road 3	3	2000-2100	0.067670637	6.99E-07	2.71684E-05	0.0600031	6.198E-07	2.40901E-05	0.3658934	3.779E-06	0.000146899	0.3225096	3.331E-06	0.000129481	0.3825127	3.951E-06	0.000153571
Road 3	3	2100-2200	0.069089525	6.76E-07	2.62737E-05	0.060093	5.88E-07	2.28524E-05	0.386384	3.78E-06	0.000146936	0.3338447	3.266E-06	0.000126956	0.3939377	3.854E-06	0.000149808
Road 3	3	2200-2300	0.075791133	6.759E-07	2.62707E-05	0.0644926	5.751E-07	2.23544E-05	0.4097344	3.654E-06	0.000142022	0.3459951	3.086E-06	0.000119929	0.4104877	3.661E-06	0.000142283
Road 3	3	2300-0000	0.064771928	5.174E-07	2.01092E-05	0.056462	4.51E-07	1.75293E-05	0.3630262	2.9E-06	0.000112706	0.3138064	2.507E-06	9.74249E-05	0.3702684	2.958E-06	0.000114954
Road 4	4	0000-0100	0.234774	1.902E-07	2.03669E-06	0.2097534	1.699E-07	1.81964E-06	1.1954977	9.686E-07	1.03711E-05	1.0679329	8.652E-07	9.26445E-06	1.2776863	1.035E-06	1.10841E-05
Road 4	4	0100-0200	0.221182	1.024E-07	1.09645E-06	0.203925	9.441E-08	1.0109E-06	1.1285205	5.225E-07	5.59432E-06	1.040539	4.817E-07	5.15817E-06	1.244464	5.761E-07	6.16907E-06
Road 4	4	0200-0300	0.236221538	7.109E-08	7.6115E-07	0.2186592	6.58E-08	7.04561E-07	1.1659008	3.508E-07	3.75675E-06	1.0788969	3.247E-07	3.47641E-06	1.2975562	3.905E-07	4.18097E-06
Road 4	4	0300-0400	0.216568571	3.509E-08	3.75752E-07	0.1971743	3.195E-08	3.42102E-07	1.1492714	1.862E-07	1.99401E-06	1.0465671	1.696E-07	1.81582E-06	1.2437414	2.015E-07	2.15792E-06
Road 4	4	0400-0500	0.220861429	7.158E-08	7.664E-07	0.2019521	6.545E-08	7.00784E-07	1.0903607	3.534E-07	3.7836E-06	0.9971693	3.232E-07	3.46023E-06	1.1991214	3.886E-07	4.16101E-06
Road 4	4	0500-0600	0.199623333	1.109E-07	1.18749E-06	0.1863279	1.035E-07	1.1084E-06	0.9451683	5.251E-07	5.62248E-06	0.8819271	4.9E-07	5.24628E-06	1.068255	5.935E-07	6.35468E-06
Road 4	4	0600-0700	0.223249615	2.687E-07	2.87741E-06	0.2031519	2.445E-07	2.61837E-06	1.0649819	1.282E-06	1.37263E-05	0.9687271	1.166E-06	1.24857E-05	1.171879	1.411E-06	1.51041E-05
Road 4	4	0700-0800	0.227942065	4.854E-07	5.1978E-06	0.2105595	4.484E-07	4.80142E-06	1.1332855	2.413E-06	2.58425E-05	1.0462479	2.228E-06	2.38578E-05	1.2568074	2.677E-06	2.86592E-05
Road 4	4	0800-0900	0.244204379	8.649E-07	9.26088E-06	0.2155023	7.632E-07	8.17242E-06	1.2177433	4.313E-06	4.61801E-05	1.074241	3.805E-06	4.07381E-05	1.2897433	4.568E-06	4.89105E-05
Road 4	4	0900-1000	0.250660608	8.587E-07	9.19508E-06	0.2220892	7.609E-07	8.14698E-06	1.1808973	4.046E-06	4.33193E-05	1.0457082	3.583E-06	3.83601E-05	1.2677974	4.343E-06	4.65071E-05
Road 4	4	1000-1100	0.289547483	9.585E-07	1.02627E-05	0.2457632	8.135E-07	8.71085E-06	1.3672229	4.526E-06	4.84599E-05	1.1600867	3.84E-06	4.11182E-05	1.4058499	4.654E-06	4.9829E-05
Road 4	4	1100-1200	0.26790529	9.612E-07	1.02925E-05	0.2324266	8.339E-07	8.92946E-06	1.2568127	4.509E-06	4.82847E-05	1.0900343	3.911E-06	4.18774E-05	1.3224609	4.745E-06	5.08068E-05
Road 4	4	1200-1300	0.278907347	9.491E-07	1.01621E-05	0.236035	8.032E-07	8.60005E-06	1.3687118	4.657E-06	4.98697E-05	1.1576307	3.939E-06	4.21789E-05	1.3936656	4.742E-06	5.07789E-05
Road 4	4	1300-1400	0.28460906	9.816E-07	1.0511E-05	0.2424783	8.363E-07	8.95502E-06	1.3638136	4.704E-06	5.03673E-05	1.161306	4.005E-06	4.28885E-05	1.4037842	4.842E-06	5.18435E-05
Road 4	4	1400-1500	0.262410942	8.383E-07	8.9757E-06	0.2220805	7.094E-07	7.59621E-06	1.3002988	4.154E-06	4.44764E-05	1.0995006	3.512E-06	3.76082E-05	1.3215811	4.222E-06	4.52044E-05
Road 4	4	1500-1600	0.292459516	8.395E-07	8.98866E-06	0.2456204	7.05E-07	7.54907E-06	1.4000238	4.019E-06	4.30293E-05	1.1753145	3.374E-06	3.6123E-05	1.4209349	4.079E-06	4.3672E-05
Road 4	4	1600-1700	0.273222177	7.842E-07	8.39741E-06	0.2258947	6.484E-07	6.94281E-06	1.3224862	3.796E-06	4.06462E-05	1.0927682	3.137E-06	3.35859E-05	1.3186629	3.785E-06	4.05287E-05
Road 4	4	1700-1800	0.258954365	7.553E-07	8.08726E-06	0.2172088	6.335E-07	6.78353E-06	1.2742887	3.717E-06	3.97966E-05	1.06784	3.115E-06	3.33491E-05	1.2850488	3.748E-06	4.01326E-05
Road 4	4	1800-1900	0.271200755	6.654E-07	7.12532E-06	0.2402694	5.896E-07	6.31265E-06	1.3530499	3.32E-06	3.5549E-05	1.1984365	2.941E-06	3.14868E-05	1.4387059	3.53E-06	3.77994E-05
Road 4	4	1900-2000	0.25098473	4.299E-07	4.60348E-06	0.2153753	3.689E-07	3.95035E-06	1.2461796	2.135E-06	2.2857E-05	1.0686746	1.831E-06	1.96013E-05	1.2840499	2.2E-06	2.35516E-05
Road 4	4	2000-2100	0.211213673	2.396E-07	2.56523E-06	0.187211	2.123E-07	2.27371E-06	1.0535592	1.195E-06	1.27957E-05	0.9330753	1.058E-06	1.13324E-05	1.1202863	1.271E-06	1.36061E-05
Road 4	4	2100-2200	0.18283027	1.566E-07	1.67671E-06	0.1592843	1.364E-07	1.46077E-06	0.9285462	7.953E-07	8.51555E-06	0.8077749	6.918E-07	7.40798E-06	0.9670592	8.283E-07	8.86875E-06
Road 4	4	2200-2300	0.250171429	3.648E-07	3.90648E-06	0.2128851	3.105E-07	3.32425E-06	1.2264692	1.789E-06	1.91516E-05	1.0431513	1.521E-06	1.6289E-05	1.2560363	1.832E-06	1.96133E-05
Road 4	4	2300-0000	0.224651667	2.496E-07	2.67275E-06	0.1957731	2.175E-07	2.32917E-06	1.1303204	1.256E-06	1.34478E-05	0.9844971	1.094E-06	1.17129E-05	1.1802702	1.311E-06	1.4042E-05
Road 5	5	0000-0100	0.078474767	2.843E-07	3.84417E-06	0.0702177	2.544E-07	3.43968E-06	0.4293322	1.555E-06	2.10313E-05	0.3820977	1.384E-06	1.87174E-05	0.4523154	1.638E-06	2.21571E-05
Road 5	5	0100-0200	0.052977355	1.203E-07	1.62701E-06	0.048886	1.11E-07	1.50136E-06	0.3166588	7.191E-07	9.72505E-06	0.2908896	6.606E-07	8.93364E-06	0.3397755	7.716E-07	1.0435E-05
Road 5	5	0200-0300	0.049070581	7.921E-08	1.07111E-06	0.0453973	7.328E-08	9.90931E-07	0.3271253	5.28E-07	7.14048E-06	0.30046	4.85E-07	6.55843E-06	0.3458573	5.583E-07	7.54936E-06
Road 5	5	0300-0400	0.045472581	5.291E-08	7.15577E-07	0.0413708	4.814E-08	6.51029E-07	0.2393905	2.786E-07	3.76715E-06	0.2162066	2.516E-07	3.40232E-06	0.2575774	2.997E-07	4.05335E-06
Road 5	5	0400-0500	0.062887835	1.145E-07	1.54829E-06	0.0575658	1.048E-07	1.41726E-06	0.3502282	6.376E-07	8.62259E-06	0.319229	5.812E-07	7.85939E-06	0.3767947	6.86E-07	9.27666E-06
Road 5	5	0500-0600	0.049317202	2.018E-07	2.72879E-06	0.0460209	1.883E-07	2.5464E-06	0.277493	1.135E-06	1.53541E-05	0.2576526	1.054E-06	1.42563E-05	0.3036735	1.243E-06	1.68027E-05
Road 5	5	0600-0700	0.072589766	5.245E-07	7.09334E-06	0.0660791	4.775E-07	6.45713E-06	0.3571143	2.58E-06	3.48966E-05	0.3235597	2.338E-06	3.16177E-05	0.3896388	2.816E-06	3.80748E-05
Road 5	5	0700-0800	0.056764215	6.648E-07	8.9903E-06	0.0524319	6.141E-07	8.30415E-06	0.2899131	3.395E-06	4.59163E-05	0.266086	3.116E-06	4.21426E-05	0.3185179	3.73E-06	5.04468E-05
Road 5	5	0800-0900	0.064350179	1.01E-06	1.36543E-05	0.0568497	8.92E-07	1.20628E-05	0.310755	4.876E-06	6.59385E-05	0.272805	4.28E-06	5.7886E-05	0.3296547	5.173E-06	6.99488E-05
Road 5	5	0900-1000	0.070591955	1.071E-06	1.44771E-05	0.0627339	9.514E-07	1.28656E-05	0.3700585	5.612E-06	7.58921E-05	0.3273169	4.964E-06	6.71266E-05	0.3900508	5.915E-06	7.99922E-05
Road 5	5	1000-1100	0.082891722	1.129E-06	1.52743E-05	0.0705229	9.61E-07	1.29952E-05	0.4272326	5.822E-06	7.87256E-05	0.3614627	4.925E-06	6.66062E-05	0.4319856	5.886E-06	7.96014E-05
Road 5	5	1100-1200	0.080837565	1.047E-06	1.41572E-05	0.0702733	9.101E-07	1.23071E-05	0.433386	5.613E-06	7.58995E-05	0.374637	4.852E-06	6.56107E-05	0.4449103	5.762E-06	7.79178E-05
Road 5	5	1200-1300	0.077025508	1.011E-06	1.36655E-05	0.0653091	8.568E-07	1.15869E-05	0.4157103	5.454E-06	7.37535E-05	0.3505003	4.598E-06	6.21843E-05	0.4158094	5.455E-06	7.37711E-05
Road 5	5	1300-1400	0.082554576	1.188E-06	1.60713E-05	0.0704769	1.015E-06	1.37201E-05	0.4290715	6.177E-06	8.35295E-05	0.3642195	5.243E-06	7.09044E-05	0.4346964	6.258E-06	8.46245E-05
Road 5	5	1400-1500	0.079456247	1.172E-06	1.58513E-05	0.0673841	9.941E-07	1.34429E-05	0.4127339	6.089E-06	8.23394E-05	0.3481551	5.136E-06	6.94561E-05	0.4155392	6.13E-06	8.2899E-05
Road 5	5	1500-1600	0.088870641	1.276E-06	1.72558E-05	0.0748184	1.074E-06	1.45273E-05	0.4508843	6.474E-06	8.7547E-05	0.377707	5.423E-06	7.33384E-05	0.4525255	6.497E-06	8.78657E-05
Road 5	5	1600-1700	0.083369145	1.318E-06	1.78169E-05	0.0690589	1.091E-06	1.47587E-05	0.4326329	6.837E-06	9.24584E-05	0.3561776	5.629E-06	7.61191E-05	0.4252365	6.72E-06	9.08777E-05
Road 5	5	1700-1800	0.061517002	9.745E-07	1.31781E-05	0.0516258	8.178E-07	1.10592E-05	0.3174495	5.029E-06	6.80036E-05	0.2639864	4.182E-06	5.65508E-05	0.3156122	5E-06	6.761E-05
Road 5	5	1800-1900	0.054791319	9.358E-07	1.26552E-05	0.0485639	8.295E-07	1.12168E-05	0.3069189	5.242E-06	7.08892E-05	0.269393	4.601E-06	6.22218E-05	0.3179569	5.431E-06	7.34386E-05
Road 5	5	1900-2000	0.064832393	8.238E-07	1.11403E-05	0.055621	7.067E-07	9.55745E-06	0.3598619	4.573E-06	6.18357E-05	0.3059495	3.888E-06	5.25719E-05	0.3615705	4.594E-06	6.21293E-05
Road 5	5	2000-2100	0.05996229	6.685E-07	9.04023E-06	0.0531734	5.928E-07	8.0167E-06	0.3263191	3.638E-06	4.91976E-05	0.2873429	3.203E-06	4.33213E-05	0.3405163	3.796E-06	5.1338E-05
Road 5	5	2100-2200	0.064799685	6.945E-07	9.39126E-06	0.0563468	6.039E-07	8.16621E-06	0.3645676	3.907E-06	5.28359E-05	0.3146915	3.373E-06	4.56075E-05	0.3710383	3.976E-06	5.37737E-05
Road 5	5	2200-2300	0.063899207	5.901E-07	7.9795E-06	0.054374	5.021E-07	6.79002E-06	0.3513789	3.245E-06	4.38789E-05	0.2960575	2.734E-06	3.69706E-05	0.3504315	3.236E-06	4.37606E-05
Road 5	5	2300-0000	0.054631049	4.594E-07	6.21201E-06	0.0476179	4.004E-07	5.41456E-06	0.311558	2.62E-06	3.54268E-05	0.268702	2.259E-06	3.05537E-05	0.31632	2.66E-06	3.59683E-05
Road 6	6	0000-0100	0.047579459	1.322E-07	4.72437E-06	0.0425172	1.181E-07	4.22172E-06	0.2961505	8.226E-07	2.94061E-05	0.2620834	7.28E-07	2.60234E-05	0.3046007	8.461E-07	3.02451E-05
Road 6	6	0100-0200	0.061650177	1.308E-07	4.67386E-06	0.0568739	1.206E-07	4.31175E-06	0.3407608	7.227E-07	2.58339E-05	0.3126808	6.632E-07	2.37051E-05	0.3695547	7.838E-07	2.80169E-05
Road 6	6	0200-0300	0.055960506	8.297E-08	2.966E-06	0.0518334	7.686E-08	2.74726E-06	0.3099619	4.596E-07	1.64285E-05	0.2853763	4.231E-07	1.51254E-05	0.3372097	5E-07	1.78727E-05
Road 6	6	0300-0400	0.057248548	6.662E-08	2.38133E-06	0.0522503	6.08E-08	2.17342E-06	0.3572166	4.157E-07	1.48589E-05	0.3242402	3.773E-07	1.34872E-05	0.3764905	4.381E-07	1.56606E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.061725333	1.043E-07	3.72708E-06	0.056512	9.546E-08	3.41229E-06	0.3531289	5.965E-07	2.13225E-05	0.3214868	5.431E-07	1.94119E-05	0.3779988	6.385E-07	2.28242E-05
Road 6	6	0500-0600	0.054486211	1.646E-07	5.88539E-06	0.0508871	1.538E-07	5.49662E-06	0.3195802	9.657E-07	3.45198E-05	0.2969255	8.972E-07	3.20727E-05	0.3478125	1.051E-06	3.75694E-05
Road 6	6	0600-0700	0.058659477	3.16E-07	1.12949E-05	0.0534315	2.878E-07	1.02883E-05	0.354186	1.908E-06	6.81987E-05	0.3204057	1.726E-06	6.16943E-05	0.3738372	2.014E-06	7.19825E-05
Road 6	6	0700-0800	0.056240175	4.813E-07	1.72058E-05	0.0519651	4.447E-07	1.58979E-05	0.3106692	2.659E-06	9.50442E-05	0.2851415	2.44E-06	8.72344E-05	0.3371067	2.885E-06	0.000103132
Road 6	6	0800-0900	0.050233914	6.166E-07	2.20413E-05	0.0443513	5.444E-07	1.94602E-05	0.2898083	3.557E-06	0.00012716	0.2531756	3.108E-06	0.000111087	0.2975269	3.652E-06	0.000130547
Road 6	6	0900-1000	0.052360939	6.172E-07	2.20612E-05	0.0464479	5.475E-07	1.95699E-05	0.2890575	3.407E-06	0.000121789	0.2539161	2.993E-06	0.000106982	0.300364	3.54E-06	0.000126552
Road 6	6	1000-1100	0.072828891	7.272E-07	2.59943E-05	0.0618675	6.177E-07	2.20819E-05	0.3942612	3.937E-06	0.000140721	0.3323865	3.319E-06	0.000118636	0.394254	3.937E-06	0.000140718
Road 6	6	1100-1200	0.082525152	8.178E-07	2.92336E-05	0.0717514	7.11E-07	2.54172E-05	0.4262787	4.224E-06	0.000151005	0.3684839	3.652E-06	0.000130531	0.4402353	4.363E-06	0.000155949
Road 6	6	1200-1300	0.081710988	7.913E-07	2.82874E-05	0.0693138	6.713E-07	2.39956E-05	0.4017529	3.891E-06	0.000139082	0.33918	3.285E-06	0.00011742	0.4084938	3.956E-06	0.000141416
Road 6	6	1300-1400	0.094682408	9.152E-07	3.27144E-05	0.0808014	7.81E-07	2.79183E-05	0.4742286	4.584E-06	0.000163854	0.4025604	3.891E-06	0.000139092	0.4833618	4.672E-06	0.00016701
Road 6	6	1400-1500	0.090935282	9.694E-07	3.46532E-05	0.0770862	8.218E-07	2.93757E-05	0.4523443	4.822E-06	0.000172377	0.381422	4.066E-06	0.000145351	0.4585082	4.888E-06	0.000174726
Road 6	6	1500-1600	0.079855135	8.318E-07	2.97343E-05	0.0671937	6.999E-07	2.50198E-05	0.4055497	4.224E-06	0.000151008	0.33907	3.532E-06	0.000126254	0.4062636	4.232E-06	0.000151274
Road 6	6	1600-1700	0.083512711	8.903E-07	3.18246E-05	0.0691848	7.376E-07	2.63646E-05	0.4058426	4.327E-06	0.000154657	0.3340964	3.562E-06	0.000127316	0.4032812	4.299E-06	0.000153681
Road 6	6	1700-1800	0.061659249	6.932E-07	2.47792E-05	0.0517616	5.819E-07	2.08016E-05	0.3080517	3.463E-06	0.000123798	0.2564077	2.883E-06	0.000103043	0.3081693	3.465E-06	0.000123845
Road 6	6	1800-1900	0.057558726	7.378E-07	2.63751E-05	0.0509709	6.534E-07	2.33564E-05	0.296068	3.795E-06	0.000135667	0.260211	3.336E-06	0.000119236	0.3111819	3.989E-06	0.000142593
Road 6	6	1900-2000	0.070013973	6.846E-07	2.44729E-05	0.0600276	5.87E-07	2.09822E-05	0.3600873	3.521E-06	0.000125866	0.3058315	2.991E-06	0.000106901	0.3658591	3.578E-06	0.000127883
Road 6	6	2000-2100	0.053655244	4.129E-07	1.47591E-05	0.0475308	3.658E-07	1.30744E-05	0.2984182	2.296E-06	8.20865E-05	0.2622057	2.018E-06	7.21254E-05	0.3097364	2.383E-06	8.51998E-05
Road 6	6	2100-2200	0.077584354	5.184E-07	1.85305E-05	0.0674769	4.509E-07	1.61164E-05	0.4005272	2.676E-06	9.56631E-05	0.3460922	2.312E-06	8.26617E-05	0.413569	2.763E-06	9.87781E-05
Road 6	6	2200-2300	0.059526207	4.212E-07	1.50561E-05	0.0506001	3.58E-07	1.27984E-05	0.3266086	2.311E-06	8.26098E-05	0.2735133	1.935E-06	6.91803E-05	0.3241135	2.293E-06	8.19787E-05
Road 6	6	2300-0000	0.038568503	2.563E-07	9.16007E-06	0.0336255	2.234E-07	7.98611E-06	0.2339337	1.554E-06	5.55595E-05	0.2013027	1.337E-06	4.78096E-05	0.2349282	1.561E-06	5.57957E-05
Road 7	7	0000-0100	0.068348429	1.826E-07	4.55798E-06	0.0610933	1.632E-07	4.07415E-06	0.4003056	1.069E-06	2.66953E-05	0.3557309	9.503E-07	2.37228E-05	0.4168242	1.114E-06	2.77969E-05
Road 7	7	0100-0200	0.082201228	1.707E-07	4.2603E-06	0.0750277	1.558E-07	3.88851E-06	0.4486576	9.315E-07	2.32529E-05	0.4080062	8.471E-07	2.1146E-05	0.4830339	1.003E-06	2.50345E-05
Road 7	7	0200-0300	0.070411809	9.609E-08	2.39883E-06	0.0647211	8.833E-08	2.20495E-06	0.3934598	5.37E-07	1.34046E-05	0.3601046	4.915E-07	1.22682E-05	0.4248257	5.798E-07	1.44732E-05
Road 7	7	0300-0400	0.071959329	7.94E-08	1.9821E-06	0.0655603	7.234E-08	1.80584E-06	0.4303173	4.748E-07	1.1853E-05	0.3905049	4.309E-07	1.07564E-05	0.4560651	5.032E-07	1.25622E-05
Road 7	7	0400-0500	0.07872283	1.269E-07	3.16701E-06	0.0724541	1.168E-07	2.91482E-06	0.4346709	7.005E-07	1.74868E-05	0.3986271	6.424E-07	1.60367E-05	0.4710812	7.592E-07	1.89515E-05
Road 7	7	0500-0600	0.070719099	2.012E-07	5.02364E-06	0.0660605	1.88E-07	4.69271E-06	0.3945461	1.123E-06	2.80272E-05	0.367223	1.045E-06	2.60862E-05	0.4332835	1.233E-06	3.0779E-05
Road 7	7	0600-0700	0.074744375	3.798E-07	9.48139E-06	0.0680983	3.46E-07	8.63833E-06	0.4254559	2.162E-06	5.39695E-05	0.3857458	1.96E-06	4.89322E-05	0.4538441	2.306E-06	5.75706E-05
Road 7	7	0700-0800	0.072865565	5.924E-07	1.47889E-05	0.0667426	5.426E-07	1.35462E-05	0.3914488	3.183E-06	7.9449E-05	0.3567865	2.901E-06	7.24139E-05	0.4235291	3.443E-06	8.59601E-05
Road 7	7	0800-0900	0.07578539	9.309E-07	2.32371E-05	0.0668409	8.21E-07	2.04945E-05	0.4107685	5.045E-06	0.000125949	0.3601677	4.424E-06	0.000110433	0.4270085	5.245E-06	0.000130928
Road 7	7	0900-1000	0.07738756	8.831E-07	2.20455E-05	0.0686799	7.837E-07	1.95649E-05	0.4035904	4.606E-06	0.000114971	0.3562328	4.065E-06	0.00010148	0.4249127	4.849E-06	0.000121045
Road 7	7	1000-1100	0.094775577	9.481E-07	2.36669E-05	0.0805566	8.058E-07	2.01162E-05	0.4984982	4.987E-06	0.000124483	0.4215587	4.217E-06	0.00010527	0.5021154	5.023E-06	0.000125386
Road 7	7	1100-1200	0.103456837	1.03E-06	2.57223E-05	0.0894294	8.907E-07	2.22346E-05	0.5340037	5.319E-06	0.000132768	0.4599605	4.581E-06	0.000114359	0.5493899	5.472E-06	0.000136594
Road 7	7	1200-1300	0.103669559	1.031E-06	2.57376E-05	0.0876134	8.713E-07	2.17514E-05	0.523036	5.202E-06	0.000129852	0.4408087	4.384E-06	0.000109438	0.5284221	5.255E-06	0.000131189
Road 7	7	1300-1400	0.111011945	1.088E-06	2.71581E-05	0.0939058	9.203E-07	2.29732E-05	0.5586344	5.475E-06	0.000136665	0.4708874	4.615E-06	0.000115198	0.5647932	5.535E-06	0.000138172
Road 7	7	1400-1500	0.104499751	1.074E-06	2.68148E-05	0.0879811	9.044E-07	2.25761E-05	0.5317556	5.466E-06	0.000136449	0.4460019	4.585E-06	0.000114445	0.533983	5.489E-06	0.000137021
Road 7	7	1500-1600	0.096371484	9.682E-07	2.41702E-05	0.0808595	8.124E-07	2.02798E-05	0.4940632	4.964E-06	0.000123912	0.4126898	4.146E-06	0.000103504	0.4935493	4.959E-06	0.000123783
Road 7	7	1600-1700	0.099682324	1.036E-06	2.58676E-05	0.0829666	8.625E-07	2.15299E-05	0.4928481	5.123E-06	0.000127894	0.4082982	4.244E-06	0.000105954	0.4912649	5.107E-06	0.000127484
Road 7	7	1700-1800	0.076332715	8.412E-07	2.0998E-05	0.0645161	7.109E-07	1.77474E-05	0.390915	4.308E-06	0.000107535	0.3282378	3.617E-06	9.02934E-05	0.3927539	4.328E-06	0.000108041
Road 7	7	1800-1900	0.067397679	7.711E-07	1.92485E-05	0.0595945	6.818E-07	1.70199E-05	0.3519894	4.027E-06	0.000100527	0.3094252	3.54E-06	8.83705E-05	0.3690197	4.222E-06	0.00010539
Road 7	7	1900-2000	0.080376541	6.967E-07	1.73912E-05	0.068973	5.978E-07	1.49238E-05	0.4214953	3.653E-06	9.11996E-05	0.3591427	3.113E-06	7.77082E-05	0.4281157	3.711E-06	9.2632E-05
Road 7	7	2000-2100	0.071143955	5.041E-07	1.2583E-05	0.063186	4.477E-07	1.11755E-05	0.3814766	2.703E-06	6.74704E-05	0.336848	2.387E-06	5.95771E-05	0.400034	2.834E-06	7.07526E-05
Road 7	7	2100-2200	0.084669259	5.04E-07	1.25816E-05	0.0741071	4.411E-07	1.10121E-05	0.4437007	2.641E-06	6.59325E-05	0.3863247	2.3E-06	5.74066E-05	0.4604318	2.741E-06	6.84187E-05
Road 7	7	2200-2300	0.072950525	4.681E-07	1.16863E-05	0.0622593	3.995E-07	9.9736E-06	0.395543	2.538E-06	6.33639E-05	0.3339947	2.143E-06	5.35042E-05	0.396254	2.543E-06	6.34778E-05
Road 7	7	2300-0000	0.048900393	2.89E-07	7.21327E-06	0.0427305	2.525E-07	6.30315E-06	0.287327	1.698E-06	4.23835E-05	0.248694	1.47E-06	3.66847E-05	0.2914245	1.722E-06	4.29879E-05
Road 8	8	0000-0100	0.206341667	1.501E-07	2.47379E-06	0.1843667	1.341E-07	2.21034E-06	1.0537136	7.663E-07	1.26328E-05	0.9409703	6.843E-07	1.12811E-05	1.1253369	8.184E-07	1.34915E-05
Road 8	8	0100-0200	0.213152667	1.292E-07	2.12954E-06	0.196547	1.191E-07	1.96364E-06	1.0843533	6.572E-07	1.08334E-05	0.99989	6.06E-07	9.98958E-06	1.196437	7.251E-07	1.19532E-05
Road 8	8	0200-0300	0.199296	6.039E-08	9.95551E-07	0.1845493	5.592E-08	9.21887E-07	1.0679493	3.236E-07	5.33477E-06	0.9885107	2.995E-07	4.93795E-06	1.17306	3.555E-07	5.85983E-06
Road 8	8	0300-0400	0.183607143	5.193E-08	8.56035E-07	0.1673529	4.733E-08	7.80252E-07	0.9594164	2.714E-07	4.4731E-06	0.8743814	2.473E-07	4.07664E-06	1.0417343	2.946E-07	4.8569E-06
Road 8	8	0400-0500	0.206262381	8.751E-08	1.44249E-06	0.18866	8.004E-08	1.31939E-06	1.0183162	4.32E-07	7.12157E-06	0.9315119	3.952E-07	6.51451E-06	1.1201719	4.752E-07	7.8339E-06
Road 8	8	0500-0600	0.192178529	1.32E-07	2.17599E-06	0.1794276	1.232E-07	2.03162E-06	0.9308224	6.394E-07	1.05395E-05	0.8688221	5.968E-07	9.83747E-06	1.0482497	7.2E-07	1.18691E-05
Road 8	8	0600-0700	0.216369032	2.71E-07	4.46746E-06	0.1970002	2.467E-07	4.06754E-06	1.0356389	1.297E-06	2.13833E-05	0.9423661	1.18E-06	1.94574E-05	1.1393663	1.427E-06	2.3525E-05
Road 8	8	0700-0800	0.220096238	4.491E-07	7.403E-06	0.203346	4.149E-07	6.8396E-06	1.0652922	2.174E-06	3.58314E-05	0.9838236	2.007E-06	3.30912E-05	1.1871696	2.422E-06	3.99308E-05
Road 8	8	0800-0900	0.254438684	9.766E-07	1.60994E-05	0.2246917	8.625E-07	1.42172E-05	1.2361836	4.745E-06	7.82187E-05	1.0910504	4.188E-06	6.90355E-05	1.3157422	5.05E-06	8.32527E-05
Road 8	8	0900-1000	0.27122707	8.603E-07	1.4181E-05	0.2403711	7.624E-07	1.25677E-05	1.2544548	3.979E-06	6.55886E-05	1.1116039	3.526E-06	5.81197E-05	1.351975	4.288E-06	7.06874E-05
Road 8	8	1000-1100	0.269859051	8.614E-07	1.41993E-05	0.2290925	7.312E-07	1.20543E-05	1.280442	4.087E-06	6.73738E-05	1.0860751	3.467E-06	5.71467E-05	1.3151676	4.198E-06	6.92009E-05
Road 8	8	1100-1200	0.275080692	8.836E-07	1.45657E-05	0.2386321	7.665E-07	1.26357E-05	1.3244371	4.254E-06	7.01298E-05	1.1487164	3.69E-06	6.08252E-05	1.3873484	4.456E-06	7.34609E-05
Road 8	8	1200-1300	0.283407219	9.676E-07	1.59504E-05	0.2397888	8.187E-07	1.34955E-05	1.3782748	4.706E-06	7.75705E-05	1.1658125	3.98E-06	6.56129E-05	1.4056014	4.799E-06	7.91084E-05
Road 8	8	1300-1400	0.257785375	8.332E-07	1.37357E-05	0.2196789	7.101E-07	1.17053E-05	1.2309634	3.979E-06	6.55902E-05	1.048424	3.389E-06	5.58638E-05	1.2681029	4.099E-06	6.75691E-05
Road 8	8	1400-1500	0.252699209	7.096E-07	1.16975E-05	0.2138919	6.006E-07	9.90109E-06	1.2638594	3.549E-06	5.85043E-05	1.0691306	3.002E-06	4.94902E-05	1.2830225	3.603E-06	5.93913E-05
Road 8	8	1500-1600	0.258785255	7.162E-07	1.18068E-05	0.2172937	6.014E-07	9.91383E-06	1.25921	3.485E-06	5.74503E-05	1.0564552	2.924E-06	4.81998E-05	1.2737489	3.525E-06	5.81137E-05
Road 8	8	1600-1700	0.259826781	7.664E-07	1.26331E-05	0.2148195	6.336E-07	1.04448E-05	1.2489473	3.684E-06	6.07255E-05	1.0318245	3.043E-06	5.01687E-05	1.246644	3.677E-06	6.06135E-05
Road 8	8	1700-1800	0.210028333	6.619E-07	1.09113E-05	0.1761058	5.55E-07	9.14897E-06	1.0538662	3.321E-06	5.475E-05	0.8821013	2.78E-06	4.58265E-05	1.0582071	3.335E-06	5.49755E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.200066822	4.325E-07	7.12907E-06	0.1773603	3.834E-07	6.31996E-06	1.0269048	2.22E-06	3.65921E-05	0.9095012	1.966E-06	3.24086E-05	1.0868615	2.349E-06	3.87286E-05
Road 8	8	1900-2000	0.204034935	3.174E-07	5.23202E-06	0.1750795	2.723E-07	4.48952E-06	1.07409	1.671E-06	2.75426E-05	0.921483	1.433E-06	2.36294E-05	1.0965625	1.706E-06	2.81189E-05
Road 8	8	2000-2100	0.215586974	3.31E-07	5.45645E-06	0.1910771	2.934E-07	4.83611E-06	1.0305275	1.582E-06	2.60824E-05	0.9127926	1.401E-06	2.31025E-05	1.1038697	1.695E-06	2.79386E-05
Road 8	8	2100-2200	0.183942264	1.969E-07	3.24662E-06	0.1601389	1.715E-07	2.82648E-06	0.9658643	1.034E-06	1.70477E-05	0.8394191	8.988E-07	1.48159E-05	0.9995579	1.07E-06	1.76424E-05
Road 8	8	2200-2300	0.2267425	2.932E-07	4.83267E-06	0.1929577	2.495E-07	4.11259E-06	1.1229908	1.452E-06	2.39348E-05	0.9546473	1.234E-06	2.03468E-05	1.147605	1.484E-06	2.44594E-05
Road 8	8	2300-0000	0.175789231	1.847E-07	3.04417E-06	0.1532983	1.61E-07	2.65469E-06	0.9046894	9.504E-07	1.56667E-05	0.7882406	8.281E-07	1.36501E-05	0.9415388	9.891E-07	1.63048E-05
Road 9	9	0000-0100	0.181963779	4.833E-08	1.44259E-06	0.1661775	4.413E-08	1.31744E-06	0.8271113	2.197E-07	6.55726E-06	0.7516998	1.996E-07	5.95941E-06	0.9178773	2.438E-07	7.27685E-06
Road 9	9	0100-0200	0.197759337	4.127E-08	1.23186E-06	0.1843136	3.846E-08	1.1481E-06	0.8490049	1.772E-07	5.28851E-06	0.7878821	1.644E-07	4.90778E-06	0.9721957	2.029E-07	6.05588E-06
Road 9	9	0200-0300	0.075641998	7.175E-09	2.14172E-07	0.0700353	6.643E-09	1.98298E-07	0.5417488	5.138E-08	1.53391E-06	0.5036505	4.777E-08	1.42603E-06	0.5736859	5.441E-08	1.62433E-06
Road 9	9	0300-0400	0.092527766	7.021E-09	2.09586E-07	0.0846721	6.425E-09	1.91792E-07	0.574613	4.36E-08	1.30157E-06	0.5269838	3.999E-08	1.19368E-06	0.611656	4.641E-08	1.38547E-06
Road 9	9	0400-0500	0.210294412	3.989E-08	1.19085E-06	0.1966825	3.731E-08	1.11377E-06	0.867728	1.646E-07	4.91376E-06	0.8085829	1.534E-07	4.57884E-06	1.0052653	1.907E-07	5.69261E-06
Road 9	9	0500-0600	0.149168875	4.81E-08	1.43601E-06	0.1413381	4.558E-08	1.36063E-06	0.7547066	2.434E-07	7.26537E-06	0.7166321	2.311E-07	6.89884E-06	0.8579702	2.767E-07	8.25946E-06
Road 9	9	0600-0700	0.177043865	1.075E-07	3.2082E-06	0.1650584	1.002E-07	2.99101E-06	0.9275043	5.63E-07	1.68072E-05	0.8667638	5.262E-07	1.57066E-05	1.0318222	6.263E-07	1.86976E-05
Road 9	9	0700-0800	0.15552097	1.416E-07	4.22728E-06	0.1465929	1.335E-07	3.9846E-06	0.8927581	8.129E-07	2.42664E-05	0.8440131	7.685E-07	2.29415E-05	0.9906061	9.02E-07	2.69261E-05
Road 9	9	0800-0900	0.24417756	5.327E-07	1.59014E-05	0.2212025	4.826E-07	1.44052E-05	1.1827183	2.58E-06	7.70211E-05	1.0673617	2.328E-06	6.95089E-05	1.2885642	2.811E-06	8.3914E-05
Road 9	9	0900-1000	0.251969861	4.111E-07	1.22709E-05	0.2308131	3.765E-07	1.12406E-05	1.1098305	1.811E-06	5.40488E-05	1.0134267	1.653E-06	4.93539E-05	1.2442398	2.03E-06	6.05945E-05
Road 9	9	1000-1100	0.269162101	3.625E-07	1.08219E-05	0.2347482	3.162E-07	9.43825E-06	1.162393	1.566E-06	4.6735E-05	1.0110186	1.362E-06	4.06488E-05	1.2457668	1.678E-06	5.00871E-05
Road 9	9	1100-1200	0.18608668	2.612E-07	7.7979E-06	0.1627011	2.284E-07	6.81794E-06	1.0008559	1.405E-06	4.19405E-05	0.8855037	1.243E-06	3.71067E-05	1.0482048	1.471E-06	4.39247E-05
Road 9	9	1200-1300	0.283582953	3.927E-07	1.17229E-05	0.250508	3.469E-07	1.03556E-05	1.3115155	1.816E-06	5.42159E-05	1.161112	1.608E-06	4.79985E-05	1.41162	1.955E-06	5.83541E-05
Road 9	9	1300-1400	0.318918025	3.63E-07	1.08358E-05	0.2818554	3.208E-07	9.57653E-06	1.2297383	1.4E-06	4.17825E-05	1.0796739	1.229E-06	3.66838E-05	1.3615293	1.55E-06	4.62604E-05
Road 9	9	1400-1500	0.207702066	2.679E-07	7.99798E-06	0.1844669	2.38E-07	7.10327E-06	1.0279981	1.326E-06	3.95851E-05	0.906961	1.17E-06	3.49243E-05	1.091428	1.408E-06	4.20276E-05
Road 9	9	1500-1600	0.172796866	1.868E-07	5.57752E-06	0.1509082	1.632E-07	4.871E-06	0.9140362	9.883E-07	2.95032E-05	0.8029846	8.682E-07	2.59187E-05	0.9538929	1.031E-06	3.07897E-05
Road 9	9	1600-1700	0.17955192	2.691E-07	8.03245E-06	0.1585631	2.376E-07	7.09349E-06	1.0219313	1.531E-06	4.57172E-05	0.9019388	1.352E-06	4.03492E-05	1.060502	1.589E-06	4.74427E-05
Road 9	9	1700-1800	0.156057335	2.013E-07	6.0093E-06	0.1406376	1.814E-07	5.41553E-06	0.9728736	1.255E-06	3.74624E-05	0.8851174	1.142E-06	3.40832E-05	1.025755	1.323E-06	3.94987E-05
Road 9	9	1800-1900	0.150335205	1.255E-07	3.7458E-06	0.1402538	1.171E-07	3.4946E-06	0.9264904	7.733E-07	2.30847E-05	0.8708205	7.268E-07	2.16976E-05	1.0110743	8.439E-07	2.51922E-05
Road 9	9	1900-2000	0.157989899	1.289E-07	3.84706E-06	0.1435623	1.171E-07	3.49574E-06	0.8518412	6.948E-07	2.07423E-05	0.7742695	6.316E-07	1.88535E-05	0.9178318	7.487E-07	2.23492E-05
Road 9	9	2000-2100	0.162065028	8.916E-08	2.66145E-06	0.1478408	8.133E-08	2.42786E-06	0.728668	4.009E-07	1.19663E-05	0.671524	3.694E-07	1.10278E-05	0.8193649	4.508E-07	1.34557E-05
Road 9	9	2100-2200	0.021835346	1.118E-08	3.33852E-07	0.0200023	1.024E-08	3.05826E-07	0.3001711	1.537E-07	4.58948E-06	0.2720701	1.393E-07	4.15983E-06	0.2920724	1.496E-07	4.46565E-06
Road 9	9	2200-2300	0.162902389	1.02E-07	3.04419E-06	0.143418	8.978E-08	2.68008E-06	0.7989474	5.001E-07	1.49301E-05	0.7034546	4.404E-07	1.31456E-05	0.8468726	5.301E-07	1.58257E-05
Road 9	9	2300-0000	0.129249079	7.355E-08	2.19573E-06	0.1170731	6.663E-08	1.98888E-06	0.667359	3.798E-07	1.13373E-05	0.6033604	3.434E-07	1.02501E-05	0.7204335	4.1E-07	1.2239E-05
Road 10	10	0000-0100	0.25115074	1.931E-07	4.29349E-06	0.2256679	1.735E-07	3.85786E-06	1.2844172	9.875E-07	2.19575E-05	1.154909	8.88E-07	1.97435E-05	1.3805768	1.061E-06	2.36013E-05
Road 10	10	0100-0200	0.246208751	1.43E-07	3.18014E-06	0.2282366	1.326E-07	2.948E-06	1.2480828	7.25E-07	1.61208E-05	1.1572765	6.723E-07	1.49479E-05	1.3855131	8.049E-07	1.78959E-05
Road 10	10	0200-0300	0.240466011	7.806E-08	1.73569E-06	0.2226589	7.228E-08	1.60715E-06	1.2052059	3.912E-07	8.69919E-06	1.1168974	3.626E-07	8.06177E-06	1.3395563	4.349E-07	9.66893E-06
Road 10	10	0300-0400	0.220340959	4.518E-08	1.00448E-06	0.2008271	4.118E-08	9.15519E-07	1.1916808	2.443E-07	5.43257E-06	1.0874538	2.23E-07	4.95742E-06	1.288281	2.641E-07	5.87294E-06
Road 10	10	0400-0500	0.258861318	1.017E-07	2.26182E-06	0.2383867	9.368E-08	2.08293E-06	1.2412493	4.878E-07	1.08455E-05	1.140702	4.483E-07	9.96698E-06	1.3790887	5.419E-07	1.20499E-05
Road 10	10	0500-0600	0.231943813	1.625E-07	3.61269E-06	0.2180658	1.528E-07	3.39653E-06	1.1172334	7.826E-07	1.74017E-05	1.0499374	7.355E-07	1.63535E-05	1.2680032	8.883E-07	1.975E-05
Road 10	10	0600-0700	0.285486112	4E-07	8.89329E-06	0.2637901	3.696E-07	8.21743E-06	1.4301419	2.004E-06	4.45509E-05	1.3251848	1.857E-06	4.12814E-05	1.5889749	2.226E-06	4.94988E-05
Road 10	10	0700-0800	0.285552339	6.294E-07	1.39939E-05	0.2666601	5.877E-07	1.30681E-05	1.4412382	3.177E-06	7.063E-05	1.3486868	2.973E-06	6.60944E-05	1.6153469	3.56E-06	7.91625E-05
Road 10	10	0800-0900	0.314177578	1.326E-06	2.94806E-05	0.278945	1.177E-06	2.61746E-05	1.5544325	6.56E-06	0.000145859	1.3812048	5.829E-06	0.000129604	1.6601498	7.006E-06	0.000155779
Road 10	10	0900-1000	0.352338233	1.18E-06	2.62349E-05	0.3172145	1.062E-06	2.36196E-05	1.70259	5.702E-06	0.000126774	1.5340277	5.137E-06	0.000114223	1.8512422	6.199E-06	0.000137842
Road 10	10	1000-1100	0.361278157	1.315E-06	2.92338E-05	0.311535	1.134E-06	2.52087E-05	1.6331374	5.943E-06	0.00013215	1.4043697	5.111E-06	0.000113638	1.7159047	6.245E-06	0.000138847
Road 10	10	1100-1200	0.348540797	1.268E-06	2.82031E-05	0.304892	1.11E-06	2.46712E-05	1.6365489	5.956E-06	0.000132426	1.4305653	5.206E-06	0.000115758	1.7354573	6.316E-06	0.000140429
Road 10	10	1200-1300	0.370917927	1.394E-06	3.10002E-05	0.3193366	1.2E-06	2.66892E-05	1.7678988	6.645E-06	0.000147756	1.5238733	5.728E-06	0.000127361	1.8432098	6.928E-06	0.00015405
Road 10	10	1300-1400	0.359651383	1.18E-06	2.62329E-05	0.3121001	1.024E-06	2.27645E-05	1.672685	5.487E-06	0.000122005	1.4496184	4.755E-06	0.000105735	1.7617184	5.779E-06	0.0001285
Road 10	10	1400-1500	0.33629317	1.034E-06	2.29961E-05	0.2915347	8.966E-07	1.99355E-05	1.6833351	5.177E-06	0.000115108	1.4609038	4.493E-06	9.98982E-05	1.7524385	5.389E-06	0.000119834
Road 10	10	1500-1600	0.332811238	1.046E-06	2.32637E-05	0.283768	8.921E-07	1.98356E-05	1.6045294	5.044E-06	0.000112158	1.3697935	4.306E-06	9.57495E-05	1.6535615	5.198E-06	0.000115585
Road 10	10	1600-1700	0.319175029	1.118E-06	2.48569E-05	0.2704527	9.473E-07	2.10625E-05	1.5602156	5.465E-06	0.000121507	1.3199978	4.623E-06	0.000102799	1.5904506	5.571E-06	0.000123862
Road 10	10	1700-1800	0.293991102	9.644E-07	2.14437E-05	0.2535171	8.317E-07	1.84915E-05	1.5304916	5.021E-06	0.000111634	1.3288104	4.359E-06	9.69233E-05	1.5823275	5.191E-06	0.000115415
Road 10	10	1800-1900	0.284845807	5.889E-07	1.30936E-05	0.2562183	5.297E-07	1.17777E-05	1.4415373	2.98E-06	6.62636E-05	1.2998175	2.687E-06	5.97491E-05	1.5560358	3.217E-06	7.15268E-05
Road 10	10	1900-2000	0.254055982	4.731E-07	1.05201E-05	0.2229813	4.153E-07	9.23334E-06	1.3475636	2.51E-06	5.58007E-05	1.1884115	2.213E-06	4.92104E-05	1.4113928	2.628E-06	5.84438E-05
Road 10	10	2000-2100	0.282077395	3.47E-07	7.71551E-06	0.2515287	3.094E-07	6.87993E-06	1.364549	1.679E-06	3.73238E-05	1.2169105	1.497E-06	3.32855E-05	1.4684392	1.806E-06	4.01654E-05
Road 10	10	2100-2200	0.246442288	3.032E-07	6.7408E-06	0.2220785	2.732E-07	6.07439E-06	1.3787591	1.696E-06	3.77124E-05	1.2487505	1.536E-06	3.41564E-05	1.4708291	1.809E-06	4.02308E-05
Road 10	10	2200-2300	0.262840139	3.368E-07	7.48888E-06	0.2283248	2.926E-07	6.50546E-06	1.3518556	1.732E-06	3.85173E-05	1.180512	1.513E-06	3.36353E-05	1.4088368	1.805E-06	4.01408E-05
Road 10	10	2300-0000	0.232496392	2.781E-07	6.1827E-06	0.2045206	2.446E-07	5.43875E-06	1.1749514	1.405E-06	3.12451E-05	1.0335472	1.236E-06	2.74848E-05	1.2380678	1.481E-06	3.29235E-05
Road 11	11	0000-0100	0.280977796	2.146E-07	1.78042E-06	0.2521655	1.926E-07	1.59785E-06	1.4071537	1.075E-06	8.91646E-06	1.2610497	9.633E-07	7.99067E-06	1.5132152	1.156E-06	9.58852E-06
Road 11	11	0100-0200	0.28021351	1.508E-07	1.25098E-06	0.2594934	1.397E-07	1.15847E-06	1.3784621	7.419E-07	6.15396E-06	1.274454	6.859E-07	5.68963E-06	1.5339474	8.256E-07	6.8481E-06
Road 11	11	0200-0300	0.240467333	6.262E-08	5.19452E-07	0.2226671	5.799E-08	4.81E-07	1.2840896	3.344E-07	2.77386E-06	1.1899844	3.099E-07	2.57058E-06	1.4126514	3.679E-07	3.05158E-06
Road 11	11	0300-0400	0.259535603	6.308E-08	5.23267E-07	0.2364706	5.748E-08	4.76764E-07	1.3592483	3.304E-07	2.74047E-06	1.2390025	3.011E-07	2.49803E-06	1.4754731	3.586E-07	2.9748E-06
Road 11	11	0400-0500	0.268004016	9.306E-08	7.71915E-07	0.2469362	8.574E-08	7.11235E-07	1.2685514	4.405E-07	3.65373E-06	1.1661964	4.049E-07	3.35892E-06	1.4131327	4.907E-07	4.07016E-06
Road 11	11	0500-0600	0.211743456	9.925E-08	8.23326E-07	0.1989543	9.326E-08	7.73598E-07	1.0792918	5.059E-07	4.19663E-06	1.0150908	4.758E-07	3.947E-06	1.214045	5.691E-07	4.72059E-06
Road 11	11	0600-0700	0.232452584	2.099E-07	1.74075E-06	0.2139143	1.931E-07	1.60192E-06	1.2039485	1.087E-06	9.01591E-06	1.1094073	1.002E-06	8.30792E-06	1.3233216	1.195E-06	9.90985E-06
Road 11	11	0700-0800	0.275216284	5.16E-07	4.28052E-06	0.2558006	4.796E-07	3.97854E-06	1.4344149	2.69E-06	2.23099E-05	1.335035	2.503E-06	2.07642E-05	1.5908356	2.983E-06	2.47427E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.31248889	1.112E-06	9.22543E-06	0.278962	9.928E-07	8.23564E-06	1.5390969	5.478E-06	4.54379E-05	1.3717584	4.882E-06	4.04976E-05	1.6507204	5.875E-06	4.87333E-05
Road 11	11	0900-1000	0.315628773	8E-07	6.63632E-06	0.2839607	7.198E-07	5.97048E-06	1.4902232	3.777E-06	3.1333E-05	1.3374755	3.39E-06	2.81214E-05	1.6214362	4.11E-06	3.40919E-05
Road 11	11	1000-1100	0.335989799	6.941E-07	5.75799E-06	0.2887431	5.965E-07	4.94831E-06	1.5661055	3.236E-06	2.6839E-05	1.3429732	2.775E-06	2.30151E-05	1.6317163	3.371E-06	2.79634E-05
Road 11	11	1100-1200	0.293705428	6.833E-07	5.66781E-06	0.255729	5.949E-07	4.93495E-06	1.5087897	3.51E-06	2.9116E-05	1.3195306	3.07E-06	2.54638E-05	1.5752596	3.665E-06	3.03987E-05
Road 11	11	1200-1300	0.36559397	1.035E-06	8.58193E-06	0.3141135	8.889E-07	7.37348E-06	1.774196	5.021E-06	4.16473E-05	1.5245661	4.314E-06	3.57876E-05	1.8386796	5.203E-06	4.3161E-05
Road 11	11	1300-1400	0.378496986	7.885E-07	6.54097E-06	0.3281047	6.836E-07	5.67012E-06	1.7044459	3.551E-06	2.94552E-05	1.4701085	3.063E-06	2.54056E-05	1.7982133	3.746E-06	3.10757E-05
Road 11	11	1400-1500	0.301196649	6.066E-07	5.0316E-06	0.2602416	5.241E-07	4.34743E-06	1.5028524	3.027E-06	2.51057E-05	1.2946249	2.607E-06	2.16272E-05	1.5548665	3.131E-06	2.59746E-05
Road 11	11	1500-1600	0.268602471	5.456E-07	4.52579E-06	0.2283838	4.639E-07	3.84813E-06	1.390949	2.825E-06	2.34366E-05	1.1852381	2.408E-06	1.99705E-05	1.4136219	2.871E-06	2.38187E-05
Road 11	11	1600-1700	0.256975204	6.201E-07	5.14404E-06	0.217866	5.258E-07	4.36116E-06	1.3753574	3.319E-06	2.75314E-05	1.1674461	2.817E-06	2.33695E-05	1.3853121	3.343E-06	2.77307E-05
Road 11	11	1700-1800	0.255254102	6.293E-07	5.21986E-06	0.2184383	5.385E-07	4.46699E-06	1.3926555	3.433E-06	2.84794E-05	1.1993739	2.957E-06	2.45268E-05	1.4178123	3.495E-06	2.89938E-05
Road 11	11	1800-1900	0.261582273	5.359E-07	4.44517E-06	0.234385	4.802E-07	3.983E-06	1.4004149	2.869E-06	2.37978E-05	1.2594657	2.58E-06	2.14026E-05	1.4938508	3.06E-06	2.53856E-05
Road 11	11	1900-2000	0.255873049	4.042E-07	3.35324E-06	0.2232076	3.526E-07	2.92515E-06	1.3317779	2.104E-06	1.74531E-05	1.1626659	1.837E-06	1.52368E-05	1.3858735	2.189E-06	1.8162E-05
Road 11	11	2000-2100	0.254092132	3.573E-07	2.96397E-06	0.2267153	3.188E-07	2.64462E-06	1.2692823	1.785E-06	1.48061E-05	1.1345576	1.595E-06	1.32346E-05	1.361273	1.914E-06	1.58792E-05
Road 11	11	2100-2200	0.190243606	1.883E-07	1.56165E-06	0.1659881	1.643E-07	1.36254E-06	1.0648699	1.054E-06	8.74117E-06	0.9314153	9.217E-07	7.64568E-06	1.0974034	1.086E-06	9.00823E-06
Road 11	11	2200-2300	0.252047421	2.757E-07	2.28676E-06	0.216738	2.371E-07	1.96641E-06	1.2732038	1.393E-06	1.15515E-05	1.0947191	1.197E-06	9.93211E-06	1.3114571	1.434E-06	1.18985E-05
Road 11	11	2300-0000	0.233409539	2.431E-07	2.01682E-06	0.2055161	2.141E-07	1.7758E-06	1.1990995	1.249E-06	1.03611E-05	1.0552395	1.099E-06	9.11802E-06	1.2607556	1.313E-06	1.08938E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.15676	2.174E-06	3.27035E-06	1.06839	2.008E-06	3.02051E-06	5.31586	9.992E-06	1.50288E-05	4.90952	9.228E-06	1.388E-05	5.97791	1.124E-05	1.69005E-05
Haul Road 1	HR1	0800-0900	1.21543	2.285E-06	3.43622E-06	1.07219	2.015E-06	3.03125E-06	5.58537	1.05E-05	1.57907E-05	4.92711	9.261E-06	1.39297E-05	5.9993	1.128E-05	1.6961E-05
Haul Road 1	HR1	0900-1000	1.21773	2.289E-06	3.44272E-06	1.07849	2.027E-06	3.04906E-06	5.59576	1.052E-05	1.58201E-05	4.9561	9.316E-06	1.40117E-05	6.03459	1.134E-05	1.70608E-05
Haul Road 1	HR1	1000-1100	1.26552	2.379E-06	3.57783E-06	1.07329	2.017E-06	3.03436E-06	5.81537	1.093E-05	1.6441E-05	4.93201	9.271E-06	1.39436E-05	6.0053	1.129E-05	1.69779E-05
Haul Road 1	HR1	1100-1200	1.26242	2.373E-06	3.56906E-06	1.09468	2.058E-06	3.09484E-06	5.80118	1.09E-05	1.64009E-05	5.03027	9.455E-06	1.42214E-05	6.12495	1.151E-05	1.73162E-05
Haul Road 1	HR1	1200-1300	1.28611	2.418E-06	3.63604E-06	1.08748	2.044E-06	3.07448E-06	5.91033	1.111E-05	1.67095E-05	4.99759	9.394E-06	1.4129E-05	6.08507	1.144E-05	1.72035E-05
Haul Road 1	HR1	1300-1400	1.27741	2.401E-06	3.61144E-06	1.08748	2.044E-06	3.07448E-06	5.87035	1.103E-05	1.65964E-05	4.99759	9.394E-06	1.4129E-05	6.08507	1.144E-05	1.72035E-05
Haul Road 1	HR1	1400-1500	1.28611	2.418E-06	3.63604E-06	1.08748	2.044E-06	3.07448E-06	5.91033	1.111E-05	1.67095E-05	4.99759	9.394E-06	1.4129E-05	6.08507	1.144E-05	1.72035E-05
Haul Road 1	HR1	1500-1600	1.27891	2.404E-06	3.61568E-06	1.07329	2.017E-06	3.03436E-06	5.87725	1.105E-05	1.66159E-05	4.93201	9.271E-06	1.39436E-05	6.0053	1.129E-05	1.69779E-05
Haul Road 1	HR1	1600-1700	1.27361	2.394E-06	3.6007E-06	1.0519	1.977E-06	2.97389E-06	5.85296	1.1E-05	1.65473E-05	4.83375	9.086E-06	1.36658E-05	5.88565	1.106E-05	1.66397E-05
Haul Road 1	HR1	1700-1800	1.26302	2.374E-06	3.57076E-06	1.05829	1.989E-06	2.99196E-06	5.80427	1.091E-05	1.64096E-05	4.86344	9.142E-06	1.37497E-05	5.92173	1.113E-05	1.67417E-05
Haul Road 1	HR1	1800-1900	1.19614	2.248E-06	3.38168E-06	1.05949	1.992E-06	2.99535E-06	5.4968	1.033E-05	1.55403E-05	4.86884	9.152E-06	1.3765E-05	5.92833	1.114E-05	1.67603E-05
Haul Road 1	HR1	1900-2000	1.22073	2.295E-06	3.4512E-06	1.0468	1.968E-06	2.95947E-06	5.60965	1.054E-05	1.58594E-05	4.81056	9.042E-06	1.36002E-05	5.85736	1.101E-05	1.65597E-05
Haul Road 1	HR1	2000-2100	1.17365	2.206E-06	3.3181E-06	1.0405	1.956E-06	2.94166E-06	5.39344	1.014E-05	1.52481E-05	4.78147	8.988E-06	1.3518E-05	5.82197	1.094E-05	1.64596E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.15676	1.498E-06	3.98858E-06	1.06839	1.384E-06	3.68387E-06	5.31586	6.886E-06	1.83294E-05	4.90952	6.359E-06	1.69283E-05	5.97791	7.743E-06	2.06122E-05
Haul Road 2	HR2	0800-0900	1.21543	1.574E-06	4.19088E-06	1.07219	1.389E-06	3.69698E-06	5.58537	7.235E-06	1.92587E-05	4.92711	6.382E-06	1.6989E-05	5.9993	7.771E-06	2.06859E-05
Haul Road 2	HR2	0900-1000	1.21773	1.577E-06	4.19881E-06	1.07849	1.397E-06	3.7187E-06	5.59576	7.248E-06	1.92945E-05	4.9561	6.42E-06	1.70889E-05	6.03459	7.817E-06	2.08076E-05
Haul Road 2	HR2	1000-1100	1.26552	1.639E-06	4.36359E-06	1.07329	1.39E-06	3.70077E-06	5.81537	7.533E-06	2.00517E-05	4.93201	6.389E-06	1.70059E-05	6.0053	7.779E-06	2.07066E-05
Haul Road 2	HR2	1100-1200	1.26242	1.635E-06	4.3529E-06	1.09468	1.418E-06	3.77452E-06	5.80118	7.514E-06	2.00028E-05	5.03027	6.516E-06	1.73447E-05	6.12495	7.934E-06	2.11192E-05
Haul Road 2	HR2	1200-1300	1.28611	1.666E-06	4.43458E-06	1.08748	1.409E-06	3.7497E-06	5.91033	7.656E-06	2.03792E-05	4.99759	6.474E-06	1.7232E-05	6.08507	7.882E-06	2.09817E-05
Haul Road 2	HR2	1300-1400	1.27741	1.655E-06	4.40459E-06	1.08748	1.409E-06	3.7497E-06	5.87035	7.604E-06	2.02413E-05	4.99759	6.474E-06	1.7232E-05	6.08507	7.882E-06	2.09817E-05
Haul Road 2	HR2	1400-1500	1.28611	1.666E-06	4.43458E-06	1.08748	1.409E-06	3.7497E-06	5.91033	7.656E-06	2.03792E-05	4.99759	6.474E-06	1.7232E-05	6.08507	7.882E-06	2.09817E-05
Haul Road 2	HR2	1500-1600	1.27891	1.657E-06	4.40976E-06	1.07329	1.39E-06	3.70077E-06	5.87725	7.613E-06	2.02651E-05	4.93201	6.389E-06	1.70059E-05	6.0053	7.779E-06	2.07066E-05
Haul Road 2	HR2	1600-1700	1.27361	1.65E-06	4.39148E-06	1.0519	1.363E-06	3.62701E-06	5.85296	7.582E-06	2.01814E-05	4.83375	6.261E-06	1.66671E-05	5.88565	7.624E-06	2.02941E-05
Haul Road 2	HR2	1700-1800	1.26302	1.636E-06	4.35497E-06	1.05829	1.371E-06	3.64905E-06	5.80427	7.518E-06	2.00135E-05	4.86344	6.3E-06	1.67694E-05	5.92173	7.671E-06	2.04185E-05
Haul Road 2	HR2	1800-1900	1.19614	1.549E-06	4.12436E-06	1.05949	1.372E-06	3.65319E-06	5.4968	7.12E-06	1.89533E-05	4.86884	6.307E-06	1.67881E-05	5.92833	7.679E-06	2.04412E-05
Haul Road 2	HR2	1900-2000	1.22073	1.581E-06	4.20915E-06	1.0468	1.356E-06	3.60943E-06	5.60965	7.266E-06	1.93424E-05	4.81056	6.231E-06	1.65871E-05	5.85736	7.587E-06	2.01965E-05
Haul Road 2	HR2	2000-2100	1.17365	1.52E-06	4.04682E-06	1.0405	1.348E-06	3.58771E-06	5.39344	6.986E-06	1.85969E-05	4.78147	6.194E-06	1.64868E-05	5.82197	7.541E-06	2.00745E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (August) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.15676	1.498E-06	3.98302E-06	1.06839	1.384E-06	3.67874E-06	5.31586	6.886E-06	1.83039E-05	4.90952	6.359E-06	1.69047E-05	5.97791	7.743E-06	2.05835E-05
Haul Road 3	HR3	0800-0900	1.21543	1.574E-06	4.18503E-06	1.07219	1.389E-06	3.69182E-06	5.58537	7.235E-06	1.92318E-05	4.92711	6.382E-06	1.69653E-05	5.9993	7.771E-06	2.06571E-05
Haul Road 3	HR3	0900-1000	1.21773	1.577E-06	4.19295E-06	1.07849	1.397E-06	3.71351E-06	5.59576	7.248E-06	1.92676E-05	4.9561	6.42E-06	1.70651E-05	6.03459	7.817E-06	2.07786E-05
Haul Road 3	HR3	1000-1100	1.26552	1.639E-06	4.35751E-06	1.07329	1.39E-06	3.69561E-06	5.81537	7.533E-06	2.00238E-05	4.93201	6.389E-06	1.69822E-05	6.0053	7.779E-06	2.06778E-05
Haul Road 3	HR3	1100-1200	1.26242	1.635E-06	4.34683E-06	1.09468	1.418E-06	3.76926E-06	5.80118	7.514E-06	1.99749E-05	5.03027	6.516E-06	1.73205E-05	6.12495	7.934E-06	2.10898E-05
Haul Road 3	HR3	1200-1300	1.28611	1.666E-06	4.4284E-06	1.08748	1.409E-06	3.74447E-06	5.91033	7.656E-06	2.03508E-05	4.99759	6.474E-06	1.7208E-05	6.08507	7.882E-06	2.09524E-05
Haul Road 3	HR3	1300-1400	1.27741	1.655E-06	4.39845E-06	1.08748	1.409E-06	3.74447E-06	5.87035	7.604E-06	2.02131E-05	4.99759	6.474E-06	1.7208E-05	6.08507	7.882E-06	2.09524E-05
Haul Road 3	HR3	1400-1500	1.28611	1.666E-06	4.4284E-06	1.08748	1.409E-06	3.74447E-06	5.91033	7.656E-06	2.03508E-05	4.99759	6.474E-06	1.7208E-05	6.08507	7.882E-06	2.09524E-05
Haul Road 3	HR3	1500-1600	1.27891	1.657E-06	4.40361E-06	1.07329	1.39E-06	3.69561E-06	5.87725	7.613E-06	2.02369E-05	4.93201	6.389E-06	1.69822E-05	6.0053	7.779E-06	2.06778E-05
Haul Road 3	HR3	1600-1700	1.27361	1.65E-06	4.38536E-06	1.0519	1.363E-06	3.62196E-06	5.85296	7.582E-06	2.01532E-05	4.83375	6.261E-06	1.66438E-05	5.88565	7.624E-06	2.02658E-05
Haul Road 3	HR3	1700-1800	1.26302	1.636E-06	4.3489E-06	1.05829	1.371E-06	3.64396E-06	5.80427	7.518E-06	1.99856E-05	4.86344	6.3E-06	1.67461E-05	5.92173	7.671E-06	2.039E-05
Haul Road 3	HR3	1800-1900	1.19614	1.549E-06	4.11861E-06	1.05949	1.372E-06	3.64809E-06	5.4968	7.12E-06	1.89269E-05	4.86884	6.307E-06	1.67646E-05	5.92833	7.679E-06	2.04127E-05
Haul Road 3	HR3	1900-2000	1.22073	1.581E-06	4.20328E-06	1.0468	1.356E-06	3.6044E-06	5.60965	7.266E-06	1.93154E-05	4.81056	6.231E-06	1.6564E-05	5.85736	7.587E-06	2.01684E-05
Haul Road 3	HR3	2000-2100	1.17365	1.52E-06	4.04117E-06	1.0405	1.348E-06	3.5827E-06	5.39344	6.986E-06	1.8571E-05	4.78147	6.194E-06	1.64638E-05	5.82197	7.541E-06	2.00465E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.10325322	3.43E-07	2.79047E-06	0.0860684	2.859E-07	2.32604E-06	0.60877	2.022E-06	1.64523E-05	0.5043067	1.675E-06	1.36292E-05	0.590375	1.961E-06	1.59552E-05
Road 1	1	0100-0200	0.079315556	1.608E-07	1.30793E-06	0.0678787	1.376E-07	1.11933E-06	0.4782373	9.694E-07	7.88621E-06	0.4071349	8.253E-07	6.71372E-06	0.4750136	9.629E-07	7.83305E-06
Road 1	1	0200-0300	0.074996494	1.084E-07	8.81725E-07	0.0641869	9.276E-08	7.54637E-07	0.4768203	6.891E-07	5.60592E-06	0.4043705	5.844E-07	4.75413E-06	0.4685574	6.772E-07	5.50877E-06
Road 1	1	0300-0400	0.065067636	6.717E-08	5.46423E-07	0.0544607	5.622E-08	4.57349E-07	0.3949836	4.077E-07	3.31698E-06	0.3275415	3.381E-07	2.75062E-06	0.3820022	3.943E-07	3.20797E-06
Road 1	1	0400-0500	0.085198706	1.359E-07	1.10574E-06	0.0711865	1.136E-07	9.23884E-07	0.4853174	7.742E-07	6.29863E-06	0.4030644	6.43E-07	5.23112E-06	0.4742508	7.566E-07	6.155E-06
Road 1	1	0500-0600	0.06848492	2.404E-07	1.95541E-06	0.0573351	2.012E-07	1.63706E-06	0.4027733	1.414E-06	1.15001E-05	0.3340926	1.173E-06	9.53915E-06	0.3914276	1.374E-06	1.11762E-05
Road 1	1	0600-0700	0.092202169	5.745E-07	4.67391E-06	0.0781333	4.869E-07	3.96073E-06	0.4933595	3.074E-06	2.50094E-05	0.4155533	2.589E-06	2.10652E-05	0.4936866	3.076E-06	2.5026E-05
Road 1	1	0700-0800	0.077617156	8.143E-07	6.62477E-06	0.0663399	6.96E-07	5.66223E-06	0.4273674	4.484E-06	3.64766E-05	0.3624003	3.802E-06	3.09315E-05	0.4287402	4.498E-06	3.65938E-05
Road 1	1	0800-0900	0.084180964	1.082E-06	8.80452E-06	0.0720837	9.268E-07	7.53926E-06	0.4478928	5.758E-06	4.68453E-05	0.3814737	4.904E-06	3.98985E-05	0.4535574	5.831E-06	4.74377E-05
Road 1	1	0900-1000	0.088421216	1.173E-06	9.54503E-06	0.0758732	1.007E-06	8.19047E-06	0.4955236	6.575E-06	5.34915E-05	0.4232915	5.617E-06	4.56941E-05	0.4991646	6.624E-06	5.38846E-05
Road 1	1	1000-1100	0.103498981	1.335E-06	1.08566E-05	0.0878356	1.133E-06	9.21358E-06	0.5565961	7.177E-06	5.83846E-05	0.4707987	6.071E-06	4.93848E-05	0.5586343	7.203E-06	5.85984E-05
Road 1	1	1100-1200	0.093545352	1.171E-06	9.52685E-06	0.0796191	9.967E-07	8.10857E-06	0.537967	6.735E-06	5.47877E-05	0.4563233	5.713E-06	4.64729E-05	0.5359423	6.709E-06	5.45815E-05
Road 1	1	1200-1300	0.094239818	1.167E-06	9.49685E-06	0.0821858	1.018E-06	8.28213E-06	0.5383624	6.669E-06	5.42525E-05	0.4678053	5.795E-06	4.71422E-05	0.5499911	6.813E-06	5.54244E-05
Road 1	1	1300-1400	0.098535185	1.298E-06	1.05616E-05	0.0859462	1.132E-06	9.21224E-06	0.5505912	7.254E-06	5.90157E-05	0.4786311	6.306E-06	5.13026E-05	0.5645773	7.439E-06	6.05148E-05
Road 1	1	1400-1500	0.094637804	1.359E-06	1.10542E-05	0.0818574	1.175E-06	9.56138E-06	0.5161189	7.41E-06	6.02854E-05	0.4449194	6.388E-06	5.1969E-05	0.5267768	7.564E-06	6.15303E-05
Road 1	1	1500-1600	0.103188025	1.373E-06	1.11706E-05	0.0860654	1.145E-06	9.317E-06	0.5612146	7.468E-06	6.07542E-05	0.4656873	6.197E-06	5.04129E-05	0.5517527	7.342E-06	5.97299E-05
Road 1	1	1600-1700	0.098539759	1.383E-06	1.12542E-05	0.0825266	1.159E-06	9.42534E-06	0.541697	7.605E-06	6.1867E-05	0.451032	6.332E-06	5.15122E-05	0.5335587	7.491E-06	6.09376E-05
Road 1	1	1700-1800	0.080083933	1.127E-06	9.17081E-06	0.0661809	9.316E-07	7.57871E-06	0.4491759	6.323E-06	5.14374E-05	0.3681173	5.182E-06	4.2155E-05	0.4342982	6.113E-06	4.97337E-05
Road 1	1	1800-1900	0.070725482	1.019E-06	8.29351E-06	0.0581129	8.377E-07	6.81452E-06	0.4220164	6.083E-06	4.94871E-05	0.3427479	4.941E-06	4.01918E-05	0.4008609	5.778E-06	4.70063E-05
Road 1	1	1900-2000	0.084421604	9.285E-07	7.55357E-06	0.0705135	7.755E-07	6.30916E-06	0.4842787	5.326E-06	4.33305E-05	0.4010178	4.411E-06	3.58808E-05	0.4715314	5.186E-06	4.219E-05
Road 1	1	2000-2100	0.07615746	7.09E-07	5.7676E-06	0.063517	5.913E-07	4.81031E-06	0.4487027	4.177E-06	3.39814E-05	0.3711758	3.455E-06	2.81101E-05	0.4346928	4.047E-06	3.29204E-05
Road 1	1	2100-2200	0.080997042	6.887E-07	5.60233E-06	0.0660401	5.615E-07	4.5678E-06	0.4796942	4.078E-06	3.3179E-05	0.3877085	3.296E-06	2.68167E-05	0.4537486	3.858E-06	3.13845E-05
Road 1	1	2200-2300	0.07788761	6.301E-07	5.12563E-06	0.0651103	5.267E-07	4.28477E-06	0.4592201	3.715E-06	3.02203E-05	0.3805847	3.079E-06	2.50455E-05	0.4456949	3.605E-06	2.93303E-05
Road 1	1	2300-0000	0.068199792	4.928E-07	4.00908E-06	0.0570399	4.122E-07	3.35306E-06	0.4175544	3.017E-06	2.45457E-05	0.3453941	2.496E-06	2.03038E-05	0.402434	2.908E-06	2.36568E-05
Road 2	2	0000-0100	0.173215882	2.045E-07	1.32058E-06	0.1443088	1.704E-07	1.1002E-06	0.7357465	8.686E-07	5.60927E-06	0.610332	7.205E-07	4.65312E-06	0.7546408	8.909E-07	5.75332E-06
Road 2	2	0100-0200	0.122074545	9.325E-08	6.02208E-07	0.104397	7.975E-08	5.15003E-07	0.6051006	4.622E-07	2.98503E-06	0.5153255	3.937E-07	2.54216E-06	0.6197224	4.734E-07	3.05716E-06
Road 2	2	0200-0300	0.120676522	6.425E-08	4.14914E-07	0.1033904	5.505E-08	3.55481E-07	0.6575674	3.501E-07	2.26087E-06	0.5599374	2.981E-07	1.9252E-06	0.6633278	3.532E-07	2.28068E-06
Road 2	2	0300-0400	0.107962667	3.749E-08	2.42088E-07	0.0903793	3.138E-08	2.0266E-07	0.3930607	1.365E-07	8.81371E-07	0.3263193	1.133E-07	7.31715E-07	0.4166987	1.447E-07	9.34375E-07
Road 2	2	0400-0500	0.146004074	9.125E-08	5.893E-07	0.122003	7.625E-08	4.92427E-07	0.7068507	4.418E-07	2.85298E-06	0.5883993	3.677E-07	2.37489E-06	0.7104022	4.44E-07	2.86732E-06
Road 2	2	0500-0600	0.115853509	1.529E-07	9.8717E-07	0.0970625	1.281E-07	8.27054E-07	0.5120621	6.756E-07	4.3632E-06	0.4258584	5.619E-07	3.62867E-06	0.5229209	6.9E-07	4.45573E-06
Road 2	2	0600-0700	0.163679903	3.903E-07	2.52023E-06	0.1386986	3.307E-07	2.13559E-06	0.6641989	1.584E-06	1.02269E-05	0.560385	1.336E-06	8.62842E-06	0.6990836	1.667E-06	1.0764E-05
Road 2	2	0700-0800	0.130375253	4.768E-07	3.07936E-06	0.1114172	4.075E-07	2.63158E-06	0.5502665	2.013E-06	1.29968E-05	0.4671915	1.709E-06	1.10347E-05	0.5786087	2.116E-06	1.36663E-05
Road 2	2	0800-0900	0.149010967	1.035E-06	6.68263E-06	0.1275376	8.857E-07	5.71962E-06	0.6318082	4.388E-06	2.83344E-05	0.5380835	3.737E-06	2.41312E-05	0.6656211	4.622E-06	2.98508E-05
Road 2	2	0900-1000	0.170774919	9.725E-07	6.28011E-06	0.146404	8.337E-07	5.38389E-06	0.7396412	4.212E-06	2.71997E-05	0.6323114	3.601E-06	2.32527E-05	0.7787154	4.434E-06	2.86366E-05
Road 2	2	1000-1100	0.191229076	8.145E-07	5.25992E-06	0.1622299	6.91E-07	4.46228E-06	0.8218821	3.501E-06	2.26066E-05	0.695838	2.964E-06	1.91396E-05	0.8580679	3.655E-06	2.36019E-05
Road 2	2	1100-1200	0.231328287	9.692E-07	6.25915E-06	0.1967369	8.243E-07	5.32319E-06	0.9496355	3.979E-06	2.56947E-05	0.8066845	3.38E-06	2.18268E-05	1.0034213	4.204E-06	2.715E-05
Road 2	2	1200-1300	0.172617394	7.512E-07	4.85121E-06	0.150522	6.55E-07	4.23024E-06	0.7622253	3.317E-06	2.14215E-05	0.6626855	2.884E-06	1.8624E-05	0.8132074	3.539E-06	2.28542E-05
Road 2	2	1300-1400	0.191100364	9.732E-07	6.28481E-06	0.1664862	8.478E-07	5.47531E-06	0.7914175	4.03E-06	2.60277E-05	0.6877978	3.503E-06	2.26199E-05	0.854284	4.351E-06	2.80952E-05
Road 2	2	1400-1500	0.167282331	6.312E-07	4.07611E-06	0.1446621	5.458E-07	3.52493E-06	0.724844	2.735E-06	1.7662E-05	0.6254696	2.36E-06	1.52406E-05	0.7701317	2.906E-06	1.87655E-05
Road 2	2	1500-1600	0.208926536	8.657E-07	5.59055E-06	0.1738959	7.205E-07	4.65318E-06	0.8407044	3.483E-06	2.24959E-05	0.698367	2.894E-06	1.86872E-05	0.8722629	3.614E-06	2.33404E-05
Road 2	2	1600-1700	0.178417123	9.045E-07	5.84102E-06	0.1493925	7.573E-07	4.89081E-06	0.7564192	3.835E-06	2.47636E-05	0.6309995	3.199E-06	2.06576E-05	0.780392	3.956E-06	2.55485E-05
Road 2	2	1700-1800	0.137152627	6.889E-07	4.44909E-06	0.1133561	5.694E-07	3.67716E-06	0.5476929	2.751E-06	1.77666E-05	0.4502883	2.262E-06	1.46069E-05	0.5636444	2.831E-06	1.82841E-05
Road 2	2	1800-1900	0.149374315	8.575E-07	5.53778E-06	0.1228474	7.052E-07	4.55434E-06	0.6914731	3.97E-06	2.56351E-05	0.5651229	3.244E-06	2.09509E-05	0.6879704	3.949E-06	2.55052E-05
Road 2	2	1900-2000	0.127445964	4.897E-07	3.16258E-06	0.106459	4.091E-07	2.64179E-06	0.5877852	2.259E-06	1.45859E-05	0.4872134	1.872E-06	1.20902E-05	0.5936723	2.281E-06	1.4732E-05
Road 2	2	2000-2100	0.124957329	4.223E-07	2.72723E-06	0.1042	3.522E-07	2.2742E-06	0.5280229	1.785E-06	1.15243E-05	0.4363023	1.475E-06	9.52244E-06	0.5405023	1.827E-06	1.17966E-05
Road 2	2	2100-2200	0.097386053	3.427E-07	2.21283E-06	0.0793303	2.791E-07	1.80256E-06	0.4433188	1.56E-06	1.00732E-05	0.3564137	1.254E-06	8.09852E-06	0.435744	1.533E-06	9.90108E-06
Road 2	2	2200-2300	0.13793208	3.991E-07	2.57741E-06	0.115339	3.337E-07	2.15523E-06	0.5905449	1.709E-06	1.1035E-05	0.4903079	1.419E-06	9.16192E-06	0.6056469	1.752E-06	1.13172E-05
Road 2	2	2300-0000	0.124974636	3.182E-07	2.05505E-06	0.1045425	2.662E-07	1.71907E-06	0.5644257	1.437E-06	9.28127E-06	0.4681469	1.192E-06	7.69808E-06	0.5726895	1.458E-06	9.41715E-06
Road 3	3	0000-0100	0.107286463	3.941E-07	1.53165E-05	0.0910943	3.346E-07	1.30048E-05	0.5884453	2.161E-06	8.40079E-05	0.4969531	1.825E-06	7.09463E-05	0.5880473	2.16E-06	8.39511E-05
Road 3	3	0100-0200	0.080121844	1.812E-07	7.04286E-06	0.0684939	1.549E-07	6.02074E-06	0.4648209	1.051E-06	4.08586E-05	0.3952389	8.939E-07	3.47422E-05	0.4637328	1.049E-06	4.0763E-05
Road 3	3	0200-0300	0.077818283	1.236E-07	4.80281E-06	0.0657845	1.045E-07	4.06011E-06	0.4827151	7.665E-07	2.97923E-05	0.4042816	6.42E-07	2.49516E-05	0.4700662	7.464E-07	2.90117E-05
Road 3	3	0300-0400	0.067202464	7.437E-08	2.89077E-06	0.0564255	6.245E-08	2.42719E-06	0.364463	4.034E-07	1.56777E-05	0.3031433	3.355E-07	1.30399E-05	0.3595688	3.979E-07	1.54671E-05
Road 3	3	0400-0500	0.089482703	1.593E-07	6.19214E-06	0.0752686	1.34E-07	5.20854E-06	0.491842	8.757E-07	3.40351E-05	0.4113456	7.324E-07	2.84648E-05	0.4866142	8.664E-07	3.36734E-05
Road 3	3	0500-0600	0.072136872	2.812E-07	1.0928E-05	0.0606031	2.362E-07	9.18078E-06	0.3975774	1.55E-06	6.02291E-05	0.331087	1.29E-06	5.01565E-05	0.39169	1.527E-06	5.93373E-05
Road 3	3	0600-0700	0.098426416	6.915E-07	2.6876E-05	0.0833102	5.853E-07	2.27484E-05	0.4901426	3.443E-06	0.000133837	0.4124124	2.897E-06	0.000112612	0.4957226	3.483E-06	0.00013536
Road 3	3	0700-0800	0.080854623	9.286E-07	3.60908E-05	0.0686841	7.888E-07	3.06583E-05	0.4197179	4.82E-06	0.000187348	0.353783	4.063E-06	0.000157917	0.4224671	4.852E-06	0.000188575
Road 3	3	0800-0900	0.089960576	1.427E-06	5.5466E-05	0.0766377	1.216E-06	4.72517E-05	0.4475221	7.099E-06	0.000275924	0.3792101	6.015E-06	0.000233806	0.4558478	7.231E-06	0.000281057
Road 3	3	0900-1000	0.097728386	1.495E-06	5.8123E-05	0.0834914	1.278E-06	4.96557E-05	0.5029939	7.697E-06	0.000299151	0.4279875	6.549E-06	0.000254541	0.5114789	7.827E-06	0.000304197
Road 3	3	1000-1100	0.110124897	1.537E-06	5.97288E-05	0.093608	1.306E-06	5.07704E-05	0.5601059	7.816E-06	0.000303786	0.4745241	6.622E-06	0.000257369	0.5681321	7.928E-06	0.000308139
Road 3	3	1100-1200	0.10759253	1.46E-06	5.67455E-05	0.0926949	1.258E-06	4.88883E-05	0.5615256	7.62E-06	0.000296155	0.4822213	6.543E-06	0.000254329	0.5749162	7.801E-06	0.000303217
Road 3	3	1200-1300	0.099924693	1.356E-06	5.27014E-05	0.0870219	1.181E-06	4.58963E-05	0.5336552	7.241E-06	0.000281456	0.4630662	6.284E-06	0.000244226	0.5500881	7.464E-06	0.000290122
Road 3	3	1300-1400	0.106248977	1.566E-06	6.08722E-05	0.0925201	1.364E-06	5.30066E-05	0.5460838	8.049E-06	0.000312862	0.4739514	6.986E-06	0.000271536	0.5664715	8.35E-06	0.000324543

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.099105227	1.469E-06	5.70883E-05	0.0850586	1.261E-06	4.89969E-05	0.5152874	7.637E-06	0.000296825	0.4407018	6.531E-06	0.000253861	0.5257604	7.792E-06	0.000302858
Road 3	3	1500-1600	0.112244764	1.602E-06	6.2278E-05	0.0951018	1.358E-06	5.27664E-05	0.5680943	8.11E-06	0.000315202	0.4792077	6.841E-06	0.000265884	0.5743094	8.198E-06	0.000318651
Road 3	3	1600-1700	0.10624258	1.651E-06	6.41802E-05	0.0879516	1.367E-06	5.31308E-05	0.5484429	8.524E-06	0.00033131	0.4515054	7.017E-06	0.00027275	0.539457	8.384E-06	0.000325881
Road 3	3	1700-1800	0.085086124	1.324E-06	5.14528E-05	0.0702061	1.092E-06	4.24547E-05	0.4396761	6.841E-06	0.000265879	0.3599514	5.6E-06	0.000217668	0.4301575	6.693E-06	0.000260123
Road 3	3	1800-1900	0.080084582	1.306E-06	5.07748E-05	0.0666469	1.087E-06	4.22551E-05	0.443415	7.233E-06	0.000281132	0.3651913	5.957E-06	0.000231537	0.4318382	7.044E-06	0.000273792
Road 3	3	1900-2000	0.085218991	1.029E-06	4.00046E-05	0.0710706	8.584E-07	3.33629E-05	0.4684581	5.658E-06	0.00021991	0.3873936	4.679E-06	0.000181855	0.4584643	5.537E-06	0.000215218
Road 3	3	2000-2100	0.079211211	8.182E-07	3.18018E-05	0.0657172	6.788E-07	2.63842E-05	0.4318334	4.461E-06	0.000173373	0.3551259	3.668E-06	0.000142576	0.420843	4.347E-06	0.00016896
Road 3	3	2100-2200	0.078481	7.679E-07	2.98451E-05	0.065502	6.409E-07	2.49094E-05	0.4419335	4.324E-06	0.00016806	0.3657211	3.578E-06	0.000139078	0.4312231	4.219E-06	0.000163987
Road 3	3	2200-2300	0.08323527	7.423E-07	2.8851E-05	0.069588	6.206E-07	2.41206E-05	0.452286	4.033E-06	0.000156771	0.3749421	3.344E-06	0.000129962	0.4445301	3.964E-06	0.000154083
Road 3	3	2300-0000	0.073884237	5.902E-07	2.29382E-05	0.0612936	4.896E-07	1.90293E-05	0.417579	3.335E-06	0.000129642	0.3427204	2.738E-06	0.000106402	0.404014	3.227E-06	0.000125431
Road 4	4	0000-0100	0.274281143	2.222E-07	2.37942E-06	0.2326143	1.885E-07	2.01796E-06	1.3974963	1.132E-06	1.21234E-05	1.1846689	9.598E-07	1.02771E-05	1.4172831	1.148E-06	1.22951E-05
Road 4	4	0100-0200	0.257736	1.193E-07	1.27765E-06	0.220147	1.019E-07	1.09132E-06	1.315607	6.091E-07	6.52174E-06	1.123403	5.201E-07	5.56895E-06	1.34355	6.22E-07	6.66026E-06
Road 4	4	0200-0300	0.279263846	8.404E-08	8.99841E-07	0.2362215	7.109E-08	7.6115E-07	1.3783423	4.148E-07	4.44128E-06	1.1659008	3.508E-07	3.75675E-06	1.4021223	4.219E-07	4.5179E-06
Road 4	4	0300-0400	0.25484	4.129E-08	4.42154E-07	0.2141971	3.471E-08	3.71637E-07	1.3529357	2.192E-07	2.34738E-06	1.1369486	1.842E-07	1.97263E-06	1.3511457	2.189E-07	2.34427E-06
Road 4	4	0400-0500	0.261025714	8.459E-08	9.05772E-07	0.21939	7.11E-08	7.61294E-07	1.2891143	4.178E-07	4.47329E-06	1.0833086	3.511E-07	3.75913E-06	1.3026986	4.222E-07	4.52043E-06
Road 4	4	0500-0600	0.240877917	1.338E-07	1.4329E-06	0.2024313	1.125E-07	1.20419E-06	1.1415417	6.342E-07	6.79064E-06	0.9585383	5.325E-07	5.70201E-06	1.1609696	6.45E-07	6.90621E-06
Road 4	4	0600-0700	0.266306154	3.206E-07	3.43235E-06	0.2253088	2.712E-07	2.90395E-06	1.2712052	1.53E-06	1.63842E-05	1.0748975	1.294E-06	1.38541E-05	1.3002063	1.565E-06	1.6758E-05
Road 4	4	0700-0800	0.26699587	5.686E-07	6.08835E-06	0.2268277	4.831E-07	5.17239E-06	1.328811	2.83E-06	3.03011E-05	1.1277251	2.402E-06	2.57157E-05	1.3545528	2.885E-06	3.08881E-05
Road 4	4	0800-0900	0.274812876	9.733E-07	1.04216E-05	0.2338903	8.284E-07	8.86975E-06	1.3707567	4.855E-06	5.19828E-05	1.1662403	4.13E-06	4.42269E-05	1.4001306	4.959E-06	5.30967E-05
Road 4	4	0900-1000	0.283541757	9.714E-07	1.04013E-05	0.241619	8.278E-07	8.8634E-06	1.3365632	4.579E-06	4.90296E-05	1.1381022	3.899E-06	4.17494E-05	1.3797211	4.727E-06	5.06128E-05
Road 4	4	1000-1100	0.31635	1.047E-06	1.12127E-05	0.268404	8.885E-07	9.51333E-06	1.4938395	4.945E-06	5.29477E-05	1.267208	4.195E-06	4.4915E-05	1.535612	5.083E-06	5.44283E-05
Road 4	4	1100-1200	0.292661548	1.05E-06	1.12436E-05	0.2517803	9.034E-07	9.673E-06	1.3731196	4.927E-06	5.2753E-05	1.1809332	4.237E-06	4.53696E-05	1.4327135	5.141E-06	5.50426E-05
Road 4	4	1200-1300	0.294310612	1.001E-06	1.07234E-05	0.2560184	8.712E-07	9.32816E-06	1.4446975	4.916E-06	5.26383E-05	1.2562344	4.275E-06	4.57715E-05	1.5122529	5.146E-06	5.50997E-05
Road 4	4	1300-1400	0.302328523	1.043E-06	1.11654E-05	0.2630022	9.071E-07	9.713E-06	1.4492752	4.999E-06	5.35235E-05	1.2602174	4.347E-06	4.65414E-05	1.5232197	5.254E-06	5.62544E-05
Road 4	4	1400-1500	0.277654203	8.87E-07	9.4971E-06	0.2379913	7.603E-07	8.14044E-06	1.3763093	4.397E-06	4.70763E-05	1.1789883	3.766E-06	4.0327E-05	1.4169796	4.526E-06	4.84675E-05
Road 4	4	1500-1600	0.315314113	9.051E-07	9.69109E-06	0.26674	7.656E-07	8.19818E-06	1.5095154	4.333E-06	4.63945E-05	1.2765944	3.664E-06	3.92358E-05	1.5433344	4.43E-06	4.74339E-05
Road 4	4	1600-1700	0.297476371	8.539E-07	9.14285E-06	0.2459292	7.059E-07	7.55856E-06	1.4403517	4.134E-06	4.42688E-05	1.1900223	3.416E-06	3.6575E-05	1.4359515	4.122E-06	4.41336E-05
Road 4	4	1700-1800	0.28546754	8.326E-07	8.91528E-06	0.2355612	6.871E-07	7.35668E-06	1.4053931	4.099E-06	4.3891E-05	1.1585746	3.379E-06	3.61828E-05	1.3941358	4.066E-06	4.35395E-05
Road 4	4	1800-1900	0.313951321	7.703E-07	8.24851E-06	0.2611807	6.409E-07	6.86206E-06	1.5664717	3.844E-06	4.11563E-05	1.3031046	3.197E-06	3.42368E-05	1.5642853	3.838E-06	4.10988E-05
Road 4	4	1900-2000	0.282435135	4.838E-07	5.18034E-06	0.2356949	4.037E-07	4.32304E-06	1.4029424	2.403E-06	2.57323E-05	1.1699749	2.004E-06	2.14593E-05	1.4056697	2.408E-06	2.57824E-05
Road 4	4	2000-2100	0.247289184	2.805E-07	3.00337E-06	0.2051704	2.327E-07	2.49183E-06	1.2352035	1.401E-06	1.50018E-05	1.0231627	1.161E-06	1.24265E-05	1.2283331	1.393E-06	1.49183E-05
Road 4	4	2100-2200	0.207431622	1.777E-07	1.90232E-06	0.1734735	1.486E-07	1.5909E-06	1.0548659	9.035E-07	9.67401E-06	0.8805651	7.542E-07	8.07552E-06	1.0540386	9.028E-07	9.66642E-06
Road 4	4	2200-2300	0.274546984	4.004E-07	4.28711E-06	0.2296659	3.349E-07	3.58628E-06	1.3466481	1.964E-06	2.10282E-05	1.1257951	1.642E-06	1.75795E-05	1.355461	1.977E-06	2.11658E-05
Road 4	4	2300-0000	0.256214792	2.847E-07	3.04827E-06	0.2125758	2.362E-07	2.52908E-06	1.2902417	1.434E-06	1.53504E-05	1.0693735	1.188E-06	1.27227E-05	1.2819494	1.424E-06	1.52517E-05
Road 5	5	0000-0100	0.09154544	3.316E-07	4.48445E-06	0.0777713	2.817E-07	3.80971E-06	0.5042615	1.827E-06	2.47018E-05	0.4252727	1.54E-06	2.08324E-05	0.503044	1.822E-06	2.46421E-05
Road 5	5	0100-0200	0.061670413	1.401E-07	1.89399E-06	0.0527453	1.198E-07	1.61988E-06	0.3713693	8.434E-07	1.14053E-05	0.3151509	7.157E-07	9.67874E-06	0.3678962	8.355E-07	1.12986E-05
Road 5	5	0200-0300	0.058071512	9.373E-08	1.26758E-06	0.0490706	7.921E-08	1.07111E-06	0.3922198	6.331E-07	8.56136E-06	0.3271253	5.28E-07	7.14048E-06	0.3761959	6.072E-07	8.21159E-06
Road 5	5	0300-0400	0.053585645	6.236E-08	8.43247E-07	0.044975	5.234E-08	7.07746E-07	0.2859327	3.327E-07	4.49956E-06	0.2368234	2.756E-07	3.72676E-06	0.2817984	3.279E-07	4.4345E-06
Road 5	5	0400-0500	0.074269485	1.352E-07	1.82851E-06	0.0624924	1.138E-07	1.53856E-06	0.4168602	7.589E-07	1.02631E-05	0.3480445	6.336E-07	8.56883E-06	0.4105369	7.474E-07	1.01074E-05
Road 5	5	0500-0600	0.059531835	2.436E-07	3.29398E-06	0.050008	2.046E-07	2.76701E-06	0.3392075	1.388E-06	1.87688E-05	0.2817548	1.153E-06	1.55899E-05	0.3317628	1.357E-06	1.83569E-05
Road 5	5	0600-0700	0.086552052	6.254E-07	8.45771E-06	0.0732655	5.294E-07	7.15938E-06	0.4291915	3.101E-06	4.19398E-05	0.3605985	2.606E-06	3.5237E-05	0.433864	3.135E-06	4.23964E-05
Road 5	5	0700-0800	0.066510208	7.789E-07	1.05339E-05	0.0564795	6.615E-07	8.94521E-06	0.3430523	4.018E-06	5.43325E-05	0.2884106	3.378E-06	4.56784E-05	0.3448902	4.039E-06	5.46236E-05
Road 5	5	0800-0900	0.072372572	1.136E-06	1.53566E-05	0.0616624	9.675E-07	1.3084E-05	0.3515219	5.516E-06	7.45888E-05	0.297319	4.665E-06	6.30876E-05	0.3589815	5.633E-06	7.61716E-05
Road 5	5	0900-1000	0.079657698	1.208E-06	1.63363E-05	0.0681223	1.033E-06	1.39706E-05	0.419245	6.358E-06	8.59793E-05	0.3566445	5.409E-06	7.31411E-05	0.4247668	6.442E-06	8.71118E-05
Road 5	5	1000-1100	0.090454449	1.233E-06	1.66679E-05	0.0769185	1.048E-06	1.41737E-05	0.4673058	6.368E-06	8.61098E-05	0.3957243	5.392E-06	7.29196E-05	0.4726428	6.44E-06	8.70933E-05
Road 5	5	1100-1200	0.088206406	1.142E-06	1.54477E-05	0.0760482	9.849E-07	1.33184E-05	0.4739119	6.137E-06	8.29968E-05	0.4067414	5.267E-06	7.12332E-05	0.4827896	6.252E-06	8.45516E-05
Road 5	5	1200-1300	0.081261273	1.066E-06	1.4417E-05	0.0707815	9.286E-07	1.25577E-05	0.4403971	5.778E-06	7.81334E-05	0.3817796	5.009E-06	6.77337E-05	0.4525611	5.937E-06	8.02914E-05
Road 5	5	1300-1400	0.087666323	1.262E-06	1.70664E-05	0.076384	1.1E-06	1.48701E-05	0.4572931	6.583E-06	8.90235E-05	0.396593	5.709E-06	7.72067E-05	0.472977	6.809E-06	9.20768E-05
Road 5	5	1400-1500	0.084048372	1.24E-06	1.67674E-05	0.0721555	1.064E-06	1.43948E-05	0.437929	6.46E-06	8.73657E-05	0.374345	5.522E-06	7.46809E-05	0.4465005	6.587E-06	8.90757E-05
Road 5	5	1500-1600	0.095742405	1.375E-06	1.85901E-05	0.0811627	1.165E-06	1.57591E-05	0.4877982	7.004E-06	9.47145E-05	0.4111149	5.903E-06	7.98251E-05	0.4922776	7.068E-06	9.55843E-05
Road 5	5	1600-1700	0.090723729	1.434E-06	1.93887E-05	0.0751196	1.187E-06	1.60539E-05	0.4731633	7.478E-06	0.00010112	0.3890623	6.148E-06	8.31469E-05	0.4641819	7.336E-06	9.92008E-05
Road 5	5	1700-1800	0.067827761	1.074E-06	1.453E-05	0.0559877	8.869E-07	1.19936E-05	0.352477	5.584E-06	7.55072E-05	0.2877387	4.558E-06	6.1639E-05	0.3437264	5.445E-06	7.36326E-05
Road 5	5	1800-1900	0.063447549	1.084E-06	1.46545E-05	0.0527971	9.018E-07	1.21946E-05	0.3593208	6.137E-06	8.29924E-05	0.2949068	5.037E-06	6.81147E-05	0.3477039	5.939E-06	8.03093E-05
Road 5	5	1900-2000	0.072997903	9.275E-07	1.25434E-05	0.0608802	7.736E-07	1.04612E-05	0.408382	5.189E-06	7.0173E-05	0.3369532	4.281E-06	5.78993E-05	0.3978335	5.055E-06	6.83604E-05
Road 5	5	2000-2100	0.070181229	7.824E-07	1.05809E-05	0.058229	6.492E-07	8.77891E-06	0.3856691	4.3E-06	5.81455E-05	0.3166742	3.53E-06	4.77435E-05	0.3749032	4.18E-06	5.65224E-05
Road 5	5	2100-2200	0.073620123	7.89E-07	1.06696E-05	0.0614308	6.584E-07	8.90301E-06	0.4173639	4.473E-06	6.04875E-05	0.3449633	3.697E-06	4.99947E-05	0.4063941	4.355E-06	5.88977E-05
Road 5	5	2200-2300	0.070187256	6.481E-07	8.76472E-06	0.0586698	5.418E-07	7.32647E-06	0.3885049	3.588E-06	4.8515E-05	0.321238	2.966E-06	4.0115E-05	0.3799078	3.508E-06	4.74415E-05
Road 5	5	2300-0000	0.062322478	5.24E-07	7.08659E-06	0.0517016	4.347E-07	5.87891E-06	0.3591261	3.02E-06	4.08357E-05	0.2939317	2.471E-06	3.34225E-05	0.3456333	2.906E-06	3.93014E-05
Road 6	6	0000-0100	0.055629189	1.545E-07	5.52366E-06	0.0471585	1.31E-07	4.68257E-06	0.3503022	9.731E-07	3.4783E-05	0.2931822	8.144E-07	2.91113E-05	0.3403407	9.454E-07	3.37939E-05
Road 6	6	0100-0200	0.071779912	1.522E-07	5.44182E-06	0.0613776	1.302E-07	4.65319E-06	0.4004086	8.492E-07	3.0356E-05	0.3391153	7.192E-07	2.57092E-05	0.4004929	8.494E-07	3.03624E-05
Road 6	6	0200-0300	0.066077215	9.797E-08	3.5022E-06	0.0559605	8.297E-08	2.966E-06	0.3699868	5.486E-07	1.96099E-05	0.3099619	4.596E-07	1.64285E-05	0.3659224	5.426E-07	1.93945E-05
Road 6	6	0300-0400	0.067135161	7.812E-08	2.79257E-06	0.0566429	6.591E-08	2.35613E-06	0.4230758	4.923E-07	1.75984E-05	0.3534524	4.113E-07	1.47023E-05	0.4100953	4.772E-07	1.70584E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.072881333	1.231E-07	4.4007E-06	0.0613398	1.036E-07	3.7038E-06	0.4212222	7.115E-07	2.54341E-05	0.3509318	5.928E-07	2.11898E-05	0.4122716	6.964E-07	2.48936E-05
Road 6	6	0500-0600	0.06565087	1.984E-07	7.09135E-06	0.0552425	1.669E-07	5.96708E-06	0.3902082	1.179E-06	4.21488E-05	0.3244665	9.805E-07	3.50476E-05	0.379709	1.147E-06	4.10147E-05
Road 6	6	0600-0700	0.069894634	3.765E-07	1.34582E-05	0.0592079	3.189E-07	1.14005E-05	0.4269506	2.3E-06	8.22095E-05	0.3577242	1.927E-06	6.88799E-05	0.4169321	2.246E-06	8.02805E-05
Road 6	6	0700-0800	0.065825395	5.634E-07	2.01382E-05	0.0559638	4.79E-07	1.71212E-05	0.3674652	3.145E-06	0.00011242	0.3090159	2.645E-06	9.45384E-05	0.3649797	3.124E-06	0.00011166
Road 6	6	0800-0900	0.056560872	6.943E-07	2.48174E-05	0.0481487	5.91E-07	2.11264E-05	0.3294119	4.043E-06	0.000144537	0.2769853	3.4E-06	0.000121534	0.3251339	3.991E-06	0.00014266
Road 6	6	0900-1000	0.059213646	6.979E-07	2.49485E-05	0.0505077	5.953E-07	2.12804E-05	0.3293963	3.883E-06	0.000138784	0.2781615	3.279E-06	0.000117198	0.3286693	3.874E-06	0.000138478
Road 6	6	1000-1100	0.07950468	7.939E-07	2.8377E-05	0.0675489	6.745E-07	2.41097E-05	0.4318901	4.312E-06	0.000154151	0.3647889	3.642E-06	0.000130201	0.4323378	4.317E-06	0.000154311
Road 6	6	1100-1200	0.090019659	8.921E-07	3.18885E-05	0.0776303	7.693E-07	2.74997E-05	0.4660829	4.619E-06	0.000165105	0.4000849	3.965E-06	0.000141726	0.4777152	4.734E-06	0.000169225
Road 6	6	1200-1300	0.086198566	8.348E-07	2.98409E-05	0.0751099	7.274E-07	2.60022E-05	0.425363	4.12E-06	0.000147256	0.3691505	3.575E-06	0.000127796	0.4442605	4.303E-06	0.000153798
Road 6	6	1300-1400	0.100568874	9.721E-07	3.47483E-05	0.0875884	8.466E-07	3.02633E-05	0.5053575	4.885E-06	0.00017461	0.4383067	4.237E-06	0.000151443	0.5258951	5.083E-06	0.000181706
Road 6	6	1400-1500	0.096190387	1.025E-06	3.66558E-05	0.0825847	8.804E-07	3.1471E-05	0.4800835	5.118E-06	0.000182948	0.4102137	4.373E-06	0.000156322	0.4927984	5.254E-06	0.000187793
Road 6	6	1500-1600	0.086073261	8.966E-07	3.20497E-05	0.0729223	7.596E-07	2.71529E-05	0.4394423	4.578E-06	0.000163628	0.3695411	3.849E-06	0.0001376	0.4424635	4.609E-06	0.000164753
Road 6	6	1600-1700	0.090874683	9.688E-07	3.46301E-05	0.0752783	8.025E-07	2.86867E-05	0.4437052	4.73E-06	0.000169085	0.3648871	3.89E-06	0.00013905	0.4401654	4.692E-06	0.000167736
Road 6	6	1700-1800	0.067952955	7.64E-07	2.73085E-05	0.05611	6.308E-07	2.25491E-05	0.3419777	3.845E-06	0.000137432	0.2793913	3.141E-06	0.00011228	0.3355013	3.772E-06	0.000134829
Road 6	6	1800-1900	0.066659971	8.545E-07	3.05456E-05	0.0554257	7.105E-07	2.53977E-05	0.3461338	4.437E-06	0.000158609	0.2845911	3.648E-06	0.000130408	0.3400168	4.359E-06	0.000155806
Road 6	6	1900-2000	0.078852534	7.711E-07	2.75623E-05	0.0657082	6.425E-07	2.29678E-05	0.4088549	3.998E-06	0.000142912	0.3370515	3.296E-06	0.000117814	0.4027597	3.938E-06	0.000140782
Road 6	6	2000-2100	0.062847098	4.836E-07	1.72875E-05	0.0520993	4.009E-07	1.43311E-05	0.3537116	2.722E-06	9.72962E-05	0.2894751	2.228E-06	7.96265E-05	0.3415744	2.628E-06	9.39576E-05
Road 6	6	2100-2200	0.088135534	5.889E-07	2.10506E-05	0.0735585	4.915E-07	1.75689E-05	0.4580969	3.061E-06	0.000109413	0.3790919	2.533E-06	9.05434E-05	0.4526504	3.024E-06	0.000108112
Road 6	6	2200-2300	0.065430292	4.63E-07	1.65494E-05	0.0546258	3.865E-07	1.38166E-05	0.362647	2.566E-06	9.17251E-05	0.2977702	2.107E-06	7.53156E-05	0.3523959	2.493E-06	8.91322E-05
Road 6	6	2300-0000	0.043988277	2.923E-07	1.04473E-05	0.0365016	2.425E-07	8.66918E-06	0.2702229	1.795E-06	6.41783E-05	0.2205522	1.465E-06	5.23814E-05	0.2570539	1.708E-06	6.10506E-05
Road 7	7	0000-0100	0.079857545	2.133E-07	5.32549E-06	0.0672553	1.797E-07	4.48508E-06	0.4711181	1.259E-06	3.14176E-05	0.3935907	1.051E-06	2.62475E-05	0.460846	1.231E-06	3.07326E-05
Road 7	7	0100-0200	0.09554583	1.984E-07	4.95192E-06	0.0816971	1.696E-07	4.23417E-06	0.5243883	1.089E-06	2.71778E-05	0.4457944	9.255E-07	2.31045E-05	0.5274916	1.095E-06	2.73387E-05
Road 7	7	0200-0300	0.082916503	1.132E-07	2.82484E-06	0.0705299	9.626E-08	2.40285E-06	0.4667042	6.369E-07	1.58999E-05	0.3941449	5.379E-07	1.34279E-05	0.4646748	6.342E-07	1.58308E-05
Road 7	7	0300-0400	0.084404467	9.313E-08	2.3249E-06	0.0710916	7.844E-08	1.9582E-06	0.5082326	5.608E-07	1.39992E-05	0.4250841	4.69E-07	1.17088E-05	0.4961757	5.475E-07	1.3667E-05
Road 7	7	0400-0500	0.093705039	1.51E-07	3.76974E-06	0.078657	1.268E-07	3.16436E-06	0.5209627	8.396E-07	2.09583E-05	0.4343851	7E-07	1.74753E-05	0.5130422	8.268E-07	2.06396E-05
Road 7	7	0500-0600	0.085192532	2.424E-07	6.05178E-06	0.0715874	2.037E-07	5.08532E-06	0.4795984	1.365E-06	3.4069E-05	0.3997156	1.137E-06	2.83944E-05	0.471303	1.341E-06	3.34797E-05
Road 7	7	0600-0700	0.088880862	4.516E-07	1.12746E-05	0.0753181	3.827E-07	9.55418E-06	0.5100864	2.592E-06	6.47049E-05	0.4288736	2.179E-06	5.4403E-05	0.5041917	2.562E-06	6.39572E-05
Road 7	7	0700-0800	0.085122726	6.921E-07	1.72766E-05	0.072515	5.896E-07	1.47178E-05	0.4605643	3.745E-06	9.34768E-05	0.3894317	3.166E-06	7.90396E-05	0.4619467	3.756E-06	9.37574E-05
Road 7	7	0800-0900	0.085000496	1.044E-06	2.60626E-05	0.0725154	8.907E-07	2.22344E-05	0.4634023	5.692E-06	0.000142087	0.3924836	4.821E-06	0.000120342	0.464999	5.711E-06	0.000142577
Road 7	7	0900-1000	0.087233735	9.955E-07	2.48504E-05	0.074502	8.502E-07	2.12235E-05	0.4571139	5.216E-06	0.000130218	0.3880361	4.428E-06	0.00011054	0.4625381	5.278E-06	0.000131764
Road 7	7	1000-1100	0.103573968	1.036E-06	2.5864E-05	0.0879206	8.795E-07	2.19551E-05	0.5460409	5.462E-06	0.000136355	0.4616779	4.618E-06	0.000115288	0.5495986	5.498E-06	0.000137243
Road 7	7	1100-1200	0.113022	1.126E-06	2.81004E-05	0.0969486	9.656E-07	2.41041E-05	0.584255	5.819E-06	0.000145262	0.4997658	4.978E-06	0.000124256	0.5967144	5.943E-06	0.00014836
Road 7	7	1200-1300	0.109620904	1.09E-06	2.72151E-05	0.0955124	9.499E-07	2.37124E-05	0.5543462	5.513E-06	0.000137625	0.4817641	4.791E-06	0.000119605	0.5772765	5.741E-06	0.000143318
Road 7	7	1300-1400	0.117517408	1.152E-06	2.87496E-05	0.1023822	1.003E-06	2.50469E-05	0.5927087	5.809E-06	0.000145001	0.5148571	5.046E-06	0.000125955	0.6172393	6.049E-06	0.000151002
Road 7	7	1400-1500	0.110364922	1.134E-06	2.83198E-05	0.0949657	9.762E-07	2.43683E-05	0.5629561	5.787E-06	0.000144455	0.4828932	4.964E-06	0.000123911	0.5778589	5.94E-06	0.000148279
Road 7	7	1500-1600	0.103570828	1.041E-06	2.59758E-05	0.087192	8.76E-07	2.1868E-05	0.5329756	5.355E-06	0.000133672	0.4463518	4.484E-06	0.000111946	0.5335438	5.36E-06	0.000133814
Road 7	7	1600-1700	0.108568455	1.129E-06	2.81736E-05	0.0902474	9.381E-07	2.34193E-05	0.5384889	5.598E-06	0.000139738	0.4453622	4.63E-06	0.000115572	0.5356095	5.568E-06	0.000138991
Road 7	7	1700-1800	0.084634015	9.326E-07	2.32816E-05	0.0699283	7.706E-07	1.92362E-05	0.4356699	4.801E-06	0.000119846	0.3570718	3.935E-06	9.82252E-05	0.4270001	4.705E-06	0.000117461
Road 7	7	1800-1900	0.077823718	8.904E-07	2.22261E-05	0.064488	7.378E-07	1.84175E-05	0.409503	4.685E-06	0.000116952	0.3362133	3.846E-06	9.60211E-05	0.4007013	4.584E-06	0.000114439
Road 7	7	1900-2000	0.090482269	7.843E-07	1.95778E-05	0.075476	6.542E-07	1.63309E-05	0.4774229	4.138E-06	0.000103301	0.3949717	3.423E-06	8.54606E-05	0.4704477	4.078E-06	0.000101791
Road 7	7	2000-2100	0.083326475	5.904E-07	1.47377E-05	0.0692086	4.903E-07	1.22407E-05	0.4504672	3.192E-06	7.96725E-05	0.370935	2.628E-06	6.5606E-05	0.4401436	3.118E-06	7.78466E-05
Road 7	7	2100-2200	0.096689423	5.756E-07	1.43677E-05	0.080045	4.765E-07	1.18944E-05	0.5096547	3.034E-06	7.57331E-05	0.4188218	2.493E-06	6.22356E-05	0.4988669	2.97E-06	7.413E-05
Road 7	7	2200-2300	0.080445113	5.162E-07	1.28869E-05	0.0672016	4.312E-07	1.07653E-05	0.4394336	2.82E-06	7.03949E-05	0.3626892	2.327E-06	5.81009E-05	0.4298908	2.759E-06	6.88662E-05
Road 7	7	2300-0000	0.055693109	3.291E-07	8.21526E-06	0.0463616	2.74E-07	6.83878E-06	0.3303676	1.952E-06	4.87324E-05	0.2716899	1.605E-06	4.00769E-05	0.3180516	1.879E-06	4.69156E-05
Road 8	8	0000-0100	0.241141111	1.754E-07	2.891E-06	0.2044756	1.487E-07	2.45142E-06	1.2319275	8.959E-07	1.47694E-05	1.0440511	7.593E-07	1.25169E-05	1.2485267	9.08E-07	1.49684E-05
Road 8	8	0100-0200	0.248348	1.505E-07	2.48117E-06	0.2121597	1.286E-07	2.11962E-06	1.263942	7.66E-07	1.26276E-05	1.079443	6.542E-07	1.07844E-05	1.2916027	7.828E-07	1.2904E-05
Road 8	8	0200-0300	0.235438	7.134E-08	1.17609E-06	0.199296	6.039E-08	9.95551E-07	1.26191	3.824E-07	6.30367E-06	1.0679493	3.236E-07	5.33477E-06	1.2672453	3.84E-07	6.33032E-06
Road 8	8	0300-0400	0.215705714	6.101E-08	1.00569E-06	0.18163	5.137E-08	8.46817E-07	1.1280221	3.19E-07	5.2592E-06	0.9492143	2.685E-07	4.42554E-06	1.1308443	3.198E-07	5.27236E-06
Road 8	8	0400-0500	0.243647619	1.034E-07	1.70394E-06	0.2048914	8.692E-08	1.4329E-06	1.2034567	5.106E-07	8.41635E-06	1.0117557	4.292E-07	7.07569E-06	1.2166471	5.162E-07	8.50859E-06
Road 8	8	0500-0600	0.231729118	1.592E-07	2.62382E-06	0.1948679	1.338E-07	2.20645E-06	1.1233121	7.716E-07	1.2719E-05	0.9439188	6.483E-07	1.06878E-05	1.1387868	7.822E-07	1.28942E-05
Road 8	8	0600-0700	0.257905645	3.23E-07	5.32508E-06	0.2183785	2.735E-07	4.50895E-06	1.2354024	1.547E-06	2.55079E-05	1.0452411	1.309E-06	2.15815E-05	1.2636197	1.583E-06	2.60905E-05
Road 8	8	0700-0800	0.257731287	5.259E-07	8.66887E-06	0.2190214	4.469E-07	7.36685E-06	1.2483354	2.547E-06	4.19881E-05	1.0600841	2.163E-06	3.56562E-05	1.2791054	2.61E-06	4.30231E-05
Road 8	8	0800-0900	0.286097053	1.098E-06	1.81026E-05	0.2437526	9.356E-07	1.54233E-05	1.3908277	5.339E-06	8.80037E-05	1.1840031	4.545E-06	7.4917E-05	1.4277557	5.48E-06	9.03403E-05
Road 8	8	0900-1000	0.30673121	9.729E-07	1.60373E-05	0.2614611	8.293E-07	1.36704E-05	1.4189651	4.501E-06	7.419E-05	1.2092071	3.835E-06	6.32229E-05	1.4706682	4.665E-06	7.68932E-05
Road 8	8	1000-1100	0.294813861	9.41E-07	1.55124E-05	0.2501738	7.985E-07	1.31635E-05	1.3992475	4.466E-06	7.3625E-05	1.1865808	3.787E-06	6.2435E-05	1.4367546	4.586E-06	7.55986E-05
Road 8	8	1100-1200	0.300505786	9.653E-07	1.5912E-05	0.2585103	8.304E-07	1.36883E-05	1.4470601	4.648E-06	7.66227E-05	1.2444863	3.997E-06	6.58963E-05	1.5029965	4.828E-06	7.95846E-05
Road 8	8	1200-1300	0.299052899	1.021E-06	1.68309E-05	0.2601343	8.881E-07	1.46406E-05	1.4548577	4.967E-06	8.18806E-05	1.2650846	4.319E-06	7.12E-05	1.5252189	5.207E-06	8.58406E-05
Road 8	8	1300-1400	0.273815625	8.851E-07	1.45899E-05	0.238244	7.701E-07	1.26945E-05	1.3080151	4.228E-06	6.96958E-05	1.1375926	3.677E-06	6.06151E-05	1.3758366	4.447E-06	7.33096E-05
Road 8	8	1400-1500	0.267360504	7.508E-07	1.23762E-05	0.2291977	6.436E-07	1.06096E-05	1.3374528	3.756E-06	6.19109E-05	1.146119	3.218E-06	5.3054E-05	1.3753167	3.862E-06	6.36636E-05
Road 8	8	1500-1600	0.278996715	7.722E-07	1.2729E-05	0.2359826	6.531E-07	1.07665E-05	1.3581175	3.759E-06	6.19629E-05	1.1478964	3.177E-06	5.23718E-05	1.383879	3.83E-06	6.31382E-05
Road 8	8	1600-1700	0.282932123	8.345E-07	1.37565E-05	0.2338579	6.898E-07	1.13705E-05	1.3603371	4.012E-06	6.61414E-05	1.1237797	3.315E-06	5.46396E-05	1.3576375	4.004E-06	6.60101E-05
Road 8	8	1700-1800	0.231583654	7.298E-07	1.20311E-05	0.1910084	6.02E-07	9.92318E-06	1.1630579	3.665E-06	6.04227E-05	0.957636	3.018E-06	4.97507E-05	1.1486444	3.62E-06	5.96738E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.231457009	5.003E-07	8.24761E-06	0.1927238	4.166E-07	6.86741E-06	1.1890413	2.57E-06	4.23696E-05	0.9889827	2.138E-06	3.52408E-05	1.1817065	2.554E-06	4.21083E-05
Road 8	8	1900-2000	0.229501818	3.57E-07	5.88506E-06	0.1915918	2.98E-07	4.91294E-06	1.2089699	1.881E-06	3.10013E-05	1.0085909	1.569E-06	2.5863E-05	1.2001827	1.867E-06	3.0776E-05
Road 8	8	2000-2100	0.252420132	3.876E-07	6.38868E-06	0.2094154	3.215E-07	5.30025E-06	1.208	1.855E-06	3.05741E-05	1.000818	1.537E-06	2.53304E-05	1.2102334	1.858E-06	3.06307E-05
Road 8	8	2100-2200	0.208799245	2.236E-07	3.68535E-06	0.1744858	1.868E-07	3.07971E-06	1.0981417	1.176E-06	1.93824E-05	0.9156298	9.804E-07	1.61611E-05	1.0901157	1.167E-06	1.92408E-05
Road 8	8	2200-2300	0.248834688	3.217E-07	5.30353E-06	0.2081642	2.691E-07	4.4367E-06	1.2333708	1.595E-06	2.62874E-05	1.0305436	1.332E-06	2.19644E-05	1.2387078	1.602E-06	2.64011E-05
Road 8	8	2300-0000	0.200358462	2.105E-07	3.46964E-06	0.1663831	1.748E-07	2.88129E-06	1.0324042	1.085E-06	1.78783E-05	0.8560108	8.992E-07	1.48237E-05	1.0223938	1.074E-06	1.7705E-05
Road 9	9	0000-0100	0.206947951	5.496E-08	1.64066E-06	0.1798043	4.775E-08	1.42547E-06	0.9472922	2.516E-07	7.51005E-06	0.8167694	2.169E-07	6.47527E-06	0.9965737	2.647E-07	7.90075E-06
Road 9	9	0100-0200	0.223514781	4.664E-08	1.39229E-06	0.1968414	4.107E-08	1.22614E-06	0.9666263	2.017E-07	6.02119E-06	0.8448473	1.763E-07	5.26261E-06	1.0416887	2.174E-07	6.48875E-06
Road 9	9	0200-0300	0.08831828	8.377E-09	2.50064E-07	0.075735	7.183E-09	2.14436E-07	0.6290069	5.966E-08	1.78097E-06	0.5423586	5.144E-08	1.53563E-06	0.6180936	5.863E-08	1.75007E-06
Road 9	9	0300-0400	0.107872056	8.185E-09	2.44343E-07	0.0914996	6.943E-09	2.07257E-07	0.6676626	5.066E-08	1.51233E-06	0.5680579	4.31E-08	1.28672E-06	0.6595575	5.005E-08	1.49398E-06
Road 9	9	0400-0500	0.241894759	4.589E-08	1.3698E-06	0.2099159	3.982E-08	1.18871E-06	1.0057572	1.908E-07	5.6954E-06	0.866014	1.643E-07	4.90406E-06	1.0759298	2.041E-07	6.09277E-06
Road 9	9	0500-0600	0.173451493	5.594E-08	1.66977E-06	0.1506714	4.859E-08	1.45048E-06	0.8744556	2.82E-07	8.41816E-06	0.7620688	2.458E-07	7.33624E-06	0.9127401	2.943E-07	8.78672E-06
Road 9	9	0600-0700	0.202590873	1.23E-07	3.67114E-06	0.1781054	1.081E-07	3.22744E-06	1.0599049	6.434E-07	1.92065E-05	0.9329751	5.663E-07	1.69064E-05	1.1110805	6.745E-07	2.01338E-05
Road 9	9	0700-0800	0.173829643	1.583E-07	4.72493E-06	0.155009	1.411E-07	4.21336E-06	0.9937851	9.049E-07	2.70125E-05	0.8898531	8.103E-07	2.41875E-05	1.044862	9.514E-07	2.84008E-05
Road 9	9	0800-0900	0.268039824	5.847E-07	1.74553E-05	0.2357893	5.144E-07	1.53551E-05	1.3033136	2.843E-06	8.48745E-05	1.1406973	2.488E-06	7.42846E-05	1.3764866	3.003E-06	8.96397E-05
Road 9	9	0900-1000	0.275947662	4.502E-07	1.34387E-05	0.2449955	3.997E-07	1.19313E-05	1.2199826	1.99E-06	5.94132E-05	1.0783084	1.759E-06	5.25136E-05	1.3233039	2.159E-06	6.44449E-05
Road 9	9	1000-1100	0.290469723	3.912E-07	1.16786E-05	0.2525327	3.401E-07	1.01533E-05	1.2566059	1.692E-06	5.05229E-05	1.0895486	1.467E-06	4.38062E-05	1.3420813	1.808E-06	5.39595E-05
Road 9	9	1100-1200	0.202132764	2.837E-07	8.47031E-06	0.1752615	2.46E-07	7.34428E-06	1.0801175	1.516E-06	4.5262E-05	0.9475874	1.33E-06	3.97083E-05	1.1228489	1.576E-06	4.70526E-05
Road 9	9	1200-1300	0.295781098	4.096E-07	1.22271E-05	0.2666081	3.692E-07	1.10211E-05	1.3686759	1.895E-06	5.65789E-05	1.2353413	1.711E-06	5.1067E-05	1.5019493	2.08E-06	6.20882E-05
Road 9	9	1300-1400	0.333338064	3.794E-07	1.13257E-05	0.3001565	3.416E-07	1.01983E-05	1.2883631	1.466E-06	4.37744E-05	1.1539132	1.313E-06	3.92062E-05	1.4540697	1.655E-06	4.94046E-05
Road 9	9	1400-1500	0.216066664	2.787E-07	8.32008E-06	0.1941746	2.505E-07	7.47708E-06	1.0730348	1.384E-06	4.13193E-05	0.9585133	1.236E-06	3.69095E-05	1.1526879	1.487E-06	4.43865E-05
Road 9	9	1500-1600	0.183086129	1.98E-07	5.90964E-06	0.1600484	1.731E-07	5.16603E-06	0.9677204	1.046E-06	3.1236E-05	0.8497911	9.189E-07	2.74295E-05	1.0098395	1.092E-06	3.25955E-05
Road 9	9	1600-1700	0.190635776	2.857E-07	8.52829E-06	0.1676181	2.512E-07	7.49857E-06	1.0861381	1.628E-06	4.85895E-05	0.9539992	1.43E-06	4.26782E-05	1.1216172	1.681E-06	5.01767E-05
Road 9	9	1700-1800	0.166651508	2.15E-07	6.41725E-06	0.1476209	1.904E-07	5.68444E-06	1.0340485	1.334E-06	3.98181E-05	0.9249428	1.193E-06	3.56168E-05	1.0725637	1.384E-06	4.13012E-05
Road 9	9	1800-1900	0.163945181	1.368E-07	4.08491E-06	0.1466719	1.224E-07	3.65452E-06	1.0028465	8.37E-07	2.49872E-05	0.9064712	7.566E-07	2.25859E-05	1.0531431	8.79E-07	2.62404E-05
Road 9	9	1900-2000	0.170774837	1.393E-07	4.15837E-06	0.1518142	1.238E-07	3.69668E-06	0.9220492	7.521E-07	2.24519E-05	0.8186732	6.678E-07	1.99347E-05	0.9704874	7.916E-07	2.36314E-05
Road 9	9	2000-2100	0.183789009	1.011E-07	3.0182E-06	0.1586136	8.726E-08	2.60477E-06	0.8178772	4.499E-07	1.34313E-05	0.7150043	3.933E-07	1.17419E-05	0.8736179	4.806E-07	1.43466E-05
Road 9	9	2100-2200	0.023824383	1.22E-08	3.64264E-07	0.021057	1.079E-08	3.21952E-07	0.3319832	1.7E-07	5.07587E-06	0.2879876	1.475E-07	4.4032E-06	0.3090447	1.583E-07	4.72515E-06
Road 9	9	2200-2300	0.176272461	1.103E-07	3.29404E-06	0.1523452	9.537E-08	2.84691E-06	0.8643663	5.411E-07	1.61526E-05	0.7470377	4.676E-07	1.39601E-05	0.899383	5.63E-07	1.6807E-05
Road 9	9	2300-0000	0.142638334	8.117E-08	2.42319E-06	0.12424	7.07E-08	2.11064E-06	0.7379894	4.2E-07	1.25372E-05	0.6407277	3.646E-07	1.08849E-05	0.7649678	4.353E-07	1.29956E-05
Road 10	10	0000-0100	0.291504193	2.241E-07	4.98335E-06	0.2489614	1.914E-07	4.25607E-06	1.4897462	1.145E-06	2.54676E-05	1.2733866	9.791E-07	2.17689E-05	1.522348	1.17E-06	2.6025E-05
Road 10	10	0100-0200	0.284455	1.652E-07	3.67414E-06	0.2451449	1.424E-07	3.1664E-06	1.44121	8.372E-07	1.86153E-05	1.2427852	7.22E-07	1.60524E-05	1.4879301	8.644E-07	1.92188E-05
Road 10	10	0200-0300	0.283992771	9.219E-08	2.04986E-06	0.240466	7.806E-08	1.73569E-06	1.4215641	4.615E-07	1.02609E-05	1.2052059	3.912E-07	8.69919E-06	1.4456719	4.693E-07	1.04349E-05
Road 10	10	0300-0400	0.258969878	5.31E-08	1.18058E-06	0.2179967	4.47E-08	9.93791E-07	1.3983636	2.867E-07	6.37478E-06	1.1789637	2.417E-07	5.37459E-06	1.3969603	2.864E-07	6.36838E-06
Road 10	10	0400-0500	0.302426837	1.188E-07	2.64248E-06	0.2572908	1.011E-07	2.2481E-06	1.4557075	5.721E-07	1.27194E-05	1.233512	4.847E-07	1.07779E-05	1.4908028	5.858E-07	1.3026E-05
Road 10	10	0500-0600	0.275037554	1.927E-07	4.2839E-06	0.234888	1.645E-07	3.65854E-06	1.3268958	9.295E-07	2.06673E-05	1.131469	7.926E-07	1.76234E-05	1.366357	9.572E-07	2.1282E-05
Road 10	10	0600-0700	0.331965821	4.651E-07	1.03412E-05	0.2877195	4.031E-07	8.96287E-06	1.6567713	2.321E-06	5.16107E-05	1.4409578	2.019E-06	4.48879E-05	1.7286773	2.422E-06	5.38507E-05
Road 10	10	0700-0800	0.327902259	7.227E-07	1.60693E-05	0.2843355	6.267E-07	1.39343E-05	1.649841	3.636E-06	8.08529E-05	1.4353485	3.164E-06	7.03414E-05	1.719684	3.79E-06	8.42757E-05
Road 10	10	0800-0900	0.351763089	1.484E-06	3.30074E-05	0.3015206	1.272E-06	2.82929E-05	1.7395055	7.341E-06	0.000163225	1.4922197	6.297E-06	0.000140021	1.7937403	7.57E-06	0.000168314
Road 10	10	0900-1000	0.392839402	1.316E-06	2.92506E-05	0.3412311	1.143E-06	2.54079E-05	1.89705	6.353E-06	0.000141253	1.6493088	5.523E-06	0.000122807	1.9905399	6.666E-06	0.000148215
Road 10	10	1000-1100	0.391680674	1.425E-06	3.16939E-05	0.3372377	1.227E-06	2.72885E-05	1.7733302	6.454E-06	0.000143494	1.5227655	5.542E-06	0.000123219	1.8600032	6.769E-06	0.000150507
Road 10	10	1100-1200	0.3790104	1.379E-06	3.06686E-05	0.3286625	1.196E-06	2.65946E-05	1.7802978	6.479E-06	0.000144058	1.5428606	5.615E-06	0.000124845	1.8715231	6.811E-06	0.000151439
Road 10	10	1200-1300	0.389525202	1.464E-06	3.25553E-05	0.3434235	1.291E-06	2.87023E-05	1.8563028	6.978E-06	0.000155144	1.6382669	6.158E-06	0.000136921	1.9816904	7.449E-06	0.000165624
Road 10	10	1300-1400	0.379690223	1.246E-06	2.76946E-05	0.3352894	1.1E-06	2.4456E-05	1.7670604	5.797E-06	0.000128889	1.558712	5.113E-06	0.000113692	1.8940014	6.213E-06	0.000138148
Road 10	10	1400-1500	0.353187613	1.086E-06	2.41514E-05	0.3092002	9.509E-07	2.11435E-05	1.7679485	5.437E-06	0.000120894	1.5493213	4.765E-06	0.000105944	1.8585214	5.716E-06	0.000127088
Road 10	10	1500-1600	0.35672189	1.121E-06	2.49351E-05	0.305848	9.615E-07	2.1379E-05	1.719434	5.405E-06	0.00012019	1.4757071	4.639E-06	0.000103153	1.7815551	5.601E-06	0.000124532
Road 10	10	1600-1700	0.344187573	1.206E-06	2.68048E-05	0.2910778	1.02E-06	2.26687E-05	1.6838219	5.898E-06	0.000131134	1.4217691	4.98E-06	0.000110725	1.7128469	5.999E-06	0.000133394
Road 10	10	1700-1800	0.319652308	1.049E-06	2.33154E-05	0.271315	8.9E-07	1.97897E-05	1.6590682	5.442E-06	0.000121012	1.4174479	4.65E-06	0.000103388	1.688763	5.54E-06	0.000123178
Road 10	10	1800-1900	0.324398722	6.707E-07	1.49117E-05	0.2756357	5.698E-07	1.26702E-05	1.637516	3.385E-06	7.52722E-05	1.3957194	2.885E-06	6.41575E-05	1.6713551	3.455E-06	7.68277E-05
Road 10	10	1900-2000	0.281493597	5.242E-07	1.16562E-05	0.2407286	4.483E-07	9.96823E-06	1.4888684	2.773E-06	6.16519E-05	1.279248	2.382E-06	5.29718E-05	1.5199766	2.831E-06	6.29401E-05
Road 10	10	2000-2100	0.32806652	4.036E-07	8.97342E-06	0.2743555	3.375E-07	7.5043E-06	1.5874862	1.953E-06	4.34216E-05	1.3273685	1.633E-06	3.63068E-05	1.6017241	1.97E-06	4.38111E-05
Road 10	10	2100-2200	0.271838955	3.344E-07	7.43546E-06	0.2367368	2.912E-07	6.47533E-06	1.5145792	1.863E-06	4.14275E-05	1.3268635	1.632E-06	3.6293E-05	1.5636003	1.923E-06	4.27683E-05
Road 10	10	2200-2300	0.28535926	3.657E-07	8.13049E-06	0.2438606	3.125E-07	6.94811E-06	1.4637687	1.876E-06	4.17059E-05	1.2574972	1.611E-06	3.58288E-05	1.5013578	1.924E-06	4.27769E-05
Road 10	10	2300-0000	0.263151453	3.147E-07	6.9979E-06	0.2207665	2.64E-07	5.87077E-06	1.3299965	1.591E-06	3.53681E-05	1.1157143	1.334E-06	2.96698E-05	1.3364808	1.598E-06	3.55406E-05
Road 11	11	0000-0100	0.326624445	2.495E-07	2.06966E-06	0.2785067	2.127E-07	1.76476E-06	1.6385129	1.252E-06	1.03825E-05	1.3947302	1.065E-06	8.83774E-06	1.6732369	1.278E-06	1.06025E-05
Road 11	11	0100-0200	0.324311984	1.745E-07	1.44785E-06	0.2789887	1.502E-07	1.24551E-06	1.5995303	8.609E-07	7.14089E-06	1.3724076	7.386E-07	6.12693E-06	1.6513963	8.888E-07	7.37244E-06
Road 11	11	0200-0300	0.283933236	7.394E-08	6.13346E-07	0.2404673	6.262E-08	5.19452E-07	1.5147189	3.945E-07	3.27206E-06	1.2840896	3.344E-07	2.77386E-06	1.5245569	3.97E-07	3.29331E-06
Road 11	11	0300-0400	0.30518773	7.418E-08	6.15309E-07	0.2567713	6.241E-08	5.17693E-07	1.5973547	3.882E-07	3.22053E-06	1.3446308	3.268E-07	2.711E-06	1.6014021	3.892E-07	3.22869E-06
Road 11	11	0400-0500	0.312847362	1.086E-07	9.01074E-07	0.2663979	9.25E-08	7.67289E-07	1.4868343	5.163E-07	4.28243E-06	1.260637	4.377E-07	3.63093E-06	1.5270349	5.302E-07	4.39822E-06
Road 11	11	0500-0600	0.251409514	1.178E-07	9.7756E-07	0.2144523	1.005E-07	8.33859E-07	1.2796193	5.998E-07	4.97557E-06	1.0928803	5.123E-07	4.24947E-06	1.3073327	6.128E-07	5.08333E-06
Road 11	11	0600-0700	0.272160025	2.457E-07	2.0381E-06	0.2343264	2.115E-07	1.75478E-06	1.4088229	1.272E-06	1.05501E-05	1.213777	1.096E-06	9.08951E-06	1.4481034	1.307E-06	1.08443E-05
Road 11	11	0700-0800	0.318848604	5.978E-07	4.95914E-06	0.2739642	5.137E-07	4.26104E-06	1.6581972	3.109E-06	2.57904E-05	1.4280833	2.678E-06	2.22114E-05	1.7020475	3.191E-06	2.64724E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.348187303	1.239E-06	1.02793E-05	0.3004433	1.069E-06	8.86981E-06	1.7180519	6.115E-06	5.07211E-05	1.47902	5.264E-06	4.36643E-05	1.7794633	6.333E-06	5.25341E-05
Road 11	11	0900-1000	0.35209677	8.925E-07	7.40309E-06	0.3056286	7.747E-07	6.42606E-06	1.6666471	4.224E-06	3.50425E-05	1.4419556	3.655E-06	3.03182E-05	1.7475842	4.43E-06	3.67442E-05
Road 11	11	1000-1100	0.364913547	7.539E-07	6.25367E-06	0.3132217	6.471E-07	5.36781E-06	1.7029518	3.518E-06	2.91842E-05	1.4584143	3.013E-06	2.49934E-05	1.7716361	3.66E-06	3.03612E-05
Road 11	11	1100-1200	0.32021114	7.449E-07	6.1793E-06	0.2764717	6.432E-07	5.33524E-06	1.6408356	3.817E-06	3.16642E-05	1.4226643	3.31E-06	2.7454E-05	1.699136	3.953E-06	3.27892E-05
Road 11	11	1200-1300	0.384087287	1.087E-06	9.01604E-06	0.3381235	9.568E-07	7.93709E-06	1.8648334	5.277E-06	4.3775E-05	1.6416719	4.646E-06	3.85365E-05	1.9797954	5.603E-06	4.64736E-05
Road 11	11	1300-1400	0.39976207	8.328E-07	6.90846E-06	0.3527012	7.348E-07	6.09518E-06	1.803345	3.757E-06	3.11644E-05	1.5845749	3.301E-06	2.73837E-05	1.9372761	4.036E-06	3.34789E-05
Road 11	11	1400-1500	0.316659627	6.377E-07	5.28992E-06	0.2764467	5.567E-07	4.61814E-06	1.5823452	3.187E-06	2.64337E-05	1.3775384	2.774E-06	2.30123E-05	1.6539851	3.331E-06	2.76304E-05
Road 11	11	1500-1600	0.288212642	5.854E-07	4.85621E-06	0.2465145	5.007E-07	4.15362E-06	1.491907	3.03E-06	2.51377E-05	1.2780865	2.596E-06	2.1535E-05	1.5246011	3.097E-06	2.56886E-05
Road 11	11	1600-1700	0.277099933	6.687E-07	5.54689E-06	0.2344093	5.657E-07	4.69232E-06	1.4825351	3.578E-06	2.96769E-05	1.255587	3.03E-06	2.51339E-05	1.4899963	3.596E-06	2.98262E-05
Road 11	11	1700-1800	0.278656889	6.87E-07	5.69844E-06	0.23461	5.784E-07	4.7977E-06	1.5158239	3.737E-06	3.09981E-05	1.2843156	3.166E-06	2.62638E-05	1.5189256	3.745E-06	3.10615E-05
Road 11	11	1800-1900	0.299112961	6.128E-07	5.08294E-06	0.2528204	5.179E-07	4.29628E-06	1.5954334	3.268E-06	2.71118E-05	1.3548799	2.776E-06	2.3024E-05	1.6077003	3.294E-06	2.73203E-05
Road 11	11	1900-2000	0.284690851	4.498E-07	3.7309E-06	0.2418766	3.821E-07	3.16981E-06	1.4817997	2.341E-06	1.94191E-05	1.2591707	1.989E-06	1.65015E-05	1.5010472	2.371E-06	1.96713E-05
Road 11	11	2000-2100	0.295288619	4.152E-07	3.44453E-06	0.2471669	3.476E-07	2.88319E-06	1.4729993	2.071E-06	1.71825E-05	1.2353846	1.737E-06	1.44107E-05	1.4825515	2.085E-06	1.72939E-05
Road 11	11	2100-2200	0.215459922	2.132E-07	1.76864E-06	0.1805765	1.787E-07	1.48229E-06	1.2042092	1.192E-06	9.88496E-06	1.0115755	1.001E-06	8.30369E-06	1.192152	1.18E-06	9.78599E-06
Road 11	11	2200-2300	0.275071289	3.009E-07	2.49565E-06	0.2326475	2.545E-07	2.11075E-06	1.3898347	1.52E-06	1.26096E-05	1.1749102	1.285E-06	1.06597E-05	1.4075577	1.54E-06	1.27704E-05
Road 11	11	2300-0000	0.263953451	2.75E-07	2.28075E-06	0.2217502	2.31E-07	1.91608E-06	1.356792	1.413E-06	1.17236E-05	1.1387653	1.186E-06	9.83974E-06	1.3605154	1.417E-06	1.17558E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.35548	2.548E-06	3.83216E-06	1.15116	2.164E-06	3.25451E-06	6.22902	1.171E-05	1.76104E-05	5.29007	9.944E-06	1.49559E-05	6.44123	1.211E-05	1.82104E-05
Haul Road 1	HR1	0800-0900	1.36808	2.572E-06	3.86778E-06	1.16395	2.188E-06	3.29067E-06	6.28669	1.182E-05	1.77735E-05	5.34876	1.005E-05	1.51218E-05	6.51271	1.224E-05	1.84125E-05
Haul Road 1	HR1	0900-1000	1.37807	2.59E-06	3.89603E-06	1.17365	2.206E-06	3.3181E-06	6.33268	1.19E-05	1.79035E-05	5.39334	1.014E-05	1.52478E-05	6.56699	1.234E-05	1.85659E-05
Haul Road 1	HR1	1000-1100	1.38307	2.6E-06	3.91016E-06	1.17265	2.204E-06	3.31527E-06	6.35557	1.195E-05	1.79682E-05	5.38874	1.013E-05	1.52348E-05	6.56139	1.233E-05	1.85501E-05
Haul Road 1	HR1	1100-1200	1.37947	2.593E-06	3.89998E-06	1.18615	2.23E-06	3.35344E-06	6.33927	1.192E-05	1.79221E-05	5.45051	1.025E-05	1.54095E-05	6.63666	1.247E-05	1.87629E-05
Haul Road 1	HR1	1200-1300	1.35748	2.552E-06	3.83781E-06	1.18015	2.218E-06	3.33647E-06	6.23831	1.173E-05	1.76367E-05	5.42352	1.019E-05	1.53332E-05	6.60367	1.241E-05	1.86696E-05
Haul Road 1	HR1	1300-1400	1.35748	2.552E-06	3.83781E-06	1.18015	2.218E-06	3.33647E-06	6.23831	1.173E-05	1.76367E-05	5.42352	1.019E-05	1.53332E-05	6.60367	1.241E-05	1.86696E-05
Haul Road 1	HR1	1400-1500	1.36108	2.558E-06	3.84799E-06	1.16595	2.192E-06	3.29633E-06	6.2546	1.176E-05	1.76828E-05	5.35785	1.007E-05	1.51475E-05	6.5238	1.226E-05	1.84438E-05
Haul Road 1	HR1	1500-1600	1.37897	2.592E-06	3.89857E-06	1.16595	2.192E-06	3.29633E-06	6.33708	1.191E-05	1.79159E-05	5.35785	1.007E-05	1.51475E-05	6.5238	1.226E-05	1.84438E-05
Haul Road 1	HR1	1600-1700	1.38737	2.608E-06	3.92232E-06	1.14576	2.154E-06	3.23925E-06	6.37556	1.198E-05	1.80247E-05	5.26509	9.897E-06	1.48853E-05	6.41085	1.205E-05	1.81245E-05
Haul Road 1	HR1	1700-1800	1.39297	2.618E-06	3.93815E-06	1.14826	2.158E-06	3.24632E-06	6.40145	1.203E-05	1.80979E-05	5.27678	9.919E-06	1.49183E-05	6.42504	1.208E-05	1.81646E-05
Haul Road 1	HR1	1800-1900	1.38477	2.603E-06	3.91497E-06	1.15196	2.165E-06	3.25678E-06	6.36356	1.196E-05	1.79908E-05	5.29387	9.951E-06	1.49666E-05	6.44583	1.212E-05	1.82234E-05
Haul Road 1	HR1	1900-2000	1.37417	2.583E-06	3.885E-06	1.14606	2.154E-06	3.2401E-06	6.31499	1.187E-05	1.78535E-05	5.26638	9.899E-06	1.48889E-05	6.41244	1.205E-05	1.8129E-05
Haul Road 1	HR1	2000-2100	1.37417	2.583E-06	3.885E-06	1.14006	2.143E-06	3.22313E-06	6.31499	1.187E-05	1.78535E-05	5.239	9.848E-06	1.48115E-05	6.37906	1.199E-05	1.80346E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.35548	1.756E-06	4.67378E-06	1.15116	1.491E-06	3.96927E-06	6.22902	8.069E-06	2.1478E-05	5.29007	6.852E-06	1.82405E-05	6.44123	8.344E-06	2.22097E-05
Haul Road 2	HR2	0800-0900	1.36808	1.772E-06	4.71722E-06	1.16395	1.508E-06	4.01337E-06	6.28669	8.143E-06	2.16769E-05	5.34876	6.928E-06	1.84428E-05	6.51271	8.436E-06	2.24562E-05
Haul Road 2	HR2	0900-1000	1.37807	1.785E-06	4.75167E-06	1.17365	1.52E-06	4.04682E-06	6.33268	8.203E-06	2.18355E-05	5.39334	6.986E-06	1.85966E-05	6.56699	8.506E-06	2.26434E-05
Haul Road 2	HR2	1000-1100	1.38307	1.792E-06	4.76891E-06	1.17265	1.519E-06	4.04337E-06	6.35557	8.233E-06	2.19144E-05	5.38874	6.98E-06	1.85807E-05	6.56139	8.499E-06	2.26241E-05
Haul Road 2	HR2	1100-1200	1.37947	1.787E-06	4.7565E-06	1.18615	1.536E-06	4.08992E-06	6.33927	8.211E-06	2.18582E-05	5.45051	7.06E-06	1.87937E-05	6.63666	8.597E-06	2.28836E-05
Haul Road 2	HR2	1200-1300	1.35748	1.758E-06	4.68067E-06	1.18015	1.529E-06	4.06923E-06	6.23831	8.081E-06	2.15101E-05	5.42352	7.025E-06	1.87006E-05	6.60367	8.554E-06	2.27699E-05
Haul Road 2	HR2	1300-1400	1.35748	1.758E-06	4.68067E-06	1.18015	1.529E-06	4.06923E-06	6.23831	8.081E-06	2.15101E-05	5.42352	7.025E-06	1.87006E-05	6.60367	8.554E-06	2.27699E-05
Haul Road 2	HR2	1400-1500	1.36108	1.763E-06	4.69309E-06	1.16595	1.51E-06	4.02027E-06	6.2546	8.102E-06	2.15662E-05	5.35785	6.94E-06	1.84742E-05	6.5238	8.451E-06	2.24945E-05
Haul Road 2	HR2	1500-1600	1.37897	1.786E-06	4.75477E-06	1.16595	1.51E-06	4.02027E-06	6.33708	8.209E-06	2.18506E-05	5.35785	6.94E-06	1.84742E-05	6.5238	8.451E-06	2.24945E-05
Haul Road 2	HR2	1600-1700	1.38737	1.797E-06	4.78374E-06	1.14576	1.484E-06	3.95065E-06	6.37556	8.258E-06	2.19833E-05	5.26509	6.82E-06	1.81543E-05	6.41085	8.304E-06	2.2105E-05
Haul Road 2	HR2	1700-1800	1.39297	1.804E-06	4.80304E-06	1.14826	1.487E-06	3.95927E-06	6.40145	8.292E-06	2.20726E-05	5.27678	6.835E-06	1.81947E-05	6.42504	8.323E-06	2.21539E-05
Haul Road 2	HR2	1800-1900	1.38477	1.794E-06	4.77477E-06	1.15196	1.492E-06	3.97203E-06	6.36356	8.243E-06	2.19419E-05	5.29387	6.857E-06	1.82536E-05	6.44583	8.35E-06	2.22256E-05
Haul Road 2	HR2	1900-2000	1.37417	1.78E-06	4.73822E-06	1.14606	1.485E-06	3.95168E-06	6.31499	8.18E-06	2.17745E-05	5.26638	6.822E-06	1.81588E-05	6.41244	8.306E-06	2.21105E-05
Haul Road 2	HR2	2000-2100	1.37417	1.78E-06	4.73822E-06	1.14006	1.477E-06	3.931E-06	6.31499	8.18E-06	2.17745E-05	5.239	6.786E-06	1.80644E-05	6.37906	8.263E-06	2.19954E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (September) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.35548	1.756E-06	4.66726E-06	1.15116	1.491E-06	3.96373E-06	6.22902	8.069E-06	2.14481E-05	5.29007	6.852E-06	1.8215E-05	6.44123	8.344E-06	2.21788E-05
Haul Road 3	HR3	0800-0900	1.36808	1.772E-06	4.71065E-06	1.16395	1.508E-06	4.00777E-06	6.28669	8.143E-06	2.16467E-05	5.34876	6.928E-06	1.84171E-05	6.51271	8.436E-06	2.24249E-05
Haul Road 3	HR3	0900-1000	1.37807	1.785E-06	4.74504E-06	1.17365	1.52E-06	4.04117E-06	6.33268	8.203E-06	2.1805E-05	5.39334	6.986E-06	1.85706E-05	6.56699	8.506E-06	2.26118E-05
Haul Road 3	HR3	1000-1100	1.38307	1.792E-06	4.76226E-06	1.17265	1.519E-06	4.03773E-06	6.35557	8.233E-06	2.18838E-05	5.38874	6.98E-06	1.85548E-05	6.56139	8.499E-06	2.25925E-05
Haul Road 3	HR3	1100-1200	1.37947	1.787E-06	4.74986E-06	1.18615	1.536E-06	4.08421E-06	6.33927	8.211E-06	2.18277E-05	5.45051	7.06E-06	1.87675E-05	6.63666	8.597E-06	2.28517E-05
Haul Road 3	HR3	1200-1300	1.35748	1.758E-06	4.67415E-06	1.18015	1.529E-06	4.06355E-06	6.23831	8.081E-06	2.14801E-05	5.42352	7.025E-06	1.86746E-05	6.60367	8.554E-06	2.27381E-05
Haul Road 3	HR3	1300-1400	1.35748	1.758E-06	4.67415E-06	1.18015	1.529E-06	4.06355E-06	6.23831	8.081E-06	2.14801E-05	5.42352	7.025E-06	1.86746E-05	6.60367	8.554E-06	2.27381E-05
Haul Road 3	HR3	1400-1500	1.36108	1.763E-06	4.68654E-06	1.16595	1.51E-06	4.01466E-06	6.2546	8.102E-06	2.15362E-05	5.35785	6.94E-06	1.84484E-05	6.5238	8.451E-06	2.24631E-05
Haul Road 3	HR3	1500-1600	1.37897	1.786E-06	4.74814E-06	1.16595	1.51E-06	4.01466E-06	6.33708	8.209E-06	2.18202E-05	5.35785	6.94E-06	1.84484E-05	6.5238	8.451E-06	2.24631E-05
Haul Road 3	HR3	1600-1700	1.38737	1.797E-06	4.77707E-06	1.14576	1.484E-06	3.94514E-06	6.37556	8.258E-06	2.19527E-05	5.26509	6.82E-06	1.8129E-05	6.41085	8.304E-06	2.20742E-05
Haul Road 3	HR3	1700-1800	1.39297	1.804E-06	4.79635E-06	1.14826	1.487E-06	3.95375E-06	6.40145	8.292E-06	2.20418E-05	5.27678	6.835E-06	1.81693E-05	6.42504	8.323E-06	2.2123E-05
Haul Road 3	HR3	1800-1900	1.38477	1.794E-06	4.76811E-06	1.15196	1.492E-06	3.96649E-06	6.36356	8.243E-06	2.19113E-05	5.29387	6.857E-06	1.82281E-05	6.44583	8.35E-06	2.21946E-05
Haul Road 3	HR3	1900-2000	1.37417	1.78E-06	4.73161E-06	1.14606	1.485E-06	3.94617E-06	6.31499	8.18E-06	2.17441E-05	5.26638	6.822E-06	1.81335E-05	6.41244	8.306E-06	2.20797E-05
Haul Road 3	HR3	2000-2100	1.37417	1.78E-06	4.73161E-06	1.14006	1.477E-06	3.92551E-06	6.31499	8.18E-06	2.17441E-05	5.239	6.786E-06	1.80392E-05	6.37906	8.263E-06	2.19647E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.102813955	3.416E-07	2.7786E-06	0.0894011	2.97E-07	2.41611E-06	0.6058682	2.013E-06	1.63739E-05	0.5244025	1.742E-06	1.41723E-05	0.6138036	2.039E-06	1.65884E-05
Road 1	1	0100-0200	0.077135463	1.564E-07	1.27198E-06	0.0700903	1.421E-07	1.1558E-06	0.4643768	9.413E-07	7.65765E-06	0.420579	8.525E-07	6.93542E-06	0.4906693	9.946E-07	8.09122E-06
Road 1	1	0200-0300	0.073894675	1.068E-07	8.68771E-07	0.0665991	9.625E-08	7.82997E-07	0.4691166	6.78E-07	5.51535E-06	0.4201618	6.072E-07	4.93979E-06	0.4867609	7.035E-07	5.72279E-06
Road 1	1	0300-0400	0.062998364	6.503E-08	5.29046E-07	0.0567904	5.862E-08	4.76912E-07	0.3815295	3.938E-07	3.204E-06	0.3419193	3.53E-07	2.87136E-06	0.3987096	4.116E-07	3.34827E-06
Road 1	1	0400-0500	0.082225882	1.312E-07	1.06716E-06	0.0744722	1.188E-07	9.66528E-07	0.467754	7.462E-07	6.07068E-06	0.4221414	6.735E-07	5.47871E-06	0.4966136	7.923E-07	6.44524E-06
Road 1	1	0500-0600	0.067660214	2.375E-07	1.93186E-06	0.0600064	2.106E-07	1.71333E-06	0.3974056	1.395E-06	1.13469E-05	0.3502429	1.229E-06	1.00003E-05	0.4102493	1.44E-06	1.17136E-05
Road 1	1	0600-0700	0.09289512	5.789E-07	4.70904E-06	0.0816913	5.09E-07	4.1411E-06	0.4971629	3.098E-06	2.52022E-05	0.4350022	2.711E-06	2.20511E-05	0.5166935	3.22E-06	2.61922E-05
Road 1	1	0700-0800	0.078404544	8.226E-07	6.69197E-06	0.0687566	7.214E-07	5.8685E-06	0.4317308	4.53E-06	3.6849E-05	0.375932	3.944E-06	3.20865E-05	0.4446886	4.666E-06	3.7955E-05
Road 1	1	0800-0900	0.083413796	1.072E-06	8.72428E-06	0.0745265	9.582E-07	7.79475E-06	0.4432877	5.699E-06	4.63636E-05	0.3946413	5.074E-06	4.12757E-05	0.4691678	6.032E-06	4.90704E-05
Road 1	1	0900-1000	0.086825446	1.152E-06	9.37276E-06	0.0782939	1.039E-06	8.45179E-06	0.4858463	6.447E-06	5.24469E-05	0.4369132	5.798E-06	4.71646E-05	0.5152071	6.837E-06	5.56164E-05
Road 1	1	1000-1100	0.100992853	1.302E-06	1.05937E-05	0.0919355	1.185E-06	9.64364E-06	0.5424911	6.995E-06	5.6905E-05	0.4928793	6.355E-06	5.1701E-05	0.5848148	7.541E-06	6.13446E-05
Road 1	1	1100-1200	0.090765502	1.136E-06	9.24374E-06	0.0828752	1.037E-06	8.44018E-06	0.5210979	6.524E-06	5.30697E-05	0.4747791	5.944E-06	4.83525E-05	0.5576543	6.981E-06	5.67927E-05
Road 1	1	1200-1300	0.092764242	1.149E-06	9.34815E-06	0.0854599	1.059E-06	8.61207E-06	0.5288772	6.551E-06	5.32967E-05	0.4862708	6.024E-06	4.90031E-05	0.5717308	7.082E-06	5.76152E-05
Road 1	1	1300-1400	0.096989858	1.278E-06	1.0396E-05	0.0885716	1.167E-06	9.49364E-06	0.5408929	7.127E-06	5.79762E-05	0.4930975	6.497E-06	5.28532E-05	0.5816691	7.664E-06	6.23468E-05
Road 1	1	1400-1500	0.09293485	1.334E-06	1.08553E-05	0.0844186	1.212E-06	9.86054E-06	0.5060743	7.266E-06	5.91122E-05	0.4588043	6.588E-06	5.35908E-05	0.5432228	7.8E-06	6.34513E-05
Road 1	1	1500-1600	0.098877659	1.316E-06	1.0704E-05	0.0913332	1.215E-06	9.88726E-06	0.536535	7.14E-06	5.80825E-05	0.4944759	6.58E-06	5.35294E-05	0.585809	7.795E-06	6.34167E-05
Road 1	1	1600-1700	0.094923382	1.333E-06	1.08412E-05	0.0866856	1.217E-06	9.90033E-06	0.5203202	7.305E-06	5.94256E-05	0.4741547	6.657E-06	5.4153E-05	0.5608403	7.874E-06	6.40534E-05
Road 1	1	1700-1800	0.075635293	1.065E-06	8.66138E-06	0.0688383	9.69E-07	7.88302E-06	0.42262	5.949E-06	4.83963E-05	0.3833295	5.396E-06	4.3897E-05	0.4521678	6.365E-06	5.178E-05
Road 1	1	1800-1900	0.066403424	9.572E-07	7.78669E-06	0.0613723	8.846E-07	7.19673E-06	0.3937761	5.676E-06	4.61755E-05	0.3624555	5.225E-06	4.25028E-05	0.4238278	6.109E-06	4.96995E-05
Road 1	1	1900-2000	0.07944256	8.737E-07	7.10808E-06	0.0724453	7.968E-07	6.482E-06	0.4535418	4.988E-06	4.05804E-05	0.4120512	4.532E-06	3.6868E-05	0.4844965	5.329E-06	4.335E-05
Road 1	1	2000-2100	0.071944234	6.698E-07	5.44852E-06	0.066165	6.16E-07	5.01085E-06	0.4219239	3.928E-06	3.19534E-05	0.386664	3.6E-06	2.92831E-05	0.452829	4.216E-06	3.42939E-05
Road 1	1	2100-2200	0.075748565	6.44E-07	5.23931E-06	0.0693215	5.894E-07	4.79477E-06	0.446758	3.798E-06	3.09009E-05	0.4071475	3.462E-06	2.81612E-05	0.476469	4.051E-06	3.2956E-05
Road 1	1	2200-2300	0.075635916	6.118E-07	4.97745E-06	0.0673228	5.446E-07	4.43038E-06	0.4449501	3.599E-06	2.92813E-05	0.3938626	3.186E-06	2.59193E-05	0.4611853	3.731E-06	3.03497E-05
Road 1	1	2300-0000	0.067877818	4.905E-07	3.99016E-06	0.0589673	4.261E-07	3.46636E-06	0.4150881	2.999E-06	2.44007E-05	0.3574618	2.583E-06	2.10132E-05	0.4164291	3.009E-06	2.44795E-05
Road 2	2	0000-0100	0.172464118	2.036E-07	1.31485E-06	0.1499384	1.77E-07	1.14312E-06	0.732302	8.645E-07	5.58301E-06	0.6345261	7.491E-07	4.83757E-06	0.7844645	9.261E-07	5.98069E-06
Road 2	2	0100-0200	0.118673636	9.065E-08	5.85431E-07	0.1077782	8.233E-08	5.31683E-07	0.5876427	4.489E-07	2.89891E-06	0.5323639	4.067E-07	2.62622E-06	0.6401421	4.89E-07	3.1579E-06
Road 2	2	0200-0300	0.118926957	6.332E-08	4.08899E-07	0.1072609	5.711E-08	3.68788E-07	0.6473878	3.447E-07	2.22587E-06	0.5814496	3.096E-07	1.99916E-06	0.6887104	3.667E-07	2.36795E-06
Road 2	2	0300-0400	0.104522667	3.629E-08	2.34374E-07	0.0941867	3.27E-08	2.11197E-07	0.3797113	1.318E-07	8.51437E-07	0.3406347	1.183E-07	7.63814E-07	0.4348213	1.51E-07	9.75012E-07
Road 2	2	0400-0500	0.140926667	8.808E-08	5.68807E-07	0.1276204	7.976E-08	5.151E-07	0.6816141	4.26E-07	2.75112E-06	0.6159785	3.85E-07	2.48621E-06	0.7435989	4.647E-07	3.00131E-06
Road 2	2	0500-0600	0.114450702	1.51E-07	9.75217E-07	0.1015609	1.34E-07	8.65384E-07	0.505384	6.668E-07	4.3063E-06	0.4462274	5.888E-07	3.80223E-06	0.5477882	7.228E-07	4.66762E-06
Road 2	2	0600-0700	0.164901359	3.932E-07	2.53904E-06	0.145004	3.457E-07	2.23267E-06	0.6693153	1.596E-06	1.03057E-05	0.5864139	1.398E-06	9.0292E-06	0.7314179	1.744E-06	1.12619E-05
Road 2	2	0700-0800	0.131683861	4.816E-07	3.11026E-06	0.1154368	4.222E-07	2.72652E-06	0.5558766	2.033E-06	1.31294E-05	0.4846144	1.772E-06	1.14462E-05	0.6000512	2.195E-06	1.41727E-05
Road 2	2	0800-0900	0.147616	1.025E-06	6.62007E-06	0.1318843	9.159E-07	5.91456E-06	0.6255044	4.344E-06	2.80517E-05	0.5567748	3.866E-06	2.49694E-05	0.6886591	4.782E-06	3.0884E-05
Road 2	2	0900-1000	0.167629593	9.546E-07	6.16444E-06	0.1511138	8.605E-07	5.55708E-06	0.725461	4.131E-06	2.66782E-05	0.6526791	3.717E-06	2.40017E-05	0.8037929	4.577E-06	2.95588E-05
Road 2	2	1000-1100	0.186584457	7.947E-07	5.13217E-06	0.1698383	7.234E-07	4.67155E-06	0.8012017	3.413E-06	2.20378E-05	0.7283027	3.102E-06	2.00326E-05	0.8981409	3.825E-06	2.47042E-05
Road 2	2	1100-1200	0.224434033	9.403E-07	6.0726E-06	0.204876	8.584E-07	5.54342E-06	0.9206894	3.858E-06	2.49115E-05	0.8398226	3.519E-06	2.27234E-05	1.0446986	4.377E-06	2.82668E-05
Road 2	2	1200-1300	0.169906755	7.394E-07	4.77503E-06	0.1565104	6.811E-07	4.39854E-06	0.7489363	3.259E-06	2.1048E-05	0.6887989	2.998E-06	1.93579E-05	0.8453094	3.679E-06	2.37564E-05
Road 2	2	1300-1400	0.18807	9.578E-07	6.18515E-06	0.1716179	8.74E-07	5.64408E-06	0.7778096	3.961E-06	2.55802E-05	0.7088678	3.61E-06	2.33129E-05	0.8804857	4.484E-06	2.89569E-05
Road 2	2	1400-1500	0.164299018	6.199E-07	4.00341E-06	0.1492213	5.63E-07	3.63602E-06	0.711158	2.683E-06	1.73285E-05	0.6451106	2.434E-06	1.57192E-05	0.794332	2.997E-06	1.93552E-05
Road 2	2	1500-1600	0.200115866	8.292E-07	5.35479E-06	0.1846978	7.653E-07	4.94222E-06	0.8044055	3.333E-06	2.15246E-05	0.7416658	3.073E-06	1.98458E-05	0.9263635	3.838E-06	2.4788E-05
Road 2	2	1600-1700	0.171888995	8.714E-07	5.6273E-06	0.1569898	7.959E-07	5.13953E-06	0.7273792	3.687E-06	2.38129E-05	0.6632646	3.362E-06	2.17139E-05	0.8202544	4.158E-06	2.68535E-05
Road 2	2	1700-1800	0.129569355	6.508E-07	4.2031E-06	0.1179569	5.925E-07	3.8264E-06	0.5161099	2.592E-06	1.67421E-05	0.4687181	2.354E-06	1.52047E-05	0.586675	2.947E-06	1.90311E-05
Road 2	2	1800-1900	0.140278468	8.053E-07	5.20056E-06	0.1297083	7.446E-07	4.8087E-06	0.6472087	3.715E-06	2.39941E-05	0.5970598	3.428E-06	2.21349E-05	0.7267682	4.172E-06	2.69436E-05
Road 2	2	1900-2000	0.119920663	4.608E-07	2.97584E-06	0.1093655	4.202E-07	2.71391E-06	0.550788	2.116E-06	1.36679E-05	0.5005842	1.924E-06	1.2422E-05	0.6099497	2.344E-06	1.5136E-05
Road 2	2	2000-2100	0.118025548	3.989E-07	2.57595E-06	0.1085077	3.667E-07	2.36822E-06	0.4963914	1.678E-06	1.08339E-05	0.4547116	1.537E-06	9.92422E-06	0.5632193	1.903E-06	1.22924E-05
Road 2	2	2100-2200	0.091068816	3.204E-07	2.06929E-06	0.0832598	2.93E-07	1.89185E-06	0.4119389	1.449E-06	9.36018E-06	0.3745712	1.318E-06	8.5111E-06	0.457831	1.611E-06	1.04029E-05
Road 2	2	2200-2300	0.13400056	3.877E-07	2.50394E-06	0.1192964	3.452E-07	2.22918E-06	0.5724946	1.657E-06	1.06977E-05	0.5073532	1.468E-06	9.48043E-06	0.6266496	1.813E-06	1.17096E-05
Road 2	2	2300-0000	0.124414636	3.168E-07	2.04584E-06	0.1081205	2.753E-07	1.77791E-06	0.5613055	1.429E-06	9.22996E-06	0.4844173	1.233E-06	7.96563E-06	0.5925378	1.509E-06	9.74353E-06
Road 3	3	0000-0100	0.107183057	3.937E-07	1.53017E-05	0.0948255	3.483E-07	1.35375E-05	0.5877405	2.159E-06	8.39073E-05	0.5178745	1.902E-06	7.39331E-05	0.6127	2.25E-06	8.74706E-05
Road 3	3	0100-0200	0.078706879	1.78E-07	6.91848E-06	0.071047	1.607E-07	6.24516E-06	0.4561195	1.032E-06	4.00937E-05	0.4102131	9.277E-07	3.60585E-05	0.4812601	1.088E-06	4.23036E-05
Road 3	3	0200-0300	0.075867576	1.205E-07	4.68242E-06	0.0683101	1.085E-07	4.21598E-06	0.4696096	7.457E-07	2.89835E-05	0.4203461	6.675E-07	2.5943E-05	0.4886562	7.759E-07	3.0159E-05
Road 3	3	0300-0400	0.065274928	7.224E-08	2.80785E-06	0.0585867	6.484E-08	2.52015E-06	0.3531923	3.909E-07	1.51928E-05	0.315193	3.488E-07	1.35583E-05	0.3737797	4.137E-07	1.60784E-05
Road 3	3	0400-0500	0.087188288	1.552E-07	6.03337E-06	0.0797359	1.42E-07	5.51767E-06	0.4786147	8.521E-07	3.31198E-05	0.436329	7.768E-07	3.01937E-05	0.5160649	9.188E-07	3.57113E-05
Road 3	3	0500-0600	0.071311317	2.779E-07	1.0803E-05	0.0644616	2.512E-07	9.76532E-06	0.3925374	1.53E-06	5.94656E-05	0.3529358	1.376E-06	5.34664E-05	0.4173974	1.627E-06	6.32317E-05
Road 3	3	0600-0700	0.098783402	6.94E-07	2.69735E-05	0.0881751	6.195E-07	2.40768E-05	0.4919779	3.456E-06	0.000134338	0.4371478	3.071E-06	0.000119366	0.5253229	3.691E-06	0.000143443
Road 3	3	0700-0800	0.081339232	9.341E-07	3.63071E-05	0.0724035	8.315E-07	3.23185E-05	0.4224181	4.851E-06	0.000188553	0.3736114	4.291E-06	0.000166768	0.4460149	5.122E-06	0.000199086
Road 3	3	0800-0900	0.089536097	1.42E-06	5.52043E-05	0.0805161	1.277E-06	4.96429E-05	0.4451626	7.062E-06	0.000274469	0.3989207	6.328E-06	0.000245958	0.4794367	7.605E-06	0.000295601
Road 3	3	0900-1000	0.096452191	1.476E-06	5.7364E-05	0.0871324	1.333E-06	5.18211E-05	0.4959874	7.589E-06	0.000294984	0.4467357	6.836E-06	0.000265692	0.5338681	8.169E-06	0.000317513
Road 3	3	1000-1100	0.107847943	1.505E-06	5.84938E-05	0.0976372	1.362E-06	5.29557E-05	0.5479949	7.647E-06	0.000297218	0.4950492	6.908E-06	0.000268501	0.5926864	8.271E-06	0.000321457
Road 3	3	1100-1200	0.105617766	1.433E-06	5.5704E-05	0.0951082	1.291E-06	5.01611E-05	0.5505336	7.47E-06	0.000290357	0.4947207	6.713E-06	0.000260921	0.5898289	8.004E-06	0.000311082
Road 3	3	1200-1300	0.098809433	1.341E-06	5.21132E-05	0.0905914	1.229E-06	4.77789E-05	0.5267736	7.148E-06	0.000277826	0.4819315	6.54E-06	0.000254176	0.5725229	7.769E-06	0.000301955
Road 3	3	1300-1400	0.104654548	1.543E-06	5.99587E-05	0.0963299	1.42E-06	5.51894E-05	0.5368387	7.913E-06	0.000307566	0.493208	7.27E-06	0.000282569	0.5895379	8.69E-06	0.000337758

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.09738303	1.443E-06	5.60963E-05	0.0896374	1.328E-06	5.16345E-05	0.5054716	7.491E-06	0.000291171	0.4643525	6.882E-06	0.000267484	0.5539899	8.21E-06	0.000319119
Road 3	3	1500-1600	0.108944056	1.555E-06	6.04467E-05	0.0992405	1.417E-06	5.50627E-05	0.5502913	7.856E-06	0.000305324	0.5003442	7.143E-06	0.000277612	0.5995847	8.559E-06	0.000332674
Road 3	3	1600-1700	0.101376698	1.576E-06	6.12408E-05	0.0938831	1.459E-06	5.6714E-05	0.5219178	8.112E-06	0.000315286	0.4822951	7.496E-06	0.00029135	0.5761783	8.955E-06	0.000348064
Road 3	3	1700-1800	0.080692134	1.255E-06	4.87957E-05	0.0734256	1.142E-06	4.44015E-05	0.4155081	6.465E-06	0.000251264	0.3769574	5.865E-06	0.000227952	0.450383	7.007E-06	0.000272353
Road 3	3	1800-1900	0.075818427	1.237E-06	4.807E-05	0.0693596	1.131E-06	4.3975E-05	0.4178244	6.816E-06	0.000264907	0.3806843	6.21E-06	0.00024136	0.4500439	7.341E-06	0.000285335
Road 3	3	1900-2000	0.080218274	9.689E-07	3.76571E-05	0.0734118	8.867E-07	3.44619E-05	0.438971	5.302E-06	0.000206067	0.4002306	4.834E-06	0.000187881	0.4736425	5.721E-06	0.000222343
Road 3	3	2000-2100	0.074569643	7.703E-07	2.99383E-05	0.0685273	7.079E-07	2.75124E-05	0.4045881	4.179E-06	0.000162434	0.370401	3.826E-06	0.000148709	0.4389283	4.534E-06	0.000176221
Road 3	3	2100-2200	0.073657984	7.207E-07	2.8011E-05	0.0673871	6.593E-07	2.56263E-05	0.4130006	4.041E-06	0.000157058	0.3762602	3.681E-06	0.000143086	0.4436474	4.341E-06	0.000168712
Road 3	3	2200-2300	0.080855665	7.211E-07	2.80262E-05	0.0719769	6.419E-07	2.49486E-05	0.4382332	3.908E-06	0.0001519	0.3879992	3.46E-06	0.000134488	0.4599761	4.102E-06	0.000159437
Road 3	3	2300-0000	0.072833554	5.818E-07	2.2612E-05	0.0645479	5.156E-07	2.00397E-05	0.4111689	3.284E-06	0.000127652	0.3615348	2.888E-06	0.000112243	0.4260827	3.403E-06	0.000132282
Road 4	4	0000-0100	0.274022	2.22E-07	2.37717E-06	0.2422654	1.963E-07	2.10168E-06	1.3962123	1.131E-06	1.21123E-05	1.2337449	9.996E-07	1.07029E-05	1.4760103	1.196E-06	1.28046E-05
Road 4	4	0100-0200	0.2531365	1.172E-07	1.25485E-06	0.228351	1.057E-07	1.13198E-06	1.292036	5.982E-07	6.4049E-06	1.165351	5.395E-07	5.77689E-06	1.393702	6.452E-07	6.90888E-06
Road 4	4	0200-0300	0.272243846	8.193E-08	8.77221E-07	0.2452746	7.381E-08	7.90321E-07	1.3435531	4.043E-07	4.32918E-06	1.2103262	3.642E-07	3.8999E-06	1.4556008	4.38E-07	4.69022E-06
Road 4	4	0300-0400	0.247561429	4.011E-08	4.29525E-07	0.2224114	3.604E-08	3.85889E-07	1.3141043	2.129E-07	2.28E-06	1.1802843	1.912E-07	2.04782E-06	1.4026957	2.273E-07	2.43371E-06
Road 4	4	0400-0500	0.254330714	8.242E-08	8.8254E-07	0.2324793	7.534E-08	8.06714E-07	1.2557414	4.07E-07	4.35748E-06	1.1478964	3.72E-07	3.98326E-06	1.3803757	4.473E-07	4.78997E-06
Road 4	4	0500-0600	0.238091667	1.323E-07	1.41633E-06	0.2152979	1.196E-07	1.28073E-06	1.1280679	6.267E-07	6.71049E-06	1.0195688	5.664E-07	6.06506E-06	1.2348667	6.86E-07	7.3458E-06
Road 4	4	0600-0700	0.267231731	3.217E-07	3.44428E-06	0.2384875	2.871E-07	3.07381E-06	1.2758131	1.536E-06	1.64436E-05	1.1380113	1.37E-06	1.46675E-05	1.3764988	1.657E-06	1.77414E-05
Road 4	4	0700-0800	0.268619457	5.721E-07	6.12538E-06	0.2391142	5.092E-07	5.45256E-06	1.3371164	2.848E-06	3.04905E-05	1.1892693	2.533E-06	2.71191E-05	1.4283836	3.042E-06	3.25717E-05
Road 4	4	0800-0900	0.273493007	9.686E-07	1.03716E-05	0.2459025	8.709E-07	9.32528E-06	1.3642342	4.832E-06	5.17354E-05	1.2260919	4.342E-06	4.64967E-05	1.4719944	5.213E-06	5.5822E-05
Road 4	4	0900-1000	0.279833784	9.587E-07	1.02652E-05	0.2523683	8.646E-07	9.25772E-06	1.3188055	4.518E-06	4.83782E-05	1.1887968	4.073E-06	4.36091E-05	1.4411651	4.937E-06	5.28668E-05
Road 4	4	1000-1100	0.309716993	1.025E-06	1.09776E-05	0.2801669	9.274E-07	9.93026E-06	1.4625941	4.841E-06	5.18403E-05	1.3227612	4.379E-06	4.6884E-05	1.6029281	5.306E-06	5.68143E-05
Road 4	4	1100-1200	0.287291226	1.031E-06	1.10373E-05	0.2584731	9.274E-07	9.93012E-06	1.3476948	4.835E-06	5.17763E-05	1.2122837	4.35E-06	4.6574E-05	1.4707568	5.277E-06	5.65041E-05
Road 4	4	1200-1300	0.291072585	9.905E-07	1.06054E-05	0.2666993	9.075E-07	9.71732E-06	1.4285662	4.861E-06	5.20505E-05	1.3086995	4.453E-06	4.76831E-05	1.5753987	5.361E-06	5.74005E-05
Road 4	4	1300-1400	0.297828523	1.027E-06	1.09992E-05	0.2739713	9.449E-07	1.01181E-05	1.4274472	4.923E-06	5.27174E-05	1.3128517	4.528E-06	4.84852E-05	1.586823	5.473E-06	5.86033E-05
Road 4	4	1400-1500	0.272783478	8.714E-07	9.33049E-06	0.2509295	8.016E-07	8.58298E-06	1.3518992	4.319E-06	4.62414E-05	1.2431967	3.971E-06	4.25233E-05	1.4941262	4.773E-06	5.11062E-05
Road 4	4	1500-1600	0.306001371	8.783E-07	9.40486E-06	0.2785094	7.994E-07	8.55991E-06	1.4648405	4.205E-06	4.50215E-05	1.3331454	3.827E-06	4.09738E-05	1.6116548	4.626E-06	4.95338E-05
Road 4	4	1600-1700	0.283816532	8.147E-07	8.72302E-06	0.2626753	7.54E-07	8.07325E-06	1.3739278	3.944E-06	4.22273E-05	1.2713258	3.649E-06	3.90738E-05	1.5340011	4.403E-06	4.71471E-05
Road 4	4	1700-1800	0.270864286	7.9E-07	8.45921E-06	0.2464648	7.189E-07	7.6972E-06	1.332969	3.888E-06	4.16292E-05	1.2125128	3.536E-06	3.78673E-05	1.4589775	4.255E-06	4.55645E-05
Road 4	4	1800-1900	0.297338113	7.296E-07	7.81203E-06	0.2719675	6.673E-07	7.14546E-06	1.4835706	3.64E-06	3.89782E-05	1.3568475	3.329E-06	3.56488E-05	1.6288149	3.997E-06	4.27942E-05
Road 4	4	1900-2000	0.26597973	4.556E-07	4.87852E-06	0.2433804	4.169E-07	4.46401E-06	1.3209189	2.263E-06	2.42279E-05	1.2083331	2.07E-06	2.21629E-05	1.4517135	2.487E-06	2.66269E-05
Road 4	4	2000-2100	0.232844694	2.641E-07	2.82794E-06	0.2139802	2.427E-07	2.59883E-06	1.1623551	1.318E-06	1.4117E-05	1.0673131	1.211E-06	1.29627E-05	1.2812933	1.453E-06	1.55615E-05
Road 4	4	2100-2200	0.194817838	1.669E-07	1.78664E-06	0.1783943	1.528E-07	1.63603E-06	0.9900014	8.479E-07	9.07915E-06	0.9055576	7.756E-07	8.30473E-06	1.0839519	9.284E-07	9.94075E-06
Road 4	4	2200-2300	0.266824762	3.891E-07	4.16653E-06	0.2375424	3.464E-07	3.70928E-06	1.3082365	1.908E-06	2.04284E-05	1.1643565	1.698E-06	1.81817E-05	1.4018989	2.044E-06	2.1891E-05
Road 4	4	2300-0000	0.252729792	2.808E-07	3.0068E-06	0.2238852	2.488E-07	2.66363E-06	1.2723294	1.414E-06	1.51373E-05	1.1266642	1.252E-06	1.34043E-05	1.3505494	1.501E-06	1.60679E-05
Road 5	5	0000-0100	0.091455803	3.313E-07	4.48006E-06	0.0809465	2.932E-07	3.96525E-06	0.5035963	1.824E-06	2.46692E-05	0.4432227	1.606E-06	2.17117E-05	0.5241692	1.899E-06	2.5677E-05
Road 5	5	0100-0200	0.060583967	1.376E-07	1.86062E-06	0.0547016	1.242E-07	1.67996E-06	0.3642771	8.273E-07	1.11875E-05	0.3271823	7.43E-07	1.00482E-05	0.3818839	8.673E-07	1.17282E-05
Road 5	5	0200-0300	0.056615	9.138E-08	1.23579E-06	0.0509598	8.225E-08	1.11235E-06	0.3812593	6.154E-07	8.32212E-06	0.3403452	5.494E-07	7.42904E-06	0.391305	6.316E-07	8.54139E-06
Road 5	5	0300-0400	0.05204871	6.057E-08	8.19062E-07	0.0466815	5.432E-08	7.346E-07	0.2768421	3.222E-07	4.35651E-06	0.2463819	2.867E-07	3.87718E-06	0.2930634	3.41E-07	4.61178E-06
Road 5	5	0400-0500	0.072372371	1.318E-07	1.7818E-06	0.066197	1.205E-07	1.62976E-06	0.4054963	7.382E-07	9.98329E-06	0.3693241	6.724E-07	9.09273E-06	0.4355211	7.929E-07	1.07225E-05
Road 5	5	0500-0600	0.058852248	2.408E-07	3.25637E-06	0.0531952	2.177E-07	2.94336E-06	0.334818	1.37E-06	1.85259E-05	0.3005502	1.23E-06	1.66299E-05	0.3537454	1.447E-06	1.95732E-05
Road 5	5	0600-0700	0.086864494	6.277E-07	8.48824E-06	0.0775397	5.603E-07	7.57705E-06	0.4308141	3.113E-06	4.20984E-05	0.3823686	2.763E-06	3.73644E-05	0.4599083	3.323E-06	4.49414E-05
Road 5	5	0700-0800	0.066912821	7.837E-07	1.05976E-05	0.0595577	6.975E-07	9.43272E-06	0.3452787	4.044E-06	5.46851E-05	0.3047087	3.569E-06	4.82597E-05	0.3642664	4.266E-06	5.76924E-05
Road 5	5	0800-0900	0.072035634	1.13E-06	1.52851E-05	0.0647794	1.016E-06	1.37454E-05	0.3496077	5.486E-06	7.41826E-05	0.3128509	4.909E-06	6.63833E-05	0.3776303	5.925E-06	8.01287E-05
Road 5	5	0900-1000	0.078631881	1.192E-06	1.61259E-05	0.0710576	1.078E-06	1.45726E-05	0.4132763	6.267E-06	8.47553E-05	0.3721725	5.644E-06	7.63256E-05	0.4432301	6.722E-06	9.08982E-05
Road 5	5	1000-1100	0.088585468	1.207E-06	1.63235E-05	0.0802221	1.093E-06	1.47824E-05	0.4570818	6.228E-06	8.42258E-05	0.4127029	5.624E-06	7.60482E-05	0.492925	6.717E-06	9.08306E-05
Road 5	5	1100-1200	0.086588391	1.121E-06	1.51643E-05	0.0780005	1.01E-06	1.36603E-05	0.4644398	6.015E-06	8.1338E-05	0.4171688	5.403E-06	7.30593E-05	0.4951693	6.413E-06	8.67197E-05
Road 5	5	1200-1300	0.080347253	1.054E-06	1.42549E-05	0.0736725	9.665E-07	1.30707E-05	0.434367	5.699E-06	7.70635E-05	0.3971305	5.21E-06	7.04572E-05	0.470803	6.177E-06	8.35278E-05
Road 5	5	1300-1400	0.086356063	1.243E-06	1.68114E-05	0.0794978	1.144E-06	1.54762E-05	0.4492287	6.467E-06	8.74536E-05	0.4125042	5.938E-06	8.03043E-05	0.4920019	7.083E-06	9.57805E-05
Road 5	5	1400-1500	0.082580776	1.218E-06	1.64747E-05	0.0760145	1.121E-06	1.51647E-05	0.4294221	6.335E-06	8.56686E-05	0.3943144	5.817E-06	7.86647E-05	0.4703289	6.938E-06	9.38294E-05
Road 5	5	1500-1600	0.092940196	1.334E-06	1.8046E-05	0.0846856	1.216E-06	1.64432E-05	0.4722218	6.78E-06	9.16901E-05	0.4292423	6.163E-06	8.33449E-05	0.5139279	7.379E-06	9.9788E-05
Road 5	5	1600-1700	0.086554038	1.368E-06	1.84976E-05	0.0801725	1.267E-06	1.71337E-05	0.4499284	7.11E-06	9.61547E-05	0.4155994	6.568E-06	8.88182E-05	0.4957718	7.835E-06	0.000105952
Road 5	5	1700-1800	0.064313566	1.019E-06	1.37772E-05	0.0585487	9.275E-07	1.25422E-05	0.3326255	5.269E-06	7.12546E-05	0.3014271	4.775E-06	6.45713E-05	0.3599758	5.702E-06	7.71135E-05
Road 5	5	1800-1900	0.060058637	1.026E-06	1.38718E-05	0.0549394	9.383E-07	1.26894E-05	0.3379826	5.773E-06	7.8064E-05	0.3075363	5.253E-06	7.10318E-05	0.3624757	6.191E-06	8.37212E-05
Road 5	5	1900-2000	0.068716632	8.731E-07	1.18077E-05	0.062871	7.989E-07	1.08032E-05	0.3821801	4.856E-06	6.56707E-05	0.3481686	4.424E-06	5.98264E-05	0.4110396	5.223E-06	7.06297E-05
Road 5	5	2000-2100	0.066070623	7.366E-07	9.96116E-06	0.0607208	6.77E-07	9.15459E-06	0.3609942	4.025E-06	5.44254E-05	0.3302906	3.682E-06	4.97964E-05	0.3910114	4.359E-06	5.89509E-05
Road 5	5	2100-2200	0.069093625	7.405E-07	1.00136E-05	0.0632006	6.773E-07	9.15952E-06	0.3897987	4.177E-06	5.64926E-05	0.3549328	3.804E-06	5.14395E-05	0.4181334	4.481E-06	6.05991E-05
Road 5	5	2200-2300	0.068176016	6.296E-07	8.51357E-06	0.0606861	5.604E-07	7.57825E-06	0.3761265	3.473E-06	4.69693E-05	0.33248	3.07E-06	4.15189E-05	0.3931661	3.631E-06	4.90971E-05
Road 5	5	2300-0000	0.061434308	5.166E-07	6.9856E-06	0.0544393	4.577E-07	6.19021E-06	0.3534832	2.972E-06	4.0194E-05	0.3102014	2.608E-06	3.52725E-05	0.3646407	3.066E-06	4.14627E-05
Road 6	6	0000-0100	0.055561216	1.543E-07	5.51691E-06	0.0491045	1.364E-07	4.8758E-06	0.3496797	9.713E-07	3.47212E-05	0.3059762	8.499E-07	3.03817E-05	0.3550807	9.863E-07	3.52575E-05
Road 6	6	0100-0200	0.070507434	1.495E-07	5.34535E-06	0.0636516	1.35E-07	4.82559E-06	0.39256	8.326E-07	2.9761E-05	0.3521549	7.469E-07	2.66978E-05	0.4158065	8.819E-07	3.15233E-05
Road 6	6	0200-0300	0.064431519	9.553E-08	3.41498E-06	0.05808	8.612E-08	3.07834E-06	0.3598537	5.336E-07	1.90729E-05	0.3221996	4.777E-07	1.70771E-05	0.3802796	5.639E-07	2.01555E-05
Road 6	6	0300-0400	0.06525371	7.593E-08	2.71431E-06	0.0587298	6.834E-08	2.44294E-06	0.4103308	4.775E-07	1.70682E-05	0.3671537	4.272E-07	1.52722E-05	0.4258835	4.956E-07	1.77152E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.071022333	1.2E-07	4.28845E-06	0.064967	1.097E-07	3.92282E-06	0.4096512	6.92E-07	2.47354E-05	0.3726174	6.294E-07	2.24993E-05	0.4375844	7.392E-07	2.64221E-05
Road 6	6	0500-0600	0.064908137	1.961E-07	7.01112E-06	0.058725	1.775E-07	6.34324E-06	0.3851793	1.164E-06	4.16056E-05	0.3459981	1.046E-06	3.73734E-05	0.404723	1.223E-06	4.37166E-05
Road 6	6	0600-0700	0.070139268	3.778E-07	1.35053E-05	0.0626257	3.373E-07	1.20586E-05	0.4284402	2.308E-06	8.24963E-05	0.3795411	2.044E-06	7.30808E-05	0.4421668	2.382E-06	8.51394E-05
Road 6	6	0700-0800	0.066225329	5.668E-07	2.02606E-05	0.0589684	5.047E-07	1.80404E-05	0.3696868	3.164E-06	0.0001131	0.3263736	2.793E-06	9.98487E-05	0.3853421	3.298E-06	0.000117889
Road 6	6	0800-0900	0.056279847	6.908E-07	2.46941E-05	0.0505872	6.209E-07	2.21963E-05	0.3273561	4.018E-06	0.000143635	0.2916762	3.58E-06	0.00012798	0.3422634	4.201E-06	0.000150176
Road 6	6	0900-1000	0.058420732	6.886E-07	2.46144E-05	0.0527094	6.213E-07	2.22081E-05	0.324152	3.821E-06	0.000136575	0.2903016	3.422E-06	0.000122313	0.343011	4.043E-06	0.000144521
Road 6	6	1000-1100	0.077830658	7.771E-07	2.77795E-05	0.0704408	7.034E-07	2.51419E-05	0.4220252	4.214E-06	0.00015063	0.3802705	3.797E-06	0.000135727	0.4507113	4.5E-06	0.000160869
Road 6	6	1100-1200	0.088357822	8.756E-07	3.12998E-05	0.0796226	7.891E-07	2.82054E-05	0.4566831	4.526E-06	0.000161775	0.4102359	4.065E-06	0.000145322	0.4898584	4.854E-06	0.000173527
Road 6	6	1200-1300	0.085210446	8.252E-07	2.94989E-05	0.0781759	7.571E-07	2.70636E-05	0.4196322	4.064E-06	0.000145272	0.3839147	3.718E-06	0.000132907	0.4620906	4.475E-06	0.00015997
Road 6	6	1300-1400	0.099050757	9.574E-07	3.42238E-05	0.0911813	8.814E-07	3.15047E-05	0.4964656	4.799E-06	0.000171537	0.455909	4.407E-06	0.000157524	0.5470902	5.288E-06	0.000189029
Road 6	6	1400-1500	0.094500229	1.007E-06	3.60117E-05	0.0869913	9.274E-07	3.31502E-05	0.4706729	5.018E-06	0.000179362	0.4321171	4.607E-06	0.000164669	0.5191084	5.534E-06	0.000197819
Road 6	6	1500-1600	0.083510811	8.699E-07	3.10956E-05	0.0760806	7.925E-07	2.83289E-05	0.4250076	4.427E-06	0.000158253	0.3859128	4.02E-06	0.000143696	0.4619934	4.812E-06	0.000172025
Road 6	6	1600-1700	0.086713521	9.244E-07	3.30444E-05	0.0803141	8.562E-07	3.06057E-05	0.4220197	4.499E-06	0.000160821	0.3898322	4.156E-06	0.000148555	0.4701463	5.012E-06	0.000179161
Road 6	6	1700-1800	0.064455643	7.246E-07	2.5903E-05	0.0586993	6.599E-07	2.35897E-05	0.3227242	3.628E-06	0.000129694	0.2925754	3.289E-06	0.000117578	0.3512747	3.949E-06	0.000141168
Road 6	6	1800-1900	0.063105256	8.09E-07	2.89167E-05	0.0577209	7.399E-07	2.64494E-05	0.3259282	4.178E-06	0.00014935	0.2967471	3.804E-06	0.000135978	0.354468	4.544E-06	0.000162428
Road 6	6	1900-2000	0.074220211	7.258E-07	2.59431E-05	0.0678872	6.638E-07	2.37295E-05	0.3825962	3.741E-06	0.000133734	0.3483507	3.406E-06	0.000121763	0.4162379	4.07E-06	0.000145493
Road 6	6	2000-2100	0.059136683	4.551E-07	1.62668E-05	0.0543365	4.181E-07	1.49465E-05	0.330627	2.544E-06	9.09462E-05	0.3020561	2.324E-06	8.30872E-05	0.3563926	2.743E-06	9.80336E-05
Road 6	6	2100-2200	0.082714185	5.527E-07	1.97557E-05	0.0756739	5.056E-07	1.80742E-05	0.4281346	2.861E-06	0.000102257	0.390025	2.606E-06	9.31548E-05	0.465699	3.112E-06	0.000111229
Road 6	6	2200-2300	0.063514324	4.494E-07	1.60648E-05	0.0564876	3.997E-07	1.42875E-05	0.350473	2.48E-06	8.86459E-05	0.3084178	2.182E-06	7.80088E-05	0.3649054	2.582E-06	9.22963E-05
Road 6	6	2300-0000	0.043350339	2.88E-07	1.02958E-05	0.0384309	2.553E-07	9.12739E-06	0.2658974	1.767E-06	6.3151E-05	0.2328631	1.547E-06	5.53053E-05	0.2712941	1.803E-06	6.44327E-05
Road 7	7	0000-0100	0.079678696	2.129E-07	5.31356E-06	0.0699813	1.869E-07	4.66687E-06	0.4698432	1.255E-06	3.13326E-05	0.410114	1.096E-06	2.73494E-05	0.4800953	1.283E-06	3.20163E-05
Road 7	7	0100-0200	0.093516444	1.942E-07	4.84674E-06	0.0846013	1.756E-07	4.38469E-06	0.5125458	1.064E-06	2.65641E-05	0.4619452	9.591E-07	2.39415E-05	0.5465465	1.135E-06	2.83262E-05
Road 7	7	0200-0300	0.081156292	1.108E-07	2.76488E-06	0.0731878	9.988E-08	2.4934E-06	0.4560717	6.224E-07	1.55377E-05	0.4093908	5.587E-07	1.39473E-05	0.4825786	6.586E-07	1.64407E-05
Road 7	7	0300-0400	0.081944868	9.042E-08	2.25715E-06	0.0738598	8.15E-08	2.03445E-06	0.4926021	5.435E-07	1.35686E-05	0.4420569	4.878E-07	1.21764E-05	0.5159167	5.693E-07	1.42108E-05
Road 7	7	0400-0500	0.09099973	1.467E-07	3.66091E-06	0.0829464	1.337E-07	3.33692E-06	0.5052351	8.142E-07	2.03255E-05	0.458777	7.393E-07	1.84565E-05	0.5417234	8.73E-07	2.17935E-05
Road 7	7	0500-0600	0.084207699	2.396E-07	5.98182E-06	0.0756733	2.153E-07	5.37557E-06	0.4735307	1.347E-06	3.3638E-05	0.4233498	1.205E-06	3.00733E-05	0.4990232	1.42E-06	3.54489E-05
Road 7	7	0600-0700	0.089321784	4.539E-07	1.13306E-05	0.0793427	4.032E-07	1.00647E-05	0.5125845	2.605E-06	6.50218E-05	0.4526557	2.3E-06	5.74198E-05	0.5319983	2.703E-06	6.74845E-05
Road 7	7	0700-0800	0.085776211	6.974E-07	1.74093E-05	0.0759614	6.176E-07	1.54172E-05	0.4640079	3.773E-06	9.41757E-05	0.4085082	3.321E-06	8.29114E-05	0.4844696	3.939E-06	9.83287E-05
Road 7	7	0800-0900	0.084469515	1.038E-06	2.58998E-05	0.0757601	9.305E-07	2.32293E-05	0.4599579	5.65E-06	0.000141031	0.4105382	5.043E-06	0.000125878	0.4862984	5.973E-06	0.000149107
Road 7	7	0900-1000	0.08591279	9.804E-07	2.44741E-05	0.0774443	8.838E-07	2.20616E-05	0.4493988	5.128E-06	0.000128021	0.4035231	4.605E-06	0.000114952	0.4809673	5.489E-06	0.000137014
Road 7	7	1000-1100	0.101286506	1.013E-06	2.52928E-05	0.0918257	9.186E-07	2.29303E-05	0.5332446	5.334E-06	0.000133159	0.4821562	4.823E-06	0.000120402	0.5739819	5.742E-06	0.000143332
Road 7	7	1100-1200	0.110488483	1.1E-06	2.74705E-05	0.0999809	9.958E-07	2.4858E-05	0.5704377	5.681E-06	0.000141827	0.5152685	5.132E-06	0.00012811	0.6152493	6.128E-06	0.000152968
Road 7	7	1200-1300	0.10822692	1.076E-06	2.6869E-05	0.0993991	9.885E-07	2.46774E-05	0.5464566	5.435E-06	0.000135666	0.5011414	4.984E-06	0.000124416	0.6005405	5.973E-06	0.000149093
Road 7	7	1300-1400	0.115729648	1.134E-06	2.83122E-05	0.1062051	1.041E-06	2.59821E-05	0.5826426	5.71E-06	0.000142538	0.5338944	5.232E-06	0.000130613	0.6400995	6.273E-06	0.000156595
Road 7	7	1400-1500	0.108415646	1.114E-06	2.78196E-05	0.0993111	1.021E-06	2.54833E-05	0.5521888	5.676E-06	0.000141692	0.5049206	5.19E-06	0.000129563	0.6042317	6.211E-06	0.000155047
Road 7	7	1500-1600	0.100030684	1.005E-06	2.50879E-05	0.0915425	9.197E-07	2.29591E-05	0.5136417	5.16E-06	0.000128823	0.468958	4.712E-06	0.000117616	0.5605005	5.631E-06	0.000140575
Road 7	7	1600-1700	0.103931506	1.08E-06	2.69703E-05	0.0957869	9.957E-07	2.48568E-05	0.5144614	5.348E-06	0.000133503	0.4731148	4.918E-06	0.000122774	0.5689016	5.914E-06	0.00014763
Road 7	7	1700-1800	0.080162451	8.834E-07	2.20515E-05	0.0729785	8.042E-07	2.00753E-05	0.4112324	4.532E-06	0.000113124	0.3731692	4.112E-06	0.000102653	0.4461477	4.916E-06	0.000122729
Road 7	7	1800-1900	0.073477343	8.406E-07	2.09848E-05	0.0674737	7.719E-07	1.92702E-05	0.3849342	4.404E-06	0.000109936	0.3522128	4.03E-06	0.000100591	0.4196864	4.801E-06	0.000119861
Road 7	7	1900-2000	0.085165762	7.382E-07	1.84274E-05	0.0778213	6.745E-07	1.68383E-05	0.4474001	3.878E-06	9.68046E-05	0.4073408	3.531E-06	8.81369E-05	0.485162	4.205E-06	0.000104975
Road 7	7	2000-2100	0.078526154	5.564E-07	1.38886E-05	0.0721609	5.113E-07	1.27628E-05	0.4225561	2.994E-06	7.4736E-05	0.3868401	2.741E-06	6.8419E-05	0.4590009	3.252E-06	8.11819E-05
Road 7	7	2100-2200	0.090636634	5.395E-07	1.34683E-05	0.0829326	4.937E-07	1.23235E-05	0.4760674	2.834E-06	7.07421E-05	0.4340187	2.584E-06	6.44938E-05	0.5169513	3.077E-06	7.68173E-05
Road 7	7	2200-2300	0.078111063	5.013E-07	1.2513E-05	0.0694931	4.46E-07	1.11324E-05	0.4253371	2.729E-06	6.81367E-05	0.3755112	2.41E-06	6.01549E-05	0.4450043	2.856E-06	7.12873E-05
Road 7	7	2300-0000	0.055083609	3.255E-07	8.12536E-06	0.0484945	2.866E-07	7.1534E-06	0.3264068	1.929E-06	4.81481E-05	0.2847177	1.682E-06	4.19986E-05	0.3332122	1.969E-06	4.9152E-05
Road 8	8	0000-0100	0.240899722	1.752E-07	2.8881E-06	0.2129367	1.549E-07	2.55286E-06	1.2308842	8.952E-07	1.47568E-05	1.0874458	7.909E-07	1.30372E-05	1.3003825	9.457E-07	1.559E-05
Road 8	8	0100-0200	0.243913	1.478E-07	2.43686E-06	0.2200533	1.334E-07	2.19848E-06	1.2413113	7.523E-07	1.24015E-05	1.1197163	6.786E-07	1.11867E-05	1.3397697	8.12E-07	1.33852E-05
Road 8	8	0200-0300	0.229542	6.956E-08	1.14664E-06	0.2069027	6.27E-08	1.03355E-06	1.2301393	3.728E-07	6.14497E-06	1.1084967	3.359E-07	5.53732E-06	1.3153993	3.986E-07	6.57087E-06
Road 8	8	0300-0400	0.209600714	5.928E-08	9.77225E-07	0.1885107	5.332E-08	8.78897E-07	1.0958707	3.099E-07	5.1093E-06	0.9850857	2.786E-07	4.59278E-06	1.1735964	3.319E-07	5.47168E-06
Road 8	8	0400-0500	0.237406667	1.007E-07	1.6603E-06	0.2170729	9.209E-08	1.51809E-06	1.1723724	4.974E-07	8.19896E-06	1.0719148	4.548E-07	7.49641E-06	1.2889876	5.468E-07	9.01451E-06
Road 8	8	0500-0600	0.229068529	1.573E-07	2.59369E-06	0.2072035	1.423E-07	2.34612E-06	1.1102762	7.626E-07	1.25714E-05	1.0038259	6.895E-07	1.13661E-05	1.2110294	8.318E-07	1.37122E-05
Road 8	8	0600-0700	0.258828387	3.242E-07	5.34414E-06	0.2310752	2.894E-07	4.7711E-06	1.2398013	1.553E-06	2.55987E-05	1.1063444	1.386E-06	2.28431E-05	1.3374195	1.675E-06	2.76142E-05
Road 8	8	0700-0800	0.259294752	5.291E-07	8.72146E-06	0.2308616	4.711E-07	7.7651E-06	1.2560994	2.563E-06	4.22493E-05	1.1177305	2.281E-06	3.75952E-05	1.3485921	2.752E-06	4.53603E-05
Road 8	8	0800-0900	0.284761316	1.093E-06	1.80181E-05	0.2561561	9.832E-07	1.62081E-05	1.3843279	5.314E-06	8.75924E-05	1.2446628	4.777E-06	7.87552E-05	1.5008188	5.761E-06	9.49633E-05
Road 8	8	0900-1000	0.302725159	9.602E-07	1.58279E-05	0.2730672	8.661E-07	1.42772E-05	1.4002818	4.441E-06	7.32131E-05	1.2629058	4.006E-06	6.60305E-05	1.535973	4.872E-06	8.03077E-05
Road 8	8	1000-1100	0.288643354	9.213E-07	1.51877E-05	0.2611291	8.335E-07	1.374E-05	1.3699307	4.373E-06	7.20824E-05	1.2387293	3.954E-06	6.51789E-05	1.4998584	4.787E-06	7.89189E-05
Road 8	8	1100-1200	0.294987044	9.475E-07	1.56197E-05	0.2653791	8.524E-07	1.4052E-05	1.4203384	4.562E-06	7.52078E-05	1.277604	4.104E-06	6.76499E-05	1.5429831	4.956E-06	8.17019E-05
Road 8	8	1200-1300	0.295767811	1.01E-06	1.66461E-05	0.2709962	9.252E-07	1.52519E-05	1.4385538	4.911E-06	8.0963E-05	1.3178638	4.499E-06	7.41705E-05	1.5888601	5.425E-06	8.94224E-05
Road 8	8	1300-1400	0.269740313	8.719E-07	1.43727E-05	0.2481648	8.021E-07	1.32231E-05	1.2883224	4.164E-06	6.86465E-05	1.1850191	3.83E-06	6.31421E-05	1.4331838	4.633E-06	7.63652E-05
Road 8	8	1400-1500	0.262673957	7.376E-07	1.21592E-05	0.2416507	6.786E-07	1.1186E-05	1.3138901	3.69E-06	6.08202E-05	1.2084913	3.394E-06	5.59413E-05	1.450142	4.072E-06	6.71273E-05
Road 8	8	1500-1600	0.27076073	7.494E-07	1.23532E-05	0.246442	6.821E-07	1.12437E-05	1.3177522	3.647E-06	6.01213E-05	1.1989109	3.318E-06	5.46992E-05	1.4453529	4E-06	6.59429E-05
Road 8	8	1600-1700	0.269923699	7.961E-07	1.3124E-05	0.2498201	7.368E-07	1.21466E-05	1.2975493	3.827E-06	6.30886E-05	1.2005954	3.541E-06	5.83745E-05	1.4504155	4.278E-06	7.05211E-05
Road 8	8	1700-1800	0.219705128	6.924E-07	1.1414E-05	0.1998759	6.299E-07	1.03839E-05	1.1027216	3.475E-06	5.72881E-05	1.0024481	3.159E-06	5.20787E-05	1.202324	3.789E-06	6.24626E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.219253645	4.739E-07	7.81276E-06	0.2006285	4.337E-07	7.14908E-06	1.1259609	2.434E-06	4.01219E-05	1.0297628	2.226E-06	3.6694E-05	1.2303913	2.66E-06	4.38431E-05
Road 8	8	1900-2000	0.216185844	3.363E-07	5.5436E-06	0.1978513	3.078E-07	5.07345E-06	1.1384242	1.771E-06	2.91923E-05	1.0415862	1.62E-06	2.67091E-05	1.2394375	1.928E-06	3.17826E-05
Road 8	8	2000-2100	0.237680921	3.649E-07	6.01564E-06	0.2184092	3.353E-07	5.52788E-06	1.1368792	1.746E-06	2.87741E-05	1.044005	1.603E-06	2.64235E-05	1.2624142	1.938E-06	3.19514E-05
Road 8	8	2100-2200	0.196071509	2.099E-07	3.4607E-06	0.1794506	1.921E-07	3.16734E-06	1.0301677	1.103E-06	1.81827E-05	0.9418013	1.008E-06	1.6623E-05	1.1212519	1.201E-06	1.97903E-05
Road 8	8	2200-2300	0.241838906	3.127E-07	5.15442E-06	0.215303	2.784E-07	4.58885E-06	1.1981106	1.549E-06	2.55359E-05	1.0659448	1.378E-06	2.2719E-05	1.2812478	1.657E-06	2.73078E-05
Road 8	8	2300-0000	0.197652692	2.076E-07	3.42279E-06	0.1751871	1.84E-07	3.03375E-06	1.0181281	1.07E-06	1.76311E-05	0.9017777	9.473E-07	1.56162E-05	1.0769648	1.131E-06	1.865E-05
Road 9	9	0000-0100	0.206672137	5.489E-08	1.63848E-06	0.1857922	4.934E-08	1.47294E-06	0.9464757	2.514E-07	7.50357E-06	0.8458148	2.246E-07	6.70554E-06	1.031607	2.74E-07	8.17849E-06
Road 9	9	0100-0200	0.219772301	4.586E-08	1.36898E-06	0.2024847	4.225E-08	1.26129E-06	0.9506843	1.984E-07	5.92188E-06	0.8709401	1.817E-07	5.42515E-06	1.0734247	2.24E-07	6.68644E-06
Road 9	9	0200-0300	0.086531448	8.207E-09	2.45005E-07	0.0784361	7.44E-09	2.22084E-07	0.6185072	5.866E-08	1.75124E-06	0.5613523	5.324E-08	1.58941E-06	0.6397884	6.068E-08	1.81149E-06
Road 9	9	0300-0400	0.104901156	7.96E-09	2.37613E-07	0.094884	7.2E-09	2.14923E-07	0.6505066	4.936E-08	1.47347E-06	0.5889291	4.469E-08	1.33399E-06	0.6838131	5.189E-08	1.54892E-06
Road 9	9	0400-0500	0.236285928	4.482E-08	1.33804E-06	0.2192513	4.159E-08	1.24157E-06	0.9825167	1.864E-07	5.56379E-06	0.9072786	1.721E-07	5.13773E-06	1.1265299	2.137E-07	6.37931E-06
Road 9	9	0500-0600	0.172066505	5.549E-08	1.65644E-06	0.1576757	5.085E-08	1.5179E-06	0.8717217	2.811E-07	8.39185E-06	0.7972202	2.571E-07	7.67464E-06	0.954896	3.079E-07	9.19254E-06
Road 9	9	0600-0700	0.203471812	1.235E-07	3.6871E-06	0.1855153	1.126E-07	3.36171E-06	1.0698946	6.495E-07	1.93875E-05	0.9711741	5.895E-07	1.75986E-05	1.1566894	7.021E-07	2.09603E-05
Road 9	9	0700-0800	0.174938756	1.593E-07	4.75508E-06	0.1603391	1.46E-07	4.35824E-06	1.0053458	9.154E-07	2.73267E-05	0.9189439	8.367E-07	2.49782E-05	1.0792831	9.827E-07	2.93364E-05
Road 9	9	0800-0900	0.266764209	5.82E-07	1.73723E-05	0.2444456	5.333E-07	1.59188E-05	1.2978736	2.831E-06	8.45203E-05	1.1841041	2.583E-06	7.71114E-05	1.4285497	3.116E-06	9.30302E-05
Road 9	9	0900-1000	0.272889466	4.452E-07	1.32897E-05	0.2523942	4.118E-07	1.22916E-05	1.206059	1.968E-06	5.87351E-05	1.1115128	1.813E-06	5.41307E-05	1.363907	2.225E-06	6.64223E-05
Road 9	9	1000-1100	0.285004572	3.839E-07	1.14588E-05	0.2620153	3.529E-07	1.05345E-05	1.232464	1.66E-06	4.95522E-05	1.1304603	1.523E-06	4.54511E-05	1.3924756	1.875E-06	5.59856E-05
Road 9	9	1100-1200	0.198054729	2.78E-07	8.29942E-06	0.1802126	2.53E-07	7.55175E-06	1.0599915	1.488E-06	4.44186E-05	0.9712775	1.363E-06	4.07011E-05	1.1514901	1.616E-06	4.82528E-05
Road 9	9	1200-1300	0.292975752	4.057E-07	1.21111E-05	0.2746696	3.804E-07	1.13544E-05	1.3547267	1.876E-06	5.60022E-05	1.2706033	1.76E-06	5.25247E-05	1.545273	2.14E-06	6.38791E-05
Road 9	9	1300-1400	0.329463891	3.75E-07	1.11941E-05	0.3087674	3.514E-07	1.04909E-05	1.2723651	1.448E-06	4.32308E-05	1.1884945	1.353E-06	4.03812E-05	1.4972619	1.704E-06	5.08721E-05
Road 9	9	1400-1500	0.213309469	2.752E-07	8.21391E-06	0.2005589	2.587E-07	7.72292E-06	1.057745	1.364E-06	4.07306E-05	0.9905154	1.278E-06	3.81418E-05	1.1910743	1.536E-06	4.58647E-05
Road 9	9	1500-1600	0.178239014	1.927E-07	5.75318E-06	0.1660506	1.795E-07	5.35977E-06	0.9424197	1.019E-06	3.04193E-05	0.8796418	9.511E-07	2.8393E-05	1.0456924	1.131E-06	3.37528E-05
Road 9	9	1600-1700	0.184753413	2.769E-07	8.26514E-06	0.1746953	2.618E-07	7.81518E-06	1.0522392	1.577E-06	4.7073E-05	0.9939948	1.49E-06	4.44674E-05	1.1686902	1.751E-06	5.22826E-05
Road 9	9	1700-1800	0.160942705	2.076E-07	6.19742E-06	0.1516478	1.956E-07	5.8395E-06	1.0012737	1.292E-06	3.8556E-05	0.9475046	1.222E-06	3.64856E-05	1.0991524	1.418E-06	4.23251E-05
Road 9	9	1800-1900	0.158364911	1.322E-07	3.94587E-06	0.1504846	1.256E-07	3.74952E-06	0.9722327	8.115E-07	2.42244E-05	0.9270096	7.737E-07	2.30976E-05	1.0774941	8.994E-07	2.68472E-05
Road 9	9	1900-2000	0.163974383	1.338E-07	3.99278E-06	0.1547699	1.262E-07	3.76865E-06	0.886122	7.228E-07	2.15771E-05	0.8342681	6.805E-07	2.03144E-05	0.989038	8.068E-07	2.40831E-05
Road 9	9	2000-2100	0.175195589	9.638E-08	2.87708E-06	0.1638548	9.014E-08	2.69084E-06	0.7836824	4.311E-07	1.28697E-05	0.7360636	4.049E-07	1.20877E-05	0.8999183	4.951E-07	1.47785E-05
Road 9	9	2100-2200	0.022869738	1.171E-08	3.49668E-07	0.0214876	1.101E-08	3.28536E-07	0.3170189	1.624E-07	4.84707E-06	0.295462	1.513E-07	4.51748E-06	0.3169496	1.623E-07	4.84601E-06
Road 9	9	2200-2300	0.172183644	1.078E-07	3.21763E-06	0.1565316	9.799E-08	2.92514E-06	0.8459507	5.296E-07	1.58085E-05	0.7676181	4.805E-07	1.43446E-05	0.9241496	5.785E-07	1.72698E-05
Road 9	9	2300-0000	0.141483411	8.052E-08	2.40357E-06	0.1285986	7.318E-08	2.18468E-06	0.7334324	4.174E-07	1.24598E-05	0.6640946	3.779E-07	1.12819E-05	0.7926932	4.511E-07	1.34666E-05
Road 10	10	0000-0100	0.291254909	2.239E-07	4.97908E-06	0.2588064	1.99E-07	4.42437E-06	1.4892344	1.145E-06	2.54589E-05	1.323516	1.018E-06	2.26259E-05	1.5823224	1.217E-06	2.70502E-05
Road 10	10	0100-0200	0.27968956	1.625E-07	3.61259E-06	0.2537568	1.474E-07	3.27763E-06	1.4185951	8.241E-07	1.83232E-05	1.2862391	7.472E-07	1.66136E-05	1.5399959	8.946E-07	1.98913E-05
Road 10	10	0200-0300	0.276857486	8.988E-08	1.99836E-06	0.2495914	8.102E-08	1.80155E-06	1.3868744	4.502E-07	1.00105E-05	1.2506824	4.06E-07	9.02744E-06	1.5002738	4.87E-07	1.0829E-05
Road 10	10	0300-0400	0.251594578	5.158E-08	1.14695E-06	0.2262319	4.638E-08	1.03133E-06	1.3598915	2.788E-07	6.19939E-06	1.2232839	2.508E-07	5.57664E-06	1.4495158	2.972E-07	6.60797E-06
Road 10	10	0400-0500	0.295092036	1.16E-07	2.57839E-06	0.2714512	1.067E-07	2.37183E-06	1.420373	5.582E-07	1.24106E-05	1.3035853	5.123E-07	1.13902E-05	1.5750365	6.189E-07	1.3762E-05
Road 10	10	0500-0600	0.272223385	1.907E-07	4.24007E-06	0.2482897	1.739E-07	3.86729E-06	1.315075	9.212E-07	2.04832E-05	1.1971453	8.386E-07	1.86464E-05	1.445435	1.013E-06	2.25137E-05
Road 10	10	0600-0700	0.333078066	4.667E-07	1.03758E-05	0.3019085	4.23E-07	9.40487E-06	1.6644995	2.332E-06	5.18515E-05	1.5101974	2.116E-06	4.70448E-05	1.8121059	2.539E-06	5.64496E-05
Road 10	10	0700-0800	0.329765716	7.268E-07	1.61607E-05	0.2977035	6.562E-07	1.45894E-05	1.6613959	3.662E-06	8.14192E-05	1.5009928	3.308E-06	7.35584E-05	1.7986964	3.964E-06	8.81478E-05
Road 10	10	0800-0900	0.35017234	1.478E-06	3.28581E-05	0.3162172	1.334E-06	2.9672E-05	1.7325551	7.312E-06	0.000162573	1.5646587	6.603E-06	0.000146818	1.8808759	7.938E-06	0.00017649
Road 10	10	0900-1000	0.388239785	1.3E-06	2.89081E-05	0.3544237	1.187E-06	2.63902E-05	1.875108	6.279E-06	0.00013962	1.7124638	5.735E-06	0.000127509	2.0668875	6.922E-06	0.000153899
Road 10	10	1000-1100	0.384181347	1.398E-06	3.10871E-05	0.3506038	1.276E-06	2.837E-05	1.7387526	6.328E-06	0.000140696	1.5838425	5.764E-06	0.000128161	1.9344462	7.04E-06	0.000156531
Road 10	10	1100-1200	0.372388583	1.355E-06	3.01328E-05	0.3369192	1.226E-06	2.72627E-05	1.7490865	6.365E-06	0.000141532	1.5813896	5.755E-06	0.000127962	1.9183088	6.981E-06	0.000155225
Road 10	10	1200-1300	0.385553743	1.449E-06	3.22234E-05	0.3562795	1.339E-06	2.97767E-05	1.8373039	6.906E-06	0.000153556	1.6983123	6.384E-06	0.00014194	2.0545918	7.723E-06	0.000171716
Road 10	10	1300-1400	0.374588519	1.229E-06	2.73224E-05	0.3476978	1.141E-06	2.5361E-05	1.7428518	5.717E-06	0.000127123	1.6164191	5.303E-06	0.000117901	1.9641169	6.443E-06	0.000143262
Road 10	10	1400-1500	0.347773335	1.07E-06	2.37811E-05	0.3235657	9.951E-07	2.21258E-05	1.7407019	5.353E-06	0.000119031	1.6198986	4.982E-06	0.00011077	1.9434643	5.977E-06	0.000132896
Road 10	10	1500-1600	0.347000192	1.091E-06	2.42556E-05	0.3182058	1E-06	2.22428E-05	1.6725699	5.258E-06	0.000116914	1.5345293	4.824E-06	0.000107265	1.8527352	5.825E-06	0.000129507
Road 10	10	1600-1700	0.33007197	1.156E-06	2.57055E-05	0.3083402	1.08E-06	2.40131E-05	1.6142527	5.654E-06	0.000125716	1.5066126	5.277E-06	0.000117333	1.8149528	6.357E-06	0.000141346
Road 10	10	1700-1800	0.305524806	1.002E-06	2.22849E-05	0.281861	9.246E-07	2.05589E-05	1.5882735	5.21E-06	0.000115848	1.4700007	4.822E-06	0.000107222	1.7518617	5.747E-06	0.000127781
Road 10	10	1800-1900	0.309035035	6.389E-07	1.42055E-05	0.285593	5.904E-07	1.31279E-05	1.5617741	3.229E-06	7.17906E-05	1.4449604	2.987E-06	6.64209E-05	1.7305534	3.578E-06	7.95489E-05
Road 10	10	1900-2000	0.267133223	4.975E-07	1.10616E-05	0.2474405	4.608E-07	1.02462E-05	1.4155282	2.636E-06	5.8615E-05	1.3134527	2.446E-06	5.43882E-05	1.5608932	2.907E-06	6.46344E-05
Road 10	10	2000-2100	0.309680699	3.81E-07	8.47053E-06	0.285576	3.513E-07	7.8112E-06	1.4986658	1.844E-06	4.09922E-05	1.3816329	1.7E-06	3.7791E-05	1.6672089	2.051E-06	4.56022E-05
Road 10	10	2100-2200	0.258846498	3.184E-07	7.08009E-06	0.2418148	2.975E-07	6.61423E-06	1.4455447	1.778E-06	3.95392E-05	1.3540556	1.666E-06	3.70367E-05	1.5958704	1.963E-06	4.3651E-05
Road 10	10	2200-2300	0.278225413	3.565E-07	7.92724E-06	0.2511301	3.218E-07	7.15523E-06	1.4290301	1.831E-06	4.07161E-05	1.2936802	1.658E-06	3.68597E-05	1.5448102	1.98E-06	4.40149E-05
Road 10	10	2300-0000	0.259761985	3.107E-07	6.90776E-06	0.2317987	2.772E-07	6.16415E-06	1.3136216	1.571E-06	3.49327E-05	1.171554	1.401E-06	3.11547E-05	1.4033527	1.678E-06	3.73189E-05
Road 11	11	0000-0100	0.326316134	2.493E-07	2.06771E-06	0.2896481	2.213E-07	1.83536E-06	1.6373446	1.251E-06	1.03751E-05	1.4511242	1.108E-06	9.19508E-06	1.7407723	1.33E-06	1.10304E-05
Road 11	11	0100-0200	0.318786349	1.716E-07	1.42318E-06	0.2889268	1.555E-07	1.28988E-06	1.5721735	8.461E-07	7.01876E-06	1.4221013	7.654E-07	6.34878E-06	1.7110281	9.209E-07	7.63866E-06
Road 11	11	0200-0300	0.276794995	7.208E-08	5.97926E-07	0.2495662	6.499E-08	5.39107E-07	1.4777332	3.848E-07	3.19217E-06	1.3325624	3.47E-07	2.87857E-06	1.5821286	4.12E-07	3.41768E-06
Road 11	11	0300-0400	0.296443188	7.205E-08	5.97679E-07	0.2664892	6.477E-08	5.37286E-07	1.5523305	3.773E-07	3.12976E-06	1.395556	3.392E-07	2.81367E-06	1.6620452	4.04E-07	3.35096E-06
Road 11	11	0400-0500	0.305298842	1.06E-07	8.79333E-07	0.2809694	9.756E-08	8.09258E-07	1.4509301	5.038E-07	4.17902E-06	1.3319948	4.625E-07	3.83646E-06	1.6129642	5.601E-07	4.64572E-06
Road 11	11	0500-0600	0.248885177	1.167E-07	9.67745E-07	0.2267647	1.063E-07	8.81734E-07	1.2694522	5.951E-07	4.93604E-06	1.1557575	5.418E-07	4.49395E-06	1.3825222	6.481E-07	5.37569E-06
Road 11	11	0600-0700	0.273121605	2.466E-07	2.0453E-06	0.246483	2.225E-07	1.84582E-06	1.4167411	1.279E-06	1.06094E-05	1.276263	1.152E-06	9.55744E-06	1.522746	1.375E-06	1.14033E-05
Road 11	11	0700-0800	0.320738236	6.014E-07	4.98853E-06	0.2877471	5.395E-07	4.47541E-06	1.6704503	3.132E-06	2.5981E-05	1.4984862	2.81E-06	2.33064E-05	1.7862333	3.349E-06	2.77818E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.346685099	1.234E-06	1.0235E-05	0.3144313	1.119E-06	9.28277E-06	1.7113861	6.091E-06	5.05243E-05	1.5489929	5.513E-06	4.573E-05	1.8634242	6.632E-06	5.50128E-05
Road 11	11	0900-1000	0.347938828	8.819E-07	7.31567E-06	0.3175131	8.048E-07	6.67594E-06	1.6468291	4.174E-06	3.46258E-05	1.4990728	3.8E-06	3.15191E-05	1.8165859	4.605E-06	3.8195E-05
Road 11	11	1000-1100	0.357797281	7.392E-07	6.13172E-06	0.3258418	6.732E-07	5.58408E-06	1.6691728	3.448E-06	2.86053E-05	1.5179179	3.136E-06	2.60132E-05	1.8437598	3.809E-06	3.15973E-05
Road 11	11	1100-1200	0.314472959	7.316E-07	6.06857E-06	0.2835899	6.597E-07	5.4726E-06	1.6121041	3.75E-06	3.11097E-05	1.4579689	3.392E-06	2.81353E-05	1.7415588	4.052E-06	3.36079E-05
Road 11	11	1200-1300	0.380165318	1.076E-06	8.92397E-06	0.3509553	9.932E-07	8.2383E-06	1.8452057	5.222E-06	4.33142E-05	1.7030223	4.819E-06	3.99766E-05	2.0539776	5.812E-06	4.82149E-05
Road 11	11	1300-1400	0.394402486	8.217E-07	6.81583E-06	0.3658405	7.622E-07	6.32224E-06	1.7780488	3.704E-06	3.07272E-05	1.6453682	3.428E-06	2.84343E-05	2.0112087	4.19E-06	3.47565E-05
Road 11	11	1400-1500	0.311738247	6.278E-07	5.2077E-06	0.2895377	5.831E-07	4.83684E-06	1.5566349	3.135E-06	2.60042E-05	1.443423	2.907E-06	2.41129E-05	1.7329607	3.49E-06	2.89498E-05
Road 11	11	1500-1600	0.280207809	5.692E-07	4.72133E-06	0.2566417	5.213E-07	4.32425E-06	1.4507624	2.947E-06	2.44445E-05	1.3296063	2.701E-06	2.2403E-05	1.586248	3.222E-06	2.67273E-05
Road 11	11	1600-1700	0.265743007	6.413E-07	5.31955E-06	0.2482548	5.991E-07	4.96948E-06	1.4222149	3.432E-06	2.84694E-05	1.3289111	3.207E-06	2.66017E-05	1.5771659	3.806E-06	3.15711E-05
Road 11	11	1700-1800	0.265740227	6.551E-07	5.4343E-06	0.2442558	6.022E-07	4.99495E-06	1.4479572	3.57E-06	2.96103E-05	1.3346844	3.29E-06	2.72939E-05	1.5789401	3.893E-06	3.22888E-05
Road 11	11	1800-1900	0.284544105	5.829E-07	4.83537E-06	0.2622914	5.373E-07	4.45722E-06	1.5200798	3.114E-06	2.58313E-05	1.4037769	2.876E-06	2.38549E-05	1.6660683	3.413E-06	2.83122E-05
Road 11	11	1900-2000	0.269623296	4.26E-07	3.53343E-06	0.2489238	3.933E-07	3.26217E-06	1.4038261	2.218E-06	1.83972E-05	1.2955333	2.047E-06	1.69781E-05	1.5444571	2.44E-06	2.02402E-05
Road 11	11	2000-2100	0.27883781	3.921E-07	3.25263E-06	0.2572261	3.617E-07	3.00053E-06	1.3920019	1.958E-06	1.62376E-05	1.2849048	1.807E-06	1.49884E-05	1.5421309	2.169E-06	1.79889E-05
Road 11	11	2100-2200	0.202601455	2.005E-07	1.66309E-06	0.1856362	1.837E-07	1.52383E-06	1.1333721	1.122E-06	9.30348E-06	1.0395609	1.029E-06	8.53342E-06	1.2251972	1.212E-06	1.00572E-05
Road 11	11	2200-2300	0.267791433	2.929E-07	2.4296E-06	0.2400737	2.626E-07	2.17813E-06	1.3536265	1.481E-06	1.22811E-05	1.2125857	1.326E-06	1.10015E-05	1.4526593	1.589E-06	1.31796E-05
Road 11	11	2300-0000	0.260574858	2.714E-07	2.25155E-06	0.2327153	2.424E-07	2.01083E-06	1.3401667	1.396E-06	1.158E-05	1.195645	1.245E-06	1.03312E-05	1.4283603	1.488E-06	1.2342E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.36388	2.564E-06	3.85591E-06	1.21374	2.281E-06	3.43144E-06	6.2673	1.178E-05	1.77187E-05	5.57766	1.048E-05	1.57689E-05	6.7914	1.277E-05	1.92004E-05
Haul Road 1	HR1	0800-0900	1.36158	2.559E-06	3.84941E-06	1.22383	2.3E-06	3.45996E-06	6.2572	1.176E-05	1.76901E-05	5.62385	1.057E-05	1.58995E-05	6.84768	1.287E-05	1.93595E-05
Haul Road 1	HR1	0900-1000	1.35988	2.556E-06	3.8446E-06	1.22603	2.305E-06	3.46618E-06	6.24921	1.175E-05	1.76675E-05	5.63404	1.059E-05	1.59283E-05	6.86007	1.289E-05	1.93945E-05
Haul Road 1	HR1	1000-1100	1.35398	2.545E-06	3.82792E-06	1.22423	2.301E-06	3.46109E-06	6.22232	1.17E-05	1.75915E-05	5.62605	1.058E-05	1.59057E-05	6.85028	1.288E-05	1.93668E-05
Haul Road 1	HR1	1100-1200	1.35398	2.545E-06	3.82792E-06	1.21773	2.289E-06	3.44272E-06	6.22232	1.17E-05	1.75915E-05	5.59576	1.052E-05	1.58201E-05	6.81349	1.281E-05	1.92628E-05
Haul Road 1	HR1	1200-1300	1.34249	2.523E-06	3.79543E-06	1.22963	2.311E-06	3.47636E-06	6.16893	1.16E-05	1.74406E-05	5.65074	1.062E-05	1.59755E-05	6.88037	1.293E-05	1.94519E-05
Haul Road 1	HR1	1300-1400	1.33719	2.514E-06	3.78045E-06	1.22963	2.311E-06	3.47636E-06	6.14465	1.155E-05	1.73719E-05	5.65074	1.062E-05	1.59755E-05	6.88037	1.293E-05	1.94519E-05
Haul Road 1	HR1	1400-1500	1.33719	2.514E-06	3.78045E-06	1.22963	2.311E-06	3.47636E-06	6.14465	1.155E-05	1.73719E-05	5.65074	1.062E-05	1.59755E-05	6.88037	1.293E-05	1.94519E-05
Haul Road 1	HR1	1500-1600	1.33829	2.516E-06	3.78356E-06	1.21773	2.289E-06	3.44272E-06	6.14974	1.156E-05	1.73863E-05	5.59576	1.052E-05	1.58201E-05	6.81349	1.281E-05	1.92628E-05
Haul Road 1	HR1	1600-1700	1.32329	2.487E-06	3.74115E-06	1.22423	2.301E-06	3.46109E-06	6.08127	1.143E-05	1.71927E-05	5.62605	1.058E-05	1.59057E-05	6.85028	1.288E-05	1.93668E-05
Haul Road 1	HR1	1700-1800	1.32129	2.484E-06	3.7355E-06	1.20174	2.259E-06	3.39751E-06	6.07188	1.141E-05	1.71662E-05	5.52269	1.038E-05	1.56135E-05	6.72443	1.264E-05	1.9011E-05
Haul Road 1	HR1	1800-1900	1.3116	2.465E-06	3.7081E-06	1.19954	2.255E-06	3.39129E-06	6.02719	1.133E-05	1.70398E-05	5.51249	1.036E-05	1.55847E-05	6.71203	1.262E-05	1.8976E-05
Haul Road 1	HR1	1900-2000	1.294	2.432E-06	3.65835E-06	1.18365	2.225E-06	3.34637E-06	5.94653	1.118E-05	1.68118E-05	5.43951	1.022E-05	1.53784E-05	6.62316	1.245E-05	1.87247E-05
Haul Road 1	HR1	2000-2100	1.294	2.432E-06	3.65835E-06	1.18894	2.235E-06	3.36132E-06	5.94653	1.118E-05	1.68118E-05	5.46381	1.027E-05	1.54471E-05	6.65275	1.251E-05	1.88084E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.36388	1.767E-06	4.70274E-06	1.21374	1.572E-06	4.18505E-06	6.2673	8.118E-06	2.161E-05	5.57766	7.225E-06	1.92321E-05	6.7914	8.797E-06	2.34172E-05
Haul Road 2	HR2	0800-0900	1.36158	1.764E-06	4.69481E-06	1.22383	1.585E-06	4.21984E-06	6.2572	8.105E-06	2.15752E-05	5.62385	7.285E-06	1.93914E-05	6.84768	8.87E-06	2.36112E-05
Haul Road 2	HR2	0900-1000	1.35988	1.762E-06	4.68895E-06	1.22603	1.588E-06	4.22743E-06	6.24921	8.095E-06	2.15477E-05	5.63404	7.298E-06	1.94265E-05	6.86007	8.886E-06	2.36539E-05
Haul Road 2	HR2	1000-1100	1.35398	1.754E-06	4.6686E-06	1.22423	1.586E-06	4.22122E-06	6.22232	8.06E-06	2.14549E-05	5.62605	7.288E-06	1.9399E-05	6.85028	8.873E-06	2.36202E-05
Haul Road 2	HR2	1100-1200	1.35398	1.754E-06	4.6686E-06	1.21773	1.577E-06	4.19881E-06	6.22232	8.06E-06	2.14549E-05	5.59576	7.248E-06	1.92945E-05	6.81349	8.826E-06	2.34933E-05
Haul Road 2	HR2	1200-1300	1.34249	1.739E-06	4.62899E-06	1.22963	1.593E-06	4.23984E-06	6.16893	7.991E-06	2.12708E-05	5.65074	7.32E-06	1.94841E-05	6.88037	8.912E-06	2.37239E-05
Haul Road 2	HR2	1300-1400	1.33719	1.732E-06	4.61071E-06	1.22963	1.593E-06	4.23984E-06	6.14465	7.959E-06	2.11871E-05	5.65074	7.32E-06	1.94841E-05	6.88037	8.912E-06	2.37239E-05
Haul Road 2	HR2	1400-1500	1.33719	1.732E-06	4.61071E-06	1.22963	1.593E-06	4.23984E-06	6.14465	7.959E-06	2.11871E-05	5.65074	7.32E-06	1.94841E-05	6.88037	8.912E-06	2.37239E-05
Haul Road 2	HR2	1500-1600	1.33829	1.734E-06	4.6145E-06	1.21773	1.577E-06	4.19881E-06	6.14974	7.966E-06	2.12047E-05	5.59576	7.248E-06	1.92945E-05	6.81349	8.826E-06	2.34933E-05
Haul Road 2	HR2	1600-1700	1.32329	1.714E-06	4.56278E-06	1.22423	1.586E-06	4.22122E-06	6.08127	7.877E-06	2.09686E-05	5.62605	7.288E-06	1.9399E-05	6.85028	8.873E-06	2.36202E-05
Haul Road 2	HR2	1700-1800	1.32129	1.712E-06	4.55589E-06	1.20174	1.557E-06	4.14367E-06	6.07188	7.865E-06	2.09362E-05	5.52269	7.154E-06	1.90426E-05	6.72443	8.71E-06	2.31862E-05
Haul Road 2	HR2	1800-1900	1.3116	1.699E-06	4.52248E-06	1.19954	1.554E-06	4.13609E-06	6.02719	7.807E-06	2.07821E-05	5.51249	7.141E-06	1.90074E-05	6.71203	8.694E-06	2.31435E-05
Haul Road 2	HR2	1900-2000	1.294	1.676E-06	4.46179E-06	1.18365	1.533E-06	4.0813E-06	5.94653	7.703E-06	2.0504E-05	5.43951	7.046E-06	1.87558E-05	6.62316	8.579E-06	2.28371E-05
Haul Road 2	HR2	2000-2100	1.294	1.676E-06	4.46179E-06	1.18894	1.54E-06	4.09954E-06	5.94653	7.703E-06	2.0504E-05	5.46381	7.077E-06	1.88395E-05	6.65275	8.618E-06	2.29391E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (October) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.36388	1.767E-06	4.69618E-06	1.21374	1.572E-06	4.17921E-06	6.2673	8.118E-06	2.15799E-05	5.57766	7.225E-06	1.92053E-05	6.7914	8.797E-06	2.33845E-05
Haul Road 3	HR3	0800-0900	1.36158	1.764E-06	4.68826E-06	1.22383	1.585E-06	4.21396E-06	6.2572	8.105E-06	2.15451E-05	5.62385	7.285E-06	1.93643E-05	6.84768	8.87E-06	2.35783E-05
Haul Road 3	HR3	0900-1000	1.35988	1.762E-06	4.68241E-06	1.22603	1.588E-06	4.22153E-06	6.24921	8.095E-06	2.15176E-05	5.63404	7.298E-06	1.93994E-05	6.86007	8.886E-06	2.3621E-05
Haul Road 3	HR3	1000-1100	1.35398	1.754E-06	4.6621E-06	1.22423	1.586E-06	4.21533E-06	6.22232	8.06E-06	2.1425E-05	5.62605	7.288E-06	1.93719E-05	6.85028	8.873E-06	2.35872E-05
Haul Road 3	HR3	1100-1200	1.35398	1.754E-06	4.6621E-06	1.21773	1.577E-06	4.19295E-06	6.22232	8.06E-06	2.1425E-05	5.59576	7.248E-06	1.92676E-05	6.81349	8.826E-06	2.34606E-05
Haul Road 3	HR3	1200-1300	1.34249	1.739E-06	4.62253E-06	1.22963	1.593E-06	4.23393E-06	6.16893	7.991E-06	2.12412E-05	5.65074	7.32E-06	1.94569E-05	6.88037	8.912E-06	2.36909E-05
Haul Road 3	HR3	1300-1400	1.33719	1.732E-06	4.60428E-06	1.22963	1.593E-06	4.23393E-06	6.14465	7.959E-06	2.11576E-05	5.65074	7.32E-06	1.94569E-05	6.88037	8.912E-06	2.36909E-05
Haul Road 3	HR3	1400-1500	1.33719	1.732E-06	4.60428E-06	1.22963	1.593E-06	4.23393E-06	6.14465	7.959E-06	2.11576E-05	5.65074	7.32E-06	1.94569E-05	6.88037	8.912E-06	2.36909E-05
Haul Road 3	HR3	1500-1600	1.33829	1.734E-06	4.60807E-06	1.21773	1.577E-06	4.19295E-06	6.14974	7.966E-06	2.11751E-05	5.59576	7.248E-06	1.92676E-05	6.81349	8.826E-06	2.34606E-05
Haul Road 3	HR3	1600-1700	1.32329	1.714E-06	4.55642E-06	1.22423	1.586E-06	4.21533E-06	6.08127	7.877E-06	2.09394E-05	5.62605	7.288E-06	1.93719E-05	6.85028	8.873E-06	2.35872E-05
Haul Road 3	HR3	1700-1800	1.32129	1.712E-06	4.54954E-06	1.20174	1.557E-06	4.13789E-06	6.07188	7.865E-06	2.0907E-05	5.52269	7.154E-06	1.9016E-05	6.72443	8.71E-06	2.31539E-05
Haul Road 3	HR3	1800-1900	1.3116	1.699E-06	4.51617E-06	1.19954	1.554E-06	4.13032E-06	6.02719	7.807E-06	2.07531E-05	5.51249	7.141E-06	1.89809E-05	6.71203	8.694E-06	2.31112E-05
Haul Road 3	HR3	1900-2000	1.294	1.676E-06	4.45557E-06	1.18365	1.533E-06	4.07561E-06	5.94653	7.703E-06	2.04754E-05	5.43951	7.046E-06	1.87296E-05	6.62316	8.579E-06	2.28052E-05
Haul Road 3	HR3	2000-2100	1.294	1.676E-06	4.45557E-06	1.18894	1.54E-06	4.09382E-06	5.94653	7.703E-06	2.04754E-05	5.46381	7.077E-06	1.88133E-05	6.65275	8.618E-06	2.29071E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.106072373	3.524E-07	2.86666E-06	0.0969012	3.219E-07	2.61881E-06	0.6267571	2.082E-06	1.69385E-05	0.5697361	1.893E-06	1.53974E-05	0.6666373	2.215E-06	1.80162E-05
Road 1	1	0100-0200	0.081522593	1.652E-07	1.34432E-06	0.075835	1.537E-07	1.25053E-06	0.4926359	9.986E-07	8.12365E-06	0.456315	9.25E-07	7.52471E-06	0.53215	1.079E-06	8.77524E-06
Road 1	1	0200-0300	0.078023636	1.128E-07	9.17314E-07	0.0721448	1.043E-07	8.48198E-07	0.4992464	7.215E-07	5.86958E-06	0.4572713	6.608E-07	5.37608E-06	0.5294161	7.651E-07	6.22428E-06
Road 1	1	0300-0400	0.066759455	6.891E-08	5.6063E-07	0.0615131	6.35E-08	5.16573E-07	0.4074398	4.206E-07	3.42159E-06	0.3719124	3.839E-07	3.12323E-06	0.4334255	4.474E-07	3.63981E-06
Road 1	1	0400-0500	0.086879882	1.386E-07	1.12756E-06	0.0805242	1.285E-07	1.04507E-06	0.4967336	7.925E-07	6.44679E-06	0.4576138	7.301E-07	5.93908E-06	0.538138	8.585E-07	6.98415E-06
Road 1	1	0500-0600	0.070554332	2.476E-07	2.0145E-06	0.0656383	2.304E-07	1.87413E-06	0.4171997	1.464E-06	1.19121E-05	0.3850006	1.351E-06	1.09927E-05	0.4506389	1.582E-06	1.28668E-05
Road 1	1	0600-0700	0.095879729	5.974E-07	4.86033E-06	0.0891992	5.558E-07	4.52169E-06	0.5155426	3.212E-06	2.61339E-05	0.4766605	2.97E-06	2.41629E-05	0.5658597	3.526E-06	2.86846E-05
Road 1	1	0700-0800	0.081287782	8.529E-07	6.93806E-06	0.0752335	7.893E-07	6.42132E-06	0.4503131	4.725E-06	3.84351E-05	0.4132584	4.336E-06	3.52724E-05	0.4884919	5.125E-06	4.16937E-05
Road 1	1	0800-0900	0.08709362	1.12E-06	9.10916E-06	0.0808382	1.039E-06	8.4549E-06	0.4645693	5.973E-06	4.85895E-05	0.4290456	5.516E-06	4.48741E-05	0.5098838	6.555E-06	5.33289E-05
Road 1	1	0900-1000	0.090410636	1.2E-06	9.75978E-06	0.0844276	1.12E-06	9.11392E-06	0.5071156	6.729E-06	5.47429E-05	0.4718711	6.262E-06	5.09382E-05	0.5562987	7.382E-06	6.00522E-05
Road 1	1	1000-1100	0.105074818	1.355E-06	1.10219E-05	0.0978264	1.261E-06	1.02616E-05	0.5655217	7.292E-06	5.93208E-05	0.5250063	6.77E-06	5.50709E-05	0.6228328	8.031E-06	6.53325E-05
Road 1	1	1100-1200	0.094376252	1.181E-06	9.61147E-06	0.088643	1.11E-06	9.02759E-06	0.5422324	6.788E-06	5.52221E-05	0.5083799	6.364E-06	5.17744E-05	0.597023	7.474E-06	6.0802E-05
Road 1	1	1200-1300	0.096868227	1.2E-06	9.76172E-06	0.0907576	1.124E-06	9.14594E-06	0.5526022	6.845E-06	5.56875E-05	0.5169331	6.403E-06	5.2093E-05	0.6076907	7.528E-06	6.1239E-05
Road 1	1	1300-1400	0.101247293	1.334E-06	1.08523E-05	0.0952426	1.255E-06	1.02087E-05	0.564739	7.441E-06	6.05322E-05	0.5307421	6.993E-06	5.68882E-05	0.6259847	8.248E-06	6.70968E-05
Road 1	1	1400-1500	0.096210275	1.381E-06	1.12379E-05	0.0909354	1.306E-06	1.06217E-05	0.5239487	7.523E-06	6.12E-05	0.4945801	7.101E-06	5.77696E-05	0.5855155	8.407E-06	6.83913E-05
Road 1	1	1500-1600	0.104160268	1.386E-06	1.12759E-05	0.097173	1.293E-06	1.05195E-05	0.565599	7.526E-06	6.12288E-05	0.5267234	7.009E-06	5.70204E-05	0.6238965	8.302E-06	6.75398E-05
Road 1	1	1600-1700	0.099588396	1.398E-06	1.1374E-05	0.09277	1.302E-06	1.05952E-05	0.5464388	7.671E-06	6.24086E-05	0.5078491	7.13E-06	5.80013E-05	0.600619	8.432E-06	6.85965E-05
Road 1	1	1700-1800	0.080520973	1.133E-06	9.22086E-06	0.0735876	1.036E-06	8.42688E-06	0.4514419	6.355E-06	5.16969E-05	0.4104008	5.777E-06	4.69971E-05	0.4839884	6.813E-06	5.54239E-05
Road 1	1	1800-1900	0.071822943	1.035E-06	8.4222E-06	0.06508	9.381E-07	7.6315E-06	0.428358	6.175E-06	5.02307E-05	0.3852445	5.553E-06	4.51751E-05	0.4503245	6.491E-06	5.28066E-05
Road 1	1	1900-2000	0.086363532	9.499E-07	7.72733E-06	0.0782484	8.606E-07	7.00123E-06	0.4960422	5.456E-06	4.43831E-05	0.4464623	4.91E-06	3.9947E-05	0.5247107	5.771E-06	4.69482E-05
Road 1	1	2000-2100	0.07799998	7.261E-07	5.90714E-06	0.0704018	6.554E-07	5.33171E-06	0.4602846	4.285E-06	3.48586E-05	0.4125209	3.84E-06	3.12413E-05	0.4829226	4.496E-06	3.6573E-05
Road 1	1	2100-2200	0.082103068	6.981E-07	5.67883E-06	0.075082	6.384E-07	5.1932E-06	0.4867653	4.139E-06	3.36681E-05	0.4425428	3.763E-06	3.06094E-05	0.5176249	4.401E-06	3.58026E-05
Road 1	1	2200-2300	0.079902019	6.464E-07	5.25819E-06	0.0730199	5.907E-07	4.80529E-06	0.4720781	3.819E-06	3.10665E-05	0.4286828	3.468E-06	2.82107E-05	0.5017028	4.058E-06	3.3016E-05
Road 1	1	2300-0000	0.069964675	5.056E-07	4.11283E-06	0.0639389	4.62E-07	3.75861E-06	0.4294405	3.103E-06	2.52444E-05	0.3893323	2.813E-06	2.28867E-05	0.4532712	3.275E-06	2.66453E-05
Road 2	2	0000-0100	0.17790451	2.1E-07	1.35633E-06	0.1625369	1.919E-07	1.23917E-06	0.757032	8.937E-07	5.77155E-06	0.6889745	8.134E-07	5.25268E-06	0.8515114	1.005E-06	6.49185E-06
Road 2	2	0100-0200	0.125445152	9.583E-08	6.18836E-07	0.1166721	8.912E-08	5.75558E-07	0.6231458	4.76E-07	3.07405E-06	0.57747	4.411E-07	2.84873E-06	0.6941421	5.302E-07	3.42429E-06
Road 2	2	0200-0300	0.125446957	6.679E-08	4.31316E-07	0.1161352	6.183E-08	3.993E-07	0.6864765	3.655E-07	2.36027E-06	0.631493	3.362E-07	2.17122E-06	0.7476283	3.98E-07	2.57052E-06
Road 2	2	0300-0400	0.110696667	3.844E-08	2.48218E-07	0.102014	3.542E-08	2.28749E-07	0.4050353	1.406E-07	9.08222E-07	0.3702593	1.286E-07	8.30243E-07	0.4722733	1.64E-07	1.05899E-06
Road 2	2	0400-0500	0.148885556	9.305E-08	6.0093E-07	0.1380159	8.626E-08	5.57058E-07	0.72228	4.514E-07	2.91526E-06	0.6670615	4.169E-07	2.69239E-06	0.8050774	5.032E-07	3.24944E-06
Road 2	2	0500-0600	0.11926614	1.574E-07	1.01625E-06	0.1110365	1.465E-07	9.46125E-07	0.5295461	6.987E-07	4.51218E-06	0.48978	6.462E-07	4.17334E-06	0.6008165	7.927E-07	5.11946E-06
Road 2	2	0600-0700	0.170133495	4.056E-07	2.6196E-06	0.158317	3.775E-07	2.43766E-06	0.6929781	1.652E-06	1.067E-05	0.641915	1.53E-06	9.88377E-06	0.800232	1.908E-06	1.23214E-05
Road 2	2	0700-0800	0.136445316	4.99E-07	3.22273E-06	0.1263287	4.62E-07	2.98378E-06	0.5792202	2.118E-06	1.36807E-05	0.5323225	1.947E-06	1.2573E-05	0.6586513	2.409E-06	1.55568E-05
Road 2	2	0800-0900	0.154162233	1.071E-06	6.91364E-06	0.1430905	9.937E-07	6.41711E-06	0.6554743	4.552E-06	2.93958E-05	0.6054979	4.205E-06	2.71545E-05	0.7485884	5.199E-06	3.35716E-05
Road 2	2	0900-1000	0.174628415	9.944E-07	6.42181E-06	0.1630081	9.282E-07	5.99449E-06	0.7568113	4.31E-06	2.78311E-05	0.7047893	4.013E-06	2.5918E-05	0.8677974	4.942E-06	3.19125E-05
Road 2	2	1000-1100	0.194125435	8.268E-07	5.33959E-06	0.1807397	7.698E-07	4.9714E-06	0.8347948	3.556E-06	2.29618E-05	0.7755844	3.303E-06	2.13331E-05	0.9563241	4.073E-06	2.63045E-05
Road 2	2	1100-1200	0.233422652	9.78E-07	6.31581E-06	0.2192248	9.185E-07	5.93166E-06	0.9577797	4.013E-06	2.5915E-05	0.898871	3.766E-06	2.43211E-05	1.1180958	4.685E-06	3.02528E-05
Road 2	2	1200-1300	0.177431223	7.722E-07	4.9865E-06	0.1662516	7.235E-07	4.67231E-06	0.7824122	3.405E-06	2.19888E-05	0.7320968	3.186E-06	2.05747E-05	0.8983485	3.909E-06	2.5247E-05
Road 2	2	1300-1400	0.196416136	1E-06	6.45963E-06	0.1846891	9.405E-07	6.07396E-06	0.812447	4.137E-06	2.67193E-05	0.7633152	3.887E-06	2.51035E-05	0.9480044	4.828E-06	3.11775E-05
Road 2	2	1400-1500	0.170093988	6.418E-07	4.14462E-06	0.160753	6.065E-07	3.91701E-06	0.7363491	2.778E-06	1.79423E-05	0.6953812	2.624E-06	1.69441E-05	0.8561342	3.23E-06	2.08611E-05
Road 2	2	1500-1600	0.210928268	8.74E-07	5.64411E-06	0.19665	8.148E-07	5.26205E-06	0.8479683	3.514E-06	2.26903E-05	0.7899947	3.273E-06	2.1139E-05	0.9866447	4.088E-06	2.64011E-05
Road 2	2	1600-1700	0.180362055	9.143E-07	5.90469E-06	0.1679839	8.516E-07	5.49945E-06	0.7637989	3.872E-06	2.50052E-05	0.7102828	3.601E-06	2.32532E-05	0.8782667	4.452E-06	2.87527E-05
Road 2	2	1700-1800	0.137933917	6.929E-07	4.47444E-06	0.1260612	6.332E-07	4.0893E-06	0.5505983	2.766E-06	1.78609E-05	0.5014973	2.519E-06	1.62681E-05	0.6275586	3.152E-06	2.03574E-05
Road 2	2	1800-1900	0.151682823	8.708E-07	5.62336E-06	0.1375117	7.894E-07	5.09799E-06	0.7017801	4.029E-06	2.60172E-05	0.6337082	3.638E-06	2.34936E-05	0.7712199	4.427E-06	2.85915E-05
Road 2	2	1900-2000	0.130370663	5.01E-07	3.23516E-06	0.1181511	4.54E-07	2.93193E-06	0.6019345	2.313E-06	1.49371E-05	0.5422054	2.083E-06	1.34549E-05	0.6603564	2.537E-06	1.63868E-05
Road 2	2	2000-2100	0.12805411	4.328E-07	2.79482E-06	0.1155236	3.904E-07	2.52134E-06	0.5417405	1.831E-06	1.18237E-05	0.4852912	1.64E-06	1.05916E-05	0.6008148	2.031E-06	1.3113E-05
Road 2	2	2100-2200	0.098700592	3.473E-07	2.2427E-06	0.0902454	3.175E-07	2.05058E-06	0.4503615	1.585E-06	1.02332E-05	0.4079765	1.435E-06	9.27014E-06	0.4982219	1.753E-06	1.13207E-05
Road 2	2	2200-2300	0.14149712	4.094E-07	2.64402E-06	0.1293561	3.743E-07	2.41716E-06	0.606836	1.756E-06	1.13394E-05	0.5518338	1.597E-06	1.03116E-05	0.6811899	1.971E-06	1.27288E-05
Road 2	2	2300-0000	0.128199636	3.264E-07	2.10808E-06	0.117209	2.984E-07	1.92735E-06	0.5801388	1.477E-06	9.53965E-06	0.52706	1.342E-06	8.66683E-06	0.644269	1.64E-06	1.05942E-05
Road 3	3	0000-0100	0.110339258	4.053E-07	1.57523E-05	0.1007113	3.699E-07	1.43778E-05	0.6065947	2.228E-06	8.6599E-05	0.5510341	2.024E-06	7.8667E-05	0.6517454	2.394E-06	9.30448E-05
Road 3	3	0100-0200	0.082467589	1.865E-07	7.24905E-06	0.0768757	1.739E-07	6.75752E-06	0.4794425	1.084E-06	4.21439E-05	0.4450832	1.007E-06	3.91236E-05	0.5219589	1.18E-06	4.58811E-05
Road 3	3	0200-0300	0.080151515	1.273E-07	4.94681E-06	0.0742848	1.18E-07	4.58473E-06	0.4999638	7.939E-07	3.08569E-05	0.4592526	7.293E-07	2.83443E-05	0.5335375	8.472E-07	3.2929E-05
Road 3	3	0300-0400	0.069029855	7.64E-08	2.96937E-06	0.0637368	7.054E-08	2.74169E-06	0.3765033	4.167E-07	1.61956E-05	0.344298	3.81E-07	1.48102E-05	0.4080348	4.516E-07	1.75519E-05
Road 3	3	0400-0500	0.091684234	1.632E-07	6.34448E-06	0.0858549	1.529E-07	5.9411E-06	0.5054497	8.999E-07	3.49768E-05	0.4709524	8.385E-07	3.25896E-05	0.5568073	9.913E-07	3.85307E-05
Road 3	3	0500-0600	0.074543292	2.905E-07	1.12926E-05	0.0693658	2.704E-07	1.05082E-05	0.4130985	1.61E-06	6.25804E-05	0.38138	1.486E-06	5.77754E-05	0.4507457	1.757E-06	6.82836E-05
Road 3	3	0600-0700	0.101850548	7.155E-07	2.7811E-05	0.0948547	6.664E-07	2.59007E-05	0.5094801	3.579E-06	0.000139117	0.4717161	3.314E-06	0.000128805	0.5665708	3.98E-06	0.000154706
Road 3	3	0700-0800	0.08455014	9.71E-07	3.77404E-05	0.0780477	8.963E-07	3.48379E-05	0.4419265	5.075E-06	0.000197261	0.4043757	4.644E-06	0.0001805	0.4824234	5.54E-06	0.000215338
Road 3	3	0800-0900	0.092891274	1.474E-06	5.7273E-05	0.0861361	1.366E-06	5.3108E-05	0.4634706	7.352E-06	0.000285757	0.4276026	6.783E-06	0.000263642	0.5137386	8.149E-06	0.00031675
Road 3	3	0900-1000	0.10034934	1.536E-06	5.96818E-05	0.093106	1.425E-06	5.53739E-05	0.5174032	7.917E-06	0.00030772	0.4782159	7.318E-06	0.000284414	0.5713219	8.742E-06	0.000339788
Road 3	3	1000-1100	0.11236569	1.568E-06	6.09441E-05	0.1044917	1.458E-06	5.66735E-05	0.5719121	7.981E-06	0.00031019	0.5304147	7.402E-06	0.000287683	0.6349064	8.86E-06	0.000344356
Road 3	3	1100-1200	0.109688924	1.488E-06	5.78511E-05	0.1023655	1.389E-06	5.39887E-05	0.5725934	7.77E-06	0.000301992	0.5330536	7.233E-06	0.000281138	0.6354192	8.622E-06	0.000335127
Road 3	3	1200-1300	0.103166939	1.4E-06	5.44114E-05	0.0963163	1.307E-06	5.07983E-05	0.5504133	7.469E-06	0.000290294	0.5128709	6.959E-06	0.000270494	0.6091872	8.266E-06	0.000321292
Road 3	3	1300-1400	0.109376355	1.612E-06	6.26639E-05	0.1023906	1.509E-06	5.86616E-05	0.5613291	8.274E-06	0.000321597	0.5248497	7.736E-06	0.000300697	0.6272403	9.246E-06	0.000359359

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.101776807	1.508E-06	5.86272E-05	0.0952737	1.412E-06	5.48812E-05	0.5285335	7.833E-06	0.000304455	0.4941618	7.324E-06	0.000284656	0.5894355	8.736E-06	0.000339537
Road 3	3	1500-1600	0.113478236	1.62E-06	6.29624E-05	0.1057251	1.509E-06	5.86607E-05	0.5735258	8.187E-06	0.000318216	0.5335845	7.617E-06	0.000296055	0.6393096	9.126E-06	0.000354715
Road 3	3	1600-1700	0.106775511	1.66E-06	6.45021E-05	0.0990782	1.54E-06	5.98523E-05	0.5502244	8.552E-06	0.000332386	0.5095576	7.92E-06	0.000307819	0.6086358	9.46E-06	0.000367672
Road 3	3	1700-1800	0.085706443	1.333E-06	5.18279E-05	0.0784825	1.221E-06	4.74595E-05	0.4426282	6.887E-06	0.000267664	0.4035452	6.279E-06	0.00024403	0.4820277	7.5E-06	0.000291489
Road 3	3	1800-1900	0.080994523	1.321E-06	5.13518E-05	0.0735484	1.2E-06	4.66308E-05	0.4481358	7.31E-06	0.000284125	0.404483	6.598E-06	0.000256448	0.4780314	7.798E-06	0.000303079
Road 3	3	1900-2000	0.087297676	1.054E-06	4.09804E-05	0.0790557	9.548E-07	3.71114E-05	0.4806476	5.805E-06	0.000225632	0.4321506	5.219E-06	0.000202866	0.5112063	6.174E-06	0.000239977
Road 3	3	2000-2100	0.081144037	8.382E-07	3.25778E-05	0.0732426	7.566E-07	2.94055E-05	0.4430077	4.576E-06	0.000177859	0.3969538	4.1E-06	0.000159369	0.4701964	4.857E-06	0.000188775
Road 3	3	2100-2200	0.079644328	7.793E-07	3.02875E-05	0.0728084	7.124E-07	2.76879E-05	0.4491822	4.395E-06	0.000170817	0.407759	3.99E-06	0.000155064	0.4805674	4.702E-06	0.000182752
Road 3	3	2200-2300	0.085199263	7.598E-07	2.95318E-05	0.0780645	6.962E-07	2.70587E-05	0.463784	4.136E-06	0.000160757	0.4222438	3.766E-06	0.000146358	0.5003082	4.462E-06	0.000173417
Road 3	3	2300-0000	0.075365261	6.02E-07	2.3398E-05	0.0690578	5.516E-07	2.14398E-05	0.4270328	3.411E-06	0.000132577	0.3882499	3.101E-06	0.000120537	0.4573077	3.653E-06	0.000141977
Road 4	4	0000-0100	0.281996571	2.285E-07	2.44635E-06	0.2573954	2.085E-07	2.23294E-06	1.4373946	1.165E-06	1.24696E-05	1.3111291	1.062E-06	1.13742E-05	1.5685246	1.271E-06	1.36071E-05
Road 4	4	0100-0200	0.2651445	1.228E-07	1.31438E-06	0.247173	1.144E-07	1.22529E-06	1.3534785	6.266E-07	6.70948E-06	1.2616985	5.841E-07	6.25451E-06	1.5088715	6.986E-07	7.4798E-06
Road 4	4	0200-0300	0.287215385	8.643E-08	9.25462E-07	0.2665623	8.022E-08	8.58914E-07	1.4176354	4.266E-07	4.56789E-06	1.31581	3.96E-07	4.23979E-06	1.5823723	4.762E-07	5.0987E-06
Road 4	4	0300-0400	0.261461429	4.237E-08	4.53642E-07	0.2417114	3.917E-08	4.19375E-07	1.3880829	2.249E-07	2.40836E-06	1.2831757	2.079E-07	2.22634E-06	1.5248871	2.471E-07	2.64572E-06
Road 4	4	0400-0500	0.267282143	8.662E-08	9.27482E-07	0.2503621	8.114E-08	8.68769E-07	1.31998	4.278E-07	4.58039E-06	1.2361557	4.006E-07	4.28952E-06	1.4865179	4.817E-07	5.15829E-06
Road 4	4	0500-0600	0.248675	1.382E-07	1.47928E-06	0.2316158	1.287E-07	1.3778E-06	1.1788654	6.549E-07	7.01266E-06	1.0972438	6.096E-07	6.52712E-06	1.3288596	7.383E-07	7.90493E-06
Road 4	4	0600-0700	0.275278462	3.314E-07	3.548E-06	0.2565365	3.088E-07	3.30644E-06	1.3148677	1.583E-06	1.6947E-05	1.2245883	1.474E-06	1.57834E-05	1.4811248	1.783E-06	1.90898E-05
Road 4	4	0700-0800	0.27896837	5.941E-07	6.36136E-06	0.257716	5.488E-07	5.87674E-06	1.3896083	2.959E-06	3.16875E-05	1.2826697	2.732E-06	2.92489E-05	1.5403857	3.28E-06	3.51257E-05
Road 4	4	0800-0900	0.283616471	1.004E-06	1.07555E-05	0.2631013	9.318E-07	9.9775E-06	1.4152316	5.012E-06	5.36694E-05	1.3121784	4.647E-06	4.97613E-05	1.5752797	5.579E-06	5.97388E-05
Road 4	4	0900-1000	0.291172297	9.975E-07	1.06812E-05	0.2700243	9.251E-07	9.9054E-06	1.3729084	4.703E-06	5.03629E-05	1.2724021	4.359E-06	4.6676E-05	1.5424264	5.284E-06	5.65814E-05
Road 4	4	1000-1100	0.32269035	1.068E-06	1.14375E-05	0.300041	9.932E-07	1.06347E-05	1.5240634	5.045E-06	5.4019E-05	1.4168121	4.69E-06	5.02176E-05	1.7168531	5.683E-06	6.08523E-05
Road 4	4	1100-1200	0.298457935	1.071E-06	1.14663E-05	0.278371	9.988E-07	1.06946E-05	1.4002178	5.024E-06	5.37941E-05	1.3058383	4.685E-06	5.01682E-05	1.5842092	5.684E-06	6.08628E-05
Road 4	4	1200-1300	0.304111837	1.035E-06	1.10805E-05	0.2837205	9.654E-07	1.03375E-05	1.4925931	5.079E-06	5.43834E-05	1.3923141	4.738E-06	5.07297E-05	1.6760346	5.703E-06	6.10672E-05
Road 4	4	1300-1400	0.311452752	1.074E-06	1.15023E-05	0.291453	1.005E-06	1.07637E-05	1.4929811	5.149E-06	5.51376E-05	1.3967311	4.817E-06	5.1583E-05	1.6881841	5.823E-06	6.23467E-05
Road 4	4	1400-1500	0.285263623	9.113E-07	9.75737E-06	0.2669451	8.527E-07	9.1308E-06	1.4139645	4.517E-06	4.83643E-05	1.3226878	4.225E-06	4.52422E-05	1.5896329	5.078E-06	5.4373E-05
Road 4	4	1500-1600	0.318898145	9.154E-07	9.80124E-06	0.2969142	8.523E-07	9.12557E-06	1.5265375	4.382E-06	4.69177E-05	1.4213326	4.08E-06	4.36843E-05	1.7182468	4.932E-06	5.28098E-05
Road 4	4	1600-1700	0.299081694	8.585E-07	9.19219E-06	0.2773973	7.962E-07	8.52573E-06	1.4479251	4.156E-06	4.45016E-05	1.3427535	3.854E-06	4.12691E-05	1.6201508	4.65E-06	4.97949E-05
Road 4	4	1700-1800	0.287621746	8.389E-07	8.98255E-06	0.2635014	7.685E-07	8.22926E-06	1.416057	4.13E-06	4.42241E-05	1.2965962	3.782E-06	4.04933E-05	1.5600976	4.55E-06	4.87225E-05
Road 4	4	1800-1900	0.317383868	7.788E-07	8.3387E-06	0.2883987	7.076E-07	7.57716E-06	1.5837304	3.886E-06	4.16097E-05	1.4388277	3.53E-06	3.78026E-05	1.7272264	4.238E-06	4.53798E-05
Road 4	4	1900-2000	0.28935973	4.957E-07	5.30734E-06	0.2621188	4.49E-07	4.8077E-06	1.4372582	2.462E-06	2.63617E-05	1.3015416	2.229E-06	2.38725E-05	1.5636604	2.678E-06	2.86802E-05
Road 4	4	2000-2100	0.253350204	2.874E-07	3.07698E-06	0.2286735	2.594E-07	2.77728E-06	1.2659669	1.436E-06	1.53754E-05	1.1414882	1.295E-06	1.38636E-05	1.3701616	1.554E-06	1.66408E-05
Road 4	4	2100-2200	0.210439189	1.802E-07	1.9299E-06	0.1925559	1.649E-07	1.7659E-06	1.0705751	9.169E-07	9.81808E-06	0.9782341	8.378E-07	8.97123E-06	1.17079	1.003E-06	1.07371E-05
Road 4	4	2200-2300	0.280994444	4.098E-07	4.38779E-06	0.2575622	3.756E-07	4.02189E-06	1.3782978	2.01E-06	2.15224E-05	1.2630124	1.842E-06	1.97222E-05	1.5205746	2.218E-06	2.37441E-05
Road 4	4	2300-0000	0.261252708	2.903E-07	3.1082E-06	0.239526	2.661E-07	2.84972E-06	1.3159648	1.462E-06	1.56564E-05	1.2057183	1.34E-06	1.43448E-05	1.4452444	1.606E-06	1.71945E-05
Road 5	5	0000-0100	0.094163834	3.411E-07	4.61271E-06	0.0859488	3.113E-07	4.21029E-06	0.5202624	1.885E-06	2.54856E-05	0.471864	1.709E-06	2.31147E-05	0.5578127	2.021E-06	2.7325E-05
Road 5	5	0100-0200	0.063484959	1.442E-07	1.94971E-06	0.0591849	1.344E-07	1.81765E-06	0.3835059	8.709E-07	1.1778E-05	0.3553511	8.07E-07	1.09133E-05	0.414536	9.414E-07	1.2731E-05
Road 5	5	0200-0300	0.059856512	9.662E-08	1.30655E-06	0.0554349	8.948E-08	1.21003E-06	0.4074206	6.576E-07	8.89316E-06	0.3726337	6.015E-07	8.13384E-06	0.4280686	6.91E-07	9.34387E-06
Road 5	5	0300-0400	0.055069516	6.408E-08	8.66598E-07	0.0508239	5.914E-08	7.99787E-07	0.2961908	3.447E-07	4.66099E-06	0.2696519	3.138E-07	4.24336E-06	0.3204758	3.729E-07	5.04315E-06
Road 5	5	0400-0500	0.076114124	1.386E-07	1.87392E-06	0.0712692	1.298E-07	1.75464E-06	0.428938	7.809E-07	1.05604E-05	0.3989506	7.263E-07	9.82213E-06	0.4702198	8.561E-07	1.15768E-05
Road 5	5	0500-0600	0.061539954	2.518E-07	3.40509E-06	0.0572474	2.342E-07	3.16758E-06	0.3531083	1.445E-06	1.9538E-05	0.3251822	1.331E-06	1.79928E-05	0.3824296	1.565E-06	2.11604E-05
Road 5	5	0600-0700	0.089583325	6.473E-07	8.75392E-06	0.0834159	6.028E-07	8.15125E-06	0.4467741	3.228E-06	4.3658E-05	0.4129431	2.984E-06	4.03521E-05	0.496359	3.587E-06	4.85033E-05
Road 5	5	0700-0800	0.069576827	8.149E-07	1.10196E-05	0.06419	7.518E-07	1.01664E-05	0.362153	4.241E-06	5.73577E-05	0.3302734	3.868E-06	5.23086E-05	0.3944634	4.62E-06	6.2475E-05
Road 5	5	0800-0900	0.0747436	1.173E-06	1.58597E-05	0.0692998	1.087E-06	1.47046E-05	0.3646064	5.721E-06	7.73652E-05	0.3356172	5.266E-06	7.1214E-05	0.4049171	6.353E-06	8.59186E-05
Road 5	5	0900-1000	0.081792042	1.24E-06	1.6774E-05	0.0759024	1.151E-06	1.55662E-05	0.4314552	6.543E-06	8.84834E-05	0.3983623	6.041E-06	8.16967E-05	0.4742647	7.192E-06	9.72629E-05
Road 5	5	1000-1100	0.092260041	1.257E-06	1.70006E-05	0.0858223	1.169E-06	1.58144E-05	0.4773363	6.504E-06	8.79581E-05	0.4422249	6.026E-06	8.14882E-05	0.5280472	7.195E-06	9.73026E-05
Road 5	5	1100-1200	0.089931667	1.165E-06	1.57499E-05	0.0839286	1.087E-06	1.46985E-05	0.4832552	6.258E-06	8.46331E-05	0.4495342	5.822E-06	7.87275E-05	0.5334628	6.909E-06	9.34261E-05
Road 5	5	1200-1300	0.083886309	1.101E-06	1.48827E-05	0.0783073	1.027E-06	1.38929E-05	0.4538168	5.954E-06	8.05142E-05	0.4226937	5.545E-06	7.49925E-05	0.501001	6.573E-06	8.88854E-05
Road 5	5	1300-1400	0.090250913	1.299E-06	1.75696E-05	0.0845018	1.216E-06	1.64504E-05	0.4696151	6.76E-06	9.14223E-05	0.4389973	6.32E-06	8.54618E-05	0.5234991	7.536E-06	0.000101912
Road 5	5	1400-1500	0.0863043	1.273E-06	1.72175E-05	0.0808033	1.192E-06	1.61201E-05	0.4489159	6.623E-06	8.95576E-05	0.419648	6.191E-06	8.37187E-05	0.5004513	7.383E-06	9.98388E-05
Road 5	5	1500-1600	0.096766993	1.389E-06	1.8789E-05	0.0902012	1.295E-06	1.75141E-05	0.4922008	7.067E-06	9.55693E-05	0.4577684	6.573E-06	8.88837E-05	0.5479696	7.868E-06	0.000106398
Road 5	5	1600-1700	0.091161496	1.441E-06	1.94822E-05	0.0846074	1.337E-06	1.80815E-05	0.4743854	7.497E-06	0.000101381	0.4391135	6.939E-06	9.38434E-05	0.523721	8.277E-06	0.000111925
Road 5	5	1700-1800	0.068319028	1.082E-06	1.46352E-05	0.062583	9.914E-07	1.34064E-05	0.3547035	5.619E-06	7.59841E-05	0.3228244	5.114E-06	6.9155E-05	0.3854074	6.105E-06	8.25615E-05
Road 5	5	1800-1900	0.064133989	1.095E-06	1.48131E-05	0.0582506	9.949E-07	1.34542E-05	0.3631571	6.203E-06	8.38785E-05	0.3269816	5.585E-06	7.5523E-05	0.3852322	6.58E-06	8.89772E-05
Road 5	5	1900-2000	0.074787504	9.503E-07	1.28509E-05	0.0677083	8.603E-07	1.16344E-05	0.4191472	5.326E-06	7.20228E-05	0.3761871	4.78E-06	6.46409E-05	0.4438954	5.64E-06	7.62753E-05
Road 5	5	2000-2100	0.071881717	8.014E-07	1.08373E-05	0.0648689	7.232E-07	9.77997E-06	0.3957282	4.412E-06	5.96621E-05	0.3541387	3.948E-06	5.33918E-05	0.4190075	4.671E-06	6.31718E-05
Road 5	5	2100-2200	0.074719895	8.008E-07	1.0829E-05	0.0682773	7.317E-07	9.89526E-06	0.4242724	4.547E-06	6.14888E-05	0.3848477	4.124E-06	5.5775E-05	0.4531249	4.856E-06	6.56703E-05
Road 5	5	2200-2300	0.07185063	6.635E-07	8.97244E-06	0.0658185	6.078E-07	8.21917E-06	0.3986049	3.681E-06	4.97763E-05	0.3621922	3.345E-06	4.52292E-05	0.4280107	3.952E-06	5.34484E-05
Road 5	5	2300-0000	0.063546094	5.343E-07	7.22573E-06	0.0582183	4.895E-07	6.61992E-06	0.3675748	3.091E-06	4.17964E-05	0.3334662	2.804E-06	3.79179E-05	0.3916845	3.293E-06	4.45379E-05
Road 6	6	0000-0100	0.057268784	1.591E-07	5.68646E-06	0.0521752	1.449E-07	5.1807E-06	0.3626173	1.007E-06	3.60058E-05	0.3265934	9.072E-07	3.24289E-05	0.3787686	1.052E-06	3.76096E-05
Road 6	6	0100-0200	0.073893097	1.567E-07	5.60202E-06	0.0688679	1.461E-07	5.22105E-06	0.4138877	8.778E-07	3.13779E-05	0.3827789	8.118E-07	2.90194E-05	0.4516468	9.579E-07	3.42405E-05
Road 6	6	0200-0300	0.068034557	1.009E-07	3.60595E-06	0.0631104	9.358E-08	3.34496E-06	0.3834238	5.685E-07	2.03221E-05	0.3518767	5.217E-07	1.86501E-05	0.4149871	6.153E-07	2.1995E-05
Road 6	6	0300-0400	0.068909194	8.019E-08	2.86636E-06	0.063754	7.419E-08	2.65193E-06	0.4365258	5.08E-07	1.81578E-05	0.4002089	4.657E-07	1.66472E-05	0.4639629	5.399E-07	1.92991E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.074710444	1.262E-07	4.51114E-06	0.069943	1.181E-07	4.22327E-06	0.4340839	7.332E-07	2.62107E-05	0.403031	6.808E-07	2.43357E-05	0.472974	7.989E-07	2.8559E-05
Road 6	6	0500-0600	0.06785472	2.05E-07	7.3294E-06	0.0631506	1.908E-07	6.82128E-06	0.406107	1.227E-06	4.38661E-05	0.3741803	1.131E-06	4.04175E-05	0.4373309	1.322E-06	4.72388E-05
Road 6	6	0600-0700	0.072370453	3.898E-07	1.3935E-05	0.0673459	3.628E-07	1.29675E-05	0.4461153	2.403E-06	8.58997E-05	0.4103985	2.211E-06	7.90224E-05	0.4777443	2.573E-06	9.19899E-05
Road 6	6	0700-0800	0.068882895	5.895E-07	2.10736E-05	0.0635556	5.439E-07	1.94438E-05	0.3879221	3.32E-06	0.000118678	0.3535593	3.026E-06	0.000108166	0.4171149	3.57E-06	0.00012761
Road 6	6	0800-0900	0.058432309	7.172E-07	2.56385E-05	0.0541337	6.645E-07	2.37524E-05	0.342909	4.209E-06	0.000150459	0.3135888	3.849E-06	0.000137594	0.3677224	4.514E-06	0.000161347
Road 6	6	0900-1000	0.06084285	7.171E-07	2.56349E-05	0.0563637	6.643E-07	2.37477E-05	0.3403064	4.011E-06	0.000143381	0.3116332	3.673E-06	0.0001313	0.3679969	4.338E-06	0.000155048
Road 6	6	1000-1100	0.081126053	8.1E-07	2.89557E-05	0.0754102	7.53E-07	2.69156E-05	0.4414448	4.408E-06	0.000157562	0.4077943	4.072E-06	0.000145551	0.4832045	4.825E-06	0.000172467
Road 6	6	1100-1200	0.091780114	9.095E-07	3.25121E-05	0.0856587	8.489E-07	3.03437E-05	0.4751379	4.709E-06	0.000168312	0.4419877	4.38E-06	0.000156569	0.5276464	5.229E-06	0.000186913
Road 6	6	1200-1300	0.088965853	8.616E-07	3.07989E-05	0.0830897	8.047E-07	2.87647E-05	0.4382436	4.244E-06	0.000151715	0.4084339	3.956E-06	0.000141395	0.4915236	4.76E-06	0.00017016
Road 6	6	1300-1400	0.103513107	1.001E-06	3.57656E-05	0.096932	9.369E-07	3.34917E-05	0.5190012	5.017E-06	0.000179324	0.4851618	4.69E-06	0.000167632	0.5820938	5.626E-06	0.000201123
Road 6	6	1400-1500	0.098759278	1.053E-06	3.76347E-05	0.0924782	9.859E-07	3.52412E-05	0.4920564	5.246E-06	0.000187511	0.4598955	4.903E-06	0.000175255	0.5523737	5.889E-06	0.000210496
Road 6	6	1500-1600	0.087004595	9.063E-07	3.23965E-05	0.0810561	8.443E-07	3.01815E-05	0.4430654	4.615E-06	0.000164977	0.4117774	4.289E-06	0.000153327	0.4928335	5.134E-06	0.000183508
Road 6	6	1600-1700	0.091331761	9.737E-07	3.48043E-05	0.084764	9.036E-07	3.23015E-05	0.4450336	4.744E-06	0.000169591	0.4119282	4.391E-06	0.000156976	0.4966922	5.295E-06	0.000189277
Road 6	6	1700-1800	0.068431319	7.693E-07	2.75007E-05	0.062713	7.051E-07	2.52027E-05	0.3440844	3.868E-06	0.000138278	0.3132338	3.522E-06	0.00012588	0.3759468	4.227E-06	0.000151083
Road 6	6	1800-1900	0.067384671	8.638E-07	3.08777E-05	0.0612054	7.846E-07	2.80461E-05	0.3499743	4.486E-06	0.000160369	0.3154482	4.044E-06	0.000144548	0.3766536	4.828E-06	0.000172594
Road 6	6	1900-2000	0.080791171	7.9E-07	2.824E-05	0.0731252	7.151E-07	2.55604E-05	0.4199069	4.106E-06	0.000146775	0.3766196	3.683E-06	0.000131645	0.4497448	4.398E-06	0.000157205
Road 6	6	2000-2100	0.064389195	4.955E-07	1.77117E-05	0.058065	4.468E-07	1.59721E-05	0.3632093	2.795E-06	9.99087E-05	0.3242389	2.495E-06	8.9189E-05	0.3823039	2.942E-06	0.000105161
Road 6	6	2100-2200	0.089452753	5.977E-07	2.13652E-05	0.0817256	5.461E-07	1.95196E-05	0.4655914	3.111E-06	0.000111203	0.4227592	2.825E-06	0.000100973	0.5044848	3.371E-06	0.000120493
Road 6	6	2200-2300	0.06697687	4.739E-07	1.69406E-05	0.0612987	4.337E-07	1.55044E-05	0.3727206	2.637E-06	9.4273E-05	0.3369998	2.385E-06	8.52381E-05	0.3982985	2.818E-06	0.000100742
Road 6	6	2300-0000	0.044851045	2.98E-07	1.06522E-05	0.0410795	2.729E-07	9.75642E-06	0.2768534	1.839E-06	6.5753E-05	0.250614	1.665E-06	5.95211E-05	0.2916935	1.938E-06	6.92776E-05
Road 7	7	0000-0100	0.082135685	2.194E-07	5.47741E-06	0.0749046	2.001E-07	4.99519E-06	0.4862189	1.299E-06	3.24247E-05	0.4402724	1.176E-06	2.93606E-05	0.515177	1.376E-06	3.43558E-05
Road 7	7	0100-0200	0.098289378	2.041E-07	5.09411E-06	0.091542	1.901E-07	4.74441E-06	0.5407722	1.123E-06	2.8027E-05	0.5013056	1.041E-06	2.59815E-05	0.5928476	1.231E-06	3.07259E-05
Road 7	7	0200-0300	0.085639702	1.169E-07	2.91762E-06	0.0794059	1.084E-07	2.70524E-06	0.4841627	6.608E-07	1.64947E-05	0.4457115	6.083E-07	1.51847E-05	0.5251173	7.167E-07	1.789E-05
Road 7	7	0300-0400	0.086589818	9.554E-08	2.3851E-06	0.0800546	8.833E-08	2.20509E-06	0.5231825	5.773E-07	1.44109E-05	0.4806671	5.304E-07	1.32399E-05	0.5607217	6.187E-07	1.5445E-05
Road 7	7	0400-0500	0.095854356	1.545E-07	3.85621E-06	0.0894367	1.441E-07	3.59803E-06	0.5348411	8.619E-07	2.15166E-05	0.4961493	7.996E-07	1.996E-05	0.585586	9.437E-07	2.3558E-05
Road 7	7	0500-0600	0.087910051	2.502E-07	6.24482E-06	0.0818465	2.329E-07	5.81409E-06	0.4972396	1.415E-06	3.53222E-05	0.459774	1.308E-06	3.26607E-05	0.5416206	1.541E-06	3.84748E-05
Road 7	7	0600-0700	0.092149309	4.683E-07	1.16892E-05	0.0857797	4.359E-07	1.08812E-05	0.5322097	2.704E-06	6.75113E-05	0.4913149	2.497E-06	6.23238E-05	0.5770946	2.933E-06	7.3205E-05
Road 7	7	0700-0800	0.089057929	7.241E-07	1.80753E-05	0.0823004	6.691E-07	1.67038E-05	0.4847421	3.941E-06	9.8384E-05	0.4442384	3.612E-06	9.01633E-05	0.5265389	4.281E-06	0.000106867
Road 7	7	0800-0900	0.087856903	1.079E-06	2.69384E-05	0.0814544	1E-06	2.49753E-05	0.4808402	5.906E-06	0.000147434	0.4426719	5.437E-06	0.000135731	0.5241263	6.438E-06	0.000160706
Road 7	7	0900-1000	0.089467244	1.021E-06	2.54866E-05	0.0831119	9.484E-07	2.36762E-05	0.469994	5.363E-06	0.000133888	0.433878	4.951E-06	0.000123599	0.5169899	5.9E-06	0.000147275
Road 7	7	1000-1100	0.10549107	1.055E-06	2.63427E-05	0.0981145	9.815E-07	2.45007E-05	0.5567904	5.57E-06	0.000139039	0.5157469	5.159E-06	0.00012879	0.6138613	6.141E-06	0.00015329
Road 7	7	1100-1200	0.114806746	1.143E-06	2.85442E-05	0.1073784	1.069E-06	2.66973E-05	0.5932736	5.909E-06	0.000147504	0.5538522	5.516E-06	0.000137703	0.6612306	6.586E-06	0.0001644
Road 7	7	1200-1300	0.113010584	1.124E-06	2.80566E-05	0.1056381	1.051E-06	2.62263E-05	0.5708031	5.677E-06	0.000141711	0.5329247	5.3E-06	0.000132307	0.6385628	6.351E-06	0.000158533
Road 7	7	1300-1400	0.120907411	1.185E-06	2.95789E-05	0.1133971	1.111E-06	2.77416E-05	0.6089098	5.967E-06	0.000148964	0.5703907	5.59E-06	0.000139541	0.6837878	6.701E-06	0.000167283
Road 7	7	1400-1500	0.112923777	1.161E-06	2.89764E-05	0.1060755	1.09E-06	2.72191E-05	0.5753464	5.914E-06	0.000147635	0.5397693	5.548E-06	0.000138506	0.6458448	6.639E-06	0.000165725
Road 7	7	1500-1600	0.10464465	1.051E-06	2.62451E-05	0.0975212	9.798E-07	2.44586E-05	0.5376222	5.401E-06	0.000134837	0.5000921	5.024E-06	0.000125424	0.5976133	6.004E-06	0.000149883
Road 7	7	1600-1700	0.109340656	1.137E-06	2.8374E-05	0.1015917	1.056E-06	2.63631E-05	0.5416497	5.631E-06	0.000140559	0.5023142	5.222E-06	0.000130351	0.6039059	6.278E-06	0.000156714
Road 7	7	1700-1800	0.085201504	9.389E-07	2.34377E-05	0.0779999	8.595E-07	2.14566E-05	0.4383847	4.831E-06	0.000120593	0.3994288	4.402E-06	0.000109877	0.4774287	5.261E-06	0.000131334
Road 7	7	1800-1900	0.078813605	9.017E-07	2.25088E-05	0.0715445	8.185E-07	2.04328E-05	0.4146363	4.744E-06	0.000118418	0.3741579	4.281E-06	0.000106858	0.4457024	5.099E-06	0.000127291
Road 7	7	1900-2000	0.092653185	8.031E-07	2.00475E-05	0.0839089	7.273E-07	1.81555E-05	0.4897268	4.245E-06	0.000105963	0.4404996	3.818E-06	9.53115E-05	0.5244085	4.545E-06	0.000113467
Road 7	7	2000-2100	0.085361865	6.048E-07	1.50977E-05	0.0770069	5.456E-07	1.36199E-05	0.4622886	3.275E-06	8.17633E-05	0.4140789	2.934E-06	7.32367E-05	0.4910858	3.479E-06	8.68566E-05
Road 7	7	2100-2200	0.098085657	5.839E-07	1.45752E-05	0.0896604	5.337E-07	1.33233E-05	0.5175992	3.081E-06	7.69136E-05	0.4706768	2.802E-06	6.99411E-05	0.5603372	3.335E-06	8.32643E-05
Road 7	7	2200-2300	0.08241279	5.289E-07	1.32021E-05	0.0753993	4.839E-07	1.20786E-05	0.4515234	2.898E-06	7.23316E-05	0.409455	2.628E-06	6.55925E-05	0.4848543	3.111E-06	7.7671E-05
Road 7	7	2300-0000	0.056906446	3.363E-07	8.39424E-06	0.0520987	3.079E-07	7.68506E-06	0.3387012	2.001E-06	4.99616E-05	0.3074151	1.817E-06	4.53466E-05	0.3595138	2.124E-06	5.30317E-05
Road 8	8	0000-0100	0.247993611	1.804E-07	2.97315E-06	0.2262839	1.646E-07	2.71288E-06	1.2672264	9.216E-07	1.51925E-05	1.1558614	8.406E-07	1.38574E-05	1.3821453	1.005E-06	1.65703E-05
Road 8	8	0100-0200	0.255472667	1.548E-07	2.55235E-06	0.2381723	1.443E-07	2.3795E-06	1.300306	7.881E-07	1.29909E-05	1.2121953	7.347E-07	1.21107E-05	1.4503677	8.79E-07	1.44902E-05
Road 8	8	0200-0300	0.242113333	7.337E-08	1.20944E-06	0.224768	6.811E-08	1.12279E-06	1.2978267	3.933E-07	6.48309E-06	1.20481	3.651E-07	6.01844E-06	1.429578	4.332E-07	7.14123E-06
Road 8	8	0300-0400	0.221265714	6.258E-08	1.03161E-06	0.2046921	5.789E-08	9.5434E-07	1.1571357	3.273E-07	5.39493E-06	1.0702707	3.027E-07	4.98994E-06	1.2749629	3.606E-07	5.94428E-06
Road 8	8	0400-0500	0.249475714	1.058E-07	1.7447E-06	0.233721	9.915E-08	1.63452E-06	1.2322143	5.228E-07	8.61746E-06	1.1541276	4.896E-07	8.07136E-06	1.3878486	5.888E-07	9.70589E-06
Road 8	8	0500-0600	0.239210294	1.643E-07	2.70852E-06	0.2228579	1.531E-07	2.52337E-06	1.1597388	7.966E-07	1.31315E-05	1.0800962	7.419E-07	1.22297E-05	1.3029541	8.95E-07	1.47531E-05
Road 8	8	0600-0700	0.266600645	3.339E-07	5.50461E-06	0.2485087	3.113E-07	5.13106E-06	1.27757	1.6E-06	2.63785E-05	1.1901758	1.491E-06	2.4574E-05	1.4386845	1.802E-06	2.97051E-05
Road 8	8	0700-0800	0.269272277	5.494E-07	9.05705E-06	0.2487921	5.076E-07	8.36819E-06	1.3050087	2.663E-06	4.38944E-05	1.2051271	2.459E-06	4.05348E-05	1.4539192	2.967E-06	4.8903E-05
Road 8	8	0800-0900	0.295255474	1.133E-06	1.86821E-05	0.2739798	1.052E-06	1.73359E-05	1.4357743	5.511E-06	9.08476E-05	1.3317226	5.112E-06	8.42638E-05	1.6057024	6.163E-06	0.0001016
Road 8	8	0900-1000	0.314953312	9.989E-07	1.64672E-05	0.2921408	9.266E-07	1.52745E-05	1.4570062	4.621E-06	7.61789E-05	1.3512738	4.286E-06	7.06508E-05	1.6434146	5.212E-06	8.59252E-05
Road 8	8	1000-1100	0.300722658	9.599E-07	1.58233E-05	0.2796295	8.926E-07	1.47134E-05	1.42783	4.558E-06	7.5129E-05	1.3269963	4.236E-06	6.98233E-05	1.6066258	5.128E-06	8.45368E-05
Road 8	8	1100-1200	0.306460818	9.844E-07	1.62273E-05	0.2858335	9.181E-07	1.51351E-05	1.4756935	4.74E-06	7.81389E-05	1.3762424	4.421E-06	7.28729E-05	1.6620759	5.339E-06	8.80079E-05
Road 8	8	1200-1300	0.308973018	1.055E-06	1.73893E-05	0.2882953	9.843E-07	1.62255E-05	1.5030541	5.132E-06	8.45931E-05	1.402048	4.787E-06	7.89084E-05	1.6903433	5.771E-06	9.51339E-05
Road 8	8	1300-1400	0.282068813	9.117E-07	1.50297E-05	0.2639773	8.533E-07	1.40657E-05	1.3473926	4.355E-06	7.1794E-05	1.2606241	4.075E-06	6.71706E-05	1.5246014	4.928E-06	8.12363E-05
Road 8	8	1400-1500	0.274684317	7.713E-07	1.27152E-05	0.2570578	7.218E-07	1.18992E-05	1.3741285	3.859E-06	6.36086E-05	1.2856206	3.61E-06	5.95116E-05	1.5426785	4.332E-06	7.14108E-05
Road 8	8	1500-1600	0.282166058	7.809E-07	1.28736E-05	0.2627326	7.272E-07	1.19869E-05	1.3735058	3.801E-06	6.2665E-05	1.2784398	3.538E-06	5.83277E-05	1.5411724	4.265E-06	7.03146E-05
Road 8	8	1600-1700	0.284429384	8.389E-07	1.38293E-05	0.2638113	7.781E-07	1.28269E-05	1.3675918	4.034E-06	6.64941E-05	1.2680942	3.74E-06	6.16564E-05	1.5319055	4.518E-06	7.44833E-05
Road 8	8	1700-1800	0.233317628	7.353E-07	1.21212E-05	0.2137103	6.735E-07	1.11026E-05	1.1721611	3.694E-06	6.08956E-05	1.0724142	3.38E-06	5.57136E-05	1.2861244	4.053E-06	6.68161E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.233975794	5.058E-07	8.33736E-06	0.2126984	4.598E-07	7.57917E-06	1.2022724	2.599E-06	4.28411E-05	1.0919607	2.36E-06	3.89103E-05	1.3046592	2.82E-06	4.64895E-05
Road 8	8	1900-2000	0.235093117	3.657E-07	6.02843E-06	0.2130614	3.314E-07	5.46348E-06	1.2385104	1.927E-06	3.17588E-05	1.1217829	1.745E-06	2.87656E-05	1.3348443	2.076E-06	3.42291E-05
Road 8	8	2000-2100	0.258608289	3.971E-07	6.5453E-06	0.2334179	3.584E-07	5.90774E-06	1.2380451	1.901E-06	3.13346E-05	1.1165061	1.714E-06	2.82585E-05	1.3499239	2.073E-06	3.41662E-05
Road 8	8	2100-2200	0.211860943	2.268E-07	3.73939E-06	0.1937575	2.075E-07	3.41986E-06	1.1147128	1.194E-06	1.96749E-05	1.0179198	1.09E-06	1.79665E-05	1.2116774	1.297E-06	2.13864E-05
Road 8	8	2200-2300	0.254688906	3.293E-07	5.4283E-06	0.2334466	3.018E-07	4.97555E-06	1.2626753	1.633E-06	2.6912E-05	1.1566141	1.495E-06	2.46514E-05	1.3900606	1.797E-06	2.9627E-05
Road 8	8	2300-0000	0.204297308	2.146E-07	3.53785E-06	0.1873673	1.968E-07	3.24467E-06	1.0530525	1.106E-06	1.82359E-05	0.9649644	1.014E-06	1.67105E-05	1.1523317	1.211E-06	1.99551E-05
Road 9	9	0000-0100	0.212011557	5.631E-08	1.68081E-06	0.1962823	5.213E-08	1.55611E-06	0.9759133	2.592E-07	7.73695E-06	0.8972856	2.383E-07	7.1136E-06	1.0935679	2.904E-07	8.66971E-06
Road 9	9	0100-0200	0.228933426	4.777E-08	1.42604E-06	0.2159331	4.506E-08	1.34506E-06	0.9962131	2.079E-07	6.20548E-06	0.9339443	1.949E-07	5.81761E-06	1.1498773	2.399E-07	7.16267E-06
Road 9	9	0200-0300	0.091426844	8.672E-09	2.58866E-07	0.0848544	8.048E-09	2.40256E-07	0.6601511	6.261E-08	1.86915E-06	0.6080111	5.767E-08	1.72152E-06	0.6928655	6.572E-08	1.96178E-06
Road 9	9	0300-0400	0.110796326	8.407E-09	2.50967E-07	0.1026186	7.787E-09	2.32443E-07	0.6888117	5.227E-08	1.56024E-06	0.6371298	4.834E-08	1.44317E-06	0.7397484	5.613E-08	1.67562E-06
Road 9	9	0400-0500	0.24667282	4.679E-08	1.39686E-06	0.2330977	4.422E-08	1.31998E-06	1.0330306	1.96E-07	5.84984E-06	0.9697812	1.84E-07	5.49167E-06	1.2028789	2.282E-07	6.81165E-06
Road 9	9	0500-0600	0.178709808	5.763E-08	1.72039E-06	0.1682533	5.426E-08	1.61973E-06	0.9131027	2.945E-07	8.79021E-06	0.8549195	2.757E-07	8.2301E-06	1.0231729	3.3E-07	9.84983E-06
Road 9	9	0600-0700	0.20882179	1.268E-07	3.78405E-06	0.1971599	1.197E-07	3.57272E-06	1.1126974	6.754E-07	2.01631E-05	1.0402431	6.315E-07	1.88502E-05	1.237403	7.511E-07	2.24229E-05
Road 9	9	0700-0800	0.180407526	1.643E-07	4.90373E-06	0.1698675	1.547E-07	4.61724E-06	1.0529629	9.588E-07	2.8621E-05	0.980494	8.928E-07	2.66512E-05	1.1503615	1.047E-06	3.12684E-05
Road 9	9	0800-0900	0.275475739	6.01E-07	1.79396E-05	0.2589759	5.65E-07	1.68651E-05	1.3504391	2.946E-06	8.79435E-05	1.2601629	2.749E-06	8.20645E-05	1.5191388	3.314E-06	9.89295E-05
Road 9	9	0900-1000	0.281653634	4.595E-07	1.37165E-05	0.2660646	4.341E-07	1.29574E-05	1.2573282	2.051E-06	6.12319E-05	1.1760838	1.919E-06	5.72753E-05	1.4421485	2.353E-06	7.02327E-05
Road 9	9	1000-1100	0.295307105	3.977E-07	1.18731E-05	0.2773647	3.736E-07	1.11517E-05	1.2841622	1.73E-06	5.16308E-05	1.1987921	1.615E-06	4.81984E-05	1.4761568	1.988E-06	5.93501E-05
Road 9	9	1100-1200	0.205540357	2.885E-07	8.6131E-06	0.1927453	2.706E-07	8.07693E-06	1.1040528	1.55E-06	4.6265E-05	1.0335193	1.451E-06	4.33093E-05	1.2262646	1.721E-06	5.13862E-05
Road 9	9	1200-1300	0.303015445	4.196E-07	1.25262E-05	0.287581	3.982E-07	1.18881E-05	1.4045054	1.945E-06	5.806E-05	1.3298804	1.842E-06	5.49751E-05	1.6174614	2.24E-06	6.68633E-05
Road 9	9	1300-1400	0.340934016	3.88E-07	1.15838E-05	0.3243143	3.691E-07	1.10192E-05	1.3207334	1.503E-06	4.48742E-05	1.2514833	1.424E-06	4.25213E-05	1.5757976	1.794E-06	5.35405E-05
Road 9	9	1400-1500	0.219960081	2.837E-07	8.47E-06	0.2100175	2.709E-07	8.08714E-06	1.0960187	1.414E-06	4.22044E-05	1.0403646	1.342E-06	4.00613E-05	1.250382	1.613E-06	4.81485E-05
Road 9	9	1500-1600	0.184753724	1.998E-07	5.96347E-06	0.1745211	1.887E-07	5.63318E-06	0.9803759	1.06E-06	3.16445E-05	0.9232422	9.983E-07	2.98003E-05	1.0977633	1.187E-06	3.54335E-05
Road 9	9	1600-1700	0.191620128	2.872E-07	8.57233E-06	0.181846	2.725E-07	8.13508E-06	1.0946283	1.64E-06	4.89694E-05	1.0354676	1.552E-06	4.63227E-05	1.2173136	1.824E-06	5.44578E-05
Road 9	9	1700-1800	0.1677877	2.164E-07	6.461E-06	0.1581089	2.04E-07	6.0883E-06	1.0512072	1.356E-06	4.04788E-05	0.9853737	1.271E-06	3.79438E-05	1.1434826	1.475E-06	4.40321E-05
Road 9	9	1800-1900	0.165558268	1.382E-07	4.1251E-06	0.1557517	1.3E-07	3.88076E-06	1.0209024	8.521E-07	2.54371E-05	0.9577195	7.994E-07	2.38628E-05	1.1134712	9.294E-07	2.77436E-05
Road 9	9	1900-2000	0.17432044	1.422E-07	4.2447E-06	0.1625651	1.326E-07	3.95846E-06	0.9554622	7.794E-07	2.32655E-05	0.8799464	7.178E-07	2.14267E-05	1.0425116	8.504E-07	2.53852E-05
Road 9	9	2000-2100	0.188077137	1.035E-07	3.08862E-06	0.17269	9.5E-08	2.83593E-06	0.8480803	4.665E-07	1.39273E-05	0.7747731	4.262E-07	1.27234E-05	0.947463	5.212E-07	1.55593E-05
Road 9	9	2100-2200	0.024435601	1.252E-08	3.73609E-07	0.0227809	1.167E-08	3.48309E-07	0.3443167	1.764E-07	5.26444E-06	0.3163769	1.62E-07	4.83726E-06	0.3391578	1.737E-07	5.18557E-06
Road 9	9	2200-2300	0.180193906	1.128E-07	3.36732E-06	0.1673468	1.048E-07	3.12725E-06	0.8914041	5.58E-07	1.66579E-05	0.8234414	5.155E-07	1.53878E-05	0.9907882	6.202E-07	1.85151E-05
Road 9	9	2300-0000	0.145376274	8.273E-08	2.46971E-06	0.1357381	7.725E-08	2.30597E-06	0.7602037	4.326E-07	1.29146E-05	0.7044659	4.009E-07	1.19677E-05	0.8402039	4.782E-07	1.42737E-05
Road 10	10	0000-0100	0.299642177	2.304E-07	5.12247E-06	0.2743201	2.109E-07	4.68958E-06	1.5354836	1.181E-06	2.62495E-05	1.4036289	1.079E-06	2.39954E-05	1.677949	1.29E-06	2.8685E-05
Road 10	10	0100-0200	0.292493136	1.699E-07	3.77797E-06	0.2735619	1.589E-07	3.53344E-06	1.4860753	8.633E-07	1.91948E-05	1.388111	8.064E-07	1.79294E-05	1.6616729	9.653E-07	2.14629E-05
Road 10	10	0200-0300	0.292168214	9.485E-08	2.10887E-06	0.2712142	8.804E-08	1.95763E-06	1.4654794	4.757E-07	1.05778E-05	1.3590196	4.412E-07	9.80941E-06	1.6302337	5.292E-07	1.1767E-05
Road 10	10	0300-0400	0.265802723	5.45E-08	1.21173E-06	0.245791	5.039E-08	1.1205E-06	1.4395049	2.951E-07	6.56233E-06	1.3290805	2.725E-07	6.05893E-06	1.5748715	3.229E-07	7.17943E-06
Road 10	10	0400-0500	0.309280433	1.215E-07	2.70237E-06	0.2908639	1.143E-07	2.54145E-06	1.4923154	5.864E-07	1.30392E-05	1.4000466	5.502E-07	1.2233E-05	1.6909106	6.645E-07	1.47745E-05
Road 10	10	0500-0600	0.283457985	1.986E-07	4.41506E-06	0.2655169	1.86E-07	4.13561E-06	1.3736791	9.623E-07	2.1396E-05	1.2833366	8.99E-07	1.99889E-05	1.5488535	1.085E-06	2.41245E-05
Road 10	10	0600-0700	0.342003943	4.792E-07	1.06539E-05	0.3215838	4.505E-07	1.00178E-05	1.7152323	2.403E-06	5.34319E-05	1.6099866	2.256E-06	5.01533E-05	1.9315704	2.706E-06	6.01711E-05
Road 10	10	0700-0800	0.341315087	7.523E-07	1.67266E-05	0.3180213	7.009E-07	1.55851E-05	1.7259629	3.804E-06	8.45834E-05	1.6048659	3.537E-06	7.86488E-05	1.9228872	4.238E-06	9.42339E-05
Road 10	10	0800-0900	0.362755162	1.531E-06	3.40388E-05	0.3374259	1.424E-06	3.16621E-05	1.7991351	7.593E-06	0.00016882	1.6704625	7.05E-06	0.000156746	2.0078884	8.474E-06	0.000188408
Road 10	10	0900-1000	0.402344748	1.347E-06	2.99584E-05	0.3762103	1.26E-06	2.80124E-05	1.9482758	6.524E-06	0.000145068	1.8178828	6.088E-06	0.000135359	2.1940931	7.348E-06	0.000163371
Road 10	10	1000-1100	0.399039637	1.452E-06	3.22894E-05	0.3731768	1.358E-06	3.01966E-05	1.8109837	6.591E-06	0.000146541	1.6881542	6.144E-06	0.000136601	2.061331	7.502E-06	0.000166798
Road 10	10	1100-1200	0.386244769	1.406E-06	3.1254E-05	0.3614739	1.315E-06	2.92496E-05	1.8168755	6.612E-06	0.000147017	1.6972538	6.177E-06	0.000137338	2.0587277	7.492E-06	0.000166587
Road 10	10	1200-1300	0.401293418	1.508E-06	3.35389E-05	0.3767184	1.416E-06	3.1485E-05	1.9134562	7.192E-06	0.000159921	1.7953058	6.748E-06	0.000150046	2.1720242	8.164E-06	0.000181531
Road 10	10	1300-1400	0.390016854	1.279E-06	2.84478E-05	0.3673758	1.205E-06	2.67963E-05	1.816466	5.959E-06	0.000132493	1.7090782	5.607E-06	0.00012466	2.076454	6.812E-06	0.000151456
Road 10	10	1400-1500	0.361678536	1.112E-06	2.4732E-05	0.3412791	1.05E-06	2.3337E-05	1.8116768	5.572E-06	0.000123885	1.7083852	5.254E-06	0.000116821	2.0496643	6.304E-06	0.000140158
Road 10	10	1500-1600	0.360523775	1.133E-06	2.52009E-05	0.3374793	1.061E-06	2.359E-05	1.7386759	5.466E-06	0.000121535	1.6269471	5.115E-06	0.000113725	1.9644264	6.176E-06	0.000137315
Road 10	10	1600-1700	0.345844172	1.211E-06	2.69338E-05	0.3234805	1.133E-06	2.51922E-05	1.6934571	5.931E-06	0.000131884	1.5816173	5.54E-06	0.000123174	1.9050978	6.673E-06	0.000148366
Road 10	10	1700-1800	0.321902159	1.056E-06	2.34795E-05	0.298349	9.787E-07	2.17615E-05	1.6746954	5.494E-06	0.000122152	1.552832	5.094E-06	0.000113263	1.851181	6.073E-06	0.000135025
Road 10	10	1800-1900	0.327769703	6.776E-07	1.50667E-05	0.3007459	6.218E-07	1.38245E-05	1.658138	3.428E-06	7.62201E-05	1.5207413	3.144E-06	6.99044E-05	1.8214872	3.766E-06	8.37289E-05
Road 10	10	1900-2000	0.287868708	5.361E-07	1.19202E-05	0.2638196	4.913E-07	1.09244E-05	1.5288125	2.847E-06	6.33059E-05	1.399277	2.606E-06	5.79421E-05	1.6630966	3.097E-06	6.88665E-05
Road 10	10	2000-2100	0.33595292	4.133E-07	9.18914E-06	0.3044257	3.745E-07	8.32679E-06	1.6286478	2.004E-06	4.45475E-05	1.4734203	1.813E-06	4.03017E-05	1.777846	2.187E-06	4.86284E-05
Road 10	10	2100-2200	0.275220627	3.386E-07	7.52796E-06	0.2565548	3.156E-07	7.0174E-06	1.5373334	1.891E-06	4.20498E-05	1.4345232	1.765E-06	3.92377E-05	1.691078	2.08E-06	4.62551E-05
Road 10	10	2200-2300	0.291495401	3.735E-07	8.30533E-06	0.2697397	3.457E-07	7.68546E-06	1.4980529	1.92E-06	4.26827E-05	1.387535	1.778E-06	3.95338E-05	1.6572747	2.124E-06	4.72193E-05
Road 10	10	2300-0000	0.268222378	3.208E-07	7.13275E-06	0.2470072	2.954E-07	6.56858E-06	1.3594424	1.626E-06	3.61512E-05	1.2498283	1.495E-06	3.32363E-05	1.4968355	1.79E-06	3.98048E-05
Road 11	11	0000-0100	0.335617418	2.564E-07	2.12665E-06	0.3071562	2.346E-07	1.9463E-06	1.685674	1.288E-06	1.06813E-05	1.5401764	1.177E-06	9.75936E-06	1.8473326	1.411E-06	1.17057E-05
Road 11	11	0100-0200	0.333358481	1.794E-07	1.48823E-06	0.3116924	1.678E-07	1.39151E-06	1.646298	8.86E-07	7.34968E-06	1.5365544	8.27E-07	6.85974E-06	1.8482468	9.947E-07	8.25125E-06
Road 11	11	0200-0300	0.292094179	7.607E-08	6.30975E-07	0.2711915	7.062E-08	5.85822E-07	1.5616259	4.067E-07	3.37339E-06	1.447997	3.771E-07	3.12793E-06	1.7191885	4.477E-07	3.71375E-06
Road 11	11	0300-0400	0.313102577	7.61E-08	6.31267E-07	0.2895767	7.038E-08	5.83835E-07	1.6399419	3.986E-07	3.30639E-06	1.5163157	3.685E-07	3.05714E-06	1.8058924	4.389E-07	3.64098E-06
Road 11	11	0400-0500	0.319903533	1.111E-07	9.21398E-07	0.300951	1.045E-07	8.6681E-07	1.5245353	5.294E-07	4.39102E-06	1.4303593	4.967E-07	4.11977E-06	1.7313103	6.011E-07	4.98658E-06
Road 11	11	0500-0600	0.259354323	1.216E-07	1.00845E-06	0.2427373	1.138E-07	9.4384E-07	1.3277387	6.224E-07	5.16267E-06	1.2396049	5.811E-07	4.81998E-06	1.4823422	6.948E-07	5.76382E-06
Road 11	11	0600-0700	0.280803958	2.535E-07	2.10283E-06	0.2633239	2.377E-07	1.97193E-06	1.4657508	1.323E-06	1.09764E-05	1.3680999	1.235E-06	1.02452E-05	1.6314238	1.473E-06	1.22171E-05
Road 11	11	0700-0800	0.332589734	6.236E-07	5.17286E-06	0.3086491	5.787E-07	4.8005E-06	1.7390896	3.261E-06	2.70485E-05	1.6097223	3.018E-06	2.50365E-05	1.9183713	3.597E-06	2.9837E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.358677078	1.277E-06	1.0589E-05	0.3345393	1.191E-06	9.87641E-06	1.7760686	6.321E-06	5.24339E-05	1.6514304	5.877E-06	4.87542E-05	1.9859697	7.068E-06	5.86306E-05
Road 11	11	0900-1000	0.360696473	9.143E-07	7.58391E-06	0.3371294	8.545E-07	7.08839E-06	1.7152146	4.348E-06	3.60636E-05	1.5951403	4.043E-06	3.3539E-05	1.9322697	4.898E-06	4.06274E-05
Road 11	11	1000-1100	0.371860122	7.683E-07	6.37272E-06	0.3473459	7.176E-07	5.95261E-06	1.7395831	3.594E-06	2.98119E-05	1.6198006	3.346E-06	2.77592E-05	1.9671465	4.064E-06	3.37118E-05
Road 11	11	1100-1200	0.326569888	7.597E-07	6.30201E-06	0.3049198	7.094E-07	5.88422E-06	1.6766498	3.901E-06	3.23553E-05	1.5645266	3.64E-06	3.01916E-05	1.8694464	4.349E-06	3.60758E-05
Road 11	11	1200-1300	0.395848137	1.12E-06	9.29211E-06	0.3713346	1.051E-06	8.71668E-06	1.9231942	5.442E-06	4.51449E-05	1.8022812	5.1E-06	4.23066E-05	2.1736158	6.151E-06	5.10233E-05
Road 11	11	1300-1400	0.410717444	8.557E-07	7.09778E-06	0.386767	8.058E-07	6.68388E-06	1.8549475	3.864E-06	3.20561E-05	1.7425574	3.63E-06	3.01139E-05	2.1293244	4.436E-06	3.67977E-05
Road 11	11	1400-1500	0.324459939	6.534E-07	5.42022E-06	0.3057969	6.158E-07	5.10845E-06	1.6237949	3.27E-06	2.71261E-05	1.5263061	3.074E-06	2.54975E-05	1.832103	3.69E-06	3.0606E-05
Road 11	11	1500-1600	0.291313305	5.917E-07	4.90845E-06	0.2724193	5.534E-07	4.5901E-06	1.5099154	3.067E-06	2.54411E-05	1.4106897	2.865E-06	2.37693E-05	1.683109	3.419E-06	2.83593E-05
Road 11	11	1600-1700	0.278395612	6.718E-07	5.57282E-06	0.260424	6.285E-07	5.21308E-06	1.4912765	3.599E-06	2.98518E-05	1.3939906	3.364E-06	2.79044E-05	1.6544147	3.992E-06	3.31175E-05
Road 11	11	1700-1800	0.28074906	6.921E-07	5.74123E-06	0.2592621	6.392E-07	5.30183E-06	1.5318723	3.776E-06	3.13263E-05	1.4139389	3.486E-06	2.89146E-05	1.6732009	4.125E-06	3.42164E-05
Road 11	11	1800-1900	0.302296732	6.193E-07	5.13705E-06	0.276699	5.668E-07	4.70206E-06	1.6155143	3.31E-06	2.74531E-05	1.4792019	3.03E-06	2.51367E-05	1.7559009	3.597E-06	2.98387E-05
Road 11	11	1900-2000	0.291401519	4.604E-07	3.81884E-06	0.2661096	4.204E-07	3.48739E-06	1.5232837	2.407E-06	1.99627E-05	1.3864753	2.19E-06	1.81699E-05	1.652585	2.611E-06	2.16573E-05
Road 11	11	2000-2100	0.302477508	4.254E-07	3.52839E-06	0.2741412	3.855E-07	3.19785E-06	1.5129954	2.128E-06	1.7649E-05	1.3692366	1.925E-06	1.59721E-05	1.6433778	2.311E-06	1.91699E-05
Road 11	11	2100-2200	0.218755082	2.165E-07	1.79569E-06	0.2002884	1.982E-07	1.6441E-06	1.2254038	1.213E-06	1.00589E-05	1.1214031	1.11E-06	9.20523E-06	1.3216915	1.308E-06	1.08493E-05
Road 11	11	2200-2300	0.281361071	3.077E-07	2.55272E-06	0.259115	2.834E-07	2.35088E-06	1.4257452	1.559E-06	1.29354E-05	1.3104217	1.433E-06	1.18891E-05	1.5695367	1.717E-06	1.424E-05
Road 11	11	2300-0000	0.269027691	2.802E-07	2.32459E-06	0.247899	2.582E-07	2.14202E-06	1.3869311	1.445E-06	1.19841E-05	1.2752829	1.328E-06	1.10193E-05	1.523182	1.587E-06	1.31614E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.41636	2.662E-06	4.00428E-06	1.3085	2.46E-06	3.69934E-06	6.50881	1.223E-05	1.84015E-05	6.0129	1.13E-05	1.69994E-05	7.3214	1.376E-05	2.06988E-05
Haul Road 1	HR1	0800-0900	1.41206	2.654E-06	3.99212E-06	1.3097	2.462E-06	3.70273E-06	6.48921	1.22E-05	1.8346E-05	6.01859	1.131E-05	1.70155E-05	7.32829	1.377E-05	2.07183E-05
Haul Road 1	HR1	0900-1000	1.41506	2.66E-06	4.0006E-06	1.3122	2.467E-06	3.7098E-06	6.50291	1.222E-05	1.83848E-05	6.02979	1.133E-05	1.70472E-05	7.34199	1.38E-05	2.0757E-05
Haul Road 1	HR1	1000-1100	1.41096	2.652E-06	3.98901E-06	1.3116	2.465E-06	3.7081E-06	6.48402	1.219E-05	1.83314E-05	6.02719	1.133E-05	1.70398E-05	7.33879	1.379E-05	2.07479E-05
Haul Road 1	HR1	1100-1200	1.40686	2.644E-06	3.97742E-06	1.3119	2.466E-06	3.70895E-06	6.46503	1.215E-05	1.82777E-05	6.02899	1.133E-05	1.70449E-05	7.34089	1.38E-05	2.07539E-05
Haul Road 1	HR1	1200-1300	1.40276	2.637E-06	3.96583E-06	1.3084	2.459E-06	3.69906E-06	6.44603	1.212E-05	1.8224E-05	6.0126	1.13E-05	1.69986E-05	7.321	1.376E-05	2.06976E-05
Haul Road 1	HR1	1300-1400	1.39866	2.629E-06	3.95424E-06	1.3084	2.459E-06	3.69906E-06	6.42724	1.208E-05	1.81708E-05	6.0126	1.13E-05	1.69986E-05	7.321	1.376E-05	2.06976E-05
Haul Road 1	HR1	1400-1500	1.39866	2.629E-06	3.95424E-06	1.3084	2.459E-06	3.69906E-06	6.42724	1.208E-05	1.81708E-05	6.0126	1.13E-05	1.69986E-05	7.321	1.376E-05	2.06976E-05
Haul Road 1	HR1	1500-1600	1.39477	2.622E-06	3.94324E-06	1.2984	2.441E-06	3.67079E-06	6.40944	1.205E-05	1.81205E-05	5.96692	1.122E-05	1.68694E-05	7.26532	1.366E-05	2.05402E-05
Haul Road 1	HR1	1600-1700	1.39477	2.622E-06	3.94324E-06	1.2932	2.431E-06	3.65608E-06	6.40944	1.205E-05	1.81205E-05	5.94303	1.117E-05	1.68019E-05	7.23623	1.36E-05	2.0458E-05
Haul Road 1	HR1	1700-1800	1.40346	2.638E-06	3.96781E-06	1.28521	2.416E-06	3.6335E-06	6.44943	1.212E-05	1.82336E-05	5.90614	1.11E-05	1.66976E-05	7.19135	1.352E-05	2.03311E-05
Haul Road 1	HR1	1800-1900	1.40006	2.632E-06	3.95819E-06	1.27201	2.391E-06	3.59618E-06	6.43374	1.209E-05	1.81892E-05	5.84566	1.099E-05	1.65266E-05	7.11767	1.338E-05	2.01228E-05
Haul Road 1	HR1	1900-2000	1.40776	2.646E-06	3.97996E-06	1.27501	2.397E-06	3.60466E-06	6.46942	1.216E-05	1.82901E-05	5.85946	1.101E-05	1.65656E-05	7.13447	1.341E-05	2.01703E-05
Haul Road 1	HR1	2000-2100	1.40776	2.646E-06	3.97996E-06	1.27091	2.389E-06	3.59307E-06	6.46942	1.216E-05	1.82901E-05	5.84047	1.098E-05	1.65119E-05	7.11138	1.337E-05	2.0105E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.41636	1.835E-06	4.88369E-06	1.3085	1.695E-06	4.51179E-06	6.50881	8.431E-06	2.24428E-05	6.0129	7.789E-06	2.07328E-05	7.3214	9.484E-06	2.52446E-05
Haul Road 2	HR2	0800-0900	1.41206	1.829E-06	4.86887E-06	1.3097	1.697E-06	4.51592E-06	6.48921	8.406E-06	2.23752E-05	6.01859	7.796E-06	2.07525E-05	7.32829	9.493E-06	2.52684E-05
Haul Road 2	HR2	0900-1000	1.41506	1.833E-06	4.87921E-06	1.3122	1.7E-06	4.52454E-06	6.50291	8.423E-06	2.24224E-05	6.02979	7.811E-06	2.07911E-05	7.34199	9.51E-06	2.53156E-05
Haul Road 2	HR2	1000-1100	1.41096	1.828E-06	4.86508E-06	1.3116	1.699E-06	4.52248E-06	6.48402	8.399E-06	2.23573E-05	6.02719	7.807E-06	2.07821E-05	7.33879	9.506E-06	2.53046E-05
Haul Road 2	HR2	1100-1200	1.40686	1.822E-06	4.85094E-06	1.3119	1.699E-06	4.52351E-06	6.46503	8.374E-06	2.22918E-05	6.02899	7.81E-06	2.07883E-05	7.34089	9.509E-06	2.53118E-05
Haul Road 2	HR2	1200-1300	1.40276	1.817E-06	4.8368E-06	1.3084	1.695E-06	4.51144E-06	6.44603	8.35E-06	2.22263E-05	6.0126	7.788E-06	2.07318E-05	7.321	9.483E-06	2.52432E-05
Haul Road 2	HR2	1300-1400	1.39866	1.812E-06	4.82266E-06	1.3084	1.695E-06	4.51144E-06	6.42724	8.325E-06	2.21615E-05	6.0126	7.788E-06	2.07318E-05	7.321	9.483E-06	2.52432E-05
Haul Road 2	HR2	1400-1500	1.39866	1.812E-06	4.82266E-06	1.3084	1.695E-06	4.51144E-06	6.42724	8.325E-06	2.21615E-05	6.0126	7.788E-06	2.07318E-05	7.321	9.483E-06	2.52432E-05
Haul Road 2	HR2	1500-1600	1.39477	1.807E-06	4.80925E-06	1.2984	1.682E-06	4.47696E-06	6.40944	8.302E-06	2.21001E-05	5.96692	7.729E-06	2.05743E-05	7.26532	9.411E-06	2.50513E-05
Haul Road 2	HR2	1600-1700	1.39477	1.807E-06	4.80925E-06	1.2932	1.675E-06	4.45903E-06	6.40944	8.302E-06	2.21001E-05	5.94303	7.698E-06	2.04919E-05	7.23623	9.373E-06	2.4951E-05
Haul Road 2	HR2	1700-1800	1.40346	1.818E-06	4.83921E-06	1.28521	1.665E-06	4.43148E-06	6.44943	8.354E-06	2.2238E-05	5.90614	7.65E-06	2.03647E-05	7.19135	9.315E-06	2.47962E-05
Haul Road 2	HR2	1800-1900	1.40006	1.814E-06	4.82749E-06	1.27201	1.648E-06	4.38597E-06	6.43374	8.334E-06	2.21839E-05	5.84566	7.572E-06	2.01562E-05	7.11767	9.22E-06	2.45422E-05
Haul Road 2	HR2	1900-2000	1.40776	1.824E-06	4.85404E-06	1.27501	1.652E-06	4.39631E-06	6.46942	8.38E-06	2.23069E-05	5.85946	7.59E-06	2.02038E-05	7.13447	9.242E-06	2.46001E-05
Haul Road 2	HR2	2000-2100	1.40776	1.824E-06	4.85404E-06	1.27091	1.646E-06	4.38217E-06	6.46942	8.38E-06	2.23069E-05	5.84047	7.565E-06	2.01383E-05	7.11138	9.212E-06	2.45205E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (November) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.41636	1.835E-06	4.87689E-06	1.3085	1.695E-06	4.5055E-06	6.50881	8.431E-06	2.24115E-05	6.0129	7.789E-06	2.07039E-05	7.3214	9.484E-06	2.52094E-05
Haul Road 3	HR3	0800-0900	1.41206	1.829E-06	4.86208E-06	1.3097	1.697E-06	4.50963E-06	6.48921	8.406E-06	2.2344E-05	6.01859	7.796E-06	2.07235E-05	7.32829	9.493E-06	2.52332E-05
Haul Road 3	HR3	0900-1000	1.41506	1.833E-06	4.87241E-06	1.3122	1.7E-06	4.51824E-06	6.50291	8.423E-06	2.23912E-05	6.02979	7.811E-06	2.07621E-05	7.34199	9.51E-06	2.52803E-05
Haul Road 3	HR3	1000-1100	1.41096	1.828E-06	4.85829E-06	1.3116	1.699E-06	4.51617E-06	6.48402	8.399E-06	2.23261E-05	6.02719	7.807E-06	2.07531E-05	7.33879	9.506E-06	2.52693E-05
Haul Road 3	HR3	1100-1200	1.40686	1.822E-06	4.84417E-06	1.3119	1.699E-06	4.5172E-06	6.46503	8.374E-06	2.22607E-05	6.02899	7.81E-06	2.07593E-05	7.34089	9.509E-06	2.52765E-05
Haul Road 3	HR3	1200-1300	1.40276	1.817E-06	4.83006E-06	1.3084	1.695E-06	4.50515E-06	6.44603	8.35E-06	2.21953E-05	6.0126	7.788E-06	2.07029E-05	7.321	9.483E-06	2.52081E-05
Haul Road 3	HR3	1300-1400	1.39866	1.812E-06	4.81594E-06	1.3084	1.695E-06	4.50515E-06	6.42724	8.325E-06	2.21306E-05	6.0126	7.788E-06	2.07029E-05	7.321	9.483E-06	2.52081E-05
Haul Road 3	HR3	1400-1500	1.39866	1.812E-06	4.81594E-06	1.3084	1.695E-06	4.50515E-06	6.42724	8.325E-06	2.21306E-05	6.0126	7.788E-06	2.07029E-05	7.321	9.483E-06	2.52081E-05
Haul Road 3	HR3	1500-1600	1.39477	1.807E-06	4.80255E-06	1.2984	1.682E-06	4.47072E-06	6.40944	8.302E-06	2.20693E-05	5.96692	7.729E-06	2.05456E-05	7.26532	9.411E-06	2.50163E-05
Haul Road 3	HR3	1600-1700	1.39477	1.807E-06	4.80255E-06	1.2932	1.675E-06	4.45281E-06	6.40944	8.302E-06	2.20693E-05	5.94303	7.698E-06	2.04634E-05	7.23623	9.373E-06	2.49162E-05
Haul Road 3	HR3	1700-1800	1.40346	1.818E-06	4.83247E-06	1.28521	1.665E-06	4.4253E-06	6.44943	8.354E-06	2.2207E-05	5.90614	7.65E-06	2.03363E-05	7.19135	9.315E-06	2.47616E-05
Haul Road 3	HR3	1800-1900	1.40006	1.814E-06	4.82076E-06	1.27201	1.648E-06	4.37985E-06	6.43374	8.334E-06	2.2153E-05	5.84566	7.572E-06	2.01281E-05	7.11767	9.22E-06	2.45079E-05
Haul Road 3	HR3	1900-2000	1.40776	1.824E-06	4.84727E-06	1.27501	1.652E-06	4.39018E-06	6.46942	8.38E-06	2.22758E-05	5.85946	7.59E-06	2.01756E-05	7.13447	9.242E-06	2.45658E-05
Haul Road 3	HR3	2000-2100	1.40776	1.824E-06	4.84727E-06	1.27091	1.646E-06	4.37606E-06	6.46942	8.38E-06	2.22758E-05	5.84047	7.565E-06	2.01102E-05	7.11138	9.212E-06	2.44863E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 1	1	0000-0100	0.111237571	3.695E-07	3.00626E-06	0.101114	3.359E-07	2.73266E-06	0.6604901	2.194E-06	1.78501E-05	0.5964872	1.982E-06	1.61204E-05	0.6976012	2.317E-06	1.88531E-05
Road 1	1	0100-0200	0.086261574	1.749E-07	1.42247E-06	0.0782011	1.585E-07	1.28955E-06	0.524337	1.063E-06	8.6464E-06	0.4719638	9.567E-07	7.78276E-06	0.5501649	1.115E-06	9.07231E-06
Road 1	1	0200-0300	0.082569351	1.193E-07	9.70758E-07	0.0746458	1.079E-07	8.77602E-07	0.5337818	7.714E-07	6.27561E-06	0.475587	6.873E-07	5.59142E-06	0.5502329	7.952E-07	6.46902E-06
Road 1	1	0300-0400	0.070637818	7.292E-08	5.932E-07	0.0636284	6.568E-08	5.34336E-07	0.4358251	4.499E-07	3.65996E-06	0.3866222	3.991E-07	3.24676E-06	0.4502505	4.648E-07	3.7811E-06
Road 1	1	0400-0500	0.091992	1.468E-07	1.19391E-06	0.0839596	1.339E-07	1.08966E-06	0.5297741	8.452E-07	6.8756E-06	0.4791776	7.645E-07	6.21895E-06	0.5631373	8.984E-07	7.3086E-06
Road 1	1	0500-0600	0.074330695	2.609E-07	2.12232E-06	0.0677496	2.378E-07	1.93441E-06	0.4442181	1.559E-06	1.26835E-05	0.3994863	1.402E-06	1.14063E-05	0.4672359	1.64E-06	1.33407E-05
Road 1	1	0600-0700	0.10076003	6.279E-07	5.10773E-06	0.0917572	5.718E-07	4.65136E-06	0.5454343	3.399E-06	2.76491E-05	0.4920073	3.066E-06	2.49408E-05	0.5837645	3.638E-06	2.95922E-05
Road 1	1	0700-0800	0.084855206	8.903E-07	7.24255E-06	0.0772661	8.107E-07	6.5948E-06	0.4745216	4.979E-06	4.05013E-05	0.4261096	4.471E-06	3.63693E-05	0.5033757	5.281E-06	4.29641E-05
Road 1	1	0800-0900	0.090743445	1.167E-06	9.49089E-06	0.082732	1.064E-06	8.65297E-06	0.4873041	6.265E-06	5.09673E-05	0.4399511	5.656E-06	4.60147E-05	0.5226831	6.72E-06	5.46676E-05
Road 1	1	0900-1000	0.09421587	1.25E-06	1.01706E-05	0.0862672	1.145E-06	9.3125E-06	0.5311451	7.048E-06	5.73369E-05	0.4827732	6.406E-06	5.21151E-05	0.5690404	7.551E-06	6.14276E-05
Road 1	1	1000-1100	0.109512591	1.412E-06	1.14874E-05	0.0999416	1.289E-06	1.04835E-05	0.5915779	7.628E-06	6.2054E-05	0.5367109	6.92E-06	5.62987E-05	0.6366526	8.209E-06	6.67822E-05
Road 1	1	1100-1200	0.09912934	1.241E-06	1.00955E-05	0.090489	1.133E-06	9.21559E-06	0.5727828	7.171E-06	5.83334E-05	0.5192564	6.5E-06	5.28821E-05	0.6097455	7.633E-06	6.20977E-05
Road 1	1	1200-1300	0.102095485	1.265E-06	1.02885E-05	0.0923573	1.144E-06	9.30715E-06	0.5854084	7.252E-06	5.89935E-05	0.5261482	6.518E-06	5.30216E-05	0.6185055	7.662E-06	6.23288E-05
Road 1	1	1300-1400	0.106907749	1.409E-06	1.1459E-05	0.0968482	1.276E-06	1.03808E-05	0.5996297	7.901E-06	6.4272E-05	0.5397549	7.112E-06	5.78542E-05	0.6366031	8.388E-06	6.8235E-05
Road 1	1	1400-1500	0.102272889	1.468E-06	1.1946E-05	0.0925349	1.329E-06	1.08086E-05	0.5596563	8.036E-06	6.53708E-05	0.5033583	7.227E-06	5.87949E-05	0.5958932	8.556E-06	6.96035E-05
Road 1	1	1500-1600	0.109643597	1.459E-06	1.18695E-05	0.0993216	1.322E-06	1.0752E-05	0.5981603	7.96E-06	6.47538E-05	0.5385931	7.167E-06	5.83053E-05	0.6379147	8.489E-06	6.90574E-05
Road 1	1	1600-1700	0.105236578	1.477E-06	1.2019E-05	0.0954943	1.341E-06	1.09064E-05	0.5810324	8.157E-06	6.63595E-05	0.523307	7.347E-06	5.97667E-05	0.6188012	8.687E-06	7.06731E-05
Road 1	1	1700-1800	0.08453824	1.19E-06	9.6809E-06	0.0763579	1.075E-06	8.74412E-06	0.4768839	6.713E-06	5.46104E-05	0.4266587	6.006E-06	4.88588E-05	0.5030166	7.081E-06	5.7603E-05
Road 1	1	1800-1900	0.075446094	1.088E-06	8.84707E-06	0.0683216	9.848E-07	8.01163E-06	0.4532148	6.533E-06	5.31455E-05	0.4060997	5.854E-06	4.76206E-05	0.4744213	6.839E-06	5.56323E-05
Road 1	1	1900-2000	0.090214505	9.922E-07	8.07189E-06	0.0810864	8.918E-07	7.25516E-06	0.5213721	5.734E-06	4.66495E-05	0.4635924	5.099E-06	4.14797E-05	0.5446788	5.991E-06	4.87348E-05
Road 1	1	2000-2100	0.081691149	7.605E-07	6.18668E-06	0.073773	6.868E-07	5.58702E-06	0.4848937	4.514E-06	3.67223E-05	0.4338566	4.039E-06	3.28571E-05	0.5076295	4.726E-06	3.84441E-05
Road 1	1	2100-2200	0.08629936	7.337E-07	5.96907E-06	0.077592	6.597E-07	5.36681E-06	0.5154466	4.382E-06	3.56519E-05	0.4586678	3.9E-06	3.17247E-05	0.5362598	4.559E-06	3.70915E-05
Road 1	1	2200-2300	0.084032807	6.798E-07	5.53003E-06	0.0755167	6.109E-07	4.9696E-06	0.5005805	4.049E-06	3.29422E-05	0.4446658	3.597E-06	2.92626E-05	0.5201824	4.208E-06	3.42322E-05
Road 1	1	2300-0000	0.073684468	5.324E-07	4.3315E-06	0.0666455	4.816E-07	3.91772E-06	0.457873	3.309E-06	2.69158E-05	0.4081313	2.949E-06	2.39917E-05	0.4747769	3.431E-06	2.79095E-05
Road 2	2	0000-0100	0.186496471	2.202E-07	1.42183E-06	0.1696104	2.002E-07	1.29309E-06	0.7967794	9.406E-07	6.07458E-06	0.7207471	8.509E-07	5.49491E-06	0.8903575	1.051E-06	6.78801E-06
Road 2	2	0100-0200	0.132735152	1.014E-07	6.54798E-07	0.1203609	9.194E-08	5.93755E-07	0.6627006	5.062E-07	3.26918E-06	0.5970342	4.561E-07	2.94524E-06	0.7173952	5.48E-07	3.539E-06
Road 2	2	0200-0300	0.132632609	7.061E-08	4.56022E-07	0.1200978	6.394E-08	4.12925E-07	0.7305678	3.89E-07	2.51186E-06	0.6552617	3.489E-07	2.25294E-06	0.7753596	4.128E-07	2.66587E-06
Road 2	2	0300-0400	0.117058	4.065E-08	2.62482E-07	0.1055327	3.664E-08	2.36639E-07	0.432482	1.502E-07	9.69766E-07	0.3845693	1.335E-07	8.6233E-07	0.490102	1.702E-07	1.09897E-06
Road 2	2	0400-0500	0.157561481	9.848E-08	6.35948E-07	0.1438474	8.99E-08	5.80595E-07	0.7679811	4.8E-07	3.09972E-06	0.6972096	4.358E-07	2.81407E-06	0.841057	5.257E-07	3.39467E-06
Road 2	2	0500-0600	0.125562105	1.657E-07	1.0699E-06	0.1145168	1.511E-07	9.7578E-07	0.5622037	7.418E-07	4.79045E-06	0.5074856	6.696E-07	4.32421E-06	0.6220025	8.207E-07	5.29999E-06
Road 2	2	0600-0700	0.178694466	4.261E-07	2.75141E-06	0.1628251	3.882E-07	2.50707E-06	0.731625	1.744E-06	1.12651E-05	0.6618997	1.578E-06	1.01915E-05	0.8247249	1.966E-06	1.26985E-05
Road 2	2	0700-0800	0.142382848	5.208E-07	3.36297E-06	0.1297051	4.744E-07	3.06353E-06	0.6093354	2.229E-06	1.4392E-05	0.5484822	2.006E-06	1.29547E-05	0.6781873	2.48E-06	1.60182E-05
Road 2	2	0800-0900	0.160599333	1.115E-06	7.20233E-06	0.1464329	1.017E-06	6.56701E-06	0.6869011	4.77E-06	3.08051E-05	0.6208656	4.312E-06	2.78437E-05	0.7672986	5.328E-06	3.44107E-05
Road 2	2	0900-1000	0.18191565	1.036E-06	6.6898E-06	0.1666283	9.489E-07	6.12762E-06	0.7916101	4.508E-06	2.91108E-05	0.720868	4.105E-06	2.65093E-05	0.8874963	5.054E-06	3.26369E-05
Road 2	2	1000-1100	0.202295163	8.616E-07	5.56431E-06	0.1846577	7.865E-07	5.07917E-06	0.8725405	3.716E-06	2.4E-05	0.7926469	3.376E-06	2.18025E-05	0.9773046	4.163E-06	2.68816E-05
Road 2	2	1100-1200	0.245050276	1.027E-06	6.63043E-06	0.2238144	9.377E-07	6.05584E-06	1.0077527	4.222E-06	2.72672E-05	0.917891	3.846E-06	2.48358E-05	1.1417054	4.784E-06	3.08916E-05
Road 2	2	1200-1300	0.186985532	8.137E-07	5.25501E-06	0.1691764	7.362E-07	4.75451E-06	0.8284986	3.606E-06	2.3284E-05	0.7450904	3.243E-06	2.09399E-05	0.9142668	3.979E-06	2.56944E-05
Road 2	2	1300-1400	0.207430864	1.056E-06	6.82188E-06	0.1878775	9.568E-07	6.17882E-06	0.8617694	4.389E-06	2.83414E-05	0.7763503	3.954E-06	2.55322E-05	0.9642279	4.91E-06	3.1711E-05
Road 2	2	1400-1500	0.180745215	6.82E-07	4.40415E-06	0.1635853	6.172E-07	3.98602E-06	0.785008	2.962E-06	1.9128E-05	0.7077339	2.67E-06	1.72451E-05	0.8713192	3.288E-06	2.12311E-05
Road 2	2	1500-1600	0.222025419	9.2E-07	5.94105E-06	0.2010386	8.33E-07	5.37948E-06	0.8949129	3.708E-06	2.39465E-05	0.8077639	3.347E-06	2.16145E-05	1.0088025	4.18E-06	2.6994E-05
Road 2	2	1600-1700	0.190473973	9.656E-07	6.23573E-06	0.1729754	8.769E-07	5.66287E-06	0.8102122	4.107E-06	2.65247E-05	0.7317299	3.709E-06	2.39554E-05	0.9047053	4.586E-06	2.96182E-05
Road 2	2	1700-1800	0.144703641	7.269E-07	4.69404E-06	0.1307921	6.57E-07	4.24276E-06	0.580189	2.914E-06	1.88208E-05	0.5210459	2.617E-06	1.69022E-05	0.6518379	3.274E-06	2.1145E-05
Road 2	2	1800-1900	0.159171734	9.138E-07	5.901E-06	0.1443531	8.287E-07	5.35162E-06	0.7396406	4.246E-06	2.74208E-05	0.6665036	3.826E-06	2.47094E-05	0.8108567	4.655E-06	3.0061E-05
Road 2	2	1900-2000	0.136138554	5.231E-07	3.37829E-06	0.1224167	4.704E-07	3.03778E-06	0.6322315	2.429E-06	1.56889E-05	0.5628406	2.163E-06	1.39669E-05	0.6852573	2.633E-06	1.70047E-05
Road 2	2	2000-2100	0.134048219	4.53E-07	2.92565E-06	0.1210482	4.091E-07	2.64192E-06	0.5709146	1.929E-06	1.24604E-05	0.5105514	1.725E-06	1.11429E-05	0.6315996	2.135E-06	1.37849E-05
Road 2	2	2100-2200	0.103788224	3.652E-07	2.3583E-06	0.0932868	3.282E-07	2.11969E-06	0.4788232	1.685E-06	1.08799E-05	0.4235805	1.49E-06	9.6247E-06	0.5168673	1.819E-06	1.17444E-05
Road 2	2	2200-2300	0.14872688	4.303E-07	2.77912E-06	0.1337511	3.87E-07	2.49928E-06	0.6422751	1.858E-06	1.20016E-05	0.5720031	1.655E-06	1.06885E-05	0.7057542	2.042E-06	1.31878E-05
Road 2	2	2300-0000	0.134906727	3.435E-07	2.21837E-06	0.1220974	3.109E-07	2.00774E-06	0.6164949	1.57E-06	1.01375E-05	0.5516685	1.405E-06	9.07149E-06	0.6737659	1.716E-06	1.10792E-05
Road 3	3	0000-0100	0.11623607	4.269E-07	1.65942E-05	0.1051924	3.864E-07	1.50175E-05	0.642787	2.361E-06	9.17659E-05	0.5772533	2.12E-06	8.24101E-05	0.6824457	2.507E-06	9.74277E-05
Road 3	3	0100-0200	0.087447021	1.978E-07	7.68675E-06	0.0791241	1.789E-07	6.95515E-06	0.5114396	1.157E-06	4.49565E-05	0.4592571	1.039E-06	4.03695E-05	0.5383812	1.218E-06	4.73247E-05
Road 3	3	0200-0300	0.084979394	1.349E-07	5.24478E-06	0.0766608	1.217E-07	4.73137E-06	0.53527	8.5E-07	3.3036E-05	0.4763409	7.564E-07	2.93989E-05	0.5530017	8.781E-07	3.41303E-05
Road 3	3	0300-0400	0.073176957	8.099E-08	3.14776E-06	0.0659257	7.296E-08	2.83584E-06	0.4037472	4.468E-07	1.73675E-05	0.3579633	3.962E-07	1.53981E-05	0.423889	4.691E-07	1.82339E-05
Road 3	3	0400-0500	0.097248108	1.731E-07	6.7295E-06	0.0887667	1.58E-07	6.14259E-06	0.5398771	9.612E-07	3.73591E-05	0.4886784	8.7E-07	3.38162E-05	0.577445	1.028E-06	3.99588E-05
Road 3	3	0500-0600	0.078520288	3.06E-07	1.18951E-05	0.0714405	2.784E-07	1.08225E-05	0.4396021	1.713E-06	6.65955E-05	0.3947519	1.539E-06	5.98011E-05	0.4661924	1.817E-06	7.06237E-05
Road 3	3	0600-0700	0.10740847	7.546E-07	2.93286E-05	0.0976284	6.859E-07	2.66581E-05	0.5409781	3.801E-06	0.000147718	0.4871129	3.422E-06	0.000133009	0.5847413	4.108E-06	0.000159668
Road 3	3	0700-0800	0.088268338	1.014E-06	3.94E-05	0.0803594	9.229E-07	3.58698E-05	0.4655956	5.347E-06	0.000207826	0.4181688	4.802E-06	0.000186657	0.4985283	5.725E-06	0.000222526
Road 3	3	0800-0900	0.097086431	1.54E-06	5.98596E-05	0.0882115	1.399E-06	5.43877E-05	0.4881816	7.744E-06	0.000300993	0.4387756	6.96E-06	0.000270531	0.5269871	8.36E-06	0.000324919
Road 3	3	0900-1000	0.104059958	1.592E-06	6.18886E-05	0.0952361	1.457E-06	5.66407E-05	0.5389478	8.247E-06	0.000320534	0.48951	7.49E-06	0.000291131	0.5847461	8.948E-06	0.000347772
Road 3	3	1000-1100	0.117163494	1.635E-06	6.35463E-05	0.106845	1.491E-06	5.79498E-05	0.5985587	8.353E-06	0.000324642	0.5425324	7.571E-06	0.000294255	0.6493773	9.062E-06	0.000352205
Road 3	3	1100-1200	0.115123924	1.562E-06	6.07176E-05	0.1045702	1.419E-06	5.51515E-05	0.6039629	8.195E-06	0.000318537	0.5448	7.393E-06	0.000287333	0.6493702	8.812E-06	0.000342485
Road 3	3	1200-1300	0.108761395	1.476E-06	5.73619E-05	0.0989493	1.343E-06	5.2187E-05	0.5830932	7.912E-06	0.00030753	0.5270816	7.152E-06	0.000277989	0.626031	8.495E-06	0.000330176
Road 3	3	1300-1400	0.115828651	1.707E-06	6.63606E-05	0.1042973	1.537E-06	5.9754E-05	0.5975868	8.809E-06	0.00034237	0.5345075	7.879E-06	0.00030623	0.6388048	9.416E-06	0.000365984

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 3	3	1400-1500	0.107371623	1.591E-06	6.18501E-05	0.097051	1.438E-06	5.5905E-05	0.5600871	8.301E-06	0.000322631	0.5032558	7.459E-06	0.000289894	0.6003068	8.897E-06	0.000345799
Road 3	3	1500-1600	0.119560461	1.707E-06	6.63371E-05	0.109144	1.558E-06	6.05576E-05	0.6068403	8.663E-06	0.0003367	0.5509902	7.865E-06	0.000305712	0.6601342	9.424E-06	0.00036627
Road 3	3	1600-1700	0.112579133	1.75E-06	6.80081E-05	0.1020884	1.587E-06	6.16707E-05	0.5837213	9.072E-06	0.000352621	0.5254098	8.166E-06	0.000317395	0.6274982	9.753E-06	0.000379066
Road 3	3	1700-1800	0.090149134	1.403E-06	5.45145E-05	0.0812387	1.264E-06	4.91262E-05	0.4686258	7.291E-06	0.000283385	0.4182922	6.508E-06	0.000252947	0.4995309	7.772E-06	0.000302074
Road 3	3	1800-1900	0.085428918	1.394E-06	5.41632E-05	0.0770356	1.257E-06	4.88417E-05	0.4768886	7.779E-06	0.000302355	0.4249683	6.932E-06	0.000269436	0.5020039	8.189E-06	0.000318278
Road 3	3	1900-2000	0.091421368	1.104E-06	4.29162E-05	0.0821465	9.921E-07	3.85623E-05	0.5063463	6.116E-06	0.000237696	0.4502691	5.438E-06	0.000211371	0.5324157	6.43E-06	0.000249934
Road 3	3	2000-2100	0.084836755	8.763E-07	3.40603E-05	0.0767277	7.926E-07	3.08047E-05	0.4658829	4.812E-06	0.000187043	0.4175482	4.313E-06	0.000167637	0.4942759	5.106E-06	0.000198442
Road 3	3	2100-2200	0.083927902	8.212E-07	3.19165E-05	0.0754576	7.383E-07	2.86953E-05	0.477114	4.668E-06	0.000181439	0.4241365	4.15E-06	0.000161293	0.4995941	4.888E-06	0.000189988
Road 3	3	2200-2300	0.090037716	8.03E-07	3.12089E-05	0.081495	7.268E-07	2.82478E-05	0.4949027	4.414E-06	0.000171543	0.4430847	3.951E-06	0.000153582	0.5245797	4.678E-06	0.00018183
Road 3	3	2300-0000	0.079406165	6.343E-07	2.46526E-05	0.0719528	5.747E-07	2.23386E-05	0.455332	3.637E-06	0.000141363	0.4068784	3.25E-06	0.00012632	0.4788312	3.825E-06	0.000148659
Road 4	4	0000-0100	0.296948286	2.406E-07	2.57606E-06	0.2688386	2.178E-07	2.33221E-06	1.5142251	1.227E-06	1.31361E-05	1.3697894	1.11E-06	1.18831E-05	1.638628	1.328E-06	1.42153E-05
Road 4	4	0100-0200	0.2809685	1.301E-07	1.39282E-06	0.2543715	1.178E-07	1.26097E-06	1.4342635	6.64E-07	7.10995E-06	1.2983765	6.011E-07	6.43633E-06	1.552748	7.189E-07	7.6973E-06
Road 4	4	0200-0300	0.303998462	9.148E-08	9.7954E-07	0.2749869	8.275E-08	8.8606E-07	1.50041	4.515E-07	4.8346E-06	1.3571438	4.084E-07	4.37297E-06	1.6321308	4.912E-07	5.25903E-06
Road 4	4	0300-0400	0.276621429	4.482E-08	4.79945E-07	0.2499329	4.05E-08	4.3364E-07	1.4684329	2.379E-07	2.54777E-06	1.32643	2.149E-07	2.30139E-06	1.5763629	2.554E-07	2.73503E-06
Road 4	4	0400-0500	0.283328571	9.182E-08	9.83164E-07	0.2587807	8.386E-08	8.97982E-07	1.3991986	4.534E-07	4.85529E-06	1.2777457	4.141E-07	4.43384E-06	1.5365264	4.979E-07	5.33182E-06
Road 4	4	0500-0600	0.261511667	1.453E-07	1.55564E-06	0.2383138	1.324E-07	1.41765E-06	1.2409821	6.894E-07	7.38217E-06	1.1294933	6.275E-07	6.71897E-06	1.3678071	7.599E-07	8.13661E-06
Road 4	4	0600-0700	0.290123077	3.492E-07	3.73932E-06	0.2639325	3.177E-07	3.40176E-06	1.3865873	1.669E-06	1.78714E-05	1.2602719	1.517E-06	1.62433E-05	1.5242044	1.835E-06	1.96451E-05
Road 4	4	0700-0800	0.290810543	6.193E-07	6.6314E-06	0.2652504	5.649E-07	6.04855E-06	1.4499241	3.088E-06	3.30629E-05	1.3205493	2.812E-06	3.01127E-05	1.5857998	3.377E-06	3.61613E-05
Road 4	4	0800-0900	0.296133529	1.049E-06	1.12302E-05	0.2693334	9.539E-07	1.02138E-05	1.478698	5.237E-06	5.60762E-05	1.3437395	4.759E-06	5.09582E-05	1.6130729	5.713E-06	6.1172E-05
Road 4	4	0900-1000	0.301990676	1.035E-06	1.1078E-05	0.2762422	9.464E-07	1.01335E-05	1.4245737	4.88E-06	5.22582E-05	1.3018445	4.46E-06	4.7756E-05	1.5780866	5.406E-06	5.78895E-05
Road 4	4	1000-1100	0.336408112	1.114E-06	1.19237E-05	0.3067934	1.016E-06	1.0874E-05	1.5891266	5.26E-06	5.63251E-05	1.4486525	4.795E-06	5.13461E-05	1.7554459	5.811E-06	6.22201E-05
Road 4	4	1100-1200	0.313088	1.123E-06	1.20283E-05	0.2844608	1.021E-06	1.09285E-05	1.469451	5.272E-06	5.64539E-05	1.3343239	4.788E-06	5.12626E-05	1.6187847	5.808E-06	6.21911E-05
Road 4	4	1200-1300	0.320370204	1.09E-06	1.16729E-05	0.2915312	9.92E-07	1.06221E-05	1.5730463	5.353E-06	5.73147E-05	1.4307135	4.868E-06	5.21288E-05	1.7222446	5.86E-06	6.27509E-05
Road 4	4	1300-1400	0.329678926	1.137E-06	1.21754E-05	0.296845	1.024E-06	1.09629E-05	1.5807821	5.452E-06	5.83802E-05	1.4227227	4.907E-06	5.25429E-05	1.7195677	5.931E-06	6.35058E-05
Road 4	4	1400-1500	0.300836087	9.61E-07	1.029E-05	0.2718793	8.685E-07	9.29957E-06	1.4919291	4.766E-06	5.10311E-05	1.3473096	4.304E-06	4.60844E-05	1.6191889	5.172E-06	5.5384E-05
Road 4	4	1500-1600	0.335905806	9.642E-07	1.0324E-05	0.3065407	8.799E-07	9.42144E-06	1.6084124	4.617E-06	4.94341E-05	1.4674046	4.212E-06	4.51003E-05	1.7739453	5.092E-06	5.45217E-05
Road 4	4	1600-1700	0.315177016	9.047E-07	9.68688E-06	0.2858598	8.205E-07	8.78582E-06	1.526346	4.381E-06	4.69118E-05	1.3838407	3.972E-06	4.2532E-05	1.6697006	4.793E-06	5.13178E-05
Road 4	4	1700-1800	0.302311667	8.817E-07	9.44133E-06	0.27269	7.953E-07	8.51623E-06	1.4889749	4.343E-06	4.65013E-05	1.3420877	3.914E-06	4.1914E-05	1.6147777	4.71E-06	5.04302E-05
Road 4	4	1800-1900	0.334455472	8.207E-07	8.78722E-06	0.3019883	7.41E-07	7.93421E-06	1.6692306	4.096E-06	4.38561E-05	1.506803	3.697E-06	3.95886E-05	1.8087913	4.438E-06	4.75228E-05
Road 4	4	1900-2000	0.302651892	5.184E-07	5.55115E-06	0.2724222	4.666E-07	4.99668E-06	1.504087	2.576E-06	2.75875E-05	1.3528501	2.317E-06	2.48136E-05	1.6252723	2.784E-06	2.98102E-05
Road 4	4	2000-2100	0.264648776	3.002E-07	3.2142E-06	0.2396227	2.718E-07	2.91026E-06	1.3232059	1.501E-06	1.60706E-05	1.1966539	1.357E-06	1.45336E-05	1.4362765	1.629E-06	1.74438E-05
Road 4	4	2100-2200	0.221405405	1.896E-07	2.03047E-06	0.1994957	1.709E-07	1.82954E-06	1.1280592	9.662E-07	1.03453E-05	1.0141095	8.686E-07	9.30024E-06	1.2136051	1.039E-06	1.11298E-05
Road 4	4	2200-2300	0.296537143	4.325E-07	4.63049E-06	0.2688578	3.921E-07	4.19827E-06	1.4554121	2.122E-06	2.27266E-05	1.31852	1.923E-06	2.0589E-05	1.5873778	2.315E-06	2.47873E-05
Road 4	4	2300-0000	0.274833958	3.054E-07	3.26978E-06	0.2494133	2.771E-07	2.96735E-06	1.38559	1.54E-06	1.64848E-05	1.2560752	1.396E-06	1.49439E-05	1.5054885	1.673E-06	1.79113E-05
Road 5	5	0000-0100	0.099220829	3.594E-07	4.86043E-06	0.0897855	3.252E-07	4.39824E-06	0.552526	2.001E-06	2.7066E-05	0.4948256	1.792E-06	2.42395E-05	0.5846111	2.118E-06	2.86378E-05
Road 5	5	0100-0200	0.067351901	1.53E-07	2.06847E-06	0.0609124	1.383E-07	1.87071E-06	0.410338	9.319E-07	1.26021E-05	0.3671197	8.337E-07	1.12748E-05	0.4280321	9.721E-07	1.31455E-05
Road 5	5	0200-0300	0.063525698	1.025E-07	1.38664E-06	0.0572235	9.237E-08	1.24907E-06	0.4382392	7.074E-07	9.56587E-06	0.3873941	6.253E-07	8.45603E-06	0.4446176	7.177E-07	9.7051E-06
Road 5	5	0300-0400	0.058429839	6.799E-08	9.19478E-07	0.0525811	6.119E-08	8.2744E-07	0.3193745	3.716E-07	5.02582E-06	0.2810221	3.27E-07	4.42229E-06	0.3336032	3.882E-07	5.24973E-06
Road 5	5	0400-0500	0.080761237	1.47E-07	1.98833E-06	0.0736994	1.342E-07	1.81447E-06	0.4593499	8.363E-07	1.13092E-05	0.4145184	7.547E-07	1.02054E-05	0.4882177	8.888E-07	1.20199E-05
Road 5	5	0500-0600	0.064862615	2.654E-07	3.58894E-06	0.0589825	2.413E-07	3.26358E-06	0.3769922	1.542E-06	2.08595E-05	0.3371491	1.379E-06	1.86549E-05	0.3961316	1.621E-06	2.19185E-05
Road 5	5	0600-0700	0.094492156	6.828E-07	9.23361E-06	0.0858686	6.205E-07	8.39092E-06	0.4753508	3.435E-06	4.64504E-05	0.4268437	3.084E-06	4.17104E-05	0.5127123	3.705E-06	5.01013E-05
Road 5	5	0700-0800	0.072667788	8.511E-07	1.15091E-05	0.0661251	7.744E-07	1.04729E-05	0.3829758	4.485E-06	6.06556E-05	0.3421269	4.007E-06	5.4186E-05	0.408252	4.781E-06	6.46588E-05
Road 5	5	0800-0900	0.078152464	1.226E-06	1.6583E-05	0.0709619	1.113E-06	1.50573E-05	0.3854774	6.048E-06	8.17937E-05	0.3447087	5.409E-06	7.31431E-05	0.4156707	6.522E-06	8.82004E-05
Road 5	5	0900-1000	0.084824121	1.286E-06	1.73958E-05	0.0776386	1.177E-06	1.59222E-05	0.4500759	6.825E-06	9.23022E-05	0.4078597	6.185E-06	8.36444E-05	0.4854983	7.363E-06	9.95667E-05
Road 5	5	1000-1100	0.096218003	1.311E-06	1.773E-05	0.0877134	1.195E-06	1.61628E-05	0.5003525	6.818E-06	9.21993E-05	0.4524853	6.166E-06	8.33789E-05	0.5401987	7.361E-06	9.95417E-05
Road 5	5	1100-1200	0.09439129	1.222E-06	1.65309E-05	0.0857205	1.11E-06	1.50123E-05	0.5108672	6.616E-06	8.94689E-05	0.4594844	5.951E-06	8.04701E-05	0.5452049	7.061E-06	9.54825E-05
Road 5	5	1200-1300	0.088433333	1.16E-06	1.56895E-05	0.0804226	1.055E-06	1.42682E-05	0.4819361	6.323E-06	8.5503E-05	0.4344495	5.7E-06	7.70782E-05	0.5148721	6.755E-06	9.13464E-05
Road 5	5	1300-1400	0.095576362	1.376E-06	1.86063E-05	0.0860491	1.239E-06	1.67516E-05	0.5010535	7.213E-06	9.75426E-05	0.4470916	6.436E-06	8.70376E-05	0.5331407	7.675E-06	0.000103789
Road 5	5	1400-1500	0.09103285	1.343E-06	1.81608E-05	0.0822824	1.214E-06	1.64151E-05	0.4764671	7.029E-06	9.5054E-05	0.4273853	6.305E-06	8.52623E-05	0.5096677	7.519E-06	0.000101677
Road 5	5	1500-1600	0.10198834	1.464E-06	1.98028E-05	0.0930681	1.336E-06	1.80708E-05	0.5214984	7.488E-06	0.000101258	0.4727812	6.788E-06	9.17987E-05	0.5658493	8.125E-06	0.000109869
Road 5	5	1600-1700	0.096152138	1.52E-06	2.05488E-05	0.0871713	1.378E-06	1.86295E-05	0.504231	7.969E-06	0.00010776	0.4528704	7.157E-06	9.67834E-05	0.5400418	8.534E-06	0.000115413
Road 5	5	1700-1800	0.071908329	1.139E-06	1.54041E-05	0.0647591	1.026E-06	1.38726E-05	0.3765794	5.965E-06	8.06703E-05	0.3348082	5.304E-06	7.17222E-05	0.3995673	6.329E-06	8.55948E-05
Road 5	5	1800-1900	0.067716396	1.157E-06	1.56405E-05	0.0610291	1.042E-06	1.40959E-05	0.3877358	6.622E-06	8.95555E-05	0.343942	5.874E-06	7.94404E-05	0.404971	6.917E-06	9.35363E-05
Road 5	5	1900-2000	0.078345643	9.955E-07	1.34623E-05	0.0703768	8.942E-07	1.2093E-05	0.4423244	5.62E-06	7.60054E-05	0.3921798	4.983E-06	6.7389E-05	0.4625565	5.877E-06	7.94819E-05
Road 5	5	2000-2100	0.075157121	8.379E-07	1.13311E-05	0.067983	7.579E-07	1.02495E-05	0.4166714	4.645E-06	6.28196E-05	0.3727554	4.156E-06	5.61986E-05	0.4407384	4.914E-06	6.6448E-05
Road 5	5	2100-2200	0.078741786	8.439E-07	1.14119E-05	0.0707651	7.584E-07	1.02558E-05	0.4511279	4.835E-06	6.53809E-05	0.400474	4.292E-06	5.80397E-05	0.4712391	5.05E-06	6.82955E-05
Road 5	5	2200-2300	0.075968435	7.015E-07	9.48666E-06	0.0687232	6.346E-07	8.5819E-06	0.4266908	3.94E-06	5.32836E-05	0.3806584	3.515E-06	4.75352E-05	0.4493816	4.15E-06	5.61171E-05
Road 5	5	2300-0000	0.067018996	5.635E-07	7.62063E-06	0.0606904	5.103E-07	6.90101E-06	0.3933088	3.307E-06	4.47225E-05	0.3500436	2.943E-06	3.98029E-05	0.410734	3.454E-06	4.67039E-05
Road 6	6	0000-0100	0.060473041	1.68E-07	6.00463E-06	0.054558	1.515E-07	5.4173E-06	0.388518	1.079E-06	3.85776E-05	0.3439866	9.555E-07	3.41559E-05	0.3985445	1.107E-06	3.95732E-05
Road 6	6	0100-0200	0.078416903	1.663E-07	5.94498E-06	0.0708953	1.504E-07	5.37475E-06	0.44421	9.421E-07	3.36767E-05	0.3959233	8.397E-07	3.00159E-05	0.4668186	9.901E-07	3.53907E-05
Road 6	6	0200-0300	0.072103038	1.069E-07	3.82158E-06	0.0650949	9.652E-08	3.45014E-06	0.4110767	6.095E-07	2.17878E-05	0.3651749	5.415E-07	1.93549E-05	0.4302699	6.38E-07	2.2805E-05
Road 6	6	0300-0400	0.07295	8.489E-08	3.03445E-06	0.0658884	7.667E-08	2.74071E-06	0.4669321	5.434E-07	1.94226E-05	0.4155805	4.836E-07	1.72866E-05	0.4814689	5.603E-07	2.00273E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 6	6	0400-0500	0.079292222	1.339E-07	4.7878E-06	0.0723412	1.222E-07	4.36808E-06	0.4659714	7.871E-07	2.81361E-05	0.4192988	7.083E-07	2.5318E-05	0.49164	8.305E-07	2.9686E-05
Road 6	6	0500-0600	0.071483043	2.16E-07	7.72132E-06	0.065028	1.965E-07	7.02407E-06	0.4334214	1.31E-06	4.68165E-05	0.387886	1.172E-06	4.18979E-05	0.452914	1.369E-06	4.8922E-05
Road 6	6	0600-0700	0.076414983	4.116E-07	1.47137E-05	0.0693662	3.737E-07	1.33565E-05	0.477308	2.571E-06	9.19059E-05	0.4253887	2.291E-06	8.19088E-05	0.4947549	2.665E-06	9.52653E-05
Road 6	6	0700-0800	0.071934605	6.157E-07	2.20072E-05	0.065462	5.603E-07	2.0027E-05	0.4107731	3.516E-06	0.000125669	0.3663826	3.136E-06	0.000112089	0.4318446	3.696E-06	0.000132116
Road 6	6	0800-0900	0.061223287	7.515E-07	2.68632E-05	0.055445	6.806E-07	2.43278E-05	0.3662617	4.496E-06	0.000160706	0.3228868	3.963E-06	0.000141674	0.3783318	4.644E-06	0.000166002
Road 6	6	0900-1000	0.063206704	7.45E-07	2.66309E-05	0.0576555	6.796E-07	2.4292E-05	0.3581107	4.221E-06	0.000150883	0.3196608	3.768E-06	0.000134683	0.3773164	4.447E-06	0.000158975
Road 6	6	1000-1100	0.084667162	8.454E-07	3.02196E-05	0.0771001	7.698E-07	2.75188E-05	0.4647728	4.641E-06	0.000165888	0.4174043	4.168E-06	0.000148981	0.4945045	4.938E-06	0.0001765
Road 6	6	1100-1200	0.096332273	9.546E-07	3.41247E-05	0.0875069	8.672E-07	3.09984E-05	0.5026845	4.982E-06	0.000178071	0.4517098	4.476E-06	0.000160013	0.5392168	5.344E-06	0.000191012
Road 6	6	1200-1300	0.093775233	9.082E-07	3.24639E-05	0.0853261	8.264E-07	2.95389E-05	0.4649357	4.503E-06	0.000160955	0.4196678	4.064E-06	0.000145284	0.5049938	4.891E-06	0.000174823
Road 6	6	1300-1400	0.109631573	1.06E-06	3.78796E-05	0.0986943	9.54E-07	3.41006E-05	0.5536369	5.351E-06	0.000191291	0.4940918	4.776E-06	0.000170717	0.5927861	5.73E-06	0.000204818
Road 6	6	1400-1500	0.104172236	1.111E-06	3.96975E-05	0.0941602	1.004E-06	3.58821E-05	0.5225229	5.57E-06	0.000199121	0.4683675	4.993E-06	0.000178483	0.5625277	5.997E-06	0.000214365
Road 6	6	1500-1600	0.091687928	9.551E-07	3.41403E-05	0.0836641	8.715E-07	3.11526E-05	0.4704713	4.901E-06	0.000175182	0.4253771	4.431E-06	0.000158391	0.5090412	5.303E-06	0.000189543
Road 6	6	1600-1700	0.096309701	1.027E-06	3.67013E-05	0.087324	9.309E-07	3.3277E-05	0.4727871	5.04E-06	0.000180168	0.4248612	4.529E-06	0.000161904	0.5121853	5.46E-06	0.000195181
Road 6	6	1700-1800	0.072032337	8.098E-07	2.89479E-05	0.0648793	7.294E-07	2.60733E-05	0.3652753	4.107E-06	0.000146794	0.3248503	3.652E-06	0.000130549	0.3897296	4.382E-06	0.000156622
Road 6	6	1800-1900	0.071139122	9.119E-07	3.25981E-05	0.0640934	8.216E-07	2.93695E-05	0.3728419	4.779E-06	0.000170847	0.3316839	4.252E-06	0.000151987	0.3957772	5.073E-06	0.000181357
Road 6	6	1900-2000	0.084628464	8.275E-07	2.95813E-05	0.076029	7.435E-07	2.65754E-05	0.4430951	4.333E-06	0.000154881	0.3928223	3.841E-06	0.000137308	0.4688513	4.585E-06	0.000163884
Road 6	6	2000-2100	0.067346122	5.182E-07	1.8525E-05	0.0608769	4.685E-07	1.67455E-05	0.3831728	2.949E-06	0.0001054	0.3417634	2.63E-06	9.40096E-05	0.4026403	3.098E-06	0.000110755
Road 6	6	2100-2200	0.094239185	6.297E-07	2.25084E-05	0.0847233	5.661E-07	2.02356E-05	0.4944404	3.304E-06	0.000118094	0.4396756	2.938E-06	0.000105013	0.5243989	3.504E-06	0.000125249
Road 6	6	2200-2300	0.070909576	5.017E-07	1.79353E-05	0.0640768	4.534E-07	1.62071E-05	0.4019115	2.844E-06	0.000101656	0.3555023	2.515E-06	8.99179E-05	0.4195792	2.969E-06	0.000106125
Road 6	6	2300-0000	0.047339294	3.145E-07	1.12431E-05	0.0428393	2.846E-07	1.01744E-05	0.2972102	1.975E-06	7.05878E-05	0.2635308	1.751E-06	6.25889E-05	0.3063702	2.036E-06	7.27633E-05
Road 7	7	0000-0100	0.086476874	2.31E-07	5.76691E-06	0.0782655	2.091E-07	5.21932E-06	0.5162542	1.379E-06	3.44276E-05	0.4621041	1.234E-06	3.08165E-05	0.5403696	1.444E-06	3.60358E-05
Road 7	7	0100-0200	0.104151469	2.162E-07	5.39793E-06	0.0942965	1.958E-07	4.88717E-06	0.5770187	1.198E-06	2.99055E-05	0.5179048	1.075E-06	2.68418E-05	0.6122013	1.271E-06	3.1729E-05
Road 7	7	0200-0300	0.090644255	1.237E-07	3.08812E-06	0.081969	1.119E-07	2.79257E-06	0.5164643	7.048E-07	1.75952E-05	0.4619702	6.305E-07	1.57387E-05	0.5439393	7.423E-07	1.85312E-05
Road 7	7	0300-0400	0.091555132	1.01E-07	2.52187E-06	0.0827324	9.129E-08	2.27884E-06	0.5572207	6.148E-07	1.53485E-05	0.4983817	5.499E-07	1.37278E-05	0.5811141	6.412E-07	1.60067E-05
Road 7	7	0400-0500	0.101603243	1.637E-07	4.08749E-06	0.0927441	1.495E-07	3.73108E-06	0.5712374	9.206E-07	2.29808E-05	0.5166376	8.326E-07	2.07843E-05	0.6093817	9.821E-07	2.45153E-05
Road 7	7	0500-0600	0.092539235	2.633E-07	6.57367E-06	0.0843141	2.399E-07	5.98938E-06	0.5281821	1.503E-06	3.75202E-05	0.4758206	1.354E-06	3.38006E-05	0.5601347	1.594E-06	3.979E-05
Road 7	7	0600-0700	0.097088943	4.934E-07	1.23158E-05	0.0882773	4.486E-07	1.11981E-05	0.5661	2.877E-06	7.18103E-05	0.5080312	2.582E-06	6.44442E-05	0.5963085	3.03E-06	7.56423E-05
Road 7	7	0700-0800	0.092947571	7.557E-07	1.88648E-05	0.0846639	6.884E-07	1.71835E-05	0.5106753	4.152E-06	0.000103647	0.4588105	3.73E-06	9.31209E-05	0.5434744	4.419E-06	0.000110304
Road 7	7	0800-0900	0.091773103	1.127E-06	2.81392E-05	0.0834033	1.024E-06	2.55729E-05	0.5077136	6.236E-06	0.000155674	0.454548	5.583E-06	0.000139372	0.5379513	6.608E-06	0.000164945
Road 7	7	0900-1000	0.093017795	1.061E-06	2.64981E-05	0.0850015	9.7E-07	2.42145E-05	0.4926325	5.622E-06	0.000140337	0.4444316	5.072E-06	0.000126606	0.5294331	6.042E-06	0.00015082
Road 7	7	1000-1100	0.110032483	1.101E-06	2.74768E-05	0.1002872	1.003E-06	2.50432E-05	0.5839382	5.841E-06	0.000145818	0.5275754	5.277E-06	0.000131744	0.6278626	6.281E-06	0.000156787
Road 7	7	1100-1200	0.12050145	1.2E-06	2.996E-05	0.1096597	1.092E-06	2.72644E-05	0.6258238	6.233E-06	0.000155597	0.5658669	5.636E-06	0.00014069	0.6755266	6.728E-06	0.000167955
Road 7	7	1200-1300	0.11907654	1.184E-06	2.95626E-05	0.1081444	1.076E-06	2.68485E-05	0.603926	6.006E-06	0.000149934	0.5457476	5.428E-06	0.00013549	0.653892	6.503E-06	0.000162339
Road 7	7	1300-1400	0.127901319	1.253E-06	3.12899E-05	0.1154136	1.131E-06	2.82349E-05	0.6472405	6.343E-06	0.000158342	0.5806465	5.69E-06	0.00014205	0.6960601	6.821E-06	0.000170285
Road 7	7	1400-1500	0.119433665	1.228E-06	3.06468E-05	0.1080009	1.11E-06	2.77132E-05	0.6113337	6.284E-06	0.000156869	0.5496053	5.649E-06	0.000141029	0.6576062	6.76E-06	0.000168743
Road 7	7	1500-1600	0.110232807	1.107E-06	2.76467E-05	0.1003018	1.008E-06	2.51559E-05	0.5693314	5.72E-06	0.00014279	0.5147183	5.171E-06	0.000129093	0.6150201	6.179E-06	0.000154249
Road 7	7	1600-1700	0.115364518	1.199E-06	2.99372E-05	0.104649	1.088E-06	2.71565E-05	0.5743386	5.97E-06	0.000149041	0.5178311	5.383E-06	0.000134378	0.6224801	6.471E-06	0.000161534
Road 7	7	1700-1800	0.089556877	9.869E-07	2.46358E-05	0.0807788	8.902E-07	2.22211E-05	0.4634929	5.108E-06	0.0001275	0.4144328	4.567E-06	0.000114004	0.4952116	5.457E-06	0.000136225
Road 7	7	1800-1900	0.08300627	9.496E-07	2.37062E-05	0.0749794	8.578E-07	2.14138E-05	0.439607	5.029E-06	0.00012555	0.3933991	4.501E-06	0.000112353	0.4683785	5.359E-06	0.000133767
Road 7	7	1900-2000	0.096937571	8.402E-07	2.09745E-05	0.0871309	7.552E-07	1.88526E-05	0.5152441	4.466E-06	0.000111484	0.4584853	3.974E-06	9.92031E-05	0.5456162	4.729E-06	0.000118056
Road 7	7	2000-2100	0.089303773	6.327E-07	1.57948E-05	0.0807148	5.719E-07	1.42757E-05	0.4864495	3.447E-06	8.60366E-05	0.4356578	3.087E-06	7.70533E-05	0.5163726	3.659E-06	9.1329E-05
Road 7	7	2100-2200	0.103225341	6.145E-07	1.5339E-05	0.0928368	5.526E-07	1.37952E-05	0.5483544	3.264E-06	8.14837E-05	0.488663	2.909E-06	7.26138E-05	0.5814998	3.461E-06	8.6409E-05
Road 7	7	2200-2300	0.08700524	5.583E-07	1.39378E-05	0.0784973	5.037E-07	1.25748E-05	0.4827117	3.098E-06	7.73278E-05	0.4287692	2.752E-06	6.86865E-05	0.5072665	3.255E-06	8.12614E-05
Road 7	7	2300-0000	0.059974967	3.544E-07	8.84688E-06	0.0543027	3.209E-07	8.01017E-06	0.3615138	2.136E-06	5.33267E-05	0.3223904	1.905E-06	4.75557E-05	0.3766931	2.226E-06	5.55658E-05
Road 8	8	0000-0100	0.261120833	1.899E-07	3.13053E-06	0.2363481	1.719E-07	2.83353E-06	1.3348425	9.708E-07	1.60032E-05	1.2076378	8.783E-07	1.44781E-05	1.4439858	1.05E-06	1.73117E-05
Road 8	8	0100-0200	0.270706333	1.641E-07	2.70454E-06	0.2451127	1.486E-07	2.44884E-06	1.3778497	8.351E-07	1.37657E-05	1.247399	7.56E-07	1.24624E-05	1.4925117	9.046E-07	1.49112E-05
Road 8	8	0200-0300	0.256211333	7.764E-08	1.27986E-06	0.231852	7.026E-08	1.15818E-06	1.37347	4.162E-07	6.86095E-06	1.2425613	3.765E-07	6.20702E-06	1.4744133	4.468E-07	7.3652E-06
Road 8	8	0300-0400	0.233966429	6.617E-08	1.09083E-06	0.2115929	5.984E-08	9.86513E-07	1.2237079	3.461E-07	5.70532E-06	1.106095	3.128E-07	5.15697E-06	1.3176879	3.727E-07	6.14348E-06
Road 8	8	0400-0500	0.26440619	1.122E-07	1.84912E-06	0.241559	1.025E-07	1.68934E-06	1.3060205	5.541E-07	9.13362E-06	1.192869	5.061E-07	8.3423E-06	1.4344281	6.085E-07	1.00316E-05
Road 8	8	0500-0600	0.251502353	1.727E-07	2.8477E-06	0.2292729	1.575E-07	2.59601E-06	1.2199162	8.379E-07	1.38128E-05	1.1114226	7.634E-07	1.25844E-05	1.3406956	9.209E-07	1.51804E-05
Road 8	8	0600-0700	0.280886774	3.518E-07	5.79958E-06	0.2556279	3.202E-07	5.27805E-06	1.3469445	1.687E-06	2.78109E-05	1.2247029	1.534E-06	2.52869E-05	1.4803308	1.854E-06	3.0565E-05
Road 8	8	0700-0800	0.280680198	5.727E-07	9.44076E-06	0.2560529	5.225E-07	8.61241E-06	1.3611256	2.777E-06	4.57819E-05	1.2404563	2.531E-06	4.17231E-05	1.4965092	3.053E-06	5.03355E-05
Road 8	8	0800-0900	0.308211	1.183E-06	1.95018E-05	0.2804914	1.077E-06	1.77479E-05	1.4995596	5.756E-06	9.48836E-05	1.3635432	5.234E-06	8.62773E-05	1.6440346	6.31E-06	0.000104025
Road 8	8	0900-1000	0.32661121	1.036E-06	1.70767E-05	0.2988491	9.479E-07	1.56252E-05	1.5109301	4.792E-06	7.89983E-05	1.3822453	4.384E-06	7.22701E-05	1.6810944	5.332E-06	8.78953E-05
Road 8	8	1000-1100	0.313487722	1.001E-06	1.6495E-05	0.2859206	9.126E-07	1.50445E-05	1.4890244	4.753E-06	7.83489E-05	1.3569988	4.331E-06	7.1402E-05	1.6429194	5.244E-06	8.64465E-05
Road 8	8	1100-1200	0.321489874	1.033E-06	1.70231E-05	0.2920762	9.382E-07	1.54656E-05	1.5483401	4.973E-06	8.19856E-05	1.406301	4.517E-06	7.44645E-05	1.6983772	5.455E-06	8.99301E-05
Road 8	8	1200-1300	0.325511716	1.111E-06	1.83201E-05	0.2962205	1.011E-06	1.66715E-05	1.5840885	5.408E-06	8.91538E-05	1.4406641	4.919E-06	8.10818E-05	1.7368846	5.93E-06	9.77533E-05
Road 8	8	1300-1400	0.298559375	9.65E-07	1.59083E-05	0.2688543	8.69E-07	1.43255E-05	1.4266053	4.611E-06	7.60147E-05	1.2840553	4.15E-06	6.84191E-05	1.5529096	5.02E-06	8.27447E-05
Road 8	8	1400-1500	0.289654388	8.134E-07	1.34081E-05	0.2618052	7.352E-07	1.2119E-05	1.4492994	4.07E-06	6.70883E-05	1.3095224	3.677E-06	6.0618E-05	1.5713276	4.412E-06	7.2737E-05
Road 8	8	1500-1600	0.297241314	8.227E-07	1.35614E-05	0.2712397	7.507E-07	1.23751E-05	1.447789	4.007E-06	6.60541E-05	1.3201051	3.654E-06	6.02286E-05	1.5913448	4.404E-06	7.26037E-05
Road 8	8	1600-1700	0.299752877	8.841E-07	1.45744E-05	0.2718536	8.018E-07	1.32179E-05	1.4418473	4.253E-06	7.01045E-05	1.3070105	3.855E-06	6.35486E-05	1.5788642	4.657E-06	7.67665E-05
Road 8	8	1700-1800	0.245301795	7.731E-07	1.27438E-05	0.2211951	6.971E-07	1.14914E-05	1.2334254	3.887E-06	6.40784E-05	1.1104609	3.5E-06	5.76902E-05	1.331656	4.197E-06	6.91816E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 8	8	1800-1900	0.24652729	5.329E-07	8.78461E-06	0.2226759	4.813E-07	7.93471E-06	1.2678054	2.741E-06	4.51763E-05	1.1437651	2.472E-06	4.07563E-05	1.366441	2.954E-06	4.8691E-05
Road 8	8	1900-2000	0.245942338	3.826E-07	6.30664E-06	0.2213931	3.444E-07	5.67713E-06	1.2958126	2.016E-06	3.32282E-05	1.1659401	1.814E-06	2.98979E-05	1.3873332	2.158E-06	3.5575E-05
Road 8	8	2000-2100	0.27014	4.148E-07	6.83717E-06	0.2445891	3.755E-07	6.19048E-06	1.293805	1.986E-06	3.27459E-05	1.1703566	1.797E-06	2.96214E-05	1.4149457	2.172E-06	3.58119E-05
Road 8	8	2100-2200	0.222953019	2.387E-07	3.93517E-06	0.2007857	2.15E-07	3.54391E-06	1.1751698	1.258E-06	2.0742E-05	1.0555874	1.13E-06	1.86313E-05	1.256373	1.345E-06	2.21752E-05
Road 8	8	2200-2300	0.268791719	3.475E-07	5.72888E-06	0.2436913	3.151E-07	5.1939E-06	1.3338947	1.725E-06	2.84299E-05	1.2078142	1.562E-06	2.57427E-05	1.4515055	1.877E-06	3.09366E-05
Road 8	8	2300-0000	0.214878846	2.257E-07	3.7211E-06	0.1950748	2.049E-07	3.37815E-06	1.1087188	1.165E-06	1.91999E-05	1.0052458	1.056E-06	1.7408E-05	1.2003206	1.261E-06	2.07862E-05
Road 9	9	0000-0100	0.221498116	5.882E-08	1.75602E-06	0.2036501	5.408E-08	1.61452E-06	1.0267543	2.727E-07	8.14002E-06	0.9357201	2.485E-07	7.41831E-06	1.1393702	3.026E-07	9.03282E-06
Road 9	9	0100-0200	0.240344291	5.015E-08	1.49712E-06	0.2212717	4.617E-08	1.37832E-06	1.0548806	2.201E-07	6.57093E-06	0.9612515	2.006E-07	5.98771E-06	1.1825232	2.468E-07	7.36602E-06
Road 9	9	0200-0300	0.09680477	9.182E-09	2.74093E-07	0.0876418	8.313E-09	2.48149E-07	0.706936	6.705E-08	2.00162E-06	0.6322471	5.997E-08	1.79014E-06	0.7198889	6.828E-08	2.03829E-06
Road 9	9	0300-0400	0.117071153	8.883E-09	2.6518E-07	0.1060267	8.045E-09	2.40163E-07	0.730558	5.543E-08	1.6548E-06	0.6594762	5.004E-08	1.49379E-06	0.765503	5.809E-08	1.73395E-06
Road 9	9	0400-0500	0.259052324	4.914E-08	1.46696E-06	0.2400881	4.554E-08	1.35957E-06	1.0946035	2.076E-07	6.19851E-06	1.0042097	1.905E-07	5.68663E-06	1.2442978	2.36E-07	7.0462E-06
Road 9	9	0500-0600	0.187010491	6.031E-08	1.8003E-06	0.1726708	5.568E-08	1.66226E-06	0.9671498	3.119E-07	9.31051E-06	0.8834069	2.849E-07	8.50434E-06	1.0560777	3.406E-07	1.01666E-05
Road 9	9	0600-0700	0.218037508	1.324E-07	3.95104E-06	0.2018422	1.225E-07	3.65757E-06	1.1778263	7.15E-07	2.13433E-05	1.0734581	6.516E-07	1.94521E-05	1.2753002	7.741E-07	2.31096E-05
Road 9	9	0700-0800	0.186725798	1.7E-07	5.07547E-06	0.1737146	1.582E-07	4.72181E-06	1.1085782	1.009E-06	3.01327E-05	1.0122128	9.217E-07	2.75134E-05	1.1859274	1.08E-06	3.22352E-05
Road 9	9	0800-0900	0.285666919	6.232E-07	1.86032E-05	0.264088	5.761E-07	1.7198E-05	1.4140514	3.085E-06	9.2086E-05	1.2907628	2.816E-06	8.40572E-05	1.5548508	3.392E-06	0.000101255
Road 9	9	0900-1000	0.290243101	4.735E-07	1.41348E-05	0.2707506	4.417E-07	1.31856E-05	1.3073689	2.133E-06	6.36689E-05	1.2031921	1.963E-06	5.85955E-05	1.4739428	2.405E-06	7.1781E-05
Road 9	9	1000-1100	0.306287553	4.125E-07	1.23145E-05	0.2827073	3.808E-07	1.13665E-05	1.3392809	1.804E-06	5.38469E-05	1.2254349	1.65E-06	4.92696E-05	1.5081423	2.031E-06	6.06361E-05
Road 9	9	1100-1200	0.215472718	3.025E-07	9.02931E-06	0.1967132	2.761E-07	8.2432E-06	1.1643556	1.634E-06	4.87919E-05	1.0568316	1.484E-06	4.42862E-05	1.2535448	1.76E-06	5.25294E-05
Road 9	9	1200-1300	0.315789323	4.373E-07	1.30542E-05	0.2930401	4.058E-07	1.21138E-05	1.472001	2.038E-06	6.08502E-05	1.3569415	1.879E-06	5.60938E-05	1.6499816	2.285E-06	6.82076E-05
Road 9	9	1300-1400	0.356249318	4.055E-07	1.21042E-05	0.3288083	3.742E-07	1.11718E-05	1.389087	1.581E-06	4.71967E-05	1.2705835	1.446E-06	4.31703E-05	1.5993917	1.82E-06	5.43421E-05
Road 9	9	1400-1500	0.229377307	2.959E-07	8.83263E-06	0.2128254	2.745E-07	8.19527E-06	1.1578115	1.494E-06	4.45838E-05	1.0570057	1.363E-06	4.07021E-05	1.2698312	1.638E-06	4.88974E-05
Road 9	9	1500-1600	0.192997677	2.087E-07	6.22956E-06	0.1787176	1.932E-07	5.76863E-06	1.0361231	1.12E-06	3.34439E-05	0.9484987	1.026E-06	3.06156E-05	1.1272163	1.219E-06	3.63842E-05
Road 9	9	1600-1700	0.199415761	2.988E-07	8.92108E-06	0.1857243	2.783E-07	8.30858E-06	1.1494571	1.723E-06	5.14222E-05	1.0606496	1.589E-06	4.74493E-05	1.246374	1.868E-06	5.57579E-05
Road 9	9	1700-1800	0.173825372	2.242E-07	6.69349E-06	0.1619522	2.089E-07	6.23629E-06	1.0981377	1.417E-06	4.2286E-05	1.0148881	1.309E-06	3.90803E-05	1.1768403	1.518E-06	4.53166E-05
Road 9	9	1800-1900	0.171430741	1.431E-07	4.27142E-06	0.1605701	1.34E-07	4.00081E-06	1.0649883	8.889E-07	2.65356E-05	0.992793	8.287E-07	2.47367E-05	1.1533631	9.627E-07	2.87375E-05
Road 9	9	1900-2000	0.180346731	1.471E-07	4.39144E-06	0.1671589	1.364E-07	4.07032E-06	0.9994395	8.152E-07	2.43364E-05	0.9125355	7.444E-07	2.22202E-05	1.0796943	8.807E-07	2.62906E-05
Road 9	9	2000-2100	0.195449586	1.075E-07	3.20969E-06	0.1797754	9.89E-08	2.95229E-06	0.8892472	4.892E-07	1.46033E-05	0.8136117	4.476E-07	1.33612E-05	0.9933871	5.465E-07	1.63135E-05
Road 9	9	2100-2200	0.025802754	1.322E-08	3.94512E-07	0.0235615	1.207E-08	3.60244E-07	0.368845	1.889E-07	5.63947E-06	0.3301543	1.691E-07	5.04791E-06	0.3537157	1.812E-07	5.40815E-06
Road 9	9	2200-2300	0.188833522	1.182E-07	3.52877E-06	0.1733019	1.085E-07	3.23853E-06	0.9451009	5.916E-07	1.76613E-05	0.85899	5.377E-07	1.60521E-05	1.0322919	6.462E-07	1.92907E-05
Road 9	9	2300-0000	0.151788954	8.638E-08	2.57865E-06	0.140355	7.987E-08	2.3844E-06	0.8055953	4.585E-07	1.36858E-05	0.7356179	4.186E-07	1.2497E-05	0.8759729	4.985E-07	1.48814E-05
Road 10	10	0000-0100	0.315122304	2.423E-07	5.3871E-06	0.2861851	2.2E-07	4.89241E-06	1.619063	1.245E-06	2.76783E-05	1.4667805	1.128E-06	2.5075E-05	1.7529655	1.348E-06	2.99674E-05
Road 10	10	0100-0200	0.309276135	1.797E-07	3.99475E-06	0.281222	1.634E-07	3.63239E-06	1.5756971	9.153E-07	2.03524E-05	1.4291553	8.302E-07	1.84596E-05	1.7103773	9.936E-07	2.2092E-05
Road 10	10	0200-0300	0.309245437	1.004E-07	2.23214E-06	0.2797531	9.082E-08	2.01926E-06	1.5534949	5.043E-07	1.12131E-05	1.4031524	4.555E-07	1.0128E-05	1.6829054	5.463E-07	1.21472E-05
Road 10	10	0300-0400	0.281268	5.767E-08	1.28223E-06	0.2540696	5.209E-08	1.15824E-06	1.5275611	3.132E-07	6.96376E-06	1.3758571	2.821E-07	6.27218E-06	1.6299267	3.342E-07	7.43041E-06
Road 10	10	0400-0500	0.326776633	1.284E-07	2.85524E-06	0.300053	1.179E-07	2.62174E-06	1.581567	6.215E-07	1.38191E-05	1.4467389	5.685E-07	1.2641E-05	1.7467919	6.864E-07	1.52627E-05
Road 10	10	0500-0600	0.297161648	2.082E-07	4.6285E-06	0.2726563	1.91E-07	4.24681E-06	1.4462248	1.013E-06	2.2526E-05	1.3210737	9.254E-07	2.05766E-05	1.59373	1.116E-06	2.48235E-05
Road 10	10	0600-0700	0.358276918	5.02E-07	1.11608E-05	0.3297184	4.619E-07	1.02712E-05	1.8026212	2.526E-06	5.61542E-05	1.6537913	2.317E-06	5.15179E-05	1.9835097	2.779E-06	6.17891E-05
Road 10	10	0700-0800	0.354467366	7.813E-07	1.73712E-05	0.3263296	7.192E-07	1.59923E-05	1.8001382	3.968E-06	8.82184E-05	1.6505065	3.638E-06	8.08855E-05	1.976836	4.357E-06	9.68778E-05
Road 10	10	0800-0900	0.37834786	1.597E-06	3.55019E-05	0.3451853	1.457E-06	3.23902E-05	1.8829425	7.946E-06	0.000176684	1.7115518	7.223E-06	0.000160602	2.0567371	8.68E-06	0.000192992
Road 10	10	0900-1000	0.415747096	1.392E-06	3.09563E-05	0.3838997	1.286E-06	2.8585E-05	2.017378	6.756E-06	0.000150213	1.8574127	6.22E-06	0.000138302	2.2413124	7.506E-06	0.000166887
Road 10	10	1000-1100	0.414759574	1.509E-06	3.35614E-05	0.3809185	1.386E-06	3.0823E-05	1.8871728	6.868E-06	0.000152706	1.7256284	6.28E-06	0.000139634	2.1065469	7.666E-06	0.000170457
Road 10	10	1100-1200	0.404419476	1.472E-06	3.27247E-05	0.3689211	1.343E-06	2.98522E-05	1.9064854	6.938E-06	0.000154268	1.7339501	6.31E-06	0.000140307	2.1028712	7.653E-06	0.000170159
Road 10	10	1200-1300	0.421061844	1.583E-06	3.51911E-05	0.3861642	1.452E-06	3.22744E-05	2.0107823	7.558E-06	0.000168055	1.8410449	6.92E-06	0.000153869	2.2272091	8.372E-06	0.000186143
Road 10	10	1300-1400	0.410700508	1.347E-06	2.99564E-05	0.3734935	1.225E-06	2.72426E-05	1.9173564	6.29E-06	0.000139852	1.7383412	5.703E-06	0.000126794	2.1118347	6.928E-06	0.000154037
Road 10	10	1400-1500	0.379084065	1.166E-06	2.59222E-05	0.3467964	1.067E-06	2.37143E-05	1.9036727	5.855E-06	0.000130175	1.7367085	5.341E-06	0.000118758	2.0835048	6.408E-06	0.000142472
Road 10	10	1500-1600	0.378493395	1.19E-06	2.6457E-05	0.3475925	1.093E-06	2.4297E-05	1.8288678	5.75E-06	0.000127839	1.6766983	5.271E-06	0.000117202	2.0242908	6.364E-06	0.000141499
Road 10	10	1600-1700	0.362654286	1.27E-06	2.8243E-05	0.3322626	1.164E-06	2.58761E-05	1.7814329	6.24E-06	0.000138735	1.626252	5.696E-06	0.00012665	1.9585145	6.86E-06	0.000152526
Road 10	10	1700-1800	0.336422106	1.104E-06	2.45386E-05	0.3073898	1.008E-06	2.2421E-05	1.7521857	5.748E-06	0.000127804	1.6008296	5.251E-06	0.000116764	1.9082194	6.26E-06	0.000139185
Road 10	10	1800-1900	0.343786206	7.107E-07	1.58029E-05	0.3135156	6.482E-07	1.44115E-05	1.7423706	3.602E-06	8.00921E-05	1.5873955	3.282E-06	7.29683E-05	1.9009111	3.93E-06	8.73798E-05
Road 10	10	1900-2000	0.299782297	5.583E-07	1.24136E-05	0.2730394	5.085E-07	1.13062E-05	1.5959392	2.972E-06	6.60856E-05	1.4504999	2.701E-06	6.00631E-05	1.7235393	3.21E-06	7.13693E-05
Road 10	10	2000-2100	0.350397286	4.31E-07	9.58422E-06	0.3184306	3.917E-07	8.70986E-06	1.7013248	2.093E-06	4.65354E-05	1.5436096	1.899E-06	4.22215E-05	1.8620402	2.291E-06	5.09314E-05
Road 10	10	2100-2200	0.286812252	3.528E-07	7.84502E-06	0.2638948	3.246E-07	7.21817E-06	1.6053162	1.975E-06	4.39093E-05	1.4765948	1.816E-06	4.03885E-05	1.7404896	2.141E-06	4.76067E-05
Road 10	10	2200-2300	0.306125998	3.923E-07	8.72218E-06	0.2803147	3.592E-07	7.98677E-06	1.57641	2.02E-06	4.49153E-05	1.443366	1.85E-06	4.11246E-05	1.7236807	2.209E-06	4.91113E-05
Road 10	10	2300-0000	0.281706774	3.369E-07	7.49133E-06	0.2567991	3.071E-07	6.82897E-06	1.4330351	1.714E-06	3.81082E-05	1.302525	1.558E-06	3.46376E-05	1.5593241	1.865E-06	4.14666E-05
Road 11	11	0000-0100	0.352889908	2.696E-07	2.23609E-06	0.320419	2.448E-07	2.03034E-06	1.775054	1.356E-06	1.12477E-05	1.6082669	1.229E-06	1.01908E-05	1.9286859	1.473E-06	1.22212E-05
Road 11	11	0100-0200	0.352470555	1.897E-07	1.57356E-06	0.3203862	1.724E-07	1.43032E-06	1.7444996	9.389E-07	7.78809E-06	1.581139	8.51E-07	7.05878E-06	1.9015252	1.023E-06	8.48911E-06
Road 11	11	0200-0300	0.30916159	8.051E-08	6.67844E-07	0.2797023	7.284E-08	6.04207E-07	1.6556387	4.312E-07	3.57647E-06	1.4951424	3.894E-07	3.22977E-06	1.7748447	4.622E-07	3.83398E-06
Road 11	11	0300-0400	0.331191758	8.05E-08	6.67737E-07	0.2992648	7.274E-08	6.03367E-07	1.735288	4.218E-07	3.49863E-06	1.5677503	3.811E-07	3.16084E-06	1.8670151	4.538E-07	3.76421E-06
Road 11	11	0400-0500	0.337946162	1.173E-07	9.73365E-07	0.310419	1.078E-07	8.9408E-07	1.6158917	5.611E-07	4.65415E-06	1.4781348	5.132E-07	4.25738E-06	1.7885539	6.21E-07	5.15146E-06
Road 11	11	0500-0600	0.272132532	1.276E-07	1.05814E-06	0.2493888	1.169E-07	9.69703E-07	1.4004943	6.565E-07	5.44557E-06	1.2774735	5.988E-07	4.96723E-06	1.5268623	7.157E-07	5.93693E-06
Road 11	11	0600-0700	0.294769236	2.661E-07	2.20741E-06	0.2702885	2.44E-07	2.02409E-06	1.548347	1.398E-06	1.1595E-05	1.4095565	1.273E-06	1.05556E-05	1.679845	1.517E-06	1.25797E-05
Road 11	11	0700-0800	0.346098133	6.489E-07	5.38296E-06	0.3171478	5.947E-07	4.93269E-06	1.817796	3.408E-06	2.82727E-05	1.658319	3.109E-06	2.57923E-05	1.9754668	3.704E-06	3.0725E-05

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Road 11	11	0800-0900	0.37349076	1.329E-06	1.10264E-05	0.3419674	1.217E-06	1.00957E-05	1.8579476	6.612E-06	5.48511E-05	1.6912719	6.019E-06	4.99304E-05	2.0332394	7.236E-06	6.00262E-05
Road 11	11	0900-1000	0.372775264	9.449E-07	7.83787E-06	0.3440838	8.722E-07	7.23461E-06	1.7796786	4.511E-06	3.7419E-05	1.6319032	4.136E-06	3.4312E-05	1.975987	5.009E-06	4.15466E-05
Road 11	11	1000-1100	0.386792521	7.991E-07	6.62862E-06	0.3546587	7.327E-07	6.07793E-06	1.8141009	3.748E-06	3.1089E-05	1.6561857	3.422E-06	2.83827E-05	2.0108444	4.154E-06	3.44607E-05
Road 11	11	1100-1200	0.342489997	7.968E-07	6.60923E-06	0.3114772	7.246E-07	6.01076E-06	1.7623914	4.1E-06	3.40099E-05	1.5992144	3.72E-06	3.0861E-05	1.9106916	4.445E-06	3.68717E-05
Road 11	11	1200-1300	0.41549949	1.176E-06	9.75341E-06	0.3807297	1.077E-06	8.93722E-06	2.0231552	5.725E-06	4.74914E-05	1.8490633	5.233E-06	4.34048E-05	2.229793	6.31E-06	5.2342E-05
Road 11	11	1300-1400	0.432542325	9.011E-07	7.47495E-06	0.3932057	8.192E-07	6.79515E-06	1.9595758	4.082E-06	3.38643E-05	1.7730968	3.694E-06	3.06416E-05	2.1663025	4.513E-06	3.74368E-05
Road 11	11	1400-1500	0.340469669	6.857E-07	5.68767E-06	0.3108281	6.26E-07	5.1925E-06	1.7121848	3.448E-06	2.86027E-05	1.5532118	3.128E-06	2.5947E-05	1.8640399	3.754E-06	3.11395E-05
Road 11	11	1500-1600	0.306160714	6.219E-07	5.15862E-06	0.280757	5.703E-07	4.73058E-06	1.5923582	3.234E-06	2.68303E-05	1.4554801	2.956E-06	2.45239E-05	1.7362371	3.527E-06	2.92545E-05
Road 11	11	1600-1700	0.29197543	7.046E-07	5.84466E-06	0.2674715	6.455E-07	5.35415E-06	1.5691934	3.787E-06	3.14116E-05	1.4330992	3.458E-06	2.86873E-05	1.7005707	4.104E-06	3.40414E-05
Road 11	11	1700-1800	0.29391675	7.246E-07	6.0105E-06	0.2675048	6.595E-07	5.47039E-06	1.6073999	3.963E-06	3.28708E-05	1.4608599	3.601E-06	2.98741E-05	1.7283647	4.261E-06	3.53445E-05
Road 11	11	1800-1900	0.317489538	6.504E-07	5.39523E-06	0.2887852	5.916E-07	4.90744E-06	1.6991513	3.481E-06	2.88744E-05	1.5451132	3.165E-06	2.62567E-05	1.8338984	3.757E-06	3.11642E-05
Road 11	11	1900-2000	0.303929994	4.802E-07	3.98303E-06	0.2758188	4.358E-07	3.61463E-06	1.5937694	2.518E-06	2.08865E-05	1.4403902	2.276E-06	1.88764E-05	1.716209	2.711E-06	2.2491E-05
Road 11	11	2000-2100	0.315531005	4.437E-07	3.68066E-06	0.2867675	4.033E-07	3.34513E-06	1.5813468	2.224E-06	1.84463E-05	1.4352469	2.018E-06	1.67421E-05	1.7220144	2.422E-06	2.00872E-05
Road 11	11	2100-2200	0.230190778	2.278E-07	1.88956E-06	0.2075081	2.053E-07	1.70337E-06	1.2925002	1.279E-06	1.06097E-05	1.1631573	1.151E-06	9.54798E-06	1.3706653	1.356E-06	1.12513E-05
Road 11	11	2200-2300	0.296335013	3.241E-07	2.68857E-06	0.2699264	2.952E-07	2.44897E-06	1.507774	1.649E-06	1.36796E-05	1.3688124	1.497E-06	1.24189E-05	1.6387388	1.792E-06	1.48679E-05
Road 11	11	2300-0000	0.28243863	2.942E-07	2.44047E-06	0.2576575	2.684E-07	2.22634E-06	1.4620071	1.523E-06	1.26328E-05	1.328989	1.384E-06	1.14834E-05	1.5866465	1.653E-06	1.37098E-05
Haul Road 1	HR1	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	0700-0800	1.47643	2.775E-06	4.1741E-06	1.34658	2.531E-06	3.807E-06	6.78481	1.275E-05	1.91817E-05	6.18784	1.163E-05	1.7494E-05	7.53442	1.416E-05	2.1301E-05
Haul Road 1	HR1	0800-0900	1.47444	2.772E-06	4.16848E-06	1.34099	2.521E-06	3.79119E-06	6.7756	1.274E-05	1.91557E-05	6.16224	1.158E-05	1.74216E-05	7.50323	1.41E-05	2.12128E-05
Haul Road 1	HR1	0900-1000	1.46754	2.759E-06	4.14897E-06	1.34229	2.523E-06	3.79487E-06	6.74402	1.268E-05	1.90664E-05	6.16843	1.159E-05	1.74391E-05	7.51072	1.412E-05	2.1234E-05
Haul Road 1	HR1	1000-1100	1.47104	2.765E-06	4.15887E-06	1.34109	2.521E-06	3.79148E-06	6.76021	1.271E-05	1.91122E-05	6.16284	1.158E-05	1.74233E-05	7.50393	1.411E-05	2.12148E-05
Haul Road 1	HR1	1100-1200	1.47593	2.774E-06	4.17269E-06	1.34059	2.52E-06	3.79006E-06	6.78271	1.275E-05	1.91758E-05	6.16074	1.158E-05	1.74174E-05	7.50133	1.41E-05	2.12075E-05
Haul Road 1	HR1	1200-1300	1.47803	2.778E-06	4.17863E-06	1.34449	2.527E-06	3.80109E-06	6.7919	1.277E-05	1.92018E-05	6.17853	1.161E-05	1.74677E-05	7.52302	1.414E-05	2.12688E-05
Haul Road 1	HR1	1300-1400	1.48063	2.783E-06	4.18598E-06	1.33279	2.505E-06	3.76801E-06	6.8039	1.279E-05	1.92357E-05	6.12455	1.151E-05	1.73151E-05	7.45734	1.402E-05	2.10831E-05
Haul Road 1	HR1	1400-1500	1.47494	2.772E-06	4.16989E-06	1.33279	2.505E-06	3.76801E-06	6.7779	1.274E-05	1.91622E-05	6.12455	1.151E-05	1.73151E-05	7.45734	1.402E-05	2.10831E-05
Haul Road 1	HR1	1500-1600	1.46934	2.762E-06	4.15406E-06	1.34059	2.52E-06	3.79006E-06	6.75231	1.269E-05	1.90899E-05	6.16074	1.158E-05	1.74174E-05	7.50133	1.41E-05	2.12075E-05
Haul Road 1	HR1	1600-1700	1.47014	2.763E-06	4.15632E-06	1.33289	2.505E-06	3.76829E-06	6.75601	1.27E-05	1.91003E-05	6.12525	1.151E-05	1.73171E-05	7.45814	1.402E-05	2.10854E-05
Haul Road 1	HR1	1700-1800	1.47534	2.773E-06	4.17102E-06	1.33019	2.5E-06	3.76066E-06	6.78	1.274E-05	1.91681E-05	6.11296	1.149E-05	1.72823E-05	7.44315	1.399E-05	2.1043E-05
Haul Road 1	HR1	1800-1900	1.47534	2.773E-06	4.17102E-06	1.33209	2.504E-06	3.76603E-06	6.78	1.274E-05	1.91681E-05	6.12156	1.151E-05	1.73066E-05	7.45365	1.401E-05	2.10727E-05
Haul Road 1	HR1	1900-2000	1.47274	2.768E-06	4.16367E-06	1.32529	2.491E-06	3.74681E-06	6.768	1.272E-05	1.91342E-05	6.09037	1.145E-05	1.72185E-05	7.41566	1.394E-05	2.09653E-05
Haul Road 1	HR1	2000-2100	1.47014	2.763E-06	4.15632E-06	1.33139	2.503E-06	3.76405E-06	6.75601	1.27E-05	1.91003E-05	6.11836	1.15E-05	1.72976E-05	7.44975	1.4E-05	2.10616E-05
Haul Road 1	HR1	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 1	HR1	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	0700-0800	1.47643	1.912E-06	5.09082E-06	1.34658	1.744E-06	4.64309E-06	6.78481	8.789E-06	2.33944E-05	6.18784	8.015E-06	2.1336E-05	7.53442	9.76E-06	2.59791E-05
Haul Road 2	HR2	0800-0900	1.47444	1.91E-06	5.08396E-06	1.34099	1.737E-06	4.62381E-06	6.7756	8.777E-06	2.33627E-05	6.16224	7.982E-06	2.12478E-05	7.50323	9.719E-06	2.58716E-05
Haul Road 2	HR2	0900-1000	1.46754	1.901E-06	5.06017E-06	1.34229	1.739E-06	4.6283E-06	6.74402	8.736E-06	2.32538E-05	6.16843	7.99E-06	2.12691E-05	7.51072	9.729E-06	2.58974E-05
Haul Road 2	HR2	1000-1100	1.47104	1.905E-06	5.07223E-06	1.34109	1.737E-06	4.62416E-06	6.76021	8.757E-06	2.33096E-05	6.16284	7.983E-06	2.12498E-05	7.50393	9.72E-06	2.5874E-05
Haul Road 2	HR2	1100-1200	1.47593	1.912E-06	5.0891E-06	1.34059	1.737E-06	4.62244E-06	6.78271	8.786E-06	2.33872E-05	6.16074	7.98E-06	2.12426E-05	7.50133	9.717E-06	2.5865E-05
Haul Road 2	HR2	1200-1300	1.47803	1.915E-06	5.09634E-06	1.34449	1.742E-06	4.63588E-06	6.7919	8.798E-06	2.34189E-05	6.17853	8.003E-06	2.13039E-05	7.52302	9.745E-06	2.59398E-05
Haul Road 2	HR2	1300-1400	1.48063	1.918E-06	5.1053E-06	1.33279	1.726E-06	4.59554E-06	6.8039	8.813E-06	2.34603E-05	6.12455	7.933E-06	2.11178E-05	7.45734	9.66E-06	2.57134E-05
Haul Road 2	HR2	1400-1500	1.47494	1.911E-06	5.08568E-06	1.33279	1.726E-06	4.59554E-06	6.7779	8.78E-06	2.33706E-05	6.12455	7.933E-06	2.11178E-05	7.45734	9.66E-06	2.57134E-05
Haul Road 2	HR2	1500-1600	1.46934	1.903E-06	5.06637E-06	1.34059	1.737E-06	4.62244E-06	6.75231	8.747E-06	2.32824E-05	6.16074	7.98E-06	2.12426E-05	7.50133	9.717E-06	2.5865E-05
Haul Road 2	HR2	1600-1700	1.47014	1.904E-06	5.06913E-06	1.33289	1.727E-06	4.59588E-06	6.75601	8.751E-06	2.32951E-05	6.12525	7.934E-06	2.11202E-05	7.45814	9.661E-06	2.57161E-05
Haul Road 2	HR2	1700-1800	1.47534	1.911E-06	5.08706E-06	1.33019	1.723E-06	4.58658E-06	6.78	8.782E-06	2.33778E-05	6.11296	7.918E-06	2.10779E-05	7.44315	9.641E-06	2.56644E-05
Haul Road 2	HR2	1800-1900	1.47534	1.911E-06	5.08706E-06	1.33209	1.726E-06	4.59313E-06	6.78	8.782E-06	2.33778E-05	6.12156	7.929E-06	2.11075E-05	7.45365	9.655E-06	2.57006E-05
Haul Road 2	HR2	1900-2000	1.47274	1.908E-06	5.0781E-06	1.32529	1.717E-06	4.56968E-06	6.768	8.767E-06	2.33365E-05	6.09037	7.889E-06	2.1E-05	7.41566	9.606E-06	2.55696E-05
Haul Road 2	HR2	2000-2100	1.47014	1.904E-06	5.06913E-06	1.33139	1.725E-06	4.59071E-06	6.75601	8.751E-06	2.32951E-05	6.11836	7.925E-06	2.10965E-05	7.44975	9.65E-06	2.56872E-05
Haul Road 2	HR2	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3.4 Calculation of Vehicular Emisisons

Open Road 24 hour Emission Factors for AERMOD model (December) Year 2027

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
Haul Road 2	HR2	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 2	HR2	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0000-0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0100-0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0200-0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0500-0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	0700-0800	1.47643	1.912E-06	5.08372E-06	1.34658	1.744E-06	4.63662E-06	6.78481	8.789E-06	2.33618E-05	6.18784	8.015E-06	2.13063E-05	7.53442	9.76E-06	2.59429E-05
Haul Road 3	HR3	0800-0900	1.47444	1.91E-06	5.07687E-06	1.34099	1.737E-06	4.61737E-06	6.7756	8.777E-06	2.33301E-05	6.16224	7.982E-06	2.12182E-05	7.50323	9.719E-06	2.58355E-05
Haul Road 3	HR3	0900-1000	1.46754	1.901E-06	5.05311E-06	1.34229	1.739E-06	4.62184E-06	6.74402	8.736E-06	2.32214E-05	6.16843	7.99E-06	2.12395E-05	7.51072	9.729E-06	2.58613E-05
Haul Road 3	HR3	1000-1100	1.47104	1.905E-06	5.06516E-06	1.34109	1.737E-06	4.61771E-06	6.76021	8.757E-06	2.32771E-05	6.16284	7.983E-06	2.12202E-05	7.50393	9.72E-06	2.58379E-05
Haul Road 3	HR3	1100-1200	1.47593	1.912E-06	5.082E-06	1.34059	1.737E-06	4.61599E-06	6.78271	8.786E-06	2.33546E-05	6.16074	7.98E-06	2.1213E-05	7.50133	9.717E-06	2.5829E-05
Haul Road 3	HR3	1200-1300	1.47803	1.915E-06	5.08923E-06	1.34449	1.742E-06	4.62942E-06	6.7919	8.798E-06	2.33862E-05	6.17853	8.003E-06	2.12742E-05	7.52302	9.745E-06	2.59037E-05
Haul Road 3	HR3	1300-1400	1.48063	1.918E-06	5.09818E-06	1.33279	1.726E-06	4.58913E-06	6.8039	8.813E-06	2.34275E-05	6.12455	7.933E-06	2.10884E-05	7.45734	9.66E-06	2.56775E-05
Haul Road 3	HR3	1400-1500	1.47494	1.911E-06	5.07859E-06	1.33279	1.726E-06	4.58913E-06	6.7779	8.78E-06	2.3338E-05	6.12455	7.933E-06	2.10884E-05	7.45734	9.66E-06	2.56775E-05
Haul Road 3	HR3	1500-1600	1.46934	1.903E-06	5.05931E-06	1.34059	1.737E-06	4.61599E-06	6.75231	8.747E-06	2.32499E-05	6.16074	7.98E-06	2.1213E-05	7.50133	9.717E-06	2.5829E-05
Haul Road 3	HR3	1600-1700	1.47014	1.904E-06	5.06206E-06	1.33289	1.727E-06	4.58948E-06	6.75601	8.751E-06	2.32627E-05	6.12525	7.934E-06	2.10908E-05	7.45814	9.661E-06	2.56803E-05
Haul Road 3	HR3	1700-1800	1.47534	1.911E-06	5.07997E-06	1.33019	1.723E-06	4.58018E-06	6.78	8.782E-06	2.33453E-05	6.11296	7.918E-06	2.10485E-05	7.44315	9.641E-06	2.56286E-05
Haul Road 3	HR3	1800-1900	1.47534	1.911E-06	5.07997E-06	1.33209	1.726E-06	4.58672E-06	6.78	8.782E-06	2.33453E-05	6.12156	7.929E-06	2.10781E-05	7.45365	9.655E-06	2.56648E-05
Haul Road 3	HR3	1900-2000	1.47274	1.908E-06	5.07102E-06	1.32529	1.717E-06	4.56331E-06	6.768	8.767E-06	2.33039E-05	6.09037	7.889E-06	2.09707E-05	7.41566	9.606E-06	2.5534E-05
Haul Road 3	HR3	2000-2100	1.47014	1.904E-06	5.06206E-06	1.33139	1.725E-06	4.58431E-06	6.75601	8.751E-06	2.32627E-05	6.11836	7.925E-06	2.10671E-05	7.44975	9.65E-06	2.56514E-05
Haul Road 3	HR3	2100-2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2200-2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road 3	HR3	2300-0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Forecast for Air Quality Impact Assessment for Section 16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Tsing Yi Town Lots Nos. 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

INDEX PLAN

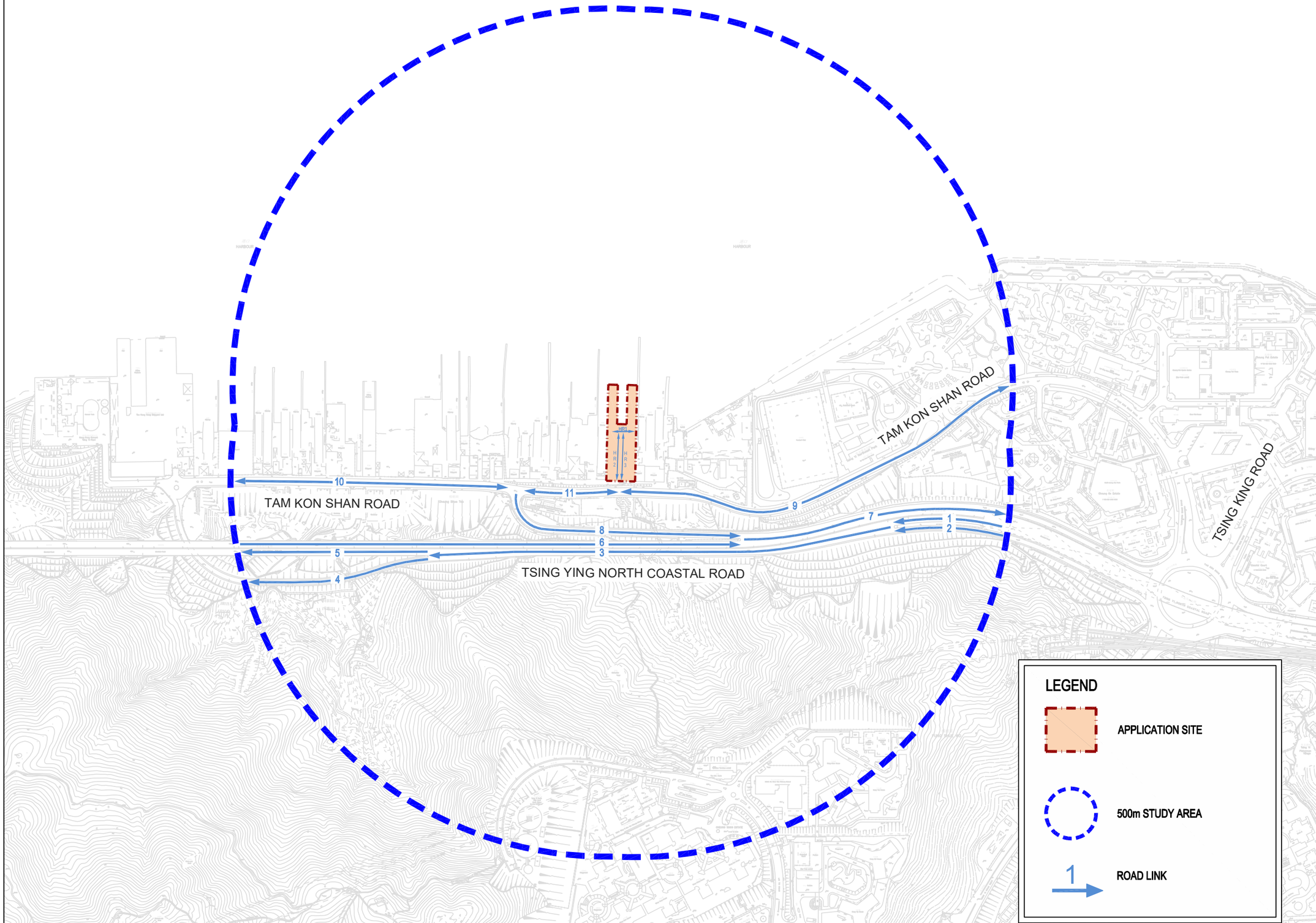


FIGURE 1.1

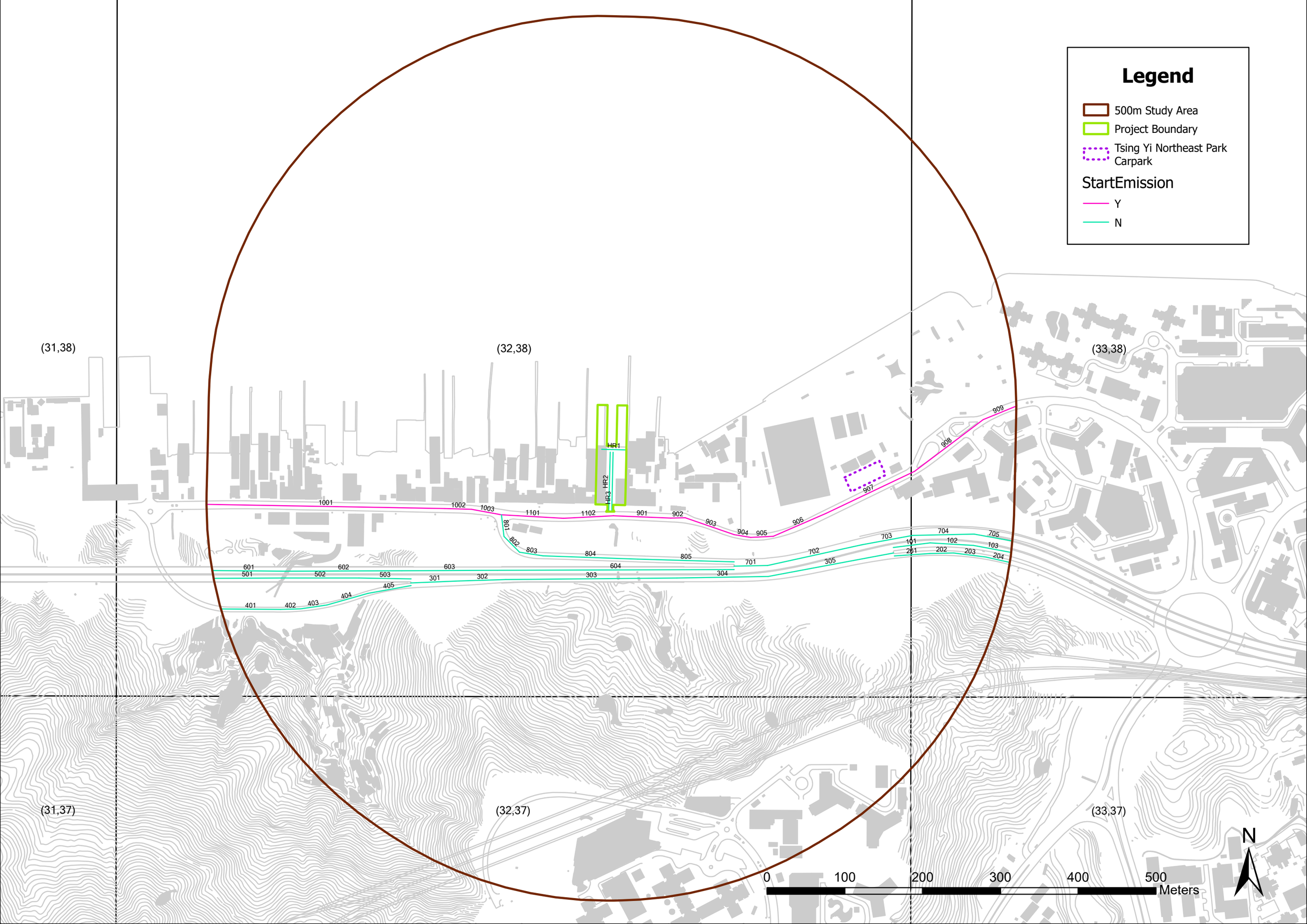
Scale : 1:5000 (A3)

Date : NOV 2024

Rev. : A

AXON CONSULTANCY
http://www.axonhk.com

C:\USERS\USER\DESKTOP\31048\DATA\DRAWING\FIGURE 1.1.DWG


Legend
500m Study Area
Project Boundary
Tsing Yi Northeast Park Carpark
StartEmission
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(32,37)
(33,37)
HR1
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From: [redacted]
Sent: Wednesday, March 19, 2025 11:15 AM
To: [redacted]
Subject: RE: Traffic Forecast Methodology for Air Quality Impact Assessment

Dear [redacted]

Thank you for your prompt response. Please be advised that the methodology for the traffic forecast remains consistent with that adopted in the Traffic Impact Assessment for the aforementioned project.

Should you require any further information, please let us know.

Yours sincerely,
[redacted]

AXON

AXON Engineering and Consulting Ltd.
Unit 209, 2/F, No. 19 Science Park West Avenue
Hong Kong Science Park, Shatin, Hong Kong
Office: 2258 6392 Fax: 3020 0321
Office: 2258 6392 Fax: 3020 0321
Email: info@axonhk.com
Homepage: http://www.axonhk.com

From: [redacted]
Sent: Wednesday, March 19, 2025 11:12 AM
To: [redacted]
Subject: Re: Traffic Forecast Methodology for Air Quality Impact Assessment

Dear [redacted]

Please note that Environmental Assessment is not under our purview. We are not in a position to provide comments on the traffic figures tailor-made for the environmental assessment purposes.

Notwithstanding the above, we have no objection in principle to the methodology for traffic forecast provided that it is the same as that adopted in the traffic impact assessment for the captioned project.

Regards,
[redacted]
E/TY,TD

From: [redacted]
To:
Cc: [redacted]
Date: 19/03/2025 11:09 AM

Subject: Traffic Forecast Methodology for Air Quality Impact Assessment

Dear [redacted]

We are the traffic consultant for the Proposed CBP Development at Tam Kon Shan Road, Tsing Yi. As noted in our environmental consultant's correspondence with the Environmental Protection Department (EPD), an Environmental Assessment (EA) has been submitted, in which traffic data has been adopted as part of the Air Quality Impact Assessment.

In this regard, please find attached the proposed methodology for forecasting traffic data, which is solely for use in the Air Quality Impact Assessment, for your review and consideration. Grateful if you could advise whether you have any in-principle objection to the methodology.

Thank you for your time and cooperation.

Yours sincerely,

[redacted]

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[attachment "31048-R03-01.pdf" deleted by [redacted]/TD/HKSARG]

APPENDIX 3.5

Calculation of Marine Emissions

Description of Marine Routes

Marine Traffic

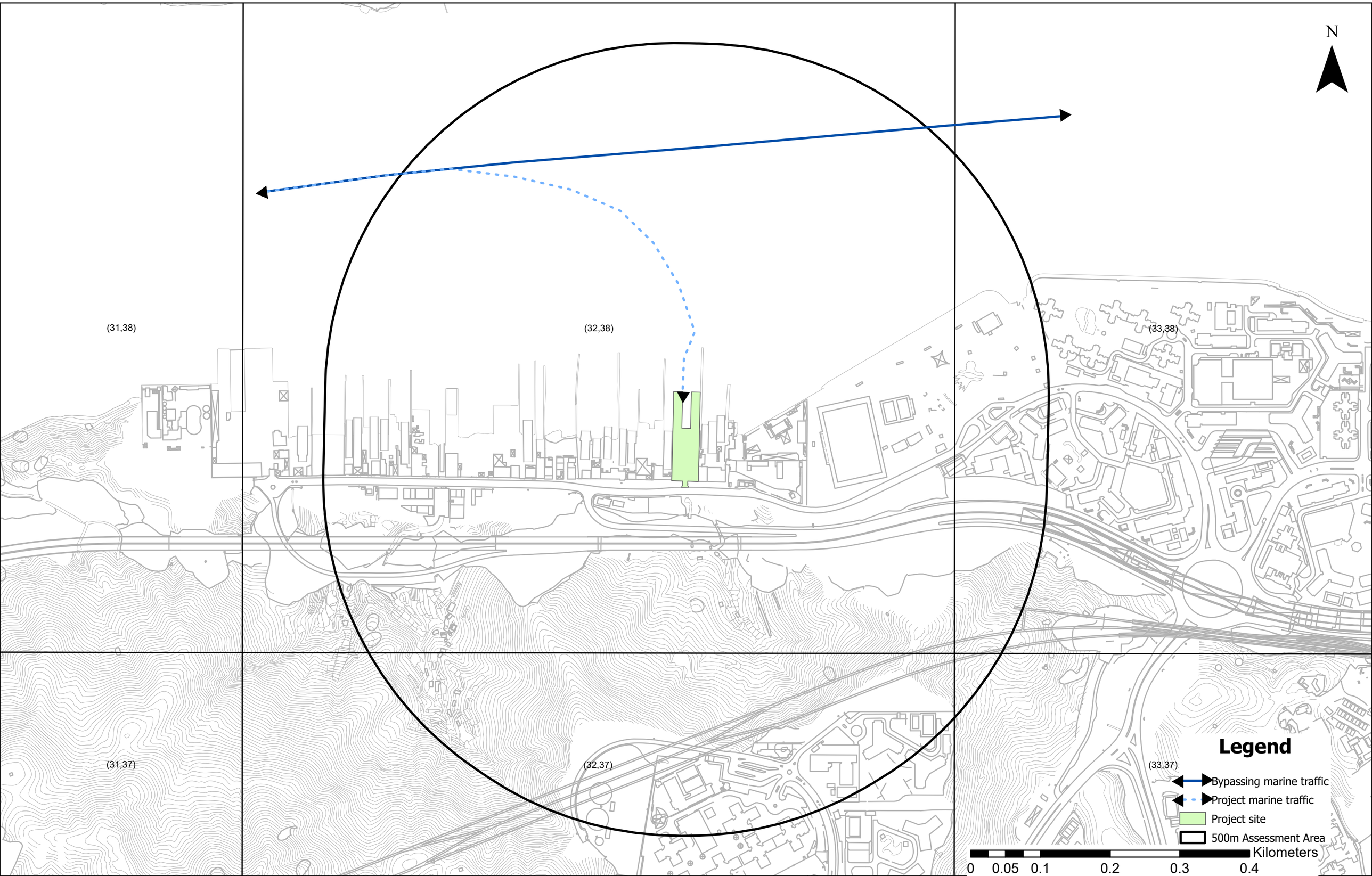
Route 1 is located to the north of the CBP, and the vessels that travel on it are mainly river trade vessels, tug and tows, local ferries, fast launches, small crafts and ocean-going vessels.
The information about Route 1 are obtained by site surveys conducted by Marine Consultant.
Despite the actual routes, all general marine vessels are considered travelling in the water at the nearest and safe distance (i.e. Route 1) from the project site/nearby shipyards.

The bypassing marine traffic consists of the following vessel types:
- River trade vessels: Fully Cellular Container Vessel (RTV01), Dry Bulk Carrier (RTV03)
- Fast launches (FL01)
- Tug and tows (TT01)
- Local ferries (LF01)
- Small crafts: Pleasure Vessel (SC01)
- Ocean-going vessels: Gas Carrier/Tanker (OGV06), Chemical Carrier/Tanker (OGV07), Oil Tanker (OGV08)

The marine traffic induced by the Project consists of the following vessel types:
- River trade vessels: Dry Bulk Carrier (RTV03M, RTV03H, for transporting aggregates), Chemical Carrier/Tanker (RTV07M, RTV07H, for transporting cement)

Appendix 3.5 Calculation of Marine Emissions

Marine Route Map



Marine Traffic

Hourly distribution by vessel type on each route - Future 2026

Route #	ShipType	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
1	OGV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	1.75	2.25	2.25	3.17	3.92	2.75	1.00	1.25	1.33	1.08	0.58	0.00	0.00	0.00	0.00	0.00	23.42
1	RTV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.92	1.42	1.42	1.75	4.42	3.50	1.92	3.08	0.83	0.67	1.67	0.00	0.00	0.00	0.00	0.00	23.00
1	TT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.67	0.25	0.33	0.83	0.50	0.33	0.42	0.08	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	4.25
1	LF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.83	3.75	1.25	2.00	0.00	0.00	2.00	0.00	0.00	2.00	1.92	2.42	0.00	0.00	0.00	0.00	0.00	21.17
1	FL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.04	10.12	3.66	3.66	3.84	3.31	2.44	3.84	3.92	3.14	7.06	13.60	0.00	0.00	0.00	0.00	0.00	70.64
1	SC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.72	6.27	5.67	9.53	7.73	11.25	6.95	5.84	9.19	10.30	11.25	6.61	0.00	0.00	0.00	0.00	0.00	95.30

Hourly distribution by vessel type on each route - Future 2028

Route #	ShipType	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
1	OGV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	1.75	2.25	2.25	3.17	3.92	2.75	1.00	1.25	1.33	1.08	0.58	0.00	0.00	0.00	0.00	0.00	23.42
1	RTV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.92	1.42	1.42	1.75	4.42	3.50	1.92	3.08	0.83	0.67	1.67	0.00	0.00	0.00	0.00	0.00	23.00
1	TT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.67	0.25	0.33	0.83	0.50	0.33	0.42	0.08	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	4.25
1	LF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.83	3.75	1.25	2.00	0.00	0.00	2.00	0.00	0.00	2.00	1.92	2.42	0.00	0.00	0.00	0.00	0.00	21.17
1	FL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.60	10.59	3.83	3.83	4.02	3.47	2.56	4.02	4.11	3.29	7.39	14.24	0.00	0.00	0.00	0.00	0.00	73.93
1	SC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.86	6.46	5.84	9.82	7.96	11.59	7.16	6.01	9.46	10.61	11.59	6.81	0.00	0.00	0.00	0.00	0.00	98.18

Hourly distribution by vessel type on each route - Future 2030

Route #	ShipType	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
1	OGV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	1.75	2.25	2.25	3.17	3.92	2.75	1.00	1.25	1.33	1.08	0.58	0.00	0.00	0.00	0.00	0.00	23.42
1	RTV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.92	1.42	1.42	1.75	4.42	3.50	1.92	3.08	0.83	0.67	1.67	0.00	0.00	0.00	0.00	0.00	23.00
1	TT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.67	0.25	0.33	0.83	0.50	0.33	0.42	0.08	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	4.25
1	LF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.83	3.75	1.25	2.00	0.00	0.00	2.00	0.00	0.00	2.00	1.92	2.42	0.00	0.00	0.00	0.00	0.00	21.17
1	FL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.18	11.08	4.01	4.01	4.20	3.63	2.67	4.20	4.30	3.44	7.74	14.90	0.00	0.00	0.00	0.00	0.00	77.37
1	SC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.01	6.65	6.01	10.11	8.20	11.94	7.38	6.20	9.75	10.93	11.94	7.02	0.00	0.00	0.00	0.00	0.00	101.14

Remark

1. The marine traffics are provided by engineers and endorsed by Marine Department.
2. Marine traffic data for Year 2030 are adopted for assessment, as it represents the highest traffic volume within the five-year Project period and reflects the worst-case scenario.

Speed Distribution

Speed distribution by vessel type (Route 1)

Speed Range (knots)	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	10 - 12	12 - 14	14 - 16	16 - 18	18 - 20	20 - 22	22 - 24	24 - 26	26 - 28	28 - 30	30 - 32	32 - 34	34 - 36	36 - 38	38 - 40	40 - 42	42 - 44	44 - 46	46 - 48	48 - 50	Total
Speed Median (knots)	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	
OGV	0.90%	4.50%	3.60%	5.41%	10.81%	8.11%	21.62%	22.52%	8.11%	6.31%	1.80%	0.90%	0.90%	0.00%	0.00%	0.00%	0.90%	0.00%	0.90%	0.00%	0.00%	0.90%	0.90%	0.00%	0.90%	100.00%
RTV	0.00%	0.00%	0.00%	0.00%	6.94%	31.94%	33.33%	18.06%	6.94%	0.00%	0.00%	0.00%	1.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%	100.00%
TT	0.00%	0.00%	0.00%	0.00%	33.33%	0.00%	33.33%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
LF	0.00%	0.00%	5.26%	0.00%	0.00%	0.00%	0.00%	13.16%	2.63%	21.05%	7.89%	21.05%	10.53%	7.89%	5.26%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.26%	100.00%
FL	3.13%	3.13%	0.00%	1.56%	3.13%	4.69%	12.50%	12.50%	10.94%	9.38%	3.13%	3.13%	6.25%	3.13%	1.56%	3.13%	3.13%	0.00%	0.00%	3.13%	0.00%	1.56%	0.00%	1.56%	9.38%	100.00%
SC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.53%	21.05%	31.58%	26.32%	5.26%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.26%	100.00%

Remark

1. The speed distributions are provided by marine consultants and endorsed by Marine Department.

Operation Mode by Vessel Speed

Vessel Speed	Operation Mode
0	Hotelling
1	Maneuvering
8	Slow Cruise
12	Fairway Cruise

Vessel Information by Vessel

Vessel Category	Vessel Type [1,2]	Vessel Type (MVEIS) [3]	Vessel Class [4,5]	Number of Vessels / Arrivals [5]	Proportion of Arrivals by vessel type
RTV	Fully Cellular Container Vessel	Fully Cellular Container Vessel	-	23813	80.13%
RTV	Dry Bulk Carrier	Dry Bulk Carrier	-	5905	19.87%
Subtotal	**-**	**-**	**-**	**29718**	**100.00%**
FL	Fast Launch	Others (GRT >=1000)	-	-	100.00%
Subtotal	**-**	**-**	**-**	**-**	**100.00%**
TT	Tug	Tug	-	-	100.00%
Subtotal	**-**	**-**	**-**	**-**	**100.00%**
LF	Local Ferry	Local Ferry	-	-	100.00%
Subtotal	**-**	**-**	**-**	**-**	**100.00%**
SC	Pleasure Vessel	Pleasure Vessel	Class IV	12553	100.00%
Subtotal	**-**	**-**	**-**	**12553**	**100.00%**
OGV	Gas Carrier/Tanker	Gas Carrier/Tanker	-	292	21.50%
OGV	Chemical Carrier/Tanker	Chemical Carrier/Tanker	-	480	35.35%
OGV	Oil Tanker	Oil Tanker	-	586	43.15%
Subtotal	**-**	**-**	**-**	**1358**	**100.00%**

Remark

1. Marine traffic consultant has not further breakdown the marine traffic data of OGV into various vessel types. Therefore, vessel types catalogized by the Marine Department is adopted to breakdown the marine traffic data (https://www.mardep.gov.hk/filemanager/en/share/fact/pdf/portstat_2_y_a2.pdf).
2. According to data from marine consultants, tugs and cross boundary ferry are classified as an independent vessel type and are consequently excluded from calculation of marine emission of RTV.
3. Classification of vessel type refers to Table 3-2 and Table 4-1 of MVEIS, Fast Launch is classifed as "Others (GRT >= 1000)" as a conservative estimation .
4. The vessel class refer to Cap. 548D MERCHANT SHIPPING (LOCAL VESSELS) (CERTIFICATION AND LICENSING) REGULATION – SCHEDULE 1 Class and Type of Local Vessel (https://www.elegislation.gov.hk/hk/cap548D!en@2014-03-03T00:00:00).
5. Number of vessels / arrivals refers to statistics published by Marine Department.
- For RTV and OGV, the number of arrivals refers to Table 3 in Port of Hong Kong Statistical Tables 2023 (https://www.mardep.gov.hk/filemanager/en/share/fact/pdf/portstat_ast_2023.pdf).
- For Small Crafts (SC), the number of licensed vessels in refer to Table 24 in Port of Hong Kong Statistical Tables 2023 (https://www.mardep.gov.hk/filemanager/en/share/fact/pdf/portstat_ast_2023.pdf).

Hourly Traffic Volume of Marine Traffic

Route #
1

Hourly Traffic Volume

Vessel ID	Vessel Category	Vessel Type	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV01	RTV	Fully Cellular Container Vessel	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV03	RTV	Dry Bulk Carrier	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_FL01	FL	Fast Launch	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_TT01	TT	Tug	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_LF01	LF	Local Ferry	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_SC01	SC	Pleasure Vessel	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_OGV06	OGV	Gas Carrier/Tanker	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07	OGV	Chemical Carrier/Tanker	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV08	OGV	Oil Tanker	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_RTV03M	RTV	Dry Bulk Carrier	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV07M	RTV	Chemical Carrier/Tanker	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV03H	RTV	Dry Bulk Carrier	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	0
R1_RTV07H	RTV	Chemical Carrier/Tanker	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0

Remark

1. The hourly traffic volume of a vessel type is obtained by the following formula:
hourly traffic volume = traffic data x proportion of arrivals

2. The hourly traffic volume for each vessel ID is used as their hourly profile in air dispersion modelling.

3. Maneuvering is assumed for RTV03 during 7:00-8:00, 11:00-12:00, 15:00-16:00 and 19:00-20:00, and for RTV07 during 11:00-12:00 and 15:00-16:00.

4. Hotelling is assumed for RTV03 during 7:00-13:00 and 15:00-19:00, and for RTV07 during 11:00-15:00.

Load Factor by Vessel

Vessel Category	Vessel Type	Engine Category	GRT/DWT/PAX Sub-group	Fairway Cruise	Slow Cruise	Maneuvering	Hotelling
RTV	Fully Cellular Container Vessel	Main Engine	GRT >= 1000	0.450	0.450	0.300	0.000
RTV	Dry Bulk Carrier	Main Engine	GRT >= 1000	0.450	0.450	0.300	0.000
RTV	Chemical Carrier/Tanker	Main Engine	GRT >= 1000	0.450	0.450	0.300	0.000
RTV	Fully Cellular Container Vessel	Auxiliary Engine	GRT >= 1000	0.430	0.430	0.430	0.430
RTV	Dry Bulk Carrier	Auxiliary Engine	GRT >= 1000	0.430	0.430	0.430	0.430
RTV	Chemical Carrier/Tanker	Auxiliary Engine	GRT >= 1000	0.430	0.430	0.430	0.430
FL	Fast Launch	Main Engine	-	0.450	0.450	0.300	0.000
TT	Tug	Main Engine	-	0.310	0.310	0.300	0.000
TT	Tug	Auxiliary Engine	-	0.430	0.430	0.430	0.430
FL	Fast Launch	Auxiliary Engine	-	0.450	0.450	0.450	0.450
LF	Local Ferry	Main Engine	-	0.800	0.600	0.300	0.000
LF	Local Ferry	Auxiliary Engine	-	0.450	0.450	0.450	0.450
SC	Pleasure Vessel	Main Engine	-	-	0.210	0.020	-
SC	Pleasure Vessel	Auxiliary Engine	-	-	0.320	0.320	0.320
OGV	Gas Carrier/Tanker	Main Engine	DWT >= 40000	-	0.375	0.025	-
OGV	Chemical Carrier/Tanker	Main Engine	DWT >= 40000	-	0.396	0.024	-
OGV	Oil Tanker	Main Engine	DWT >= 120000	-	0.382	0.023	-
OGV	Gas Carrier/Tanker	Auxiliary Engine	DWT >= 40000	-	0.273	0.322	0.244
OGV	Chemical Carrier/Tanker	Auxiliary Engine	DWT >= 40000	-	0.297	0.350	0.265
OGV	Oil Tanker	Auxiliary Engine	DWT >= 120000	-	0.283	0.334	0.253

Remark

1. The load factors refers to MVEIS:

- Load factors of main engine of RTV (Table 4-7)
- Load factors of auxiliary engine of RTV (Table 4-10)
- Load factors of main engine of Fast Launch (Table 4-7)
- Load factors of auxiliary engine of Fast Launch (Table 4-10)
- Load factors of main engine of Tug (Table 4-7)
- Load factors of auxiliary engine of Tug (Table 4-10)
- Load factors of main engine of Local Ferry (Table 4-9)
- Load factors of main engine of Local Ferry (Table 4-10)
- Load factors of main engine of Pleasure Vessel of Small Crafts (Table 3-18)
- Load factors of auxiliary engine of Pleasure Vessel of Small Crafts (Table 3-21)
- Load factors of main engine of OGV (Table 3-18)
- Load factors of auxiliary engine of OGV (Table 3-21)

Emission Factors by Vessel

Vessel Category	Vessel Type [1,2]	Vessel Type (MVEIS) [3]	Vessel Class [4]	Route	Route Code	Engine Category	Engine Type [5,6]	Fuel [7,8]	GRT/DWT/PAX Sub-group [9,10]	Vessel Calls [11]	Proportion of each engine type [12]	Engine Power (kW) [13]	Baseline Specific Fuel Consumption (g/kWh) [14]	NOx Emission Factors (g/kWh) [15]	SO_2 Emission Factors (g/kWh) [16]	RSP Emission Factors (g/kWh) [17]	FSP Emission Factor (g/kWh) [18]
RTV	Fully Cellular Container Vessel	-	-	-	1	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	GRT >= 1000	-	100.00%	704.00	213.00	10.00	2.08	0.32	0.31
RTV	Fully Cellular Container Vessel	-	-	-	1	Auxiliary Engine	-	-	GRT >= 1000	-	100.00%	115.00	213.00	10.00	2.08	0.32	0.31
RTV	Dry Bulk Carrier	-	-	-	1	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	GRT >= 1000	-	100.00%	744.00	213.00	10.00	2.08	0.32	0.31
RTV	Dry Bulk Carrier	-	-	-	1	Auxiliary Engine	-	-	GRT >= 1000	-	100.00%	115.00	213.00	10.00	2.08	0.32	0.31
RTV	Chemical Carrier/Tanker	-	-	-	1	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	GRT >= 1000	-	100.00%	1565.00	213.00	13.20	2.08	0.32	0.31
RTV	Chemical Carrier/Tanker	-	-	-	1	Auxiliary Engine	-	-	GRT >= 1000	-	100.00%	375.00	213.00	10.00	2.08	0.32	0.31
TT	Tug	Tug	-	-	1	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	2344.00	213.00	13.20	0.21	0.17	0.16
TT	Tug	Tug	-	-	1	Auxiliary Engine	-	-	-	-	100.00%	520.00	213.00	10.00	0.21	0.17	0.16
FL	Fast Launch	Others (GRT >=1000)	-	-	1	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	GRT >= 1000	-	100.00%	707.00	213.00	10.00	0.21	0.17	0.16
FL	Fast Launch	Others (GRT >=1000)	-	-	1	Auxiliary Engine	-	-	GRT >= 1000	-	100.00%	115.00	213.00	10.00	0.21	0.17	0.16
SC	Pleasure Vessel	Pleasure Vessel	Class IV	-	1	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	786.00	213.00	10.00	0.21	0.17	0.16
SC	Pleasure Vessel	Pleasure Vessel	Class IV	-	1	Auxiliary Engine	-	-	-	-	100.00%	60.00	213.00	13.90	0.21	0.17	0.16
OGV	Gas Carrier/Tanker	-	-	-	1	Main Engine	SSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	55	16.08%	3364.00	205.00	17.00	2.00	0.31	0.29
OGV	Gas Carrier/Tanker	-	-	-	1	Main Engine	MSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	276	80.70%	3364.00	215.00	13.00	2.10	0.32	0.29
OGV	Gas Carrier/Tanker	-	-	-	1	Main Engine	HSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	10	2.92%	3364.00	225.00	9.80	2.20	0.32	0.30
OGV	Gas Carrier/Tanker	-	-	-	1	Main Engine	ST	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	1	0.29%	3364.00	340.00	2.10	3.32	0.37	0.34
OGV	Gas Carrier/Tanker	-	-	-	1	Auxiliary Engine	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	709.80	225.00	11.20	2.20	0.32	0.30
OGV	Gas Carrier/Tanker	-	-	-	1	Auxiliary Boiler	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	371.00	340.00	2.10	3.32	0.37	0.34
OGV	Chemical Carrier/Tanker	-	-	-	1	Main Engine	SSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	119	26.33%	3515.00	205.00	17.00	2.00	0.31	0.29
OGV	Chemical Carrier/Tanker	-	-	-	1	Main Engine	MSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	313	69.25%	3515.00	215.00	13.00	2.10	0.32	0.29
OGV	Chemical Carrier/Tanker	-	-	-	1	Main Engine	HSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 40000	20	4.42%	3515.00	225.00	9.80	2.20	0.32	0.30
OGV	Chemical Carrier/Tanker	-	-	-	1	Auxiliary Engine	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	741.67	225.00	11.20	2.20	0.32	0.30
OGV	Chemical Carrier/Tanker	-	-	-	1	Auxiliary Boiler	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	371.00	340.00	2.10	3.32	0.37	0.34
OGV	Oil Tanker	-	-	-	1	Main Engine	SSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 120000	682	48.71%	5652.00	205.00	17.00	2.00	0.31	0.29
OGV	Oil Tanker	-	-	-	1	Main Engine	MSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 120000	645	46.07%	5652.00	215.00	13.00	2.10	0.32	0.29
OGV	Oil Tanker	-	-	-	1	Main Engine	HSD	Fuel with sulphur content not exceeding 0.5%	DWT >= 120000	73	5.21%	5652.00	225.00	9.80	2.20	0.32	0.30
OGV	Oil Tanker	-	-	-	1	Auxiliary Engine	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	1192.57	225.00	11.20	2.20	0.32	0.30
OGV	Oil Tanker	-	-	-	1	Auxiliary Boiler	-	Fuel with sulphur content not exceeding 0.5%	-	-	100.00%	371.00	340.00	2.10	3.32	0.37	0.34
LF	Local Ferry	-	-	Sam Ka Tsuen - Tung Lung Island	1	Main Engine	Diesel Engine	Fuel with sulphur content not exceeding 0.5%	-	1	100.00%	786	203	13.2	1.98	0.31	0.30
LF	Local Ferry	-	-	Sam Ka Tsuen - Tung Lung Island	1	Auxiliary Engine	-	Fuel with sulphur content not exceeding 0.5%	-	1	100.00%	60	217	13.9	2.12	0.32	0.31

Remarks

1. Marine traffic consultant has not further breakdown the marine traffic data of OGV into various vessel types. Therefore, vessel types catalogized by the Marine Department is adopted to breakdown the marine traffic data (https://www.mardep.gov.hk/filemanager/en/share/fact/pdf/portstat_2_y_a2.pdf).
2. According to data from marine consultants, tugs and cross boundary ferry are classified as an independent vessel type and are consequently excluded from calculation of marine emission of RTV.
3. Classification of vessel type refers to Table 3-2 and Table 4-1 of MVEIS, Fast Launch is classifed as "Others (GRT >= 1000)" as a conservative estimation .
4. The vessel class refer to Cap. 548D MERCHANT SHIPPING (LOCAL VESSELS) (CERTIFICATION AND LICENSING) REGULATION – SCHEDULE 1 Class and Type of Local Vessel (https://www.elegislation.gov.hk/hk/cap548D!en@2014-03-03T00:00:00).
5. The main engine type of RTV, Tug, FL and SC refers to S4.2.6 of MVEIS.
6. The main engine type of OGV and LF refers to Table 3-17 of MVEIS. SSD, MSD, HSD and ST denote slow speed diesel, medium speed diesel, high speed diesel and steam turbine engine, respectively.
7. According to the Air Pollution Control (Marine Light Diesel) Regulation, the sulphur content of locally supplied marine light diesel is capped at 0.05%. Locally supplied marine light diesel oil are assumed to be used for refueling RTVs, Tugs, FLs and SCs in Hong Kong. Marine gas oil with 0.05% sulphur content is assumed to be used for refueling LFs.
8. All vessels are required to use compliant fuels (sulphur content <= 0.5%) under the Air Pollution Control (Fuel for Vessels) Regulations. Therefore, it is assumed that all OGVs use fuel with sulphur content not exceeding 0.5%.
9. The GRT sub-group refers to Table 4-5; the highest GRT for each vessel type is adopted as a conservative approach.
10. DWT / PAX Sub-Group refers to Table 3-18 of MVEIS; the highest DWT/PAX is adopted as a conservative approach.
11. Vessel calls are the number of vessel arrivals in Hong Kong in a year and refer to Section 1.4.5-1.4.8 and Table 3-17 of MVEIS.
12. Proportion of main engine type for OGV refers to Table 3-17 of MVEIS. Proportion of engine types for local ferry is based on the number of operators for a certain route code. Proportions of engine types for other vessel categories are set as 100%.
13. The average engine power makes references to MVEIS:
- main engine power of RTV (Table 4-5)
- auxiliary engine power of RTV (Table 4-6)
- main engine power of Tug (Table 3-15)
- auxiliary engine power of Tug (Table 3-20)
- main engine power of Fast Launch (Table 4-5)
- auxiliary engine power of Fast Launch (Table 4-6)
- main engine power of Pleasure Vessel (Table 3-15)
- auxiliary engine power of Pleasure Vessel (Table 3-20)
- main engine power of Small Fishing Vessel/Sampan, Tug Boat and Work Boat (Table 4-5)
- auxiliary engine power of Small Fishing Vessel/Sampan, Tug Boat and Work Boat (Table 4-6)
- main engine power of OGV FCCV (Table 3-16)
- auxiliary engine power of OGV FCCV (Table 3-22)
- main engine power of OGV other vessel types (Table 3-15)
- auxiliary engine power of OGV other vessel types (Table 3-20)
- auxiliary boiler power of OGV (Table 3-23)
- main engine power of Local Ferry (Table 3-15)
- auxiliary engine power of Local Ferry (Table 3-20)

With reference to Table 3-23 of MVEIS, there is no boiler for Fishing/Fish Processing Vessel of OGV.

14. The Baseline Specific Fuel Consumption (BSFC) makes reference to MVEIS and IMO Fourth Greenhouse Gas Study 2020:
- BSFC of RTV, Tug, Fast Launch and Small Vessels (Table 4-16, MVEIS)
- BSFC of OGV (Table 19, IMO Fourth Greenhouse Gas Study 2020)
  - SFC_BASE for ships built in Years 1984-2000 is adopted as a balance assumption.
  - According to Page 71 of IMO Fourth Greenhouse Gas Study, it is assumed that the Auxiliary Engine Specific Fuel Consumption Specific Fuel Consumption = Baseline Specific Fuel Consumption of Auxiliary Engines.
  - According to Page 71 of IMO Fourth Greenhouse Gas Study, it is assumed that the Auxiliary Boiler Specific Fuel Consumption Specific Fuel Consumption = Baseline Specific Fuel Consumption of Auxiliary Boilers.
- BSFC of main engine of Local Ferry (Table 3-27, MVEIS)
- BSFC of auxiliary engine of Local Ferry (Table 4-16, MVEIS)

15. The NOx emission factor refers to MVEIS and IMO Fourth Greenhouse Gas Study 2020:
- NOx emission of RTV, Tug and Fast Launch (Table 4-16, MVEIS)
- NOx emission of main engine of Pleasure Vessel (Table 4-16, MVEIS)
- NOx emission of auxiliary engine of Pleasure Vessel (Table 3-28, MVEIS)
- NOx emission of Small Fishing Vessel/Sampan, Tug Boat and Work Boat (Table 4-16, MVEIS)
- NOx emission factor of OGV (Table 49, Annex M, IMO Fourth Greenhouse Gas Study 2020)
- NOx emission factor of main engine of Local Ferry (Table 3-27, MVEIS)
- NOx emission factor of auxiliary engine of Local Ferry (Table 3-28, MVEIS)

16. The SO_2 emission factor is calculated based on the formula stated in Paragraph 4.2.31 of MVEIS:
SO_2 EF = BSFC x 2 x 0.97753 x Fuel Sulphur Fraction

17. The RSP emission factor is calculated based on the formula stated in Paragraph 4.2.31 of MVEIS:
PM_{10} EF = 0.23 + BSFC x 7 x 0.02247 x (Fuel Sulphur Fraction - 0.0024)

18. - According to the Forth IMO Greenhouse Gas Study, the RSP to FSP conversion factor used for OGV is 0.92.
- According to According to Paragraph 4.2.32 of MVEIS, the RSP to FSP conversion factor used for other vessel types is 0.97.

Emission Factors by Engine Category by Vessel

Vessel Category	Vessel Type	Route	Route Code	Engine Category	Operation Mode	Load Factor	NOx Emission Factors (g/hr) [1]	SO_2 Emission Factors (g/hr) [1]	RSP Emission Factors (g/hr) [1]	FSP Emission Factor (g/hr) [1]
RTV	Fully Cellular Container Vessel	-	1	Main Engine	Fairway Cruise	0.45	3.1680E+03	6.5962E+02	1.0046E+02	9.7446E+01
RTV	Fully Cellular Container Vessel	-	1	Auxiliary Engine	Fairway Cruise	0.43	4.9450E+02	1.0296E+02	1.5681E+01	1.5211E+01
RTV	Dry Bulk Carrier	-	1	Main Engine	Fairway Cruise	0.45	3.3480E+03	6.9710E+02	1.0617E+02	1.0298E+02
RTV	Dry Bulk Carrier	-	1	Main Engine	Maneuvering	0.30	2.2320E+03	4.6473E+02	7.0778E+01	6.8655E+01
RTV	Dry Bulk Carrier	-	1	Main Engine	Hotelling	0.00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
RTV	Dry Bulk Carrier	-	1	Auxiliary Engine	Fairway Cruise	0.43	4.9450E+02	1.0296E+02	1.5681E+01	1.5211E+01
RTV	Dry Bulk Carrier	-	1	Auxiliary Engine	Maneuvering	0.43	4.9450E+02	1.0296E+02	1.5681E+01	1.5211E+01
RTV	Dry Bulk Carrier	-	1	Auxiliary Engine	Hotelling	0.43	4.9450E+02	1.0296E+02	1.5681E+01	1.5211E+01
RTV	Chemical Carrier/Tanker	-	1	Main Engine	Maneuvering	0.30	6.1974E+03	9.7756E+02	1.4888E+02	1.4442E+02
RTV	Chemical Carrier/Tanker	-	1	Main Engine	Hotelling	0.00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
RTV	Chemical Carrier/Tanker	-	1	Auxiliary Engine	Maneuvering	0.43	1.6125E+03	3.3574E+02	5.1134E+01	4.9600E+01
RTV	Chemical Carrier/Tanker	-	1	Auxiliary Engine	Hotelling	0.43	1.6125E+03	3.3574E+02	5.1134E+01	4.9600E+01
TT	Tug	-	1	Main Engine	Fairway Cruise	0.31	9.5916E+03	1.5130E+02	1.2087E+02	1.1725E+02
TT	Tug	-	1	Auxiliary Engine	Fairway Cruise	0.43	2.2360E+03	4.6557E+01	3.7195E+01	3.6079E+01
FL	Fast Launch	-	1	Main Engine	Fairway Cruise	0.45	3.1815E+03	6.6243E+01	5.2923E+01	5.1335E+01
FL	Fast Launch	-	1	Auxiliary Engine	Fairway Cruise	0.45	5.1750E+02	1.0775E+01	8.6083E+00	8.3501E+00
SC	Pleasure Vessel	-	1	Main Engine	Fairway Cruise	0.02	1.5720E+02	3.2731E+00	2.6149E+00	2.5365E+00
SC	Pleasure Vessel	-	1	Auxiliary Engine	Fairway Cruise	1.00	8.3400E+02	1.2493E+01	9.9807E+00	9.6813E+00
OGV	Gas Carrier/Tanker	-	1	Main Engine	Fairway Cruise	0.02	9.0948E+02	1.4078E+02	2.1364E+01	1.9655E+01
OGV	Gas Carrier/Tanker	-	1	Auxiliary Engine	Fairway Cruise	1.00	7.9498E+03	1.5612E+03	2.2857E+02	2.1028E+02
OGV	Gas Carrier/Tanker	-	1	Auxiliary Boiler	Fairway Cruise	1.00	7.7910E+02	1.2331E+03	1.3692E+02	1.2596E+02
OGV	Chemical Carrier/Tanker	-	1	Main Engine	Fairway Cruise	0.02	9.7798E+02	1.4624E+02	2.2287E+01	2.0504E+01
OGV	Chemical Carrier/Tanker	-	1	Auxiliary Engine	Fairway Cruise	1.00	8.3066E+03	1.6312E+03	2.3883E+02	2.1972E+02
OGV	Chemical Carrier/Tanker	-	1	Auxiliary Boiler	Fairway Cruise	1.00	7.7910E+02	1.2331E+03	1.3692E+02	1.2596E+02
OGV	Oil Tanker	-	1	Main Engine	Fairway Cruise	0.02	1.6709E+03	2.3277E+02	3.5737E+01	3.2878E+01
OGV	Oil Tanker	-	1	Auxiliary Engine	Fairway Cruise	1.00	1.3357E+04	2.6230E+03	3.8403E+02	3.5330E+02
OGV	Oil Tanker	-	1	Auxiliary Boiler	Fairway Cruise	1.00	7.7910E+02	1.2331E+03	1.3692E+02	1.2596E+02
LF	Local Ferry	Sam Ka Tsuen - Tung Lung Island	1	Main Engine	Fairway Cruise	0.80	8.3002E+03	1.2478E+03	1.9683E+02	1.9092E+02
LF	Local Ferry	Sam Ka Tsuen - Tung Lung Island	1	Auxiliary Engine	Fairway Cruise	0.45	3.7530E+02	5.7273E+01	8.6061E+00	8.3479E+00

Remarks

1. The load factor makes reference to the *Load_factor* sheet. Whenever a load factor is not available, it is assumed to be 0.02 for main engine and 1 otherwise for calculation purpose.
1. The calculations of the emission factor of each engine type refer to the following equation: Emission Factor of an Engine Type (g/hr) = Engine Power (kW) * Emission Factor (g/kWh) * Engine Load Factor.

Composite Emission Factors by Vessel

Vessel Category	Vessel Type	Route Code	Operation Mode	Composite NOx Emission Factors (g/hr) [1]	Composite SO2 Emission Factors (g/hr) [1]	Composite RSP Emission Factors (g/hr) [1]	Composite FSP Emission Factor (g/hr) [1]
RTV	Fully Cellular Container Vessel	1	Fairway Cruise	3.6625E+03	7.6258E+02	1.1614E+02	1.1266E+02
RTV	Dry Bulk Carrier	1	Fairway Cruise	3.8425E+03	8.0006E+02	1.2185E+02	1.1819E+02
RTV	Dry Bulk Carrier	1	Maneuvering	2.7265E+03	5.6770E+02	8.6459E+01	8.3866E+01
RTV	Dry Bulk Carrier	1	Hotelling	4.9450E+02	1.0296E+02	1.5681E+01	1.5211E+01
RTV	Chemical Carrier/Tanker	1	Maneuvering	7.8099E+03	1.3133E+03	2.0002E+02	1.9401E+02
RTV	Chemical Carrier/Tanker	1	Hotelling	1.6125E+03	3.3574E+02	5.1134E+01	4.9600E+01
TT	Tug	1	Fairway Cruise	1.1828E+04	1.9785E+02	1.5807E+02	1.5333E+02
FL	Fast Launch	1	Fairway Cruise	3.6990E+03	7.7018E+01	6.1531E+01	5.9685E+01
SC	Pleasure Vessel	1	Fairway Cruise	9.9120E+02	1.5766E+01	1.2596E+01	1.2218E+01
OGV	Gas Carrier/Tanker	1	Fairway Cruise	9.6384E+03	2.9350E+03	3.8685E+02	3.5590E+02
OGV	Chemical Carrier/Tanker	1	Fairway Cruise	1.0064E+04	3.0105E+03	3.9803E+02	3.6619E+02
OGV	Oil Tanker	1	Fairway Cruise	1.5807E+04	4.0888E+03	5.5668E+02	5.1214E+02
LF	Local Ferry	1	Fairway Cruise	3.7530E+02	5.7273E+01	8.6061E+00	8.3479E+00

Remark

1. Total Emission Rate is determined by this equation : Main Engine Emission Rate + Auxiliary Engine Emission Rate + Auxiliary Boiler Emission Rate (if applicable).

Vessel Parameters by Vessel

Vessel Category	Vessel Type	Parameter Group	Source Type	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	Remarks
RTV	Fully Cellular Container Vessel	Group 1 of RTV	POINT	1.30	42.00	503.15	24.60	1.90	[1], [2], [5]
RTV	Dry Bulk Carrier	Group 3 of RTV	POINT	1.30	27.00	503.15	25.00	0.80	[1], [2], [5]
RTV	Chemical Carrier/Tanker	Group 5 of RTV	POINT	1.30	30.00	503.15	25.00	0.80	[1], [2], [5]
FL	Fast Launch	Group 1 of FL	POINTHOR	1.30	0.00	313.00	8.00	0.70	[1], [3], [5]
TT	Tug	Group 1 of TT	POINTHOR	1.30	5.00	503.15	8.00	0.30	[1], [2], [5]
LF	Local Ferry	Group 1 of LF	POINTHOR	1.30	0.00	313.00	8.00	0.70	[1], [4], [6]
SC	Pleasure Vessel	Group 1 of SC	POINTHOR	1.30	0.00	313.00	8.00	0.30	[1], [4], [5]
OGV	Gas Carrier/Tanker	Group 4 of OGV	POINT	1.30	20.00	503.15	25.00	0.80	[1], [2], [5]
OGV	Chemical Carrier/Tanker	Group 4 of OGV	POINT	1.30	30.00	503.15	25.00	0.80	[1], [2], [5]
OGV	Oil Tanker	Group 4 of OGV	POINT	1.30	20.00	503.15	25.00	0.80	[1], [2], [5]

Notes

[1] The release height of the vessels are determined by desktop review or on-site observations.

[2] The exhaust temperature refer to the journal article: Dong, Thi Minh Hao & Xuan Phuong Nguyen. (2019). Exhaust Gas Recovery from Marine Diesel Engine in Order to Reduce the Toxic Emission and Save Energy: A Mini Review. Journal of Mechanical Engineering Research & Developments, 42(5):143-147. https://doi.org/10.26480/jmerd.05.2019.143.147. Given that other emission sources identified in this study (i.e., industrial/vehicular emission sources) mostly affect the air quality at a lower level, the lowest temperature of documented in this article was adopted as a conservative approach.

[3] According to desktop review, most of the local ferries and and fast launches are equipped with the water jet propulsion system. As conservative approach, it is assumed the water jet propulsion system is installed in all local ferries and fast launches, and their exhaust temperature refer to the engine specification of VETUS exhaust system (https://webshop.vetus.com/en/products/exhaust-systems). Given that other emission sources identified in this study (i.e., industrial/vehicular emission sources) mostly affect the air quality at a lower level, the lowest temperature documented was adopted as a conservative approach.

[4] Acoording to 'Examination Guidebook on Pleasure Vessel Operator Grade 2 Certificate of Competency' (May 2021) issued by the Hong Kong Marine Department, wet exhaust system would be installed in some pleasure vessels. As a conservative assessment, it it assumed that all pleasure vessels are equiped with water jet proplusion system and their exhaust temperature refer to the engine specification of VETUS exhaust system (https://webshop.vetus.com/en/products/exhaust-systems). Given that other emission sources identified in this study (i.e., industrial/vehicular emission sources) mostly affect the air quality at a lower level, the lowest temperature documented was adopted as a conservative approach.

[5] The stack parameters, except release height and exit temperature, refer to approved EIA - "Route 11 (Section between Yuen Long and North Lantau)" (EIA-297/2023).

[6] The stack parameters, except release height and exit temperature, refer to approved EIA - "Widening of Tsuen Wan Road and the associated junction improvement works" (EIA-296/2023).

Total Emission Rate of the Marine Emission

Route #
1

Total Emission Rate

Vessel ID	Vessel Category	Vessel Type	Route Code [1]	Average Speed (Knot) [2]	Operation Mode	Distance (nautical miles) [3]	Time-in-mode (hr)	NOx Emission Rate (g/s-vessel) [4]	SO_2 Emission Rate (g/s-vessel) [4]	RSP Emission Rate (g/s-vessel) [4]	FSP Emission Rate (g/s-vessel) [4]
R1_RTV01	RTV	Fully Cellular Container Vessel	1	13	Fairway Cruise	0.621	0.046	4.7183E-02	9.8242E-03	1.4962E-03	1.4513E-03
R1_RTV03	RTV	Dry Bulk Carrier	1	13	Fairway Cruise	0.621	0.046	4.9502E-02	1.0307E-02	1.5697E-03	1.5227E-03
R1_FL01	FL	Fast Launch	1	22	Fairway Cruise	0.621	0.029	2.9504E-02	6.1432E-04	4.9079E-04	4.7606E-04
R1_TT01	TT	Tug	1	12	Fairway Cruise	0.621	0.050	1.6541E-01	2.7670E-03	2.2106E-03	2.1443E-03
R1_LF01	LF	Local Ferry	1	22	Fairway Cruise	0.621	0.028	2.9354E-03	4.4797E-04	6.7313E-05	6.5294E-05
R1_SC01	SC	Pleasure Vessel	1	19	Fairway Cruise	0.621	0.033	9.2023E-03	1.4637E-04	1.1694E-04	1.1343E-04
R1_OGV06	OGV	Gas Carrier/Tanker	1	14	Fairway Cruise	0.621	0.044	1.1867E-01	3.6137E-02	4.7631E-03	4.3820E-03
R1_OGV07	OGV	Chemical Carrier/Tanker	1	14	Fairway Cruise	0.621	0.044	1.2391E-01	3.7067E-02	4.9007E-03	4.5087E-03
R1_OGV08	OGV	Oil Tanker	1	14	Fairway Cruise	0.621	0.044	1.9462E-01	5.0344E-02	6.8541E-03	6.3058E-03
R1_RTV03M	RTV	Dry Bulk Carrier	1	1	Maneuvering	0.443	0.443	3.3533E-01	6.9821E-02	1.0634E-02	1.0315E-02
R1_RTV07M	RTV	Chemical Carrier/Tanker	1	1	Maneuvering	0.443	0.443	9.6054E-01	1.6152E-01	2.4600E-02	2.3862E-02
R1_RTV03H	RTV	Dry Bulk Carrier	1	0	Hotelling	0.000	1.000	1.3736E-01	2.8600E-02	4.3558E-03	4.2251E-03
R1_RTV07H	RTV	Chemical Carrier/Tanker	1	0	Hotelling	0.000	1.000	4.4792E-01	9.3262E-02	1.4204E-02	1.3778E-02

Remark

1. Despite the actual routes, all general marine vessels are considered travelling in the water at the nearest and safe distance from the project site / nearby shipyards.
2. The average speed is calculated from the speed distribution for each vessel on each route.
3. The distance is measured for each route.
4. The calculations of emission factors refer to the following equation: Emission Factor (g/s-vessel) = Composite Emission Factor (g/hr) * Time-in-mode (hr) / 3600.

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_FL01_01	R1_FL01	FL	Fast Launch	POINTHOR	827278.92	825081.10	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_02	R1_FL01	FL	Fast Launch	POINTHOR	827288.83	825082.44	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_03	R1_FL01	FL	Fast Launch	POINTHOR	827298.74	825083.78	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_04	R1_FL01	FL	Fast Launch	POINTHOR	827308.65	825085.12	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_05	R1_FL01	FL	Fast Launch	POINTHOR	827318.56	825086.46	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_06	R1_FL01	FL	Fast Launch	POINTHOR	827328.47	825087.80	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_07	R1_FL01	FL	Fast Launch	POINTHOR	827338.37	825089.13	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_08	R1_FL01	FL	Fast Launch	POINTHOR	827348.28	825090.47	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_09	R1_FL01	FL	Fast Launch	POINTHOR	827358.19	825091.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_10	R1_FL01	FL	Fast Launch	POINTHOR	827368.10	825093.15	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_11	R1_FL01	FL	Fast Launch	POINTHOR	827378.01	825094.49	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_12	R1_FL01	FL	Fast Launch	POINTHOR	827387.92	825095.83	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_13	R1_FL01	FL	Fast Launch	POINTHOR	827397.83	825097.17	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_14	R1_FL01	FL	Fast Launch	POINTHOR	827407.74	825098.51	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_15	R1_FL01	FL	Fast Launch	POINTHOR	827417.65	825099.85	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_16	R1_FL01	FL	Fast Launch	POINTHOR	827427.56	825101.19	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_17	R1_FL01	FL	Fast Launch	POINTHOR	827437.47	825102.53	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_18	R1_FL01	FL	Fast Launch	POINTHOR	827447.38	825103.87	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_19	R1_FL01	FL	Fast Launch	POINTHOR	827457.32	825104.96	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_20	R1_FL01	FL	Fast Launch	POINTHOR	827467.27	825105.96	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_21	R1_FL01	FL	Fast Launch	POINTHOR	827477.22	825106.96	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_22	R1_FL01	FL	Fast Launch	POINTHOR	827487.17	825107.95	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_23	R1_FL01	FL	Fast Launch	POINTHOR	827497.12	825108.95	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_24	R1_FL01	FL	Fast Launch	POINTHOR	827507.07	825109.94	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_25	R1_FL01	FL	Fast Launch	POINTHOR	827517.02	825110.94	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_26	R1_FL01	FL	Fast Launch	POINTHOR	827526.97	825111.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_27	R1_FL01	FL	Fast Launch	POINTHOR	827536.93	825112.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_28	R1_FL01	FL	Fast Launch	POINTHOR	827546.88	825113.92	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_29	R1_FL01	FL	Fast Launch	POINTHOR	827556.83	825114.92	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_30	R1_FL01	FL	Fast Launch	POINTHOR	827566.78	825115.91	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_31	R1_FL01	FL	Fast Launch	POINTHOR	827576.73	825116.91	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_32	R1_FL01	FL	Fast Launch	POINTHOR	827586.68	825117.90	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_33	R1_FL01	FL	Fast Launch	POINTHOR	827596.63	825118.90	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_34	R1_FL01	FL	Fast Launch	POINTHOR	827606.58	825119.89	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_35	R1_FL01	FL	Fast Launch	POINTHOR	827616.53	825120.89	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_36	R1_FL01	FL	Fast Launch	POINTHOR	827626.48	825121.88	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_37	R1_FL01	FL	Fast Launch	POINTHOR	827636.43	825122.86	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_38	R1_FL01	FL	Fast Launch	POINTHOR	827646.40	825123.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_39	R1_FL01	FL	Fast Launch	POINTHOR	827656.36	825124.49	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_40	R1_FL01	FL	Fast Launch	POINTHOR	827666.33	825125.30	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_41	R1_FL01	FL	Fast Launch	POINTHOR	827676.30	825126.11	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_42	R1_FL01	FL	Fast Launch	POINTHOR	827686.26	825126.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_43	R1_FL01	FL	Fast Launch	POINTHOR	827696.23	825127.74	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_44	R1_FL01	FL	Fast Launch	POINTHOR	827706.20	825128.55	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_45	R1_FL01	FL	Fast Launch	POINTHOR	827716.17	825129.37	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_46	R1_FL01	FL	Fast Launch	POINTHOR	827726.13	825130.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_47	R1_FL01	FL	Fast Launch	POINTHOR	827736.10	825130.99	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_48	R1_FL01	FL	Fast Launch	POINTHOR	827746.07	825131.80	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_49	R1_FL01	FL	Fast Launch	POINTHOR	827756.03	825132.62	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_50	R1_FL01	FL	Fast Launch	POINTHOR	827766.00	825133.43	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_51	R1_FL01	FL	Fast Launch	POINTHOR	827775.97	825134.24	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_52	R1_FL01	FL	Fast Launch	POINTHOR	827785.93	825135.05	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_53	R1_FL01	FL	Fast Launch	POINTHOR	827795.90	825135.87	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_54	R1_FL01	FL	Fast Launch	POINTHOR	827805.87	825136.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_55	R1_FL01	FL	Fast Launch	POINTHOR	827815.83	825137.49	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_56	R1_FL01	FL	Fast Launch	POINTHOR	827825.80	825138.31	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_57	R1_FL01	FL	Fast Launch	POINTHOR	827835.77	825139.12	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_58	R1_FL01	FL	Fast Launch	POINTHOR	827845.74	825139.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_59	R1_FL01	FL	Fast Launch	POINTHOR	827855.70	825140.74	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_60	R1_FL01	FL	Fast Launch	POINTHOR	827865.67	825141.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_61	R1_FL01	FL	Fast Launch	POINTHOR	827875.64	825142.37	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_62	R1_FL01	FL	Fast Launch	POINTHOR	827885.60	825143.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_63	R1_FL01	FL	Fast Launch	POINTHOR	827895.57	825143.99	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_64	R1_FL01	FL	Fast Launch	POINTHOR	827905.54	825144.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_65	R1_FL01	FL	Fast Launch	POINTHOR	827915.50	825145.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_66	R1_FL01	FL	Fast Launch	POINTHOR	827925.46	825146.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_67	R1_FL01	FL	Fast Launch	POINTHOR	827935.42	825147.43	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_68	R1_FL01	FL	Fast Launch	POINTHOR	827945.38	825148.31	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_69	R1_FL01	FL	Fast Launch	POINTHOR	827955.35	825149.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_70	R1_FL01	FL	Fast Launch	POINTHOR	827965.31	825150.06	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_71	R1_FL01	FL	Fast Launch	POINTHOR	827975.27	825150.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_72	R1_FL01	FL	Fast Launch	POINTHOR	827985.23	825151.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_73	R1_FL01	FL	Fast Launch	POINTHOR	827995.19	825152.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_74	R1_FL01	FL	Fast Launch	POINTHOR	828005.15	825153.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_75	R1_FL01	FL	Fast Launch	POINTHOR	828015.12	825154.43	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_76	R1_FL01	FL	Fast Launch	POINTHOR	828025.08	825155.31	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_77	R1_FL01	FL	Fast Launch	POINTHOR	828035.04	825156.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_78	R1_FL01	FL	Fast Launch	POINTHOR	828045.00	825157.06	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_79	R1_FL01	FL	Fast Launch	POINTHOR	828054.96	825157.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_80	R1_FL01	FL	Fast Launch	POINTHOR	828064.92	825158.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_FL01_81	R1_FL01	FL	Fast Launch	POINTHOR	828074.88	825159.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_82	R1_FL01	FL	Fast Launch	POINTHOR	828084.85	825160.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_83	R1_FL01	FL	Fast Launch	POINTHOR	828094.81	825161.43	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_84	R1_FL01	FL	Fast Launch	POINTHOR	828104.77	825162.31	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_85	R1_FL01	FL	Fast Launch	POINTHOR	828114.73	825163.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_86	R1_FL01	FL	Fast Launch	POINTHOR	828124.69	825164.06	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_87	R1_FL01	FL	Fast Launch	POINTHOR	828134.65	825164.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_88	R1_FL01	FL	Fast Launch	POINTHOR	828144.62	825165.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_89	R1_FL01	FL	Fast Launch	POINTHOR	828154.58	825166.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_90	R1_FL01	FL	Fast Launch	POINTHOR	828164.54	825167.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_91	R1_FL01	FL	Fast Launch	POINTHOR	828174.50	825168.43	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_92	R1_FL01	FL	Fast Launch	POINTHOR	828184.46	825169.31	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_93	R1_FL01	FL	Fast Launch	POINTHOR	828194.42	825170.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_94	R1_FL01	FL	Fast Launch	POINTHOR	828204.39	825171.06	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_95	R1_FL01	FL	Fast Launch	POINTHOR	828214.35	825171.93	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_96	R1_FL01	FL	Fast Launch	POINTHOR	828224.31	825172.81	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_97	R1_FL01	FL	Fast Launch	POINTHOR	828234.27	825173.68	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_98	R1_FL01	FL	Fast Launch	POINTHOR	828244.23	825174.56	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_99	R1_FL01	FL	Fast Launch	POINTHOR	828254.20	825175.40	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_100	R1_FL01	FL	Fast Launch	POINTHOR	828264.16	825176.23	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_101	R1_FL01	FL	Fast Launch	POINTHOR	828274.13	825177.05	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_102	R1_FL01	FL	Fast Launch	POINTHOR	828284.09	825177.88	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_103	R1_FL01	FL	Fast Launch	POINTHOR	828294.06	825178.70	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_104	R1_FL01	FL	Fast Launch	POINTHOR	828304.03	825179.53	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_105	R1_FL01	FL	Fast Launch	POINTHOR	828313.99	825180.35	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_106	R1_FL01	FL	Fast Launch	POINTHOR	828323.96	825181.18	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_107	R1_FL01	FL	Fast Launch	POINTHOR	828333.92	825182.00	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_108	R1_FL01	FL	Fast Launch	POINTHOR	828343.89	825182.83	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_109	R1_FL01	FL	Fast Launch	POINTHOR	828353.86	825183.65	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_110	R1_FL01	FL	Fast Launch	POINTHOR	828363.82	825184.48	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_111	R1_FL01	FL	Fast Launch	POINTHOR	828373.79	825185.30	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_112	R1_FL01	FL	Fast Launch	POINTHOR	828383.75	825186.13	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_113	R1_FL01	FL	Fast Launch	POINTHOR	828393.72	825186.95	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_114	R1_FL01	FL	Fast Launch	POINTHOR	828403.69	825187.78	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_115	R1_FL01	FL	Fast Launch	POINTHOR	828413.65	825188.60	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_FL01_116	R1_FL01	FL	Fast Launch	POINTHOR	828416.64	825188.85	116	1.30	0.00	313.00	8.00	0.70	2.5435E-04	5.2958E-06	4.2309E-06	4.1040E-06
R1_LF01_01	R1_LF01	LF	Local Ferry	POINTHOR	827278.92	825081.10	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_02	R1_LF01	LF	Local Ferry	POINTHOR	827288.83	825082.44	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_03	R1_LF01	LF	Local Ferry	POINTHOR	827298.74	825083.78	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_04	R1_LF01	LF	Local Ferry	POINTHOR	827308.65	825085.12	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_05	R1_LF01	LF	Local Ferry	POINTHOR	827318.56	825086.46	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_06	R1_LF01	LF	Local Ferry	POINTHOR	827328.47	825087.80	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_07	R1_LF01	LF	Local Ferry	POINTHOR	827338.37	825089.13	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_08	R1_LF01	LF	Local Ferry	POINTHOR	827348.28	825090.47	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_09	R1_LF01	LF	Local Ferry	POINTHOR	827358.19	825091.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_10	R1_LF01	LF	Local Ferry	POINTHOR	827368.10	825093.15	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_11	R1_LF01	LF	Local Ferry	POINTHOR	827378.01	825094.49	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_12	R1_LF01	LF	Local Ferry	POINTHOR	827387.92	825095.83	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_13	R1_LF01	LF	Local Ferry	POINTHOR	827397.83	825097.17	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_14	R1_LF01	LF	Local Ferry	POINTHOR	827407.74	825098.51	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_15	R1_LF01	LF	Local Ferry	POINTHOR	827417.65	825099.85	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_16	R1_LF01	LF	Local Ferry	POINTHOR	827427.56	825101.19	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_17	R1_LF01	LF	Local Ferry	POINTHOR	827437.47	825102.53	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_18	R1_LF01	LF	Local Ferry	POINTHOR	827447.38	825103.87	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_19	R1_LF01	LF	Local Ferry	POINTHOR	827457.32	825104.96	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_20	R1_LF01	LF	Local Ferry	POINTHOR	827467.27	825105.96	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_21	R1_LF01	LF	Local Ferry	POINTHOR	827477.22	825106.96	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_22	R1_LF01	LF	Local Ferry	POINTHOR	827487.17	825107.95	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_23	R1_LF01	LF	Local Ferry	POINTHOR	827497.12	825108.95	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_24	R1_LF01	LF	Local Ferry	POINTHOR	827507.07	825109.94	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_25	R1_LF01	LF	Local Ferry	POINTHOR	827517.02	825110.94	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_26	R1_LF01	LF	Local Ferry	POINTHOR	827526.97	825111.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_27	R1_LF01	LF	Local Ferry	POINTHOR	827536.93	825112.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_28	R1_LF01	LF	Local Ferry	POINTHOR	827546.88	825113.92	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_29	R1_LF01	LF	Local Ferry	POINTHOR	827556.83	825114.92	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_30	R1_LF01	LF	Local Ferry	POINTHOR	827566.78	825115.91	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_31	R1_LF01	LF	Local Ferry	POINTHOR	827576.73	825116.91	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_32	R1_LF01	LF	Local Ferry	POINTHOR	827586.68	825117.90	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_33	R1_LF01	LF	Local Ferry	POINTHOR	827596.63	825118.90	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_34	R1_LF01	LF	Local Ferry	POINTHOR	827606.58	825119.89	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_35	R1_LF01	LF	Local Ferry	POINTHOR	827616.53	825120.89	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_36	R1_LF01	LF	Local Ferry	POINTHOR	827626.48	825121.88	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_37	R1_LF01	LF	Local Ferry	POINTHOR	827636.43	825122.86	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_38	R1_LF01	LF	Local Ferry	POINTHOR	827646.40	825123.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_39	R1_LF01	LF	Local Ferry	POINTHOR	827656.36	825124.49	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_40	R1_LF01	LF	Local Ferry	POINTHOR	827666.33	825125.30	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_41	R1_LF01	LF	Local Ferry	POINTHOR	827676.30	825126.11	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_42	R1_LF01	LF	Local Ferry	POINTHOR	827686.26	825126.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_43	R1_LF01	LF	Local Ferry	POINTHOR	827696.23	825127.74	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_44	R1_LF01	LF	Local Ferry	POINTHOR	827706.20	825128.55	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_LF01_45	R1_LF01	LF	Local Ferry	POINTHOR	827716.17	825129.37	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_46	R1_LF01	LF	Local Ferry	POINTHOR	827726.13	825130.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_47	R1_LF01	LF	Local Ferry	POINTHOR	827736.10	825130.99	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_48	R1_LF01	LF	Local Ferry	POINTHOR	827746.07	825131.80	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_49	R1_LF01	LF	Local Ferry	POINTHOR	827756.03	825132.62	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_50	R1_LF01	LF	Local Ferry	POINTHOR	827766.00	825133.43	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_51	R1_LF01	LF	Local Ferry	POINTHOR	827775.97	825134.24	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_52	R1_LF01	LF	Local Ferry	POINTHOR	827785.93	825135.05	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_53	R1_LF01	LF	Local Ferry	POINTHOR	827795.90	825135.87	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_54	R1_LF01	LF	Local Ferry	POINTHOR	827805.87	825136.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_55	R1_LF01	LF	Local Ferry	POINTHOR	827815.83	825137.49	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_56	R1_LF01	LF	Local Ferry	POINTHOR	827825.80	825138.31	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_57	R1_LF01	LF	Local Ferry	POINTHOR	827835.77	825139.12	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_58	R1_LF01	LF	Local Ferry	POINTHOR	827845.74	825139.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_59	R1_LF01	LF	Local Ferry	POINTHOR	827855.70	825140.74	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_60	R1_LF01	LF	Local Ferry	POINTHOR	827865.67	825141.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_61	R1_LF01	LF	Local Ferry	POINTHOR	827875.64	825142.37	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_62	R1_LF01	LF	Local Ferry	POINTHOR	827885.60	825143.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_63	R1_LF01	LF	Local Ferry	POINTHOR	827895.57	825143.99	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_64	R1_LF01	LF	Local Ferry	POINTHOR	827905.54	825144.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_65	R1_LF01	LF	Local Ferry	POINTHOR	827915.50	825145.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_66	R1_LF01	LF	Local Ferry	POINTHOR	827925.46	825146.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_67	R1_LF01	LF	Local Ferry	POINTHOR	827935.42	825147.43	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_68	R1_LF01	LF	Local Ferry	POINTHOR	827945.38	825148.31	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_69	R1_LF01	LF	Local Ferry	POINTHOR	827955.35	825149.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_70	R1_LF01	LF	Local Ferry	POINTHOR	827965.31	825150.06	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_71	R1_LF01	LF	Local Ferry	POINTHOR	827975.27	825150.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_72	R1_LF01	LF	Local Ferry	POINTHOR	827985.23	825151.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_73	R1_LF01	LF	Local Ferry	POINTHOR	827995.19	825152.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_74	R1_LF01	LF	Local Ferry	POINTHOR	828005.15	825153.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_75	R1_LF01	LF	Local Ferry	POINTHOR	828015.12	825154.43	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_76	R1_LF01	LF	Local Ferry	POINTHOR	828025.08	825155.31	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_77	R1_LF01	LF	Local Ferry	POINTHOR	828035.04	825156.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_78	R1_LF01	LF	Local Ferry	POINTHOR	828045.00	825157.06	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_79	R1_LF01	LF	Local Ferry	POINTHOR	828054.96	825157.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_80	R1_LF01	LF	Local Ferry	POINTHOR	828064.92	825158.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_81	R1_LF01	LF	Local Ferry	POINTHOR	828074.88	825159.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_82	R1_LF01	LF	Local Ferry	POINTHOR	828084.85	825160.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_83	R1_LF01	LF	Local Ferry	POINTHOR	828094.81	825161.43	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_84	R1_LF01	LF	Local Ferry	POINTHOR	828104.77	825162.31	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_85	R1_LF01	LF	Local Ferry	POINTHOR	828114.73	825163.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_86	R1_LF01	LF	Local Ferry	POINTHOR	828124.69	825164.06	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_87	R1_LF01	LF	Local Ferry	POINTHOR	828134.65	825164.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_88	R1_LF01	LF	Local Ferry	POINTHOR	828144.62	825165.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_89	R1_LF01	LF	Local Ferry	POINTHOR	828154.58	825166.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_90	R1_LF01	LF	Local Ferry	POINTHOR	828164.54	825167.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_91	R1_LF01	LF	Local Ferry	POINTHOR	828174.50	825168.43	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_92	R1_LF01	LF	Local Ferry	POINTHOR	828184.46	825169.31	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_93	R1_LF01	LF	Local Ferry	POINTHOR	828194.42	825170.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_94	R1_LF01	LF	Local Ferry	POINTHOR	828204.39	825171.06	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_95	R1_LF01	LF	Local Ferry	POINTHOR	828214.35	825171.93	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_96	R1_LF01	LF	Local Ferry	POINTHOR	828224.31	825172.81	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_97	R1_LF01	LF	Local Ferry	POINTHOR	828234.27	825173.68	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_98	R1_LF01	LF	Local Ferry	POINTHOR	828244.23	825174.56	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_99	R1_LF01	LF	Local Ferry	POINTHOR	828254.20	825175.40	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_100	R1_LF01	LF	Local Ferry	POINTHOR	828264.16	825176.23	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_101	R1_LF01	LF	Local Ferry	POINTHOR	828274.13	825177.05	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_102	R1_LF01	LF	Local Ferry	POINTHOR	828284.09	825177.88	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_103	R1_LF01	LF	Local Ferry	POINTHOR	828294.06	825178.70	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_104	R1_LF01	LF	Local Ferry	POINTHOR	828304.03	825179.53	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_105	R1_LF01	LF	Local Ferry	POINTHOR	828313.99	825180.35	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_106	R1_LF01	LF	Local Ferry	POINTHOR	828323.96	825181.18	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_107	R1_LF01	LF	Local Ferry	POINTHOR	828333.92	825182.00	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_108	R1_LF01	LF	Local Ferry	POINTHOR	828343.89	825182.83	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_109	R1_LF01	LF	Local Ferry	POINTHOR	828353.86	825183.65	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_110	R1_LF01	LF	Local Ferry	POINTHOR	828363.82	825184.48	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_111	R1_LF01	LF	Local Ferry	POINTHOR	828373.79	825185.30	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_112	R1_LF01	LF	Local Ferry	POINTHOR	828383.75	825186.13	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_113	R1_LF01	LF	Local Ferry	POINTHOR	828393.72	825186.95	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_114	R1_LF01	LF	Local Ferry	POINTHOR	828403.69	825187.78	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_115	R1_LF01	LF	Local Ferry	POINTHOR	828413.65	825188.60	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_LF01_116	R1_LF01	LF	Local Ferry	POINTHOR	828416.64	825188.85	116	1.30	0.00	313.00	8.00	0.70	2.5305E-05	3.8618E-06	5.8028E-07	5.6288E-07
R1_OGV06_01	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827278.92	825081.10	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_02	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827288.83	825082.44	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_03	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827298.74	825083.78	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_04	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827308.65	825085.12	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_05	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827318.56	825086.46	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_06	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827328.47	825087.80	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_07	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827338.37	825089.13	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_08	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827348.28	825090.47	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_OGV06_09	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827358.19	825091.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_10	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827368.10	825093.15	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_11	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827378.01	825094.49	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_12	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827387.92	825095.83	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_13	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827397.83	825097.17	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_14	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827407.74	825098.51	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_15	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827417.65	825099.85	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_16	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827427.56	825101.19	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_17	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827437.47	825102.53	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_18	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827447.38	825103.87	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_19	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827457.32	825104.96	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_20	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827467.27	825105.96	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_21	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827477.22	825106.96	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_22	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827487.17	825107.95	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_23	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827497.12	825108.95	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_24	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827507.07	825109.94	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_25	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827517.02	825110.94	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_26	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827526.97	825111.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_27	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827536.93	825112.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_28	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827546.88	825113.92	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_29	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827556.83	825114.92	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_30	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827566.78	825115.91	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_31	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827576.73	825116.91	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_32	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827586.68	825117.90	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_33	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827596.63	825118.90	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_34	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827606.58	825119.89	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_35	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827616.53	825120.89	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_36	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827626.48	825121.88	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_37	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827636.43	825122.86	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_38	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827646.40	825123.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_39	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827656.36	825124.49	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_40	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827666.33	825125.30	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_41	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827676.30	825126.11	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_42	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827686.26	825126.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_43	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827696.23	825127.74	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_44	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827706.20	825128.55	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_45	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827716.17	825129.37	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_46	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827726.13	825130.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_47	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827736.10	825130.99	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_48	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827746.07	825131.80	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_49	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827756.03	825132.62	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_50	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827766.00	825133.43	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_51	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827775.97	825134.24	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_52	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827785.93	825135.05	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_53	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827795.90	825135.87	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_54	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827805.87	825136.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_55	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827815.83	825137.49	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_56	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827825.80	825138.31	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_57	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827835.77	825139.12	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_58	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827845.74	825139.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_59	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827855.70	825140.74	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_60	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827865.67	825141.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_61	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827875.64	825142.37	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_62	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827885.60	825143.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_63	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827895.57	825143.99	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_64	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827905.54	825144.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_65	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827915.50	825145.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_66	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827925.46	825146.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_67	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827935.42	825147.43	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_68	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827945.38	825148.31	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_69	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827955.35	825149.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_70	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827965.31	825150.06	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_71	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827975.27	825150.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_72	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827985.23	825151.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_73	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	827995.19	825152.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_74	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828005.15	825153.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_75	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828015.12	825154.43	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_76	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828025.08	825155.31	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_77	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828035.04	825156.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_78	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828045.00	825157.06	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_79	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828054.96	825157.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_80	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828064.92	825158.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_81	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828074.88	825159.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_82	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828084.85	825160.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_83	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828094.81	825161.43	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_84	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828104.77	825162.31	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_85	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828114.73	825163.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_86	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828124.69	825164.06	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_87	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828134.65	825164.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_88	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828144.62	825165.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_OGV06_89	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828154.58	825166.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_90	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828164.54	825167.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_91	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828174.50	825168.43	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_92	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828184.46	825169.31	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_93	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828194.42	825170.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_94	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828204.39	825171.06	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_95	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828214.35	825171.93	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_96	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828224.31	825172.81	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_97	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828234.27	825173.68	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_98	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828244.23	825174.56	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_99	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828254.20	825175.40	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_100	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828264.16	825176.23	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_101	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828274.13	825177.05	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_102	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828284.09	825177.88	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_103	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828294.06	825178.70	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_104	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828304.03	825179.53	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_105	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828313.99	825180.35	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_106	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828323.96	825181.18	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_107	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828333.92	825182.00	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_108	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828343.89	825182.83	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_109	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828353.86	825183.65	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_110	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828363.82	825184.48	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_111	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828373.79	825185.30	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_112	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828383.75	825186.13	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_113	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828393.72	825186.95	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_114	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828403.69	825187.78	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_115	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828413.65	825188.60	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV06_116	R1_OGV06	OGV	Gas Carrier/Tanker	POINT	828416.64	825188.85	116	1.30	20.00	503.15	25.00	0.80	1.0230E-03	3.1153E-04	4.1061E-05	3.7776E-05
R1_OGV07_01	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827278.92	825081.10	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_02	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827288.83	825082.44	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_03	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827298.74	825083.78	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_04	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827308.65	825085.12	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_05	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827318.56	825086.46	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_06	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827328.47	825087.80	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_07	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827338.37	825089.13	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_08	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827348.28	825090.47	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_09	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827358.19	825091.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_10	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827368.10	825093.15	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_11	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827378.01	825094.49	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_12	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827387.92	825095.83	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_13	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827397.83	825097.17	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_14	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827407.74	825098.51	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_15	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827417.65	825099.85	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_16	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827427.56	825101.19	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_17	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827437.47	825102.53	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_18	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827447.38	825103.87	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_19	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827457.32	825104.96	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_20	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827467.27	825105.96	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_21	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827477.22	825106.96	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_22	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827487.17	825107.95	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_23	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827497.12	825108.95	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_24	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827507.07	825109.94	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_25	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827517.02	825110.94	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_26	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827526.97	825111.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_27	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827536.93	825112.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_28	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827546.88	825113.92	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_29	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827556.83	825114.92	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_30	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827566.78	825115.91	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_31	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827576.73	825116.91	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_32	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827586.68	825117.90	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_33	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827596.63	825118.90	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_34	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827606.58	825119.89	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_35	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827616.53	825120.89	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_36	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827626.48	825121.88	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_37	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827636.43	825122.86	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_38	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827646.40	825123.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_39	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827656.36	825124.49	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_40	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827666.33	825125.30	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_41	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827676.30	825126.11	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_42	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827686.26	825126.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_43	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827696.23	825127.74	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_44	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827706.20	825128.55	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_45	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827716.17	825129.37	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_46	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827726.13	825130.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_47	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827736.10	825130.99	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_48	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827746.07	825131.80	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_49	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827756.03	825132.62	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_50	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827766.00	825133.43	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_51	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827775.97	825134.24	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_52	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827785.93	825135.05	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_OGV07_53	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827795.90	825135.87	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_54	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827805.87	825136.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_55	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827815.83	825137.49	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_56	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827825.80	825138.31	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_57	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827835.77	825139.12	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_58	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827845.74	825139.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_59	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827855.70	825140.74	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_60	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827865.67	825141.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_61	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827875.64	825142.37	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_62	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827885.60	825143.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_63	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827895.57	825143.99	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_64	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827905.54	825144.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_65	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827915.50	825145.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_66	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827925.46	825146.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_67	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827935.42	825147.43	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_68	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827945.38	825148.31	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_69	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827955.35	825149.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_70	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827965.31	825150.06	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_71	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827975.27	825150.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_72	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827985.23	825151.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_73	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	827995.19	825152.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_74	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828005.15	825153.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_75	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828015.12	825154.43	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_76	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828025.08	825155.31	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_77	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828035.04	825156.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_78	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828045.00	825157.06	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_79	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828054.96	825157.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_80	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828064.92	825158.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_81	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828074.88	825159.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_82	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828084.85	825160.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_83	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828094.81	825161.43	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_84	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828104.77	825162.31	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_85	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828114.73	825163.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_86	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828124.69	825164.06	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_87	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828134.65	825164.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_88	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828144.62	825165.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_89	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828154.58	825166.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_90	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828164.54	825167.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_91	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828174.50	825168.43	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_92	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828184.46	825169.31	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_93	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828194.42	825170.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_94	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828204.39	825171.06	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_95	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828214.35	825171.93	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_96	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828224.31	825172.81	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_97	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828234.27	825173.68	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_98	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828244.23	825174.56	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_99	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828254.20	825175.40	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_100	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828264.16	825176.23	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_101	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828274.13	825177.05	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_102	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828284.09	825177.88	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_103	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828294.06	825178.70	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_104	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828304.03	825179.53	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_105	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828313.99	825180.35	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_106	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828323.96	825181.18	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_107	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828333.92	825182.00	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_108	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828343.89	825182.83	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_109	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828353.86	825183.65	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_110	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828363.82	825184.48	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_111	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828373.79	825185.30	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_112	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828383.75	825186.13	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_113	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828393.72	825186.95	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_114	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828403.69	825187.78	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_115	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828413.65	825188.60	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV07_116	R1_OGV07	OGV	Chemical Carrier/Tanker	POINT	828416.64	825188.85	116	1.30	30.00	503.15	25.00	0.80	1.0682E-03	3.1955E-04	4.2248E-05	3.8868E-05
R1_OGV08_01	R1_OGV08	OGV	Oil Tanker	POINT	827278.92	825081.10	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_02	R1_OGV08	OGV	Oil Tanker	POINT	827288.83	825082.44	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_03	R1_OGV08	OGV	Oil Tanker	POINT	827298.74	825083.78	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_04	R1_OGV08	OGV	Oil Tanker	POINT	827308.65	825085.12	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_05	R1_OGV08	OGV	Oil Tanker	POINT	827318.56	825086.46	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_06	R1_OGV08	OGV	Oil Tanker	POINT	827328.47	825087.80	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_07	R1_OGV08	OGV	Oil Tanker	POINT	827338.37	825089.13	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_08	R1_OGV08	OGV	Oil Tanker	POINT	827348.28	825090.47	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_09	R1_OGV08	OGV	Oil Tanker	POINT	827358.19	825091.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_10	R1_OGV08	OGV	Oil Tanker	POINT	827368.10	825093.15	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_11	R1_OGV08	OGV	Oil Tanker	POINT	827378.01	825094.49	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_12	R1_OGV08	OGV	Oil Tanker	POINT	827387.92	825095.83	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_13	R1_OGV08	OGV	Oil Tanker	POINT	827397.83	825097.17	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_14	R1_OGV08	OGV	Oil Tanker	POINT	827407.74	825098.51	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_15	R1_OGV08	OGV	Oil Tanker	POINT	827417.65	825099.85	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_16	R1_OGV08	OGV	Oil Tanker	POINT	827427.56	825101.19	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_OGV08_17	R1_OGV08	OGV	Oil Tanker	POINT	827437.47	825102.53	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_18	R1_OGV08	OGV	Oil Tanker	POINT	827447.38	825103.87	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_19	R1_OGV08	OGV	Oil Tanker	POINT	827457.32	825104.96	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_20	R1_OGV08	OGV	Oil Tanker	POINT	827467.27	825105.96	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_21	R1_OGV08	OGV	Oil Tanker	POINT	827477.22	825106.96	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_22	R1_OGV08	OGV	Oil Tanker	POINT	827487.17	825107.95	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_23	R1_OGV08	OGV	Oil Tanker	POINT	827497.12	825108.95	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_24	R1_OGV08	OGV	Oil Tanker	POINT	827507.07	825109.94	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_25	R1_OGV08	OGV	Oil Tanker	POINT	827517.02	825110.94	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_26	R1_OGV08	OGV	Oil Tanker	POINT	827526.97	825111.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_27	R1_OGV08	OGV	Oil Tanker	POINT	827536.93	825112.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_28	R1_OGV08	OGV	Oil Tanker	POINT	827546.88	825113.92	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_29	R1_OGV08	OGV	Oil Tanker	POINT	827556.83	825114.92	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_30	R1_OGV08	OGV	Oil Tanker	POINT	827566.78	825115.91	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_31	R1_OGV08	OGV	Oil Tanker	POINT	827576.73	825116.91	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_32	R1_OGV08	OGV	Oil Tanker	POINT	827586.68	825117.90	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_33	R1_OGV08	OGV	Oil Tanker	POINT	827596.63	825118.90	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_34	R1_OGV08	OGV	Oil Tanker	POINT	827606.58	825119.89	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_35	R1_OGV08	OGV	Oil Tanker	POINT	827616.53	825120.89	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_36	R1_OGV08	OGV	Oil Tanker	POINT	827626.48	825121.88	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_37	R1_OGV08	OGV	Oil Tanker	POINT	827636.43	825122.86	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_38	R1_OGV08	OGV	Oil Tanker	POINT	827646.40	825123.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_39	R1_OGV08	OGV	Oil Tanker	POINT	827656.36	825124.49	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_40	R1_OGV08	OGV	Oil Tanker	POINT	827666.33	825125.30	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_41	R1_OGV08	OGV	Oil Tanker	POINT	827676.30	825126.11	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_42	R1_OGV08	OGV	Oil Tanker	POINT	827686.26	825126.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_43	R1_OGV08	OGV	Oil Tanker	POINT	827696.23	825127.74	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_44	R1_OGV08	OGV	Oil Tanker	POINT	827706.20	825128.55	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_45	R1_OGV08	OGV	Oil Tanker	POINT	827716.17	825129.37	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_46	R1_OGV08	OGV	Oil Tanker	POINT	827726.13	825130.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_47	R1_OGV08	OGV	Oil Tanker	POINT	827736.10	825130.99	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_48	R1_OGV08	OGV	Oil Tanker	POINT	827746.07	825131.80	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_49	R1_OGV08	OGV	Oil Tanker	POINT	827756.03	825132.62	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_50	R1_OGV08	OGV	Oil Tanker	POINT	827766.00	825133.43	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_51	R1_OGV08	OGV	Oil Tanker	POINT	827775.97	825134.24	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_52	R1_OGV08	OGV	Oil Tanker	POINT	827785.93	825135.05	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_53	R1_OGV08	OGV	Oil Tanker	POINT	827795.90	825135.87	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_54	R1_OGV08	OGV	Oil Tanker	POINT	827805.87	825136.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_55	R1_OGV08	OGV	Oil Tanker	POINT	827815.83	825137.49	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_56	R1_OGV08	OGV	Oil Tanker	POINT	827825.80	825138.31	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_57	R1_OGV08	OGV	Oil Tanker	POINT	827835.77	825139.12	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_58	R1_OGV08	OGV	Oil Tanker	POINT	827845.74	825139.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_59	R1_OGV08	OGV	Oil Tanker	POINT	827855.70	825140.74	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_60	R1_OGV08	OGV	Oil Tanker	POINT	827865.67	825141.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_61	R1_OGV08	OGV	Oil Tanker	POINT	827875.64	825142.37	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_62	R1_OGV08	OGV	Oil Tanker	POINT	827885.60	825143.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_63	R1_OGV08	OGV	Oil Tanker	POINT	827895.57	825143.99	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_64	R1_OGV08	OGV	Oil Tanker	POINT	827905.54	825144.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_65	R1_OGV08	OGV	Oil Tanker	POINT	827915.50	825145.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_66	R1_OGV08	OGV	Oil Tanker	POINT	827925.46	825146.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_67	R1_OGV08	OGV	Oil Tanker	POINT	827935.42	825147.43	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_68	R1_OGV08	OGV	Oil Tanker	POINT	827945.38	825148.31	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_69	R1_OGV08	OGV	Oil Tanker	POINT	827955.35	825149.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_70	R1_OGV08	OGV	Oil Tanker	POINT	827965.31	825150.06	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_71	R1_OGV08	OGV	Oil Tanker	POINT	827975.27	825150.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_72	R1_OGV08	OGV	Oil Tanker	POINT	827985.23	825151.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_73	R1_OGV08	OGV	Oil Tanker	POINT	827995.19	825152.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_74	R1_OGV08	OGV	Oil Tanker	POINT	828005.15	825153.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_75	R1_OGV08	OGV	Oil Tanker	POINT	828015.12	825154.43	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_76	R1_OGV08	OGV	Oil Tanker	POINT	828025.08	825155.31	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_77	R1_OGV08	OGV	Oil Tanker	POINT	828035.04	825156.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_78	R1_OGV08	OGV	Oil Tanker	POINT	828045.00	825157.06	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_79	R1_OGV08	OGV	Oil Tanker	POINT	828054.96	825157.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_80	R1_OGV08	OGV	Oil Tanker	POINT	828064.92	825158.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_81	R1_OGV08	OGV	Oil Tanker	POINT	828074.88	825159.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_82	R1_OGV08	OGV	Oil Tanker	POINT	828084.85	825160.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_83	R1_OGV08	OGV	Oil Tanker	POINT	828094.81	825161.43	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_84	R1_OGV08	OGV	Oil Tanker	POINT	828104.77	825162.31	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_85	R1_OGV08	OGV	Oil Tanker	POINT	828114.73	825163.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_86	R1_OGV08	OGV	Oil Tanker	POINT	828124.69	825164.06	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_87	R1_OGV08	OGV	Oil Tanker	POINT	828134.65	825164.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_88	R1_OGV08	OGV	Oil Tanker	POINT	828144.62	825165.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_89	R1_OGV08	OGV	Oil Tanker	POINT	828154.58	825166.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_90	R1_OGV08	OGV	Oil Tanker	POINT	828164.54	825167.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_91	R1_OGV08	OGV	Oil Tanker	POINT	828174.50	825168.43	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_92	R1_OGV08	OGV	Oil Tanker	POINT	828184.46	825169.31	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_93	R1_OGV08	OGV	Oil Tanker	POINT	828194.42	825170.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_94	R1_OGV08	OGV	Oil Tanker	POINT	828204.39	825171.06	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_95	R1_OGV08	OGV	Oil Tanker	POINT	828214.35	825171.93	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_96	R1_OGV08	OGV	Oil Tanker	POINT	828224.31	825172.81	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_OGV08_97	R1_OGV08	OGV	Oil Tanker	POINT	828234.27	825173.68	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_98	R1_OGV08	OGV	Oil Tanker	POINT	828244.23	825174.56	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_99	R1_OGV08	OGV	Oil Tanker	POINT	828254.20	825175.40	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_100	R1_OGV08	OGV	Oil Tanker	POINT	828264.16	825176.23	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_101	R1_OGV08	OGV	Oil Tanker	POINT	828274.13	825177.05	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_102	R1_OGV08	OGV	Oil Tanker	POINT	828284.09	825177.88	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_103	R1_OGV08	OGV	Oil Tanker	POINT	828294.06	825178.70	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_104	R1_OGV08	OGV	Oil Tanker	POINT	828304.03	825179.53	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_105	R1_OGV08	OGV	Oil Tanker	POINT	828313.99	825180.35	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_106	R1_OGV08	OGV	Oil Tanker	POINT	828323.96	825181.18	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_107	R1_OGV08	OGV	Oil Tanker	POINT	828333.92	825182.00	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_108	R1_OGV08	OGV	Oil Tanker	POINT	828343.89	825182.83	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_109	R1_OGV08	OGV	Oil Tanker	POINT	828353.86	825183.65	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_110	R1_OGV08	OGV	Oil Tanker	POINT	828363.82	825184.48	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_111	R1_OGV08	OGV	Oil Tanker	POINT	828373.79	825185.30	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_112	R1_OGV08	OGV	Oil Tanker	POINT	828383.75	825186.13	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_113	R1_OGV08	OGV	Oil Tanker	POINT	828393.72	825186.95	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_114	R1_OGV08	OGV	Oil Tanker	POINT	828403.69	825187.78	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_115	R1_OGV08	OGV	Oil Tanker	POINT	828413.65	825188.60	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_OGV08_116	R1_OGV08	OGV	Oil Tanker	POINT	828416.64	825188.85	116	1.30	20.00	503.15	25.00	0.80	1.6778E-03	4.3400E-04	5.9087E-05	5.4360E-05
R1_RTV01_01	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827278.92	825081.10	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_02	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827288.83	825082.44	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_03	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827298.74	825083.78	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_04	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827308.65	825085.12	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_05	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827318.56	825086.46	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_06	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827328.47	825087.80	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_07	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827338.37	825089.13	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_08	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827348.28	825090.47	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_09	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827358.19	825091.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_10	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827368.10	825093.15	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_11	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827378.01	825094.49	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_12	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827387.92	825095.83	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_13	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827397.83	825097.17	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_14	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827407.74	825098.51	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_15	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827417.65	825099.85	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_16	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827427.56	825101.19	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_17	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827437.47	825102.53	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_18	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827447.38	825103.87	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_19	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827457.32	825104.96	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_20	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827467.27	825105.96	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_21	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827477.22	825106.96	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_22	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827487.17	825107.95	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_23	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827497.12	825108.95	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_24	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827507.07	825109.94	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_25	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827517.02	825110.94	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_26	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827526.97	825111.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_27	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827536.93	825112.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_28	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827546.88	825113.92	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_29	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827556.83	825114.92	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_30	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827566.78	825115.91	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_31	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827576.73	825116.91	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_32	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827586.68	825117.90	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_33	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827596.63	825118.90	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_34	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827606.58	825119.89	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_35	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827616.53	825120.89	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_36	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827626.48	825121.88	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_37	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827636.43	825122.86	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_38	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827646.40	825123.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_39	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827656.36	825124.49	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_40	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827666.33	825125.30	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_41	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827676.30	825126.11	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_42	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827686.26	825126.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_43	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827696.23	825127.74	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_44	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827706.20	825128.55	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_45	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827716.17	825129.37	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_46	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827726.13	825130.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_47	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827736.10	825130.99	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_48	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827746.07	825131.80	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_49	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827756.03	825132.62	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_50	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827766.00	825133.43	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_51	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827775.97	825134.24	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_52	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827785.93	825135.05	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_53	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827795.90	825135.87	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_54	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827805.87	825136.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_55	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827815.83	825137.49	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_56	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827825.80	825138.31	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_57	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827835.77	825139.12	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_58	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827845.74	825139.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_59	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827855.70	825140.74	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_60	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827865.67	825141.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_RTV01_61	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827875.64	825142.37	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_62	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827885.60	825143.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_63	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827895.57	825143.99	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_64	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827905.54	825144.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_65	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827915.50	825145.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_66	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827925.46	825146.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_67	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827935.42	825147.43	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_68	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827945.38	825148.31	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_69	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827955.35	825149.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_70	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827965.31	825150.06	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_71	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827975.27	825150.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_72	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827985.23	825151.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_73	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	827995.19	825152.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_74	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828005.15	825153.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_75	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828015.12	825154.43	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_76	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828025.08	825155.31	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_77	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828035.04	825156.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_78	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828045.00	825157.06	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_79	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828054.96	825157.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_80	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828064.92	825158.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_81	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828074.88	825159.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_82	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828084.85	825160.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_83	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828094.81	825161.43	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_84	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828104.77	825162.31	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_85	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828114.73	825163.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_86	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828124.69	825164.06	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_87	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828134.65	825164.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_88	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828144.62	825165.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_89	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828154.58	825166.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_90	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828164.54	825167.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_91	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828174.50	825168.43	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_92	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828184.46	825169.31	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_93	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828194.42	825170.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_94	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828204.39	825171.06	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_95	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828214.35	825171.93	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_96	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828224.31	825172.81	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_97	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828234.27	825173.68	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_98	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828244.23	825174.56	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_99	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828254.20	825175.40	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_100	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828264.16	825176.23	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_101	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828274.13	825177.05	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_102	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828284.09	825177.88	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_103	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828294.06	825178.70	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_104	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828304.03	825179.53	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_105	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828313.99	825180.35	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_106	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828323.96	825181.18	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_107	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828333.92	825182.00	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_108	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828343.89	825182.83	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_109	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828353.86	825183.65	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_110	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828363.82	825184.48	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_111	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828373.79	825185.30	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_112	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828383.75	825186.13	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_113	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828393.72	825186.95	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_114	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828403.69	825187.78	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_115	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828413.65	825188.60	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV01_116	R1_RTV01	RTV	Fully Cellular Container Vessel	POINT	828416.64	825188.85	116	1.30	42.00	503.15	24.60	1.90	4.0675E-04	8.4691E-05	1.2898E-05	1.2511E-05
R1_RTV03_01	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827278.92	825081.10	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_02	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827288.83	825082.44	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_03	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827298.74	825083.78	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_04	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827308.65	825085.12	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_05	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827318.56	825086.46	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_06	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827328.47	825087.80	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_07	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827338.37	825089.13	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_08	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827348.28	825090.47	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_09	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827358.19	825091.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_10	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827368.10	825093.15	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_11	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827378.01	825094.49	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_12	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827387.92	825095.83	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_13	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827397.83	825097.17	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_14	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827407.74	825098.51	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_15	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827417.65	825099.85	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_16	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827427.56	825101.19	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_17	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827437.47	825102.53	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_18	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827447.38	825103.87	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_19	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827457.32	825104.96	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_20	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827467.27	825105.96	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_21	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827477.22	825106.96	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_22	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827487.17	825107.95	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_23	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827497.12	825108.95	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_24	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827507.07	825109.94	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_RTV03_25	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827517.02	825110.94	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_26	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827526.97	825111.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_27	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827536.93	825112.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_28	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827546.88	825113.92	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_29	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827556.83	825114.92	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_30	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827566.78	825115.91	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_31	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827576.73	825116.91	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_32	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827586.68	825117.90	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_33	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827596.63	825118.90	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_34	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827606.58	825119.89	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_35	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827616.53	825120.89	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_36	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827626.48	825121.88	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_37	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827636.43	825122.86	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_38	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827646.40	825123.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_39	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827656.36	825124.49	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_40	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827666.33	825125.30	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_41	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827676.30	825126.11	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_42	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827686.26	825126.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_43	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827696.23	825127.74	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_44	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827706.20	825128.55	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_45	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827716.17	825129.37	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_46	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827726.13	825130.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_47	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827736.10	825130.99	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_48	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827746.07	825131.80	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_49	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827756.03	825132.62	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_50	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827766.00	825133.43	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_51	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827775.97	825134.24	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_52	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827785.93	825135.05	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_53	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827795.90	825135.87	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_54	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827805.87	825136.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_55	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827815.83	825137.49	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_56	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827825.80	825138.31	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_57	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827835.77	825139.12	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_58	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827845.74	825139.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_59	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827855.70	825140.74	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_60	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827865.67	825141.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_61	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827875.64	825142.37	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_62	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827885.60	825143.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_63	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827895.57	825143.99	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_64	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827905.54	825144.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_65	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827915.50	825145.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_66	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827925.46	825146.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_67	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827935.42	825147.43	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_68	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827945.38	825148.31	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_69	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827955.35	825149.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_70	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827965.31	825150.06	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_71	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827975.27	825150.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_72	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827985.23	825151.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_73	R1_RTV03	RTV	Dry Bulk Carrier	POINT	827995.19	825152.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_74	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828005.15	825153.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_75	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828015.12	825154.43	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_76	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828025.08	825155.31	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_77	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828035.04	825156.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_78	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828045.00	825157.06	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_79	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828054.96	825157.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_80	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828064.92	825158.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_81	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828074.88	825159.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_82	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828084.85	825160.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_83	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828094.81	825161.43	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_84	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828104.77	825162.31	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_85	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828114.73	825163.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_86	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828124.69	825164.06	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_87	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828134.65	825164.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_88	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828144.62	825165.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_89	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828154.58	825166.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_90	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828164.54	825167.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_91	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828174.50	825168.43	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_92	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828184.46	825169.31	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_93	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828194.42	825170.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_94	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828204.39	825171.06	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_95	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828214.35	825171.93	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_96	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828224.31	825172.81	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_97	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828234.27	825173.68	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_98	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828244.23	825174.56	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_99	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828254.20	825175.40	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_100	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828264.16	825176.23	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_101	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828274.13	825177.05	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_102	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828284.09	825177.88	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_103	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828294.06	825178.70	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_104	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828304.03	825179.53	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_RTV03_105	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828313.99	825180.35	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_106	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828323.96	825181.18	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_107	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828333.92	825182.00	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_108	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828343.89	825182.83	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_109	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828353.86	825183.65	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_110	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828363.82	825184.48	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_111	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828373.79	825185.30	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_112	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828383.75	825186.13	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_113	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828393.72	825186.95	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_114	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828403.69	825187.78	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_115	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828413.65	825188.60	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03_116	R1_RTV03	RTV	Dry Bulk Carrier	POINT	828416.64	825188.85	116	1.30	27.00	503.15	25.00	0.80	4.2674E-04	8.8854E-05	1.3532E-05	1.3126E-05
R1_RTV03H_01	R1_RTV03H	RTV	Dry Bulk Carrier	POINT	827874.99	824793.69	1	1.30	27.00	503.15	25.00	0.80	1.3736E-01	2.8600E-02	4.3558E-03	4.2251E-03
R1_RTV03M_01	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827278.92	825081.10	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_02	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827288.83	825082.44	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_03	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827298.74	825083.78	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_04	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827308.65	825085.12	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_05	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827318.56	825086.46	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_06	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827328.47	825087.80	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_07	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827338.37	825089.13	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_08	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827348.28	825090.47	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_09	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827358.19	825091.81	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_10	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827368.10	825093.15	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_11	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827378.01	825094.49	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_12	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827387.92	825095.83	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_13	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827397.83	825097.17	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_14	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827407.74	825098.51	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_15	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827417.65	825099.85	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_16	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827427.56	825101.19	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_17	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827437.47	825102.53	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_18	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827447.38	825103.87	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_19	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827457.32	825104.96	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_20	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827467.27	825105.96	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_21	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827477.22	825106.96	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_22	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827487.17	825107.95	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_23	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827497.12	825108.95	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_24	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827507.07	825109.94	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_25	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827517.02	825110.94	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_26	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827526.97	825111.93	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_27	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827536.93	825112.93	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_28	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827546.86	825112.72	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_29	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827556.79	825111.52	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_30	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827566.72	825110.32	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_31	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827576.65	825109.12	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_32	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827586.57	825107.92	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_33	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827596.50	825106.72	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_34	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827606.43	825105.52	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_35	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827616.36	825104.32	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_36	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827626.29	825103.12	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_37	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827636.17	825101.66	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_38	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827645.92	825099.45	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_39	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827655.67	825097.23	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_40	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827665.42	825095.02	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_41	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827675.17	825092.80	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_42	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827684.93	825090.58	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_43	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827694.68	825088.37	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_44	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827704.43	825086.15	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_45	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827714.18	825083.93	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_46	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827723.42	825080.16	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_47	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827732.60	825076.20	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_48	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827741.79	825072.24	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_49	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827750.97	825068.27	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_50	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827760.15	825064.31	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_51	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827769.33	825060.35	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_52	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827778.51	825056.39	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_53	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827787.25	825051.77	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_54	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827794.44	825044.81	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_55	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827801.62	825037.85	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_56	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827808.80	825030.89	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_57	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827815.98	825023.93	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_58	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827823.17	825016.98	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_59	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827830.35	825010.02	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_60	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827836.31	825002.09	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_61	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827841.50	824993.54	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_62	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827846.70	824985.00	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_63	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827851.89	824976.45	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_64	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827857.08	824967.90	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_65	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827862.27	824959.36	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_66	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827867.47	824950.81	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_67	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827871.19	824941.57	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_RTV03M_68	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827874.44	824932.12	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_69	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827877.70	824922.66	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_70	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827880.95	824913.21	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_71	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827884.20	824903.75	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_72	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827887.46	824894.30	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_73	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827890.71	824884.84	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_74	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827890.71	824875.47	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_75	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827886.96	824866.20	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_76	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827883.22	824856.92	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_77	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827879.47	824847.65	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_78	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827876.76	824838.16	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_79	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827876.36	824828.17	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_80	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827875.96	824818.17	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_81	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827875.56	824808.18	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_82	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827875.17	824798.19	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV03M_83	R1_RTV03M	RTV	Dry Bulk Carrier	POINT	827874.99	824793.69	83	1.30	27.00	503.15	25.00	0.80	4.0402E-03	8.4122E-04	1.2812E-04	1.2427E-04
R1_RTV07H_01	R1_RTV07H	RTV	Chemical Carrier/Tanker	POINT	827874.99	824793.69	1	1.30	30.00	503.15	25.00	0.80	4.4792E-01	9.3262E-02	1.4204E-02	1.3778E-02
R1_RTV07M_01	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827278.92	825081.10	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_02	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827288.83	825082.44	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_03	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827298.74	825083.78	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_04	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827308.65	825085.12	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_05	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827318.56	825086.46	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_06	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827328.47	825087.80	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_07	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827338.37	825089.13	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_08	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827348.28	825090.47	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_09	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827358.19	825091.81	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_10	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827368.10	825093.15	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_11	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827378.01	825094.49	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_12	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827387.92	825095.83	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_13	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827397.83	825097.17	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_14	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827407.74	825098.51	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_15	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827417.65	825099.85	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_16	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827427.56	825101.19	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_17	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827437.47	825102.53	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_18	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827447.38	825103.87	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_19	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827457.32	825104.96	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_20	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827467.27	825105.96	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_21	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827477.22	825106.96	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_22	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827487.17	825107.95	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_23	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827497.12	825108.95	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_24	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827507.07	825109.94	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_25	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827517.02	825110.94	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_26	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827526.97	825111.93	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_27	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827536.93	825112.93	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_28	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827546.86	825112.72	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_29	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827556.79	825111.52	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_30	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827566.72	825110.32	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_31	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827576.65	825109.12	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_32	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827586.57	825107.92	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_33	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827596.50	825106.72	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_34	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827606.43	825105.52	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_35	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827616.36	825104.32	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_36	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827626.29	825103.12	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_37	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827636.17	825101.66	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_38	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827645.92	825099.45	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_39	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827655.67	825097.23	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_40	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827665.42	825095.02	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_41	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827675.17	825092.80	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_42	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827684.93	825090.58	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_43	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827694.68	825088.37	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_44	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827704.43	825086.15	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_45	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827714.18	825083.93	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_46	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827723.42	825080.16	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_47	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827732.60	825076.20	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_48	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827741.79	825072.24	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_49	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827750.97	825068.27	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_50	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827760.15	825064.31	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_51	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827769.33	825060.35	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_52	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827778.51	825056.39	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_53	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827787.25	825051.77	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_54	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827794.44	825044.81	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_55	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827801.62	825037.85	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_56	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827808.80	825030.89	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_57	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827815.98	825023.93	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_58	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827823.17	825016.98	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_59	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827830.35	825010.02	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_60	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827836.31	825002.09	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_61	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827841.50	824993.54	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_62	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827846.70	824985.00	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_63	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827851.89	824976.45	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_RTV07M_64	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827857.08	824967.90	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_65	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827862.27	824959.36	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_66	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827867.47	824950.81	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_67	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827871.19	824941.57	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_68	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827874.44	824932.12	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_69	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827877.70	824922.66	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_70	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827880.95	824913.21	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_71	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827884.20	824903.75	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_72	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827887.46	824894.30	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_73	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827890.71	824884.84	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_74	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827890.71	824875.47	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_75	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827886.96	824866.20	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_76	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827883.22	824856.92	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_77	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827879.47	824847.65	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_78	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827876.76	824838.16	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_79	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827876.36	824828.17	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_80	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827875.96	824818.17	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_81	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827875.56	824808.18	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_82	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827875.17	824798.19	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_RTV07M_83	R1_RTV07M	RTV	Chemical Carrier/Tanker	POINT	827874.99	824793.69	83	1.30	30.00	503.15	25.00	0.80	1.1573E-02	1.9461E-03	2.9638E-04	2.8749E-04
R1_SC01_01	R1_SC01	SC	Pleasure Vessel	POINTHOR	827278.92	825081.10	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_02	R1_SC01	SC	Pleasure Vessel	POINTHOR	827288.83	825082.44	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_03	R1_SC01	SC	Pleasure Vessel	POINTHOR	827298.74	825083.78	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_04	R1_SC01	SC	Pleasure Vessel	POINTHOR	827308.65	825085.12	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_05	R1_SC01	SC	Pleasure Vessel	POINTHOR	827318.56	825086.46	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_06	R1_SC01	SC	Pleasure Vessel	POINTHOR	827328.47	825087.80	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_07	R1_SC01	SC	Pleasure Vessel	POINTHOR	827338.37	825089.13	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_08	R1_SC01	SC	Pleasure Vessel	POINTHOR	827348.28	825090.47	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_09	R1_SC01	SC	Pleasure Vessel	POINTHOR	827358.19	825091.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_10	R1_SC01	SC	Pleasure Vessel	POINTHOR	827368.10	825093.15	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_11	R1_SC01	SC	Pleasure Vessel	POINTHOR	827378.01	825094.49	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_12	R1_SC01	SC	Pleasure Vessel	POINTHOR	827387.92	825095.83	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_13	R1_SC01	SC	Pleasure Vessel	POINTHOR	827397.83	825097.17	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_14	R1_SC01	SC	Pleasure Vessel	POINTHOR	827407.74	825098.51	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_15	R1_SC01	SC	Pleasure Vessel	POINTHOR	827417.65	825099.85	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_16	R1_SC01	SC	Pleasure Vessel	POINTHOR	827427.56	825101.19	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_17	R1_SC01	SC	Pleasure Vessel	POINTHOR	827437.47	825102.53	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_18	R1_SC01	SC	Pleasure Vessel	POINTHOR	827447.38	825103.87	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_19	R1_SC01	SC	Pleasure Vessel	POINTHOR	827457.32	825104.96	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_20	R1_SC01	SC	Pleasure Vessel	POINTHOR	827467.27	825105.96	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_21	R1_SC01	SC	Pleasure Vessel	POINTHOR	827477.22	825106.96	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_22	R1_SC01	SC	Pleasure Vessel	POINTHOR	827487.17	825107.95	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_23	R1_SC01	SC	Pleasure Vessel	POINTHOR	827497.12	825108.95	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_24	R1_SC01	SC	Pleasure Vessel	POINTHOR	827507.07	825109.94	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_25	R1_SC01	SC	Pleasure Vessel	POINTHOR	827517.02	825110.94	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_26	R1_SC01	SC	Pleasure Vessel	POINTHOR	827526.97	825111.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_27	R1_SC01	SC	Pleasure Vessel	POINTHOR	827536.93	825112.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_28	R1_SC01	SC	Pleasure Vessel	POINTHOR	827546.88	825113.92	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_29	R1_SC01	SC	Pleasure Vessel	POINTHOR	827556.83	825114.92	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_30	R1_SC01	SC	Pleasure Vessel	POINTHOR	827566.78	825115.91	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_31	R1_SC01	SC	Pleasure Vessel	POINTHOR	827576.73	825116.91	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_32	R1_SC01	SC	Pleasure Vessel	POINTHOR	827586.68	825117.90	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_33	R1_SC01	SC	Pleasure Vessel	POINTHOR	827596.63	825118.90	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_34	R1_SC01	SC	Pleasure Vessel	POINTHOR	827606.58	825119.89	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_35	R1_SC01	SC	Pleasure Vessel	POINTHOR	827616.53	825120.89	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_36	R1_SC01	SC	Pleasure Vessel	POINTHOR	827626.48	825121.88	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_37	R1_SC01	SC	Pleasure Vessel	POINTHOR	827636.43	825122.86	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_38	R1_SC01	SC	Pleasure Vessel	POINTHOR	827646.40	825123.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_39	R1_SC01	SC	Pleasure Vessel	POINTHOR	827656.36	825124.49	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_40	R1_SC01	SC	Pleasure Vessel	POINTHOR	827666.33	825125.30	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_41	R1_SC01	SC	Pleasure Vessel	POINTHOR	827676.30	825126.11	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_42	R1_SC01	SC	Pleasure Vessel	POINTHOR	827686.26	825126.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_43	R1_SC01	SC	Pleasure Vessel	POINTHOR	827696.23	825127.74	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_44	R1_SC01	SC	Pleasure Vessel	POINTHOR	827706.20	825128.55	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_45	R1_SC01	SC	Pleasure Vessel	POINTHOR	827716.17	825129.37	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_46	R1_SC01	SC	Pleasure Vessel	POINTHOR	827726.13	825130.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_47	R1_SC01	SC	Pleasure Vessel	POINTHOR	827736.10	825130.99	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_48	R1_SC01	SC	Pleasure Vessel	POINTHOR	827746.07	825131.80	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_49	R1_SC01	SC	Pleasure Vessel	POINTHOR	827756.03	825132.62	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_50	R1_SC01	SC	Pleasure Vessel	POINTHOR	827766.00	825133.43	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_51	R1_SC01	SC	Pleasure Vessel	POINTHOR	827775.97	825134.24	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_52	R1_SC01	SC	Pleasure Vessel	POINTHOR	827785.93	825135.05	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_53	R1_SC01	SC	Pleasure Vessel	POINTHOR	827795.90	825135.87	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_54	R1_SC01	SC	Pleasure Vessel	POINTHOR	827805.87	825136.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_55	R1_SC01	SC	Pleasure Vessel	POINTHOR	827815.83	825137.49	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_56	R1_SC01	SC	Pleasure Vessel	POINTHOR	827825.80	825138.31	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_57	R1_SC01	SC	Pleasure Vessel	POINTHOR	827835.77	825139.12	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_58	R1_SC01	SC	Pleasure Vessel	POINTHOR	827845.74	825139.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_59	R1_SC01	SC	Pleasure Vessel	POINTHOR	827855.70	825140.74	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_60	R1_SC01	SC	Pleasure Vessel	POINTHOR	827865.67	825141.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_SC01_61	R1_SC01	SC	Pleasure Vessel	POINTHOR	827875.64	825142.37	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_62	R1_SC01	SC	Pleasure Vessel	POINTHOR	827885.60	825143.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_63	R1_SC01	SC	Pleasure Vessel	POINTHOR	827895.57	825143.99	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_64	R1_SC01	SC	Pleasure Vessel	POINTHOR	827905.54	825144.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_65	R1_SC01	SC	Pleasure Vessel	POINTHOR	827915.50	825145.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_66	R1_SC01	SC	Pleasure Vessel	POINTHOR	827925.46	825146.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_67	R1_SC01	SC	Pleasure Vessel	POINTHOR	827935.42	825147.43	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_68	R1_SC01	SC	Pleasure Vessel	POINTHOR	827945.38	825148.31	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_69	R1_SC01	SC	Pleasure Vessel	POINTHOR	827955.35	825149.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_70	R1_SC01	SC	Pleasure Vessel	POINTHOR	827965.31	825150.06	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_71	R1_SC01	SC	Pleasure Vessel	POINTHOR	827975.27	825150.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_72	R1_SC01	SC	Pleasure Vessel	POINTHOR	827985.23	825151.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_73	R1_SC01	SC	Pleasure Vessel	POINTHOR	827995.19	825152.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_74	R1_SC01	SC	Pleasure Vessel	POINTHOR	828005.15	825153.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_75	R1_SC01	SC	Pleasure Vessel	POINTHOR	828015.12	825154.43	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_76	R1_SC01	SC	Pleasure Vessel	POINTHOR	828025.08	825155.31	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_77	R1_SC01	SC	Pleasure Vessel	POINTHOR	828035.04	825156.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_78	R1_SC01	SC	Pleasure Vessel	POINTHOR	828045.00	825157.06	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_79	R1_SC01	SC	Pleasure Vessel	POINTHOR	828054.96	825157.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_80	R1_SC01	SC	Pleasure Vessel	POINTHOR	828064.92	825158.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_81	R1_SC01	SC	Pleasure Vessel	POINTHOR	828074.88	825159.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_82	R1_SC01	SC	Pleasure Vessel	POINTHOR	828084.85	825160.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_83	R1_SC01	SC	Pleasure Vessel	POINTHOR	828094.81	825161.43	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_84	R1_SC01	SC	Pleasure Vessel	POINTHOR	828104.77	825162.31	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_85	R1_SC01	SC	Pleasure Vessel	POINTHOR	828114.73	825163.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_86	R1_SC01	SC	Pleasure Vessel	POINTHOR	828124.69	825164.06	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_87	R1_SC01	SC	Pleasure Vessel	POINTHOR	828134.65	825164.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_88	R1_SC01	SC	Pleasure Vessel	POINTHOR	828144.62	825165.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_89	R1_SC01	SC	Pleasure Vessel	POINTHOR	828154.58	825166.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_90	R1_SC01	SC	Pleasure Vessel	POINTHOR	828164.54	825167.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_91	R1_SC01	SC	Pleasure Vessel	POINTHOR	828174.50	825168.43	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_92	R1_SC01	SC	Pleasure Vessel	POINTHOR	828184.46	825169.31	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_93	R1_SC01	SC	Pleasure Vessel	POINTHOR	828194.42	825170.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_94	R1_SC01	SC	Pleasure Vessel	POINTHOR	828204.39	825171.06	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_95	R1_SC01	SC	Pleasure Vessel	POINTHOR	828214.35	825171.93	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_96	R1_SC01	SC	Pleasure Vessel	POINTHOR	828224.31	825172.81	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_97	R1_SC01	SC	Pleasure Vessel	POINTHOR	828234.27	825173.68	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_98	R1_SC01	SC	Pleasure Vessel	POINTHOR	828244.23	825174.56	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_99	R1_SC01	SC	Pleasure Vessel	POINTHOR	828254.20	825175.40	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_100	R1_SC01	SC	Pleasure Vessel	POINTHOR	828264.16	825176.23	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_101	R1_SC01	SC	Pleasure Vessel	POINTHOR	828274.13	825177.05	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_102	R1_SC01	SC	Pleasure Vessel	POINTHOR	828284.09	825177.88	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_103	R1_SC01	SC	Pleasure Vessel	POINTHOR	828294.06	825178.70	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_104	R1_SC01	SC	Pleasure Vessel	POINTHOR	828304.03	825179.53	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_105	R1_SC01	SC	Pleasure Vessel	POINTHOR	828313.99	825180.35	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_106	R1_SC01	SC	Pleasure Vessel	POINTHOR	828323.96	825181.18	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_107	R1_SC01	SC	Pleasure Vessel	POINTHOR	828333.92	825182.00	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_108	R1_SC01	SC	Pleasure Vessel	POINTHOR	828343.89	825182.83	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_109	R1_SC01	SC	Pleasure Vessel	POINTHOR	828353.86	825183.65	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_110	R1_SC01	SC	Pleasure Vessel	POINTHOR	828363.82	825184.48	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_111	R1_SC01	SC	Pleasure Vessel	POINTHOR	828373.79	825185.30	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_112	R1_SC01	SC	Pleasure Vessel	POINTHOR	828383.75	825186.13	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_113	R1_SC01	SC	Pleasure Vessel	POINTHOR	828393.72	825186.95	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_114	R1_SC01	SC	Pleasure Vessel	POINTHOR	828403.69	825187.78	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_115	R1_SC01	SC	Pleasure Vessel	POINTHOR	828413.65	825188.60	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_SC01_116	R1_SC01	SC	Pleasure Vessel	POINTHOR	828416.64	825188.85	116	1.30	0.00	313.00	8.00	0.30	7.9330E-05	1.2618E-06	1.0081E-06	9.7784E-07
R1_TT01_01	R1_TT01	TT	Tug	POINTHOR	827278.92	825081.10	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_02	R1_TT01	TT	Tug	POINTHOR	827288.83	825082.44	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_03	R1_TT01	TT	Tug	POINTHOR	827298.74	825083.78	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_04	R1_TT01	TT	Tug	POINTHOR	827308.65	825085.12	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_05	R1_TT01	TT	Tug	POINTHOR	827318.56	825086.46	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_06	R1_TT01	TT	Tug	POINTHOR	827328.47	825087.80	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_07	R1_TT01	TT	Tug	POINTHOR	827338.37	825089.13	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_08	R1_TT01	TT	Tug	POINTHOR	827348.28	825090.47	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_09	R1_TT01	TT	Tug	POINTHOR	827358.19	825091.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_10	R1_TT01	TT	Tug	POINTHOR	827368.10	825093.15	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_11	R1_TT01	TT	Tug	POINTHOR	827378.01	825094.49	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_12	R1_TT01	TT	Tug	POINTHOR	827387.92	825095.83	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_13	R1_TT01	TT	Tug	POINTHOR	827397.83	825097.17	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_14	R1_TT01	TT	Tug	POINTHOR	827407.74	825098.51	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_15	R1_TT01	TT	Tug	POINTHOR	827417.65	825099.85	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_16	R1_TT01	TT	Tug	POINTHOR	827427.56	825101.19	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_17	R1_TT01	TT	Tug	POINTHOR	827437.47	825102.53	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_18	R1_TT01	TT	Tug	POINTHOR	827447.38	825103.87	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_19	R1_TT01	TT	Tug	POINTHOR	827457.32	825104.96	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_20	R1_TT01	TT	Tug	POINTHOR	827467.27	825105.96	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_21	R1_TT01	TT	Tug	POINTHOR	827477.22	825106.96	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_22	R1_TT01	TT	Tug	POINTHOR	827487.17	825107.95	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_23	R1_TT01	TT	Tug	POINTHOR	827497.12	825108.95	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_24	R1_TT01	TT	Tug	POINTHOR	827507.07	825109.94	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_TT01_25	R1_TT01	TT	Tug	POINTHOR	827517.02	825110.94	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_26	R1_TT01	TT	Tug	POINTHOR	827526.97	825111.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_27	R1_TT01	TT	Tug	POINTHOR	827536.93	825112.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_28	R1_TT01	TT	Tug	POINTHOR	827546.88	825113.92	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_29	R1_TT01	TT	Tug	POINTHOR	827556.83	825114.92	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_30	R1_TT01	TT	Tug	POINTHOR	827566.78	825115.91	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_31	R1_TT01	TT	Tug	POINTHOR	827576.73	825116.91	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_32	R1_TT01	TT	Tug	POINTHOR	827586.68	825117.90	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_33	R1_TT01	TT	Tug	POINTHOR	827596.63	825118.90	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_34	R1_TT01	TT	Tug	POINTHOR	827606.58	825119.89	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_35	R1_TT01	TT	Tug	POINTHOR	827616.53	825120.89	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_36	R1_TT01	TT	Tug	POINTHOR	827626.48	825121.88	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_37	R1_TT01	TT	Tug	POINTHOR	827636.43	825122.86	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_38	R1_TT01	TT	Tug	POINTHOR	827646.40	825123.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_39	R1_TT01	TT	Tug	POINTHOR	827656.36	825124.49	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_40	R1_TT01	TT	Tug	POINTHOR	827666.33	825125.30	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_41	R1_TT01	TT	Tug	POINTHOR	827676.30	825126.11	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_42	R1_TT01	TT	Tug	POINTHOR	827686.26	825126.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_43	R1_TT01	TT	Tug	POINTHOR	827696.23	825127.74	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_44	R1_TT01	TT	Tug	POINTHOR	827706.20	825128.55	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_45	R1_TT01	TT	Tug	POINTHOR	827716.17	825129.37	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_46	R1_TT01	TT	Tug	POINTHOR	827726.13	825130.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_47	R1_TT01	TT	Tug	POINTHOR	827736.10	825130.99	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_48	R1_TT01	TT	Tug	POINTHOR	827746.07	825131.80	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_49	R1_TT01	TT	Tug	POINTHOR	827756.03	825132.62	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_50	R1_TT01	TT	Tug	POINTHOR	827766.00	825133.43	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_51	R1_TT01	TT	Tug	POINTHOR	827775.97	825134.24	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_52	R1_TT01	TT	Tug	POINTHOR	827785.93	825135.05	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_53	R1_TT01	TT	Tug	POINTHOR	827795.90	825135.87	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_54	R1_TT01	TT	Tug	POINTHOR	827805.87	825136.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_55	R1_TT01	TT	Tug	POINTHOR	827815.83	825137.49	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_56	R1_TT01	TT	Tug	POINTHOR	827825.80	825138.31	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_57	R1_TT01	TT	Tug	POINTHOR	827835.77	825139.12	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_58	R1_TT01	TT	Tug	POINTHOR	827845.74	825139.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_59	R1_TT01	TT	Tug	POINTHOR	827855.70	825140.74	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_60	R1_TT01	TT	Tug	POINTHOR	827865.67	825141.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_61	R1_TT01	TT	Tug	POINTHOR	827875.64	825142.37	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_62	R1_TT01	TT	Tug	POINTHOR	827885.60	825143.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_63	R1_TT01	TT	Tug	POINTHOR	827895.57	825143.99	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_64	R1_TT01	TT	Tug	POINTHOR	827905.54	825144.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_65	R1_TT01	TT	Tug	POINTHOR	827915.50	825145.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_66	R1_TT01	TT	Tug	POINTHOR	827925.46	825146.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_67	R1_TT01	TT	Tug	POINTHOR	827935.42	825147.43	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_68	R1_TT01	TT	Tug	POINTHOR	827945.38	825148.31	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_69	R1_TT01	TT	Tug	POINTHOR	827955.35	825149.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_70	R1_TT01	TT	Tug	POINTHOR	827965.31	825150.06	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_71	R1_TT01	TT	Tug	POINTHOR	827975.27	825150.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_72	R1_TT01	TT	Tug	POINTHOR	827985.23	825151.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_73	R1_TT01	TT	Tug	POINTHOR	827995.19	825152.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_74	R1_TT01	TT	Tug	POINTHOR	828005.15	825153.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_75	R1_TT01	TT	Tug	POINTHOR	828015.12	825154.43	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_76	R1_TT01	TT	Tug	POINTHOR	828025.08	825155.31	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_77	R1_TT01	TT	Tug	POINTHOR	828035.04	825156.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_78	R1_TT01	TT	Tug	POINTHOR	828045.00	825157.06	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_79	R1_TT01	TT	Tug	POINTHOR	828054.96	825157.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_80	R1_TT01	TT	Tug	POINTHOR	828064.92	825158.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_81	R1_TT01	TT	Tug	POINTHOR	828074.88	825159.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_82	R1_TT01	TT	Tug	POINTHOR	828084.85	825160.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_83	R1_TT01	TT	Tug	POINTHOR	828094.81	825161.43	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_84	R1_TT01	TT	Tug	POINTHOR	828104.77	825162.31	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_85	R1_TT01	TT	Tug	POINTHOR	828114.73	825163.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_86	R1_TT01	TT	Tug	POINTHOR	828124.69	825164.06	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_87	R1_TT01	TT	Tug	POINTHOR	828134.65	825164.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_88	R1_TT01	TT	Tug	POINTHOR	828144.62	825165.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_89	R1_TT01	TT	Tug	POINTHOR	828154.58	825166.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_90	R1_TT01	TT	Tug	POINTHOR	828164.54	825167.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_91	R1_TT01	TT	Tug	POINTHOR	828174.50	825168.43	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_92	R1_TT01	TT	Tug	POINTHOR	828184.46	825169.31	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_93	R1_TT01	TT	Tug	POINTHOR	828194.42	825170.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_94	R1_TT01	TT	Tug	POINTHOR	828204.39	825171.06	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_95	R1_TT01	TT	Tug	POINTHOR	828214.35	825171.93	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_96	R1_TT01	TT	Tug	POINTHOR	828224.31	825172.81	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_97	R1_TT01	TT	Tug	POINTHOR	828234.27	825173.68	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_98	R1_TT01	TT	Tug	POINTHOR	828244.23	825174.56	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_99	R1_TT01	TT	Tug	POINTHOR	828254.20	825175.40	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_100	R1_TT01	TT	Tug	POINTHOR	828264.16	825176.23	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_101	R1_TT01	TT	Tug	POINTHOR	828274.13	825177.05	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_102	R1_TT01	TT	Tug	POINTHOR	828284.09	825177.88	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_103	R1_TT01	TT	Tug	POINTHOR	828294.06	825178.70	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_104	R1_TT01	TT	Tug	POINTHOR	828304.03	825179.53	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05

Emission Inventory

Source ID	Vessel ID	Vessel Category	Vessel Type	Source Type	X	Y	Number of Point Sources	Base Elevation (m)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Diameter (m)	NOx Emission Rate (g/s/vessel)	SO_2 Emission Rate (g/s/vessel)	RSP Emission Rate (g/s/vessel)	FSP Emission Rate (g/s/vessel)
R1_TT01_105	R1_TT01	TT	Tug	POINTHOR	828313.99	825180.35	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_106	R1_TT01	TT	Tug	POINTHOR	828323.96	825181.18	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_107	R1_TT01	TT	Tug	POINTHOR	828333.92	825182.00	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_108	R1_TT01	TT	Tug	POINTHOR	828343.89	825182.83	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_109	R1_TT01	TT	Tug	POINTHOR	828353.86	825183.65	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_110	R1_TT01	TT	Tug	POINTHOR	828363.82	825184.48	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_111	R1_TT01	TT	Tug	POINTHOR	828373.79	825185.30	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_112	R1_TT01	TT	Tug	POINTHOR	828383.75	825186.13	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_113	R1_TT01	TT	Tug	POINTHOR	828393.72	825186.95	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_114	R1_TT01	TT	Tug	POINTHOR	828403.69	825187.78	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_115	R1_TT01	TT	Tug	POINTHOR	828413.65	825188.60	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05
R1_TT01_116	R1_TT01	TT	Tug	POINTHOR	828416.64	825188.85	116	1.30	5.00	503.15	8.00	0.30	1.4260E-03	2.3854E-05	1.9057E-05	1.8485E-05

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_FL01_01	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_02	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_03	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_04	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_05	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_06	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_07	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_08	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_09	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_10	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_11	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_12	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_13	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_14	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_15	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_16	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_17	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_18	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_19	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_20	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_21	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_22	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_23	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_24	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_25	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_26	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_27	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_28	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_29	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_30	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_31	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_32	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_33	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_34	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_35	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_36	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_37	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_38	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_39	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_40	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_41	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_42	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_43	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_44	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_45	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_46	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_47	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_48	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_49	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_50	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_51	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_52	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_53	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_54	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_55	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_56	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_57	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_58	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_59	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_60	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_61	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_62	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_63	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_64	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_65	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_66	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_67	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_68	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_69	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_FL01_70	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_71	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_72	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_73	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_74	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_75	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_76	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_77	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_78	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_79	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_80	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_81	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_82	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_83	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_84	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_85	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_86	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_87	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_88	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_89	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_90	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_91	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_92	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_93	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_94	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_95	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_96	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_97	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_98	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_99	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_100	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_101	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_102	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_103	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_104	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_105	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_106	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_107	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_108	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_109	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_110	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_111	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_112	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_113	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_114	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_115	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_FL01_116	R1_FL01	0	0	0	0	0	0	0	13	11	4	4	4	4	3	4	4	3	8	15	0	0	0	0	0
R1_LF01_01	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_02	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_03	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_04	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_05	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_06	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_07	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_08	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_09	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_10	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_11	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_12	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_13	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_14	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_15	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_16	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_17	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_18	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_19	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_20	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_21	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_22	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_LF01_23	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_24	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_25	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_26	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_27	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_28	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_29	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_30	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_31	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_32	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_33	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_34	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_35	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_36	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_37	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_38	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_39	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_40	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_41	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_42	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_43	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_44	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_45	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_46	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_47	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_48	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_49	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_50	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_51	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_52	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_53	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_54	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_55	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_56	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_57	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_58	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_59	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_60	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_61	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_62	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_63	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_64	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_65	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_66	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_67	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_68	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_69	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_70	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_71	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_72	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_73	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_74	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_75	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_76	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_77	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_78	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_79	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_80	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_81	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_82	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_83	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_84	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_85	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_86	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_87	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_88	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_89	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_90	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_91	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_LF01_92	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_93	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_94	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_95	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_96	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_97	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_98	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_99	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_100	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_101	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_102	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_103	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_104	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_105	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_106	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_107	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_108	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_109	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_110	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_111	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_112	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_113	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_114	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_115	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_LF01_116	R1_LF01	0	0	0	0	0	0	0	6	4	1	2	0	0	2	0	0	2	2	2	0	0	0	0	0
R1_OGV06_01	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_02	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_03	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_04	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_05	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_06	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_07	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_08	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_09	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_10	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_11	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_12	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_13	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_14	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_15	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_16	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_17	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_18	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_19	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_20	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_21	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_22	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_23	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_24	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_25	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_26	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_27	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_28	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_29	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_30	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_31	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_32	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_33	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_34	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_35	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_36	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_37	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_38	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_39	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_40	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_41	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_42	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_43	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_44	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_OGV06_45	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_46	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_47	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_48	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_49	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_50	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_51	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_52	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_53	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_54	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_55	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_56	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_57	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_58	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_59	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_60	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_61	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_62	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_63	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_64	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_65	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_66	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_67	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_68	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_69	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_70	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_71	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_72	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_73	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_74	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_75	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_76	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_77	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_78	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_79	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_80	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_81	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_82	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_83	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_84	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_85	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_86	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_87	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_88	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_89	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_90	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_91	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_92	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_93	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_94	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_95	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_96	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_97	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_98	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_99	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_100	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_101	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_102	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_103	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_104	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_105	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_106	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_107	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_108	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_109	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_110	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_111	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_112	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_113	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_OGV06_114	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_115	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV06_116	R1_OGV06	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_01	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_02	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_03	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_04	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_05	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_06	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_07	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_08	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_09	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_10	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_11	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_12	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_13	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_14	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_15	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_16	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_17	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_18	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_19	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_20	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_21	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_22	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_23	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_24	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_25	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_26	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_27	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_28	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_29	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_30	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_31	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_32	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_33	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_34	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_35	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_36	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_37	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_38	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_39	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_40	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_41	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_42	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_43	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_44	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_45	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_46	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_47	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_48	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_49	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_50	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_51	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_52	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_53	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_54	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_55	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_56	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_57	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_58	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_59	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_60	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_61	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_62	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_63	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_64	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_65	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_66	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_OGV07_67	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_68	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_69	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_70	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_71	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_72	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_73	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_74	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_75	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_76	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_77	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_78	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_79	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_80	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_81	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_82	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_83	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_84	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_85	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_86	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_87	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_88	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_89	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_90	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_91	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_92	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_93	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_94	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_95	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_96	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_97	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_98	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_99	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_100	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_101	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_102	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_103	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_104	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_105	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_106	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_107	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_108	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_109	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_110	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_111	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_112	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_113	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_114	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_115	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV07_116	R1_OGV07	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R1_OGV08_01	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_02	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_03	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_04	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_05	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_06	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_07	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_08	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_09	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_10	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_11	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_12	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_13	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_14	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_15	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_16	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_17	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_18	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_19	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_OGV08_20	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_21	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_22	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_23	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_24	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_25	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_26	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_27	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_28	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_29	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_30	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_31	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_32	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_33	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_34	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_35	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_36	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_37	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_38	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_39	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_40	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_41	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_42	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_43	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_44	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_45	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_46	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_47	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_48	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_49	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_50	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_51	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_52	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_53	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_54	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_55	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_56	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_57	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_58	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_59	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_60	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_61	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_62	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_63	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_64	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_65	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_66	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_67	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_68	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_69	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_70	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_71	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_72	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_73	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_74	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_75	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_76	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_77	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_78	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_79	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_80	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_81	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_82	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_83	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_84	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_85	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_86	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_87	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_88	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_OGV08_89	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_90	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_91	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_92	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_93	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_94	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_95	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_96	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_97	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_98	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_99	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_100	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_101	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_102	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_103	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_104	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_105	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_106	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_107	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_108	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_109	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_110	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_111	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_112	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_113	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_114	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_115	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_OGV08_116	R1_OGV08	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	1	1	0	0	0	0	0	0	0
R1_RTV01_01	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_02	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_03	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_04	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_05	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_06	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_07	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_08	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_09	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_10	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_11	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_12	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_13	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_14	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_15	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_16	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_17	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_18	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_19	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_20	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_21	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_22	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_23	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_24	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_25	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_26	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_27	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_28	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_29	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_30	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_31	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_32	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_33	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_34	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_35	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_36	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_37	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_38	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_39	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_40	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_41	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV01_42	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_43	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_44	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_45	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_46	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_47	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_48	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_49	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_50	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_51	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_52	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_53	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_54	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_55	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_56	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_57	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_58	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_59	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_60	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_61	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_62	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_63	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_64	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_65	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_66	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_67	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_68	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_69	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_70	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_71	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_72	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_73	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_74	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_75	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_76	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_77	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_78	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_79	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_80	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_81	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_82	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_83	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_84	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_85	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_86	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_87	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_88	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_89	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_90	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_91	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_92	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_93	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_94	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_95	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_96	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_97	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_98	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_99	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_100	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_101	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_102	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_103	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_104	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_105	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_106	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_107	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_108	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_109	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_110	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV01_111	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_112	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_113	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_114	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_115	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV01_116	R1_RTV01	0	0	0	0	0	0	0	1	1	1	1	1	4	3	2	2	1	1	1	0	0	0	0	0
R1_RTV03_01	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_02	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_03	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_04	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_05	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_06	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_07	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_08	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_09	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_10	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_11	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_12	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_13	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_14	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_15	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_16	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_17	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_18	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_19	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_20	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_21	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_22	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_23	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_24	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_25	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_26	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_27	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_28	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_29	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_30	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_31	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_32	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_33	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_34	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_35	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_36	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_37	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_38	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_39	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_40	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_41	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_42	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_43	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_44	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_45	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_46	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_47	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_48	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_49	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_50	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_51	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_52	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_53	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_54	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_55	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_56	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_57	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_58	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_59	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_60	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_61	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_62	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_63	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV03_64	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_65	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_66	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_67	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_68	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_69	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_70	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_71	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_72	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_73	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_74	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_75	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_76	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_77	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_78	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_79	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_80	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_81	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_82	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_83	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_84	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_85	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_86	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_87	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_88	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_89	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_90	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_91	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_92	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_93	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_94	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_95	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_96	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_97	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_98	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_99	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_100	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_101	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_102	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_103	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_104	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_105	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_106	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_107	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_108	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_109	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_110	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_111	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_112	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_113	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_114	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_115	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03_116	R1_RTV03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
R1_RTV03H_01	R1_RTV03H	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	0
R1_RTV03M_01	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_02	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_03	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_04	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_05	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_06	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_07	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_08	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_09	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_10	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_11	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_12	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_13	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_14	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_15	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV03M_16	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_17	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_18	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_19	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_20	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_21	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_22	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_23	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_24	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_25	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_26	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_27	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_28	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_29	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_30	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_31	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_32	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_33	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_34	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_35	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_36	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_37	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_38	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_39	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_40	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_41	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_42	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_43	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_44	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_45	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_46	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_47	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_48	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_49	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_50	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_51	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_52	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_53	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_54	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_55	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_56	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_57	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_58	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_59	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_60	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_61	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_62	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_63	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_64	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_65	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_66	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_67	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_68	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_69	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_70	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_71	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_72	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_73	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_74	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_75	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_76	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_77	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_78	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_79	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_80	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_81	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_82	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV03M_83	R1_RTV03M	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
R1_RTV07H_01	R1_RTV07H	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV07M_01	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_02	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_03	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_04	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_05	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_06	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_07	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_08	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_09	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_10	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_11	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_12	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_13	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_14	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_15	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_16	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_17	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_18	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_19	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_20	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_21	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_22	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_23	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_24	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_25	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_26	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_27	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_28	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_29	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_30	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_31	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_32	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_33	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_34	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_35	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_36	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_37	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_38	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_39	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_40	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_41	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_42	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_43	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_44	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_45	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_46	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_47	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_48	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_49	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_50	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_51	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_52	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_53	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_54	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_55	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_56	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_57	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_58	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_59	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_60	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_61	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_62	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_63	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_64	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_65	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_66	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_67	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_68	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_69	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_RTV07M_70	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_71	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_72	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_73	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_74	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_75	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_76	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_77	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_78	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_79	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_80	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_81	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_82	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_RTV07M_83	R1_RTV07M	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
R1_SC01_01	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_02	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_03	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_04	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_05	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_06	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_07	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_08	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_09	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_10	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_11	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_12	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_13	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_14	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_15	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_16	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_17	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_18	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_19	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_20	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_21	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_22	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_23	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_24	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_25	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_26	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_27	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_28	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_29	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_30	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_31	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_32	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_33	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_34	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_35	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_36	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_37	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_38	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_39	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_40	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_41	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_42	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_43	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_44	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_45	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_46	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_47	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_48	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_49	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_50	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_51	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_52	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_53	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_54	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_55	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_SC01_56	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_57	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_58	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_59	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_60	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_61	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_62	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_63	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_64	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_65	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_66	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_67	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_68	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_69	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_70	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_71	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_72	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_73	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_74	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_75	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_76	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_77	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_78	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_79	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_80	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_81	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_82	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_83	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_84	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_85	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_86	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_87	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_88	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_89	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_90	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_91	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_92	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_93	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_94	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_95	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_96	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_97	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_98	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_99	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_100	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_101	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_102	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_103	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_104	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_105	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_106	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_107	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_108	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_109	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_110	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_111	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_112	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_113	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_114	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_115	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_SC01_116	R1_SC01	0	0	0	0	0	0	0	5	7	6	10	8	12	7	6	10	11	12	7	0	0	0	0	0
R1_TT01_01	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_02	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_03	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_04	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_05	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_06	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_07	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_08	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_TT01_09	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_10	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_11	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_12	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_13	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_14	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_15	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_16	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_17	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_18	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_19	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_20	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_21	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_22	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_23	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_24	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_25	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_26	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_27	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_28	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_29	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_30	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_31	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_32	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_33	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_34	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_35	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_36	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
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R1_TT01_38	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_39	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_40	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_41	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_42	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
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R1_TT01_44	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_45	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_46	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_47	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_48	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_49	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_50	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_51	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_52	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_53	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
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R1_TT01_59	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
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R1_TT01_68	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
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R1_TT01_75	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_76	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_77	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0

Hourly Profile

Source ID	Vessel ID	0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
R1_TT01_78	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_79	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_80	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_81	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
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R1_TT01_96	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
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R1_TT01_106	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_107	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_108	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_109	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
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R1_TT01_111	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
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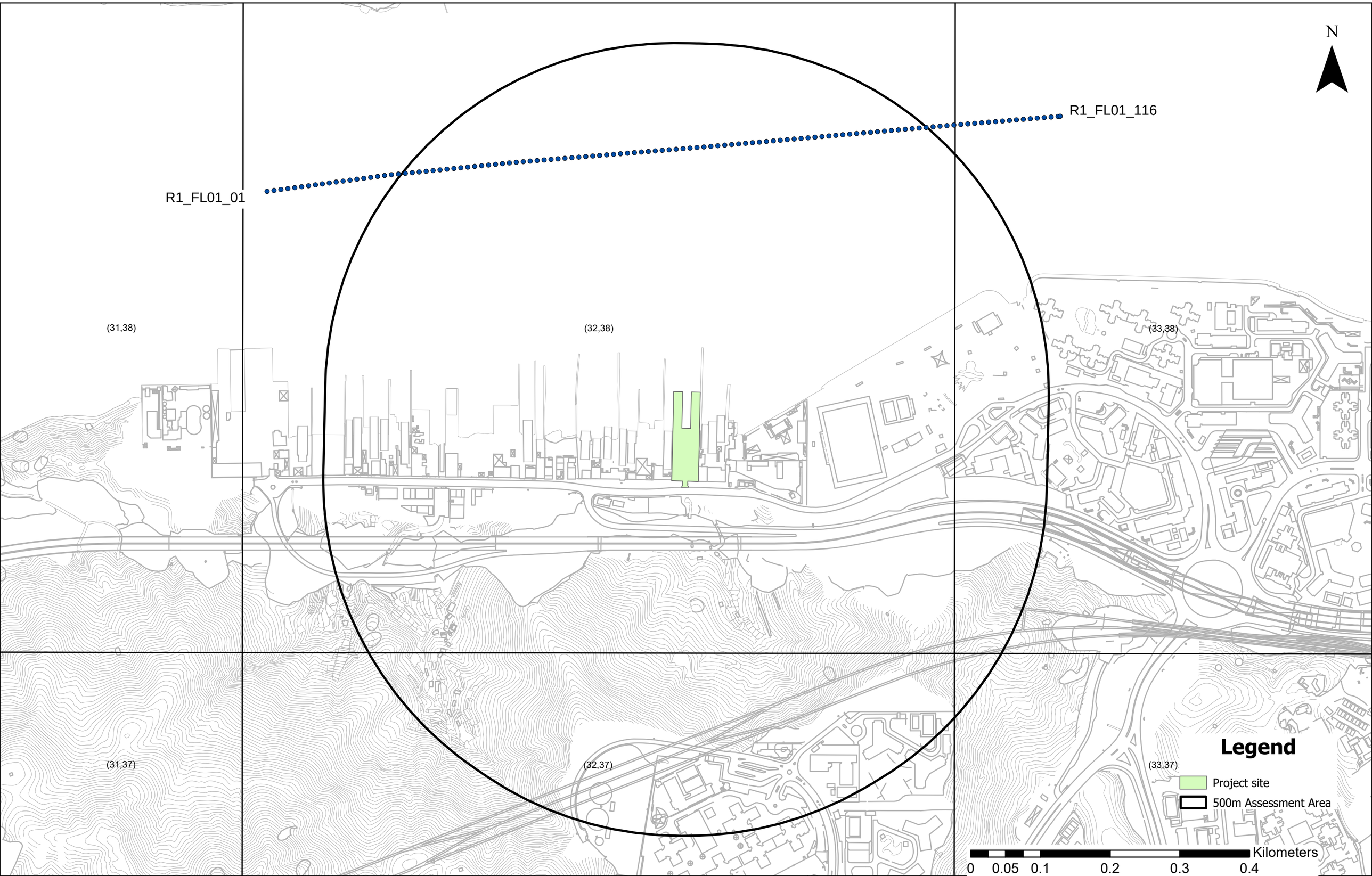
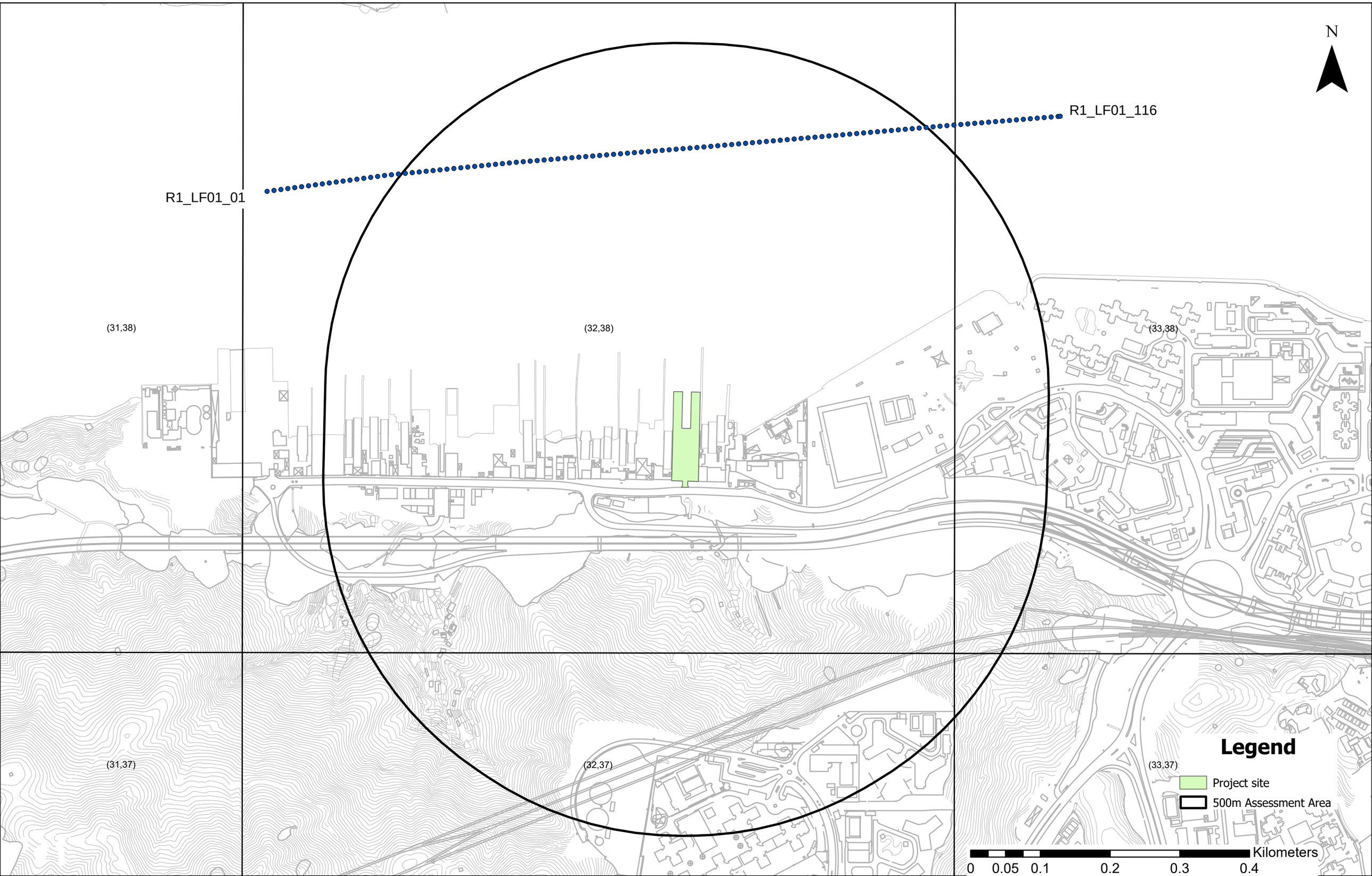
R1_TT01_114	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_115	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R1_TT01_116	R1_TT01	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0

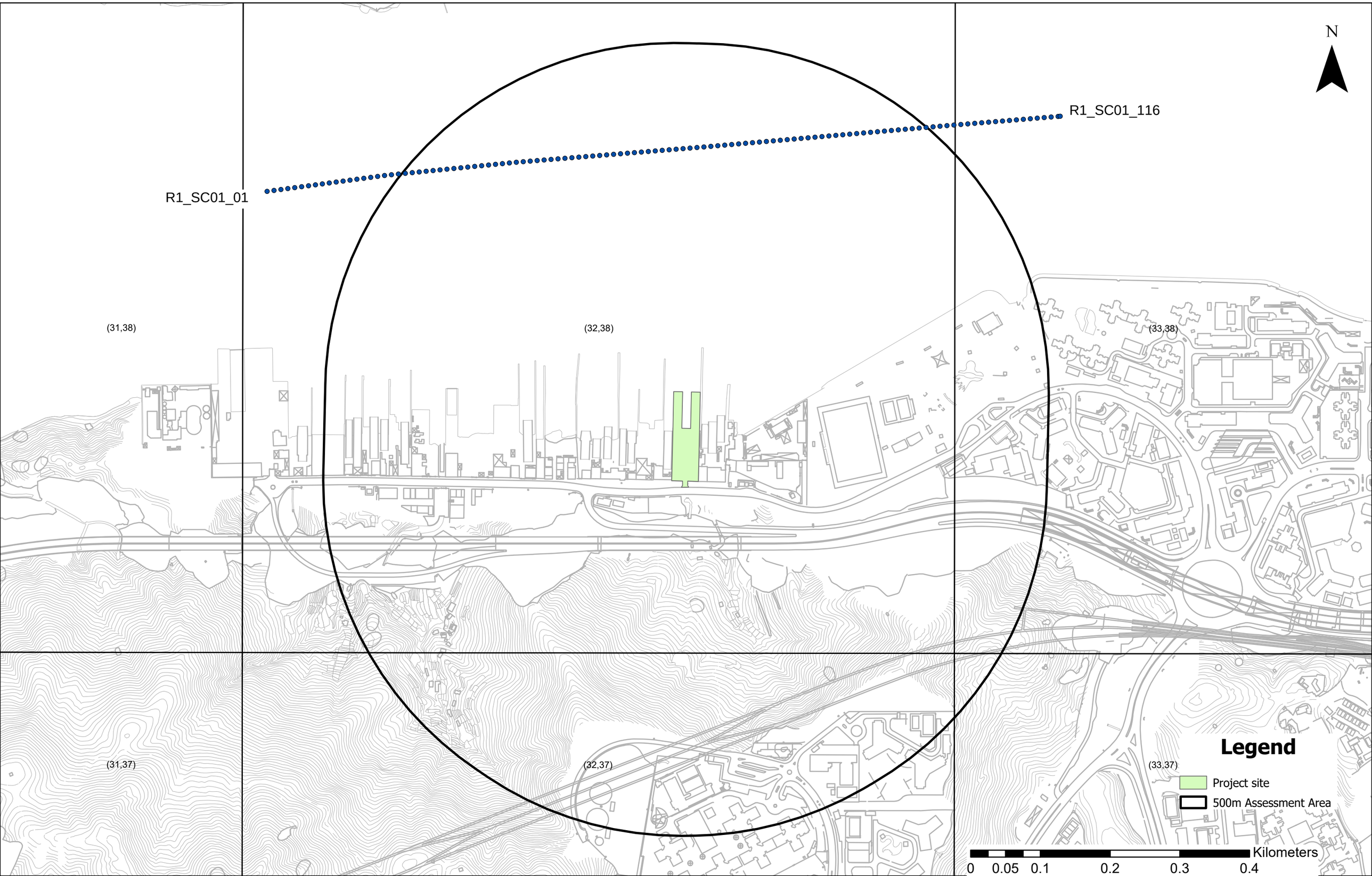
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Fast Launch FL01)



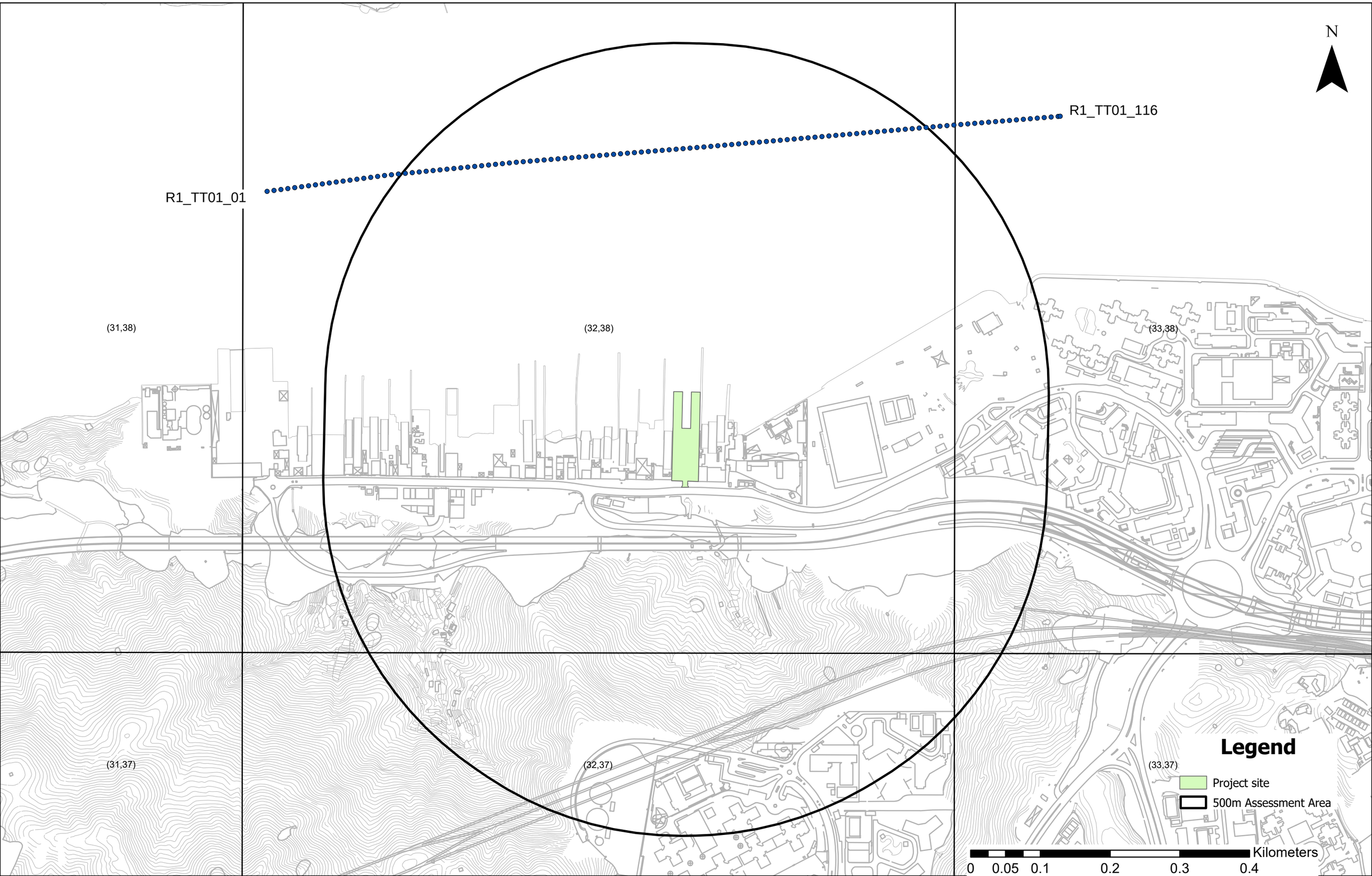
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Local Ferry LF01)



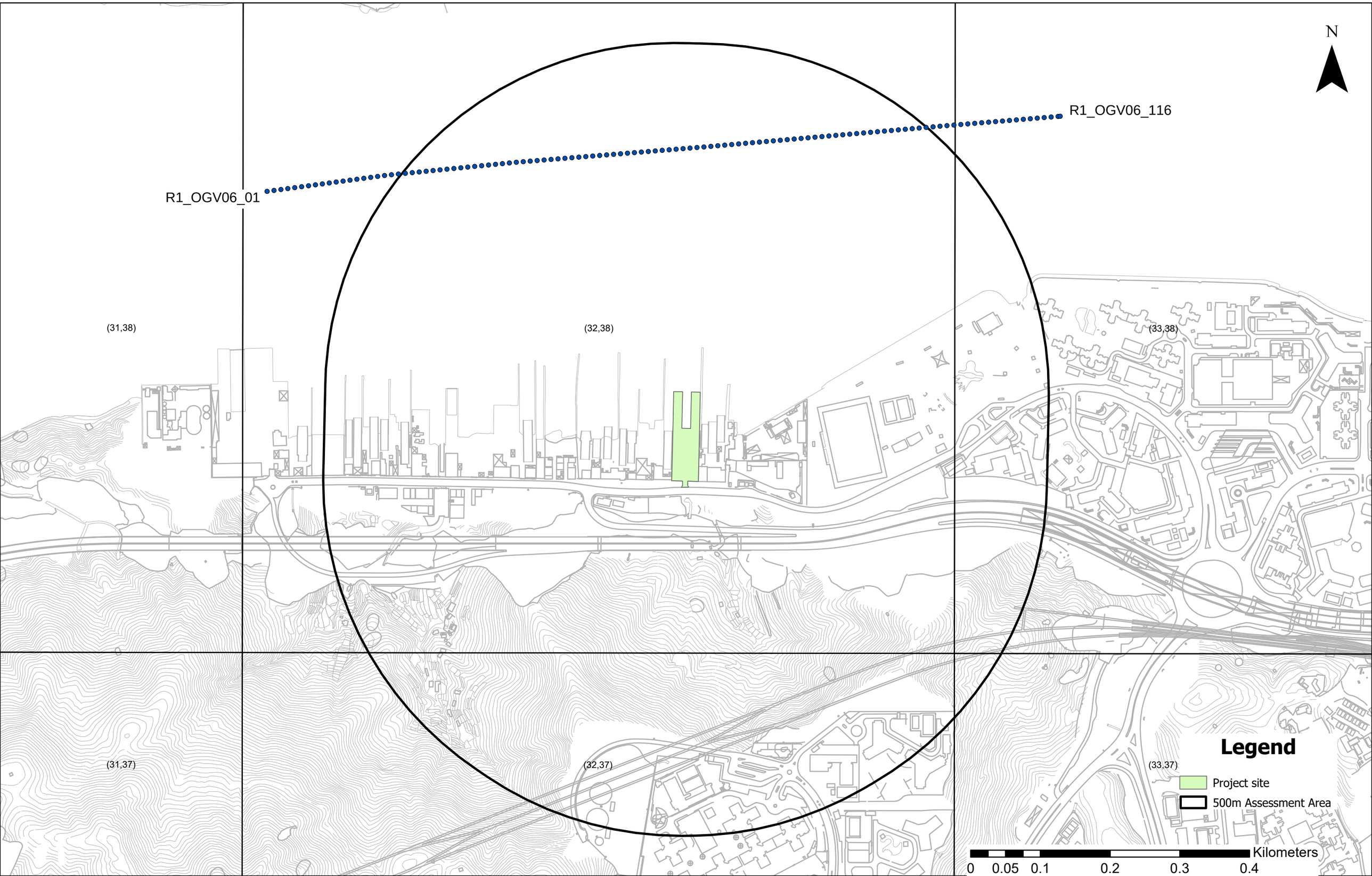
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Small Craft SC01)



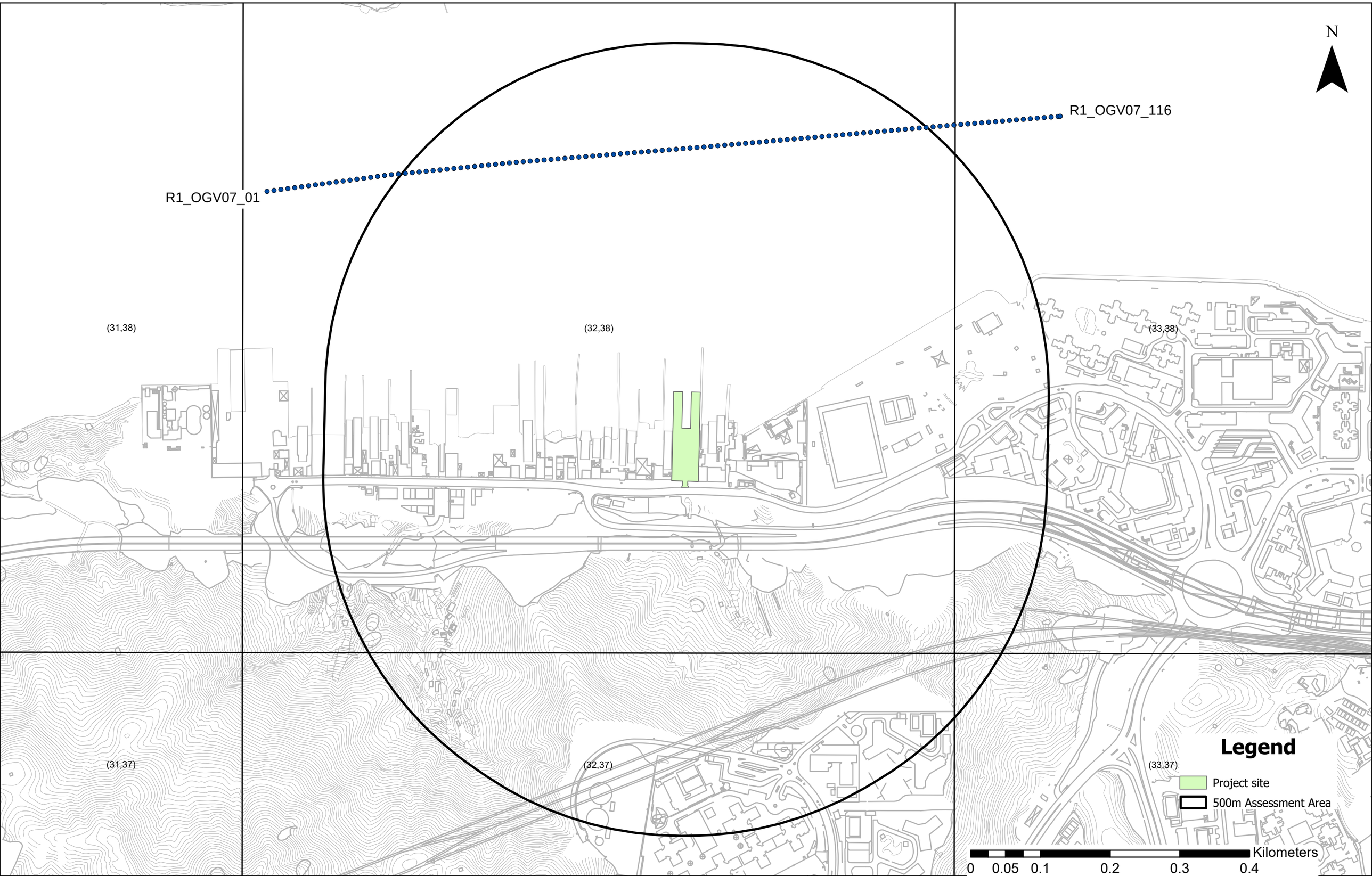
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Tug and Tow TT01)



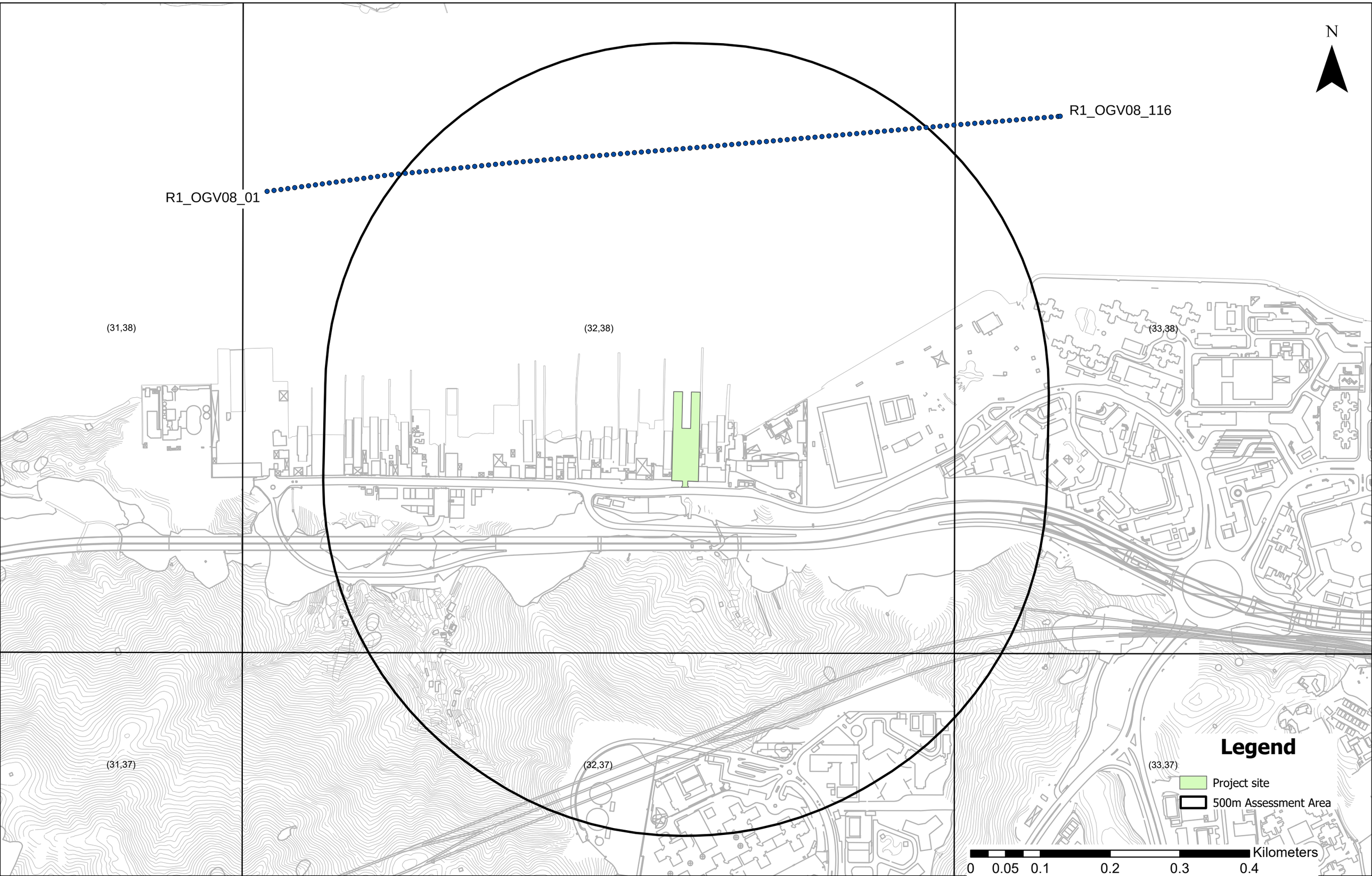
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Ocean-going Vessel OGV06)



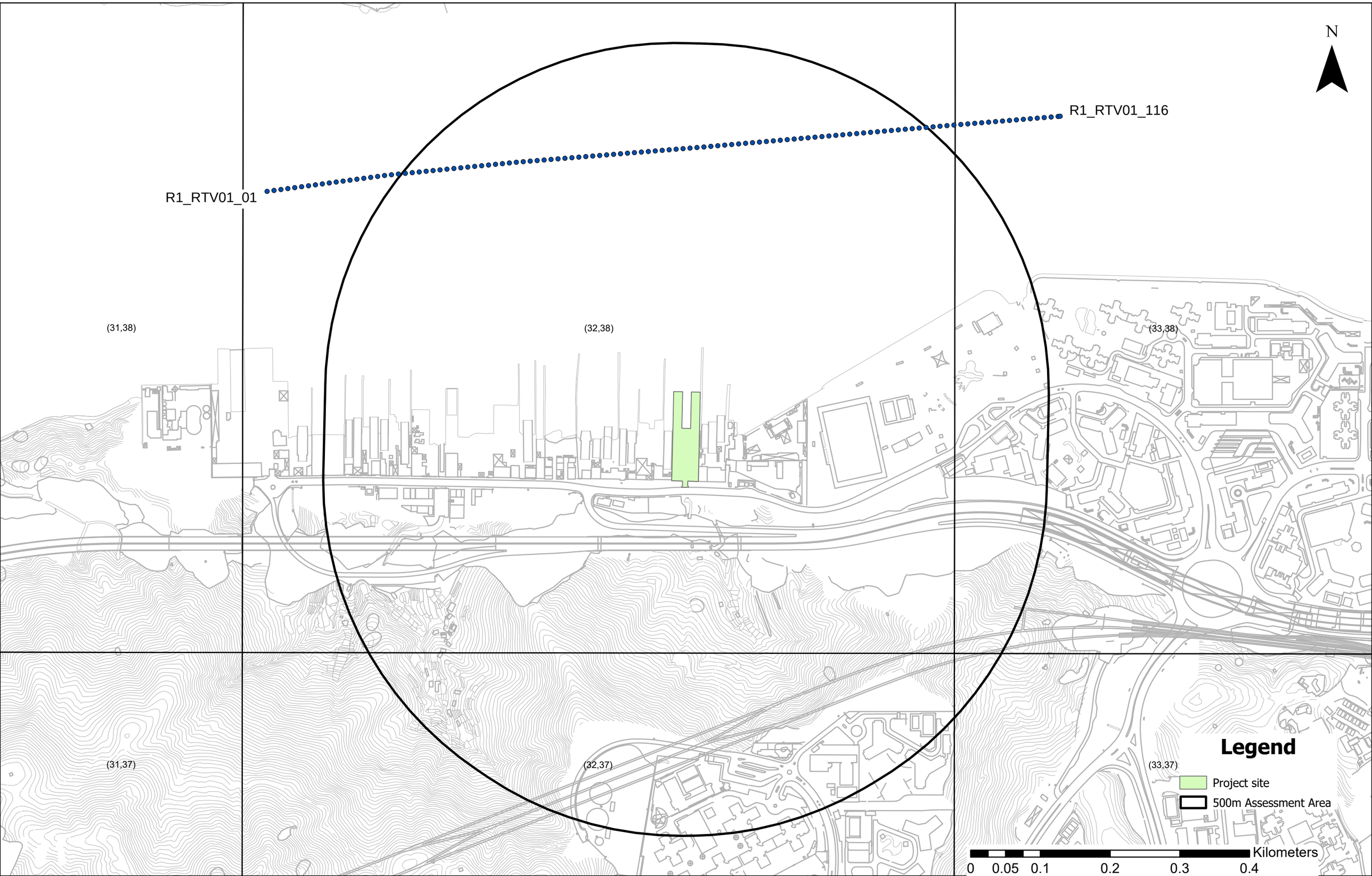
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Ocean-going Vessel OGV07)



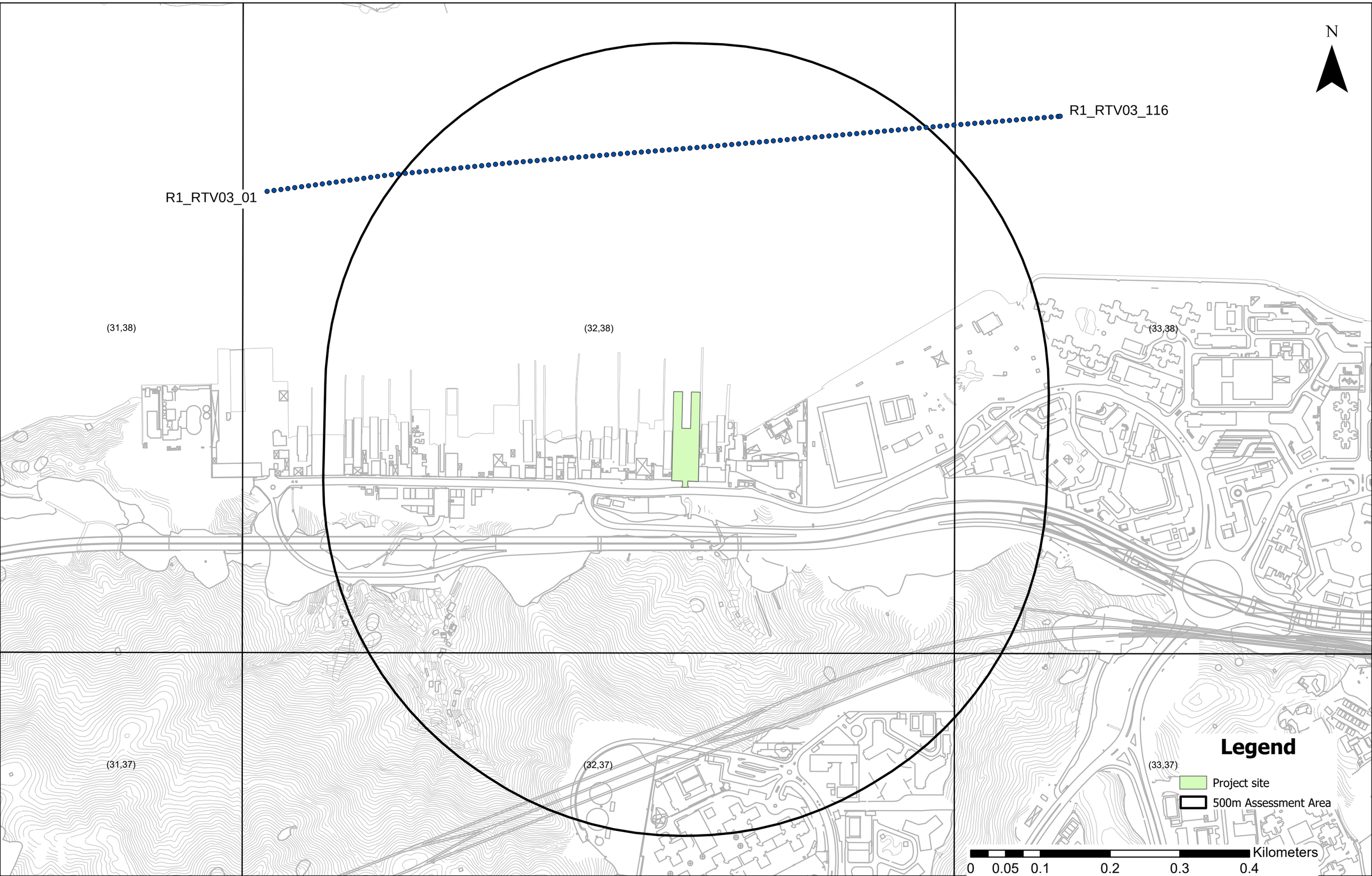
Location of Marine Emission Sources (marine routes in the vicinity of the Project, Ocean-going Vessel OGV08)



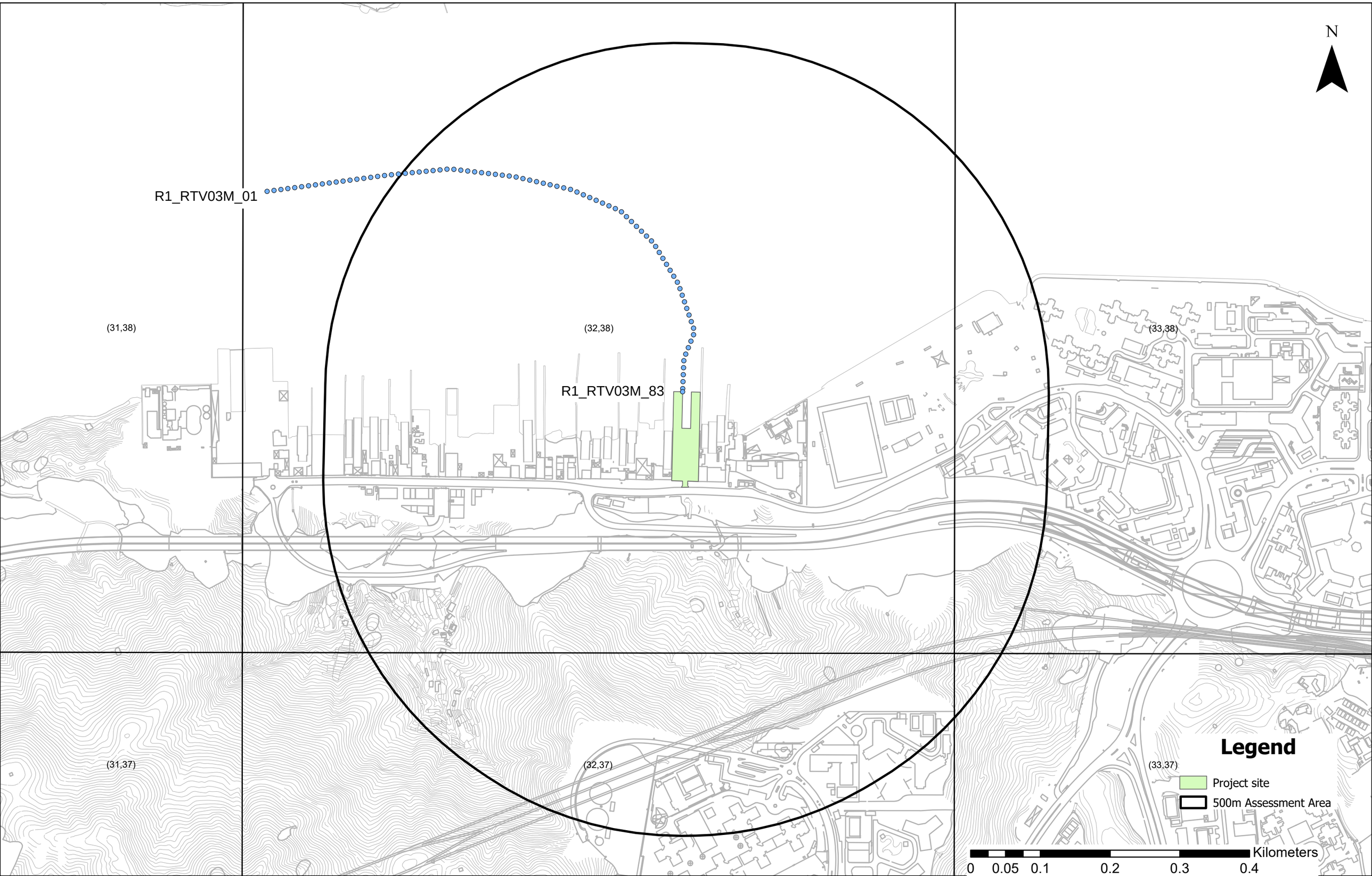
Location of Marine Emission Sources (marine routes in the vicinity of the Project, River Trade Vessel RTV01)



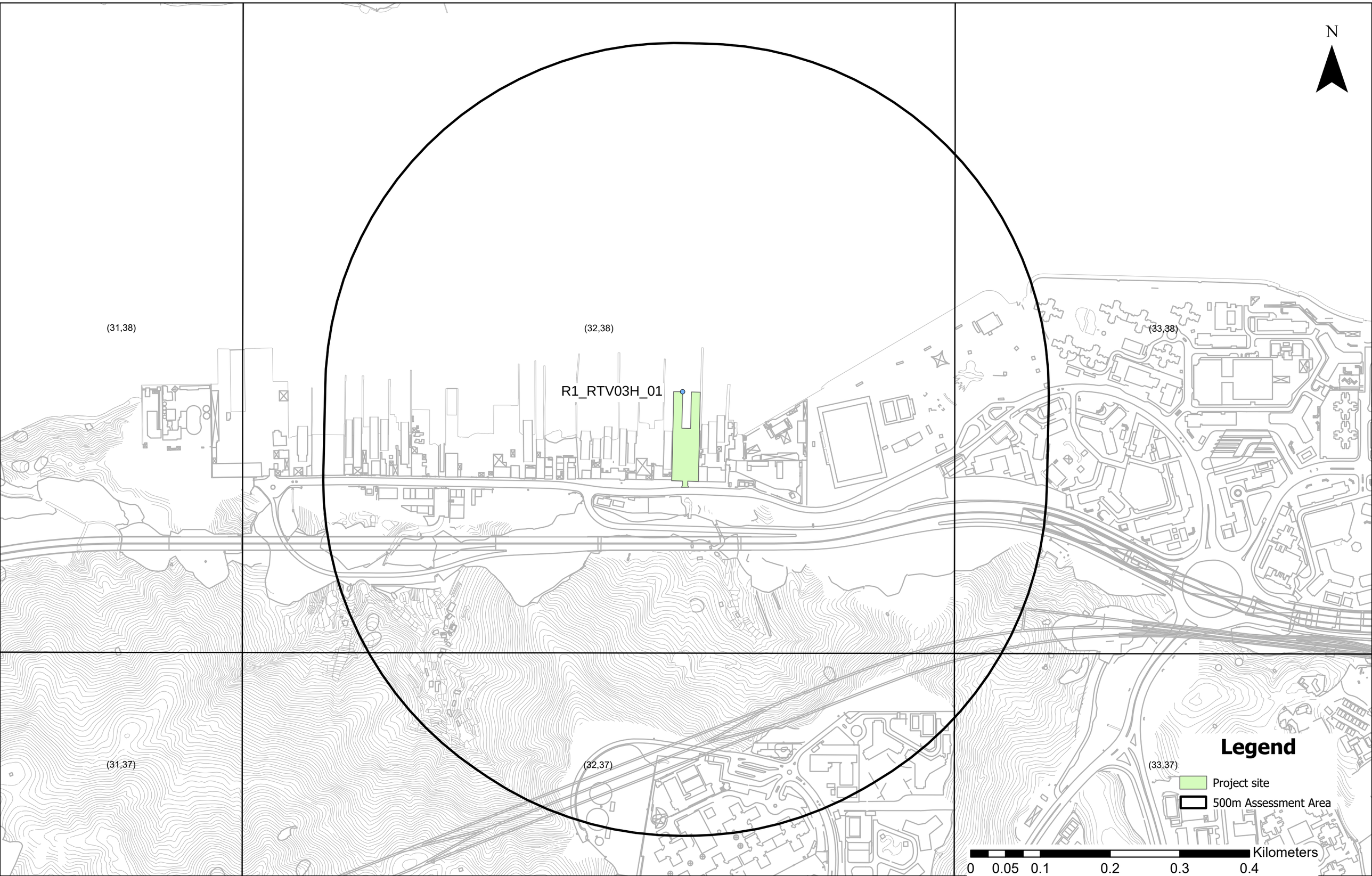
Location of Marine Emission Sources (marine routes in the vicinity of the Project, River Trade Vessel RTV03)



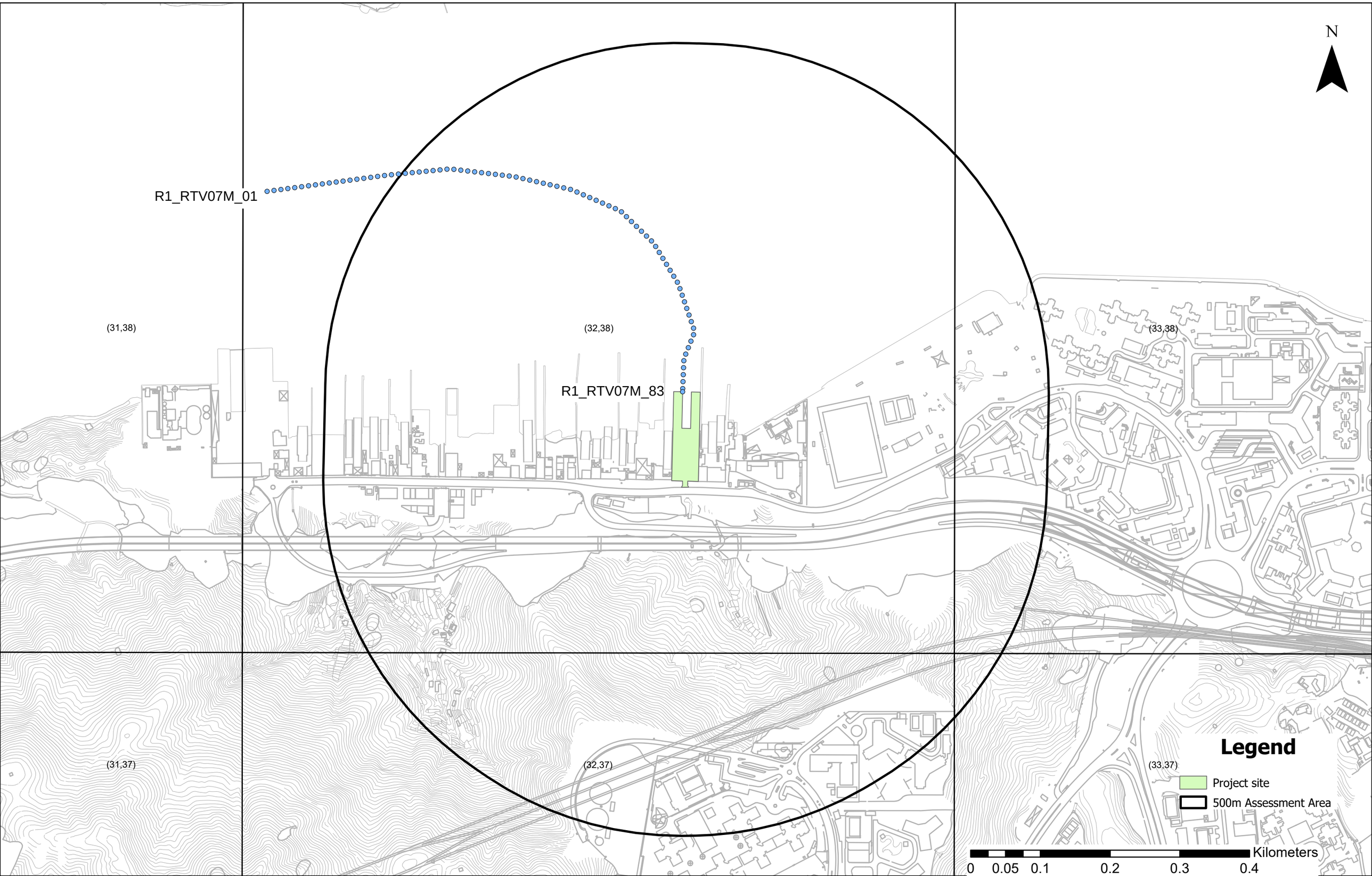
Location of Marine Emission Sources (marine route of the Project, River Trade Vessel RTV03M)



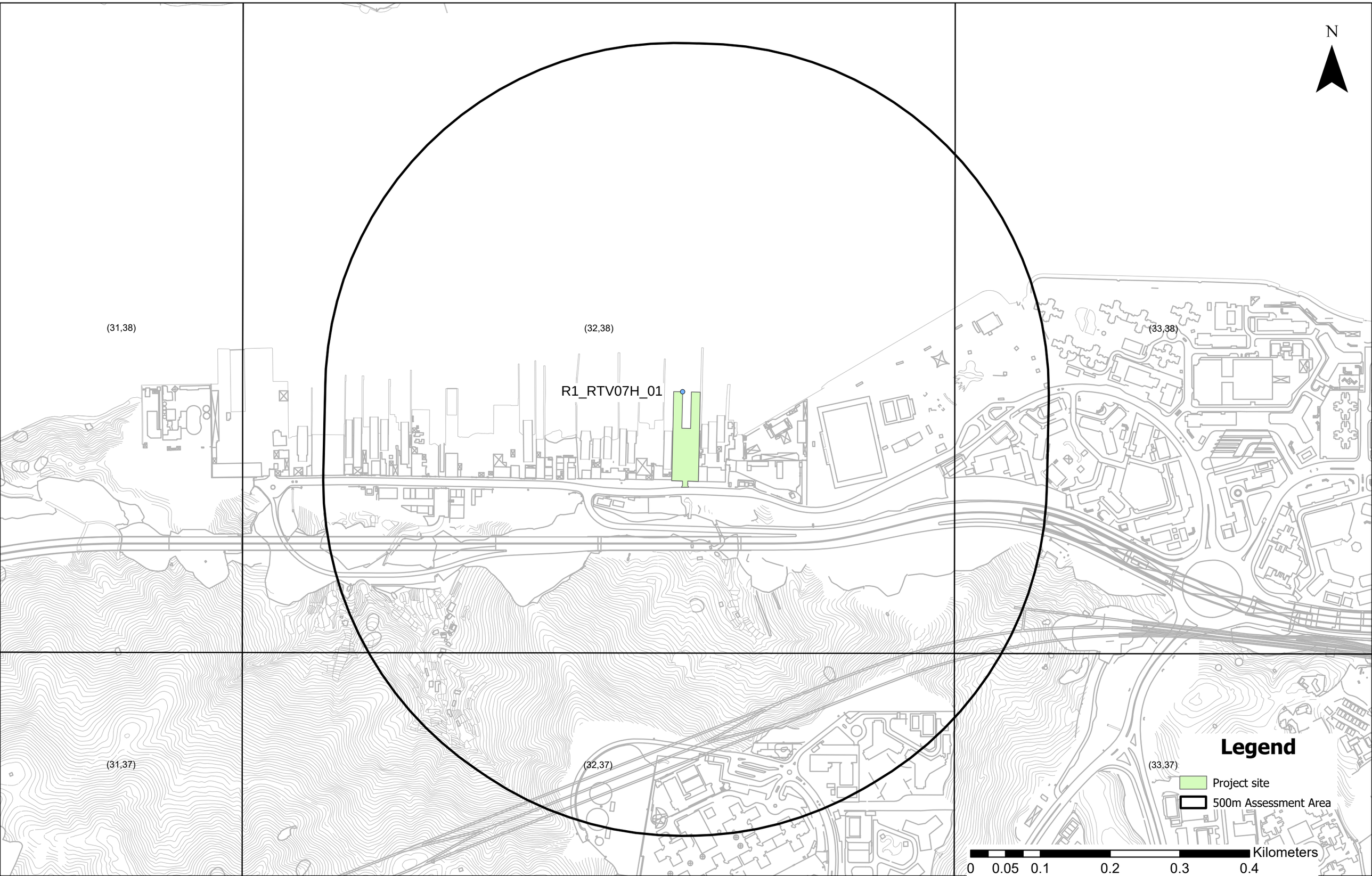
Location of Marine Emission Sources (marine route of the Project, River Trade Vessel Hotelling RTV03H)



Location of Marine Emission Sources (marine route of the Project, River Trade Vessel RTV07M)



Location of Marine Emission Sources (marine route of the Project, River Trade Vessel Hotelling RTV07H)



From: [redacted]
Sent: Thursday, March 20, 2025 10:31 AM
To: [redacted]
Cc:
Subject: Re: Marine Traffic Forecast Methodology for Air Quality Impact Assessment
Attachments: 31048-R04-01.pdf

Dear [redacted],

Thank you for your email regarding the methodology for forecasting marine traffic data for the Air Quality Impact Assessment.

As the Air Quality Impact Assessment falls under the purview of the EPD, please consult directly with them regarding this matter.

Regarding the Marine Traffic Visual Survey on Part 3, I have no comments on its content.

For Part 6 - Major Planned/Other Committed Developments, I noticed that you mentioned the Kau Yi Chau Artificial Islands (KYCAI) Project. If you require details or the commencement timeline of this project, I suggest reaching out directly to CEDD for clarification.

Thank you.

[redacted]
Senior Marine Officer / Planning and Development (2)
Marine Department
Tele: 2852 4453 Fax: 2581 1765

From: [redacted]
To:
Cc:
Date: 2025-03-19 11:04
Subject: Marine Traffic Forecast Methodology for Air Quality Impact Assessment

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Dear [redacted],

We are the marine consultant for the Proposed CBP Development at Tam Kon Shan Road, Tsing YiAs noted in our environmental consultant's correspondence with the Environmental Protection Department (EPD), an Environmental Assessment (EA) has been submitted, in which marine traffic data has been adopted as part of the Air Quality Impact Assessment.

In this regard, please find attached the proposed methodology for forecasting marine traffic data, which is solely for use in the Air Quality Impact Assessment, for your review and consideration. Grateful if you could advise whether you have any in-principle objection to the methodology.

Thank you for your time and cooperation.

Yours sincerely,

[redacted]

AXON

AXON Engineering and Consulting Ltd.
Unit 209, 2/F, No. 19 Science Park West Avenue
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APPENDIX 3.6

Calculation of Start Emissions

Appendix 3.6 Calculation of Start Emissions

https://www.elegislation.gov.hk/hk/cap374A!en-zh-Hant-HK?INDEX_CS=N

Cap. 374A Road Traffic (Construction and Maintenance of Vehicles) Regulations

First Schedule

Code	**車輛類型 (Vehicle Type)**	EMFAC	Vehicle Class
1	私家車	PC	01 - Private Cars
2	的士(請註明)	Taxi	02 - Taxi
3	輕型貨VAN	LGV3	03 - Light Goods Vehicles<=2.5t
4	輕型貨車	LGV6	05 - Light Goods Vehicles>3.5t
5	中型貨車	HGV7	06 - Medium Goods Vehicles<=15t
6	重型貨車	HGV8	07 - Medium Goods Vehicles15-24t
7	12座以下輕型巴士	PV4	09 - Private Light Bus <=3.5t
8	12-19座輕型巴士	PLB	08 - Public Light Buses
9	20座或以上輕型校巴	PV5	10 - Private Light Bus >3.5t
10	20座或以上輕型巴士	NFB8	13 - Non-franchised Bus 15-24t
11	旅遊巴士	NFB9	18 - Non-franchised Bus >24t
12	單層巴士	FBSD	14 - Franchised Bus (SD)
13	雙層巴士	FBDD	15 - Franchised Bus (DD)
14	貨櫃車	HGV9	17 - Heavy Goods Vehicles>24t
15	電單車	MC	16 - Motorcycles

Vehicle Class	Overall Height (m)
PC	2.0
Taxi	2.0
Invalid Carriage	2.0
Light Bus	3.0
Bus - SD	3.5
Bus - DD	4.6
Bus - Articulated	3.5
LGV	3.5
MGV	4.6
HGV - Rigid	4.6
HGV - Articulated	4.6
Special Purpose Vehicle	4.6
Tricycle	-
Trailer	4.6
Pedestrian-controlled Vehicle	-

Appendix 3.6 Calculation of Start Emissions

Calculation of Iding Emission Factor

PC (Diesel)

NO/NO_2 Ratio [1] = 7.92 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [4]	PM (g/hr) [5]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	46.75%	4.47E-04	5.00E-02	1.61E+00	5.00E-02	-	1.3	5.657E-02	5.023E-02	6.339E-03	7.908E-04	5.657E-02	5.023E-02	6.339E-03	7.908E-04
Euro V	52.41%	9.58E-04	2.00E-02	3.45E+00	2.00E-02										
Euro IV	0.56%	1.66E-03	1.60E-01	5.96E+00	1.60E-01										
Euro I	0.13%	1.36E-03	5.80E-01	4.88E+00	5.80E-01										
Pre-Euro	0.16%	1.83E-03	6.30E-01	6.57E+00	6.30E-01										

PC (Petrol)

NO/NO_2 Ratio [1] = 18.88 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [8]	PM (g/hr) [9]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	80.49%	1.67E-05	0.00E+00	6.00E-02	0.00E+00	-	1.3	1.567E-03	1.488E-03	7.880E-05	3.174E-05	1.567E-03	1.488E-03	7.880E-05	3.174E-05
Euro V	14.56%	2.22E-05	1.00E-02	8.00E-02	1.00E-02										
Euro IV	4.41%	6.39E-05	0.00E+00	2.30E-01	0.00E+00										
Euro III	0.44%	8.33E-05	0.00E+00	3.00E-01	0.00E+00										
Euro II	0.07%	2.67E-04	1.00E-02	9.60E-01	1.00E-02										
Euro I	0.01%	2.11E-04	1.00E-02	7.60E-01	1.00E-02										
Pre-Euro	0.01%	3.28E-04	1.00E-02	1.18E+00	1.00E-02										

Taxi (Petrol)

NO/NO_2 Ratio [1] = 18.96 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [11]	PM (g/hr) [11]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro V	100.00%	2.22E-05	1.00E-02	8.00E-02	1.00E-02	-	1.3	1.733E-03	1.646E-03	8.683E-05	2.167E-04	1.733E-03	1.646E-03	8.683E-05	2.167E-04

Taxi (LPG)

NO/NO_2 Ratio [1] = 35.88 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [10]	NOx (g/hr) [12]	PM (g/hr) [10]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	73.40%	2.80E-03	0.00E+00	1.01E+01	0.00E+00	-	1.3	1.685E-01	1.639E-01	4.569E-03	0.000E+00	2.190E-01	2.131E-01	5.939E-03	0.000E+00
Euro V	26.04%	2.80E-03	0.00E+00	1.01E+01	0.00E+00										
Euro IV	0.37%	3.50E-03	0.00E+00	1.26E+01	0.00E+00										
Euro II/III	0.19%	5.70E-03	0.00E+00	2.05E+01	0.00E+00										

LGV3 (Diesel)

NO/NO_2 Ratio [1] = 11.14 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	62.97%	3.56E-04	2.00E-02	1.28E+00	2.00E-02	-	1.3	4.635E-02	4.253E-02	3.816E-03	4.333E-04	4.635E-02	4.253E-02	3.816E-03	4.333E-04
Euro V	37.03%	1.00E-03	2.00E-02	3.60E+00	2.00E-02										

LGV3 (Petrol)

NO/NO_2 Ratio [1] = 18.99 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [15]	PM (g/hr) [16]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	54.60%	1.94E-05	0.00E+00	7.00E-02	0.00E+00	-	1.3	4.395E-03	4.175E-03	2.199E-04	3.106E-05	4.395E-03	4.175E-03	2.199E-04	3.106E-05
Euro V	19.40%	1.67E-05	0.00E+00	6.00E-02	0.00E+00										
Euro IV	4.89%	4.72E-05	0.00E+00	1.70E-01	0.00E+00										
Euro III	6.77%	9.44E-05	0.00E+00	3.40E-01	0.00E+00										
Euro II	2.51%	1.67E-04	1.00E-02	6.00E-01	1.00E-02										
Euro I	2.77%	4.69E-04	1.00E-02	1.69E+00	1.00E-02										
Pre-Euro	9.06%	1.83E-04	1.00E-02	6.60E-01	1.00E-02										

Appendix 3.6 Calculation of Start Emissions

Calculation of Iding Emission Factor

LGV6 (Diesel)

NO/NO_2 Ratio [1] = 2.57 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	58.17%	1.00E-03	2.00E-02	1.28E+00	2.00E-02	-	1.3	1.052E-01	7.573E-02	2.945E-02	4.336E-04	4.876E-02	3.511E-02	1.365E-02	4.336E-04
Euro V	41.83%	2.80E-03	2.00E-02	3.60E+00	2.00E-02										
Euro IV	0.01%	2.80E-03	1.60E-01	3.62E+00	1.60E-01										
Euro III	0.00%	2.80E-03	1.00E-01	4.12E+00	1.00E-01										
Euro II	0.00%	2.80E-03	5.40E-01	5.53E+00	5.40E-01										
Euro I	0.00%	2.80E-03	6.30E-01	5.88E+00	6.30E-01										
Pre-Euro	0.00%	2.80E-03	1.59E+00	6.52E+00	1.59E+00										

HGV7 (Diesel)

NO/NO_2 Ratio [1] = 2.28 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	53.78%	5.90E-03	1.00E-02	1.75E+00	1.00E-02	0.9	1.3	3.540E-01	2.461E-01	1.079E-01	1.006E-03	1.239E-01	8.614E-02	3.775E-02	1.006E-03
Euro V	46.21%	5.90E-03	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.01%	5.90E-03	2.00E-01	7.51E+00	2.00E-01										

HGV8 (Diesel)

NO/NO_2 Ratio [1] = 3.92 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	61.37%	3.70E-03	1.00E-02	1.75E+00	1.00E-02	1.0	1.3	6.693E-01	5.332E-01	1.361E-01	9.704E-04	1.213E-01	9.661E-02	2.467E-02	9.704E-04
Euro V	38.62%	2.30E-02	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.01%	1.44E-02	2.00E-01	7.51E+00	2.00E-01										
Euro III	0.00%	1.44E-02	1.29E+00	4.21E+01	1.29E+00										
Euro II	0.00%	1.44E-02	1.43E+00	4.06E+01	1.43E+00										
Euro I	0.00%	1.44E-02	5.53E+00	3.26E+01	5.53E+00										
Pre-Euro	0.00%	1.44E-02	6.62E+00	4.06E+01	6.62E+00										

PLB (Diesel)

NO/NO_2 Ratio [1] = 2.57 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	79.43%	1.00E-03	2.00E-02	1.28E+00	2.00E-02	-	1.3	6.000E-02	4.320E-02	1.680E-02	4.334E-04	3.807E-02	2.742E-02	1.066E-02	4.334E-04
Euro V	20.57%	1.00E-03	2.00E-02	3.60E+00	2.00E-02										
Euro IV	0.00%	1.00E-03	1.60E-01	3.62E+00	1.60E-01										
Euro III	0.00%	1.00E-03	1.00E-01	4.12E+00	1.00E-01										
Euro II	0.00%	1.00E-03	5.40E-01	5.53E+00	5.40E-01										
Euro I	0.00%	1.00E-03	6.30E-01	5.88E+00	6.30E-01										
Pre-Euro	0.00%	1.00E-03	1.59E+00	6.52E+00	1.59E+00										

PLB (LPG)

NO/NO_2 Ratio [1] = 189.13 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro V	89.29%	3.90E-03	2.00E-02	3.60E+00	2.00E-02	-	1.3	2.526E-01	2.513E-01	1.329E-03	6.820E-04	7.868E-02	7.827E-02	4.138E-04	6.820E-04
Euro IV	4.85%	3.90E-03	1.60E-01	3.62E+00	1.60E-01										
Euro III	5.86%	9.20E-03	1.00E-01	4.12E+00	1.00E-01										

PV4 (Diesel)

NO/NO_2 Ratio [1] = 4.00 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	91.04%	3.56E-04	2.00E-02	1.28E+00	2.00E-02	-	1.3	3.224E-02	2.579E-02	6.446E-03	4.335E-04	3.224E-02	2.579E-02	6.446E-03	4.335E-04
Euro V	8.95%	1.00E-03	2.00E-02	3.60E+00	2.00E-02										
Euro IV	0.01%	1.01E-03	1.60E-01	3.62E+00	1.60E-01										

Appendix 3.6 Calculation of Start Emissions

Calculation of Iding Emission Factor

PV4 (Petrol)

NO/NO_2 Ratio [1] = 18.94 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [15]	PM (g/hr) [16]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro V	40.50%	1.67E-05	0.00E+00	6.00E-02	0.00E+00	-	1.3	3.367E-03	3.198E-03	1.689E-04	7.880E-07	3.367E-03	3.198E-03	1.689E-04	7.880E-07
Euro IV	42.43%	4.72E-05	0.00E+00	1.70E-01	0.00E+00										
Euro III	16.71%	9.44E-05	0.00E+00	3.40E-01	0.00E+00										
Euro II	0.36%	1.67E-04	1.00E-02	6.00E-01	1.00E-02										

PV5 (Diesel)

NO/NO_2 Ratio [1] = 2.57 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	70.26%	1.00E-03	2.00E-02	1.28E+00	2.00E-02	-	1.3	6.000E-02	4.320E-02	1.680E-02	4.336E-04	4.268E-02	3.073E-02	1.195E-02	4.336E-04
Euro V	29.73%	1.00E-03	2.00E-02	3.60E+00	2.00E-02										
Euro IV	0.01%	1.00E-03	1.60E-01	3.62E+00	1.60E-01										
Euro III	0.00%	1.00E-03	1.00E-01	4.12E+00	1.00E-01										
Euro II	0.00%	1.00E-03	5.40E-01	5.53E+00	5.40E-01										
Euro I	0.00%	1.00E-03	6.30E-01	5.88E+00	6.30E-01										
Pre-Euro	0.00%	1.00E-03	1.59E+00	6.52E+00	1.59E+00										

PV5 (LPG)

NO/NO_2 Ratio [1] = 195.55 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [13]	PM (g/hr) [14]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro V	74.12%	1.00E-03	2.00E-02	3.60E+00	2.00E-02	-	1.3	7.888E-02	7.848E-02	4.013E-04	1.126E-03	7.888E-02	7.848E-02	4.013E-04	1.126E-03
Euro IV	18.76%	1.01E-03	1.60E-01	3.62E+00	1.60E-01										
Euro III	7.12%	1.14E-03	1.00E-01	4.12E+00	1.00E-01										

PV5 (Petrol)

NO/NO_2 Ratio [1] = 19.02 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [15]	PM (g/hr) [16]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro V	61.78%	1.67E-05	0.00E+00	6.00E-02	0.00E+00	-	1.3	9.506E-03	9.031E-03	4.748E-04	4.799E-05	9.506E-03	9.031E-03	4.748E-04	4.799E-05
Euro IV	16.07%	4.72E-05	0.00E+00	1.70E-01	0.00E+00										
Euro I	22.15%	4.69E-04	1.00E-02	1.69E+00	1.00E-02										

NFB8 (Diesel)

NO/NO_2 Ratio [1] = 5.11 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	70.94%	7.70E-03	1.00E-02	1.75E+00	1.00E-02	1.0	1.3	1.154E+00	9.652E-01	1.890E-01	7.850E-04	1.007E-01	8.417E-02	1.648E-02	7.850E-04
Euro V	29.05%	4.74E-02	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.00%	5.73E-02	2.00E-01	7.51E+00	2.00E-01										
Euro II	0.01%	5.73E-02	1.43E+00	4.06E+01	1.43E+00										

FBSD (Diesel)

NO/NO_2 Ratio [1] = 16.01 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	43.27%	7.70E-03	1.00E-02	1.75E+00	1.00E-02	1.0	1.3	1.813E+00	1.707E+00	1.066E-01	1.323E-03	1.603E-01	1.509E-01	9.425E-03	1.323E-03
Euro V	56.73%	4.74E-02	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.00%	5.73E-02	2.00E-01	7.51E+00	2.00E-01										

Appendix 3.6 Calculation of Start Emissions

Calculation of Iding Emission Factor

FBDD (Diesel)

NO/NO_2 Ratio [1] = 19.75 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	27.01%	2.25E-02	1.00E-02	1.75E+00	1.00E-02										
Euro V	72.81%	1.54E-01	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.19%	1.54E-01	2.00E-01	7.51E+00	2.00E-01										
Euro III	0.00%	7.37E-02	1.29E+00	4.21E+01	1.29E+00	1.2	1.3	7.087E+00	6.746E+00	3.416E-01	1.973E-03	2.343E-01	2.230E-01	1.129E-02	1.973E-03
Euro II	0.00%	7.37E-02	1.43E+00	4.06E+01	1.43E+00										
Euro I	0.00%	7.37E-02	5.53E+00	3.26E+01	5.53E+00										
Pre-Euro	0.00%	7.37E-02	6.62E+00	4.06E+01	6.62E+00										

MC (Petrol)

NO/NO_2 Ratio [1] = 18.99 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [2]	PM (g/hr) [3]	NOx (g/hr) [8]	PM (g/hr) [9]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro IV	62.01%	6.39E-05	0.00E+00	2.30E-01	0.00E+00										
Euro III	32.27%	8.33E-05	0.00E+00	3.00E-01	0.00E+00										
Euro I	4.91%	2.11E-04	1.00E-02	7.60E-01	1.00E-02	-	1.3	6.204E-03	5.894E-03	3.104E-04	1.240E-05	6.204E-03	5.894E-03	3.104E-04	1.240E-05
Pre-Euro	0.81%	3.28E-04	1.00E-02	1.18E+00	1.00E-02										

HGV9 (Diesel)

NO/NO_2 Ratio [1] = 4.45 From EMFAC

	Population	Idling Emission Factor				Mass Factor [19]	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [12]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	51.79%	3.70E-03	1.00E-02	1.75E+00	1.00E-02										
Euro V	48.19%	2.30E-02	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.02%	1.44E-02	2.00E-01	7.51E+00	2.00E-01										
Euro III	0.00%	1.44E-02	1.29E+00	4.21E+01	1.29E+00	1.2	1.3	7.802E-01	6.370E-01	1.432E-01	1.389E-03	1.703E-01	1.391E-01	3.127E-02	1.389E-03
Euro II	0.00%	1.44E-02	1.43E+00	4.06E+01	1.43E+00										
Euro I	0.00%	1.44E-02	5.53E+00	3.26E+01	5.53E+00										
Pre-Euro	0.00%	1.44E-02	6.62E+00	4.06E+01	6.62E+00										

NFB9 (Diesel)

NO/NO_2 Ratio = 2.03 From EMFAC

	Population	Idling Emission Factor				Mass Factor	AC Factor [6]	Average Idling Emission Factor (g/min)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx (g/s) [20]	PM (g/hr) [3]	NOx (g/hr) [17]	PM (g/hr) [18]			NOx	NO	NO_2	PM [7]	NOx	NO	NO_2	PM [7]
Euro VI	100.00%	7.70E-03	1.00E-02	1.75E+00	1.00E-02										
Euro V	0.00%	4.74E-02	1.00E-01	1.17E+01	1.00E-01										
Euro IV	0.00%	5.73E-02	2.00E-01	7.51E+00	2.00E-01										
Euro III	0.00%	1.17E-02	1.29E+00	4.21E+01	1.29E+00	1.2	1.3	4.550E-02	3.049E-02	1.501E-02	2.600E-04	4.550E-02	3.049E-02	1.501E-02	2.600E-04
Euro II	0.00%	1.13E-02	1.43E+00	4.06E+01	1.43E+00										
Euro I	0.00%	9.06E-03	5.53E+00	3.26E+01	5.53E+00										
Pre-Euro	0.00%	1.13E-02	6.62E+00	4.06E+01	6.62E+00										

Remarks

[1] NO/NO2 ratio, at the respective running speed, was calculated based on emisison factors extracted from EMFAC-HK.
[2] Due to the lack of information, NOx cold idling emission factor was referenced to the corresponding hot idling emission factor.
[3] Due to the lack of information, PM cold idling emission factor was referenced to the corresponding hot idling emission factor.
[4] Reference made to Table 36 of Vehicle Emissions and Air Demand for Ventilation (VEADV).
[5] Reference made to Table 37 of VEADV.
[6] Reference made to the approved Liantang / Heung Yuen Wai Boundary Control Point and Associated Works EIA Report.
[7] All TSP (PM) emissions were assumed for RSP and FSP as a conservative approach.
[8] Reference made to Table 33 of VEADV.
[9] Reference made to Table 34 of VEADV.
[10] PM cold and hot idling emission factors are assumed to be 0 as the running and starting emission factors from EMFAC-HK are also 0.
[11] Due to the lack of information and similarity in taxi and PC, hot idling emission factors were referenced to corresponding hot idling emission factor of PC (petrol).
[12] NOx idling emission factor was referenced to Calculation of Start Emissions in Air Quality Impact Assessment published by EPD whenever available; otherwise the highest emission factor in the same vehicle class was adopted as a conservative approach.
[13] Reference made to Table 42 of VEADV.
[14] Reference made to Table 43 of VEADV.
[15] Reference made to Table 39 of VEADV.
[16] Reference made to Table 40 of VEADV.
[17] Reference made to Table 45 of VEADV.
[18] Reference made to Table 46 of VEADV.
[19] Reference made to Table 27 of VEADV.
[20] NOx cold idling emission factor was referenced to Calculation of Start Emissions in Air Quality Impact Assessment published by EPD whenever possible; otherwise it was referenced to the corresponding hot idling emission factor.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park

Site Parameters

Average Distance from Starting Place to PTI/Parking Site Egress (m)	0
Average Travelling Distance within PTI/Parking Site (m)	0
Average Travelling Speed (km/h)	15

Frequency

Hour	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5 t	06 - Medium Goods Vehicles<=1 5t	07 - Medium Goods Vehicles15- 24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24 t	18 - Non-franchised Bus >24t
0000 - 0100	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0100 - 0200	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0200 - 0300	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0300 - 0400	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0400 - 0500	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0500 - 0600	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0600 - 0700	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
0700 - 0800	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
0800 - 0900	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
0900 - 1000	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1000 - 1100	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1100 - 1200	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1200 - 1300	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1300 - 1400	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1400 - 1500	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1500 - 1600	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1600 - 1700	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1700 - 1800	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1800 - 1900	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
1900 - 2000	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
2000 - 2100	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
2100 - 2200	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
2200 - 2300	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0
2300 - 2400	0	0	0		0	0	0	0	0	0			0	0	0	0	10	0

Vehicle Parameters

	01 - Private Cars	01 - Private Cars	02 - Taxi	02 - Taxi	03 - Light Goods Vehicles<=2. 5t	03 - Light Goods Vehicles<=2 .5t	04 - Lt Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5 t	06 - Medium Goods Vehicles<=1 5t	07 - Medium Goods Vehicles15- 24t	08 - Public Light Buses	08 - Public Light Buses	09 - Private Light Bus <=3.5t	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	Diesel	Petrol	LPG	Petrol	Diesel	Petrol		Diesel	Diesel	Diesel	Diesel	LPG	Diesel	Petrol	Diesel	LPG	Petrol			Diesel	Diesel	Diesel	Petrol	Diesel	Diesel
Spread Distance of Adjusted Start Emission (m)	700	0	150	0	700	0		700	700	700	700	150	700	0	700	150	0			700	700	700	0	700	700
Max. Idling Time for Adjusting Starting Emission (min)	1	0	0.5	0	1	0		1	1	1	1	1	1	0	1	1	0			1	1	1	0	1	1
Soak Time (duration of engine off prior to engine ignition) (min)	60	240	240	240	60	240		60	60	60	60	240	60	240	60	240	240			60	60	60	240	60	60
Average Spread Distance outside PTI/Parking Site (m)	700	0	150	0	700	0		700	700	700	700	150	700	0	700	150	0			700	700	700	0	700	700
Idling Time for Terminating Vehicle (min)	2	2	2	2	2	2		2	2	2	2	2	2	2	2	2	2			2	2	2	2	2	2
Idling Time for Non-terminating Vehicle (min)	0.67	0.67	1.5	1.5	1.5	1.5		7.17	112.44	112.44	1.5	1.5	1.5	1.5	1.5	1.5	1.5			1.5	1.5	1.5	1.5	63.91	1.5
Vehicle Percentage (%)	1.66%	98.34%	99.99%	0.01%	96.72%	3.28%		100.00%	100.00%	100.00%	69.27%	30.73%	81.13%	18.87%	85.83%	14.05%	0.12%			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
NO Cold Idling Emission Factor (g/min)	5.023E-02	1.488E-03	1.639E-01	1.646E-03	4.253E-02	4.175E-03		7.573E-02	2.461E-01	5.332E-01	4.320E-02	2.513E-01	2.579E-02	3.198E-03	4.320E-02	7.848E-02	9.031E-03			9.652E-01	1.707E+00	6.746E+00	5.894E-03	6.370E-01	3.049E-02
NO Hot Idling Emission Factor (g/min)	5.023E-02	1.488E-03	2.131E-01	1.646E-03	4.253E-02	4.175E-03		3.511E-02	8.614E-02	9.661E-02	2.742E-02	7.827E-02	2.579E-02	3.198E-03	3.073E-02	7.848E-02	9.031E-03			8.417E-02	1.509E-01	2.230E-01	5.894E-03	1.391E-01	3.049E-02
NO_2 Cold Idling Emission Factor (g/min)	6.339E-03	7.880E-05	4.569E-03	8.683E-05	3.816E-03	2.199E-04		2.945E-02	1.079E-01	1.361E-01	1.680E-02	1.329E-03	6.446E-03	1.689E-04	1.680E-02	4.013E-04	4.748E-04			1.890E-01	1.066E-01	3.416E-01	3.104E-04	1.432E-01	1.501E-02
NO_2 Hot Idling Emission Factor (g/min)	6.339E-03	7.880E-05	5.939E-03	8.683E-05	3.816E-03	2.199E-04		1.365E-02	3.775E-02	2.467E-02	1.066E-02	4.138E-04	6.446E-03	1.689E-04	1.195E-02	4.013E-04	4.748E-04			1.648E-02	9.425E-03	1.129E-02	3.104E-04	3.127E-02	1.501E-02
TSP Cold Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
TSP Hot Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
RSP Cold Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
RSP Hot Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
FSP Cold Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
FSP Hot Idling Emission Factor (g/min)	7.908E-04	3.174E-05	0.000E+00	2.167E-04	4.333E-04	3.106E-05		4.336E-04	1.006E-03	9.704E-04	4.334E-04	6.820E-04	4.335E-04	7.880E-07	4.336E-04	1.126E-03	4.799E-05			7.850E-04	1.323E-03	1.973E-03	1.240E-05	1.389E-03	2.600E-04
NO Running Emission Factor (g/mile/vehicle)	1.339E-01	5.185E-02	1.189E+00	7.934E-02	2.473E+00	8.987E-01		2.147E+00	3.349E+00	5.595E+00	1.097E+00	2.678E+00	1.704E+00	5.274E-01	1.265E+00	1.951E+00	8.755E-01			7.463E+00	6.795E+00	1.324E+01	4.736E-01	6.836E+00	2.964E+00
NO_2 Running Emission Factor (g/mile/vehicle)	1.690E-02	2.746E-03	3.315E-02	4.184E-03	2.219E-01	4.733E-02		8.349E-01	1.468E+00	1.429E+00	4.265E-01	1.416E-02	4.260E-01	2.784E-02	4.921E-01	9.978E-03	4.603E-02			1.461E+00	4.244E-01	6.703E-01	2.501E-02	1.537E+00	1.460E+00
TSP Running Emission Factor (g/mile/vehicle)	9.012E-03	1.272E-02	0.000E+00	1.271E-02	3.396E-02	3.117E-02		8.288E-02	1.271E-01	2.915E-01	8.916E-02	0.000E+00	1.352E-02	7.226E-02	8.127E-02	0.000E+00	1.271E-02			3.251E-01	2.655E-01	5.240E-01	1.675E-02	3.454E-01	1.024E-01
RSP Running Emission Factor (g/mile/vehicle)	9.012E-03	1.240E-02	0.000E+00	1.239E-02	3.396E-02	2.974E-02		8.288E-02	1.271E-01	2.915E-01	8.916E-02	0.000E+00	1.352E-02	7.017E-02	8.127E-02	0.000E+00	1.239E-02			3.251E-01	2.655E-01	5.240E-01	1.578E-02	3.454E-01	1.024E-01
FSP Running Emission Factor (g/mile/vehicle)	8.369E-03	1.143E-02	0.000E+00	1.143E-02	3.122E-02	2.627E-02		7.628E-02	1.168E-01	2.681E-01	8.208E-02	0.000E+00	1.239E-02	6.502E-02	7.467E-02	0.000E+00	1.143E-02			2.990E-01	2.443E-01	4.820E-01	1.342E-02	3.177E-01	9.415E-02

Appendix 3.6 Calculation of Start Emissions

Assumption on Start Emission [1], [2]

17 - Heavy Goods Vehicles>24t (Code: 14)

Sitting Time (min)	Bypass	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	Total
0000 - 0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0100 - 0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0200 - 0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0300 - 0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0400 - 0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0500 - 0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0600 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1100 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900 - 2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
2100 - 2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
2200 - 2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
2300 - 2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	110

Remark

[1] Maximum number of HGVs allowed to be parked overnight is determined by observation based on the length of the parking site (i.e. 10 HGVs).

[2] 10 HGVs are assumed to leave the parking site in each hour from 8PM to 7AM (i.e. allowed parking hours) as a conservative approach.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park
NO

Running Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. $R = E_i * f * d_i * p$
where
R: running emission at a specific speed for a vehicle type with a fuel type in an hour,
E_i: running emission factor for the vehicle type at the specific speed, obtained from the *EMFACEmf* tab,
f: total traffic frequency of the vehicle type in the hour, obtained from the *Frequency* table,
d_i: average travelling distance within PTI, obtained from the *Site Parameters* table,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park
NO_2

Running Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. $R = E_i * f * d_i * p$
where
R: running emission at a specific speed for a vehicle type with a fuel type in an hour,
E_i: running emission factor for the vehicle type at the specific speed, obtained from the *EMFACEmf* tab,
f: total traffic frequency of the vehicle type in the hour, obtained from the *Frequency* table,
d_i: average travelling distance within PTI, obtained from the *Site Parameters* table,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park
TSP

Running Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. $R = E_i * f * d_i * p$
where
R: running emission at a specific speed for a vehicle type with a fuel type in an hour,
E_i: running emission factor for the vehicle type at the specific speed, obtained from the *EMFACEmf* tab,
f: total traffic frequency of the vehicle type in the hour, obtained from the *Frequency* table,
d_i: average travelling distance within PTI, obtained from the *Site Parameters* table,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park
RSP

RSP Running Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. $R = E_i * f * d_i * p$
where
R: running emission at a specific speed for a vehicle type with a fuel type in an hour,
E_i: running emission factor for the vehicle type at the specific speed, obtained from the *EMFACEmf* tab,
f: total traffic frequency of the vehicle type in the hour, obtained from the *Frequency* table,
d_i: average travelling distance within PTI, obtained from the *Site Parameters* table,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park
FSP

Running Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. $R = E_i * f * d_i * p$
where
R: running emission at a specific speed for a vehicle type with a fuel type in an hour,
E_i: running emission factor for the vehicle type at the specific speed, obtained from the *EMFACEmf* tab,
f: total traffic frequency of the vehicle type in the hour, obtained from the *Frequency* table,
d_i: average travelling distance within PTI, obtained from the *Site Parameters* table,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

NO Total Start Emission (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	5.793E+01
0100 - 0200	5.793E+01
0200 - 0300	5.793E+01
0300 - 0400	5.793E+01
0400 - 0500	5.793E+01
0500 - 0600	5.793E+01
0600 - 0700	5.793E+01
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	5.793E+01
2100 - 2200	5.793E+01
2200 - 2300	5.793E+01
2300 - 2400	5.793E+01

Remark
1. $S_{total} = \sum(E_{s,i} * f_i) * p$
where
S_{total}: total start emission for a vehicle type with a fuel type in an hour,
$E_{s,i}$: start emission factor of the vehicle type with sitting time i min, obtained from the *EMFACEmf* tab,
f_i traffic frequency of the vehicle type with sitting time i min in the hour, obtained from the *Traffic Flow* table of the vehicle type,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

NO_2 Total Start Emission (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	8.081E+00
0100 - 0200	8.081E+00
0200 - 0300	8.081E+00
0300 - 0400	8.081E+00
0400 - 0500	8.081E+00
0500 - 0600	8.081E+00
0600 - 0700	8.081E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	8.081E+00
2100 - 2200	8.081E+00
2200 - 2300	8.081E+00
2300 - 2400	8.081E+00

Remark
1. $S_{total} = \sum(E_{s,i} * f_i) * p$
where
S_{total}: total start emission for a vehicle type with a fuel type in an hour,
$E_{s,i}$: start emission factor of the vehicle type with sitting time i min, obtained from the *EMFACEmf* tab,
f_i traffic frequency of the vehicle type with sitting time i min in the hour, obtained from the *Traffic Flow* table of the vehicle type,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

TSP Total Start Emission (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. $S_{total} = \sum(E_{s,i} * f_i) * p$
where
S_{total}: total start emission for a vehicle type with a fuel type in an hour,
$E_{s,i}$: start emission factor of the vehicle type with sitting time i min, obtained from the *EMFACEmf* tab,
f_i traffic frequency of the vehicle type with sitting time i min in the hour, obtained from the *Traffic Flow* table of the vehicle type,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

RSP Total Start Emission (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. $S_{total} = \sum(E_{s,i} * f_i) * p$
where
S_{total}: total start emission for a vehicle type with a fuel type in an hour,
$E_{s,i}$: start emission factor of the vehicle type with sitting time i min, obtained from the *EMFACEmf* tab,
f_i traffic frequency of the vehicle type with sitting time i min in the hour, obtained from the *Traffic Flow* table of the vehicle type,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

FSP Total Start Emission (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. $S_{total} = \sum(E_{s,i} * f_i) * p$
where
S_{total}: total start emission for a vehicle type with a fuel type in an hour,
$E_{s,i}$: start emission factor of the vehicle type with sitting time i min, obtained from the *EMFACEmf* tab,
f_i traffic frequency of the vehicle type with sitting time i min in the hour, obtained from the *Traffic Flow* table of the vehicle type,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table.

NO Idling Emission within PTI/Parking Site (Terminating Vehicle) (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	1.274E+01
0100 - 0200	1.274E+01
0200 - 0300	1.274E+01
0300 - 0400	1.274E+01
0400 - 0500	1.274E+01
0500 - 0600	1.274E+01
0600 - 0700	1.274E+01
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	1.274E+01
2100 - 2200	1.274E+01
2200 - 2300	1.274E+01
2300 - 2400	1.274E+01

Remark
1. $I_i = E_c * T_i * f_c * p + E_h * T_i * f_h * p$
where
I_i: idling emission within PTI of a vehicle type with a fuel type in an hour (terminating vehicle),
E_c: cold idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
E_h: hot idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
T_i: idling time of the terminating vehicle, obtained from the *Vehicle Parameters* table,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,
f_c: total traffic frequency of the vehicle type with the fuel type for cold idling emission, obtained from the *Traffic Flow* table of the vehicle type,
f_h: total traffic frequency of the vehicle type with the fuel type for hot idling emission, obtained from the *Traffic Flow*
2. According to *Calculation of Start Emissios in Air Quality Impact Assessment*, the soak time for cold idling is longer than or equal

NO_2 Idling Emission within PTI/Parking Site (Terminating Vehicle) (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.864E+00
0100 - 0200	2.864E+00
0200 - 0300	2.864E+00
0300 - 0400	2.864E+00
0400 - 0500	2.864E+00
0500 - 0600	2.864E+00
0600 - 0700	2.864E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.864E+00
2100 - 2200	2.864E+00
2200 - 2300	2.864E+00
2300 - 2400	2.864E+00

Remark
1. $I_i = E_c * T_i * f_c * p + E_h * T_i * f_h * p$
where
I_i: idling emission within PTI of a vehicle type with a fuel type in an hour (terminating vehicle),
E_c: cold idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
E_h: hot idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
T_i: idling time of the terminating vehicle, obtained from the *Vehicle Parameters* table,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,
f_c: total traffic frequency of the vehicle type with the fuel type for cold idling emission, obtained from the *Traffic Flow* table of the vehicle type,
f_h: total traffic frequency of the vehicle type with the fuel type for hot idling emission, obtained from the *Traffic Flow*
2. According to *Calculation of Start Emissios in Air Quality Impact Assessment*, the soak time for cold idling is longer than or equal

TSP Idling Emission within PTI/Parking Site (Terminating Vehicle) (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.777E-02
0100 - 0200	2.777E-02
0200 - 0300	2.777E-02
0300 - 0400	2.777E-02
0400 - 0500	2.777E-02
0500 - 0600	2.777E-02
0600 - 0700	2.777E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.777E-02
2100 - 2200	2.777E-02
2200 - 2300	2.777E-02
2300 - 2400	2.777E-02

Remark
1. $I_i = E_c * T_i * f_c * p + E_h * T_i * f_h * p$
where
I_i: idling emission within PTI of a vehicle type with a fuel type in an hour (terminating vehicle),
E_c: cold idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
E_h: hot idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
T_i: idling time of the terminating vehicle, obtained from the *Vehicle Parameters* table,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,
f_c: total traffic frequency of the vehicle type with the fuel type for cold idling emission, obtained from the *Traffic Flow* table of the vehicle type,
f_h: total traffic frequency of the vehicle type with the fuel type for hot idling emission, obtained from the *Traffic Flow*
2. According to *Calculation of Start Emissios in Air Quality Impact Assessment*, the soak time for cold idling is longer than or equal

RSP Idling Emission within PTI/Parking Site (Terminating Vehicle) (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.777E-02
0100 - 0200	2.777E-02
0200 - 0300	2.777E-02
0300 - 0400	2.777E-02
0400 - 0500	2.777E-02
0500 - 0600	2.777E-02
0600 - 0700	2.777E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.777E-02
2100 - 2200	2.777E-02
2200 - 2300	2.777E-02
2300 - 2400	2.777E-02

Remark
1. $I_i = E_c * T_i * f_c * p + E_h * T_i * f_h * p$
where
I_i: idling emission within PTI of a vehicle type with a fuel type in an hour (terminating vehicle),
E_c: cold idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
E_h: hot idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
T_i: idling time of the terminating vehicle, obtained from the *Vehicle Parameters* table,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,
f_c: total traffic frequency of the vehicle type with the fuel type for cold idling emission, obtained from the *Traffic Flow* table of the vehicle type,
f_h: total traffic frequency of the vehicle type with the fuel type for hot idling emission, obtained from the *Traffic Flow*
2. According to *Calculation of Start Emissios in Air Quality Impact Assessment*, the soak time for cold idling is longer than or equal

FSP Idling Emission within PTI/Parking Site (Terminating Vehicle) (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.777E-02
0100 - 0200	2.777E-02
0200 - 0300	2.777E-02
0300 - 0400	2.777E-02
0400 - 0500	2.777E-02
0500 - 0600	2.777E-02
0600 - 0700	2.777E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.777E-02
2100 - 2200	2.777E-02
2200 - 2300	2.777E-02
2300 - 2400	2.777E-02

Remark
1. $I_i = E_c * T_i * f_c * p + E_h * T_i * f_h * p$
where
I_i: idling emission within PTI of a vehicle type with a fuel type in an hour (terminating vehicle),
E_c: cold idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
E_h: hot idling emission rate of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,
T_i: idling time of the terminating vehicle, obtained from the *Vehicle Parameters* table,
p: vehicle percentage of the fuel type, obtained from the *Vehicle Parameters* table,
f_c: total traffic frequency of the vehicle type with the fuel type for cold idling emission, obtained from the *Traffic Flow* table of the vehicle type,
f_h: total traffic frequency of the vehicle type with the fuel type for hot idling emission, obtained from the *Traffic Flow*
2. According to *Calculation of Start Emissios in Air Quality Impact Assessment*, the soak time for cold idling is longer t

HGV on-street parking site outside Tsing Yi Northeast Park Car Park
NO Idling Emission for the Purpose of Start Emission Adjustment (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	6.370E+00
0100 - 0200	6.370E+00
0200 - 0300	6.370E+00
0300 - 0400	6.370E+00
0400 - 0500	6.370E+00
0500 - 0600	6.370E+00
0600 - 0700	6.370E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	6.370E+00
2100 - 2200	6.370E+00
2200 - 2300	6.370E+00
2300 - 2400	6.370E+00

Remark
1. $I_a = I_t * T_a / T_t$
where
I_a: idling emission for the purpose of start emission adjustment of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in an hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
T_a: max. idling time for adjusting start emission of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

NO Adjusted Start Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission within PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

NO Adjusted Start Emission outside PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	5.156E+01
0100 - 0200	5.156E+01
0200 - 0300	5.156E+01
0300 - 0400	5.156E+01
0400 - 0500	5.156E+01
0500 - 0600	5.156E+01
0600 - 0700	5.156E+01
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	5.156E+01
2100 - 2200	5.156E+01
2200 - 2300	5.156E+01
2300 - 2400	5.156E+01

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission outside PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park
NO_2 Idling Emission for the Purpose of Start Emission Adjustment (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	1.432E+00
0100 - 0200	1.432E+00
0200 - 0300	1.432E+00
0300 - 0400	1.432E+00
0400 - 0500	1.432E+00
0500 - 0600	1.432E+00
0600 - 0700	1.432E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	1.432E+00
2100 - 2200	1.432E+00
2200 - 2300	1.432E+00
2300 - 2400	1.432E+00

Remark
1. $I_a = I_t * T_a / T_t$
where
I_a: idling emission for the purpose of start emission adjustment of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in an hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
T_a: max. idling time for adjusting start emission of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

NO_2 Adjusted Start Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission within PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

NO_2 Adjusted Start Emission outside PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	6.649E+00
0100 - 0200	6.649E+00
0200 - 0300	6.649E+00
0300 - 0400	6.649E+00
0400 - 0500	6.649E+00
0500 - 0600	6.649E+00
0600 - 0700	6.649E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	6.649E+00
2100 - 2200	6.649E+00
2200 - 2300	6.649E+00
2300 - 2400	6.649E+00

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission outside PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park
TSP Idling Emission for the Purpose of Start Emission Adjustment (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	1.389E-02
0100 - 0200	1.389E-02
0200 - 0300	1.389E-02
0300 - 0400	1.389E-02
0400 - 0500	1.389E-02
0500 - 0600	1.389E-02
0600 - 0700	1.389E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	1.389E-02
2100 - 2200	1.389E-02
2200 - 2300	1.389E-02
2300 - 2400	1.389E-02

Remark
1. $I_a = I_t * T_a / T_t$
where
I_a: idling emission for the purpose of start emission adjustment of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in an hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
T_a: max. idling time for adjusting start emission of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

TSP Adjusted Start Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission within PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

TSP Adjusted Start Emission outside PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission outside PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park
RSP Idling Emission for the Purpose of Start Emission Adjustment (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	1.389E-02
0100 - 0200	1.389E-02
0200 - 0300	1.389E-02
0300 - 0400	1.389E-02
0400 - 0500	1.389E-02
0500 - 0600	1.389E-02
0600 - 0700	1.389E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	1.389E-02
2100 - 2200	1.389E-02
2200 - 2300	1.389E-02
2300 - 2400	1.389E-02

Remark
1. $I_a = I_t * T_a / T_t$
where
I_a: idling emission for the purpose of start emission adjustment of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in an hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
T_a: max. idling time for adjusting start emission of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

RSP Adjusted Start Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission within PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

RSP Adjusted Start Emission outside PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission outside PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park
FSP Idling Emission for the Purpose of Start Emission Adjustment (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	1.389E-02
0100 - 0200	1.389E-02
0200 - 0300	1.389E-02
0300 - 0400	1.389E-02
0400 - 0500	1.389E-02
0500 - 0600	1.389E-02
0600 - 0700	1.389E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	1.389E-02
2100 - 2200	1.389E-02
2200 - 2300	1.389E-02
2300 - 2400	1.389E-02

Remark
1. $I_a = I_t * T_a / T_t$
where
I_a: idling emission for the purpose of start emission adjustment of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in an hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
T_a: max. idling time for adjusting start emission of the vehicle type with the fuel type, obtained from the *Vehicle Parameters* table,

FSP Adjusted Start Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission outside PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

FSP Adjusted Start Emission outside PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	0.000E+00
0100 - 0200	0.000E+00
0200 - 0300	0.000E+00
0300 - 0400	0.000E+00
0400 - 0500	0.000E+00
0500 - 0600	0.000E+00
0600 - 0700	0.000E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	0.000E+00
2100 - 2200	0.000E+00
2200 - 2300	0.000E+00
2300 - 2400	0.000E+00

Remark
1. S_{aw}
= 0, if $S_{total} - I_a < 0$
or
= $(S_{total} - I_a) * d_t / (d_t + d_s)$, otherwise
where
S_{aw}: adjusted start emission outside PTI,
S_{total}: total start emission, obtained from the *Total Start Emission (g)* table above,
I_a: idling emission for the purpose of start emission adjustment, obtained from the *Idling emission for the purpose of start emission adjustment (g)* table above,
d_t: average travelling distance within PTI, obtained from the *Site Parameters* table,
d_s: average spread distance outside PTI, obtained from the *Vehicle Parameters* table.

HGV on-street parking site outside Tsing Yi Northeast Park Car Park

NO Idling Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	1.274E+01
0100 - 0200	1.274E+01
0200 - 0300	1.274E+01
0300 - 0400	1.274E+01
0400 - 0500	1.274E+01
0500 - 0600	1.274E+01
0600 - 0700	1.274E+01
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	1.274E+01
2100 - 2200	1.274E+01
2200 - 2300	1.274E+01
2300 - 2400	1.274E+01

Remark
1. $I = I_t + I_o$
where
I: idling emission within PTI of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in the hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
I_o: idling emission within PTI of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from

NO Total Emission within PTI/Parking Site (Running + Adjusted Start + Idling) (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	1.274E+01
0100 - 0200	1.274E+01
0200 - 0300	1.274E+01
0300 - 0400	1.274E+01
0400 - 0500	1.274E+01
0500 - 0600	1.274E+01
0600 - 0700	1.274E+01
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	1.274E+01
2100 - 2200	1.274E+01
2200 - 2300	1.274E+01
2300 - 2400	1.274E+01

Remark
1. $W = R + S_{aw} + I$
where
W: total emission within PTI of a vehicle type with a fuel type in an hour,
R: running emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Running Emission within PTI (g)* table above,
S_{aw}: adjusted start emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Adjusted*

HGV on-street parking site outside Tsing Yi Northeast Park Car Park

NO_2 Idling Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.864E+00
0100 - 0200	2.864E+00
0200 - 0300	2.864E+00
0300 - 0400	2.864E+00
0400 - 0500	2.864E+00
0500 - 0600	2.864E+00
0600 - 0700	2.864E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.864E+00
2100 - 2200	2.864E+00
2200 - 2300	2.864E+00
2300 - 2400	2.864E+00

Remark
1. $I = I_t + I_o$
where
I: idling emission within PTI of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in the hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
I_o: idling emission within PTI of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from

NO_2 Total Emission within PTI/Parking Site (Running + Adjusted Start + Idling) (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.864E+00
0100 - 0200	2.864E+00
0200 - 0300	2.864E+00
0300 - 0400	2.864E+00
0400 - 0500	2.864E+00
0500 - 0600	2.864E+00
0600 - 0700	2.864E+00
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.864E+00
2100 - 2200	2.864E+00
2200 - 2300	2.864E+00
2300 - 2400	2.864E+00

Remark
1. $W = R + S_{aw} + I$
where
W: total emission within PTI of a vehicle type with a fuel type in an hour,
R: running emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Running Emission within PTI (g)* table above,
S_{aw}: adjusted start emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Adjusted*

HGV on-street parking site outside Tsing Yi Northeast Park Car Park

TSP Idling Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.777E-02
0100 - 0200	2.777E-02
0200 - 0300	2.777E-02
0300 - 0400	2.777E-02
0400 - 0500	2.777E-02
0500 - 0600	2.777E-02
0600 - 0700	2.777E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.777E-02
2100 - 2200	2.777E-02
2200 - 2300	2.777E-02
2300 - 2400	2.777E-02

Remark
1. $I = I_t + I_o$
where
I: idling emission within PTI of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in the hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
I_o: idling emission within PTI of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from

TSP Total Emission within PTI/Parking Site (Running + Adjusted Start + Idling) (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.777E-02
0100 - 0200	2.777E-02
0200 - 0300	2.777E-02
0300 - 0400	2.777E-02
0400 - 0500	2.777E-02
0500 - 0600	2.777E-02
0600 - 0700	2.777E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.777E-02
2100 - 2200	2.777E-02
2200 - 2300	2.777E-02
2300 - 2400	2.777E-02

Remark
1. $W = R + S_{aw} + I$
where
W: total emission within PTI of a vehicle type with a fuel type in an hour,
R: running emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Running Emission within PTI (g)* table above,
S_{aw}: adjusted start emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Adjusted*

HGV on-street parking site outside Tsing Yi Northeast Park Car Park

RSP Idling Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.777E-02
0100 - 0200	2.777E-02
0200 - 0300	2.777E-02
0300 - 0400	2.777E-02
0400 - 0500	2.777E-02
0500 - 0600	2.777E-02
0600 - 0700	2.777E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.777E-02
2100 - 2200	2.777E-02
2200 - 2300	2.777E-02
2300 - 2400	2.777E-02

Remark
1. $I = I_t + I_o$
where
I: idling emission within PTI of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in the hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
I_o: idling emission within PTI of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from

RSP Total Emission within PTI/Parking Site (Running + Adjusted Start + Idling) (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.777E-02
0100 - 0200	2.777E-02
0200 - 0300	2.777E-02
0300 - 0400	2.777E-02
0400 - 0500	2.777E-02
0500 - 0600	2.777E-02
0600 - 0700	2.777E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.777E-02
2100 - 2200	2.777E-02
2200 - 2300	2.777E-02
2300 - 2400	2.777E-02

Remark
1. $W = R + S_{aw} + I$
where
W: total emission within PTI of a vehicle type with a fuel type in an hour,
R: running emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Running Emission within PTI (g)* table above,
S_{aw}: adjusted start emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Adjusted*

HGV on-street parking site outside Tsing Yi Northeast Park Car Park

FSP Idling Emission within PTI/Parking Site (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.777E-02
0100 - 0200	2.777E-02
0200 - 0300	2.777E-02
0300 - 0400	2.777E-02
0400 - 0500	2.777E-02
0500 - 0600	2.777E-02
0600 - 0700	2.777E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.777E-02
2100 - 2200	2.777E-02
2200 - 2300	2.777E-02
2300 - 2400	2.777E-02

Remark
1. $I = I_t + I_o$
where
I: idling emission within PTI of a vehicle type with a fuel type in an hour,
I_t: idling emission within PTI of the vehicle type with the fuel type in the hour (terminating vehicle), obtained from the *Idling Emission within PTI (Terminating Vehicle) (g)* table above,
I_o: idling emission within PTI of the vehicle type with the fuel type in the hour (non-terminating vehicle), obtained from

FSP Total Emission within PTI/Parking Site (Running + Adjusted Start + Idling) (g)

Hour	17 - Heavy Goods Vehicles>24t
	Diesel
0000 - 0100	2.777E-02
0100 - 0200	2.777E-02
0200 - 0300	2.777E-02
0300 - 0400	2.777E-02
0400 - 0500	2.777E-02
0500 - 0600	2.777E-02
0600 - 0700	2.777E-02
0700 - 0800	0.000E+00
0800 - 0900	0.000E+00
0900 - 1000	0.000E+00
1000 - 1100	0.000E+00
1100 - 1200	0.000E+00
1200 - 1300	0.000E+00
1300 - 1400	0.000E+00
1400 - 1500	0.000E+00
1500 - 1600	0.000E+00
1600 - 1700	0.000E+00
1700 - 1800	0.000E+00
1800 - 1900	0.000E+00
1900 - 2000	0.000E+00
2000 - 2100	2.777E-02
2100 - 2200	2.777E-02
2200 - 2300	2.777E-02
2300 - 2400	2.777E-02

Remark
1. $W = R + S_{aw} + I$
where
W: total emission within PTI of a vehicle type with a fuel type in an hour,
R: running emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Running Emission within PTI (g)* table above,
S_{aw}: adjusted start emission within PTI of the vehicle type with the fuel type in the hour, obtained from the *Adjusted*

HGV on-street parking site outside Tsing Yi Northeast Park Car Park

Hourly Profile

Hour	Emission Within PTI/Parking Site				
	Total Emission Rate (g/s)				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
0100 - 0200	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
0200 - 0300	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
0300 - 0400	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
0400 - 0500	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
0500 - 0600	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
0600 - 0700	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
2100 - 2200	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
2200 - 2300	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
2300 - 2400	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06
Max	3.539E-03	7.956E-04	7.715E-06	7.715E-06	7.715E-06

Hour	Hourly Profile				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	1.0000	1.0000	1.0000	1.0000	1.0000
0100 - 0200	1.0000	1.0000	1.0000	1.0000	1.0000
0200 - 0300	1.0000	1.0000	1.0000	1.0000	1.0000
0300 - 0400	1.0000	1.0000	1.0000	1.0000	1.0000
0400 - 0500	1.0000	1.0000	1.0000	1.0000	1.0000
0500 - 0600	1.0000	1.0000	1.0000	1.0000	1.0000
0600 - 0700	1.0000	1.0000	1.0000	1.0000	1.0000
0700 - 0800	0.0000	0.0000	0.0000	0.0000	0.0000
0800 - 0900	0.0000	0.0000	0.0000	0.0000	0.0000
0900 - 1000	0.0000	0.0000	0.0000	0.0000	0.0000
1000 - 1100	0.0000	0.0000	0.0000	0.0000	0.0000
1100 - 1200	0.0000	0.0000	0.0000	0.0000	0.0000
1200 - 1300	0.0000	0.0000	0.0000	0.0000	0.0000
1300 - 1400	0.0000	0.0000	0.0000	0.0000	0.0000
1400 - 1500	0.0000	0.0000	0.0000	0.0000	0.0000
1500 - 1600	0.0000	0.0000	0.0000	0.0000	0.0000
1600 - 1700	0.0000	0.0000	0.0000	0.0000	0.0000
1700 - 1800	0.0000	0.0000	0.0000	0.0000	0.0000
1800 - 1900	0.0000	0.0000	0.0000	0.0000	0.0000
1900 - 2000	0.0000	0.0000	0.0000	0.0000	0.0000
2000 - 2100	1.0000	1.0000	1.0000	1.0000	1.0000
2100 - 2200	1.0000	1.0000	1.0000	1.0000	1.0000
2200 - 2300	1.0000	1.0000	1.0000	1.0000	1.0000
2300 - 2400	1.0000	1.0000	1.0000	1.0000	1.0000

Hour	Emission Outside PTI/Parking Site (Spread Distance = 700m)				
	Total Emission Rate (g/s)				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	1.432E-02	1.847E-03	0.000E+00	0.000E+00	0.000E+00
Max	1.432E-02	1.847E-03	-	-	-

Hour	Hourly Profile				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	1.0000	1.0000	-	-	-
0100 - 0200	1.0000	1.0000	-	-	-
0200 - 0300	1.0000	1.0000	-	-	-
0300 - 0400	1.0000	1.0000	-	-	-
0400 - 0500	1.0000	1.0000	-	-	-
0500 - 0600	1.0000	1.0000	-	-	-
0600 - 0700	1.0000	1.0000	-	-	-
0700 - 0800	0.0000	0.0000	-	-	-
0800 - 0900	0.0000	0.0000	-	-	-
0900 - 1000	0.0000	0.0000	-	-	-
1000 - 1100	0.0000	0.0000	-	-	-
1100 - 1200	0.0000	0.0000	-	-	-
1200 - 1300	0.0000	0.0000	-	-	-
1300 - 1400	0.0000	0.0000	-	-	-
1400 - 1500	0.0000	0.0000	-	-	-
1500 - 1600	0.0000	0.0000	-	-	-
1600 - 1700	0.0000	0.0000	-	-	-
1700 - 1800	0.0000	0.0000	-	-	-
1800 - 1900	0.0000	0.0000	-	-	-
1900 - 2000	0.0000	0.0000	-	-	-
2000 - 2100	1.0000	1.0000	-	-	-
2100 - 2200	1.0000	1.0000	-	-	-
2200 - 2300	1.0000	1.0000	-	-	-
2300 - 2400	1.0000	1.0000	-	-	-

Hour	Emission Outside PTI/Parking Site (Spread Distance = 150m)				
	Total Emission Rate (g/s)				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0100 - 0200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0200 - 0300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0300 - 0400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0400 - 0500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0500 - 0600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0600 - 0700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0700 - 0800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0800 - 0900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0900 - 1000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1000 - 1100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1100 - 1200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1200 - 1300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1300 - 1400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1400 - 1500	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1500 - 1600	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1600 - 1700	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1700 - 1800	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1800 - 1900	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1900 - 2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2000 - 2100	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2100 - 2200	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2200 - 2300	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2300 - 2400	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Max	-	-	-	-	-

Hour	Hourly Profile				
	NO	NO_2	TSP	RSP	FSP
0000 - 0100	-	-	-	-	-
0100 - 0200	-	-	-	-	-
0200 - 0300	-	-	-	-	-
0300 - 0400	-	-	-	-	-
0400 - 0500	-	-	-	-	-
0500 - 0600	-	-	-	-	-
0600 - 0700	-	-	-	-	-
0700 - 0800	-	-	-	-	-
0800 - 0900	-	-	-	-	-
0900 - 1000	-	-	-	-	-
1000 - 1100	-	-	-	-	-
1100 - 1200	-	-	-	-	-
1200 - 1300	-	-	-	-	-
1300 - 1400	-	-	-	-	-
1400 - 1500	-	-	-	-	-
1500 - 1600	-	-	-	-	-
1600 - 1700	-	-	-	-	-
1700 - 1800	-	-	-	-	-
1800 - 1900	-	-	-	-	-
1900 - 2000	-	-	-	-	-
2000 - 2100	-	-	-	-	-
2100 - 2200	-	-	-	-	-
2200 - 2300	-	-	-	-	-
2300 - 2400	-	-	-	-	-

Appendix 3.6 Calculation of Start Emissions

Emission Source Listing in AERMOD
Cold Start (Operation Phase)

Bus Terminus	Source ID	Type	X Start	Y Start	X End	Y End	Road ID	Road Width (m)	Release Height (mAG)	No. of Vertices	Sylnit	Sznit	Operation Period (hr)	Area (m^2)	Travel Distance outside Bus Terminus (m)	Flow Percentage (%)	NO Emission Rate (g/s or $g/m^2/s$)	NO_2 Emission Rate (g/s or $g/m^2/s$)	RSP Emission Rate (g/s or $g/m^2/s$)	FSP Emission Rate (g/s or $g/m^2/s$)
Start Emission inside Parking Area																				
Car_Park	CPV01	AREAPOLY	828153.22	824658.13	-	-	-	-	0.50	4	-	-	11	709	-	-	4.9940E-06	1.1229E-06	1.0888E-08	1.0888E-08
Start Emission outside Parking Area (Spread Distance = 700m)																				
Car_Park	CPL01	LINE	828288.40	824750.10	828319.60	824774.30	-	10.00	3.31	-	-	3.08	11	395	39.52	50%	1.0240E-06	1.3205E-07	-	-
Car_Park	CPL02	LINE	828319.40	824774.20	828354.40	824776.40	-	10.00	3.31	-	-	3.08	11	351	35.08	50%	1.0233E-06	1.3195E-07	-	-
Car_Park	CPL03	LINE	828190.60	824672.60	828267.60	824711.10	-	10.00	3.31	-	-	3.08	11	861	86.12	100%	2.0470E-06	2.6395E-07	-	-
Car_Park	CPL04	LINE	828267.60	824711.10	828288.40	824750.10	-	10.00	3.31	-	-	3.08	11	442	44.17	100%	2.0447E-06	2.6365E-07	-	-
Car_Park	CPL05	LINE	828288.40	824750.10	828300.30	824750.30	-	10.00	3.31	-	-	3.08	11	119	11.83	50%	1.0170E-06	1.3113E-07	-	-
Car_Park	CPL06	LINE	828300.30	824750.30	828306.50	824734.80	-	10.00	3.31	-	-	3.08	11	167	16.62	50%	1.0185E-06	1.3133E-07	-	-
Car_Park	CPL07	LINE	828306.50	824734.80	828273.00	824708.00	-	10.00	3.31	-	-	3.08	11	429	42.93	50%	1.0238E-06	1.3201E-07	-	-
Car_Park	CPL08	LINE	828273.00	824708.00	828187.10	824666.60	-	10.00	3.31	-	-	3.08	11	954	95.35	50%	1.0230E-06	1.3192E-07	-	-
Car_Park	CPL09	LINE	828187.10	824666.60	828113.80	824632.80	-	10.00	3.31	-	-	3.08	11	807	80.68	50%	1.0226E-06	1.3186E-07	-	-
Car_Park	CPL10	LINE	828113.80	824632.80	828078.10	824624.90	-	10.00	3.31	-	-	3.08	11	366	36.57	50%	1.0232E-06	1.3194E-07	-	-
Car_Park	CPL11	LINE	828078.10	824624.90	828033.50	824627.70	-	10.00	3.31	-	-	3.08	11	447	44.70	50%	1.0233E-06	1.3195E-07	-	-
Car_Park	CPL12	LINE	828033.50	824627.70	827976.30	824646.40	-	10.00	3.31	-	-	3.08	11	602	60.29	50%	1.0249E-06	1.3216E-07	-	-
Car_Park	CPL13	LINE	827976.30	824646.40	827896.10	824651.60	-	10.00	3.31	-	-	3.08	11	804	80.26	50%	1.0217E-06	1.3174E-07	-	-
Car_Park	CPL14	LINE	827896.10	824651.60	827795.30	824648.40	-	10.00	3.31	-	-	3.08	11	1009	100.89	50%	1.0235E-06	1.3197E-07	-	-
Car_Park	CPL15	LINE	828354.40	824776.40	828400.30	824794.90	-	10.00	3.31	-	-	3.08	11	495	49.46	50%	1.0226E-06	1.3186E-07	-	-

Hourly Profile for CPV01

Hour	NO	NO2	RSP	FSP
Hour 1	1.0000	1.0000	1.0000	1.0000
Hour 2	1.0000	1.0000	1.0000	1.0000
Hour 3	1.0000	1.0000	1.0000	1.0000
Hour 4	1.0000	1.0000	1.0000	1.0000
Hour 5	1.0000	1.0000	1.0000	1.0000
Hour 6	1.0000	1.0000	1.0000	1.0000
Hour 7	1.0000	1.0000	1.0000	1.0000
Hour 8	0.0000	0.0000	0.0000	0.0000
Hour 9	0.0000	0.0000	0.0000	0.0000
Hour 10	0.0000	0.0000	0.0000	0.0000
Hour 11	0.0000	0.0000	0.0000	0.0000
Hour 12	0.0000	0.0000	0.0000	0.0000
Hour 13	0.0000	0.0000	0.0000	0.0000
Hour 14	0.0000	0.0000	0.0000	0.0000
Hour 15	0.0000	0.0000	0.0000	0.0000
Hour 16	0.0000	0.0000	0.0000	0.0000
Hour 17	0.0000	0.0000	0.0000	0.0000
Hour 18	0.0000	0.0000	0.0000	0.0000
Hour 19	0.0000	0.0000	0.0000	0.0000
Hour 20	0.0000	0.0000	0.0000	0.0000
Hour 21	1.0000	1.0000	1.0000	1.0000
Hour 22	1.0000	1.0000	1.0000	1.0000
Hour 23	1.0000	1.0000	1.0000	1.0000
Hour 24	1.0000	1.0000	1.0000	1.0000

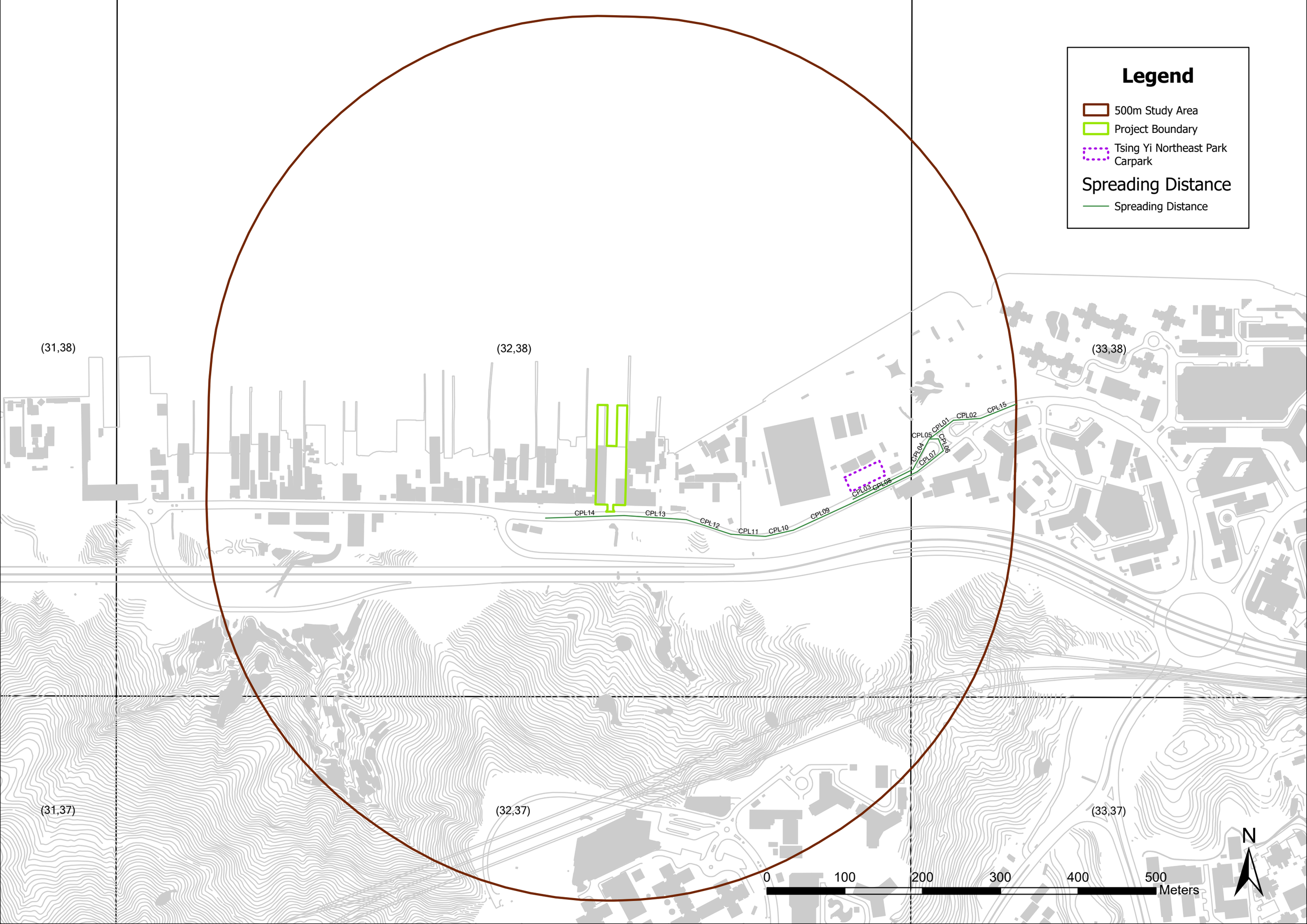
Hourly Profile for CPL01-CPL15

Hour	NO	NO2	RSP	FSP
Hour 1	1.0000	1.0000	-	-
Hour 2	1.0000	1.0000	-	-
Hour 3	1.0000	1.0000	-	-
Hour 4	1.0000	1.0000	-	-
Hour 5	1.0000	1.0000	-	-
Hour 6	1.0000	1.0000	-	-
Hour 7	1.0000	1.0000	-	-
Hour 8	0.0000	0.0000	-	-
Hour 9	0.0000	0.0000	-	-
Hour 10	0.0000	0.0000	-	-
Hour 11	0.0000	0.0000	-	-
Hour 12	0.0000	0.0000	-	-
Hour 13	0.0000	0.0000	-	-
Hour 14	0.0000	0.0000	-	-
Hour 15	0.0000	0.0000	-	-
Hour 16	0.0000	0.0000	-	-
Hour 17	0.0000	0.0000	-	-
Hour 18	0.0000	0.0000	-	-
Hour 19	0.0000	0.0000	-	-
Hour 20	0.0000	0.0000	-	-
Hour 21	1.0000	1.0000	-	-
Hour 22	1.0000	1.0000	-	-
Hour 23	1.0000	1.0000	-	-
Hour 24	1.0000	1.0000	-	-

Appendix 3.6 Calculation of Start Emissions

Vertices of Area Source

	Vertex 1		Vertex 2		Vertex 3		Vertex 4	
Source ID	X	Y	X	Y	X	Y	X	Y
CPV01	828153.22	824658.13	828215.70	824688.72	828220.28	824679.42	828157.79	824649.20


Legend
500m Study Area
Project Boundary
Tsing Yi Northeast Park Carpark
Spreading Distance
Spreading Distance
(31,38)
(32,38)
(33,38)
(31,37)
(32,37)
(33,37)
CPL01
CPL02
CPL03
CPL04
CPL05
CPL06
CPL07
CPL08
CPL09
CPL10
CPL11
CPL12
CPL13
CPL14
CPL15
0
100
200
300
400
500
Meters
N

APPENDIX 3.7

Derivation of Cumulative Annual Average NOX-to-NO2 Conversion Equation using Jenkin Method

Appendix 3.7 Derivation of Cumulative Annual Average NOX-to-NO2 Conversion Equation using Jenkin Method

Jenkin Method for Long-term Cumulative NO_2 Assessment

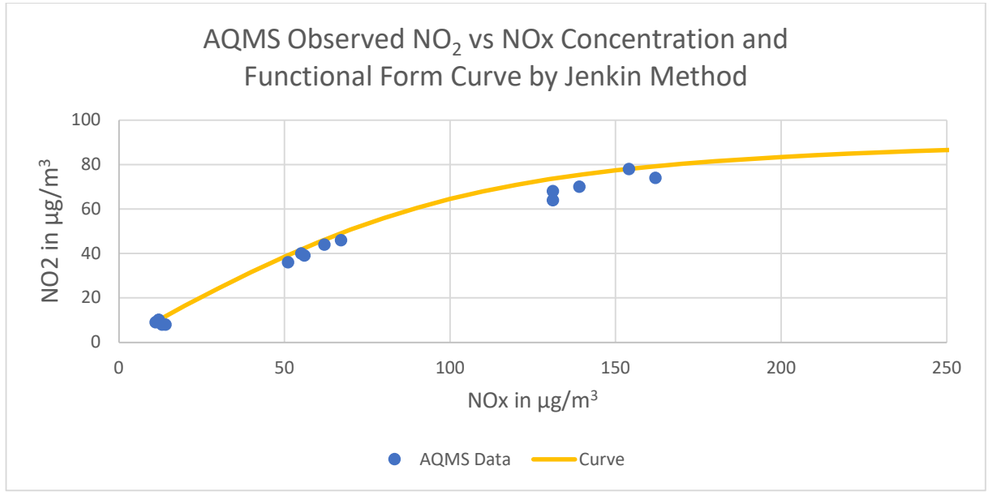
With reference to the *Review of Methods for NO to NO_2 Conversion in plumes at short ranges*[1], Jenkin method was adopted for the conversion of cumulative annual average NO_x to NO_2 by using the functional form of annual mean of NO_2-to-NOx. The mentioned functional form is referenced from Jenkin, 2004a[2] and is presented below:

$$[NO2] = \frac{\left([\mathrm{NOx}] + [\mathrm{OX}] + \frac{\mathrm{J}}{\mathrm{k}}\right) - \sqrt{([NOx] + [OX] + \frac{J}{k})^2 - 4[NOx][OX]}}{2}$$

where

$[NO_2]$	is the NO_2 concentration
$[NO_x]$	is the NOx concentration
[OX]	is the sum of NO_2 concentration and O_3 concentration (i.e. [OX] = $[NO_2]$ + $[O_3]$)
J	is the photolysis rate of NO_2
k	is the rate coefficient for reaction between NO and O_3

The above functional form was used to analyze the annual mean data obtained from the nearest EPD's air quality monitoring stations (AQMS) including Tsuen Wan general station, Tap Mun general station and Roadside AQMS (i.e. Mong Kok roadside station). The recent five years annual mean data are extracted and presented in below table. Scattered plot for recent 5 years annual means NO_2 versus NO_x concentrations obtained from relevant AQMS was created. The functional form curve would fit the annual mean data when [OX] = 95.57 µg/m^3 and J/k = 17.114 µg/m^3. The value of [OX] and J/k are considered reasonable as they are within typical value range for Hong Kong. The resulting functional form curve was adopted for the cumulative annual average NO_x to NO_2 conversion. The curve is slightly higher than all the annual mean data obtained from AQMS, the calculated annual average NO_2 concentration using the obtained functional form curve based on the observed annual average NO_x obtained from AQMS are presented in below table, the calculated annual average NO_2 concentration are higher than the observed annual average NO_2 concentration, no underestimation of the annual average NO_2 concentration is expected.



For the long-term cumulative NO_2 assessment (i.e. predictions of annual average NO_2 concentration), cumulative annual average NO_x to NO_2 conversion equation for this assessment was calculated as follows:

$$[NO2]_c = \frac{([NOx]_c + 95.57 + 17.11) - \sqrt{([NOx]_c + 95.57 + 17.11)^2 - 4[NOx]_c \times 95.57}}{2}$$

where

$[NO_2]_c$	is the predicted cumulative NO_2 concentration
$[NO_x]_c$	is the predicted cumulative NO_x concentration

[1] Environment Agency. 2007. *Review of methods for NO to NO_2 conversion in plumes at short range*. Prepared by Environmental Agency.

[2] Jenkin. 2004a. *Analysis of sources and partitioning of oxidant in the UK – Part 1: The NOx-dependence of annual mean concentrations of nitrogen dioxide and ozone.* Atmospheric Environment, 38, 5117-5129.

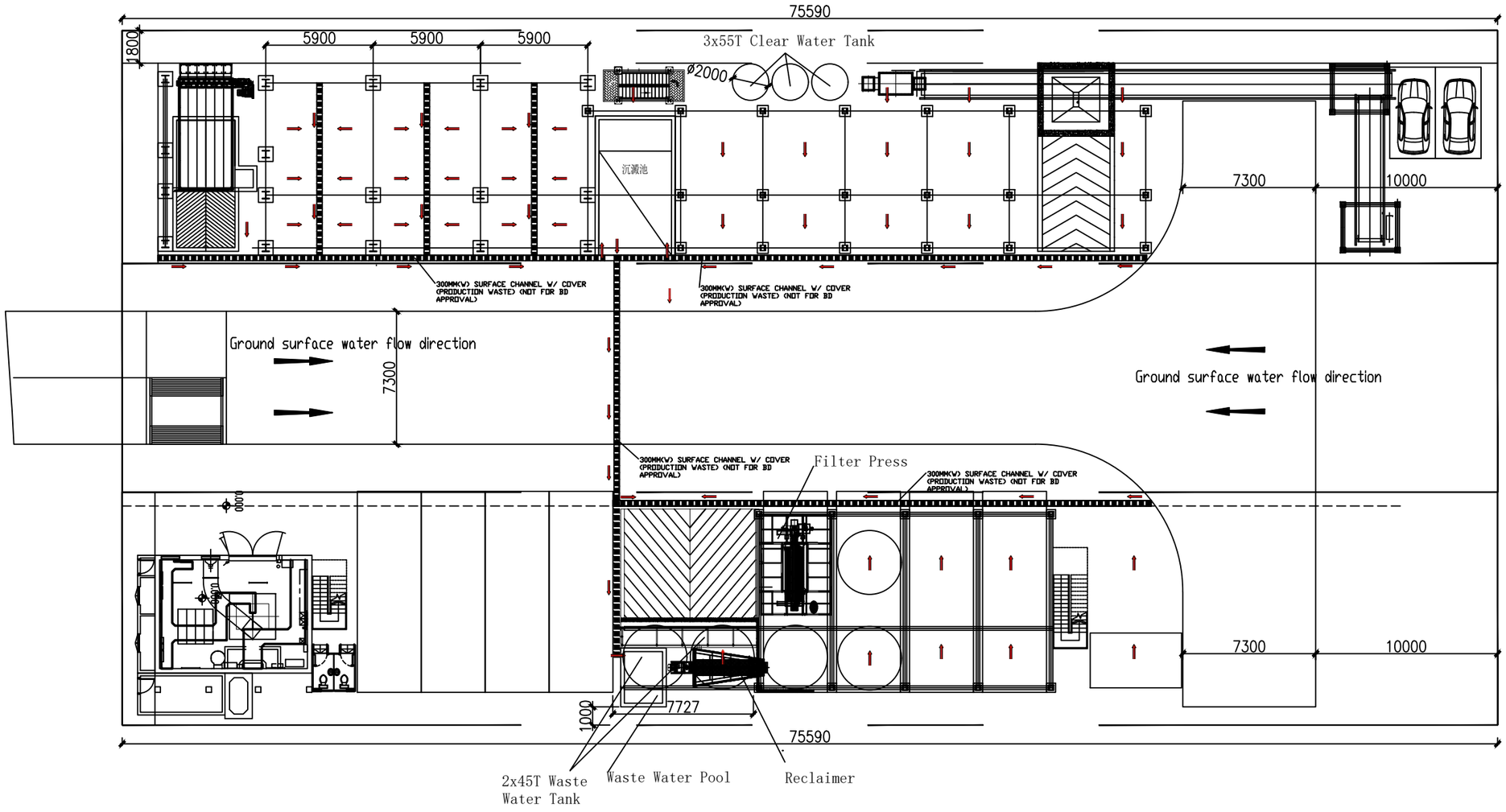
Appendix 3.7 Derivation of Cumulative Annual Average NOX-to-NO2 Conversion Equation using Jenkin Method

Annual Average NO_X, NO_2 and OX concentration in Recent Five Years (Year 2019-2023) at Selected EPD AQMS

AQMS Data of the Past 5 Years				
Year	**Station**	**NO2 (ug/m3)**	**NOx (ug/m3)**	**Conversion**
2019	TSUEN WAN	46	67	49.0
2020	TSUEN WAN	36	51	39.1
2021	TSUEN WAN	44	62	46.1
2022	TSUEN WAN	39	56	42.4
2023	TSUEN WAN	40	55	41.7
2019	TAP MUN	10	12	10.0
2020	TAP MUN	9	11	9.2
2021	TAP MUN	10	12	10.0
2022	TAP MUN	8	13	10.8
2023	TAP MUN	8	14	11.6
2019	MONG KOK	78	154	78.0
2020	MONG KOK	74	162	79.2
2021	MONG KOK	70	139	75.3
2022	MONG KOK	64	131	73.6
2023	MONG KOK	68	131	73.6

APPENDIX 5.1

Surface Channel Plan



Remark:

Surface channel

Ground surface water flow direction

工程编号:

合同编号:

圳通(香港）钢结构设备有限公
ZhenTong(HONGKONG)Steel structure Equipment Co.LTD
深圳市圳通钢结构设备有限公司
ZhenTong Steelstructure Equipment Co.LTD In ShenZhen

典型平面:
key plan

设计变更说明:
Revision

A 版

备注说明:
Remark
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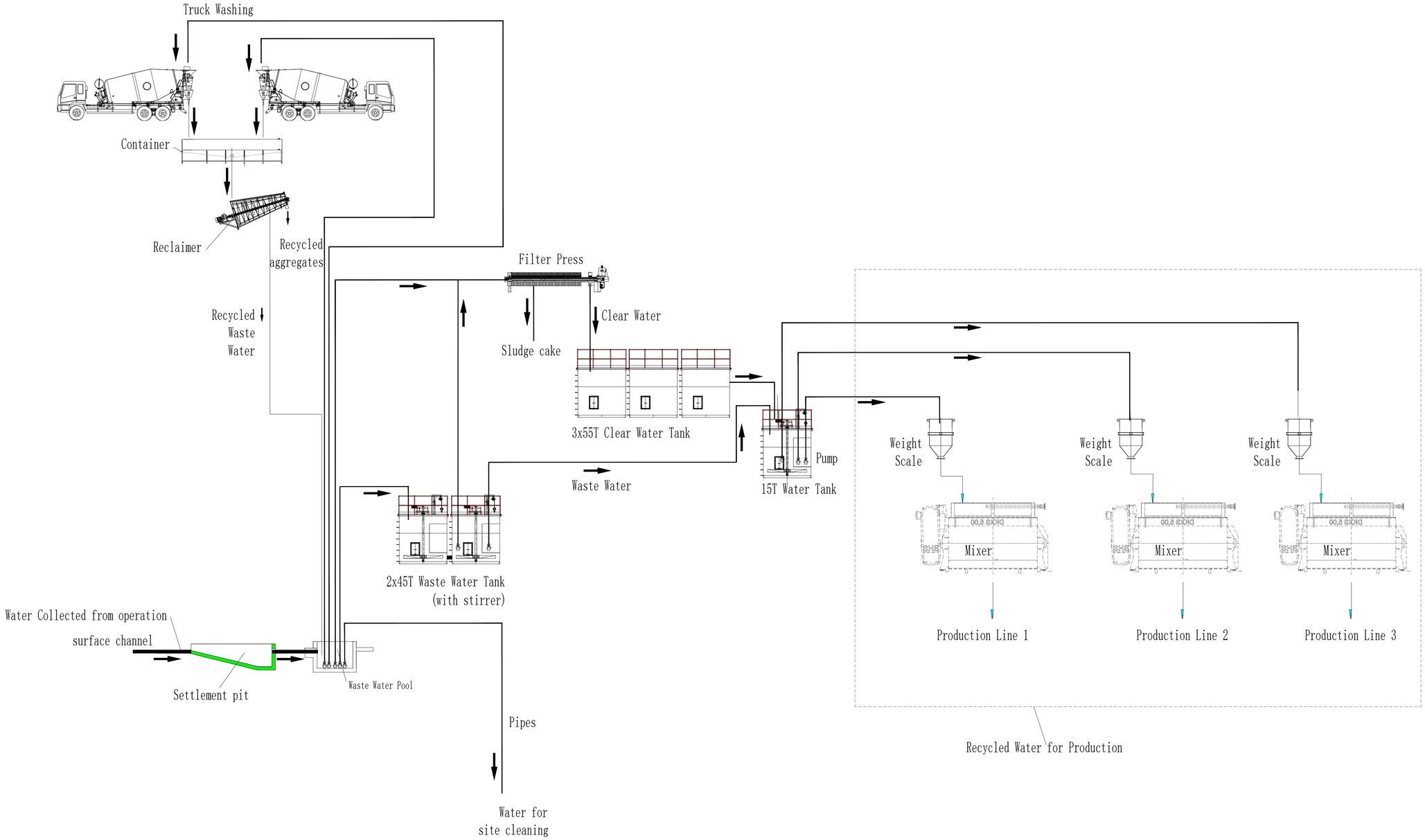
建设单位:
Client
中港混凝土有限公司

建设地点:
Site
青衣

工程名称	3*HZS300混凝土生产线		
审定		核对	
审核		设计	
设计负责		绘图	
设计阶段		版本	
名称	污水溝渠平面圖		
比例	日期	图号	
1:1	2024-11-25		

APPENDIX 5.2

Wastewater Treatment Plan



工程编号:

合同编号:

圳通(香港）钢结构设备有限公
ZhenTong(HONGKONG)Steel structure Equipment Co.LTD

深圳市圳通钢结构设备有限公司
ZhenTong Steelstructure Equipment Co.LTD In ShenZhen

典型平面：
key plan

设计变更说明：
Revision

A 版

备注说明：
Remark

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建设单位：
Client

建设地点：
Site
青衣

工程名称	3*HZS300混凝土生产线		
审定		核对	
审核		设计	
设计负责		绘图	
设计阶段		版本	

名称	回收水工藝流程圖

比例	日期	图号
1:1	2024-11-25	

APPENDIX 7.1

Reviewed Aerial Photographs

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

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11/2/2025
Plot File by: haiquan.zhao
PATH: P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_703.dgn

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AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 事項簡述	CHK. 核對

STATUS
現狀

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 1963

SHEET NUMBER
圖紙編號
60739290/EA/AP1

LEGEND:

SITE BOUNDARY

827750 E

828000 E

828250 E

825000 N

824750 N

824500 N

N

RECLAIMED LAND

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

V:\BAK\US95-BAK\CSWP\plotdrv\Create Plt file\new\CSWP-75(color).pltPlot File by: haiquan.zhaoPATH P:\PROJECTS\60739290\DRAWING\REPORT\EAEA_704.dgn

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AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
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SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 修改摘要	CHK. 校核

STATUS
現狀

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 1973

SHEET NUMBER
圖紙編號
60739290/EA/AP2

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

SITE BOUNDARY

N

825000 N

824750 N

824500 N

834250 E

834500 E

834750 E

OPEN STORAGE

SLIPWAY

SHIPYARD

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19/2025
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AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
工程管理公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 校核

STATUS
階段

SCALE
比例

A3 1 : 2500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60739290

CONTRACT NO.
合約編號

SHEET TITLE
圖紙名稱

AERIAL PHOTOGRAPH 1983

SHEET NUMBER
圖紙編號

60739290/EA/AP3

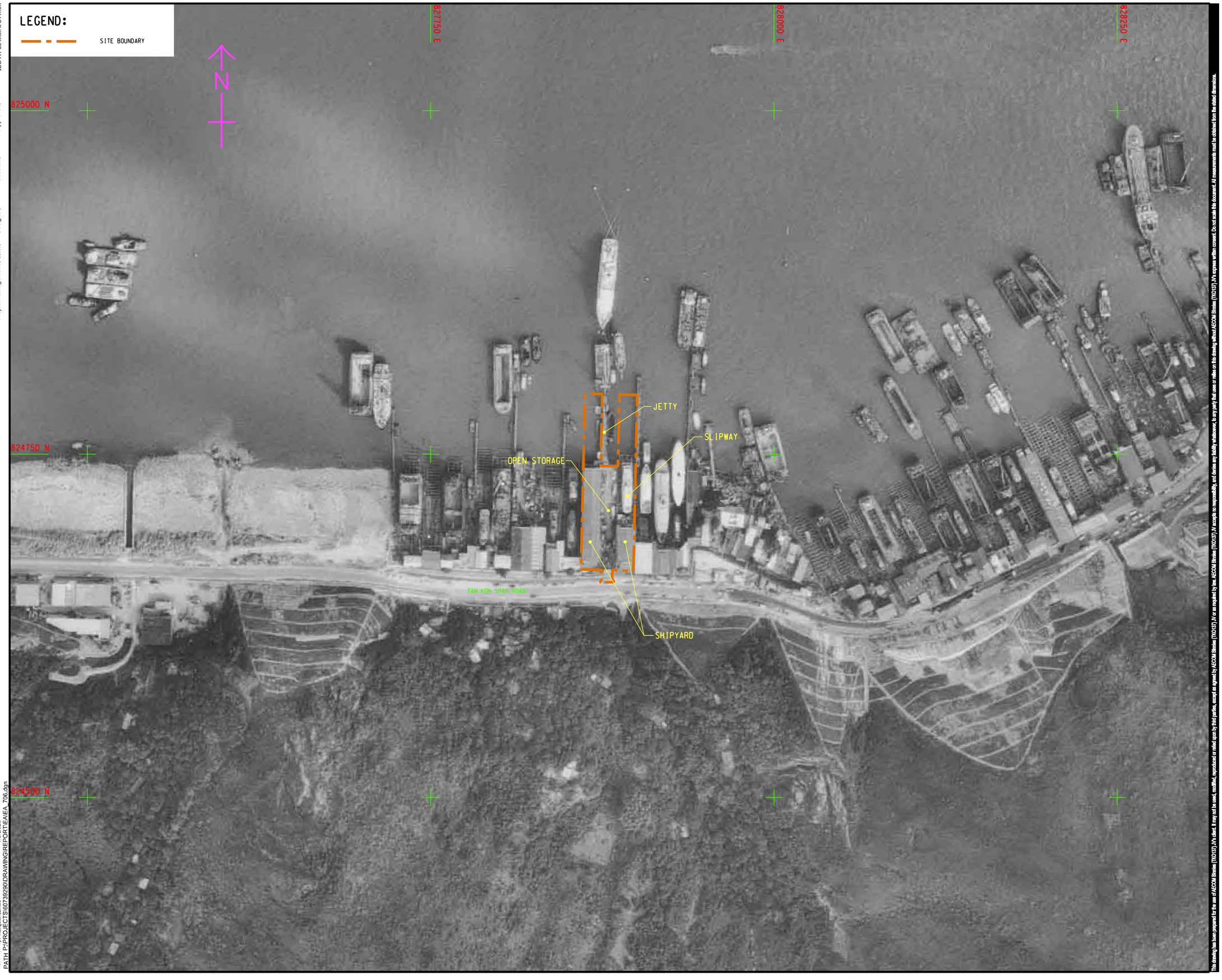
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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19/2025
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AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
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分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 校核

STATUS
階段

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 1993

SHEET NUMBER
圖紙編號
60739290/EA/AP4

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

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2025/2/18
Plot File by: TaoY
PATH: P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_707.dgn

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AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
工程管理公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 校核

STATUS
階段

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

AGREEMENT NO. 協議編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 2003

SHEET NUMBER
圖紙編號
60739290/EA/AP5

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

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2025/2/18
Plot File by: TaoY
PATH: P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_708.dgn

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AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 校核

STATUS
階段

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

AGREEMENT NO. 協議編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 2013

SHEET NUMBER
圖紙編號
60739290/EA/AP6

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

827500 E

827750 E

828000 E

828250 E

825000 N

824750 N

824500 N

LEGEND:

SITE BOUNDARY

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Plot File by: haiquan.zhao 27/6/2025
PATH P:\PROJECTS\60739290\DRAWING\REPORT\EA\EA_709.dgn

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AECOM

PROJECT
項目

PLANNING APPLICATION
OF A CONCRETE BATCHING
PLANT AT TSING YI TOWN
LOT NOS. 14 & 15

CLIENT
業主

CONSULTANT
工程管理公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核對

STATUS
狀況

SCALE 比例
A3 1 : 2500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60739290

AGREEMENT NO. 協議編號

SHEET TITLE
圖紙名稱
AERIAL PHOTOGRAPH 2023

SHEET NUMBER
圖紙編號
60739290/EA/AP7

APPENDIX 7.2

Site Walkover Checklist

Annex C1
Site Walkover Checklist

DATE OF INSPECTION 12 December 2024

GENERAL SITE DETAILS

~~SITE OWNER~~/CLIENT [redacted]

PROPERTY ADDRESS Tsing Yi Town Lot Nos. 14 and 15 and adjoining Government Land,
Tam Kon Shan Road, Tsing Yi, New Territories

PERSON CONDUCTING THE QUESTIONNAIRE

NAME Mr. Alex Fan / Ms. Chloe Ng

POSITION Graduate / Senior Environmental Consultant, AECOM

AUTHORIZED OWNER/CLIENT REPRESENTATIVE (IF APPLICABLE)

NAME [redacted]

POSITION [redacted]

TELEPHONE [redacted]

SITE ACTIVITIES

Briefly describe activities carried out on site, including types of products/chemicals/materials handled. **Obtain a flow schematic if possible.**

Number of employees:	Full-time:	1
	Part-time:	N/A
	Temporary/Seasonal:	N/A
Maximum no. of people on site at any time:		50
Typical hours of operation:		8am – 5pm
Number of shifts:		N/A
Days per week:		6
Weeks per year:		52
Scheduled plant shut-down:		N/A

Detail the main sources of energy at the site:

Gas	~~Yes~~/No
Electricity	Yes/~~No~~
Coal	~~Yes~~/No
Oil	~~Yes~~/No
Other	~~Yes~~/No

SITE DESCRIPTION

This section is intended to gather information on site setting and environmental receptors on, adjacent or close to the site.

What is the total site area: Approx. 4,335 m^2

What area of the site is covered by buildings (%): 30 %

Please list all current and previous owners/occupiers if possible. Supreme Enterprises, Limited

---

Is a site plan available? If yes, please attach. Yes/~~No~~ Refer to **Figure 7.1**

Are there any other parties on site as tenants or sub-tenants? ~~Yes~~/No

If yes, identify those parties: N/A

Describe surrounding land use (residential, industrial, rural, etc.) and identify neighbouring facilities and types of industry.

North: Open water

South: Tam Kon Shan Road

East: Shipyard (Industrial)

West: Shipyard (Industrial)

Annex C1
Site Walkover Checklist

Describe the topography of the area (flat terrain, rolling hills, mountains, by a large body of water, vegetation, etc.).

Flat reclaimed land by the sea.

State the size and location of the nearest residential communities.

Cheung On Estate (approx. 450m east of the Site, area of about 7.9 ha)

Are there any sensitive habitats nearby, such as nature reserves, parks, wetlands or sites of special scientific interest?

No.

Questionnaire with Existing/Previous Site Owner or Occupier

	Yes/No	Notes
1. What are the main activities/operations at the above address?	--	Private parking site
2. How long have you been occupying the site?	--	48 years, since 1976
3. Were you the first occupant on site? (If yes, what was the usage of the site prior to occupancy.)	Yes	Open water
4. Prior to your occupancy, who occupied the site?	N/A	
5. What were the main activities/operations during their occupancy?	--	Shipyard from 1976 to 1994
6. Have there been any major changes in operations carried out at the site in the last 10 years?	No	
7. Have any polluting activities been carried out in the vicinity of the site in the past?	No	
8. To the best of your knowledge, has the site ever been used as a petrol filling station/car service garage?	No	
9. Are there any boreholes/wells or natural springs either on the site or in the surrounding area?	Yes	
10. Do you have any registered hazardous installations as defined under relevant ordinances? (If yes, please provide details.)	Yes	There is a disused Dangerous Goods (DG) store previously used for storing oxy-acetylene cylinders located in the western building of the Site.
11. Are any chemicals used in your daily operations? (If yes, please provide details.)	No	
• Where do you store these chemicals?	N/A	
12. Material inventory lists, including quantities and locations available? (If yes, how often are these inventories updated?)	No	
13. Has the facility produced a separate hazardous substance inventory?	No	
14. Have there ever been any incidents or accidents (e.g. spills, fires, injuries, etc.) involving any of these materials? (If yes, please provide details.)	No	

	Yes/No	Notes
15. How are materials received (e.g. rail, truck, etc.) and stored on site (e.g. drums, tanks, carboys, bags, silos, cisterns, vaults and cylinders)?	N/A	No materials are received and stored for use on-site.
16. Do you have any underground storage tanks? (If yes, please provide details.)	No	
• How many underground storage tanks do you have on site?	N/A	
• What are the tanks constructed of?	N/A	
• What are the contents of these tanks?	N/A	
• Are the pipelines above or below ground?	N/A	
• If the pipelines are below ground, has any leak and integrity testing been performed?	N/A	
• Have there been any spills associated with these tanks?	N/A	
17. Are there any disused underground storage tanks?	No	
18. Do you have regular check for any spillage and monitoring of chemicals handled? (If yes, please provide details.)	No	
19. How are the wastes disposed of?	--	Wastes are disposed to the nearby refuse collection point.
20. Have you ever received any notices of violation of environmental regulations or received public complaints? (If yes, please provide details.)	No	
21. Have any spills occurred on site? (If yes, please provide details.)	No	
• When did the spill occur?	N/A	
• What were the substances spilled?	N/A	
• What was the quantity of material spilled?	N/A	
• Did you notify the relevant departments of the spill?	N/A	
• What were the actions taken to clean up the spill?	N/A	
• What were the areas affected?	N/A	
22. Do you have any records of major renovation of your site or re-arrangement of underground utilities, pipe work/underground tanks (If yes, please provide details.)	No	
23. Have disused underground tanks been removed or otherwise secured (e.g. concrete, sand, etc.)?	No	
24. Are there any known contaminations on site? (If yes, please provide details.)	No	
25. Has the site ever been remediated? (If yes, please provide details.)	No	

Annex C1
Site Walkover Checklist

Observations

	Yes/No	Notes
1. Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?	No	The chemicals are stored on a covered box / wooden plank or directly above concrete paved ground.
2. What are the conditions of the bund walls and floors?	--	The covered box / wooden plank and concrete paved ground were observed to be intact.
3. Are any surface water drains located near to drum storage and unloading areas?	N/A	
4. Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	No	
5. Is there a storage site for the wastes?	No	
6. Is there an on-site landfill?	No	
7. Were any stressed vegetation noted on site during the site reconnaissance? (If yes, please indicate location and approximate size.)	No	
8. Were any stained surfaces noted on-site during the site reconnaissance? (If yes, please provide details.)	No	
9. Are there any potential off-site sources of contamination?	No	
10. Does the site have any equipment which might contain polychlorinated biphenyls (PCBs)?	No	
11. Are there any sumps, effluent pits, interceptors or lagoons on site?	No	
12. Any noticeable odours during site walkover?	No	
13. Are any of the following chemicals used on site: fuels, lubricating oils, hydraulic fluids, cleaning solvents, used chemical solutions, acids, anti-corrosive paints, thinners, coal, ash, oily tanks and bilge sludge, metal wastes, wood preservatives and polyurethane foam?	No	

APPENDIX 7.3

Acquisition of Information from Government Departments

AECOM
12/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, Hong Kong
香港新界沙田鄉事會路 138 號
新城市中央廣場第 2 座 12 樓
www.aecom.com

+852 3922 9000 tel
+852 3922 9797 fax

Your Ref:
Our Ref: 60739290/AYMC202412122

By Post and Fax (F: 2411 3073)

Environmental Protection Department
Regional Office (West)
8/F., Tsuen Wan Government Offices,
38 Sai Lau Kok Road, Tsuen Wan,
New Territories

12 December 2024

Dear Sir/Madam,

Land Contamination Assessment for Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi

Request for Information of Chemical Waste Producer and Chemical Spillage Accident

AECOM Asia Co. Ltd. has been commissioned by Supreme Enterprise Limited as the Consultant to undertake land contamination assessment for the captioned project. The concerned site is indicated in the figure enclosed.

As part of the land contamination assessment and following the *Practice Guide for Investigation and Remediation of Contaminated Land* issued by EPD, we have to collect historical information regarding the past and present activities of the site. In order to facilitate our assessment, we would like to request for the following information regarding the captioned concerned site:

1. Current and past (as early as the records are available) registered Chemical Waste Producer(s) within the concerned site (preferably with the registration date, status (moved out or active), nature and quantity of the chemical waste); and
2. Reported accidents of spillage / leakage of chemicals within the concerned site.

Please feel free to contact our Ms. Chloe Ng at 3856 5662 / chloe.ng@aecom.com or Mr. Alex Fan at 3856 5244 / alex.fan@aecom.com should you have any queries.

Thank you very much for your kind assistance.

Yours faithfully,
AECOM Asia Co. Ltd.

Anna Chung
Executive Director
Environment

Encl. Site Location Plan

ZONING OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m^2 (ABOUT)
OUTLINE ZONING PLAN	: APPROVED TSING YI OZP
PLAN NO.	: S/TY/32
ZONING OF THE SITE	: "OTHER SPECIFIED USES" ANNOTATED "BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES" : 2,213 m^2 (ABOUT)
	AND AREA SHOWN AS 'ROAD' : 29 m^2 (ABOUT)

ONLY PORTION OF THE SITE (ABOUT 2,242 m^2, 52%) FALL WITHIN THE ABOVE OZP COVERAGE, WHILE THE REMAINING AREA (ABOUT 2,093 m^2, 48%) FALLS OUTSIDE OZP PLANNING SCHEME BOUNDARY.

船廠及依靠海運之工業用途
BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES

APPLICATION SITE

青衣東北公園
Tsing Yi Northeast Park

長安邨
Cheung On Esta

TSING YI NORTH COASTAL ROAD

樟樹頭
Cheung Shue Tau

油柑頭
Yau Kom Tau

楓樹窩
FUNG SHUE WO

OU | GB | G/IC | O | R(A)3

*SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.

AIRPORT EXPRESS AND TUNG CHUNG LINE)

NORTH
W E
S

PLANNING CONSULTANT

PROJECT

SITE LOCATION
TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE
1 : 5000 @ A4

DRAWN BY	DATE
MN	19.11.2024
REVISED BY	DATE
APPROVED BY	DATE

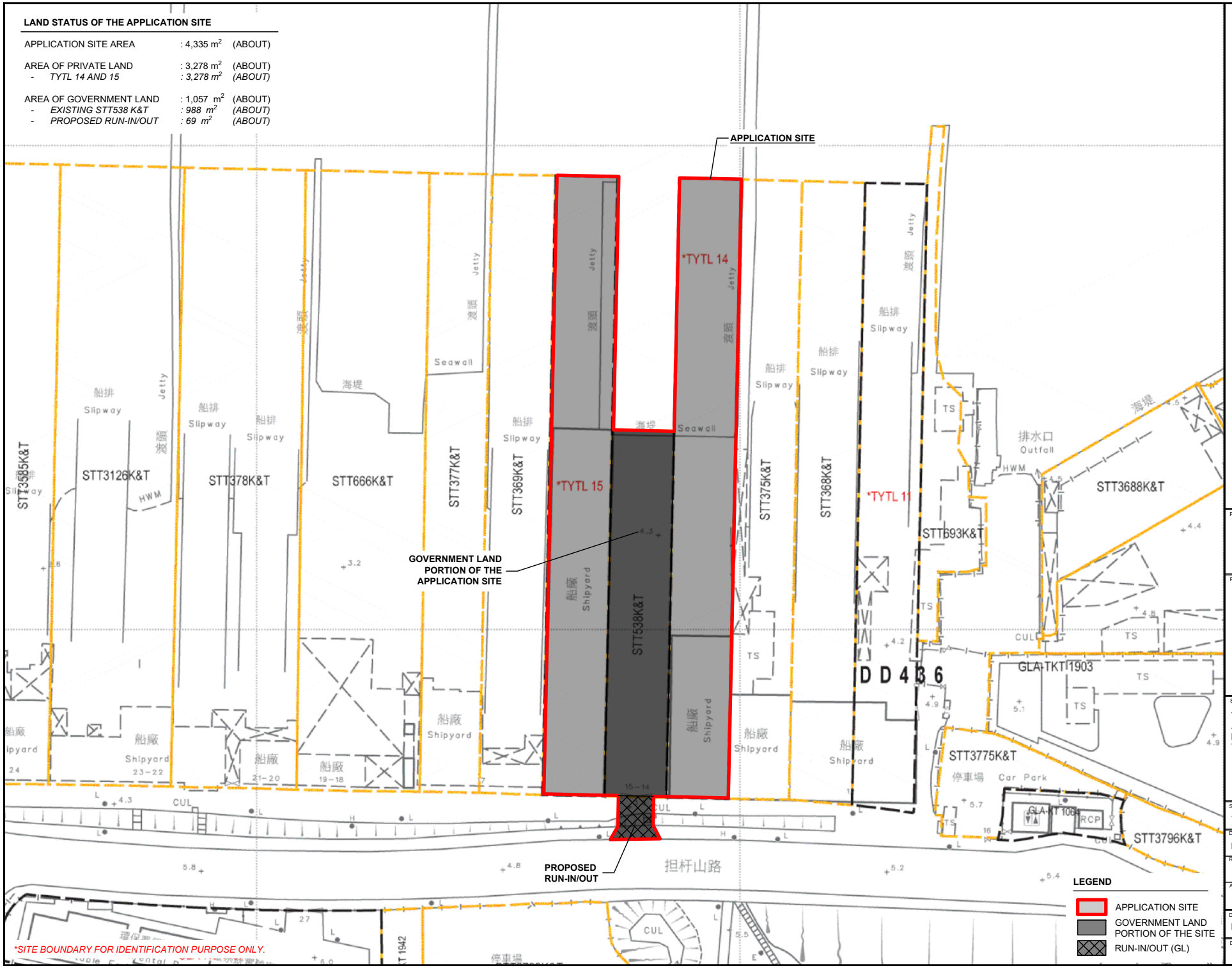
DWG. TITLE
ZONING PLAN

DWG NO. | VER.

LEGEND
APPLICATION SITE

LAND STATUS OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m^2	(ABOUT)
AREA OF PRIVATE LAND	: 3,278 m^2	(ABOUT)
- *TYTL 14 AND 15*	: *3,278 m^2*	*(ABOUT)*
AREA OF GOVERNMENT LAND	: 1,057 m^2	(ABOUT)
- *EXISTING STT538 K&T*	: *988 m^2*	*(ABOUT)*
- *PROPOSED RUN-IN/OUT*	: *69 m^2*	*(ABOUT)*



*SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.

NORTH
W E
S

PLANNING CONSULTANT

PROJECT

SITE LOCATION
TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE
1 : 1000 @ A4

DRAWN BY	DATE
MN	19.11.2024
REVISED BY	DATE
APPROVED BY	DATE

DWG. TITLE
LAND STATUS

DWG NO. | VER.

AERIAL PHOTO OF THE APPLICATION SITE

APPLICATION SITE AREA : 4,335 m^2 (ABOUT)

AERIAL PHOTO NO. : E211645C
DATE OF AERIAL PHOTO : 20.11.2023
SOURCE OF AERIAL PHOTO : LANDS DEPARTMENT

NORTH
W E
S

LEGEND

APPLICATION SITE

**SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.*

PLANNING CONSULTANT

PROJECT

SITE LOCATION

TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE
1 : 5000 @ A4

DRAWN BY	DATE
MN	19.11.2024
CHECKED BY	DATE
APPROVED BY	DATE

DWG. TITLE
AERIAL PHOTO OF THE SITE

DWG NO.	VER.

本署檔號
OUR REF: EP/RW/0000484730
來函檔號
YOUR REF: 60739290/AYMC202412122
電　話
TEL. NO.: 2417 6067
圖文傳真
FAX NO.: 2411 3073
網　址
HOMEPAGE: http://www.epd.gov.hk

Environmental Protection Department
Environmental Compliance Division
Regional Office (West)

8/F., Tsuen Wan Government Offices,
38 Sai Lau Kok Road,
Tsuen Wan, N.T.

環境保護署
環保法規管理科
區域辦事處(西)

荃灣西樓角路38號
荃灣政府合署八樓

20 December 2024

By Post and Fax (3922 9797)

AECOM Asia Co. Ltd.
12/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, New Territories
(Attn: Ms. Anna CHUNG)

Dear Ms. CHUNG,

Re. Land Contamination Assessment for Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi

Request for Information of Chemical Waste Producer and Chemical Spillage Accident

I refer your above letter dated 12 December 2024 and the project layout plan. This Regional Office (West) has no record of reported cases of spillage/ leakage of chemicals at the application site as indicated in the project layout plan. You may need to check with other relevant parties/ government departments for such information as appropriate.

As for the records of Chemical Waste Producers (CWPs), you may contact Mr. K.H. LO at 2835 1357 for making an appointment to view the records of CWPs at the Territory Control Office.

Should you have any queries, please contact the undersigned.

Yours faithfully,

(Heidi H.Y. CHEUNG)
for Director of Environmental Protection

AECOM
12/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, Hong Kong
香港新界沙田鄉事會路 138 號
新城市中央廣場第 2 座 12 樓
www.aecom.com

+852 3922 9000 tel
+852 3922 9797 fax

Your Ref:
Our Ref: 60739290/AYMC202412121

By Post and Fax (F: 2739 5879)

Fire Services Department
Corporate Strategy Command Management Group
9/F, Fire Services HQ Building,
1 Hong Chong Road, Tsim Sha Tsui East,
Kowloon.

12 December 2024

Dear Sir/Madam,

Land Contamination Assessment for Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi

Request for Information about Dangerous Goods Store and Incidents Records

AECOM Asia Co. Ltd has been commissioned by Supreme Enterprise Limited as the Consultant to undertake land contamination assessment for the captioned project. The concerned site is indicated in the figure enclosed.

As a part of the land contamination assessment and following the *Practice Guide for Investigation and Remediation of Contaminated Land* issued by EPD, we have to collect historical information regarding the past and present activities of the site. In order to facilitate our assessment, we would like to request for the following information regarding the captioned concerned site:

1. Records of current and past (as early as the records are available) registration of Dangerous Goods storage (with type of dangerous goods, storage method, quantity, licence no., date of issue and storage location) within the concerned site;
2. Any records of reported accidents of spillage/leakage of dangerous goods stored within the concerned site; and
3. Any records of fire incidents within the concerned site.

Please feel free to contact our Ms. Chloe Ng at 3856 5662 / chloe.ng@aecom.com or Mr. Alex Fan at 3856 5244 / alex.fan@aecom.com should you have any queries.

Thank you very much for your kind assistance.

Yours faithfully,
AECOM Asia Co. Ltd.

Anna Chung
Executive Director
Environment

Encl. Site Location Plan

ZONING OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m^2 (ABOUT)
OUTLINE ZONING PLAN	: APPROVED TSING YI OZP
PLAN NO.	: S/TY/32
ZONING OF THE SITE	: "OTHER SPECIFIED USES" ANNOTATED "BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES" : 2,213 m^2 (ABOUT)
	AND AREA SHOWN AS 'ROAD' : 29 m^2 (ABOUT)

ONLY PORTION OF THE SITE (ABOUT 2,242 m^2, 52%) FALL WITHIN THE ABOVE OZP COVERAGE, WHILE THE REMAINING AREA (ABOUT 2,093 m^2, 48%) FALLS OUTSIDE OZP PLANNING SCHEME BOUNDARY.

船廠及依靠海運之工業用途
BOATYARD AND MARINE-ORIENTED INDUSTRIAL USES

APPLICATION SITE

青衣東北公園
Tsing Yi Northeast Park

長安邨
Cheung On Esta

TSING YI NORTH COASTAL ROAD

樟樹頭
Cheung Shue Tau

油柑頭
Yau Kom Tau

楓樹窩
FUNG SHUE WO

OU | GB | G/IC | O | R(A)3

*SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.

AIRPORT EXPRESS AND TUNG CHUNG LINE)

NORTH
W E
S

PLANNING CONSULTANT

PROJECT

SITE LOCATION
TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE
1 : 5000 @ A4

DRAWN BY	DATE
MN	19.11.2024
REVISED BY	DATE
APPROVED BY	DATE

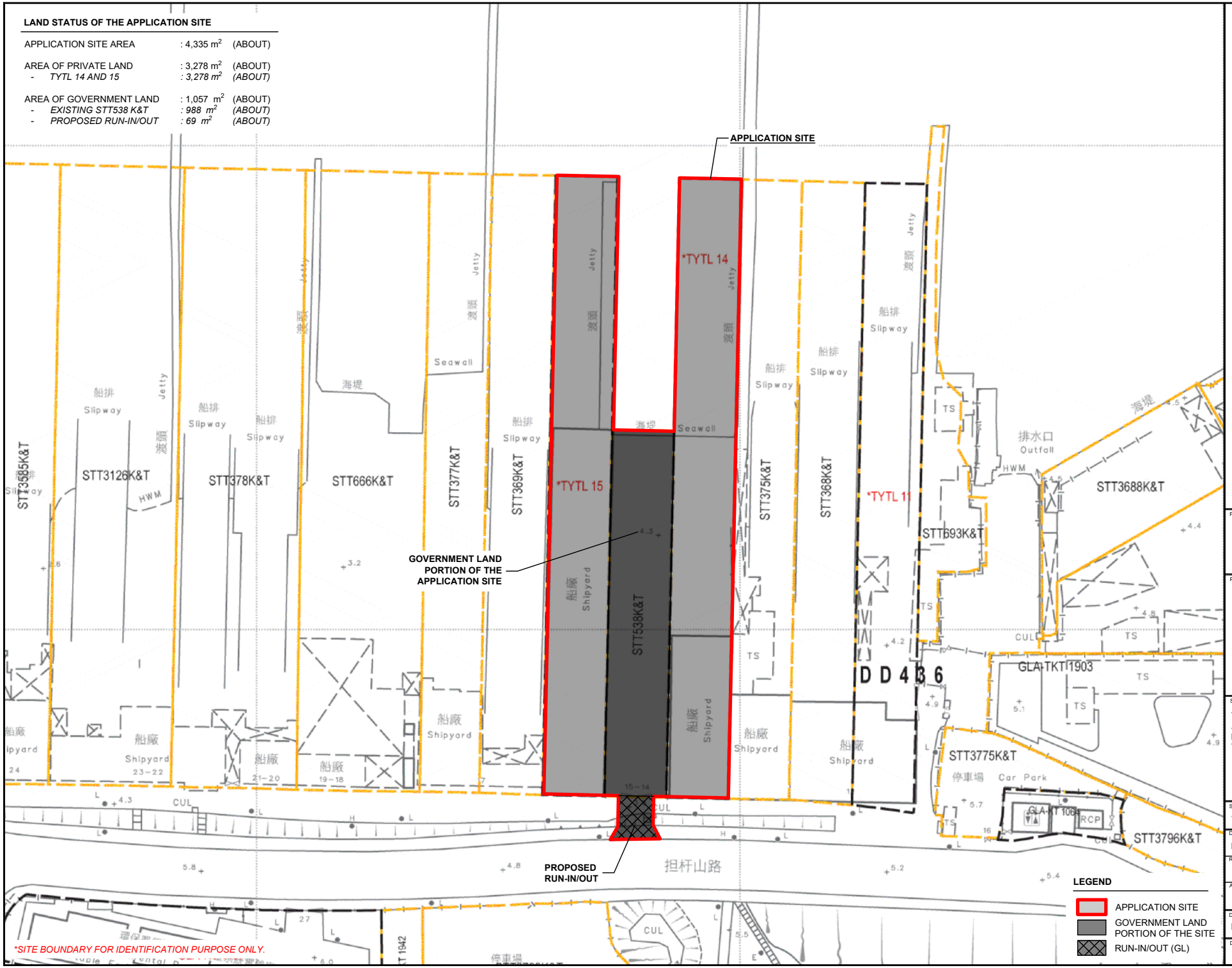
DWG. TITLE
ZONING PLAN

DWG NO. | VER.

LEGEND
APPLICATION SITE

LAND STATUS OF THE APPLICATION SITE

APPLICATION SITE AREA	: 4,335 m^2	(ABOUT)
AREA OF PRIVATE LAND	: 3,278 m^2	(ABOUT)
- *TYTL 14 AND 15*	: *3,278 m^2*	*(ABOUT)*
AREA OF GOVERNMENT LAND	: 1,057 m^2	(ABOUT)
- *EXISTING STT538 K&T*	: *988 m^2*	*(ABOUT)*
- *PROPOSED RUN-IN/OUT*	: *69 m^2*	*(ABOUT)*



*SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.

NORTH
W E
S

PLANNING CONSULTANT

PROJECT

SITE LOCATION
TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE
1 : 1000 @ A4

DRAWN BY	DATE
MN	19.11.2024
REVISED BY	DATE
APPROVED BY	DATE

DWG. TITLE
LAND STATUS

DWG NO. | VER.

AERIAL PHOTO OF THE APPLICATION SITE

APPLICATION SITE AREA : 4,335 m^2 (ABOUT)

AERIAL PHOTO NO. : E211645C
DATE OF AERIAL PHOTO : 20.11.2023
SOURCE OF AERIAL PHOTO : LANDS DEPARTMENT

NORTH
W E
S

LEGEND

APPLICATION SITE

**SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY.*

PLANNING CONSULTANT

PROJECT

SITE LOCATION

TSING YI TOWN LOTS 14 AND 15 AND ADJOINING, GOVERNMENT LAND, TAM KON SHAN ROAD, TSING YI, NEW TERRITORIES

SCALE
1 : 5000 @ A4

DRAWN BY	DATE
MN	19.11.2024
CHECKED BY	DATE
APPROVED BY	DATE

DWG. TITLE
AERIAL PHOTO OF THE SITE

DWG NO.	VER.

消 防 處
香港九龍尖沙咀東部康莊道 1 號
消防總部大廈

FIRE SERVICES DEPARTMENT
FIRE SERVICES HEADQUARTERS BUILDING,
No.1 Hong Chong Road,
Tsim Sha Tsui East, Kowloon,
Hong Kong.

本處檔號 **OUR REF.** : (167) in FSD GR 6-5/4 R Pt. 56
來函檔號 **YOUR REF.** : 60739290/AYMC202412121
電子郵件 **E-mail** : hkfsdenq@hkfsd.gov.hk
圖文傳真 **FAX NO.** : 2988 1196
電　　話 **TEL NO.** : 2733 7896

16 January 2024

AECOM Asia Co. Ltd
12/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, Hong Kong.
(Attn: Ms. Anna CHUNG, Executive Director)

Dear Ms. CHUNG,

Land Contamination Assessment for
Tsing Yi Town Lots 14 and 15 and Adjoining
Government Land, Tam Kon Shan Road, Tsing Yi
Request for Information of Dangerous Goods & Incident Records

I refer to your letter of 12.12.2024 regarding the captioned request and reply below in response to your questions:-

Please be advised that neither records of dangerous goods license, fire incidents nor incidents of spillage / leakage of dangerous goods were found in connection with the given conditions of your request at the subject location.

If you have further questions, please feel free to contact the undersigned.

Yours sincerely,

(AU Ting-hin)
for Director of Fire Services

APPENDIX 7.4

Risk-Based Remediation Goals (RBRGs) for Soil and Soil Saturation Limit and for Groundwater and Solubility Limit

Table 2.1
Risk-Based Remediation Goals (RBRGs) for Soil & Soil Saturation Limit

Chemical	Risk-Based Remediation Goals for Soil				Soil Saturation Limit (C_{sat}) (mg/kg)
	Urban Residential (mg/kg)	Rural Residential (mg/kg)	Industrial (mg/kg)	Public Parks (mg/kg)	
VOCs					
Acetone	9.59E+03	4.26E+03	1.00E+04*	1.00E+04*	***
Benzene	7.04E-01	2.79E-01	9.21E+00	4.22E+01	3.36E+02
Bromodichloromethane	3.17E-01	1.29E-01	2.85E+00	1.34E+01	1.03E+03
2-Butanone	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	***
Chloroform	1.32E-01	5.29E-02	1.54E+00	2.53E+02	1.10E+03
Ethylbenzene	7.09E+02	2.98E+02	8.24E+03	1.00E+04*	1.38E+02
Methyl tert-Butyl Ether	6.88E+00	2.80E+00	7.01E+01	5.05E+02	2.38E+03
Methylene Chloride	1.30E+00	5.29E-01	1.39E+01	1.28E+02	9.21E+02
Styrene	3.22E+03	1.54E+03	1.00E+04*	1.00E+04*	4.97E+02
Tetrachloroethene	1.01E-01	4.44E-02	7.77E-01	1.84E+00	9.71E+01
Toluene	1.44E+03	7.05E+02	1.00E+04*	1.00E+04*	2.35E+02
Trichloroethene	5.23E-01	2.11E-01	5.68E+00	6.94E+01	4.88E+02
Xylenes (Total)	9.50E+01	3.68E+01	1.23E+03	1.00E+04*	1.50E+02
SVOCs					
Acenaphthene	3.51E+03	3.28E+03	1.00E+04*	1.00E+04*	6.02E+01
Acenaphthylene	2.34E+03	1.51E+03	1.00E+04*	1.00E+04*	1.98E+01
Anthracene	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	2.56E+00
Benzo(a)anthracene	1.20E+01	1.14E+01	9.18E+01	3.83E+01	
Benzo(a)pyrene	1.20E+00	1.14E+00	9.18E+00	3.83E+00	
Benzo(b)fluoranthene	9.88E+00	1.01E+01	1.78E+01	2.04E+01	
Benzo(g,h,i)perylene	1.80E+03	1.71E+03	1.00E+04*	5.74E+03	
Benzo(k)fluoranthene	1.20E+02	1.14E+02	9.18E+02	3.83E+02	
bis-(2-Ethylhexyl)phthalate	3.00E+01	2.80E+01	9.18E+01	9.42E+01	
Chrysene	8.71E+02	9.19E+02	1.14E+03	1.54E+03	
Dibenzo(a,h)anthracene	1.20E+00	1.14E+00	9.18E+00	3.83E+00	
Fluoranthene	2.40E+03	2.27E+03	1.00E+04*	7.62E+03	
Fluorene	2.38E+03	2.25E+03	1.00E+04*	7.45E+03	5.47E+01
Hexachlorobenzene	2.43E-01	2.20E-01	5.82E-01	7.13E-01	
Indeno(1,2,3-cd)pyrene	1.20E+01	1.14E+01	9.18E+01	3.83E+01	
Naphthalene	1.82E+02	8.56E+01	4.53E+02	9.14E+02	1.25E+02
Phenanthrene	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	2.80E+01
Phenol	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	7.26E+03
Pyrene	1.80E+03	1.71E+03	1.00E+04*	5.72E+03	
Metals					
Antimony	2.95E+01	2.91E+01	2.61E+02	9.79E+01	
Arsenic	2.21E+01	2.18E+01	1.96E+02	7.35E+01	
Barium	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	
Cadmium	7.38E+01	7.28E+01	6.53E+02	2.45E+02	
Chromium III	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	
Chromium VI	2.21E+02	2.18E+02	1.96E+03	7.35E+02	
Cobalt	1.48E+03	1.46E+03	1.00E+04*	4.90E+03	
Copper	2.95E+03	2.91E+03	1.00E+04*	9.79E+03	
Lead	2.58E+02	2.55E+02	2.29E+03	8.57E+02	
Manganese	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	
Mercury	1.10E+01	6.52E+00	3.84E+01	4.56E+01	
Molybdenum	3.69E+02	3.64E+02	3.26E+03	1.22E+03	
Nickel	1.48E+03	1.46E+03	1.00E+04*	4.90E+03	
Tin	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	
Zinc	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	
Dioxins / PCBs					
Dioxins (I-TEQ)	1.00E-03	1.00E-03	5.00E-03	1.00E-03	
PCBs	2.36E-01	2.26E-01	7.48E-01	7.56E-01	
Petroleum Carbon Ranges					
C6 - C8	1.41E+03	5.45E+02	1.00E+04*	1.00E+04*	1.00E+03
C9 - C16	2.24E+03	1.33E+03	1.00E+04*	1.00E+04*	3.00E+03
C17 - C35	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+04*	5.00E+03
Other Inorganic Compounds					
Cyanide, free	1.48E+03	1.46E+03	1.00E+04*	4.90E+03	
Organometallics					
TBTO	2.21E+01	2.18E+01	1.96E+02	7.35E+01	

Notes:
(1) For Dioxins, the cleanup levels in USEPA Office of Solid Waste and Emergency Response (OSWER) Directive of 1998 have been adopted. The OSWER Directive value of 1 ppb for residential use has been applied to the scenarios of "Urban Residential", "Rural Residential", and "Public Parks", while the low end of the range of values for industrial, 5 ppb, has been applied to the scenario of "Industrial".
(2) Soil saturation limits for petroleum carbon ranges taken from the Canada-Wide Standards for Petroleum Hydrocarbons in Soil, CCME 2000.
(3) * indicates a 'ceiling limit' concentration.
(4) *** indicates that the C_{sat} value exceeds the 'ceiling limit' therefore the RBRG applies.

Table 2.2
Risk-Based Remediation Goals (RBRGs) for Groundwater and Solubility Limit

Chemical	Risk-Based Remediation Goals for Groundwater			Solubility Limit (mg/L)
	Urban Residential (mg/L)	Rural Residential (mg/L)	Industrial (mg/L)	
VOCs				
Acetone	1.00E+04*	1.00E+04*	1.00E+04*	***
Benzene	3.86E+00	1.49E+00	5.40E+01	1.75E+03
Bromodichloromethane	2.22E+00	8.71E-01	2.62E+01	6.74E+03
2-Butanone	1.00E+04*	1.00E+04*	1.00E+04*	***
Chloroform	9.56E-01	3.82E-01	1.13E+01	7.92E+03
Ethylbenzene	1.02E+03	3.91E+02	1.00E+04*	1.69E+02
Methyl tert-Butyl Ether	1.53E+02	6.11E+01	1.81E+03	***
Methylene Chloride	1.90E+01	7.59E+00	2.24E+02	***
Styrene	3.02E+03	1.16E+03	1.00E+04*	3.10E+02
Tetrachloroethene	2.50E-01	9.96E-02	2.95E+00	2.00E+02
Toluene	5.11E+03	1.97E+03	1.00E+04*	5.26E+02
Trichloroethene	1.21E+00	4.81E-01	1.42E+01	1.10E+03
Xylenes (Total)	1.12E+02	4.33E+01	1.57E+03	1.75E+02
SVOCs				
Acenaphthene	1.00E+04*	7.09E+03	1.00E+04*	4.24E+00
Acenaphthylene	1.41E+03	5.42E+02	1.00E+04*	3.93E+00
Anthracene	1.00E+04*	1.00E+04*	1.00E+04*	4.34E-02
Benzo(a)anthracene				
Benzo(a)pyrene				
Benzo(b)fluoranthene	5.39E-01	2.03E-01	7.53E+00	1.50E-03
Benzo(g,h,i)perylene				
Benzo(k)fluoranthene				
bis-(2-Ethylhexyl)phthalate				
Chrysene	5.81E+01	2.19E+01	8.12E+02	1.60E-03
Dibenzo(a,h)anthracene				
Fluoranthene	1.00E+04*	1.00E+04*	1.00E+04*	2.06E-01
Fluorene	1.00E+04*	1.00E+04*	1.00E+04*	1.98E+00
Hexachlorobenzene	5.89E-02	2.34E-02	6.95E-01	6.20E+00
Indeno(1,2,3-cd)pyrene				
Naphthalene	6.17E+01	2.37E+01	8.62E+02	3.10E+01
Phenanthrene	1.00E+04*	1.00E+04*	1.00E+04*	1.00E+00
Phenol				
Pyrene	1.00E+04*	1.00E+04*	1.00E+04*	1.35E-01
Metals				
Antimony				
Arsenic				
Barium				
Cadmium				
Chromium III				
Chromium VI				
Cobalt				
Copper				
Lead				
Manganese				
Mercury	4.86E-01	1.84E-01	6.79E+00	
Molybdenum				
Nickel				
Tin				
Zinc				
Dioxins / PCBs				
Dioxins (I-TEQ)				
PCBs	4.33E-01	1.71E-01	5.11E+00	3.10E-02
Petroleum Carbon Ranges				
C6 - C8	8.22E+01	3.17E+01	1.15E+03	5.23E+00
C9 - C16	7.14E+02	2.76E+02	9.98E+03	2.80E+00
C17 - C35	1.28E+01	4.93E+00	1.78E+02	2.80E+00
Other Inorganic Compounds				
Cyanide, free				
Organometallics				
TBTO				

Notes:
(1) Blank indicates that RBRG could not be calculated because the toxicity or physical/chemical values were unavailable, or the condition of Henry's Law Constant>1.00E-05 was not met for the inhalation pathway.
(2) Water solubilities for Petroleum Carbon Range aliphatic C9-C16 and greater than C16 generally are considered to be effectively zero and therefore the aromatic solubility for C9-C16 is used.
(3) * indicates a 'ceiling limit' concentration.
(4) *** indicates that the solubility limit exceeds the 'ceiling limit' therefore the RBRG applies.

R-RICHES PLANNING LIMITED

盈卓規劃有限公司

Our Ref. : TYTL14, 15 - CBP in TY
Your Ref. : TPB/A/TY/150

The Secretary,
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road,
North Point, Hong Kong

By E-mail

27 June 2025

Dear Sir,

4th Further Information

Proposed Temporary Concrete Batching Plant for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Area shown as 'Road' and Area not Covered by Statutory Plan, Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

(S.16 Planning Application No. A/TY/150)

We write to submit further information (FI) with a revised Barging Operation Plan in response to the comments from the Marine Department on the captioned application. This is to supersede our previous FI submission on 26.06.2025.

Should you require more information regarding the application, please contact our Mr. Danny NG at [redacted] or the undersigned at your convenience. Thank you for your kind attention.

Yours faithfully,

For and on behalf of
R-riches Planning Limited

Christian CHIM
Town Planner

cc DPO/TWK, PlanD (Attn.: Mr. W. C. LUI email: wclui@pland.gov.hk)
(Attn.: Mr. Cecil CHOW email: cccchow@pland.gov.hk)
(Attn.: Mr. Norris CHUNG email: npwchung@pland.gov.hk)

香港新界錦田吉慶圍 236 號盈匯坊 D 座
Block D, The Richfield, 236 Kat Hing Wai, Kam Tin, NT, HK
[redacted]

Response-to-Comment

Proposed Temporary Concrete Batching Plant (CBP) for a Period of 5 Years in "Other Specified Uses" annotated "Boatyard and Marine-oriented Industrial Uses" Zone, Area shown as 'Road' and Area not Covered by Statutory Plan, Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi, New Territories

(Application No. A/TY/150)

(i) A RtC table:

Departmental Comments		Applicant's Responses
1. Comments of the Marine Department (MD)		
(a)	With reference to Section 2.2 of the Barging Operation Plan (BOP), MD requests clarification regarding the stated maximum daily output of 3,800 units, specifically: Comprehensiveness of Calculation - does this figure account for all operational scenarios, including potential night-time operations? - if nighttime operations are implemented, will the daily output exceed the 3,800 limit?	The proposed CBP consists of 3 production lines, each with a design production capacity of approximately 100 m^3/hr. The plant is scheduled to operate from 07:00 to 21:00 daily, including public holidays. The design maximum concrete output is approximately 4,200 m^3/day. There are no planned night-time operations. In practice, daily production output will vary based on actual site demand and project-specific requirements. The figure of 4,200 m^3 per day represents the plant's design capacity and may be reached occasionally; however, not every day will require full-capacity production. Under the current barge delivery arrangement, which typically comprises 2 aggregate barges (each approximately 1,500 tonnes) and 1 cement barge (approximately 800 tonnes), the plant generally receives around 3,800 tonnes of raw materials per day. While a portion of these materials may be consumed immediately during periods of higher production, the CBP is also supported by on-site storage facilities, including approximately 3,000 tonnes for aggregates and 2,200 tonnes for cementitious materials. These storage buffers allow materials to be delivered in advance and stockpiled according to operational needs. This arrangement enables production to continue smoothly without being dependent on the exact timing of barge arrivals.
(b)	Consistency with Section 3.3 - the calculation provided (1,500 x 2 + 800 = 3,800) suggests this is the peak capacity under the current barge configuration (two aggregate barges + one cement barge). - if output exceeding 3,800 is feasible (e.g., through extended operations), Section 3.3 may require revision, as its assumptions appear based on this being an absolute maximum.	
(c)	The applicant should confirm the following: - is the 3,800 limit a strict operational ceiling, or can it be surpassed with additional resources (e.g., more barges are required)? - If exceeding 3,800 is possible, what adjustments (e.g., additional vessels or revised scheduling) would be necessary?	

(d)	The applicant should draw prompt attention to this matter and prepare detailed response to ensure alignment across all proposal (including but not limited to MTIA and BOP).	Any refinements to barge movement schedules, delivery coordination, or marine traffic implications will be addressed within the MTIA, which has been developed to assess a range of marine logistics scenarios. The BOP (**Annex 1**) has been updated accordingly to reflect the clarified design output of 4,200 m^3 per day and to confirm that all operations will remain within the designated 07:00 to 21:00 timeframe.

Annex 1

Revised Barging Operation Plan

Barging Operation Plan for S16 Planning Application of Proposed Temporary Concrete Batching Plant for a Period of 5 Years at Tsing Yi Town Lots 14 and 15 and Adjoining Government Land, Tam Kon Shan Road, Tsing Yi

BARGING OPERATION PLAN

Reference: 31048-R02-02d
Date: June 2025

AXON
CONSULTANCY

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1 Introduction

1.1 Background

The Applicant seeks approval under Section 16 of the Town Planning Ordinance (Cap. 131) to establish a Temporary Concrete Batching Plant (CBP) for a period of 5 years at Tsing Yi Town Lot Nos. 14 and 15 and adjoining Government Land (GL) along Tam Kon Shan Road, Tsing Yi, New Territories (the Site). The application site occupied an area of 4,335 m. sq, including 1,057 m. sq (about) of G.L., and partially falls within an area zoned “Other Specified Uses” annotated “Boatyard and Marine-oriented Industrial Uses” (“OU(BMIU)”) under the Approved Tsing Yi Outline Zoning Plan (OZP) No. S/TY/32 and partly outside the OZP boundary.

The CBP aims to address the increasing demand for ready-mixed concrete driven by infrastructure projects and residential developments in Hong Kong, particularly in the New Development Areas (NDAs) of the Northern Metropolis. The Site’s strategic location near established industrial activities and marine facilities ensures compatibility with surrounding land uses and supports the sustainable development of the construction industry.

AXON Consultancy Limited has been commissioned to prepare a Barging Operation Plan (BOP) to support the Section 16 application by ensuring safe, efficient, and environmentally compliant marine logistics for the proposed development.

1.2 Scope of Work

This Barging Operation Plan (BOP) outlines the operational framework for the proposed CBP, focusing on marine logistics and ensuring compliance with environmental, safety, and operational standards. Key components include:

- Marine Logistics Assessment: Evaluation of marine traffic patterns, metocean conditions, and potential impacts.
- Operational Planning: Development of frameworks for safe and efficient barge delivery, mooring, and unloading operations.
- Risk Mitigation Measures: Identification of risks and proposal of mitigation strategies to comply with safety and environmental standards.

- Emergency and Contingency Planning: Establishment of protocols for adverse weather conditions and emergency scenarios.

1.3 Objective

The primary objectives of this study are:

- To ensure the safe and efficient handling of CBP unloading and marine delivery operations while minimizing disruption to adjacent marine traffic and activities.
- To identify and address potential marine operational risks through comprehensive mitigation strategies.
- To demonstrate the Applicant's commitment to safety, environmental compliance, and responsible management of marine operations, ensuring the highest standards of operation.

2 Project Overview

2.1 Site Location and Characteristics

The proposed Temporary Concrete Batching Plant (CBP) is strategically located at Tsing Yi Town Lot (TYTL) Nos. 14 and 15, together with an adjoining parcel of Government Land held under Short Term Tenancy (STT), situated along Tam Kon Shan Road in the New Territories. The site occupies an area of approximately 4,335 square metres and benefits from direct marine frontage, offering a practical setting for barge-based material delivery and handling.

The red dotted line shown in the figure represents the boundary of the land currently leased by the applicant. To facilitate safe barge approach, berthing, and unloading of aggregates and cement, a proposed marine operation area has been identified in the waters beyond the land lot. This area is outlined in blue dotted line in Figure 2.1 and reflects the required space to accommodate the Pelican Aggregate Barge and the Cement Barge during routine delivery and unloading.

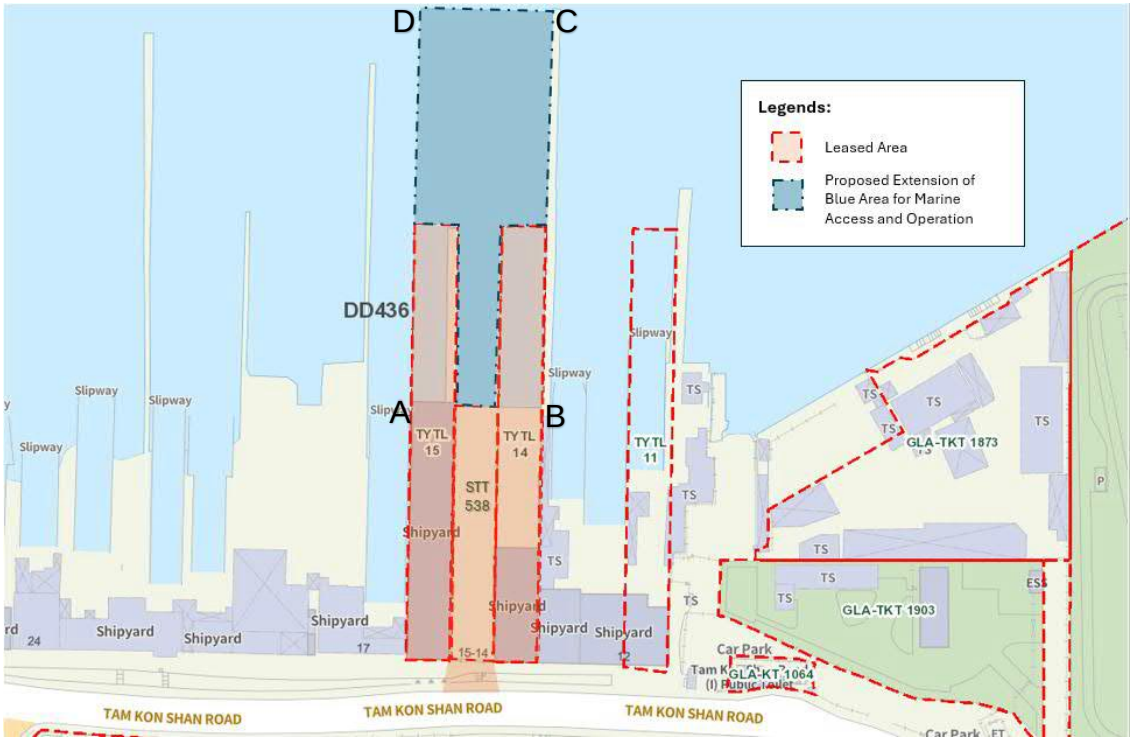
As land matters fall under the purview of the Development Bureau and the Lands Department (LandsD), the applicant is coordinating with its appointed lands consultant to review and follow up on any administrative arrangements necessary to support the proposed marine activity area. Ongoing engagement with relevant authorities will ensure alignment with lease conditions and prevailing statutory requirements.

Figure 2.1 illustrates the site location, the extent of the existing lease area (covering TYTL No. 14, TYTL No. 15, and the STT area), as well as the proposed marine operation zone, which is defined within the polygon bounded by Points A, B, C, and D, as listed in **Table 2.1.**

Table 2.1 Operation Area

Point No.	Latitude	Longitude
A	22º 21.7077’	114º 5.7155’
B	22º 21.7069’	114º 5.7371’
C	22º 21.7604’	114º 5.7387’
D	22º 21.7619’	114º 5.7163’

Figure 2.1 Site Location and Proposed Operational Boundary



2.2 Description of the Proposed CBP

The proposed CBP will operate for five years, offering a sustainable and efficient solution to meet the demand for concrete in Hong Kong’s ongoing infrastructure development.

The construction phase of the proposed concrete batching plant is projected to require approximately 9 to 12 months. During this period, no marine deliveries of construction materials are anticipated.

Full-scale operations are scheduled to commence by Q1 2026, following the completion of construction and the necessary regulatory approvals.

The proposed CBP consists of three production lines, each with a design production capacity of about 100 m³/hr. The plant operation hours of the proposed development are from 07:00 to 21:00 daily, including public holiday. The maximum design concrete production is approximately 4,200 m³ per day. In practice, daily production output will vary depending on actual site demand and project-specific requirements. The 4,200 m³ per day figure reflects the plant's design capacity and may be reached on occasion. Any materials not immediately used will be stored in the on-site silos to support subsequent production. Please refer to **Table 2.2** below for key operational parameters of the proposed CBP.

Table 2.2 Operation Details of Proposed CBP

Operation Parameter	**Details**
Hourly Processing Capacity	300 m³/hr
Total Aggregate Storage Capacity	3,000 tonnes
Total Cementitious Materials Silos Capacity	2,200 tonnes
Proposed Plant Operation Period	14 hours between 07:00 to 21:00

The concrete batching process at the CBP will consist of the following stages:

- **Delivery of Raw Materials**: Aggregates and cement will be transported to the site using self-propelled barges, which are readily available in the market and suitable for the project's operational needs. Limited quantities of raw materials may also be delivered to the site by trucks.
- **Conveyance to the Plant:** Raw materials will be efficiently transferred from barges to the batching plant using pipelines or conveyor systems.
- **Weighing and Mixing**: The materials will undergo precise weighing and controlled mixing to produce high-quality concrete in compliance with industry standards.
- **Distribution:** Batched concrete will be loaded onto mixer trucks for delivery to construction sites.

The site's strategic location ensures direct marine accessibility, enabling delivery operations while reducing cross-district road traffic and its associated environmental impacts.

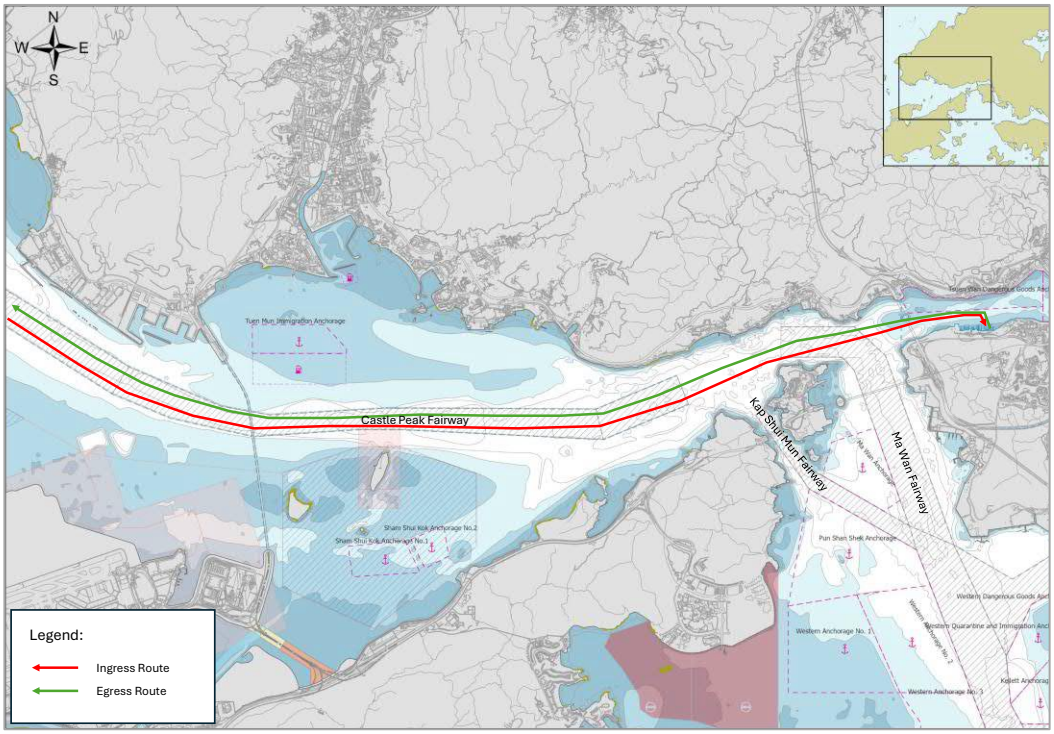
3 Delivery and Routing

3.1 Barge Delivery Route

The raw materials required for concrete batching, including aggregates and cement, will be transported using self-propelled rivertrade vessels. These vessels will follow established marine routes within Hong Kong waters to ensure safe and efficient transit.

The delivery routes, utilizing Castle Peak Fairway and Ma Wan Fairway, have been carefully selected to comply with Hong Kong maritime safety regulations and minimize navigational risks. The proposed delivery routes are illustrated in Figure 3.1.

Figure 3.1 Proposed Delivery Routes



3.2 General Navigational Guideline

The route planning for the proposed barge operations adheres to the International Regulations for Preventing Collisions at Sea (COLREGs) and Hong Kong Marine Department regulations.

Key guidelines include:

- Navigating along the starboard side of the fairway to maintain orderly traffic flow.
- Following COLREGs for overtaking, including appropriate signaling and maintaining safe distances.
- Making fairway crossings at right angles to minimize disruption and collision risk.
- Prohibiting anchoring and fishing within designated fairway limits to avoid navigational hazards.
- Prioritizing larger vessels, with smaller vessels required to avoid impeding their passage.

3.3 Delivery Frequency

A maximum of 3 round-trip barge movements per day will be scheduled at North Tsing Yi to deliver both aggregates and cement via self-propelled barges from the mainland. This includes three inbound trips (*one for cement and two for aggregates using the Pelican Aggregate Barge*) and three corresponding outbound trips. The delivery frequency has been carefully planned to optimize operational efficiency while minimizing potential impacts. Adjustments to the schedule may be made as needed to accommodate project demands, weather conditions, or other operational factors, ensuring flexibility and consistency in the delivery process.

3.4 Deployed Vessels and Unloading Process

The delivery operations will utilize two existing self-propelled barges designed to meet project demands and adhere to environmental and safety standards. Their key specifications and unloading processes are summarized in Table 3.1.

Table 3.1 Typical Specification of Deployed Vessels

Vessel Type	Length Overall (LOA)	Beam	Draft (Fully Loaded)	Capacity per Trip	Special Features
Pelican Aggregate Barge	50 m	15.2 m	3.4 m	1,500 tonnes	Self-propelled
Cement Barge	52 m	10.5 m	2.4 m	800 tonnes	Self-propelled

Pelican Aggregate Barge: Featuring a 1500-ton class stone aggregate belt self-discharging design, this vessel utilizes a built-in conveyor system to transfer aggregates directly to the batching plant's hopper on the quay. Its fully enclosed structure minimizes dust emissions and ensures environmental compliance. Operating at an unloading rate of 400 tons per hour, the vessel can fully unload in just 4 hours. Additionally, the vessel measures 50 meters in length and 15.2 meters in width, has a full-load draft of 3.4 meters, and is equipped with a 22-meter-long belt, ensuring efficient and precise aggregate handling.

Cement Barge: Featuring a self-discharging pumping system with portable pipelines to transfer cement directly to the batching plant silos, this controlled system effectively prevents spillage while ensuring efficient operations. With an unloading rate of 200 tons per hour, the entire load is discharged in just 4 hours. The 800-ton cement ship measures 52 meters in length, 10.5 meters in width, and has a full-load draft of 2.4 meters.

While the two barges typically deliver around 3,800 tonnes of raw materials per day, this volume does not directly correspond to the plant's maximum daily concrete production. In practice, actual production varies depending on project demand. On days when less material is needed, a portion of the delivered aggregates and cement may be stored for later use. The CBP is equipped with substantial on-site storage capacity, including approximately 3,000 tonnes for aggregates and 2,200 tonnes for cementitious materials. This storage capability supports flexible delivery schedules and enables continuous operation without relying solely on same-day barge deliveries. Even on days when production approaches the design maximum of 4,200 m^3, cubic metres, sufficient materials can be drawn from on-site reserves to maintain smooth operations.

3.5 Delivery of Product

The proposed concrete batching plant is designed to produce high-quality ready-mix concrete that is delivered exclusively by concrete mixing trucks. In this system, once the concrete is batched at the plant, it is loaded into mixer trucks and transported via the road network directly to the construction sites.

This truck-based delivery system eliminates the need for any marine or barge delivery, streamlining logistics and reducing potential risks associated with marine transport. The approach also offers greater scheduling flexibility and ensures that the concrete maintains its integrity from the batching plant to its final placement.

4 Dredging Requirements

4.1 Existing Situation

At the application site, sedimentation has reduced the nearshore water depth at the barging point to below the level required for safe batching operations. To remedy this, maintenance dredging is necessary to remove the accumulated sediment and restore adequate water depth for vessel navigation.

4.2 Water Depth Requirement

According to the Table 3.1, to cater for the maximum draft of the pelican barge with a draft of 3.4m, a typical safe navigation requirement is to have an under-keel clearance of at least 10% of the draft. In this case, 10% of 3.4 m is approximately 0.34 m, so the minimum water depth required would be about 3.4 m + 0.34 m, roughly 3.74 m.

However, in practice, to accommodate tidal variations and provide a safety margin, a water depth of around 3.8 m (at Chart Datum) is generally maintained for operations involving a Pelican Aggregate Barge. This ensures that even under varying conditions, there is adequate clearance for safe navigation.

4.3 Extent of Dredging

The targeted dredging area is shown in Figure A1. Preliminary estimates suggest that approximately 3,000 – 5,000 square meters of the seabed would need to be dredged, subject to further detailed analysis.

Under the EIAO, a project qualifies as a designated project requiring a full Environmental Impact Assessment if the dredging volume exceeds 500,000 m^3. In this case, the proposed maintenance dredging operation involves less than 5,000 m^3, which is significantly below the threshold and thus considered insignificant. Consequently, it does not trigger the designated project requirements under the EIAO, although all other regulatory and administrative procedures must still be followed to ensure safe navigation and proper environmental management.

4.4 Dredging Administration

All administrative works related to the dredging operation will be carried out in strict compliance with the Project Administration Handbook for Civil Engineering Works, 2024 Edition. This means that every aspect, from the initial justification for dredging, sediment sampling and testing, through to the permit application and disposal procedures, will adhere to the detailed guidelines and requirements stipulated in Chapter 4 of the handbook. This ensures that all regulatory, environmental, and technical criteria are met during the dredging process.

For instance, the handbook outlines the proper procedures for submitting a Sediment Sampling and Testing Plan, preparing a Preliminary Sediment Quality Report (PSQR), and obtaining the necessary dumping permits under the Foreshore and Seabed (Reclamation) Ordinance. By following these established procedures, the project will maintain full accountability and control over the dredged materials, ensuring both safety and environmental compliance throughout the dredging and disposal phases.

Director of Environmental Protection (DEP) may waive the sediment sampling and testing requirements in specific circumstances to expedite critical dredging operations. This waiver applies in cases of emergency dredging when immediate action is needed to avert safety risks or environmental hazards, and for small-scale maintenance dredging projects involving volumes of less than 5,000 m^3 in situ. In such cases, the project proponent must submit any previously obtained data or historical information regarding the sediment quality in the vicinity, allowing DEP to assess the situation and determine the most appropriate handling arrangements without necessitating a full sampling and testing program.

4.5 Conclusion

The client will proceed with a maintenance dredge to restore the necessary water depth for safe navigation. The client is committed to following the administrative procedures outlined in the Project Administration Handbook for Civil Engineering Works, 2024 Edition, including the proper application for a dredging permit and compliance with all regulatory requirements for sediment disposal.

5 Mooring Stability

5.1 Introduction

Mooring stability is critical for both the Pelican Aggregate Barge and the Cement Barge to ensure safe and efficient delivery operations.

For the aggregate barge, stable mooring guarantees that the vessel remains securely in position during loading and unloading, preventing spillage and collisions while accommodating tidal fluctuations and currents.

Similarly, the cement barge requires a stable mooring arrangement to maintain precise alignment with the discharge point, thereby avoiding disruptions during cement transfer and ensuring that operations proceed without unintended material loss.

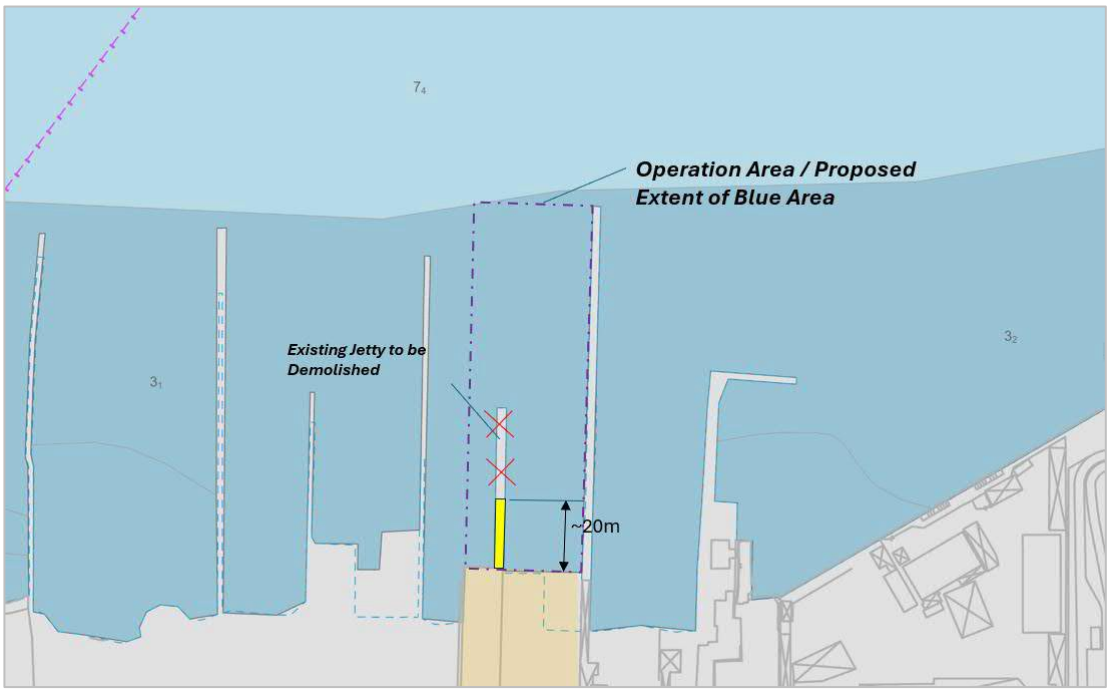
In both cases, effective mooring stability not only supports operational safety and efficiency but also minimizes environmental risks and interference with adjacent marine traffic.

5.2 Safety and Stability Improvement

The safety platform is part of the overall improvement measures (Figure 5.1). With this approach, and in combination with the planned dredging operations, vessels will be able to approach closer to the quay.

This proximity allows for a better arrangement of the new fenders, bollards, and anchoring systems, thereby enhancing the mooring facilities and ensuring increased stability for both the Pelican Aggregate Barge and the Cement Barge during loading and unloading operations.

Figure 5.1 Proposed Improvement of Safety Platform

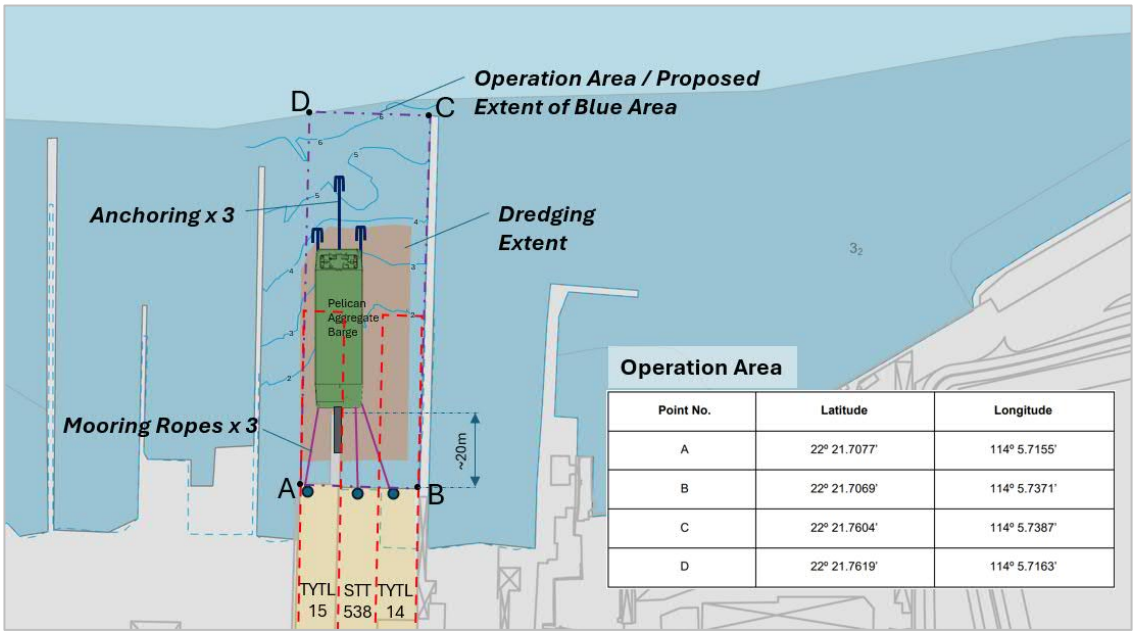


5.3 Mooring Arrangements

Pelican Aggregate Barge

As shown in Figure 5.2, the Pelican Aggregate Barge will positioned approximately 20 meters off the quay, secured by an anchor and two mooring ropes at the bow and three anchor lines at stern. This dual approach, mooring ropes plus anchoring, ensures the vessel remains stable and correctly aligned during aggregate loading and unloading. The anchors provide lateral and longitudinal restraint against tidal currents, while the mooring ropes maintain a firm connection to the quay. Combined, these measures minimize vessel movement and protect both the barge and the safety platform infrastructure throughout operations.

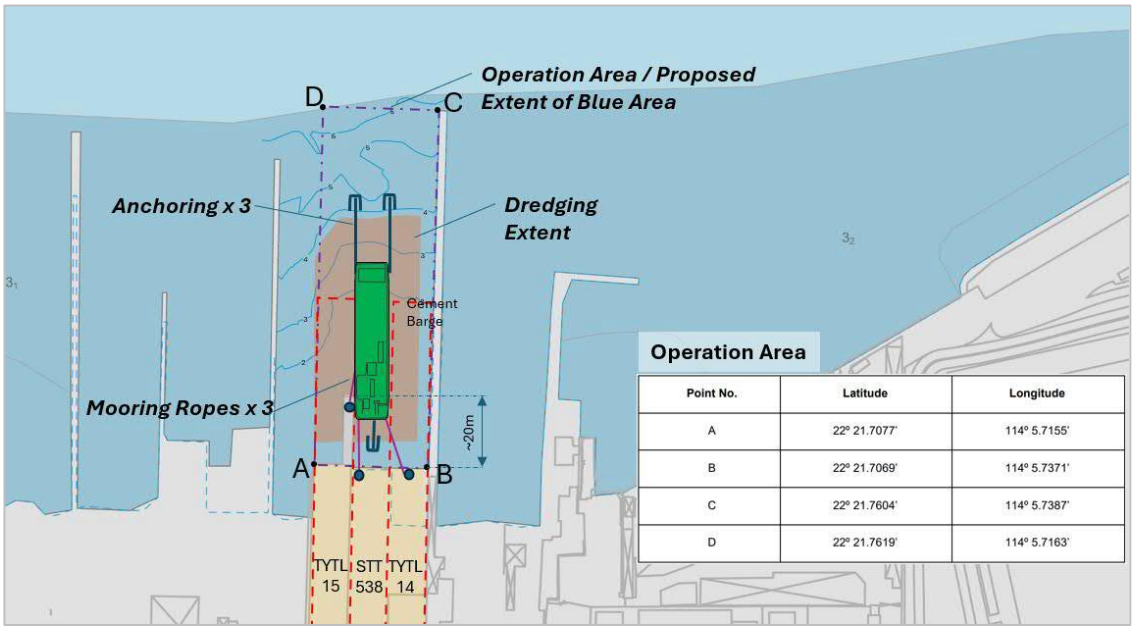
Figure 5.2 Mooring Arrangement of Pelican Aggregate Barge



Cement Barge

As shown in Figure 5.3, the Cement Barge will be stationed approximately 15 meters from the quay, with at least 5 meters of the safety platform stabilizing its starboard side. It is secured by three mooring ropes attached to both the safety platform and the quay, plus a single bow anchor and two stern anchors. This arrangement provides lateral and longitudinal balance, minimizing the barge's movement due to tidal currents or wave action. The mooring ropes ensure a firm connection to the shore infrastructure, while the forward and stern anchors contribute additional stability, keeping the barge properly aligned for efficient cement pumping operations.

Figure 5.3 Mooring Arrangement of Cement Barge

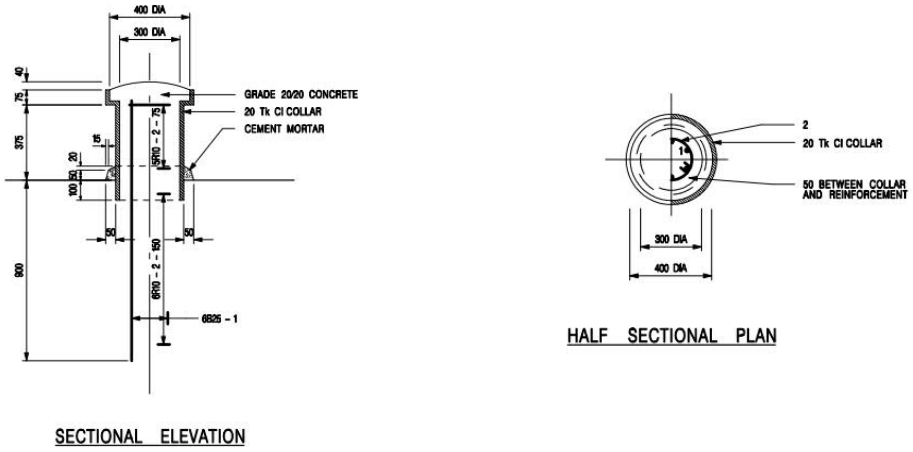


5.4 Mooring Facilities

New fenders and mooring bollards (*typical design as shown in* Figure 5.4) will be installed on the quay and safety platform to provide robust mooring facilities. These installations are essential for securing both the Pelican Aggregate Barge and the Cement Barge during loading and unloading operations, ensuring that the vessels remain stable and correctly aligned.

By enhancing the mooring infrastructure, the risk of vessel movement due to tidal fluctuations or currents is significantly reduced, thereby protecting both the marine equipment and the quay/safety platform structures while facilitating safe and efficient marine operations.

Figure 5.4 Typical Arrangements of Mooring Bollard



Source: CEDD Standard Drawing No. C3015B

5.5 Anchoring

In addition to installing new fenders and bollards on the quay and safety platform to secure the vessels, anchoring will also be employed as an extra measure to enhance stability. This anchoring system will work in tandem with the improved mooring infrastructure to firmly secure both the Pelican Aggregate Barge and the Cement Barge during loading and unloading operations.

By providing additional resistance against tidal fluctuations and adverse weather conditions, anchoring helps to prevent unwanted vessel movement, ensuring safe alignment and reducing the risk of operational hazards such as spillage or collision.

5.6 Conclusion

In conclusion, the enhanced mooring system, comprising new fenders, bollards, anchoring, and updated rope arrangements, combined with maintenance dredging, offers significant benefits. The maintenance dredging will restore adequate water depth, allowing vessels to approach the quay more closely and securely. This proximity facilitates improved mooring arrangements that stabilize both the Pelican Aggregate Barge and the Cement Barge, ensuring precise alignment and safe loading/unloading operations. Together, these measures not only boost operational efficiency and safety but also help to protect both the vessels and the surrounding infrastructure from the effects of tidal currents and environmental disturbances.

6 Unloading

6.1 General

The unloading operations at the site are designed to support the temporary concrete batching plant's efficient and safe delivery of materials. The Pelican Aggregate Barge and the Cement Barge unload aggregate and cement respectively via specialized transfer mechanisms at the safety platform. This process is optimized to ensure rapid material transfer, maintain environmental compliance, and minimize disruption to surrounding marine traffic, thereby supporting seamless construction operations.

6.2 Pelican Aggregate Barge Unloading

The Pelican Aggregate Barge is equipped with a built-in conveyor belt system that transfers aggregates directly from the barge to the safety platform and onward to the batching plant, ensuring a continuous and controlled material flow.

The enclosed design of the hopper and conveyor system provides environmental containment during the unloading process. This setup minimizes the release of dust and prevents debris or runoff from entering the surrounding waters. The enclosure also serves to reduce noise and vibration levels, supporting compliance with environmental standards and minimizing disruption to the nearby community and marine users.

The typical arrangement of aggregate unloading operations, including anchoring positions and equipment layout, is shown in **Figure 6.2.**

6.3 Cement Barge Unloading

On the other hand, the Cement Barge employs a self-discharging pumping system with pipelines that extend to the batching plant silos, allowing for smooth and precise cement delivery.

The cement barge employs a hot plug system to connect its self-discharging pumping system to the receiving pump line of the concrete batching plant. This hot plug mechanism facilitates a rapid, secure, and leak-free connection, allowing for continuous cement flow with minimal downtime.

Designed to handle high pressures and the corrosive nature of cement slurry, the hot plug ensures that the connection is both durable and reliable, reducing the risk of spillage and environmental contamination. By streamlining the transfer process, it enhances operational efficiency and maintains safety standards during cement delivery.

The concrete batching plant is equipped with an advanced suction system that enables cement to be pumped directly from the cement barge into the plant without needing to activate the vessel's onboard pump. This design not only streamlines the cement transfer process by using a dedicated suction line at the plant but also significantly improves air quality. By avoiding the operation of the vessel pump, which typically generates exhaust emissions and noise, the system reduces airborne pollutants and minimizes environmental disruption, thereby contributing to a cleaner and safer working environment.

The proposed mooring and cement transfer setup is illustrated in **Figure 6.3**

Figure 6.1 Illustration of Aggregate Unloading from Pelican Barge

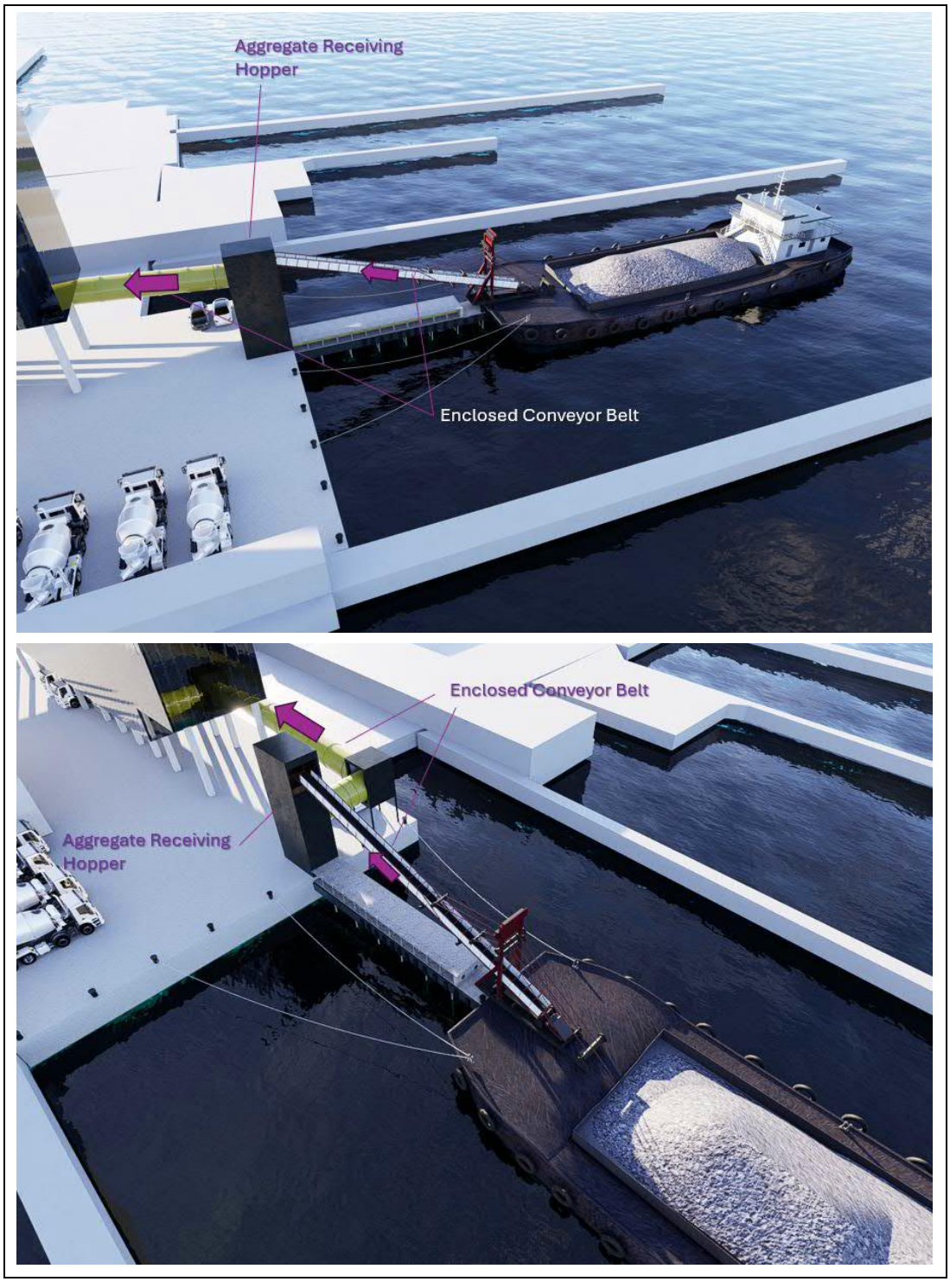
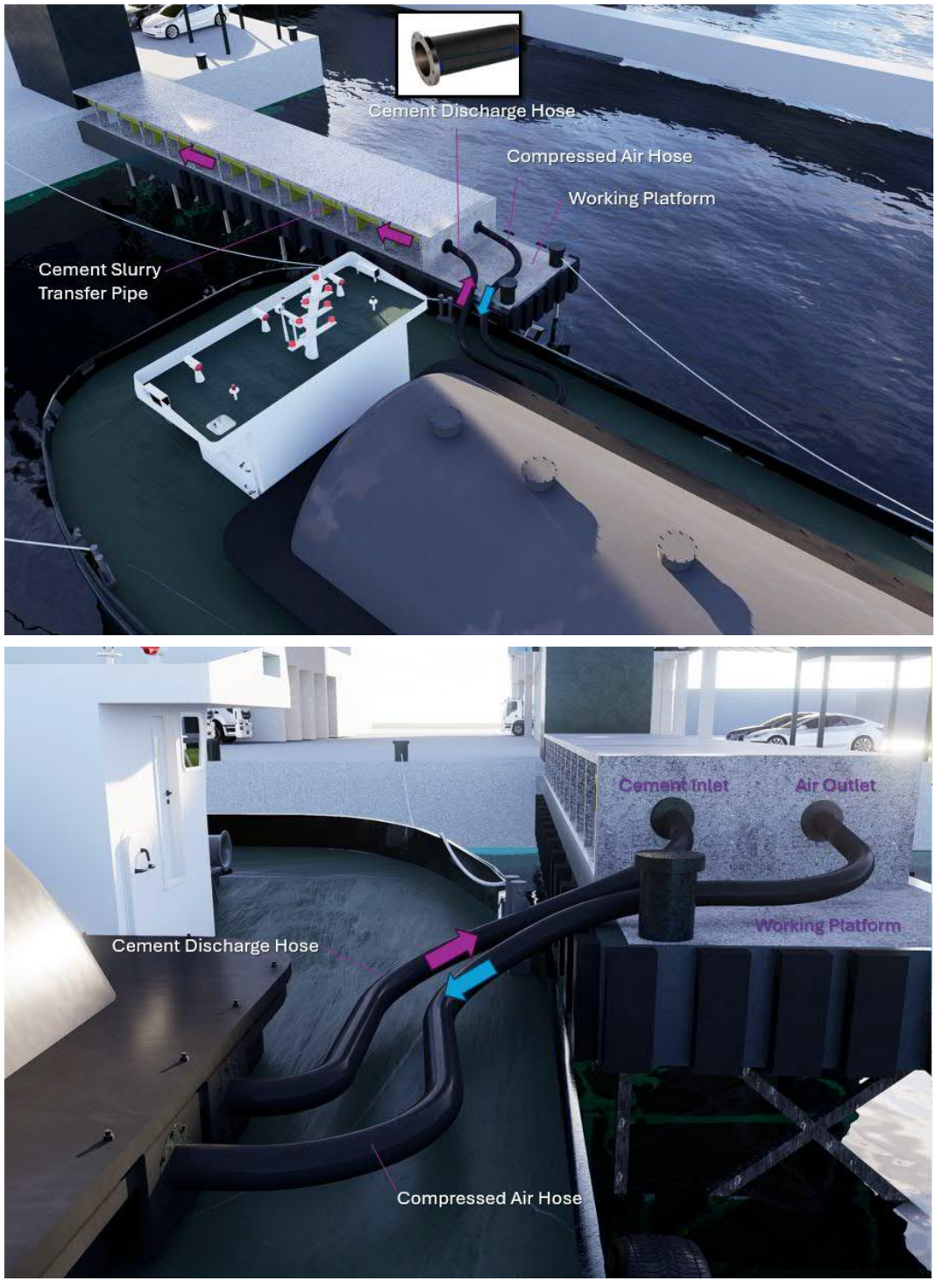


Figure 6.2 Illustration of Cement Unloading Using Pump System



6.4 Approach and Departure

The barges, being self-propelled, autonomously navigate to their designated positions without requiring tug assistance, which ensures precise alignment and efficient manoeuvrability. The approach and departure routes have been carefully planned, illustrated in Figure 6.3 and Figure 6.4, to facilitate safe navigation.

Figure 6.3 Example of Arrival and Departure Path of Pelican Aggregate Barge

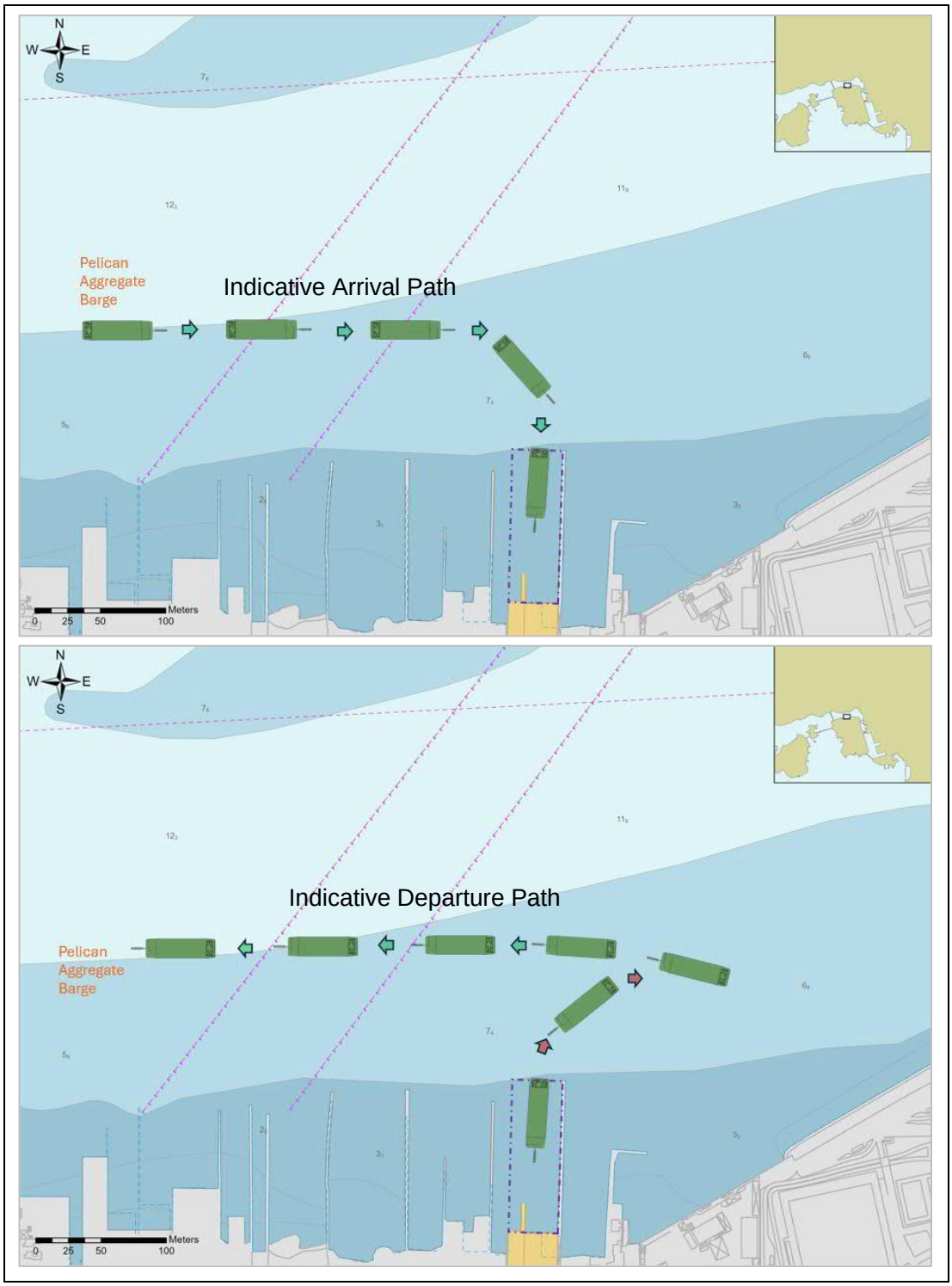
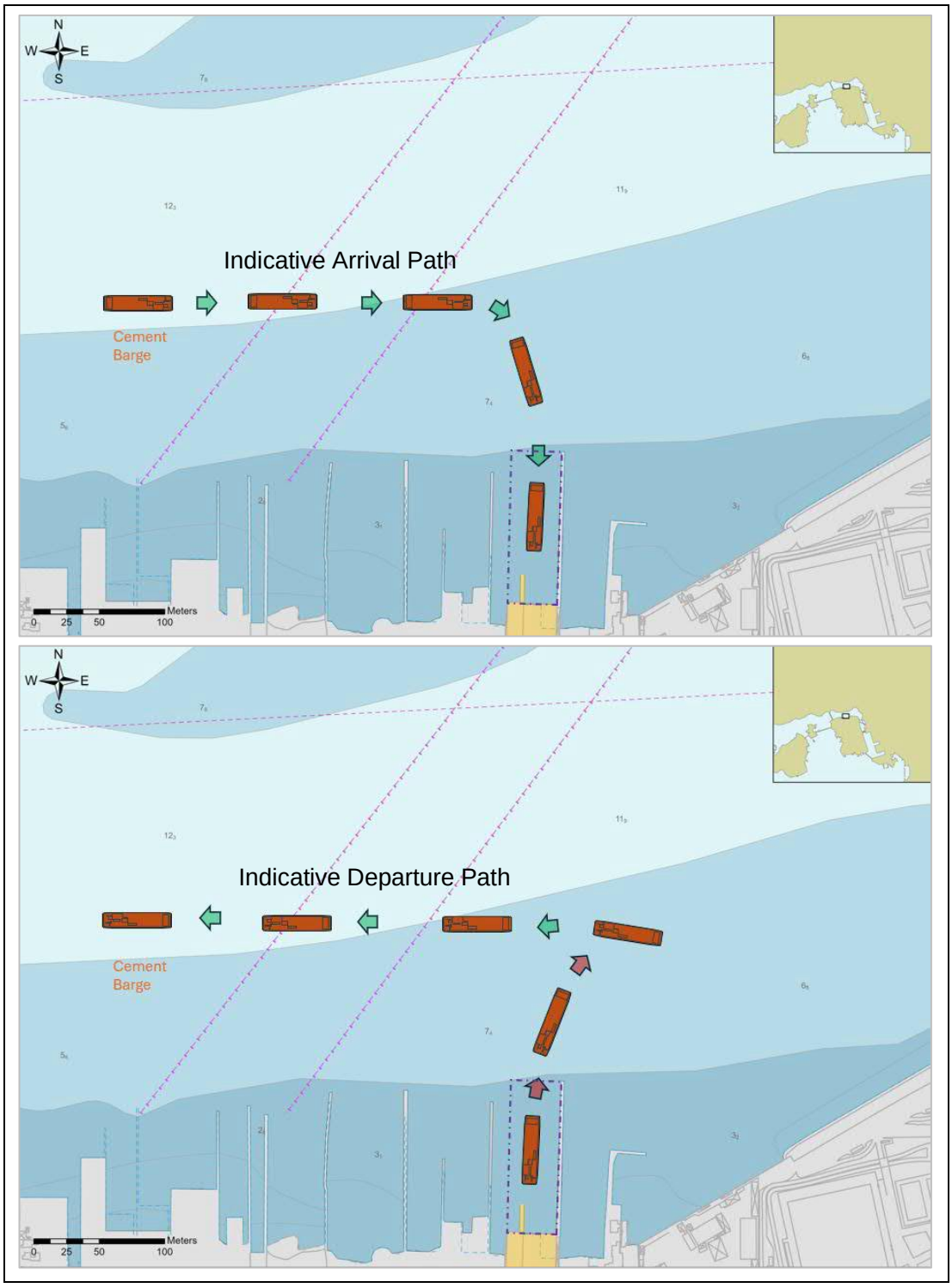


Figure 6.4 Example of Arrival and Departure Path of Cement Barge



7 Marine Logistic Assessment

This section evaluates the feasibility and potential impacts of the proposed barging operations at the Cement Barging Plant (CBP). The assessment encompasses existing marine facilities, metocean conditions, and marine traffic patterns to ensure the operations are conducted safely and efficiently while minimizing any potential impacts on the surrounding marine environment.

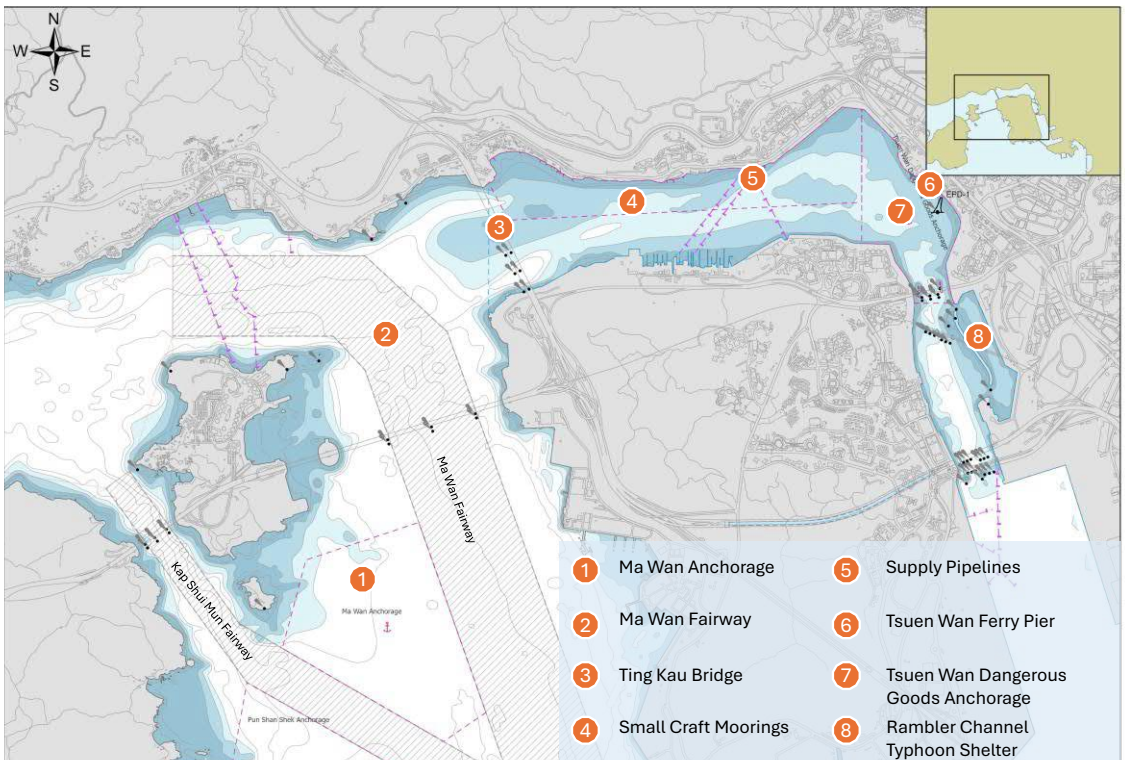
7.1 The Existing Marine Facilities

The vicinity of the project site features key marine facilities that influence navigational activities in the area. These facilities, as shown in Figure 7.1, include:

- **Ma Wan Anchorage:** The Ma Wan Anchorage is a designated area in the waters surrounding Ma Wan Island, primarily used for the safe mooring of vessels. This anchorage is part of the broader marine traffic management system in Hong Kong, which includes various fairways and traffic separation schemes designed to enhance navigational safety in busy maritime areas.
- **Man Wan Fairway:** The Ma Wan Fairway is a crucial maritime route that facilitates navigation between various channels in Hong Kong's busy waters. It connects to several other channels, including the Kap Shui Mun Channel and Tsing Yi Channel.
- **Ting Kau Bridge**: This bridge spans from the northwest of Tsing Yi Island to Tuen Mun Road. It has an air draft restriction of 53 meters above sea level, which must be considered for vessel navigation. feet in length, and a 100-meter-long repair berth for alongside repair services.
- **Small Craft Moorings**: Located north of Tsing Yi Island, these moorings consist of pairs of bow and stern buoys within the waterspace. Mooring requires a request to the Marine Department, and dues are applied.
- **Supply Pipeline**: Three submarine water supply pipelines are identified north and east of the proposed sites.
- **Tsuen Wan Ferry Pier**: Situated south of Tsuen Wan, adjacent to the MTR Tsuen Wan West Station, it provides ferry services connecting to Park Island Ferry Pier at Ma Wan.

- **Tsuen Wan Dangerous Goods Anchorage:** Located northeast of Tsing Yi Island, this anchorage has depths around 10 to 10.4 meters, with a shoal patch at the southeast corner. It primarily serves to provide adequate waterspace for mooring dangerous goods vessels.
- **Rambler Channel Typhoon Shelter**: Located near Kwai Chung in Rambler Channel, it provides 14 hectares of sheltered waterspace for vessels up to 50 meters in length.

Figure 7.1 Existing Marine Facilities near the Application Area



The Site is well-positioned within an area predominantly utilized for industrial purposes, including barge operations, shipyards, and cement storage, ensuring compatibility with existing marine activities.

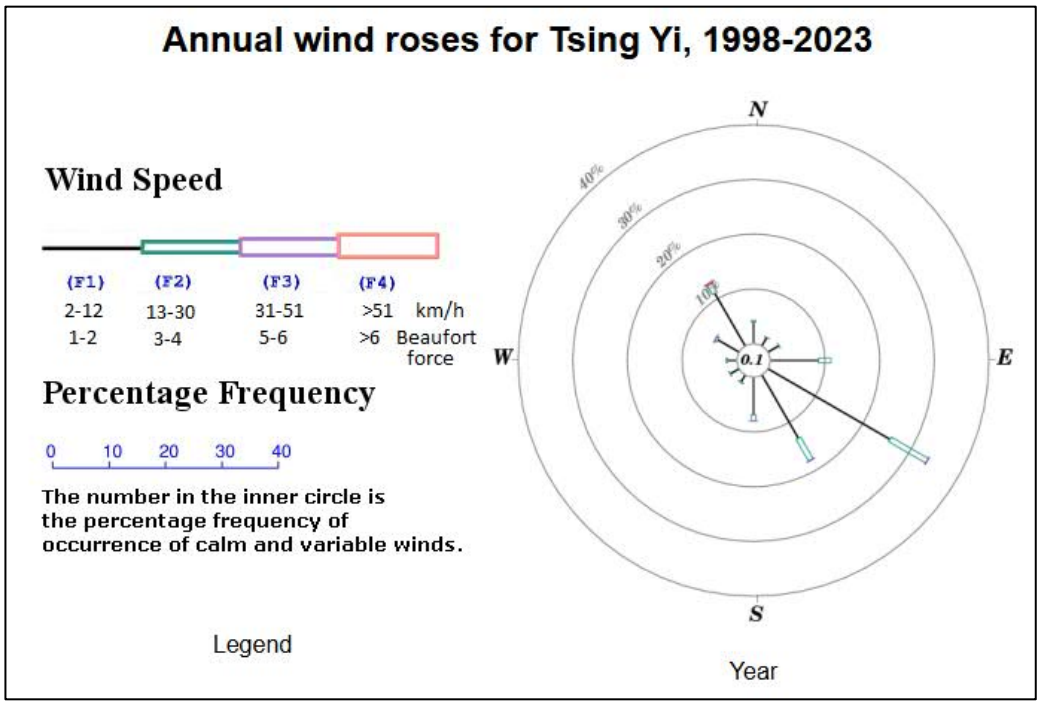
7.2 Metocean Environment

The metocean environment has been analysed to evaluate conditions that could affect marine operations, including wind, tidal levels, and currents.

Wind Environment

The wind environment at the study site was analyzed using historical wind data (1998–2023) from the Tsing Yi wind station, located at Shell Oil Depot on western Tsing Yi. The prevailing winds predominantly originate from the southeast, with typical wind speeds in the range of Beaufort Scale 1–4 (up to 16 knots) as illustrated in Figure 7.2.

Figure 7.2 Annual Wind Rose for Tsing Yi, 1998-2023



Source: Hong Kong Observatory

Due to the site's sheltered position north of Tsing Yi, wind effects are expected to be lighter, reducing potential operational disruptions. However, operations remain subject to temporary constraints under Typhoon Signals.

Tidal Levels

Tides in Hong Kong are mixed and mainly semi-diurnal. On most of the days in a month, there are two high tides and two low tides. Large tidal range occurs twice a month during spring tides when the moon is new or full. On days around neap tides when the moon is in its first or last quarter, however, tidal ranges become small and sometimes only one high and one low tide are observed. In general, the two high tides which occur each day are unequal in height with the higher high tide occurring mostly overnight in winter and during the day in summer.

Tidal data at Ma Wan has been chosen to demonstrate the typical tidal patterns, as they are the closest tidal stations to the Study Area. Tidal details are shown in Table 7.1.

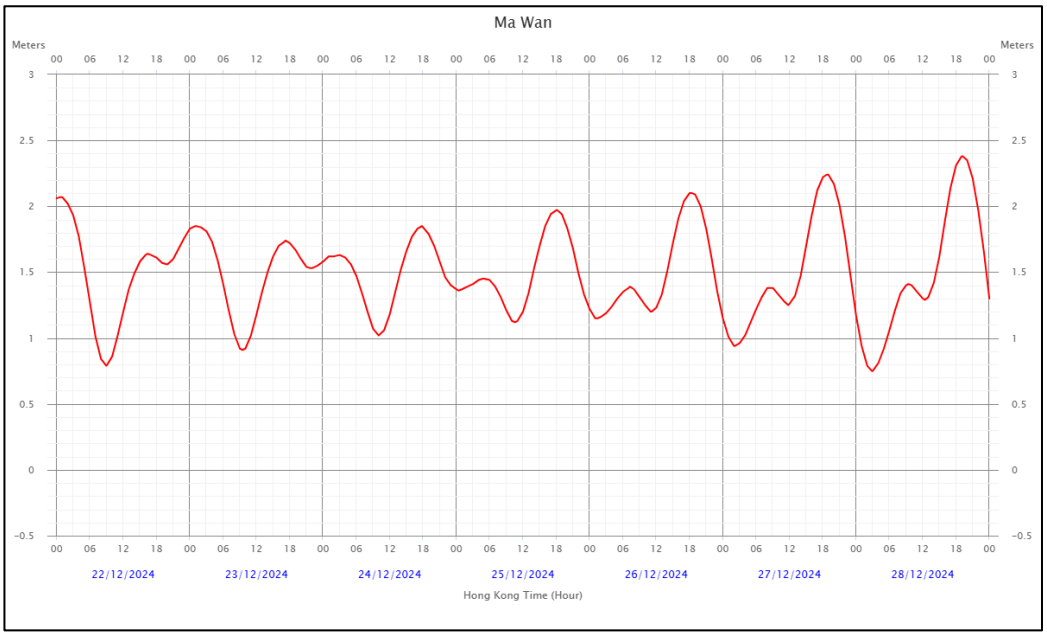
Table 7.1 Tidal Levels at Ma Wan

Location	Level (m) above Chart Datum		
	Mean Sea Level (mCD)	Mean Higher High Water Level (mCD)	Mean Lower Low Water Level (mCD)
Ma Wan	1.48	2.24	0.67

Source: Hydrographic Office Charts for Local Vessels 2018

For the berthing of barges, the actual tidal levels would significantly affect the water depth. In the light of this, the predicted tides for Ma Wan provided by the Hong Kong Observatory are used. A sample of the predicted tides is shown in Figure 7.3

Figure 7.3 Sample of Predicted Tides for Ma Wan



Source: Hong Kong Observatory

The Site's water depth of at least 5 meters (Chart Datum) is sufficient to support the draft requirements of the proposed delivery barges, maintaining safe under-keel clearance during standard tidal conditions.

Current

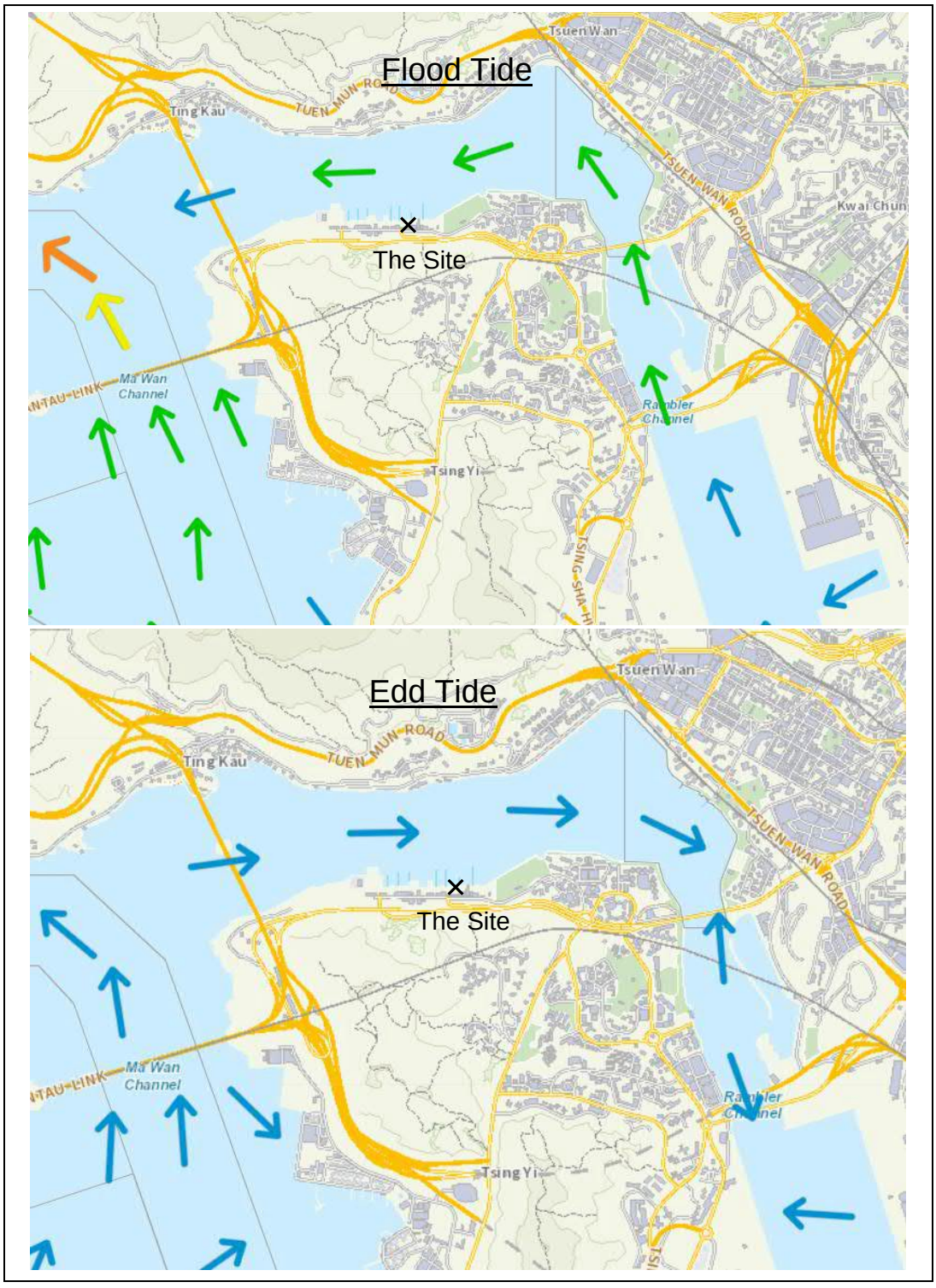
The currents along the project site have been thoroughly analysed using one year of comprehensive data (January 1, 2024, to December 31, 2024) from the Hong Kong Tidal Stream Prediction system (Hong Kong Hydrographic Office). This reliable dataset provides valuable insights into the typical tidal patterns at the site.

The tidal currents at the project site have been analysed using one year of comprehensive data (January 1, 2024, to December 31, 2024) from the Hong Kong Tidal Stream Prediction system (Hong Kong Hydrographic Office). This dataset provides reliable insights into the tidal patterns and flow characteristics in the region.

As illustrated in Figure 7.4, the analysed data point is located in the main tidal stream, where flood tides flow toward the west and ebb tides flow toward the east. Over the one-year period, the tidal current speed in this main stream averaged 0.45 knots, with a maximum recorded speed of 1.68 knots. While these values reflect relatively calm tidal conditions in the main stream, the project site, marked with an "X" on the map, is situated in a sheltered area away from the direct influence of stronger currents.

This sheltered position provides natural protection and calm conditions conducive to barge operations.

Figure 7.4 Illustration of Edd Tide and Flood Tide

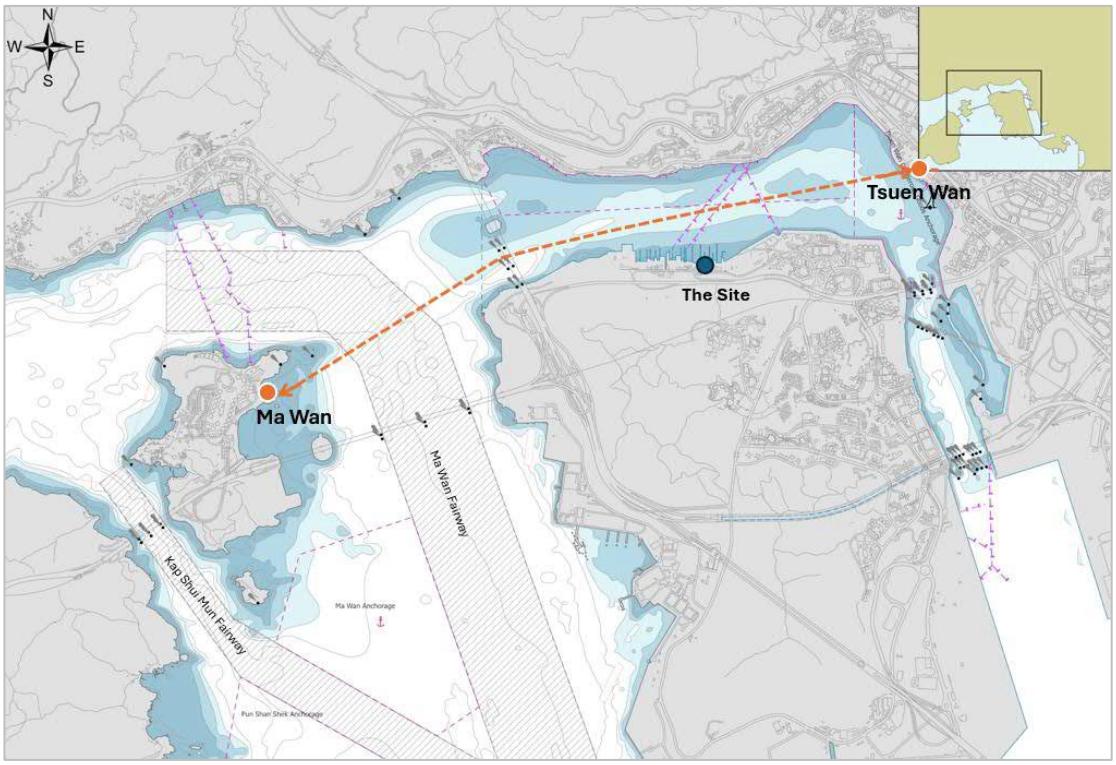


7.3 Local Marine Traffic Environment

Park Island Ferry Services

The ferry services between Ma Wan and Tsuen Wan are operated by Park Island Transport Company Limited. These services serve as transport connection for passengers traveling between the two locations. The ferry route is illustrated in Figure 7.5, showing the indicative vessel movement directions. Operating daily with a total of six trips, the service provides consistent accessibility for residents and visitors.

Figure 7.5 Traffic Gate and Vessels Movement Direction



The service schedule for the ferry operations is detailed in Table 7.2, summarizing the daily departure times.

Table 7.2 Ferry Services Schedule

Route	Scheduled Departure Times (Daily Mon-Sun)
From Ma Wan	10:15, 13:15, 16:15
From Tsuen Wan Pier	10:35, 13:35, 16:35

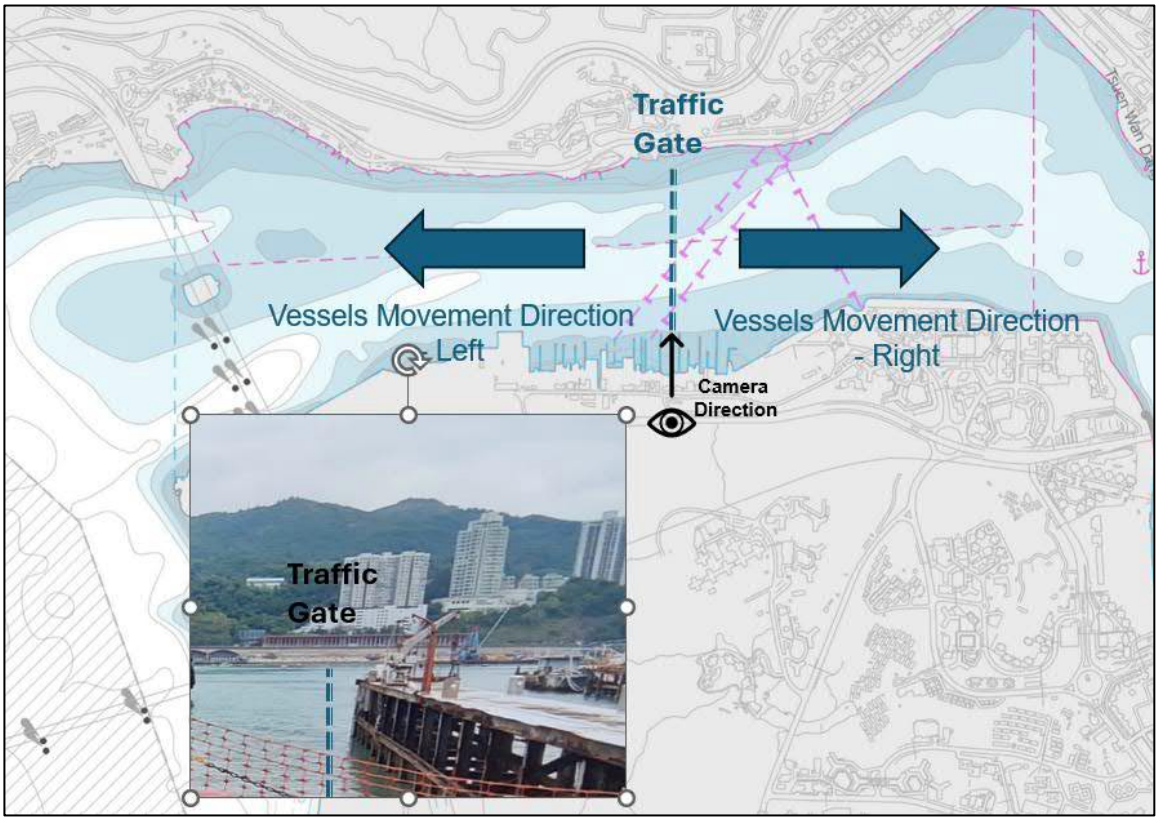
7.4 Daylight Visual Survey Study Methodology

To collect the latest marine traffic pattern in the area, a daylight visual survey was carried out for 30 consecutive calendar days (from November 2024 to December 2024) during daylight hours (0700-1900). Vessel counting was carried out on 12 selected days within the period.

The study area was defined by one imaginary line (Traffic Gates) as shown in Figure 7.5**.** All vessels passing through the traffic gates would be recorded by a video camera set up at the Site.

The cameras recorded the types, the numbers and the movements of the vessels transiting within the study area 24-hour daily. The data were collected to analyse the vessels activities and assess the traffic impact generated by the CBP.

Figure 7.6 Traffic Gate and Vessels Movement Direction



Vessel Type in Survey

The data collection for this study will be based on the classification of vessels to analyse marine traffic within the study area. The vessel types are classified as follows:

- OG-C (Ocean Going - Cargo): Large cargo vessels, including container ships, bulk carriers, and tankers, designed for international trade. These vessels typically exceed 100 meters in length.
- RT (River Trade): Medium-sized vessels, such as container ships, bulk carriers, and tankers, operating in regional and coastal waters. These vessels, with a length overall of 20 to 100 meters.
- T&T (Tug & Tow): Tugboats engaged in towing operations, often paired with barges. The combined length of the tug and tow ranges between 110 and 140 meters, primarily used for cargo transport and ship maneuvering.
- OG-P (Ocean Going - Passenger): Passenger vessels, including cruise ships and large ferries, operating on international routes.
- FF (Fast Ferry/High-Speed Craft): High-speed ferries operating at speeds of at least 20 knots, commonly used for passenger transportation between Hong Kong and neighboring regions.
- LF (Local Ferry): Domestic ferries providing short-distance passenger transport within Hong Kong waters. These vessels typically have a length of up to 22 meters.
- FL (Fast Launch): Small, fast-response government-operated vessels such as patrol boats, fire service speedboats, and pilot boats. These craft, up to 14 meters in length, are used for emergency response and navigation assistance.
- TB (Tugboat): Independent tugboats that assist larger vessels with berthing, docking, and maneuvering in confined waters such as ports and harbors.
- DG (Local Dangerous Goods): Vessels specifically designed to transport hazardous materials, including chemicals and fuel, within local waters. These vessels adhere to strict safety regulations.
- PV (Pleasure Vessel): Recreational vessels, such as yachts, cruisers, and sampans. This category may also include smaller fishing boats used for leisure activities.
- UC (Unclassified): Vessels not fitting into any specific category due to unique designs or operational roles. These may include research vessels or specialized service craft.

Average Daily Pattern of Traffic Gate

Data collected from 7:00 to 19:00 during 12 selected days reveals that an average of 226 vessels was observed daily, as shown in Table 7.3**.** The analysis indicates that the dominant vessel types within the study area are pleasure vessels and tugboats, followed by dangerous goods vessels and river trade vessels.

Given the prominence of these vessel types, it is essential for crews operating in the vicinity of the CBP (Concrete Batching Plant) to exercise caution. Awareness of the traffic patterns can help minimize encounter risks and maintain operational safety.

As part of the planned CBP operations, the barge delivery schedule includes six barge movements per day: one inbound and one outbound trip for cement, and two inbound and two outbound trips for aggregates via the Pelican Aggregate Barge

When compared to the existing daily marine traffic of 226 vessels, the additional barge movements represent a minor increase.

Table 7.3 Hourly Average Vessel Movement

Hourly Average Vessel Movement for Selected 12 Days Both Directions (Westbound and Eastbound)														
Hour			All	Cargo			Passenger				Others			
				OG-C	RT	T&T	OG-P	FF	LF	FL	TB	DG	PV	UC
7:00	-	8:00	24.9		0.4	0.5		3.6	2.3	11.5	2.1	2.1	2.5	
8:00	-	9:00	22.8		0.9	0.7		2.1	1.7	9.7	0.8	1.8	5.3	
9:00	-	10:00	14.2		1.4	0.3		0.3	1.0	3.5		2.3	5.5	
10:00	-	11:00	18.8		1.4	0.3		2.0		3.5	0.6	2.3	8.7	
11:00	-	12:00	16.9		1.8	0.8				3.7	1.6	3.2	5.9	
12:00	-	13:00	20.9		2.4	0.5				3.2	1.2	3.9	9.3	0.5
13:00	-	14:00	17.7		3.5	0.3		2.0		2.3	0.5	2.8	6.1	0.2
14:00	-	15:00	12.7		1.9	0.4				3.7		1.0	5.6	0.1
15:00	-	16:00	15.1		1.1	0.1				3.8	0.9	1.3	8.0	
16:00	-	17:00	17.3		0.8	0.2		2.0		3.0	0.8	1.3	9.3	
17:00	-	18:00	21.5		0.7	0.2		1.9		6.8	1.3	1.1	9.6	
18:00	-	19:00	23.1		0.7			2.4		13.0	0.6	0.6	5.8	
Total			226		17	4		16	5	68	10	23	81	1

7.5 Minimal Potential Impacts

The marine logistics assessment confirms that the proposed CBP operations will have a minimal impact on the existing marine environment. The additional barge operations, limited to 3 round-trips per day (one inbound and one outbound for cement, and two inbound and two outbound for aggregates via the Pelican Aggregate Barge), represent less than 2% of the typical daily vessel movements in the nearby waterway, constituting a negligible increase in traffic. The site's strategic location, with direct access to established fairways and existing mooring facilities, ensures that delivery operations will not disrupt primary navigational routes or interfere with nearby industrial activities.

Metocean conditions at the Site, including moderate tidal currents (average speed of 0.45 knots) and sufficient water depth (minimum of 5 meters Chart Datum), provide a stable and predictable environment for barge operations. These factors significantly reduce risks associated with manoeuvring and mooring. Additionally, the sheltered location along the northern coast of Tsing Yi minimizes the influence of strong winds, ensuring safe and reliable operations even during peak tidal movements.

8 Implementation and Mitigation Measures

This chapter outlines the comprehensive organizational structure, communication protocols, operational requirements, safety practices, and emergency response measures that govern the operations of the Cement Barging Plant (CBP). These measures aim to ensure safe, efficient, and environmentally compliant operations while mitigating risks associated with marine logistics and plant activities.

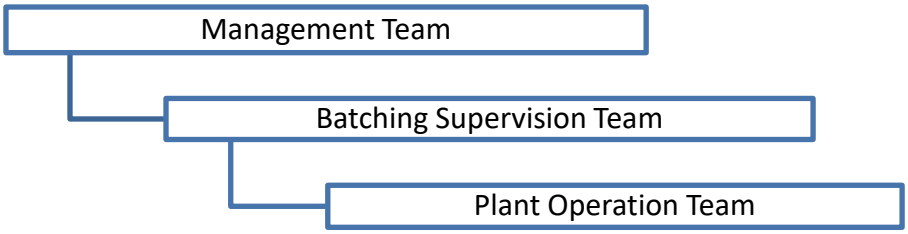
8.1 Organization

The CBP has established a well-trained and experienced team responsible for overseeing daily operations. The team ensures tasks are implemented as planned, takes immediate corrective actions when necessary, and maintains high safety standards.

Organization Chart

The CBP management team is organized to ensure that all precautionary and mitigation measures are effectively implemented. The organizational structure is shown in Figure 8.1 Organization Chart.

Figure 8.1 Organization Chart



Roles and Responsibility

- **Management Team:** Oversees overall CBP operations, coordinates deliveries with suppliers, and ensures compliance with regulations and operational protocols.
- **Batching Supervision Team:** Serves as the primary contact for vessel crews, monitors weather conditions, arranges berthing schedules, and manages unloading operations.

- **Plant Operations Team:** Executes instructions from the Batching Supervisor, liaises with vessel crews, maintains unloading facilities, and ensures smooth and safe unloading operations

8.2 Communications

Effective communication protocols are critical for safe and efficient CBP operations, ensuring seamless coordination among internal teams, vessel crews, and external stakeholders.

Table 8.1 Communications System in CBP

System	Function and Notes
Walkie-talkies	For internal communication among site staff
Mobile Phones	To facilitate contact with key personnel, including supervision and operations teams.
Email	To arrange deliveries, record notifications, and manage operational documentation.
VHF Radio	For direct communication between CBP operators and vessel crews.

Internal Communication

A structured pre-notification system ensures only one barge operates at the designated area at any given time:

- **72 Hours Pre-Notification**: The Batching Team sends delivery requests to the Management Team for coordination with suppliers.
- **12 Hours Prior Notification**: Vessel crews inform the Batching Supervisor of arrival details and seek approval.
- **Operational Updates**: The Batching Supervisor communicates arrangements to the Operations Team for preparation.

External Communication

- **Adjacent Users:** CBP coordinates with neighboring facilities to avoid scheduling conflicts and ensure only one vessel operates at the site simultaneously.

- **Marine Department (Vessel Traffic Service):** Vessel crews report transit information to the Vessel Traffic Service (VTS) using designated VHF channels during their approach and departure.

8.3 Implementation Requirement

Vessel Requirements

All vessels deployed for CBP operations must comply with the Merchant Shipping (Local Vessels) Ordinance (Cap. 548) and meet the following standards:

- Be maintained in a seaworthy condition and equipped with operational propulsion and mooring systems.
- Employ competent, qualified crews.
- Be equipped with Automatic Identification Systems (AIS) and multi-channel VHF radios.

Terminal Requirements

The terminal must maintain all equipment in accordance with Hong Kong regulations and operate it using qualified personnel. Regular certifications and maintenance checks are required to ensure compliance and operational safety.

Safety Equipment

Each vessel shall be equipped with the safety devices which include but not limit to the follows:

- **Personal Protective Equipment (PPE):** Gloves, masks, non-slip shoes, eye/ear protection.
- **First Aid Kits:** Up to required standards and readily accessible.
- **Firefighting Equipment**: Portable fire extinguishers and related equipment.
- **Lifesaving Appliance**s: Life jackets, lifebuoys, and emergency lights.
- **Safety Notice Boards**: Displaying key safety information.

8.4 Safety & Mitigation Measures

Operational Safety Objective

The operator of the proposed CBP is committed carrying out the marine delivery works in a manner that causes minimum harm to our employees and other marine users. This will be achieved through the establishment of clear objectives and the implementation of an effective safety management system which include:

- Prevent accidents and comply with relevant legislation.
- Maintain the highest safety standards and provide ongoing employee training.
- Conduct regular audits of the safety management system.

Training

The adequate safety training for levels of personnel including the skippers, marine crew onboard and crew on CBP, and the profession training for the utilisation of marine plants or system, shall be provided regularly to ensure their understanding and compliance of marine safety issues.

- **Induction Training**: The Plant Supervisor shall provide the site-specific induction training course to the employees including the CBP background, health & safety policy, employees' duties, Hong Kong government legislation &regulations, permit to work, foreseeable hazards, emergency preparedness, personal protective equipment, case studies, etc. The Plant Supervisor shall provide refresher training courses to its employees in every six months.
- **Skipper Training**: Before CBP implementation, the vessel crew from the supplier shall carry out the trial-run training to ensure the marine traffic and relevant safety issues are compiled by all the skippers, which shall be recorded as the housekeeping rules for monitoring and review. The skippers shall be well trained by traveling via the designated routes.

Weather Monitoring

To enhance navigation safety, real-time metocean (tidal, sea level) data and weather forecast from the Hong Kong Observatory and the Marine Department will regularly be reviewed.

The predictions will provide detailed and up-to-date Hong Kong and Guangdong weather forecast for the waters, which provides a sound basis for day-to-day planning and operations. The forecasts include the information of:

- Wave conditions and General weather outlook
- Rainfall
- Significant swell heights
- Wind conditions
- Gust and average speeds
- Wave conditions
- Miscellaneous data on relative humidity, and sea temperature

8.5 Adverse Weather Arrangement

The special arrangement shall be well prepared and implemented in response to typhoon or adverse weather occurrence accordingly, ensuring the safe CBP operation and the vessel and its crew can be evacuated in a safe and efficient manner.

Roles and Responsibilities under Adverse Weather

Batching Supervision Team:

- Closely monitor the weather forecast of Hong Kong and Guangdong;
- Announce the response plan accordingly;
- Monitor the response actions in CBP and ensure the safety of both personnel, equipment and facilities.

Plant Operation Team:

- Post tropical cyclone warning status for information;
- Liaise with Vessel Operation Team of Supplier to prepare specific tropical cyclone response plan and implement accordingly;
- Examine and secure the facilities on site;
- Ensure staff who works outdoor put on PPEs.

Vessel Operation Team of Supplier:

- Liaise with Plant Operation Team;
- Implement the specific tropical cyclone response plan;
- Ensure staff who works outdoor put on PPEs.

- Moor vessels at safe locations.

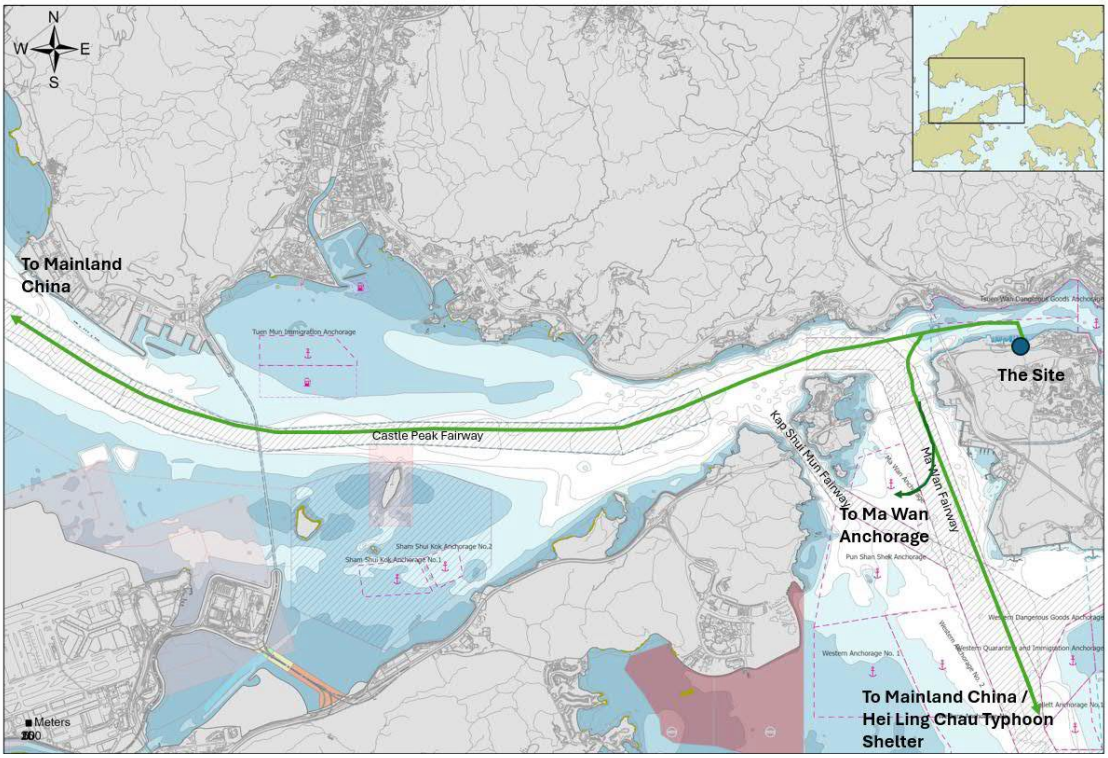
Adverse Weather Procedures

The aggregate delivery to CBP shall only be allowed when weather and sea state will not adversely affect the safe transit and will not create the risk of spillage or loss of materials from the vessels during voyage. The following procedures have been regulated for the CBP barge operation in response to adverse weather conditions:

Typhoon:

- **When Tropical Cyclone Signal No. 1 (TS1)** is Hoisted: The operations will be maintained, but the further typhoon development will be closely monitored by Plant Operators. The Batching Supervisor shall decide whether the material delivery would be arranged based on the weather information from HKO and Guangdong weather forecast.
- **When Tropical Cyclone Signal No. 3 (TS3)** or above is Hoisted: All agents, suppliers, and vessel crews will be notified immediately. Aggregate deliveries will be suspended, and on-site batching may only proceed under favorable weather conditions (e.g., no rainfall, strong winds, or adverse sea conditions) in strict compliance with the BOP protocols, including real-time weather monitoring and readiness to halt operations if conditions deteriorate. Vessels will evacuate work areas to seek safe shelter in Mainland, following Marine Department recommendations for river trade vessels. If Typhoon Signal No. 8 is forecasted and evacuation to Mainland is not possible, vessels will proceed to Hei Ling Chau Typhoon Shelter or alternative anchorages such as Ma Wan Anchorage. A standby tugboat will be deployed, if required, to accelerate the evacuation of barges and ensure the safety of operations.
- **Before TS 3** is issued, if in the case of the delivery barge is approaching HK during adverse weather condition, the vessel shall steer back to Mainland China and not stay in HK water.
- **When TS 3** is lowered and the weather condition is improved, the Plant Operators will consider whether to resume the operation based on the remaining time after TS3 lowering, the time taken to operation resume, etc.
- The applicant shall ensure that all delivery vessels strictly follow the adverse weather procedures set out in this plan. Any unauthorized anchoring or failure to evacuate will be considered non-compliant.
- The evacuation route for typhoon or contingency is depicted in Figure 8.2.

Figure 8.2 Evacuation Routes for Typhoon or Contingency



Rainstorm:

- When a red rainstorm signal is issued, the loading & unloading activities shall be ceased, the crew members should attend bilges and the on-site facilities will be examined and secured properly.
- When a black rainstorm signal is issued, the outdoor activities would be suspended and all crew member shall stay indoor in a safe place.

Low Visibility:

- All operations must cease when visibility is less than 1.5 nautical miles. The Marine Department's Vessel Traffic Centre (VTC) will broadcast visibility reports on VHF channels 12, 14, and 67 when visibility drops below 2 nautical miles. Operators must monitor these channels continuously.
- Barging operators must strictly comply with the "International Regulations for Preventing Collisions at Sea, 1972" (COLREGs), with emphasis on:
    - Rule 5: Maintain a proper lookout.

- Rule 6: Navigate at a safe speed.
- Rule 7: Assess the risk of collision.
- Rule 8: Take timely actions to avoid collisions.
- Rule 19: Use AIS, sound signals, and extreme caution in restricted visibility.

- Operators must reduce speed, maintain clear communication using AIS and sound signals, and coordinate with nearby vessels.
- In the event of an accident, this should be reported immediately to the Vessel Traffic Centre, either on V.H.F. (channel 12, 14 or 67) or by telephone (no. 2233 7801 or 2233 7302).

8.6 Emergency Responses

Once the emergency occurs, the person-in-charge onboard shall contact the Plant Operators. The responsible person shall report the occurrence forthwith to Fire Service Department (FSD) or MD orally about the accident time/position.

The emergency response shall be in accordance with the requirements of Merchant Shipping (Local Vessels) Ordinance Cap 548. The responses for key emergency scenarios are introduced as follows:

<u>Fire on CBP</u>

- Any staff member will activate the warning alarm and report to FSD immediately;
- All persons to evacuate the plant and building and assemble on at the emergency assembly area;
- Notify the fire warden if people are missing at a possible location;
- Report any anomalies to the fire warden and they will arrange search;
- On advice of fire warden, tenants and general public should then return to building or leave premises;
- Assist in securing the site and determine extent of damage, prepare the relevant clean-up plan and strategy to make good afterwards.

<u>Collision</u>

If collision occurs, Coxswain should:

- Cut engine power and inform all crew members on board;

- Inform Operations about vessel's position and time of accident and keep proper log of major events;
- Inform the crew members and keep them calm;
- Send crew member to inspect for damages and check for any oil leakage;
- Check for any injuries onboard and perform first-aid treatment as appropriate;
- If slightly taking on water occurs, send crew members to clear water by using emergency water pump;
- If more than one cabins taking on water and risk of sinking occurs, abandon ship signal has to be sent out by blowing 7 short follow 1 long blast on the whistle. Instruct crew members to prepare all LSA on board, and assist the personnel to put on life jackets for leaving the ship;
- Attract vessels in the vicinity for emergency assistance by blowing 3 short 3 long and follow by 3 short blasts on the whistle and hoist international distress signal;
- If there is no immediate danger of own vessel, assist the other vessel and record the information including vessel name, coxswain name, damage & condition of vessel;
- When abandon ship signals have been sent out, all crew members have to follow the emergency procedure.

Fire onboard

If fire occurs, Coxswain should:

- Stop the barge at a safe place or away from other vessels if circumstance permits;
- Activate fire alarm and instruct crew members to fire fight;
- Inform Operations and Marine Department for assistance;
- Stop engine, cut off power, shut fire damper, start fire pump & fire extinguishers and use all appropriate means on board to fight fire;
- Broadcast to keep the crew calm and if threatened, relocate to a safe area;
- When serious fire occurs, inform the crew to put on life jackets and stand-by for further instruction to leave ship;
- When fire is out of control, abandon ship action has to be taken. Instruct crew members to prepare all LSA on board, and put on life jackets for leaving the ship;
- When crew members have received abandon ship signal, cease fire fighting and immediately report to assigned stations to prepare for abandon ship.

Grounding

If grounding occurs, Coxswain should:

- Stop engine and inform all crew members on board;
- Inform Operations about vessel's position and time of accident and keep proper log of major events;
- Inform the crew and keep them calm;
- Send crew member to inspect damage and check for any oil leakage;
- Take sounding around and check status of seabed;
- Check any injury on board and perform first-aid treatment as appropriate;
- If slightly taking on water is found, prevent further leakage and use water pump as appropriate;
- Prevent the barge from drifting to shore;
- If taking on water is causing the barge to one side, abandon ship action should be taken. Instruct crew members to prepare and put on the LSA /life jackets for leaving the ship;
- Attract vessels in the vicinity for assistance by blowing 3 short and follow by 1 long blast on the whistle and hoist 'V" flag;
- Attract vessels in the vicinity for emergency assistance by blowing 3 short 3 long and follow by 3 short blasts on the whistle and hoist international distress signal;
- Aground signal: Day — by hoisting 3 black balls or shapes vertically on the main mast together with the anchor black ball; Night — by hoisting 2 red lights in a vertical line on the main mast together with the anchor light;
- Take precaution of tidal change;
- When abandon ship signals have been sent out, all crew members have to follow the emergency procedure and report to their assigned boat stations.

Man Overboard

If man overboard occurs, Coxswain should:

- Stop both main engines; blow 3 long blasts on the whistle to indicate man overboard;
- Deploy lifebuoy with buoy light to indicate the overboard position, and the crew member shall keep pointing at the location;
- Operate engines and turn towards the person overboard;

- Proceed back to the position with caution and give a lee side to the person overboard. Keep the person overboard well clear from the propeller;
- Keep clear of surrounding traffic, and take precaution to pick up the person overboard;
- Report to the Plant Operation Team of CBP and Marine Department.

Oil Leakage

If oil leakage occurs, Coxswain should:

- Cease filing, take precaution to avoid oil split overboard;
- Arrange crew members for assistance;
- Empty tank by transferring fuel to other oil tanks;
- If oil split overboard, inform the Plant Operation Team of CBP and Marine Department.

Engine Malfunction

If engine malfunction occurs, Coxswain should:

- Slow down or stop engine;
- Clear of traffic or prevent from obstructing fairway;
- Hoist up engine trouble signal;
- Drop anchor as appropriate;
- Inform Plant Operation Team and Marine Department;
- Check with Engineer whether the engine can be repaired by crewmember and time required;
- Inform the crew and keep them calm;
- If the engine cannot be repaired by crewmembers on board, inform the Plant Operation Team to arrange towage as soon as possible.

8.7 Conclusion

The implementation and mitigation measures outlined in this chapter demonstrate a comprehensive approach to ensuring the safe, efficient, and environmentally responsible operation of the Temporary Concrete Batching Plant. By establishing clear roles and responsibilities, robust communication protocols, and stringent operational and safety standards, the proposed operations mitigate risks to marine traffic, personnel, and the environment. Proactive weather monitoring, detailed emergency response plans, and adherence to international and local regulations further ensure operational resilience under normal and adverse conditions..

9 Summary and Conclusion

9.1 Introduction

The applicant proposes to develop a Temporary Concrete Batching Plant (CBP) at the approved Tsing Yi Outline Zoning Plan No. S/TY/32 for a duration of five years. To support the application, AXON Consultancy Limited has prepared this Barging Operation Plan (BOP), which outlines the marine logistics arrangements, evaluates potential traffic impacts, and proposes mitigation measures to ensure the proposed CBP operates in a safe, efficient, and environmentally sustainable manner.

9.2 Summary

The marine logistics operations for the proposed Concrete Batching Plant (CBP) are designed to ensure safe and efficient functionality. Aggregates and cement will be delivered via self-propelled barges from the mainland, with a maximum of 3 round trips per day— three inbound trips (one for cement delivery and two for aggregates via the Pelican Aggregate Barge) and three corresponding outbound trips.

Maintenance dredging is required to restore adequate water depth at the barging point, where sedimentation has reduced the nearshore depth below safe levels for batching operations; an estimated 4,000 m² of dredging is needed— a minor volume compared to larger project thresholds.

Mooring stability is enhanced through the installation of new fenders, bollards, and a robust anchoring system, which secure both the Pelican Aggregate Barge and the Cement Barge, ensuring precise vessel alignment and safe operations despite tidal fluctuations and currents.

Unloading operations are efficiently executed at the safety platform, with the aggregate barge using an integrated conveyor system to transfer material directly to the batching plant, and the cement barge employing a self-discharging pumping system, complemented by the plant’s advanced suction technology, to deliver cement while improving air quality by reducing exhaust emissions. Marine Traffic Review

A review of nearby marine facilities and the Metocean environment affecting CBP operations concluded that potential impacts are minimal. The site benefits from moderate tidal currents averaging 0.45 knots and a minimum water depth of 5 meters (Chart Datum), providing a stable and predictable environment for barge operations. Additionally, the sheltered location along the northern coast of Tsing Yi reduces the impact of strong winds, ensuring safe and reliable operations even during peak tidal conditions.

A daylight visual survey conducted in November–December 2024 (07:00–19:00) collected detailed data on vessel traffic in the area. Over 12 selected survey days, an average of 226 vessel movements were recorded daily, with the most common vessel types being pleasure vessels and tugboats, followed by dangerous goods vessels and river trade vessels. The planned barge operations, limited to six trips per day, account for less than 2% of the typical daily vessel movements, representing a negligible increase in marine traffic.

A comprehensive set of risk control measures has been established in this BOP, ensuring full compliance with safety and operational requirements. Clear roles and responsibilities have been assigned, and communication protocols have been implemented to ensure efficient internal operations and minimize conflicts with adjacent users or stakeholders.

Implementation requirements for vessel deployment, terminal infrastructure, safety equipment, and weather monitoring have been clearly defined to guide precautionary actions. Special arrangements for adverse weather conditions, including typhoons, rainstorms, and low visibility, have been prepared to ensure operational continuity and safety. Emergency response protocols for various scenarios have also been established, providing clear guidance for all responsible personnel.

The CBP operators are committed to maintaining the highest safety standards, treating safety and health as integral aspects of their performance, and mitigating potential hazards to the minimum feasible level.

9.3 Conclusion

The proposed CBP, supported by this barging operation plan, incorporates robust marine traffic arrangements, impact assessments, and implementation of mitigation measures. Although vessel movements associated with the CBP will interact with existing traffic conditions in the vicinity, survey data indicates that the induced marine traffic impact is negligible. Furthermore, any marine risks posed by these operations can be mitigated to an acceptable level, provided the proposed measures outlined in this BOP are implemented effectively.

Appendix II of
MPC Paper No. A/TY/150

Previous Applications

Application No.	Development	Date of Consideration and Decision	Approval Conditions
A/TY/105	Proposed warehouse (godown for storage of steel plates and steel materials)	9.1.2009 Rejected by the Metro Planning Committee (MPC) of the Town Planning Board (TPB) 24.4.2009 Rejected/not agreed by the TPB on Review	(1) (2), (3), (4), (5) and (6)
A/TY/127	Temporary concrete batching plant for 5 years	18.12.2015 Rejected/not agreed by the MPC of TPB	(7), (8) and (9)
A/TY/134	Proposed temporary concrete batching plant for a period of 5 years	16.3.2018 Rejected/not agreed by the MPC of TPB 26.10.2018 Rejected/not agreed by the TPB on Review	(10) (10)

Similar Applications

Application No.	Development	Date of Consideration	Approval Condition(s)
A/TY/62	Temporary concrete batching plant for 5 years	12.1.2001 Approved with conditions by the MPC of the TPB	(A2), (A3), (C1), (D3), (E4)
A/TY/91	Temporary concrete batching plant for 5 years	4.3.2005 Approved with conditions by the MPC of the TPB	(A2), (C1), (D4), (E4)
A/TY/108	Temporary concrete batching plant for 5 years	12.2.2010 Rejected by the MPC of the TPB 6.8.2010 Approved with conditions by the TPB	(8) (A1), (A4), (C1), (E3)
A/TY/130	Temporary concrete batching plant for 5 years	25.11.2016 Approved with conditions by the MPC of the TPB	(A1), (A4), (B1), (C1), (E1), (E2), (E3),

Rejection Reasons:

(1) there was no information in the submission to demonstrate that goods vehicles could be turnaround within the application site;

(2) there was no proper vehicular access to the Site;

(3) provision for loading/unloading, parking and turnaround facilities within the Site were inadequate;

(4) the proposed reliance on multiple back-and-forth manoeuvres in lieu of provision of standard turning facilities within the proposed development was not acceptable on traffic safety ground;

(5) the applicant failed to demonstrate that the proposed development would not aggravate the current unsatisfactory traffic condition in the area;

(6) approval of the application would set an undesirable precedent for similar applications for warehouse use in the area, the cumulative effect of which would adversely affect the traffic condition of the area;

(7) the applicant failed to demonstrate that the proposed barging operation by using private mooring facility for the proposed concrete batching plant was feasible and would not have adverse impact on marine safety and the shipyards nearby;

(8) the applicant failed to demonstrate that the proposed development would not have adverse traffic impact and traffic management concerns on the road network;

(9) approval of the application would set an undesirable precedent for similar applications and the cumulative effect of approving such application would result in aggravating marine traffic safety issue in the concerned sea area and adverse traffic impact and traffic management concerns on the road network; and

(10) the applicant fails to demonstrate that the proposed barging operation by using slipway for the proposed concrete batching plant was feasible, practicable and safe and would not have adverse impact on marine safety and the shipyards nearby.

Approval Conditions:

Traffic

(A1) no queuing on public roads in the vicinity of the application site resulting from the operation of the plant should be allowed/no vehicle is allowed to queue back or reverse onto/from public road at any time during the planning approval period;

(A2) the submission of a transport plan including the access arrangement and the routing of the long or heavy vehicles to and from the application site to the satisfaction of the Commissioner for Transport or of the TPB;

(A3) the concrete batching plant should not be operated before the commissioning of the Tsing Yi North Coastal Road;

(A4) the submission and implementation of traffic management plan and associated mitigating measures, internal traffic circulation and pedestrian facilities within the application site, to the satisfaction of the Commissioner for Transport or of the TPB;

Landscape

(B1) the submission/implementation of landscape (and tree preservation) proposal within 12 months from the date of planning approval to the satisfaction of the Director of Planning or of the TPB;

Fire Safety

(C1) the submission/implementation/provision of water supplies for fire fighting, fire service installations (FSIs) proposals (and emergency vehicular access) within six/nine months from the date of planning approval/before commencement of operation of the proposed development to the satisfaction of the Director of Fire Services or of the TPB;

Environment

(D1) the submission of an application for Specified Process Licence under the Air Pollution Control Ordinance to the satisfaction of the Director of Environmental Protection;

(D2) the design and provision of environmental mitigation measures to the satisfaction of the Director of Environmental Protection or of the TPB;

Other Aspects

(E1) the submission of a Barging Operation Plan[2] (BOP) within 12 months from the date of the planning approval/before commencement of vessel, barging activities or operation of the proposed development to the satisfaction of the Director of Marine or of the TPB;

(E2) the implementation of the approved BOP and the (continuous) maintenance of the proposed/adopted measures at all times during the planning approval period to the satisfaction of the Director of Marine or of the TPB;

(E3) the permission shall cease to have effect unless prior to the said date either the development hereby permitted is commenced or the permission is renewed; and

(E4) the submission of a report on the tests and inspection of the existing conditions of the piles to the satisfaction of the Director of Civil Engineering or of the TPB.

Remarks:

[1] including contingency plan and associated mitigation measures, fleet management and monitoring/auditing mechanism and/or restrictions of vehicles at critical junctions

[2] including details of the type and size of the vessel/barge involved, relevant operation and/or mooring arrangement

Appendix III of
MPC Paper No. A/TY/150

Detailed Departmental Comments

1. Comment of the SDEV:

   (a) In relation to whether the proposed dredging works falls within the ambit of the Foreshore and Sea-bed (Reclamations) Ordinance (Cap. 127) ("FS(R)O") as per paragraph 4.2 of PAH Chapter 3, technical advice from SDEV is as follows:

      (i) referring to Part 4 of the BOP in the submission, dredging operation for removal of accumulated sediment at the proposed barging point is to be carried out. In particular, per paragraph 4.1 of the BOP, "[a]t the application site, sedimentation has reduced the nearshore water depth at the barging point to below the level required for safe batching operation. To remedy this, maintain dredging is necessary to remove the accumulated sediment and restore adequate water depth for vessel navigation";

      (ii) according to section 2 of FS(R)O, reclamation "includes any work over and upon any foreshore and sea-bed". Further interpretation of reclamation was given in Works Buearu Technical Circular (WBTC) No. 9/2001 which was then subsumed into PAH Chapter 3 paragraph 4.2 where it is stated that "[t] he term "reclamation" has a wide meaning. In general, it refers to all works of permanent nature over or upon the shore and bed of the sea and of any tidal water within Hong Kong below the line of the high water mark. For example, dredging with a view to reclaiming land or construction of a permanent structure is covered by the FS(R)O but routine maintenance dredging is excluded"; and

      (iii) as far as the dredging operation described in the BOP is concerned, the objective of the operation is said to be restoring adequate water depth for vessel navigation. The operation is not planned to be carried out for the purpose of or with a view to reclaiming land or construction of a permanent structure over or upon the foreshore or sea-bed on which the dredging operation is to be carried out. In contrast, the dredging operation is for maintaining the necessary water depth for safe navigation. In this connection, from a technical perspective, SDEV agrees that the nature of the dredging is maintenance in nature, and is unlikely to fall within the ambit of FS(R)O.

2. Comment of CHE/NTW of HyD:

   (a) the TIA and the traffic management issues should be commented by TD;

   (b) the applicant may need to construct a proper vehicular access from Tam Kon Shan Road to the site and reinstate the road to the satisfaction of HyD after use; and

   (c) adequate drainage measures shall be provided to prevent surface water running from the application site to the nearby public roads and drain.

3. Comments of the D of Marine:

(a) For the proposed dredging of the seabed to a depth of 3.8 metres, all statutory requirements must be followed;

(b) The applicant should liaise with the Lands Department to arrange a "blue area" to allow sufficient space for safe berthing;

(c) The project proponent should be reminded that their barging operations must not impede the existing private mooring (PM) owner(s) (including PM Nos. 1322 and 1381) from using their moorings. Consent from the nearby PM owner(s) must be obtained for the barging operation; and

(d) The proposed project will introduce new marine traffic, including 50-meter-long cement carriers to the concerned waters. Given the relatively strong tidal currents, the restricted manoeuvring space, and the presence of various nearby private mooring buoys and piers accommodating different types of vessels with frequent maritime activities, Marine Traffic Impact Assessment (MTIA) shall be conduct to detail the marine operations in both construction and operational stage, assess impact on existing marine traffic and finally to recommend mitigation measure to the risk. The current BOP for the construction stage does not provide details regarding the duration of these construction-related activities or the number of vessels involved. Addressing these aspects will be critical to ensuring the safe and efficient management of marine traffic during the project's implementation.

4. Comments of CBS/NTW of BD:

(a) if the structures are erected on leased land without the approval of the BA, they are UBW under the BO and should not be designated for any proposed use under the captioned application; and

(b) for UBW erected on leased land, enforcement action may be taken by the Building Department to effect their removal in accordance with the prevailing enforcement policy against UBW as and when necessary. The granting of any planning approval should not be constructed as an acceptance of any existing building works or UBW on the application site under the BO.

5. Comments of the CTP/UD&L of PlanD:

(a) the proposal does not fall within the criteria for air ventilation assessment (AVA) under the Joint Housing, Planning and Lands Bureau-Environment, Transport and Works Bureau Technical Circular on AVA No. 1/06 and no significant adverse impact on the pedestrian wind environment is anticipated.

(b) as it is unlikely to cause further significant adverse landscape impact, it is considered not necessary to impose any landscape condition in the planning permission, should the application be approved by the Board.

6. Comment of CE/Construction of WSD:

(a) the proposed development is outside the existing salt water supply zone of Tsing Yi Island. For provision of fresh water supply to the development, the applicant may need to extend his/her inside services to the nearest Government water mains for connection and seek approval from the Water Authority as necessary. The applicant shall resolve any land matter (such as private lots and STT) associated with the provision of water supply and shall be responsible for the installation, operation and maintenance of inside services within the Site to WSD's standards.

7. Comments of the DEMS:

(a) in the interests of public safety and ensuring the continuity of electricity supply, the parties concerned with planning, designing, organizing and supervising any activity near the underground cable or overhead line under the application should approach the electricity supplier (i.e. CLP Power) for the requisition of cable plans (and overhead line alignment drawings, where applicable) to find out whether there is any underground cable and/or submarine cable within and/or in the vicinity of the concerned site. They should also be reminded to observe the Electricity Supply Lines (Protection) Regulation and the "Code of Practice on Working near Electricity Supply Lines" established under the Regulation when carrying out works in the vicinity of the electricity supply lines and be reminded to enquire the electricity supplier for the required precautionary measures for work near submarines cables and to execute them during design and construction.

8. Comments of CE/PW of CEDD:

(a) the applicant should be reminded that the structural integrity and stability of existing marine structure/seawall must not be compromised during the construction or operation of the proposed works. Should any damage to these structures occur as a result of the works or related activities, the applicant will be fully responsible for repairing the damage at their own costs.

9. Comments of the STL:

(a) the applicant should be reminded that shipyards in Hong Kong are essential for providing timely and effective repair and maintenance services for local vessels. These services are crucial for port operations, marine safety, and sustainable development of the marine sector.

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250521-142046-78987
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	21/05/2025 14:20:46
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Ka Lun Alan WAN

意見詳情
Details of the Comment :

支持 A/TY/150規劃申請的意見

城市規劃委員會：

本人支持編號 A/TY/150 混凝土配料廠的規劃申請，懇請 貴委員會在審議時考慮以下重要理據，並批准申請。根據2025年至2030年的香港公營房屋供應計劃，將提供合共約189,000伙單位，較過往政府的五年期增加80%。私營房屋供應，未來五年較過去五年的平均數增加約15%

我們認為規劃申請A/TY/150能產生正面影響，希望城市規劃委員會能批准申請，謝謝。

市民

尹家麟

啟

21/5/2025

城市規劃委員會：

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- 3 JUN 2025
Town Planning Board

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本人支持A/YL/10混凝土廠申請，興建混凝土廠對香港城建亦有增益，疫情對香港發展已產生一定的影響，所以應為香港未來發展多作考慮。而且該區已有混凝土廠，已然成為重點工業用地。此外，就以在觀察，擔杆山附近除了工業車輛，亦甚少看見其他車輛出入，對交通並沒有造成額外影響，故希望增設混凝土廠後，可加速香港建造業發展，加快完善各個發展區，提升香港整體實力，惠及市民使用。

市民

Yuyo Chan

171

城規會：

作為市民，我支持項目A/TY/150混凝土配料廠的申請。

香港政府正全力推動北部都會區的發展，包括新界北新市鎮多個新發展區。這些項目將在未來十年內進入基建工程的高峰期，對混凝土的需求將急劇增加。青衣的混凝土配料廠不僅能夠滿足本地建設需求，其地理位置優越，由青衣北岸公路快速連鄰近多個新界新發展區，設立混凝土配料廠將能為附近項目提供穩定的材料供應，從而加快工程進度，提升工程效率。

因此，我支持在青衣設立混凝土配料廠的計劃，認為這將對香港的基建發展具有深遠的影響。

[redacted]

香港市民

二零二五年五月二十日

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- 3 JUN 2025
Town Planning Board

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城市規劃委員會：

有關支持 A/TY/150 規劃申請的公眾意見

本人現致函，支持編號 A/TY/150 混凝土配料廠的規劃申請，懇請 貴委員會在審議時，充分考慮以下重要理據，並批准此項申請。

1. **滿足香港房屋供應需求**

   根據 2025 年至 2030 年的總體公營房屋供應計劃顯示，香港將提供合共 189,000 伙單位，比過往現屆政府上任時的五年期增加 80%。私營房屋供應方面，未來五年私人住宅單位每年平均落成量，較過去五年的平均數增加約 15%。這一龐大的建設需求意味著市場對混凝土的需求將大幅增加，設立混凝土廠將有助於滿足建屋需求。

2. **申請符合土地規劃意向**

   規劃申請位處於「其他指定用途」註明「船廠及依靠海運之工業用途」地帶，而本項申請屬於第二類用途，這些都反映到本申請的用途大致符合該地帶的規劃意向。城規會亦須考慮現時造船及船隻維修業衰退，部份年老的船廠負責人亦將退休，這導致相關工業的土地需求不斷下跌。為善用該地帶的土地，城規會應該積極考慮不同的工業用途。

3. **對附近環境沒有造成負面影響**

   申請人進行了環境評估，並且提出相關的舒緩措施，包括興建隔音屏障和車輛清潔系統，致力避免對環境的可能影響，可見申請人透過優化產業流程，降低生產帶來的污染，相信能使該廠房符合政府的環保要求。

綜上所述，我們認為規劃申請 A/TY/150 能產生正面影響，本人冀望城市規劃委員會能批准此項申請，謝謝。

市民 曾先生

謹啟

2025/05/28

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Town Planning Board

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城市規劃委員會：

我是青衣一帶的居民，現就 A/TY/150 規劃申請提出支持意見。隨着造船業的萎縮，該土地一直長期閑置，沒有被善用，浪費寶貴的土地資源。該石屎廠位於工業地帶，並且遠離附近主要住宅區，例如：長安及長發邨，我認為該選址十分恰當，並且與附近的土地用途互相吻合，該混凝土廠將能促進香港的工業發展，是香港的產業發展更多元化，懇請城規會已促進香港長遠發展為由，批准該項目申請。

市民 Mandy

二零二五年五月二十四日

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Town Planning Board

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城市規劃委員會：

關於 A/TY/150 項目，本人特此來函表達支持意見。

隨著香港即將建設北部都會區，未來對混凝土的需求將大幅增加。因此，香港十分急需建造更多混凝土廠以應付未來工程高峰期，這對於促進香港基建發展尤其重要。正因為如此，本人支持擬建的混凝土廠。

值得注意的是，該混凝土廠位於工業地帶(船廠及依靠海運之工業用途)，遠離附近的民居。附近的土地主要用作船廠或工場，因此不會與附近的土地用途產生衝突。相比之下，設置於工業地帶的混凝土廠更能滿足其營運需求，甚至比設置在市區或住宅附近的混凝土廠更為合理。因此，本人不擔心該廠會帶來負面的環境影響。

市民

二零二五年五月十九日

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- 3 JUN 2025
Town Planning Board

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城市規劃委員會委員鈞鑒：

本人來函就規劃申請 A/TY/150 提出支持意見，以供城市規劃委員會審視個案時參考，有關意見支持理據如下：

1. 提升區域經濟活力

擬議之混凝土配料廠選址不僅完全符合「船廠及依靠海運之工業用途」地帶的規劃意向，更可進一步促進青衣，葵涌和荃灣地區的產業集聚效應。目前該區域聚集相當數量的工業設施，因此混凝土配料廠將能與周邊的工廠、重工業、物流及倉儲設施形成更緊密的產業鏈，提高整體生產效率。考量到香港工業用地日益稀缺，此工業地帶為本地工業發展提供寶貴的空間，促進香港經濟活力。

2. 申請對周邊影響極小

為確保營運不對附近環境構成任何顯著的負面影響，申請人已完成全面的環境評估，並據此制定了一系列緩解措施，例如制定嚴謹的廢物儲存、處理、海上交通運輸標準，相信申請人嚴謹的環評相信能夠減少混凝土廠帶來空氣、噪音、水質、廢物和土地污染。

3. 針對上次同類型申請的疑慮作出改善

申請人曾經於 2018 年提出同類申請，但並未獲城規會批准。申請人致力就躉船安排的安全標準和可行性問題進行更深入的考慮，並且擬定了躉船運作計劃，務求解決城規會上次同類型申請時提出的疑慮。

綜上所述，本人懇請城市規劃委員會批准 A/TY/150 規劃申請，以支持香港的整體發展與建設。

市民

謹啟

RECEIVED
- 3 JUN 2025
Town Planning Board

二零二五年五月二十六日

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城規會: 21/5/2025

我支持項目 A/TY/150 的申請。

項目鄰近山脈，遠離公共房屋及私人發展項目，本人相信廠房的營運並不會對鄰居造成任何的空氣或噪音污染。

項目所產生的環境及交通問題會比其他同類廠房亦少，因為項目主要倚賴船隻運送貨物，減少了對陸路的倚賴，同時避免陸路運輸對青衣居民產生的噪音及廢氣污染。

由於上述原因，支持批准混凝土廠的申請。

市民

Ms Cheng.

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- 3 JUN 2025
Town Planning Board

城規會：

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A/TY/150 規劃申請的公眾意見

致城市規劃委員會：

本人現致函支持編號 A/TY/150 的規劃申請，此申請旨於在青衣設立臨時混凝土配料廠。該廠的設立既能滿足本地對混凝土的需求，又不會對周邊環境造成明顯影響。懇請城市規劃委員會在審議時，充分考慮該選址的優越性。本人支持理據如下：

1. 土地用途相容性

   項目為處於的土地被規劃署指定位船塢及相關用途，屬於工業用途的一種。因此，混凝土廠設立在工業相關地帶能夠符合該地的規劃意向，並且與附近擔杆山的土地用途匹配。

2. 適切的物流安排

   混凝土廠附近的擔杆山路連接青衣北岸公路，能夠讓運送物料及成品的車輛快速進入及離開混凝土廠，並運送至市區或新界各處。同時，這亦能夠避免大型車輛駛經青衣市中心的住宅區，避免運輸帶來額外的排放污染。

3. 適切的廠房選址

   擬議混凝土廠選址鄰近青衣北岸公路，有利於大型車輛進出。同時，該地段與主要住宅區保持一定距離，有助於減少對居民的潛在影響。此外，該土地已經過初步平整，具備發展工業用途的良好基礎，可大幅縮短建廠所需時間。值得注意的是，香港的工業用地供應持續減少，而該選址能有效利用現有土地資源，支持本地工業發展，促進本地經濟的多元發展。

有鑒於擬議於青衣設立之臨時混凝土配料廠與當地土地用途相容、物流安排適切、選址合適，更能充分利用土地資源，支持本地工業發展，並已審慎評估對周邊環境之影響，懇請城市規劃委員會批准此項申請。

市民

謹啟

二零二五年五月十九日

RECEIVED
- 3 JUN 2025
Town Planning Board

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城市規劃委員會：

本人現致函就 A/TY/150 的臨時混凝土配料廠規劃申請提出支持，理由如下：

a. 降低運輸成本

北部都會區各項大型基建項目正加速推進，對預拌混凝土的需求持續上升。然而，若依賴長途運輸供應混凝土，勢必增加運輸成本。該選址毗鄰主要道路，例如汀九橋，大欖隧道，該混凝土配料廠的設立，可針對新界西未來發展作穩定的混凝土供應，大幅縮短運輸距離，降低運輸成本。

b. 周全考慮交通影響

項目方深知混凝土配料廠之運營或會增加附近道路之交通流量，故已制定周全之交通管理方案，力求將潛在影響降至最低。除承諾於施工及營運期間嚴格遵守相關交通法規外，項目亦建議以躉船運送原材料，減少陸路車流量，避免對當地居民及遊客造成滋擾。

綜上所述，本人深信該規劃能配合香港未來建築需求，亦有規劃優點以彌補項目帶來的交通影響，本人懇請城市規劃委員會批准 A/TY/150 規劃申請。

市民[illegible]先生.

上

二零二五年五月二十七日

RECEIVED
- 3 JUN 2025
Town Planning Board

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城市規劃委員會：

我十分支持 A/TY/150 混凝土廠申請。政府近期積極發展新界，興建基建設施和住宅項目。這些項目需要大量混凝土。由於青衣地理位置優越，若在該處設立混凝土廠，將能夠就近供應附近新發展區，如東涌一帶，從而加快住宅建設進度，讓更多人早日有屋居住，不用等到頸都長埋。因此，希望城規會處理混凝土廠申請時，能夠考慮長遠香港基建需要。

市民

Michael Sheng

二〇二五年五月二十日

RECEIVED
- 3 JUN 2025
Town Planning Board

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城市規劃委員會：

有關 A/TY/150 規劃申請的意見

本人特函支持編號 A/TY/150 位於打鼓嶺的臨時混凝土配料廠規劃申請。

a. 選址具有工業基礎

該土地已經過初步平整，並且已經擁有空置的廠房構築物，具備良好的工業基礎，卻現時該處正在空置，實屬浪費。另外，該地段亦設有一個現有的碼頭，有利未來營運者使用海路運送物資。以上的配套都有助申請者快速投入生產，避免冗長的建設時間。

b. 促進基建發展

香港的基礎建設正以前所未有的速度發展，各項新發展區正如火如荼地進行建設。正如香港政府在 2024 年的施政報告中強調，房屋供應需「持續提速、提量、提質、提效」。因此，政府將在未來十年內提供約 3,000 公頃的可發展土地。政府這些大型項目對預拌混凝土的需求量巨大，而混凝土作為建築工程中最常用的原材料之一，其穩定供應至關重要。

c. 選址合適

該選址位於青衣北岸工業區，遠離主要住宅區和生態敏感地點，適合設立混凝土配料廠。選址的交通便利性也是一個重要優勢，它毗鄰主要道路，例如：青衣北岸公路，能夠方便地將原材料和成品運送到北部都會區各個發展區域，提高運輸效率，降低運輸成本並減少交通擠塞。

基於以上理由，本人強烈支持此項規劃申請，並懇請城市規劃委員會批准該申請，以確保香港的基礎建設項目能夠順利進行，並為香港的經濟發展做出貢獻。

市民

謹啟

二零二五年五月三十日

RECEIVED
- 3 JUN 2025
Town Planning Board

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城市規劃委員會鈞鑒：

本人特此致函，就編號 A/TY/150 之規劃申請表達支持立場，敬請城市規劃委員會於審議時納入考量，具體理據詳述如下：

香港各項大型基建及房屋項目正如火如荼展開，包括古洞北/粉嶺北、洪水橋/厦村等新發展區，而部份工程項目包括新田科技城和牛潭尾新發展區，亦即將或剛剛開展，這些發展項目對預拌混凝土的需求龐大。根據政府的規劃，未來十年將提供約 3,000 公頃的可發展土地，興建公營房屋及私營住宅。因此，設立混凝土廠將可確保混凝土供應穩定，支持香港各項發展項目的順利進行。

混凝土廠附近的擔杆山路連接青衣北岸公路，能夠讓運送物料及成品的車輛快速進入及離開混凝土廠，並運送至市區或新界各處。同時，這亦能夠避免大型車輛駛經青衣市中心的住宅區，避免運輸帶來額外的排放污染。

總括而言，此規劃申請不僅有助於鞏固香港基建的穩固根基，更能為地區經濟注入新的活力。懇請 貴委員會明智決策，批准 A/TY/150 申請，讓香港的發展腳步得以穩健前行。

市民 楊先生

謹啟

RECEIVED
- 3 JUN 2025
Town Planning Board

二零二五年五月二十八日

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250602-204811-29970
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	02/06/2025 20:48:11
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Choi Wai Po

意見詳情
Details of the Comment :

香港未來大型基建項目非常多,如北大都會,元朗南發展,古洞北等,都需要大量混凝土才能配合發展.
本人讚同以規劃申請.

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250603-111546-45268
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	03/06/2025 11:15:46
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Ho Ka Lok

意見詳情
Details of the Comment :

I support approval on the A/TY/150 application with consideration of the following values to H ong Kong,
1) Releasing Land Values (釋放土地價值)
The application site seems idle for years, probably due to the decline of the boatyard industry. A llowing other industrial use at the site and benefiting Hong Kong's imminent needs is worth con sidering.

2) Basic Need for City Development (城市發展之需)
Ready-mixed concrete after batching must be used within a short period. This explains why con crete batching facility is a basic necessity for Hong Kong.

3) Innovation and New Productive Forces (新質生產力)
Innovation and creative solutions often rely on new facilities. Supporting new facility setup in H ong Kong is an appropriate strategy to support innovation and industrial advancement.

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250606-162226-59637
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	06/06/2025 16:22:26
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Mr. Yeung

意見詳情
Details of the Comment :

該地區為工業用地地帶，距離市區新界近而且遠離民居，實為難能可貴之地點，能滿足各區需要，而混凝土為建築工程必須品，因此本人支持於該區興建廠房。

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250606-162409-91517
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	06/06/2025 16:24:09
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Mr. So

意見詳情
Details of the Comment :

我非常讚成在這青衣區增設混凝土廠，交通方便，促進香港就業機會。

梁穩記船廠有限公司

LEUNG WAN KEE SHIPYARD LTD.

May 20, 2025

城市規劃委員會,

香港北角渣華道 333 號北角政府合署 15 樓

RE: 城市規劃委員會 - 申請 No. A/TY/150
擬議臨時混凝土配料廠於青衣担杆山路地段第 14 號及 15 號和毗連政府土地

我梁穩記船廠有限公司，強烈反對上述申請。

該路段用途應從事船廠及海事工程。如改作水泥配料廠將嚴重影響其他船廠工程運作，污染環境衛生，傷害船廠職工健康及製造交通混亂。

A/TY/150 申請項目曾分別於 4/2014 以 A/TY/124, 12/2014 以 A/TY/127 及 12/2016 以 A/TY/134 提出, 但均被城規會以 "拒絕/不同意" 理由否決。

由於此申請對本路段負面影響極其嚴重, 我司不得不致函貴會重申強烈反對。

反對原因如下：

1. 混凝土污染空氣，將嚴重傷害工人的健康。
2. 混凝土污染將嚴重影響地方環境衛生。
3. 水泥塵埃將破壞工程效果。
4. 惡化担杆山路已存在的陸路交通混亂。

梁穩記船廠有限公司

LEUNG WAN KEE SHIPYARD LTD.

5. 嚴重影響該區海上交通及運作。
6. 如有廢棄水泥沙石排放落海，則必將此淺水海域海床加高，使我船廠維修業更難於運作。

請貴署嚴正考慮此項申請，並予以否決 A/TY/150 申請。

此致

Yours faithfully,
For and on behalf of
Leung Wan Kee Shipyard Ltd.

Stephen Chan
Director

CC: /葵青民政事務署/ 海事處/ 警務處/ 環境保護處/ 勞工處/ 地政處/運輸處/ 路政處/ 葵青區議員林翠玲校長/ 皇仁舊生會中學校長/中華傳道會呂明才小學校長/ 東義造船業總商會主席

(所有 cc 副本均附有該項申請的資料)

致城市規劃委員會秘書：
專人送遞或郵遞:香港北角渣華道 333 號北角政府合署 15 樓
傳真 : 2877 0245 或 2522 8426
電郵: tpbpd@pland.gov.hk

To : Secretary, Town Planning Board
By hand or post : 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong
By Fax : 2877 0245 or 2522 8426
By e-mail : tpbpd@pland.gov.hk

有關的規劃申請編號 **The application no. to which the comment relates**
A/TY/150

意見詳情 (如有需要，請另頁說明)
Details of the Comment (use separate sheet if necessary)

強烈反對上述申請 該路段用途應從事船廠及海事工程。如改作水泥配料廠將嚴重影響其他船廠工程運作，污染環境衛生，傷害船廠職工健康及製造交通混亂。A/TY/150 申請項目曾分別於 4/2014以A/TY/124, 12/2014 以 A/TY/127 及12/2016 以 A/TY/134 提出, 但均被城規會以"拒絕/不同意"理由否決。由於此申請對本路段負面影響極其嚴重, 我司不得不強烈反對。

反對原因：1. 混凝土污染空氣，將嚴重傷害工人的健康。 2. 混凝土污染將嚴重影響地方環境衛生。 3. 水泥塵埃將破壞工程效果。 4. 惡化担杆山路已存在的陸路交通混亂。 5. 嚴重影響該區海上交通及運作。 6. 如有廢棄水泥沙石排放落海，則必將此淺水海域海床加高，使我船廠維修業更難於運作。 請貴署嚴正考慮此項申請，並予以否決 A/TY/150 申請。

「提意見人」姓名/名稱 Name of person/company making this comment 品記船廠有限公司

簽署 Signature *For and on behalf of* 品記船廠有限公司 BUN KEE SHIPYARD LIMITED
.....
Authorized Signature(s)

日期 Date 21-5-2025

城市規劃委員會

香港北角渣華道 333 號北角政府合署 15 樓

RE: 城市規劃委員會 - 申請 No. A/TY/150
擬議臨時混凝土配料廠於青衣担杆山路地段第 14 號及 15 號和毗連政府土地

得悉上述混凝土配料廠的申請。

我 青衣担杆山路造船業工人，基於下列原因，現向貴會提出強烈反對該項計劃。

反對原因：

7. 混凝土污染空氣，將嚴重傷害工人的健康。
8. 混凝土污染將嚴重影響地方環境衛生。
9. 水泥塵埃將破壞工程效果。
10. 惡化担杆山路已存在的交通混亂。

我等船廠基層作業工人，只求有一較衛生及安全的環境以賺取基本的生活開支。現担杆山路尾段已有一混凝土工廠導致環境極度污染，因何還要在中間路段計劃興建另一混凝土工廠以荼毒我等健康。

敬請貴會從嚴考慮該項申請。 我們隨時願意與貴會參與該計劃的人員會面詳述我們的訴求。

現附上部份工人反對該計劃的簽名以資貴會考慮。

我方的聯絡人資料：
聯絡人： 陳協昌
電話：
電郵：

敬請賜覆

陳協昌
青衣造船業工人健康安全關注組
二零二五年五月二十日

CC: 葵青民政事務署/ 海事處/ 警務處/ 環境保護處/ 勞工處/ 地政處/ 運輸處/ 路政處/ 葵青區林翠玲議員/皇仁舊生會中學校長/中華傳道會呂明才小學校長/ 東義造船業總商會主席。
(所有 cc 副本均附有該項申請的資料)

RE: 城市規劃委員會-申請 No. A/TY/150 擬議臨時混凝土配料廠

青衣造船業工人健康安全關注組工人簽名反對在担杆山路增設混凝土配料廠

	工人名字(中及英文名)	簽名
1	LAM FU WAH 林富華	
2	CHAN FOA SHING 陳火勝	
3	HO FUK 何福	
4	CHEUNG KOI WING 張改榮	
5	WONG YU TONG 黃裕當	
6	CHU KWOK SUN 朱國燊	
7	CHUI KOWK WAI 徐國偉	
8	OR KAM MUK 柯金木	
9	CHEN DONGPING 陳東平	
10	NING KEJUN 宁可軍	
11	XIAO RUIXIN 肖瑞鑫	
12	LIU JINRONG 劉錦榮	
13	TU SHANZHAO 涂善招	
14	FENG HANQIU 馮漢秋	
15	YUAN JINGJIA 袁敬佳	
16	LU SHUNKAI 盧順開	
17	GUO XITANG 郭錫堂	
18	CHEN ZHAOXIANG 陳兆祥	
19	ZHAO CHENWEI 趙晨威	
20	HE ZHIPENG 和致鵬	
21	XIE JIHAN 謝記漢	
22	LIANG YUANLIN 梁源林	
23	KONG QINGWEN 孔慶文	
24	SHEN RONG 沈荣	
25	HUANG WANSHENG 黃萬勝	
26	LI ZHIWEI 李志偉	
27	CHEN ZHIHUAN 陳志煥	
28	WONG TIM YU 黃添裕	
29	CHAN KOK WING 陳覺榮	
30	LI WING LUNG 李永龍	
31	CHAN KA CHI 陳嘉志	

3 附加

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250521-132935-71799
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	21/05/2025 13:29:35
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Chan Hip Cheong

意見詳情
Details of the Comment :

I am working in Tam Kon Shan Road and strongly object the said application.

A cement plant will create :
1. air pollution
2. sea water pollution
3. traffice jam - both land and sea
4. damage the health of the shipyard workers and people in the nearby playground and domestic flats

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250521-125935-93772
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	21/05/2025 12:59:35
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	女士 Ms. Dodo Mak

意見詳情
Details of the Comment :

本人鄭重表達反對擬議臨時混凝土配料廠申請的立場。本人反對主要原因是混凝土配料廠嚴重影響周邊環境，現有路段每日已有逾數十輛混凝土車頻繁進出，作業期間粉塵逸散量嚴重。擬議臨時混凝土配料廠地點與青衣東北公園距離非常近。政府在担杆山路設有一個青衣東北公園、足球場、單車徑等等，目的是給市民身心健康的好地方，若果在附近規劃一個混凝土配料廠簡直是背道而行及危害公眾健康性命。混凝土配料廠運作產生的懸浮粒子及重金屬污染物，將直接危害晨運長者、做運動的市民、兒童、敏感族群呼吸系統健康，抵銷公園設置之社會效益。除此之外，長期大量混凝土車違法停泊於兩旁行人路上，阻礙駕車人士視線，嚴重影響途人及其他道路使用者，增加交通意外。懇請貴處撤回此申請。

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review	
參考編號 **Reference Number:**	250528-092021-80361
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	28/05/2025 09:20:21
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	小姐 Miss Mak
意見詳情 **Details of the Comment :**	
我反對該位置興建混凝土配料廠，影響空氣污染，同時街道堆滿英泥車造成危險。	

7 附加

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review	
參考編號 **Reference Number:**	250528-093730-40018
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	28/05/2025 09:37:30
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	小姐 Miss Mak

意見詳情
Details of the Comment :

反對建混凝土，空氣污染，影響附近居民民生，交通嚴重影響。

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250529-195335-21300
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	29/05/2025 19:53:35
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	女士 Ms. 劉鳳華

意見詳情
Details of the Comment :

作為青衣居民，我反對在上址設立臨時水泥廠，水泥廠造成的空氣和燥音污染及灰塵，會嚴重影響居民生活同健康。另外，會有很多泥頭車在檐桿山路出入，令交通不勝負荷，更對附近黃士心小學同皇仁舊生會中學的學生過馬路時構成危險

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250529-115807-89442
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	29/05/2025 11:58:07
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. KW Leung

意見詳情
Details of the Comment :

本人反對興建臨時混凝土配料廠,因大型車輛行駛此段路而引至阻塞交通及引至空氣污濁.
本人在此附近上班,每天需步行或坐車來回公司,大型車輛行駛會影響本人之健康,交通阻塞會引至遲到返工, 影響工作.
故本人反對在担杆山路興建臨時混凝土配料廠

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250527-155514-53143
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	27/05/2025 15:55:14
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	小姐 Miss Peggy Chan

意見詳情
Details of the Comment :

本人反對興建臨時混凝土配料廠, 原因是製造大量環境污染, 沙塵滿天飛, 因附近有大型公園,很多公公婆婆, 兒童在此公園運動,遊玩, 危害他們健康..
另因本人在此附近上班, 興建臨時混凝土配料廠會增加此段路之交通負擔, 增加大型車輛行駛會引至阻塞交通, 如阻塞交通, 本人需步行回公司, 而因有大量混凝土車行駛, 引至空氣污濁, 直接影響本人之健康.
故本人強烈反對在担桿山路興建臨時混凝土配料廠,

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250528-105639-99767
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	28/05/2025 10:56:39
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. 藍振雄

意見詳情
Details of the Comment :

本人反對這項申請，原因如下：
1. 現有担杆山路已經有一間混凝土廠,做成交通混亂,混凝土車停在道路兩旁,如再多一間混凝土廠,混凝土車相應亦會增加,到時候交通會更混亂.
2. 担杆山路主要為經營船廠,工作需要亦有貨車出入,交通已經够繁忙,工人出入亦多,容易造成危險.
3. 混凝土廠的工作經營亦會造成空氣污染,影響附近居民健康.

就規劃申請/覆核提意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250528-110455-05430
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	28/05/2025 11:04:55
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Leung Chung Hin

意見詳情
Details of the Comment :

敬啟者：

本人就青衣担杆山路擬建為期五年之臨時混凝土配料廠申請，謹表達強烈反對，原因如下：

1. 缺乏必要性
現有區內已有混凝土廠，無需再增設臨時廠房。過去同址申請已被否決，現時內容高度重複，形同規避「一事不再議」原則，亦未有回應過去否決理據。

2. 交通壓力嚴重
担杆山路及周邊道路長期受大量重型車輛壓力，混凝土車違泊嚴重阻塞交通。運輸署2023年數據顯示，早高峰時段重型車佔比高達42%，遠超設計容量30%上限。新增廠房只會進一步加劇擠塞，影響通勤及物流。

3. 嚴重阻礙緊急救援通道
混凝土車長期違泊，除令交通擠塞，亦嚴重影響救護車、消防車等緊急車輛出入。警方記錄顯示，2023年上半年青衣西路/担杆山路口有87宗違泊檢控，當中63宗涉及混凝土車，這些違泊行為已多次阻礙緊急車輛通行，延誤救援黃金時間，對居民生命安全構成重大威脅。

4. 公共安全與學童風險
大量混凝土車違泊威脅行人安全，學童需經過該路段，500米範圍內有三所學校，每日逾2,000名師生受影響，明顯違反學校周邊交通安全指引。

5. 濫用臨時用地制度
五年期設施實屬長期運作，卻以「臨時」名義規避正式用地審查，扭曲政策原意。

基於以上理由，本人及社區居民堅決反對該規劃申請，懇請貴會嚴格把關，保障居民民生及安全。

專此奉達，敬頌
政安

☐Urgent ☐Return receipt ☐Expand Group ☐Restricted ☐Prevent Copy 17 to 49

From:
Sent: 2025-06-02 星期一 09:09:56
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: A/TY/150 公众意见 (1)
Attachment: SHKHO0225060208430.pdf

你好,

附上有关 A/TY/150 的意见

谢谢!

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0017

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
6. 擔杆山路經常有重型車輛違例泊車，行人路兩旁泊滿重型車輛並其他車輛，甚至有田螺車泊上行人路！如再加上這間混凝土廠的大型車輛，行人要走在馬路上，是否要造成人命傷亡政府才會正視？！

海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
12. 田螺車於出廠閘前會洗車，但其污水連帶泥漿無可避免地會帶出街外，導致街道泥漿處處，並造成渠道阻塞問題 。
13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：_____

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：Michael

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申請編號: A/TY/150

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簽名：

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0020

申請編號: A/TY/150

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申請編號: A/TY/150

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0022

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0023

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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：

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申請編號: A/TY/150

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申請編號: A/TY/150

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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地

擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

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簽名：劉靜文

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申請編號: A/TY/150

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申請編號: A/TY/150

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申請編號: A/TY/150

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申請編號: A/TY/150

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擬議混凝土配料廠

申請編號: A/TY/150

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申請編號: A/TY/150

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簽名：

☐Urgent ☐Return receipt ☐Expand Group ☐Restricted ☐Prevent Copy 50 to 84

From:
Sent: 2025-06-02 星期一 09:11:01
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: Re: A/TY/150 公众意见 (2)
Attachment: SHKHO0225060208440.pdf

On Mon, 2 Jun 2025 at 09:09, wrote:

你好,

附上有关 A/TY/150 的意见

谢谢!

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0050

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0051

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簽名：Mary

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：

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申請編號: A/TY/150

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0054

申請編號: A/TY/150

交通及安全問題:

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申請編號: A/TY/150

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申請編號: A/TY/150

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0057

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0058

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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0059

申請編號: A/TY/150

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申請編號: A/TY/150

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0061

申請編號: A/TY/150

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0062

申請編號: A/TY/150

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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：蔡先傑

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：Chung Chun San

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0064

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0066

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：

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0067

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地

0069

擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

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0070

申請編號: A/TY/150

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1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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申請編號: A/TY/150

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簽名：Yuen Kwok Bun

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0072

申請編號: A/TY/150

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11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
12. 田螺車於出廠閘前會洗車，但其污水連帶泥漿無可避免地會帶出街外，導致街道泥漿處處，並造成渠道阻塞問題 。
13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0073

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：

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0074

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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簽名：

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申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：

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0076

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：Fung

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0077

申請編號: A/TY/150

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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
6. 擔杆山路經常有重型車輛違例泊車，行人路兩旁泊滿重型車輛並其他車輛，甚至有田螺車泊上行人路！如再加上這間混凝土廠的大型車輛，行人要走在馬路上，是否要造成人命傷亡政府才會正視？！

海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
12. 田螺車於出廠閘前會洗車，但其污水連帶泥漿無可避免地會帶出街外，導致街道泥漿處處，並造成渠道阻塞問題 。
13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0079

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
6. 擔杆山路經常有重型車輛違例泊車，行人路兩旁泊滿重型車輛並其他車輛，甚至有田螺車泊上行人路！如再加上這間混凝土廠的大型車輛，行人要走在馬路上，是否要造成人命傷亡政府才會正視？！

海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0080

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
12. 田螺車於出廠閘前會洗車，但其污水連帶泥漿無可避免地會帶出街外，導致街道泥漿處處，並造成渠道阻塞問題 。
13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0081

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
6. 擔杆山路經常有重型車輛違例泊車，行人路兩旁泊滿重型車輛並其他車輛，甚至有田螺車泊上行人路！如再加上這間混凝土廠的大型車輛，行人要走在馬路上，是否要造成人命傷亡政府才會正視？！

海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：Luk Hia

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0082

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
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環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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簽名：Siu Suk Yee

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0083

申請編號: A/TY/150

交通及安全問題:

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0084

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簽名：

☐Urgent ☐Return receipt ☐Expand Group ☐Restricted ☐Prevent Copy 85 to 107

From:
Sent: 2025-06-02 星期一 09:11:46
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: Re: A/TY/150 公众意见 (3)
Attachment: SHKHO0225060208450.pdf

On Mon, 2 Jun 2025 at 09:11, wrote:

On Mon, 2 Jun 2025 at 09:09, wrote:

你好,

附上有关 A/TY/150 的意见

谢谢！

85

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

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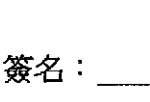
簽名： 

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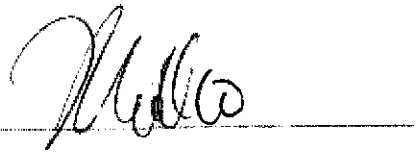
簽名： 

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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：李芝蕙

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：Fung

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申請編號: A/TY/150

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簽名：Luk Hia

97

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

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簽名：_____

98

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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王[illegible]

簽名：_____

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

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簽名：王

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

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簽名：

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申請編號: A/TY/150

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簽名：

102

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

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簽名：

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申請編號: A/TY/150

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簽名：_____

104

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：

105

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申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：

106

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：_____

107

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申請編號: A/TY/150

交通及安全問題:

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簽名：

☐Urgent ☐Return receipt ☐Expand Group ☐Restricted ☐Prevent Copy 108 to 164

From:
Sent: 2025-06-02 星期一 09:12:38
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: Re: A/TY/150 公众意见 (4)
Attachment: SHKHO0225060208500.pdf

On Mon, 2 Jun 2025 at 09:11, wrote:

On Mon, 2 Jun 2025 at 09:11, > wrote:

On Mon, 2 Jun 2025 at 09:09, wrote:

你好,

附上有关 A/TY/150 的意见

谢谢！

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0108

申請編號: A/TY/150

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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0109

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
6. 擔杆山路經常有重型車輛違例泊車，行人路兩旁泊滿重型車輛並其他車輛，甚至有田螺車泊上行人路！如再加上這間混凝土廠的大型車輛，行人要走在馬路上，是否要造成人命傷亡政府才會正視？！

海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

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0110

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

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0111

申請編號: A/TY/150

交通及安全問題:

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2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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0112

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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0113

申請編號: A/TY/150

交通及安全問題:

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環境健康問題:

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0114

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0115

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：劉穎文

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0116

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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0117

申請編號: A/TY/150

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0118

申請編號: A/TY/150

交通及安全問題:

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0119

申請編號: A/TY/150

交通及安全問題:

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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

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0120

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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0121

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
6. 擔杆山路經常有重型車輛違例泊車，行人路兩旁泊滿重型車輛並其他車輛，甚至有田螺車泊上行人路！如再加上這間混凝土廠的大型車輛，行人要走在馬路上，是否要造成人命傷亡政府才會正視？！

海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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環境健康問題:

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0122

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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0123

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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環境健康問題:

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0124

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

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11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0125

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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0126

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

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0127

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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0128

申請編號: A/TY/150

交通及安全問題:

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0129

申請編號: A/TY/150

交通及安全問題:

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環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
12. 田螺車於出廠閘前會洗車，但其污水連帶泥漿無可避免地會帶出街外，導致街道泥漿處處，並造成渠道阻塞問題 。
13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0130

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
6. 擔杆山路經常有重型車輛違例泊車，行人路兩旁泊滿重型車輛並其他車輛，甚至有田螺車泊上行人路！如再加上這間混凝土廠的大型車輛，行人要走在馬路上，是否要造成人命傷亡政府才會正視？！

海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

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簽名：

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0131

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：

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0132

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：Mary

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0133

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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環境健康問題:

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簽名：

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0134

申請編號: A/TY/150

交通及安全問題:

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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0135

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
6. 擔杆山路經常有重型車輛違例泊車，行人路兩旁泊滿重型車輛並其他車輛，甚至有田螺車泊上行人路！如再加上這間混凝土廠的大型車輛，行人要走在馬路上，是否要造成人命傷亡政府才會正視？！

海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

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0136

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

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0137

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

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11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

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0138

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
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環境健康問題:

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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

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0139

申請編號: A/TY/150

交通及安全問題:

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環境健康問題:

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簽名：劉[illegible]

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0140

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0141

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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簽名：Chung Chun San

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0142

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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0143

申請編號: A/TY/150

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簽名：

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0144

申請編號: A/TY/150

交通及安全問題:

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簽名：

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0145

申請編號: A/TY/150

交通及安全問題:

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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0146

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

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0147

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：Yuen Kwok Bun

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0148

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：

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0149

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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環境健康問題:

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簽名：

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0150

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
12. 田螺車於出廠閘前會洗車，但其污水連帶泥漿無可避免地會帶出街外，導致街道泥漿處處，並造成渠道阻塞問題 。
13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0151

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0152

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：Wong

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0153

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
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環境健康問題:

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簽名：

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0154

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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環境健康問題:

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簽名：

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0155

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
12. 田螺車於出廠閘前會洗車，但其污水連帶泥漿無可避免地會帶出街外，導致街道泥漿處處，並造成渠道阻塞問題 。
13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0156

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
6. 擔杆山路經常有重型車輛違例泊車，行人路兩旁泊滿重型車輛並其他車輛，甚至有田螺車泊上行人路！如再加上這間混凝土廠的大型車輛，行人要走在馬路上，是否要造成人命傷亡政府才會正視？！

海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
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簽名：Sin Suk Yee

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0157

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
10. 如果船隻擱淺而導致人命傷亡，並環境污染所帶來的損害，政府是否會負全責 ？

環境健康問題:

11. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，環保署有否審視並考慮此石屎廠對居民的影響？
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簽名：

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0158

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
9. 石料船經常會有沙石跌落海床，使海床深度變得更淺 。政府如何監管申請人長期要挖掘海床使其深度能容納泥船石料船之停泊安全？
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13. 混凝土所產生的空氣污染物使空氣污濁，經常有泥塵輕沙，隨風飄散，使空氣混濁，影響室內及室外空氣質素！使附近居民及工作者現有呼吸道疾病（如哮喘）的病況必定加劇！沙、石、混凝土內的有害的微細粒子在空氣中飄浮，當有大風吹時或落入居民或其他人的食物鏈中，將嚴重污染食物和食水，影響所有人的健康！

簽名：

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0159

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
8. 就算申請人提議挖掘海床深度亦會帶來海洋環境污染，釋放有害物質。
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簽名：

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0160

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
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簽名：

一人一信強烈反對青衣担杆山路青衣市地段第 14 號及第 15 號和毗連政府土地擬議混凝土配料廠

0161

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
3. 相隔石屎廠 200 米就已經是足球場、公園、居民的休憩設施，再 500 米就有學校屋村屋苑，此石屎廠只會增加附近一帶交通環境及安全問題 。
4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
5. 擔杆山路已有幾間石屎廠於迴旋處盡頭，經常有很多田螺車及重型車輛與擔杆山路進出，已經造成擔杆山路交通嚴重負荷 。再加上如此大生產力的石屎廠所帶來的累計負面連鎖反應，絕對會造成交通及行人道路安全嚴重問題！
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海路問題:

7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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簽名：

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0162

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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4. 該地段位置範圍有限，田螺車並其他重型車輛未必有足夠位置泊車等候。最終會堵塞至該廠房以外範圍的地方，影響行人使用，造成安全問題！
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7. 有關路段對出之海域海床深度相對較淺，絕對不可能容納停泊泥船石料船 ，只會增加海難的風險！
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0163

申請編號: A/TY/150

交通及安全問題:

1. 此石屎廠房申請有三條生產線，每小時最少有 100 部田螺車架次出入，運輸署有否審視如此大的交通流量絕對會導致附近一帶交通癱瘓 。
2. 政府如何監管石屎廠之車輛不會進入村內？只加添一個道路指示牌指示司機出廠後向右轉，根本就不能杜絕車輛進入村內 。
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0164

申請編號: A/TY/150

交通及安全問題:

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簽名：陳

東義造船業總商會有限公司

圖文傳真概要

Teiefax face Sheet

貴戶圖文傳真號碼 Add's telefax No.	2877 0245
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更新補充資料

東義造船業總商會有限公司

信件編號：No:10/25
致：城市規劃署
香港北角渣華道 333 號北角政府合署 15 樓

敬啟者：

反對擬議臨時混凝土配料廠事宜

收到廠戶來信，廠戶強烈反對新界青衣担杆山路青衣地段第 14 號及 15 號和毗連政府土地，擬議申請臨時混凝土配料廠 (申請編號 NO. A/TY/150)，本區廠戶及工友亦向本會強烈反對上述申請臨時混凝土配料廠。

船廠區廠房主要是維修船隻，如設有臨時混凝土配料廠，泥塵橫飛，會嚴重影响船隻油漆維修工程。現在担杆山路尾段已經設有一間水泥廠，泥頭車輛途經担杆山路，泥塵及沙石飛滿街道，本會亦多次投訴食環處清洗街道，嚴重影响本區工人健康及行車安全。

現時泥頭車輛在担杆山路來往，馬路車輛已經是飽和，對於交通流量亦難以負担，會做成交通擠塞問題，對於工人及車輛出入會做成危險。

對於在海路用航運上落混凝土配料，就算做足環保措施，亦難免會有泥塵排放及廢物流出海面，嚴重影响海上環境衛生，航道多了很多大型運輸混凝土配料船行駛，及有關船隻停留在海面，對於往來船隻造成危險，和對航道船隻流量造成負擔，容易發生海上意外。

本會向 貴署提出強烈反對，不要在船廠區增設混凝土配料廠，否則會嚴重影响本區廠戶維修工程問題、工人健康問題、馬路交通問題及海上航運問題。

如有查詢，請與本會秘書聯絡 :(鍾小姐

此致
城市規劃署

東義造船業總商會有限公司

副本送交：

葵青民政署/海事處/警務處/環境保護處/地政處/勞工處/運輸處/路政處/青馬管制區

立法會議員會易志明議員,GBS,JP

立法會議員會陳恒鑌議員,BBS,JP

立法會議員會陳穎欣議員

東北分區委員會主席羅競成先生 BBS,MH,JP

葵青區議員劉興華議員,BBS,MH,JP

葵青區議員林翠玲議員,MH,JP

葵青區議員潘志成議員,MH

葵青區議員盧婉婷議員,MH

葵青區議員蘇栢燦議員,MH

葵青區議員王聰穎議員,MH

葵青區議員莫綺琪議員

葵青區議員彭熠銘議員

東義造船業總商會有限公司

主席：

陳燦明

二零二五年六月二日

TUNG YEE SHIPBUILDING AND REPAIRING MERCHANTS GENERAL ASSOCIATION LIMITED 東義造船業總商會有限公司

廣達隆船廠(兄弟)有限公司

166

致：城市規劃委員會
香港北角渣華道 333 號北角政府合署 15 樓

敬啟者：

反對擬議臨時混凝土配料廠

新界青衣担杆山路青衣地段第 14 號及 15 號和毗連政府土地，擬議申請臨時混凝土配料廠，申請編號 NO. A/TY/150，本船廠強烈反對上述申請。

船廠區廠房主要是維修船隻，如設有臨時混凝土配料廠，嚴重影响本區船廠工程運作，泥頭車輛在担杆山路來往，會造成馬路車輛擠塞問題，混凝土會污染空氣，影响環境衛生，嚴重傷害工人健康，航道上多了很多大型運輸混凝土配料船行駛，對於海面往來船隻造成危險，容易發生海上意外。

此致

城市規劃委員會

廣達隆船廠(兄弟)有限公司

陳燦鏞

28/5/2025

RECEIVED
30 MAY 2025
Town Planning Board

副本送: 東義造船業總商會

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250530-162124-57692
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	30/05/2025 16:21:24
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	振华工程有限公司

意見詳情
Details of the Comment :

本公司反對改變用途建水泥廠。
反對理由為:
1) 萬順船廠離本公司很近,差不多2間船廠距離。本公司約有60多名員工上、下班、去公廁及中午出去吃飯是必經之路, 本身担杆山路兩旁上下班及中午時間段已停滿了泥頭車(應該是担杆山路另一間香港水泥廠), 更有泥頭車直接泊在行人路上, 已影響行人及車輛進出的安全, 如建成會造更加混亂, 嚴重威脅本公司員工的人身安全。
2) 如建水泥廠會直接造成周圍環境污染, 而且離民居太近。

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250602-090858-96155
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	02/06/2025 09:08:58
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Alex Chan

意見詳情
Details of the Comment :

反對有關申請，因為申請地點附近海域一帶海床根本不夠水深，物料船容易擱淺，引致海難！

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review	
參考編號 **Reference Number:**	250602-110707-86867
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	02/06/2025 11:07:07
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Li wing ling

意見詳情
Details of the Comment :

反對興建混凝土工廠, 因為環境污染

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就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250603-121502-81704
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	03/06/2025 12:15:02
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Freddie Chan

意見詳情
Details of the Comment :

strong object the setup of cement plant in the location for the reasons that :
1. land use should be marine services but not cement plant,
2. creat traffic problem in the area,
3. air pollution. damage the health of workers.

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就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250603-132325-62304
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	03/06/2025 13:23:25
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. SIMON LEUNG

意見詳情
Details of the Comment :

I strongly OBJECT to the proposed changes not only this changes will create air pollution to the public where the site is sitting next to the public park and close to the residential areas. Traffic at the area is at the worst situation as the leading road to the site always parked with so many cars blocking the traffic, adding more traffic with heavy trucks loading with sands is a real hassle to t he pedesttrian and car drivers.
In the past the site was denied to use as the storage area for the steel, I do not see any reason that should even consider to use as the sorage area for the sand bags now.

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250603-155437-53314
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	03/06/2025 15:54:37
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	小姐 Miss Chiou Suet Chung Penrietta

意見詳情
Details of the Comment :

反對：在青衣担杆山路青衣市地段第14號及第15號和毗連政府土地 擬議臨時混凝土配料廠（為期5年）
原因：(一）工作所需，一週六天從長發巴士總站 步行，經過青衣北岸公園至擔杆山路11-13地段，早上及中午經常見到田螺車停泊在擔杆山路邊，最嚴重時間沿路兩邊泊滿田螺車（近山邊田螺車停在行人路上），大部份田螺車停車沒有熄匙，排放死氣污染空氣，嚴重影響附近出入仕的健康。（二）英泥廠搬得越近青衣北岸公園，越多田螺車停在公園路邊，停車沒有熄匙，排放死氣，讓公園內在做運動的居民吸入更多癈氣。

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250603-155429-14285
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	03/06/2025 15:54:29
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Peter Leung

意見詳情
Details of the Comment :

反對在船廠用地範圍興建水泥廠及有關設施，違反土地用途的條件。並嚴重影響船廠工人健康及生計，亦造成交通阻塞，污染空氣。

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250603-170044-70026
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	03/06/2025 17:00:44
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. KM Leung

意見詳情
Details of the Comment :

本人反對興建臨時混凝土配料廠, 原因是製造大量環境污染, 沙塵滿天飛,危害健康
本人在此附近上班, 興建臨時混凝土配料廠會增加此段路之交通負擔, 增加大型車輛行駛會引至阻塞交通,大量混凝土車行駛, 引至空氣污濁, 直接影響本人之健康.
故本人強烈反對在担杆山路興建臨時混凝土配料廠,

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250604-150123-19783
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	04/06/2025 15:01:23
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. CHAN

意見詳情
Details of the Comment :

反對建混凝土配料廠，因混凝土車越來越多，影響交通安全。沙泥沖到船廠，影響生意及工人生計。

☐Urgent ☐Return receipt ☐Expand Group ☐Restricted ☐Prevent Copy 190

From:
Sent: 2025-06-05 星期四 16:53:17
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: Application No. A/TY/150 Comments

Comment of Objection to Application No. A/TY/150 (Proposed Temporary Concrete Batching Plant at Tam Kon Shan Road, Tsing Yi)

I strongly object to the proposed Section 16 application on the following grounds:

1. **Mismatch with Future Development Trends and Strategic Planning**
   The justification for this plant is premised on meeting "future construction demand," yet **Hong Kong's major upcoming developments are concentrated in the Northern Metropolis**—including San Tin Technopole, Kwu Tung North, and Hung Shui Kiu NDAs. These areas are geographically **far removed from Tsing Yi**, and any cross-district concrete supply would create **inefficient logistics**, unnecessary carbon emissions, and traffic burden. There is **no strategic rationale** for adding more plants in Tsing Yi when supply should be developed closer to future demand.

2. **Scale of Operations Not Consistent with 'Temporary' Use**
   The application seeks a "temporary" approval for 5 years, yet the proposed concrete batching plant is designed with a **massive capacity of 4,200 m³ per day**, 3 production lines, a 31m-tall structure, and extensive barge and truck logistics. This is clearly **not a stopgap or interim facility**, but a **large-scale industrial operation** disguised under the label of "temporary use." The scale and permanence of the infrastructure suggest the applicant's true intent is long-term occupation and expansion—contrary to the planning principle of flexible, reversible land use during temporary tenure.

In summary, this application contradicts the **territory's strategic planning direction**, and seeks to install a de facto **permanent heavy industrial facility under the guise of a temporary one**. It should therefore be **rejected outright**.

Regards,

Zan

中華人民共和國香港特別行政區
Hong Kong Special Administrative Region of the People's Republic of China
立法會議員易志明 金紫荊星章，太平紳士
Hon. Frankie Yick Chi-Ming, Legislative Councillor GBS, JP

193 立

Ref: TSDiv-035-TS-010-Fo86

葉子季先生，JP
規劃署署長
香港渣華道333號
北角政府合署17樓

致： 規劃署署長
葉子季先生，JP

反對於青衣担杆山路青衣地段第14號及第15號設置臨時混凝土配料廠
（規劃申請編號 A/TY/150）

本人近日接獲造船業總商會就上述事宜之來函，現致函轉達，希望 署方能予以考慮。

據該總商會所述，青衣担杆山路青衣地段設有多個維修船隻的廠房，如在區內設混凝土配料廠，其造成的空氣污染，將增加鄰近船廠工人的健康風險；另外，混凝土配料廠及其車輛出入都會造成塵土飄揚，影響船舶機件維修及油漆質量；再者，現時鄰近的一家水泥廠，已增加區內的交通負荷，倘若再增設一混凝土配料廠，只會加劇區內交通擠塞的問題，因此，希望 署方能反對有關建議。

對於商會表示擔心混凝土廠在生產過程中會產生大量粉塵，造成空氣污染，對區內船廠工人的健康及設備造成影響是可以理解，因過去有不少涉及空氣污染的投訴是由混凝土廠所產生。再者，現時建議的地點附近有青衣東北公園供市民休憩之用，無疑對市民的健康造成風險。事實上，除空氣外，混凝土廠產生的污染物亦會污染附近水域。另外，現有的水泥廠其運輸活動已不時令區內的道路擠塞，若再增設混凝土廠，其需要頻繁運輸原材料（如水泥、砂石），將令區內道路不勝負荷，並影響鄰近造船廠的物料運輸。

考慮到有關申請對區內環境、鄰近作業員工及居民健康，甚至造船業的影響，希望 署方否決於青衣担杆山路青衣地段第 14 號及第 15 號設置臨時混凝土配料廠。謝謝！

易志明

易志明 謹啓

2025年6月3日

附件

193

東義造船業總商會有限公司

信件編號：No:10/25
致：城市規劃署
香港北角渣華道 333 號北角政府合署 15 樓

敬啟者：

反對擬議臨時混凝土配料廠事宜

收到廠戶來信，廠戶強烈反對新界青衣担杆山路青衣地段第 14 號及 15 號和毗連政府土地，擬議申請臨時混凝土配料廠 (申請編號 NO. A/TY/150)，本區廠戶及工友亦向本會強烈反對上述申請臨時混凝土配料廠。

船廠區廠房主要是維修船隻，如設有臨時混凝土配料廠，泥塵橫飛，會嚴重影响船隻油漆維修工程。現在担杆山路尾段已經設有一間水泥廠，泥頭車輛途經担杆山路，泥塵及沙石飛滿街道，本會亦多次投訴食環處清洗街道，嚴重影响本區工人健康及行車安全。

現時泥頭車輛在担杆山路來往，馬路車輛已經是飽和，對於交通流量亦難以負担，會做成交通擠塞問題，對於工人及車輛出入會做成危險。

對於在海路用航運上落混凝土配料，就算做足環保措施，亦難免會有泥塵排放及廢物流出海面，嚴重影响海上環境衛生，航道多了很多大型運輸混凝土配料船行駛，及有關船隻停留在海面，對於往來船隻造成危險，和對航道船隻流量造成負擔，容易發生海上意外。

本會向 貴署提出強烈反對，不要在船廠區增設混凝土配料廠，否則會嚴重影响本區廠戶維修工程問題、工人健康問題、馬路交通問題及海上航運問題。

如有查詢，請與本會秘書聯絡 :(鍾小姐

此致
城市規劃署

193

東義造船業總商會有限公司

副本送交：

葵青民政署/海事處/警務處/環境保護處/地政處/勞工處/運輸處/路政處/青馬管制區

立法會議員會易志明議員,GBS,JP

立法會議員會陳恒鑌議員,BBS,JP

立法會議員會陳穎欣議員

東北分區委員會主席羅競成先生 BBS,MH,JP

葵青區議員劉興華議員,BBS,MH,JP

葵青區議員林翠玲議員,MH,JP

葵青區議員蘇栢燦議員,MH

葵青區議員王聰穎議員,MH

葵青區議員彭熠銘議員

東義造船業總商會有限公司

主席

陳燦明

二零一五年五月二十六日

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250606-102957-24574
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	06/06/2025 10:29:57
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Jerry Wong

意見詳情
Details of the Comment :

Objection to the application due to traffic and environmental concerns!

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250606-103824-69167
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	06/06/2025 10:38:24
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Donald Ma

意見詳情
Details of the Comment :

反對！混凝土廠所產生的英泥水會使渠道淤塞，再加上旁邊的混凝土廠，渠務處及規劃處有否研究渠道規劃的影響？

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就規劃申請/覆核提出意見 Making Comment on Planning Application / Review	
參考編號 **Reference Number:**	250606-103612-77757
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	06/06/2025 10:36:12
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Chu Chi Fung

意見詳情
Details of the Comment :

Objection to the proposed concrete batching plant due to severe traffic impact and environmental concern to the neighborhood.

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250606-103153-50644
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	06/06/2025 10:31:53
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Tse Chung Yin

意見詳情
Details of the Comment :

強烈反對! 影響交通, 公眾健康!

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250606-134946-83902
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	06/06/2025 13:49:46
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Anson CHI

意見詳情
Details of the Comment :

本區擔桿山路段已有興建混凝土廠，平日車輛來往泊車情況造成車道變窄，經常出現車輛壅塞，如再建混凝土配料廠，定會增加大型車輛行駛，進一步加劇壅塞情況。
混凝土廠及車輛所造成的環境污染、空氣污染、噪音污染、水污染、廢棄物污染，對於鄰近住宅區絕對不適合興建及營運。此外，大型車輛盲區大、轉彎半徑大，在學校、市場、住宅區附近通行，嚴重威脅行人、自行車、摩托車安全，尤其兒童和老人。
此申請項目將對本區生活環境和社區帶來嚴重影響，包括環境汙染、交通堵塞、空氣質量下降，影響民生及區內居民生活質素，因此本廠戶強烈反對。

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250606-154525-05666
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	06/06/2025 15:45:25
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	女士 Ms. 許太

意見詳情
Details of the Comment :

本人為土生土長青衣居民, 現看到城規會申請編號A/TY/150 提出反對意見。 因青衣島內已有水泥廠、混凝土廠、油庫、香港化學廢物處理中心, 以上全是污染性及危險性高產業。 現再增加一間混凝土配料廠, 位置離民居、學校及東北公園太近, 這會直接及間接影響人民健康, 重型車量增加相對廢氣排放增加。 本人更不希望像油塘事件在青衣重演。

☐Urgent ☐Return receipt ☐Expand Group ☐Restricted ☐Prevent Copy 204

From:
Sent: 2025-06-06 星期五 10:02:31
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: Comments to Planning Application No. A/TY/150

I respectfully submit the following objection to the above-mentioned Section 16 application:

Saturation of Concrete Batching Plants in the Area
There is already a **concentration of concrete batching plants** operating within close proximity of the subject site, particularly along Tam Kon Shan Road, Sai Tso Wan Road, and Tsing Tim Street. These existing facilities are fully capable of meeting the projected demand for ready-mixed concrete in the Tsing Yi area and beyond. The addition of yet another plant would result in **over-provision**, intensifying industrial activity without corresponding need, leading to unnecessary environmental and logistical burdens on the district

Nearly Half the Site Falls Outside the Statutory Outline Zoning Plan
According to the planning documents, **approximately 48% of the application site falls outside the boundary of any statutory OZP**. This presents a serious planning irregularity. There is no established zoning intention, planning control, or designated permissible uses for this unzoned area. Including such a large unregulated portion within a statutory planning application undermines the integrity of the OZP framework and **sets a dangerous precedent** that may encourage future misuse or circumvention of statutory planning mechanisms.

Proximity to Public Recreation Area – Tsing Yi Northeast Park
The proposed development site is located **approximately 200 metres from Tsing Yi Northeast Park**, which includes one of Hong Kong's best full-sized football pitches and serves as a major recreational and sporting hub for the local community. Allowing a high-capacity concrete batching plant—with heavy vehicular traffic, air and noise emissions, and marine operations—to operate within such proximity would be **detrimental to the park environment** and **diminish the public's enjoyment and safe use of this valued open space**.

C Chan

☐Urgent ☐Return receipt ☐Expand Group ☐Restricted ☐Prevent Copy 205

From:
Sent: 2025-06-06 星期五 13:00:00
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: Concerns and comments on No. A/TY/150 Planning App for Tsing Yi concrete plant

Dear Sir/Madam,

I wish to raise serious concerns and object to the proposed development on the following grounds:

1. **Heavy Reliance on Marine Delivery** Poses Safety and Operational Risks in Major Waterway
   The application claims that raw materials will be delivered by marine traffic to reduce road congestion. However, the proposed site is located directly adjacent to Rambler Channel, a strategically important and busy marine corridor. With an output capacity of 4,200 m^3/day, the number of barge trips and required vessel mooring will be substantial. The proposal lacks clarity on vessel queuing, berthing schedules, and standby arrangements, which introduces serious navigational safety and congestion risks to nearby shipyards and marine operators. *This concern was one of the reasons a similar application (A/TY/134) was rejected previously.*

2. **Contradictory Logistics**: Either Unaccounted Vessel Congestion or Understated Road Traffic
   If, as suggested, the plant is to rely primarily on marine delivery for aggregates, cement, PFA, and GGBS, this implies that up to four vessels may be operating simultaneously or in quick succession. If this is not the case, it implies that a portion of the raw materials will arrive by road transport, which is not adequately reflected in the Traffic Impact Assessment. This inconsistency raises questions about the accuracy and reliability of the supporting technical assessments. Either scenario presents unacceptable risks: marine over-congestion or underestimated traffic impact.

In light of the unclear logistics, government land usage without public accountability, and marine safety implications, I urge the Town Planning Board to exercise caution and reject this application.

Yours Sincerely,

Mr. Chan

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From:
Sent: 2025-06-06 星期五 10:23:35
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: Application No. A/TY/150 Comments

Comment of Objection to Application No. A/TY/150 (Proposed Temporary Concrete Batching Plant at Tam Kon Shan Road, Tsing Yi)

I object to the proposed application on the basis that it is a **repackaged version of a previously rejected proposal (Application No. A/TY/134)**, with **no material or compelling change in the technological setup, surrounding planning context, or market demand** to warrant reconsideration.

1. **Same Site, Same Use, Same Issues – No Justification for Reopening a Rejected Case**
   The current application is **virtually identical in land use and purpose** to the one rejected in 2018 (A/TY/134), which was turned down by both the Metro Planning Committee and the Town Planning Board due to **traffic management and marine safety concerns**. While the applicant claims to have revised certain technical aspects (e.g. using mooring and anchoring instead of a slipway), the **core proposal remains unchanged**: an intensive concrete batching operation (5x increase from 700 to 4,200 m3/hour) in a heavily trafficked marine and industrial corridor, adjacent to sensitive uses. No meaningful technological breakthroughs or structural design changes have been presented that would address the fundamental reasons for the earlier rejection.

2. **No Notable Technological Advancement to Justify Reassessment**
   The current proposal vaguely refers to "low-carbon technologies," "dust insulation," and "electric mixers," but these are **generic environmental claims** and not **enforceable technological commitments**. There is **no evidence** of any proprietary system, innovative plant design, or performance guarantee that would materially reduce the environmental or logistical footprint of the proposed plant. Without demonstrable, quantifiable improvements the application **does not reflect any real technological advancement** from what was previously proposed.

3. **No Substantial Change in Planning Context of Tsing Yi**
   Since 2018, **Tsing Yi's planning landscape has not changed** in a way that makes it more suitable for another large-scale CBP. The industrial environment remains **dense**, the road network remains **narrow and congested**, and the nearby residential developments, parks, and recreational facilities (such as Tsing Yi Northeast Park) remain **just as vulnerable** to pollution, noise, and disruption. If anything, the rising importance of **environmental health and liveability in urban planning** should make such developments **less acceptable today than in 2018**, not more.

4. **Market Demand Does Not Justify a New Plant in Tsing Yi**
   The applicant argues that rising demand for ready-mixed concrete supports the need for this facility. However, this demand is **geographically concentrated in the Northern Metropolis and New Territories**, far from Tsing Yi. There is **no shortage of batching capacity** in the region, particularly along the Kwai Chung-Tsing Yi corridor, which already houses several CBPs. Without any **localized supply deficit**, the economic justification for this specific site is weak and unsubstantiated.

5. **Undermining the decisions made by the TPB**
   Reversing a prior rejection on essentially the same facts undermines **policy consistency**,

weakens the credibility of prior Board decisions, and sends a signal to developers that **reapplication with minor cosmetic changes** is a viable route to approval. This sets a dangerous precedent and may **open the floodgates for planning creep**, whereby previous land use decisions are quietly overturned over time without clear justification.

結論而言，此次申請並非一項實質創新的提案，而是對先前已被否決的工業項目進行的再次嘗試。該案並未提出任何顯著的創新、規劃重劃或基礎建設升級，無法合理支持重新審議此案的必要性。2018 年該案被否決的理由在當前政策環境下依然成立，甚至更加迫切。因此，懇請城規會維持先前的立場，駁回申請編號 A/TY/150。

Regards,

Mr. J.Chan

就城規申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250522-171753-13464
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	22/05/2025 17:17:53
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	小姐 Miss Zhu Hong Ying

意見詳情
Details of the Comment :

1. Its not marine repairing services which contradicts original land use purposes.
2. Sand & cement dust make air pollution.
3. Its make traffice congestion.

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250527-155305-23096
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	27/05/2025 15:53:05
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	小姐 Miss Daisy Hsu

意見詳情
Details of the Comment :

1. 環境影響：混凝土配料廠可能對空氣質量和周邊環境及市民健康造成負面影響。
2. 噪音問題：施工及營運期間可能產生的噪音，對附近民居的影響。
3. 交通擠塞：混凝土配料廠的營運必定會大幅度增加區內交通流量和嚴重惡化交通擠塞問題，重型車輛（田螺車）頻繁行駛可能會導致工業區路面情況惡化，更有可能增加交通事故風險。

就規劃申請/覆核提意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250528-092106-00210
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	28/05/2025 09:21:06
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Chan Kok Wing

意見詳情
Details of the Comment :

1. 環境影響：混凝土配料廠可能對空氣質量和周邊環境及市民健康造成負面影響。
2. 噪音問題：施工及營運期間可能產生的噪音，對附近民居的影響。
3. 交通擠塞：混凝土配料廠的營運必定會大幅度增加區內交通流量和嚴重惡化交通擠塞問題，重型車輛（田螺車）頻繁行駛可能會導致工業區路面情況惡化，更有可能增加交通事故風險。

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250528-145018-32593
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	28/05/2025 14:50:18
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Mak Chuk Tin

意見詳情
Details of the Comment :

混凝土配料廠的營運必定會大幅度增加區內交通流量和嚴重惡化交通擠塞問題，重型車輛頻繁行駛可能會導致路面情況惡化，更有可能增加交通事故風險。

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就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250528-144735-33289
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	28/05/2025 14:47:35
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Khong Hing Leung

意見詳情
Details of the Comment :

混凝土配料廠可能對空氣質量及市民健康造成負面影響;
施工及營運期間可能產生的噪音，對附近民居的影響。

☐Urgent ☐Return receipt ☐Expand Group ☐Restricted ☐Prevent Copy 191

From:
Sent: 2025-06-05 星期四 17:07:14
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: Comments - A/TY/150 Proposed Temporary Concrete Batching Plant at Tam Kon Shan Road, Tsing Yi

Dear Sir/Madam

Involvement of Government Land Raises Governance and Fairness Concerns
The application includes over 1,000 m² of Government Land and references a modification of an existing Short Term Tenancy to support plant operations. It is inappropriate to allow private commercial gain—especially from an intensive industrial activity like concrete batching—on government land without a transparent and competitive land allocation process. This risks setting a precedent that bypasses proper tendering mechanisms and undermines public trust in land administration.

Yours Sincerely,
Ms. Kwok

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From:
Sent: 2025-06-05 星期四 16:56:10
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: Comment of Objection to Application No. A/TY/150 (Proposed Temporary Concrete Batching Plant at Tam Kon Shan Road, Tsing Yi)

Dear Sir

Lessons from the Yau Tong Concrete Batching Plant Controversy
The situation in Yau Tong, where concrete batching plants operated adjacent to residential areas, became a well-known urban planning failure. It took substantial public pressure, media scrutiny, and government intervention to cease those operations due to persistent issues with dust, noise, heavy vehicle traffic, and incompatibility with surrounding uses. Given this precedent, it is alarming and short-sighted to allow another high-capacity batching plant to be established in a densely developed area like Tsing Yi, risking similar public backlash and long-term disruption. The government should not repeat the same mistake by approving this application.

Best regards
Ms. So

發送自我的手機

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就規劃申請/覆核提出意見 Making Comment on Planning Application / Review	
參考編號 **Reference Number:**	250606-103518-68822
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	06/06/2025 10:35:18
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Lee Kwan Tai

意見詳情
Details of the Comment :

石屎廠灰塵影響船廠噴油運作!

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	250606-145357-15968
提交限期 **Deadline for submission:**	06/06/2025
提交日期及時間 **Date and time of submission:**	06/06/2025 14:53:57
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TY/150
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Lo Cheuk Hong

意見詳情
Details of the Comment :

本人認為興建混凝土廠會影響青衣東北公園景觀及空氣質素，令鄰近青衣居民的生活指數降低，影響生活。此外，混凝土廠會影響空氣質素，令到青泰苑及長安邨的居民有重大影響。

Appendix V of
MPC Paper No. A/TY/150

Recommended Advisory Clauses

(a) to note the comment of DLO/TW&KT, LandsD that:

(i) the applicant may need to note that the Lots do not abut Tam Kon Shan Road due to the level difference of drainage channel. The ingress/egress arrangement over the adjoining GL and footpath shall be subject to the comment from TD and the Highways Department (HyD). In addition, there is an existing drainage box-culvert within STT 538 K&T. As such, the Drainage Services Department (DSD) should be consulted in due course;

(ii) the applicant may need to note that if the planning approval is given, the lot owner/tenant should apply to LandsD for a temporary waiver for the amendments of the concerned lease conditions of TYTL Nos. 14 and 15 and a modification of STT 538 K&T subject to the support obtained from relevant policy bureau(x). The applications will be considered by LandsD acting in the capacity as landlord at its sole discretion. LandsD will consult the relevant policy bureau(x) whether policy support will be given in processing the application. There is no guarantee that any such application will be approved by the Government. Any approval if given will be subject to such terms and conditions including, inter alia, payment of waiver fee/rental and administration fee as may be approved by the Government; and

(iii) the applicant may need to note that LandsD reserves comment on the proposed schematic design, which would only be examined in detail during the building plan submission stage upon completion of the said applications of waiver and modification of STT. There is no guarantee that the schematic design presented in the subject application will be acceptable under lease if it is so reflected in future building plan submission(s).

(b) to note the comment of CHE/NTW, HyD that:

(iv) the applicant may need to construct a proper vehicular access from Tam Kon Shan Road to the site and reinstate the road to the satisfaction of HyD after use; and

(v) adequate drainage measures shall be provided to prevent surface water running from the application site to the nearby public roads and drains.

(c) to note the comment of DEP that:

the applicant is advised that the proposed CBP will need to be operated with a Specified Process Licence (SPL) complying with requirements as stipulated in Best Practicable Means for Specified Process – Cement Works (Concrete Batching Plant) BPM 3/2 (2025) (BPM);

(d) to note the comment of CE/Construction of WSD that:

(i) the applicant may need to extend his/her inside services to the nearest Government water mains for connection and seek approval from the Water Authority as necessary; and

(ii) resolve any land matter (such as private lots and STT) associated with the provision of water supply and shall be responsible for the installation, operation and maintenance of inside services within the Site to WSD's standards.

(e) to note the comment of D of FS that:

detailed fire services requirements will be formulated upon receipt of formal submission of STT/STW, general building plans or referral of application via relevant licensing authority as appropriate. Furthermore the EVA provision in the captioned work shall comply with the standard as stipulated in Section 6, Part D of the Code of Practice for Fire Safety in Buildings 2011, which is administered by BD.

(f) to note the comment of DEMS that:

(i) the applicant should approach the electricity supplier (i.e. CLP Power) for the requisition of cable plans (and overhead line alignment drawings, where applicable) to find out whether there is any underground cable and/or submarine cable within and/or in the vicinity of the concerned site;

(ii) to observe the Electricity Supply Lines (Protection) Regulation and the "Code of Practice on Working near Electricity Supply Lines" established under the Regulation when carrying out works in the vicinity of the electricity supply lines; and

(iii) to enquire the electricity supplier for the required precautionary measures for work near submarines cables and to execute them during design and construction.

(g) to note the comment of D of Marine that:

(i) it is noted that the proposed dredging of the seabed to a depth of 3.8 metres, the applicant should be reminded that all statutory requirements must be followed;

(ii) the applicant should be reminded to liaise with the Lands Department to arrange a "blue area" to allow sufficient space for safe berthing;

(iii) the applicant should be reminded that their barging operations must not impede the existing private mooring (PM) owner(s) (including PM Nos. 1322 and 1381) from using their moorings. Consent from the nearby PM owner(s) must be obtained for the barging operation; and

(iv) the applicant should be reminded to introduce new marine traffic, including 50-meter-long cement carriers to the concerned waters. Given the relatively strong tidal currents, the restricted manoeuvring space, and the presence of various nearby private mooring buoys and piers accommodating different types of vessels with frequent maritime activities, Marine Traffic Impact Assessment (MTIA) shall be conduct to detail the marine operations in both construction and operational stage, assess impact to existing marine traffic and finally to

recommend mitigation measure to the risk. The current BOP for the construction stage does not provide details regarding the duration of these construction-related activities or the number of vessels involved. Addressing these aspects will be critical to ensuring the safe and efficient management of marine traffic during the project's implementation.

(h) to note the comment of CBS/NTW, BD that:

(i) it is noted that the temporary concrete batching plant is proposed in the application. Before any new building works (including containers/ open sheds as temporary buildings, demolition and land filing, etc.) are to be carried out on application site, prior approval and consent of the BA should be obtained, otherwise they are unauthorized building works (UBW) under the Building Ordinance (BO). An Authorized Person should be appointed as the coordinator for the proposed building works in accordance with the BO;

(ii) the site abuts on a specified street (Tam Kon Shan Road) of not less than 4.5m wide. Its permitted development intensity shall be determined under the First Schedule of the Building Regulations (B(P)R) at the building plan submission stage;

(iii) if the structures are erected on leased land without the approval of the BA, they are UBW under the BO and should not be designated for any proposed use under the captioned application; and

(iv) for UBW erected on leased land, enforcement action may be taken by the Building Department to effect their removal in accordance with the prevailing enforcement policy against UBW as and when necessary. The granting of any planning approval should not be constructed as an acceptance of any existing building works or UBW on the application site under the BO.

(i) to note the comment of STL that:

(i) the applicant should be reminded that shipyards in Hong Kong are essential for providing timely and effective repair and maintenance services for local vessels. These services are crucial for port operations, marine safety, and sustainable development of the marine sector.

(j) to note the comment of DFEH that:

(i) if any FEHD facility is affected by the development, FEHD’s prior consent must be obtained. Reprovisioning of the affected facilities by the project proponent up to the satisfaction of FEHD may be required; and

(ii) the proposed work and operation should be no encroachment on the public space and no environmental nuisance should be generated to the surroundings. Its state should not be a nuisance or injurious or dangerous to health and surrounding environment. For any waste generated from such activity/operation, the applicant should arrange disposal properly at their own expenses.

(k) to note the comment of CE/FM, CEDD that:

(i) in view of minimizing environmental impacts from the proposed dredging in seafront area in front of the application site to provide sufficient water depth for vessels, the applicant is advised to retaining the sediment in place as much as possible while reviewing their design in future; and

(ii) should disposal of dredged material into sediment disposal facilities be necessary, the rationale/justification for sediment removal must be submitted to the Secretary of the Marine Fill Committee for agreement as early as possible, preferably during the Environmental Impact Assessment stage.

(l) to note the comment of CE/PW of CEDD that

(i) the applicant should be reminded that the structural integrity and stability of existing marine structure/seawall must not be compromised during the construction or operation of the proposed works; and

(ii) the applicant will be fully responsible for repairing the damage at their own costs, should any damage to these structures occur as a result of the works or related activities.

(m) to note the comment of HO, DEVB that

(i) The Site falls within the harbourfront area under the purview of Harbourfront Commission's Task Force on Harbourfront Developments in Kowloon, Tsuen Wan and Kwai Tsing (KTF). The gist of the application was circulated to KTF Members for their information and comments. By the deadline, HO of DEVB has not received any comments from KTF Members, nor specific request from KTF Members on discussing the application concerned. That said, the applicant should, as far as practicable, take into account the Harbour Planning Principles and Guidelines, among others, when taking forward the proposed development.