Appendix 5

ENVIRONMENTAL ASSESSMENT

ARUP

The Hong Kong Jockey Club

Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Environmental Assessment Report

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Job number 304521

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1. Introduction

1.1 Project Background

1.1.1.1 This Environmental Assessment is prepared in support of the Section 16 ("S16") Planning Application to allow for the development of a Public Riding School with ancillary facilities (e.g. utility trench) (collectively as the "PRS") at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, New Territories ("TKOL II/III") for the HKJC Public Riding Schools Limited (the "Applicant"). The Application Site comprises of three (3) existing platforms and land required for the provision of ancillary utility trench connecting to the three (3) platforms (collectively as the "Application Site") within TKOL II/III. The PRS aligns with the Government's policy objectives in fostering more public participation in the community through wider visibility and popularity of horse riding, supporting equestrian as an elite sport, and maintaining Hong Kong as a centre for major international sports events.

1.1.1.2 The Application Site is predominately zoned "Open Space" ("O") on the Approved Tseung Kwan O Outline Zoning Plan No. S/TKO/32 ("Approved OZP"), whilst a strip of area at the north is zoned "Green Belt" ("GB") and a minor portion abutting Chun Sing Street is zoned "Other Specified Uses" annotated "Industrial Estate" ("OU(Industrial Estate)") on the Approved OZP. The PRS with ancillary facilities ('Horse Riding School' subsumed under 'Place of Recreation, Sports or Culture' use) is a Column 2 use under the "O", "GB" and "OU(Industrial Estate)" zones that may be permitted with or without conditions on Application under S16 of the Town Planning Ordinance ("TPO"). There are no plot ratio ("PR"), building height ("BH"), and site coverage ("SC") restrictions imposed on the "O", "GB" and "OU(Industrial Estate)" zones of the Approved OZP. While a portion of TKOL II/III falls within the Clear Water Bay Country Park ("CWBCP"), the Application Site does not involve any areas falling within the Country Park Boundary.

1.1.1.3 The PRS is located on three (3) platforms, namely the Lower Platform (i.e. Reception and Hospitality Lounges) (approx.+6.0mPD), Middle Platform (i.e. Pony Paddock & Pavilion I)(approx. +40.0mPD) and Upper Platform (i.e. Horse Paddock & Pavilion II) (approx.140.0mPD), with a proposed total GFA of approx. 9,000m² and a proposed building height of 4.8m to 7.7m. An ancillary utility trench connecting to the three (3) platforms is also proposed to accommodate various essential utilities services in support of the PRS operations.

1.2 Objectives and Scopes of the EA Report

1.2.1.1 The objectives and scopes of the Environmental Assessment Report (EA Report) are as follows:

- Carry out an environmental assessment to evaluate the potential environmental impacts during construction and operation of the PRS and propose control measures where necessary; and
- Support the planning application for the Application Site.

1.3 Structure of the EA Report

1.3.1.1 The structure of this EA Report is as follows:

Table 1.1 Structure of this EA Report

Section	Title	Aims
1	Introduction	To give a general introduction of the Project and EA Report.
2	Project Description	To describe the project elements and major activities.
3	Air Quality	To identify and assess the potential air quality impacts of the Project, and propose control measures to be implemented during both construction phase and operational phase of the Project.
4	Noise	To identify and assess the potential noise impacts of the Project, and propose control measures to be implemented during both construction phase and operational phase of the Project.
5	Water Quality	To identify and assess the potential water quality impacts of the Project, and propose control measures to be implemented during both construction phase and operational phase of the Project.
6	Waste Management Implications	To identify and assess the potential waste management implications of the Project, and propose control measures to be implemented during both construction phase and operational phase of the Project.
7	Land Contamination	To identify and assess the potential land contamination of the Project, and propose control measures to be implemented during both construction phase and operational phase of the Project.
8	Ecology	To identify and assess the potential ecological impacts of the Project, and propose control measures to be implemented during both construction phase and operational phase of the Project.
9	Landscape and Visual	To identify and assess the potential landscape and visual impacts of the Project, and propose control measures to be implemented during both construction phase and operational phase of the Project.
10	Landfill Gas Hazard	To identify and assess the potential landfill gas hazard of the Project, and propose control measures to be implemented during both construction phase and operational phase of the Project.
11	Sewerage Impact Assessment	To identify and assess the potential sewerage impact assessment of the Project, and propose control measures to be implemented during both construction phase and operational phase of the Project.
12	Review on EIAO Implication	To review if there are any implications on EIAO and ascertain “no material change” and no new DP due to the Project.

2. Project Description

2.1 Project Location

2.1.1.1 The Project is located at the restored landfill site (TKOL II/III) in the Tseung Kwan O, with the Clear Water Bay Country Park (CWBCP) to the east and Tseung Kwan O InnoPark (previously known as Tseung Kwan O Industrial Estate) and residential developments (e.g. Le Prestige Lohas Park) to the west, as shown as "Application Site" in **Figure 2.1**.

2.2 Project Description of the Project

2.2.1.1 The Project is a Public Riding School. Its tentative master layout plan is given in **Appendix 2.1**, which will be subject to further refinement during detailed design stage. The environmental implication due to the further refinement will be reviewed in the Environmental Review during detailed design stage.

2.2.1.2 The Project consists of three flat platforms (namely Upper Platform, Middle Platform and Lower Platform) and ancillary facilities (e.g. utility trench and Electrical and Mechanical), as shown as "Application Site" in **Figure 2.1**.

2.2.2 Key Project Elements of the Project

2.2.2.1 The key elements of the Project are listed in **Table 2.1** with brief description, and illustrated in **Appendix 2.1**:

Table 2.1 Brief Description of the Operation of the Key Elements of the Project

Key Element	Brief Description
Stable	Stable is designed to house horses in individual stalls, providing them with a safe and comfortable space to rest and sleep. Each stall is equipped with facilities for fresh water and feed. Hay is also provided on the ground. Besides, wash areas are provided to clean the horse after lessons or training. Tentatively, the proposed stable at Middle Platform and Upper Platform will accommodate not more than 100 horses.
Arena	Arena is paddock which is utilized for riding lessons or equestrian training. It is relatively spacious to allow a greater variety of activities. It requires specialized footing materials and construction for providing optimal floor conditions for professional training. Apart from the arena, there are other supporting facilities to be in vicinity of the arena area, including arena equipment storage area, parking space for maintenance vehicles, spectator stands, judge booth and/or instructor's shelter.
Lungeing pen	Lungeing pen is utilized to warm-up horses prior to any lessons or training session. The horse will move in a circle guided by the mechanical arms.
Horse walker	Horse walker is utilized not only for daily exercise but cooling down after lessons or training session. It allows each horse to walk freely within the separation gates and without handlers.
Spelling Yard	Spelling Yard is a grazing area which is a designated field where horses could roam and feed on grass. It is necessary to ensure there are no toxins or contaminants, which could adversely affect the horses.
Farrier rooms	Farrier rooms are utilized for regular hoof care (e.g. trimming of the hooves, fitted for new shoes and the resetting of an existing shoe, etc.). Flame will be used to heat up the shoes to desire temperature, which will not induce any industrial emission.

Key Element	Brief Description
Veterinary rooms	Veterinary rooms are utilized for the examination by veterinarians for the regular veterinary care for horses.
Administration buildings, training facilities and auxiliary facilities	Administration buildings, namely "Welcome Hub", "Pony Paddock & Pavilion I" and "Horse Paddock & Pavilion II", are for daily administration and management of the PRS. Other training facilities, such as lecture room and lounge, and auxiliary facilities (e.g. toilets, changing room and rest area) are also provided.
Waste management and storage facilities	Waste management and storage facilities are provided for manure handling and refuse storage. Waste generated from the operation of the PRS will be properly collected and stored prior to disposal.
Storage facilities	Storage facilities are provided to store various equipment and resources (e.g. feed, hay and bedding etc.) required for the PRS operation.
Coach Duty Rooms	Coach Duty Rooms are staff quarters utilized for staff of the PRS stay overnight to provide full-time support to the horses at the stable.
Staff facilities	Staff facilities, such as toilets, changing and shower rooms, breakrooms and rest room, etc., are provided.
Electrical and Mechanical (E&M) block & ancillary utilities	E&M and ancillary utilities, such as fresh and flushing water supply, electricity supply, power supply and fire services, are provided to support the daily PRS operation.
Ancillary parking	Ancillary parking spaces are provided for visitors and staff, as well as the internal transportation within the PRS.
Entry road	Entry road is provided for visitors and staff to enter the PRS, connecting to the access road of the restored landfill (i.e. TKOL II/III).

2.2.2.2 Based on the latest development parameter, the total Gross Floor Area (GFA) is approximately 9,000m², with building height of 4.8m to 7.7m.

2.2.2.3 In addition, the Project would be granted by the Government the right-of-way of the Access Road within the TKOL II/III, to support the access to the three platforms.

2.2.3 Key Construction Works of the Project

2.2.3.1 All building structures of the PRS will be located outside the boundary of CWBCP and no construction works nor ground investigation works would be carried out within CWBCP. The major construction works and construction methods are listed in **Table 2.2**.

Table 2.2 Summary of the Major Construction Works and Construction Method for the Project

Major Construction Works	Construction Method
Site clearance	Obstacles like vegetation, rocks and debris will be removed to prepare the site for further construction works.
Site formation	Surface soil and rock will be moved by excavator to create a desired level base for the foundation The extent would be dependent on the level difference. The tentative extent is given in **Appendix 2.2**.
Replacement of top soil for areas with horses' direct contact	The top soil will be excavated by excavator, and will be replaced by new soil.
Construction of buildings and structures	Typical construction activities for in-situ reinforced concrete buildings is expected including formwork and falsework erection, rebar fixing, and concreting works.

2.3 Implementation Programme of the Project

2.3.1.1 The Project will commence its construction in 2027 for operation in 2030.

3. Air Quality

3.1 Legislation, Standards and Guidelines

3.1.1 General

3.1.1.1 The relevant legislation, standards and guidelines applicable to the present study for the air quality assessment of both construction and operational phase include the following:

- Air Pollution Control Ordinance (APCO) (Cap. 311);
- Air Pollution Control (Construction Dust) Regulation;
- Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation;
- Air Pollution Control (Fuel Restriction) Regulations (Cap. 311I);
- Chapter 9 of the Hong Kong Planning Standards and Guidelines (HKPSG);
- Section 1 of Annexes 4 and 12 of Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM); and
- Recommended Pollution Control Clauses for Construction Contracts.

3.1.2 Air Pollution Control Ordinance (Cap. 311)

3.1.2.1 The principal legislation for controlling air pollutants is the APCO (Cap. 311) which provides a statutory framework for establishing the Air Quality Objectives (AQOs) and stipulating the antipollution requirements for air pollution sources. The AQOs stipulate limits on concentrations for 7 pollutants including Sulphur Dioxide (SO_2), Respirable Suspended Particulates (RSP), Fine Suspended Particulates (FSP), Nitrogen Dioxide (NO_2), Carbon Monoxide (CO), Ozone (O_3) and Lead (Pb). The latest AQOs which took effect in April 2025 are listed in **Table 3.1**.

Table 3.1 Hong Kong Air Quality Objectives (HKAQOs)

Pollutants	Limits on Concentration, µg/m³ [1] (The Number of Exceedance per calendar year allowed is shown in brackets)					
	10-min	1-hr	8-hr	24-hr	Peak Season	Annual
RSP (PM_{10})[2]				75 (9)		30 (N.A.)
FSP ($PM_{2.5}$)[3]				37.5 (18)		15 (N.A.)
NO_2		200 (18)		120 (9)		40 (N.A.)
SO_2	500 (3)			40 (3)		
O_3			160 (9)		100 (N.A.)	
CO		30000 (0)	10000 (0)	4000 (0)		
Pb						0.5 (N.A.)

Notes:

[1] All measurements of the concentration of gaseous air pollutants, i.e., sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide, are to be adjusted to a reference temperature of 293 Kelvin and a reference pressure of 101.325 kilopascal.

[2] RSP mean suspended particulates in air with a nominal aerodynamic diameter of 10 micrometres or smaller.

[3] FSP mean suspended particulates in air with a nominal aerodynamic diameter of 2.5 micrometres or smaller.

3.1.3 Air Pollution Control (Construction Dust) Regulation

3.1.3.1 Air Pollution Control (Construction Dust) Regulation specifies processes that require special dust control. The Contractors are required to inform the Environmental Protection Department (EPD) and adopt proper dust suppression measures while carrying out "Notifiable Works" (which requires prior notification by the regulation) and "Regulatory Works" to meet the requirements as defined under the regulation.

3.1.4 Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (Cap.311Z)

3.1.4.1 Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation specifies that all Nonroad Mobile Machinery (NRMMs), except for those exempted, used in specified activities and locations including construction sites, container terminals and back up facilities, restricted areas of the airport, designated waste disposal facilities and specified processes are required to comply with the prescribed emission standards.

3.1.5 Air Pollution Control (Fuel Restriction) Regulations (Cap 311I)

3.1.5.1 Air pollution Control (Fuel Restriction) Regulations controls the types of fuel allowed for use and their sulphur contents in commercial and industrial processes to reduce SO_2 emissions.

3.1.6 Chapter 9 of the Hong Kong Planning Standards and Guidelines (HKPSG)

3.1.6.1 The HKPSG specify buffer distances between sources of pollution and sensitive land uses to ensure acceptable air quality at the sensitive land uses. Examples of recommended buffer distances extracted from the HKPSG for relevant source and sensitive land use combinations are given in **Table 3.2** below.

Table 3.2 HKPSG Recommended Buffer Distances for Polluting Uses

Polluting Source	Parameter	Buffer Distance	Permitted Uses
Road and Highways	*Type of Road*		
	Trunk Road and Primary Distributor	>20m	active and passive recreational uses
		3-20m	passive recreational uses
		<3m	amenity areas
	District Distributor	>10m	active and passive recreational uses
		<10m	passive recreational uses
	Local Distributor	>5m	active and passive recreational uses
		<5m	passive recreational uses
	Under Flyovers	-	passive recreational uses
Industrial Area	*Difference in Height between Industrial Chimney Exit and the Site*		
	<20m	>200m	Active and passive recreational uses
		5-200m	Passive recreational uses
	20-30m	>100m	Active and passive recreational uses
		5-100m	Passive recreational uses
	30-40m	>50m	Active and passive recreational uses
		5-50m	Passive recreational uses

Polluting Source	Parameter	Buffer Distance	Permitted Uses
	>40m	>10m	Active and passive recreational uses
Construction and earth moving activities	-	<50m	passive recreational uses
		>50m	active and passive recreational uses
Odour sources [1]	-	200m	sensitive uses

Notes:

[1] Refer to S. 3.3.9 of HKPSG Chapter 9.

3.1.7 Technical Memorandum on Environmental Impact Assessment Process

3.1.7.1 In accordance with Annex 4 of EIAO-TM, the limit of 5 odour units based on an averaging time of 5 seconds for odour prediction assessment should not be exceeded at any receivers.

3.1.8 Recommended Pollution Control Clauses for Construction Contracts

3.1.8.1 General requirements of air pollution control, e.g. dust suppression and smoke control, are recommended for contractors.

3.2 Description of the Environment

3.2.1 Existing Ambient Air Quality Conditions

AQO Pollutants

3.2.1.1 The Tseung Kwan O Station is the monitoring station closest to the assessment area. The latest 5-year air quality monitoring data at the Tseung Kwan O Station (i.e. 2020 – 2024) is summarized in **Table 3.3** and compared with the latest AQOs for information.

Table 3.3 Air Quality Monitoring Data (Tseung Kwan O Station, 2020 - 2024)

Pollutant	Parameter	Concentration (µg/m³)						AQO (µg/m³)
		2020	2021	2022	2023	2024	5-Year Mean	
RSP	10th highest 24-hr	52	50	46	50	59	51 [69%]	75 (9)
	Annual	24	24	22	24	27	24 [81%]	30 (N/A)
FSP	19th highest 24-hr	26	26	28	27	31	28 [74%]	37.5 (18)
	Annual	12	13	13	**15**	14	13 [89%]	15
NO_2	19th highest 1-hr	136	132	110	116	105	120 [60%]	200 (18)
	10th highest 24-hr	51	60	48	50	46	51 [42%]	120 (9)
	Annual	23	26	21	22	22	23 [57%]	40 (N/A)
SO_2	4th highest 10-min	18	18	12	32	12	18 [4%]	500 (3)

Pollutant	Parameter	Concentration (µg/m³)						AQO (µg/m³)
		2020	2021	2022	2023	2024	5-Year Mean	
	4th highest 24-hr	7	9	7	6	8	7 [19%]	40 (3)
O_3	10th highest 8-hr	158	158	**167**	**160**	**168**	**162 [101%]**	160 (9)
	Peak Season	**112**	**109**	**105**	**111**	**113**	**110 [110%]**	100 (N/A)
CO	Max. 1-hr	1670	1750	1210	1300	1500	1486 [5%]	30000 (0)
	Max. 8-hr	1411	1375	1105	996	1209	1219 [12%]	10000 (0)
	Max. 24-hr	1152	1113	834	824	760	937 [23%]	4000 (0)

Notes:

[1] N/A – Not applicable

[2] Number of exceedance allowed under the AQO is shown in ( ), % of the AQO is shown in [ ].

[3] Monitoring results exceeding the AQO are bolded and underlined.

3.2.1.2 The 10th highest daily RSP levels were ranged from 46 to 59 µg/m³, while the annual RSP levels were ranged from 22 to 27 µg/m³. Both of them are within the corresponding AQOs.

3.2.1.3 The 19th highest daily FSP levels were ranged from 26 to 31 µg/m³, while the annual FSP levels were ranged from 12 to 15 µg/m³. One exceedance of annual FSP is found in Year 2023. Others are within the corresponding AQOs.

3.2.1.4 The 19th highest 1-hour NO_2 levels were ranged from 105 to 136 µg/m³, the 10th highest 24-hour NO_2 levels were ranged from 46 to 60 µg/m³, and annual NO_2 levels were ranged from 21 to 26 µg/m³. All of them are within the corresponding AQOs.

3.2.1.5 The 4th highest 10-minute SO_2 were ranged from 12 to 32 µg/m³, while the 4th highest daily SO_2 levels were ranged from 6 to 9 µg/m³. Both of them are within the corresponding AQOs.

3.2.1.6 The 10th highest 8-hour O_3 were ranged from 158 to 168 µg/m³, exceedances were found in Year 2022 to Year 2024. There is no obvious trend in recent years. The peak season O_3 levels were ranged from 105 to 113 µg/m³, which all exceeded the corresponding AQOs.

3.2.1.7 The maximum 1-hour CO were ranged from 1210 to 1670 µg/m³, the maximum 8-hour CO levels were ranged from 996 to 1411 µg/m³, and the maximum 24-hour CO levels were ranged from 760 to 1152 µg/m³. All of them are within the corresponding AQOs.

Non-AQO Pollutants

3.2.1.8 Based on the 5-year stack gas monitoring data (2020 – 2024) provided by the operator, the concentrations of pollutants are at very low level and mostly are below detectable level (see **Appendix 3.1**). The criteria of Vinyl Chloride and Benzene are referred to the approved EIA(2) and summarised in **Table 3.4**.

Table 3.4 Concentrations of Vinyl Chloride and Benzene from Stack Gas Monitoring Data

Pollutants	Averaging Time	Criteria (μg/m³) [1]	Background Concentrations of Non-AQO Pollutants (μg/m³) [2]	Monitoring data at stack (μg/m³) [3]
Vinyl Chloride	1-hour	180,000	0.4	1.1
	Annual	100	0.33	
Benzene	1-hour	27	2.0	3.5
	8-hour	3	2.0	
	Annual	3	1.13	

Notes:

[1] Criteria for annual average are the Chronic Reference Concentration extracted from Yr 2000 updated standard from Integrated Risk Information System (IRIS) (USEPA, 2000). Criteria for 1-hour average are the Acute Reference Concentration extracted from Air Toxic Hot Spots Program Risk Assessment Guidelines, Part I – Technical Support Document for the Determination of Acute Reference Exposure Levels for Airborne Toxicants (California Air Resources Board, 2000).

[2] Reference to monitoring data of benzene and vinyl chloride at SENTX from 2022 to 2024.

[3] As the monitoring results for vinyl chloride are smaller than the detection limit, the detection limit, 0.4ppbv, represents its monitoring level. Maximum monitoring value of benzene during 2020 – 2024 is selected for representing the benzene level (1.1 ppbv). For unit conversion, the molecular weights for vinyl chloride and benzene are 62.5 g/mol and 78.11 g/mol, respectively.

3.2.2 Future Ambient Air Quality Conditions

3.2.2.1 It should be noted that the ambient air quality conditions described in the above sections are based on the historical monitoring data. The future ambient air quality is predicted by a regional air quality model named "Pollutants in the Atmosphere and their Transport over Hong Kong" (i.e. PATH).

3.2.2.2 The assessment area concerned 8 grids in the latest PATH model (i.e. PATH v3.0). As the construction of the Project will tentatively commence in Year 2027 and be completed in Year 2030, Year 2030 PATH model results are presented in **Table 3.5**. **Figure 3.1** illustrates the locations of the concerned PATH grids and the 500m assessment area.

Table 3.5 Future Ambient Air Quality for Concerned PATH Grids (Year 2030)

Pollutant	Parameter	Concentrations in Various PATH Grids at Level 1 (0m - 17m) (μg/m³)						AQO (μg/m³) [1]
		50_30	50_31	51_30	51_31	52_30	52_31	
RSP	10th highest 24-hr	50	49	51	50	50	50	75 (9)
	Annual	19	18	19	19	19	19	30 (N/A)
FSP	19th highest 24-hr	28	28	29	28	28	28	37.5 (18)
	Annual	11	11	11	11	11	11	15
NO_2	19th highest 1-hr	61	59	56	54	53	52	200 (18)
	10th highest 24-hr	22	22	20	20	21	19	120 (9)
	Annual	10	10	10	9	10	9	40 (N/A)
SO_2	4th highest 10-min	23	23	23	23	23	23	500 (3)
	4th highest 24-hr	7	7	7	7	7	7	40 (3)
O_3	10th highest 8-hr	**173**	**170**	**177**	**169**	**176**	**170**	160 (9)

Pollutant	Parameter	Concentrations in Various PATH Grids at Level 1 (0m - 17m) (μg/m³)						AQO (μg/m³) [1]
		50_30	50_31	51_30	51_31	52_30	52_31	
	Peak Season	**125**	**123**	**126**	**123**	**126**	**123**	100 (N/A)
CO	Max. 8-hr	515	516	510	511	508	507	30000 (0)
	Max. 8-hr	480	477	481	476	483	478	10000 (0)
	Max. 24-hr	445	445	446	442	448	442	4000 (0)

Note:

[1] Concentrations exceeding the AQO are bolded and underlined.

3.3 Assessment Area and Air Sensitive Receivers

3.3.1.1 The assessment area for air quality impact is generally defined by a distance of 500m from the boundary of Application Site.

3.3.1.2 Representative Air Sensitive Receivers (ASRs) within the assessment area have been identified for evaluation. The existing ASRs are identified by means of topographic maps, aerial photos, land status plans and site inspections. Committed/ Planned ASRs within the assessment area are identified by making reference to relevant documents as listed:

- Approved Tseung Kwan O Outline Zoning Plan (No. S/TKO/32 exhibited on 17 October 2025);
- Approved Clear Water Bay Peninsula South Outline Zoning Plan (No. S/SK-CWBS/2 dated on 9 June 2006);
- Planning Applications under S.16 / S.12a Town Planning Ordinance;
- Development Permission Area Plans and Outline Development Plans by the Planning Department (PlanD);
- Land Sale Programme published by the Lands Department (LandsD); and
- Other relevant published plans, including plans, drawings and applications by the correspondent project proponents.

3.3.1.3 Both planned and existing representative ASRs have been selected on the basis that they are close to the Application Site and are likely to receive the worst possible impact arising from the Project. In addition, planned ASRs are also identified based on the tentative master layout plan.

3.3.1.4 The locations of representative ASRs for air quality impact assessment are summarized in **Table 3.6** and are shown in **Figure 3.2** and **Appendix 3.2**. Based on the latest information during preparation of the EA, there are total 5 proposed projects identified within the 500m assessment area. Two of them are selected as representative ASRs as they are located a relatively closer distance from the Application Site. They are (i) proposed high-tier data centre at Tseung Kwan O Town Lot No. 131 located about 60m (PA02), and (ii) proposed GIC Site (PA05) located 5m from the Application Site. The other 4 proposed projects are located at least 190m from the Application Site. They are (iii) proposed Joint-user

Building with Government Laboratory's Facilities at Area 86 (south of Wan O Road) located more than 250m; (iv) proposed Indoor Recreation Centre at the junction of Wan Po Road and Shek Kok Road located more than 380m; (v) proposed primary and secondary school at the vacant site sandwiched between Le Prestige and Wings at Sea located more than 190m. Since the representative ASRs in **Table 3.6** covered ASRs located at nearer distances surrounding the Application Site, the 4 proposed projects located at least 190m from the Application Site would not be considered as ASRs in the assessment.

Table 3.6 Summary of Representative ASRs

ASR ID	Name	Land Uses [1]	Approximate Nearest Distance from the Application Site (m) [Lower / Middle / Upper Platform] [2]	Assessment Height (meter above ground)
Existing ASRs [3]				
A01	HSBC Building TKO	Off	95 / 235 / 760 / 315	N.A. (only assessed in qualitative assessment)
A02	HKCOLO	Off	15 / 185 / 675 / 185	
A03	TKOL-II/III Site Office	Off	10 / 230 / 550 / 70	
A04	Le Prestige Lohas Park	Res	195 / 450 / 700 / 200	
A05	The Beaumount II	Res	385 / 590 / 460 / 375	
A06	MEGA Plus	Off	30 / 325 / 520 / 25	
A07	High Junk Peak Country Trail	Rec	830 / 650 / 170 / 130	
A08	Basketball Court of Tseung Kwan O Innopark	Rec	60 / 180 / 710 / 250	
Planned ASRs [4]				
PA02	Planned high-tier data centre at Tseung Kwan O Town Lot No. 131	Off	60 / 350 / 510 / 45	N.A. (only assessed in qualitative assessment)
PA05	GIC Site	GIC	<5 / 200 / 585 / 5	
Planned ASRs within the Application Site [5]				
PA01, E1, E2, E3, E4, N1, N2, N3, S1, S2, S3, W1, W2, W3, W4, LP12, LP11, LP10, LP09, LP13, LP08, LP14, LP15, LP16, LP17, LP06, LP07, LP01, LP19, LP04, LP20, LP05, LP18, LP02, LP03	Lower Platform of Proposed Public Riding School (e.g. administration buildings, auxiliary facilities, Coach Duty Rooms, etc.)	Rec	Within Application Site	1.5, 5, 10 (except PA01)
PA03, LP21, LP22, LP23, LP24, LP25, LP26, LP27, LP28, LP29	Middle Platform of Proposed Public Riding School	Rec	Within Application Site	1.5, 5, 10 (except PA03)

ASR ID	Name	Land Uses [1]	Approximate Nearest Distance from the Application Site (m) [Lower / Middle / Upper Platform] [2]	Assessment Height (meter above ground)
PA04, UP02, UP01, UP03, UP08, UP07, UP04, UP06, UP05	Upper Platform of Proposed Public Riding School	Rec	Within Application Site	1.5, 5, 10 (except PA04)
BN01, BN02, BS02, BS05, BS04, BS03, BS01, BN05, BN03, BN04	Site Boundary of Proposed Public Riding School	Rec	Within Application Site	1.5, 5, 10

Notes:

[1] Res – Residential; GIC – Government, Institution and Community; Edu – Educational; Rec – Recreational/Park; Off – Office; Ind – Industrial.

[2] Distance is rounded to the nearest 5m.

[3] Existing ASRs are assessed in qualitative assessment only.

[4] Planned ASRs PA02 and PA05 are assessed in qualitative assessment only. Besides, no development schedule was available at the time of the Report, and the latest information for PA02 and PA05 was released in 2018 and 2013 respectively.

[5] Among the planned ASRs within the Application Site – PA01, PA03 and PA04 are assessed in qualitative assessment only, while other ASRs along the boundary of lower/middle/upper platforms or the site boundary are assessed by quantitative assessment in **Section 3.5**. Locations and assessment heights of ASRs other than PA01, PA03 and PA04 are indicated in **Appendix 3.2**.

3.4 Construction Phase

3.4.1 Impacts Evaluation

3.4.1.1 The major construction works of the Project with potential air quality impact are the followings:

- Site clearance;
- Site formation;
- Replacement of top soil for areas with horses' direct contact; and
- Construction of buildings and structures;

3.4.1.2 During the construction phase, fugitive dust will be generated from construction activities, which mainly include site clearance, site formation, soil excavation, backfilling and wind erosion of open sites. In general, the ASRs are located more than 50m away from the construction works area at Lower Platform, except TKOL II/III Site Office (A03), HKCOLO (A02) and MEGA Plus (A06). The construction works area at Middle and Upper Platforms provide much longer separation distance of more than 150m. As site formation would only involve excavation with excavation depth limited to 0.5m with limited backfilling and the construction of superstructure and installation of pipelines and utilities of the Project would not generate significant dust emission. The active workfront for excavation works is limited to 500m^2 each day at each platform. The amount of excavated materials to be handled daily at each platform is limited to 250m^3. The amount of construction waste/ materials to be handled each day is about 750m^3, and the estimated number of induced trucks is about 75 per day throughout the construction phase. With the

proper implementation of dust suppression measures, no adverse construction dust impacts arising from the construction works are anticipated.

3.4.1.3 Fuel combustion from the use of Powered Mechanical Equipment (PME) during construction works could also be a source of NO_2, SO_2 and CO. To improve air quality and protect public health, EPD has introduced the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, which came in effect on 1 June 2015, to regulate emissions from machines and non-road vehicles. Starting from 1 December 2015, only approved or exempted non-road mobile machinery are allowed to be used in construction sites. To further control SO_2 emissions, ultra-low sulphur diesel (ULSD) with a sulphur content of not more than 0.001% by weight and a viscosity of not more than 6 centistokes at 40°C should be used to minimize SO_2 emissions according to the Air Pollution Control (Fuel Restriction) Regulations. Hence, with the effect of the Regulations, the emissions from PMEs are considered relatively small and will not cause adverse air quality impact.

3.4.1.4 Furthermore, it is understood that construction activities will not take place in the entire work site at the same time, but will be undertaken at multiple moving work fronts at different platforms, which provide longer separation distance from the nearby ASRs as indicated in **Table 3.6**. With proper implementation of the proposed dust control measures, the dust impact during the construction phase is not anticipated to be significant.

3.4.1.5 Construction vehicles would also be used for the transportation of fill materials required and spoils generated from the construction works. Given the small scale of construction, the number of induced traffic (i.e. about 75 trucks per day) would be limited. Besides, vehicle washing facilities at all site exits would be provided to wash away dusty materials from vehicle body and wheels before leaving the site. Therefore, no adverse air quality impact from the construction phase would be anticipated.

3.4.1.6 Two planned projects are identified within the 500m assessment area, which are High-tier Data Centre at Wan Po Road and Joint-user Building with Government Laboratory's Facilities at Area 86. The construction works would not involve site formation works as land is available for development, hence, would mainly include superstructure work which has limited dust emissions. The Data Centre has commenced construction and is scheduled to completion in 2026/27, while there is no available development schedule for the Building at Area 86 at the time of the Report. With appropriate dust control measures recommended in the Air Pollution Control (Construction Dust) Regulation as discussed in **Section 3.4.2**, cumulative construction dust impact of concurrent projects is not anticipated.

3.4.2 Dust Control Measures

3.4.2.1 All applicable dust control measures as recommended in the Air Pollution Control (Construction Dust) Regulation will be implemented to minimize dust emissions during construction phase. With the implementation of these measures, adverse construction dust impacts on the ASRs are not anticipated. Typical dust control measures include:

- Water spraying on any dusty materials before loading and uploading, stockpile of dusty materials, areas with removal of existing installations, areas where excavation or earth moving activities are carried out, and any unpaved main haul road;
- Adoption of side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be used to aggregate fines;

- Use of regular watering to reduce dust emissions from exposed site surfaces, unpaved roads, dusty construction areas;
- Provide effective dust screens, sheeting, or netting to enclose any scaffolding built around the perimeter of a building;
- Prevent placing dusty material storage piles and NRRM near ASRs as far as practicable;
- Cover or shelter any stockpile of dusty materials;
- Provide vehicle washing facilities at all construction site exits to wash away any dusty materials from vehicle body and wheels before they leave the site;
- Cover any dusty load on vehicles before they leave the site; and
- Loading, unloading, transfer, handling, or storage of bulk cement or dry pulverized fuel ash shall be carried out in a totally enclosed system or facility, and any vent or exhaust shall be fitted with an effective fabric filter or equivalent air pollution control system.

3.5 Operational Phase (Air Quality Impact)

3.5.1 Impacts Evaluation

3.5.1.1 Key air pollution sources in the vicinity of the Project (see **Figure 3.3**) during operational phase including the following and their details are discussed as follows.

- Vehicular emission from the Project, Access Road and existing roads;
- Industrial emission from the premises with Specified Process (SP) license; and
- Industrial emission from the existing leachate treatment plant.

3.5.1.2 No industrial emission sources are proposed in the Project.

3.5.1.3 As discussed in **Section 3.3.1.4**, there are proposed projects identified within the 500m assessment area with potential industrial emission. As deduced from the nature of works, the planned High-tier Data Centre will only have potential emission from emergency generators under emergency situation, hence, adverse air quality impact is not anticipated. Besides, the planned Joint-user Building with Government Laboratory's Facilities at Area 86 is located far away from the Application Site (~250m). Moreover, there is no available development schedule for the proposed projects at the time of the Report, thus will not be considered as concurrent projects. As a result, cumulative impact is not anticipated from the proposed projects.

<u>Vehicular Emission from the Project and Open Roads</u>

The Project

3.5.1.4 During the operation of the Project, there will be ancillary parking spaces provided within the site (with 2 no. of parking spaces for coach) and about 445veh/day (two-way) generate / attract to/from the adjacent road network as advised by traffic consultant. Comparing with the high existing traffic volume on Wan Po Road with Annual Average Daily Traffic (AADT) of 30,680 in Year 2024, the induced traffic from the Project is insignificant. Apart from running emission, the induced start emission is very limited as there are only 2 no.

of coach parking spaces. Therefore, the potential air quality impact due to the induced traffic on nearby ASRs is insignificant.

Access Road

3.5.1.5 Access Road is a private road that will serve both the landfill restoration operator and the PRS. As advised by the landfill restoration operator, there would be about 104 veh/day (two-way) for daily landfill restoration activities in general. For the PRS, to facilitate the internal transportation of staff and visitors within the Application Site, there will be about 50 veh/day (two-way) travelling on Access Road between the 3 platforms. In view of the limited traffic on the Access Road, the potential air quality impact is insignificant.

Existing Roads

3.5.1.6 Vehicular emission from the existing road networks including Wan Po Road, Wan O Road, Chun Yat Street and Chun Sing Street. The buffer distances from the air sensitive uses of the Project in Lower Platform, Middle Platform and Upper Platform will be located at more than 20m from these roads, which will meet the buffer distances from all types of roads as stipulated in HKPSG. Therefore, adverse air quality impact on the proposed air sensitive uses under the Project is not anticipated.

Industrial Emission from the Premises with SP License

3.5.1.7 Three premises (i.e. MEGA Plus, HKCOLO and HSBC Building TKO) with SP licenses are identified within 200m of the Application Site. The classification of the SP for the premises is "Electricity Works", of which the operation mode is "batch". The SP of HKCOLO has also specified that it is for emergency generator. As these three premises are used for data centres, potential air emission would be due to the use of emergency generators under emergency situation or regular maintenance. The frequency and duration of their operation and thus the air emission would be limited. In addition, exhaust gas catalytic purifiers are installed as specified in the SP licenses to minimize the potential air quality impact.

3.5.1.8 Moreover, the height of chimneys for MEGA Plus, HKCOLO, and HSBC Building TKO ranges from 16.7m and 68.5m above ground, 14.1m to 26.6m above ground, and 23.9m above ground respectively; while the height of the proposed air sensitive uses on the Lower Platform will be limited to one storey. Most of the chimneys are located at a higher level of more than 20m above ground (i.e. 43 out of 44 for MEGA Plus, 20 out of 30 for HKCOLO, and all 7 for HSBC Building TKO). For Middle Platform and Upper Platform, there is sufficient separation distance of more than 200m. Therefore, the adverse air quality impact on the proposed air sensitive uses under the Project is not anticipated.

Industrial Emission from Leachate Treatment Plant

3.5.1.9 There is a leachate treatment plant adjacent to the Application Site, which treats the collected leachate from the restored landfill (TKOL II/III). Potential pollution will emit from the flare process. Reference to the similar emission sources, i.e. landfill gas flare system, in recent approved EIAs [(1), (2), (3)], the concerned AQO pollution emission

(1) AEIAR-256-2023- EIA for Tuen Mun Bypass

(2) AEIAR-265/2025-EIA for Development of Tseung Kwan O Area 137 and Associated Reclamation Sites

(3) AEIAR-147/2009 – EIA for WENT NEW Territories (WENT) Landfill Extensions

parameters are NO_x, RSP, FSP, SO_2, and CO while non-AQO parameters are Vinyl Chloride and Benzene.

3.5.1.10 As discussed in **Section 3.2.1.8**, based on the 5-year stack gas monitoring data (2020 – 2024) provided by the operator, the concentrations of pollutants are at very low level and mostly are below detectable level (see **Appendix 3.1**). However, the detection limits of pollutants are lower than the AQO criteria and further quantitative assessment is proposed, except of Vinyl Chloride. The criteria of Vinyl Chloride and Benzene are referred to the approved EIA[(2)] and summarised in **Table 3.4**. Vinyl chloride were excluded from further assessment because its concentrations at the stack were significantly lower than the ambient air quality criteria even with the background concentrations. This suggests that, after accounting for dilution and dispersion in the atmosphere, the resulting concentrations at the receptor would be even lower and unlikely to pose a risk.

3.5.1.11 For NO_2, SO_2, RSP, FSP, CO and Benzene, a quantitative assessment has been conducted to ascertain no adverse air quality impact due to the proximity of the leachate plant chimney and the proposed ASRs within the Application Site. The quantitative assessment has evaluated the cumulative impact of existing open road, chimney of the leachate treatment plant and PATH background. The background of Benzene is taken from the monitoring data of South East New Territories Landfill Extension (SENT), align with EIA study for TKO137[(2)]. Detailed information is showed in **Section 3.5.2**.

3.5.1.12 Regardless of the predicted cumulative air quality, it is recommended that the fresh air intakes of the proposed air sensitive uses (e.g. administration buildings, training facilities and auxiliary facilities, etc.) in the vicinity of the leachate treatment shall be located away from the chimney of the leachate treatment plant as far as practicable.

3.5.1.13 In addition, there might be maintenance works to be carried out after operation of the PRS. As the scale of the maintenance works is likely to be much smaller than that of the construction works, adverse air quality impact during the maintenance works is not anticipated. The good site practices as discussed in **Section 3.4.2** are also applicable.

3.5.2 Cumulative Impact

3.5.2.1 Cumulative air quality impact is a combination of the emissions impacts contributed from the near- and far-field sources on an hourly basis. According to EPD's *"Guidelines on Choice of Models and Model Parameters"*, AERMOD and Smart Air Modelling Platform (SAMP) are used to conduct the assessment.

3.5.2.2 A preliminary quantitative assessment was conducted to evaluate the cumulative air quality impact of various emission sources, i.e. existing roads, chimney emission from leachate treatment plant, and background contribution from PATHv3.0, on existing and proposed ASRs. Detailed information for the ASRs within the Application Site is illustrated in **Appendix 3.2**.

Tier 1 Emission – Primary Contribution

3.5.2.3 As discuss in **Section 3.5.1**, there is limited emission contributed from the Project and its induced traffic, Tier 1 emission is not applicable in this assessment.

Tier 2 Emission – Secondary Contribution

3.5.2.4 In the immediate vicinity of the Application Site, typically within the 500m assessment area, two major emission sources are identified: open road emission from existing roads and industrial emission from the leachate treatment plant.

3.5.2.5 Although the existing roads are distance to the proposed air sensitive uses within the Project as discussed in **Section 3.5.1**, the existing roads fall within the 500m assessment area. For a preliminary assessment, the vehicular emission inventory is derived based on the approved EIA Report of TKO137[(2)]. Refer to the approved EIA Report for TKO137, a conservative estimate models open road vehicle emissions using the highest emission factor (Year 2030) and peak traffic data (Year 2041) for the period 2030–2046, covering up to five years after full population intake in 2041. Detailed information for existing roads is illustrated in **Appendix 3.3**.

3.5.2.6 The roads within the assessment area were modelled as "LINE" sources shown in **Appendix 3.3**. The EMFAC-HK in the EPD's SAMP v2.1 tool is used to derive the hourly composite vehicular running emission rates of NO_2 and NO based on the predicted 24-hour traffic forecast data for 18 vehicle classes based on the approved EIA Report for TKO137. Default values of speed fraction, trips and Vehicle Kilometres Travelled (VKT) has been used by SAMP to calculate emission factors. For conservative purpose, no zero-emission vehicles were included in the composite emission factors output by SAMP v2.1 and all roads are modelled with start and running emissions. Broad-brush approach is adopted for start emission, which assumes start emission at all roads. Also, all vehicle classes were assumed to have potential trip on all roads, including minibus and franchised bus which usually starts its engine at its termini throughout its service route.

3.5.2.7 Two carparks are identified within the 500m assessment area. One is located between Mega Plus and HKCOLO along Wan Po Road. Since it is parked with only private cars which have relatively low emission, so vehicular emission is anticipated insignificant. Another one is located at Chun Cheong Street with goods vehicles and private cars parking spaces. Since it is located more than 230m from the Application Site, air quality impact induced by vehicular emission will not be anticipated. As discussed in **Section 3.5.2.6**, start emission of all vehicle classes are modelled at all roads, the current broad-brush approach is considered sufficiently conservative.

3.5.2.8 Despite of the different modelled roads due to assessment area in the approved EIA for TKO137 and this Application Site, traffic data of this assessment have been sourced from roads that are either analogous to, or where feasible, identical with those under consideration. An additional scenario with doubled open road emissions have been also conducted for sensitive analyses.

3.5.2.9 Although the industrial emission from the leachate treatment plant is concluded to be very low at source, the chimney emission is considered in the assessment due to the concern regarding the detection limitation and proximity to ASRs. Detailed information for the calculation of the chimney emission is illustrated in **Appendix 3.4**.

3.5.2.10 AERMET (the meteorological pre-processor of AERMOD) obtained from EPD's SAMP v2.1 are shown in **Appendix 3.5**. The surface parameters such as albedo, Bowen ratio and surface roughness are determined by AERMET according to its land use characteristics within 10km for albedo and Bowen ratio, and 1 km for surface roughness.

Tier 3 Emission – Background Contribution

3.5.2.11 Under the current EPD guideline "Guidelines on Choice of Models and Model Parameters", the latest PATH v3.0 provided by EPD is adopted to provide meteorological data and air pollutant concentration estimates for Tier 3 background contribution. Background level in Year 2030 is selected based on the operation schedule for conservative approach.

Cumulative Assessment

3.5.2.12 Air pollutants NO_2, RSP, FSP, SO2, CO and Benzene are considered as key air pollutants for the operational air quality assessment and evaluated against the criteria of AQOs and other criteria. The 1-, 24-hour and annual average NO_2 concentrations, 24-hour and annual average RSP and FSP concentrations at the identified ASRs listed in **Appendix 3.2** are assessed and compared with the AQO to determine their compliance.

3.5.2.13 To provide a comprehensive understanding of the air quality impacts, it is important to distinguish between the two sets of ASRs. All existing ASRs and two planned ASRs (PA02 and PA05) presented in **Table 3.6** primarily address the direct impact of the Project on its immediate neighbours. Besides, the ASRs in **Appendix 3.2** evaluate the cumulative effects arising from secondary and background contributions to the Project. Given the distinct focus and analytical scope of each set, they are presented separately to ensure clarity and precision in impact assessment.

3.5.2.14 For cumulative short-term and long-term NO_2 concentrations, Ozone Limiting Method (OLM), in accordance with EPD's *"Guidelines on Choice of Models and Model Parameters"*, is adopted for the conversion of residual NO to NO_2. For other non-road sources, i.e. industrial emissions, initial NO_2/NOx ratios of 0.1 is adopted.

3.5.2.15 The cumulative air quality impact simulation demonstrated compliance of AQOs for all proposed ASRs within the Application Site in both sensitivity analyses, including the proposed administration building located nearest to the leachate treatment plant.

3.5.2.16 **Table 3.7** shows the predicted pollutant levels with the highest concentrations at two scenarios of the sensitivity analyses. To summarise, the ASRs with the highest NO_2 concentration can be found at the Administration Building and Lower Platform due to the proximity to the emission source. For other pollutants, the level of concentration distributed evenly over the Project as they are influenced by the region factor in a greater extent. Details for the preliminary simulation are summarized in **Appendix 3.6** and **Appendix 3.7**.

3.5.2.17 Concluded from the simulation, adverse cumulative air quality impact on the proposed air sensitive uses within the Application Site is not anticipated.

Table 3.7 Worst Predicted Cumulative RSP, FSP, NO_2, SO_2, CO and Benzene Concentrations at Representative ASRs during Operation Phase

Pollutants	Averaging Time	AQO (μg/m³) [1]	Assessment Result - Default Scenario (μg/m³) [1]	Assessment Result - Doubled Traffic Emission (μg/m³) [2]
RSP	10th highest 24-hour	75	51	51
	Annual	30	19	19
FSP	19th highest 24-hour	37.5	29	29
	Annual	15	12	12
NO_2	19th highest 1-hour	200	90	93
	10th highest 24-hour	120	27	34
	Annual	40	12	13
SO_2	4th highest 10-minute	500	48	48

Pollutants	Averaging Time	AQO (μg/m³) [1]	Assessment Result - Default Scenario (μg/m³) [1]	Assessment Result - Doubled Traffic Emission (μg/m³) [2]
	4th highest 24-hour	40	7	7
CO	Highest 1-hour	30000	521	521
	Highest 8-hour	10000	481	481
	Highest 24-hour	4000	446	446
Benzene	1-hour	27	3	3
	8-hour	3	2	2
	Annual	3	1	1

Notes:
[1] Benzene adopted the non-AQO criteria listed in **Table 3.4**.
[2] Detailed assessment result with default and doubled traffic emission are summarised in **Appendix 3.6** and **Appendix 3.7**, respectively.

3.5.3 Control Measures

3.5.3.1 As mentioned in **Section 3.5.1**, the fresh air intakes of the proposed air sensitive uses (e.g. administration buildings, training facilities and auxiliary facilities, etc.) in the vicinity of the leachate treatment plant shall be located away from the chimney of the leachate treatment plant as far as practicable.

3.6 Operational Phase (Odour Impact)

3.6.1 Impacts Evaluation

Odour from Closed Landfill (TKOL II/III)

3.6.1.1 According to the routine odour patrols by EPD between Year 2020 and Year 2024 (see **Appendix 3.9**), there was no odour detected at TKOL II/III. Therefore, adverse odour impact from TKOL II/III on the proposed ASRs under the Project is not anticipated.

Odour from the Project

3.6.1.2 Potential odorous sources proposed under the Project include stables and manure handlings locating at Middle Platform and Upper Platform. The representative existing and planned ASRs in the vicinity of the Project are located at more than 180m from the Middle Platform and Upper Platform.

3.6.1.3 With reference to the Approved EIA Report for Main Arena of the 2008 Olympic Equestrian Event (AEIAR-097/2006), odour patrols along different routes around the existing stables at Sha Tin Racecourse, which accommodated 1192 horses, were conducted to determine the shortest distance beyond which odour is insignificant. The findings of the odour patrol suggested there would be insignificant odour at distance of around 100m from the boundary of the stable area.

3.6.1.4 The proposed stables will only accommodate not more than 100 horses, distributed at Middle Platform and Upper Platform. Given that the number of horses accommodated is far less than that in the existing stables at Sha Tin Racecourse, as well as the separation distance of at least 180m from ASRs in the vicinity of the Project, adverse odour impacts on ASRs in the vicinity of the Project is not anticipated with the implementation of HKJC's standard measures in handling horse manure.

3.6.2 Control Measures

3.6.2.1 Current housekeeping rules will be applied to ensure a consistent good practice. They include:

- A sanitary environment shall always be maintained in the stable area. The current waste management practices adopted in other HKJC stables will be applied:
  - Clearing waste from stables twice a day and stockpiled in the enclosed containers inside manure handling;
  - Collecting waste by licensed waste collector once a day;
  - Implementing stable cleansing practices including the removal of waste bedding that contains horse manure, washing of stable box and replacement of new bedding; and
  - Covering of waste by lids in wheelie bins.
- Paper scraps are used as bedding material for the majority of the stables boxes to reduce dust particle level;
- During seasons of high humidity levels, the frequency of changing stable bedding will be increased accordingly;
- Waste storage area is covered by sheet to control dust and odour emissions; and
- Cleaning area outside the stables regularly to ensure they are free from horse excretion.

3.7 Environmental Monitoring and Audit

3.7.1 Construction Phase

3.7.1.1 During construction phase, it is anticipated that there will be no adverse air quality impacts with the implementation of control measures. Nevertheless, environmental monitoring and audit (EM&A) is recommended for construction phase to ensure better environment. Dust monitoring by sensors is recommended with the support of regular site audits on the implementation of dust control measures.

3.7.2 Operational Phase

3.7.2.1 During the operational phase, no adverse air quality impact is anticipated. Thus, EM&A is not required for the operational phase.

3.8 Summary

3.8.1.1 During construction phase, fugitive dust and gaseous emissions will be generated from construction activities. Given the scale of the project, the Project will unlikely generate significant dust emission. With proper implementation of proposed dust control measures as recommended in the Air Pollution Control (Construction Dust) Regulation, Regulation Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation and Air Pollution Control (Fuel Restriction) Regulations, it is anticipated that there will be no adverse air quality impact during the construction phase.

3.8.1.2 The operation of the Project would generate insignificant traffic on nearby road networks, and the Access Road would only have limited number of traffic. Therefore, insignificant air quality impact is anticipated on nearby ASRs.

3.8.1.3 The cumulative air quality impact on the proposed air sensitive uses within the Project due to the industrial emission sources (i.e. leachate treatment plant), open road emissions within 500m assessment area and the background PATH concentration have been evaluated. It is anticipated that there will be no adverse air quality impact during the operational phase. Nevertheless, the fresh air intakes of the proposed air sensitive uses in the vicinity of the leachate treatment plant will be planned away from the chimney of the leachate treatment plant as far as practicable.

3.8.1.4 Housekeeping rules adopted in other HKJC stables will be applied to ensure a consistent good practice. Therefore, it is anticipated that there will be no potential odour impact due to the operation of the Project.

4. Noise

4.1 Legislation, Standards and Guidelines

4.1.1 General

4.1.1.1 The relevant legislation, standards and guidelines applicable to the present study for the noise impact assessment of both construction and operational phase include the following:

- Noise Control Ordinance (NCO) (Cap. 400);
- Technical Memorandum (TM) on Noise from Construction Work other than Percussive Piling (GW-TM);
- TM on Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM); and
- Section 1 of Annexes 5 and 13 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM); and
- Chapter 9 of the Hong Kong Planning Standards and Guidelines (HKPSG).

4.1.2 Construction Noise during Non-restricted Hours

4.1.2.1 The NCO provides the statutory framework for noise control in Hong Kong. Assessment procedures and standards are set out in the respective TM promulgated under NCO.

4.1.2.2 For construction, there is no statutory limit on construction noise during normal hours under the NCO and related TMs. There is statutory control on construction noise between the hours 1900 and 0700 (of the next day) from Monday to Saturday and at any time on general holidays (including Sundays) under the NCO. To ensure a better environment, the EIAO-TM promulgated under the EIAO has imposed more stringent criteria. Daytime general construction works (excluding percussive piling) between the hours 0700 and 1900 on any day not being a Sunday or general holidays, i.e. non-restricted hours, is controlled under the EIAO. The EIAO-TM stipulates criteria of 65 - 75dB(A) for daytime construction activities, as shown in **Table 4.1**.

Table 4.1 Noise Standards for Daytime Construction Activities

Uses	Noise Standards[1] [2], Leq (30min) dB(A)
	0700 – 1900 hours on any day not being a Sunday or general holiday
• All domestic premises • Temporary housing accommodation • Hostels • Convalescent homes • Homes for the aged	75
• Places of public worship • Courts of law • Hospitals and medical clinics	70

Uses	Noise Standards[1] [2], Leq (30min) dB(A)
	0700 – 1900 hours on any day not being a Sunday or general holiday
• Educational institutions (including kindergartens and nurseries)	70 65 (During Examination)

Notes:

[1] The above standards apply to uses which rely on opened windows for ventilation and are assessed at 1m from the external facade.

[2] A Construction Noise Permit shall be required for carrying out relevant construction work during restricted hours under the NCO. In case the applicant would like to evaluate whether carrying out relevant construction works during restricted hours under the NCO is feasible or not in the context of programming construction works, reference should be made to relevant technical memoranda issued under the NCO.

4.1.3 Construction Noise during Restricted Hours

4.1.3.1 The NCO also provides statutory controls on general construction works during restricted hours (i.e. 1900 to 0700 hours (of the next day) from Monday to Saturday and at any time on Sundays or public holidays). The use of PME for construction works during restricted hours would require a Construction Noise Permit (CNP). The GW-TM details the procedures adopted by EPD for assessing such application. The granting of a CNP is subject to conditions stated in the CNP and it may be revoked at any time for failure to comply with the permit conditions.

4.1.3.2 Maximum noise levels from construction activities during restricted hours at affected Noise Sensitive Receivers (NSRs) are controlled under the TMs and shall not exceed the specified Acceptable Noise Levels (ANLs). These ANLs are stipulated in accordance with the Area Sensitivity Ratings established for the NSRs. The definitions of Area Sensitivity Ratings "A", "B" and "C" are summarized in **Table 4.2**, while the ANLs are summarized in **Table 4.3**.

Table 4.2 Area Sensitivity Ratings

Type of Area Containing NSR [1]	Degree to which NSR is Affected by Influencing Factor [1][2]		
	Not Affected	Indirectly Affected	Directly Affected
(i) Rural area, including country parks or village type developments	A	B	B
(ii) Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
(iii) Urban Area	B	C	C
(iv) Area other than those above	B	B	C

Notes:

[1] Influencing Factors (IF) include any industrial area, major road or the area within the boundary of Hong Kong International Airport.

[2] For the purpose of **Table 4.2**, the following definitions shall apply:

"country park" means an area that is designated as a country park pursuant to section 14 of the Country Parks Ordinance;

"directly affected" means that the NSR is at such a location that noise generated by the IF is readily noticeable at the NSR and is a dominant feature of the noise climate of the NSR;

"indirectly affected" means that the NSR is at such a location that noise generated by the IF, whilst noticeable at the NSR, is not a dominant feature of the noise climate of the NSR;

"not affected" means that the NSR is at such a location that noise generated by the IF is not noticeable at the NSR; and

"urban area" means an area of high density, diverse development including a mixture of such elements as industrial activities, major trade or commercial activities and residential premises.

Table 4.3 ANL for Construction Work during Restricted Hours

Time Period	ANLs for Area Sensitive Ratings, dB(A)		
	A	B	C
All days during the evening (1900 to 2300 hours), and general holidays (including Sundays) during the day and evening (0700 to 2300 hours)	60	65	70
All days during the night-time (2300 to 0700 hours)	45	50	55

4.1.3.3 Despite any description made in this ER, the issue of CNP for the project construction is subject to the decision of the Noise Control Authority. The Noise Control Authority will consider a well-justified CNP application, once filed, for construction works within restricted hours as guided by the relevant TMs issued under the NCO. The Noise Control Authority will take into account contemporary conditions / situations of adjoining land uses and any previous complaints against construction activities at the site before making a decision in granting a CNP. Nothing in this ER shall bind the Noise Control Authority in making a decision. If a CNP is to be issued, the Noise Control Authority shall include in it any conditions demand. Failure to comply with any such conditions will lead to cancellation of the CNP and prosecution under the NCO.

4.1.4 Operational Noise

4.1.4.1 The HKPSG and IND-TM have stipulated the noise standards for various noise sources as shown in **Table 4.4**. It should be noted that the following noise criteria are only applicable to uses that rely on opened windows for ventilation

Table 4.4 Noise Standards for Operational Phase

Common Uses	Noise Standards [1]	
	Road Traffic Noise L10 (1hour) dB(A)	Fixed Noise Sources
• All domestic premises • Temporary housing accommodation • Hostels • Convalescent homes • Homes for the aged	70	5dB(A) below the appropriate ANL shown in the IND-TM, or the prevailing background noise levels (For quiet areas with level 5 dB(A) below the ANL)
• Educational institutions (including kindergartens and nurseries) • Places of public worship • Courts of law	65	
• Hospitals and medical clinics	55	

Note:

[1] The above standards, or equivalent, apply to uses which rely on opened windows for ventilation and are assessed at 1m from the external façade.

4.2 Description of the Environment

4.2.1 Baseline Condition

4.2.1.1 The prevailing noise climate of the Application Site is generally tranquil, except that of the Lower Platform is dominated by the noise from the louvres at the façade of the adjacent data centres (i.e. MEGA Plus and HKCOLO), and audible road traffic noise from Wan Po Road. The operational noise from the existing leachate treatment plant of TKOL II/III is only noticeable near the plant room.

4.3 Noise Sensitive Receivers

4.3.1.1 The assessment area for noise impact is generally defined by a distance of 300m from the boundary of Application Site. Representative NSRs within the assessment area have been identified for evaluation.

4.3.1.2 The existing NSRs are identified by means of topographic maps, aerial photos, land status plans and site inspections. Committed/ Planned NSRs within the assessment area are identified by making reference to relevant documents as listed:

- Approved Tseung Kwan O Outline Zoning Plan (No. S/TKO/32 exhibited on 17 October 2025);
- Approved Clear Water Bay Peninsula South Outline Zoning Plan (No. S/SK-CWBS/2 dated on 9 June 2006);
- Planning Applications under S.16 / S.12a Town Planning Ordinance;
- Development Permission Area Plans and Outline Development Plans by the Planning Department (PlanD);
- Land Sale Programme published by the Lands Department (LandsD); and
- Other relevant published plans, including plans, drawings and applications by the correspondent project proponents.

4.3.1.3 The locations of representative NSRs for noise impact assessment are summarized in **Table 4.5** and are shown in **Figure 4.1**.

Table 4.5 Summary of Representative NSRs

NSR ID	Name	Land Uses [1]	Approximate Nearest Distance from the Application Site (m) [Lower / Middle / Upper Platform] [2]
N01	Le Prestige Lohas Park	Res	195 / 450 / 700
N02	The Beaumount II	Res	385 / 590 / 460
PN01	Proposed Coach Duty Rooms	Res	Within Application Site

Notes:

[1] Res – Residential.

[2] Distance is rounded to the nearest 5m.

4.4 Construction Phase

4.4.1 Impacts Evaluation

4.4.1.1 The major source of construction noise impact would be the operation of powered mechanical equipment (PMEs) for carrying out the following main construction works of the Project:

- Site clearance;
- Site formation;
- Replacement of top soil for areas with horses' direct contact; and
- Construction of buildings and structures.

4.4.1.2 According to the construction methodology envisaged at this stage, the construction activities and its associated tentative PMEs has been identified in **Table 4.6** for the Project. The Contractor shall consider the engineering data available at that time and review and update this tentative construction plant inventory.

Table 4.6 Summary of Possible PME Required for the Project

Activities	Possible PMEs Required [1]		
Site clearance and formation	• Air compressor • Backhoe • Breaker	• Compactor • Dump truck • Excavator	• Generator • Hydraulic crusher • Lorry
Replacement of top soil for areas with horses' direct contact	• Compactor • Excavator	• Lorry	• Generator
Construction of building and structures	• Bar bender and cutter • Concrete lorry mixer • Concrete mixer • Concrete pump	• Dump truck • Generator • Grout mixer • Mobile crane	• Vibrating poker • Grout pump • Lorry

Note:

[1] Quiet equipment or QPME would be adopted where appliable and practicable.

4.4.1.3 The nearest NSR (i.e. N01 Le Prestige Lohas Park) is located at about 190m away from the Application Site, and at about 195m, 450m and 700m from Lower Platform, Middle Platform and Upper Platform respectively. As the Project involves construction of superstructure of only one storey and installation of pipelines utilities, and the scale of site clearance and site formation is not significant, the construction works are not considered massive and extensive. In addition, the construction works will be distributed in the three platforms and therefore longer separation distance. Given the large separation, adverse construction noise impact is not anticipated with the implementation of good site practices as discussed in **Section 4.4.2**.

4.4.2 Noise Control Measures

4.4.2.1 The following noise control measures should be implemented wherever practicable:

- Implementation of good site practices to limit noise emissions at source;
- Use of QPME;
- Use of quiet construction method;
- Use of movable noise barrier and full enclosure for relatively fixed plant; and

- Scheduling of construction works outside school examination periods in critical area.

4.4.2.2 The above recommended noise control measures would need to be implemented in worksite as good practices whenever possible. Reference shall also be made to EPD's recommended pollution control clauses for construction contracts:

- Before the commencement of any work, the Engineer may require the methods of working, plant equipment and sound-reducing measures to be used on the site to be made available for trial demonstration inspection and approval to ensure that they are suitable for the Project;
- The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented;
- The Contractor shall, when necessary, apply for a construction noise permit in accordance with the Noise Control (General) Regulations prior to the commencement of the relevant part(s) of the works, display the permit as required and provide a copy to the Engineer; and
- Noise barriers/enclosures shall be designed to meet the requirements given on the EPD's website (https://www.epd.gov.hk/epd/misc/construction_noise/contents/index.php/en/index.html). The location and details of the barriers/enclosures shall be submitted to the Engineer for approval before works commence adjacent to schools and other noise sensitive receivers.

Good Site Management Practices

4.4.2.3 Good site practice and noise management techniques could considerably reduce the noise impact from construction site activities on nearby NSRs. The following measures should be practiced during each phase of construction:

- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;
- Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;
- Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;
- Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;
- Mobile plant should be sited as far away from NSRs as possible and practicable; and
- Material stockpiles, site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.

Use of Quality Powered Mechanical Equipment

4.4.2.4 The use of quiet plant associated with the construction works shall be made reference to the PME listed in the TM or QPME and other commonly used PME listed in EPD web pages as far as possible. It is generally known (supported by field measurement) that

particular models of construction equipment are quieter than standard types given in the GW-TM. Whilst it is generally considered too restrictive to specify that the Contractor has to use specific models or items of plant, it is reasonable and practicable to set plant noise performance specifications for specific PME so that some flexibility in selection of plant is allowed. A pragmatic approach would be to request that the Contractor independently verifies the noise level of the plant proposed to be used and demonstrates through furnishing of these results, that the plant proposed to be used on the site meets the requirements.

Use of Quiet Construction Method

4.4.2.5 According to EPD's list of good practices and state-of-the-art technologies with the industry, the following is the example of quieter construction methods / equipment that are feasible in the Project. The exact construction methods to be adopted shall be reviewed by the Contractor.

- Use of prefabricated structure to replace in-situ construction as far as practicable.

Use of Movable Noise Barrier and Full Enclosure for Relatively Fixed Plant

4.4.2.6 Movable temporary noise barriers that can be located close to noisy plant and be moved concurrently with the plant along a worksite can be very effective for screening noise from NSRs. A typical design which has been used locally is a wooden framed barrier with a small-cantilevered upper portion of superficial density no less than 7kg/m^2 on a skid footing with 25mm thick internal sound absorptive lining. This measure is particularly effective for low level zone of NSRs. A cantilevered top cover would be required to achieve screening benefits at upper floors of NSRs.

4.4.2.7 Movable temporary noise barriers shall be used for some PME (e.g. excavator). It is anticipated that suitably designed barriers could achieve at least 5dB(A) reduction for movable plant and 10dB(A) for stationary plant.

4.4.2.8 The use of standard enclosure could be considered to shelter relatively fixed plant including air compressor, generator. These standard enclosures can provide at least 15dB(A) noise reduction.

4.5 Operational Phase (Fixed Noise Sources Impact)

4.5.1 Determination of Noise Criteria

Proposed Noise Sensitive Uses of the Project (i.e. Proposed Coach Duty Rooms)

4.5.1.1 The proposed Coach Duty Rooms (PN01), which is noise sensitive use, is located at the Lower Platform of the Project. It is located at about 160m from Tseung Kwan O InnoPark with numbers of industrial buildings and data centres. Some high-rise residential developments (e.g. Lohas Park) are located further away. The types of area "(i) rural area"; "(ii) low density residential area consisting of low-rise or isolated high-rise developments"; and "(iii) urban area" according to IND-TM cannot reflect the future environs of the Lower Platform and are all not applicable. Thus, the Lower Platform shall fall into type "(iv) area other than those above" according to IND-TM.

4.5.1.2 The Lower Platform is located directly adjacent to Tseung Kwan O InnoPark, of which the land uses zonings are "Other Uses" ("OU") and "Government, Institution or Community" ("GIC"). Nevertheless, Tseung Kwan O InnoPark (previously known as Tseung Kwan O Industrial Estate) is an area that consists of a number of factories or

industrial establishments. Therefore, it is considered to be an industrial area for the purpose of IND-TM and is classified as Influencing Factor (IF). As the Lower Platform is directly affected by the part of the IF (i.e. Mega Plus at Tseung Kwan O InnoPark), the Area Sensitivity Rating (ASR) of "C" is assigned to the Lower Platform, including the proposed Coach Duty Rooms. The Acceptable Noise Level (ANL) for ASR of "C" should be 70dB(A) and 60dB(A) for daytime and night-time respectively.

Existing NSRs in the Vicinity of the Project

4.5.1.3 The nearby existing NSR (i.e. N01 Le Prestige Lohas Park) are located at the cluster of high-rise residential buildings with Wan Po Road to its east, and Tseung Kwan O InnoPark to its southeast. The types of area "(i) rural area"; "(ii) low density residential area consisting of low-rise or isolated high-rise developments"; and "(iii) urban area" according to IND-TM according to IND-TM cannot reflect the environs of the existing NSR and are all not applicable. Thus, the existing NSR shall fall into type "(iv) area other than those above" according to IND-TM.

4.5.1.4 The existing NSR is located near Wan Po Road to its east. According to Annual Traffic Census (ATC) for Year 2023, Wan Po Road had an Annual Average Daily Traffic (AADT) of 30,420, which is considered as an IF under IND-TM. For the façade of the existing NSR facing toward the Project is having an open view angle facing Wan Po Road, road traffic noise from Wan Po Road is readily noticeable and is a dominant feature of the noise climate. Therefore, the existing NSR is considered to be directly affected by the IF and hence an ASR of "C" is assigned. The ANL for ASR of "C" should be 70dB(A) and 60dB(A) for daytime and night-time respectively.

4.5.2 Impacts Evaluation

Potential Fixed Noise Sources Impacts on the Proposed Noise Sensitive Uses of the Project (i.e. Proposed Coach Duty Rooms)

4.5.2.1 A desktop study and site visits have been carried out in September 2024 to identify any potential fixed noise sources in the vicinity of the Application Site. The key fixed noise sources include the two data centres (i.e. MEGA Plus and HKCOLO) and the leachate treatment plant of the restored landfill (TKOL II/III). Their locations are indicated in **Figure 4.2**. The relevant information of these key fixed noise sources are summarized in **Table 4.7**. More details are provided in **Appendix 6.1**.

Table 4.7 Key Fixed Noise Sources Identified in the Vicinity of the Project

Location	Identified Noise Sources	Site Observations
MEGA Plus	• Operation: louvres at facades and chiller plants at rooftop • Operation period: full day	• Noticeable at the location of the proposed Coach Duty Rooms • Dominant noise feature near the proposed Coach Duty Rooms
HKCOLO	• Operation: louvres at facades and chiller plants at rooftop • Operation period: full day	• Audible at the nearest boundary of the Application Site • Not noticeable at the location of the proposed Coach Duty Rooms

Location	Identified Noise Sources	Site Observations
Leachate treatment plant of the restored landfill (TKOL II/III)	• Operation: plants within the temporary structure with two sides enclosed • Operation period: full day as advised by EPD	• Audible at the boundary of the leachate treatment plant • Not noticeable at the location of the proposed Coach Duty Rooms as it is significantly screened by the temporary structure, and the structures of other installation of the leachate treatment plant

4.5.2.2 As some of the louvres are located at higher level of the façades of MEGA Plus and HKCOLO, noise measurement at-source is considered impractical. Therefore, noise measurements at the location of the proposed Coach Duty Rooms (PN01) were conducted during daytime, evening time and nighttime to evaluate the potential fixed noise sources impact due to the operation of these key fixed noise sources in the vicinity.

4.5.2.3 Free-field noise measurements were conducted at the location of the proposed Coach Duty Rooms (PN01). The measurement details are provided in **Appendix 6.2**. **Table 4.8** summarises the noise measurement results.

Table 4.8 Result Summary of On-site Measurement on Fixed Noise Sources

Time Period	Measured Noise Level ($L_{eq\ (30mins)}$, dB(A)) [1]	Adjusted Measured Noise Level ($L_{eq\ (30mins)}$, dB(A)) [2]	Noise Criteria ($L_{eq\ (30mins)}$, dB(A))	Compliance
Daytime	53	59	70	Y
Evening Time	50	56	70	Y
Nighttime	49 – 51	55 – 57	60	Y

Notes:

[1] A free-field noise measurement was conducted at 1.2m above-ground level.

[2] Façade correction of 3dB(A) is applied. As tonal characteristic is identified (see **Appendix 6.2**), 3dB(A) tonality correction is applied.

4.5.2.4 The on-site measurement results demonstrated that the proposed Coach Duty Rooms (PN01) would be able to meet the respective fixed noise sources criteria.

Potential Fixed Noise Sources Impacts on the Existing NSR due to the Project

4.5.2.5 Based on the latest information, the Project will only operate during daytime and evening period. No night-time (i.e. 11pm to 7:00am) operation is anticipated.

4.5.2.6 The operation of the Project would involve the use of some fixed plants that would emit noise, these possible fixed noise sources are listed in **Table 4.9**.

Table 4.9 Possible Fixed Noise Sources under the Project

Fixed Noise Sources	Tentative Location	Description
Public announcement (PA) system	• Arena	• With reference to Tuen Mun Public Riding School, the loudspeakers of the PA system will be in small scale and distributed around the paddock. • The loudspeakers would be directional and oriented to the proposed paddocks. • The proposed paddocks are located at the Middle Platform and Upper Platform, which provide large separation distance of more than 450m and 790m respectively from the existing NSRs.

Fixed Noise Sources	Tentative Location	Description
Air conditioning system (e.g. condensers, etc.)	• Stable • Farrier rooms • Administration buildings • Training facilities • Auxiliary facilities	• The size of the facilities with air conditioning system is relatively small and limited to a few storeys. Therefore, the scale of air conditioning system is expected to be relatively small. Chiller plants and cooling towers are not required. • The air conditioning system will be distributed in the Lower, Middle and Upper Platforms, which provide longer separation distance from the existing NSRs (~210m, ~450m and ~660m respectively).
Exhausts of mechanical ventilation system	• E&M plant rooms • Waste management and storage facilities • Storage facilities	• The size of the facilities with mechanical ventilation system is relatively small and limited to a few storeys. Therefore, the scale of air conditioning system is expected to be relatively small.

4.5.2.7 The scale of the fixed noise sources under the Project are expected to be relatively small. In addition, the nearest NSR (i.e. N01 Le Prestige Lohas Park) is located at about 200m away from the Application Site. As these fixed plants will be distributed in the Lower, Middle and Upper Platforms, with provide longer separation distance from the nearest NSR (i.e. ~195m, ~450m and ~700m respectively). Given the small scale of fixed noise sources and sufficient separation distance, adverse fixed noise sources impact on the existing NSR is not anticipated with proper implementation of good design measures as discussed in **Section 4.5.3**.

4.5.2.8 As other noisy equipment (e.g. pumping system of E&M system) to be installed and the noisy activities to be carried out in the farrier rooms are enclosed within the proposed building structures, adverse fixed noise sources impact on the existing NSR is not anticipated.

4.5.2.9 As the scale of the fixed noise sources under the Project are expected to be relatively small and sufficient separation distance is allowed, noise contribution from the operation of the Project is considered minimal. Therefore, cumulative fixed noise sources impact with other existing fixed noise sources on the existing NSR is not anticipated.

4.5.3 Noise Control Measures

4.5.3.1 Possible noise control measures with reference to EPD's "Good Practices on Ventilation System Noise Control" could be considered for the fixed noise sources, for example:

- Quieter equipment;
- Acoustic louvre;
- Barrier; and
- Enclosure, etc.

4.5.3.2 In addition, the loudspeakers of the PA system and exhausts of the mechanical ventilation system will be oriented away from nearby NSR as far as practicable.

4.6 Operational Phase (Road Traffic Noise Impact)

4.6.1 Impacts Evaluation

Potential Road Traffic Noise Impacts on the Proposed Noise Sensitive Uses of the Project (i.e. Proposed Coach Duty Rooms)

4.6.1.1 The proposed Coach Duty Rooms (PN01), which is noise sensitive use, is located at the Lower Platform of the Project. The major roads in its vicinity are Wan Po Road with AADT of 30,420 (Year 2023) and Wan O Road with separation distance of about 160m from the Application Site, and more than 200m from the proposed Coach Duty Rooms . Other roads in its vicinity are Chun Yat Street and Chun Sing Street adjacent to the Application Site, but more than 230m from the proposed Coach Duty Rooms . In addition, the nearby buildings (i.e. MEGA Plus and HKCOLO) also provide some screening to these roads. Therefore, adverse road traffic noise impact on the proposed Coach Duty Rooms is not anticipated.

Potential Road Traffic Noise Impacts on the Existing NSR due to Induced Traffic from the Project

4.6.1.2 The noise climate of the existing NSR (i.e. N01 Le Prestige Lohas Park) is dominated by the road traffic noise from Wan Po Road with AADT of 30,420 (Year 2023). During the operation of the Project, there will be about 445veh/day (two-way) generate / attract to/from the adjacent road network. Comparing with the high existing traffic volume on Wan Po Road, the induced traffic from the Project is insignificant. Therefore, adverse road traffic noise impact due to the induced traffic from the Project on the existing NSR is not anticipated.

Potential Road Traffic Noise Impacts from the Access Road

4.6.1.3 As mentioned in **Section 3.5.1**, the Access Road will serve both the landfill restoration operator and the PRS, with daily traffic of less than 20 veh/day (two-way) and 50 veh/day (two-way) respectively. Therefore, the potential road traffic noise impact from the Access Road is insignificant.

4.6.2 Noise Control Measures

4.6.2.1 During operational phase, no adverse road traffic noise impact is anticipated. Thus, noise control measure is not required.

4.7 Environmental Monitoring and Audit

4.7.1 Construction Phase

4.7.1.1 During construction phase, no adverse noise impact is anticipated with the implementation of control measures. Nevertheless, site audit is recommended for the construction phase to ensure better environment. Regular site audits would be carried out to ensure proper implementation of noise control measures.

4.7.2 Operational Phase

4.7.2.1 During operational phase, no adverse noise impact is anticipated with good design practices for planned fixed noise sources under the Project. EM&A is not required for the operational phase.

4.8 Summary

4.8.1.1 During construction phase, potential sources of noise impact of the Project will be the use of Powered Mechanical Equipment for various construction activities. With proper implementation of the proposed control measures and good site practices including use of Quality Powered Mechanical Equipment (QPME) / quieter construction methods, noise barriers, noise enclosures and locating mobile plant as far away from noise sensitive receivers as possible and practicable, etc., it is anticipated that there will be no adverse noise impact during the construction phase.

4.8.1.2 Potential fixed noise sources impact on the proposed Coach Duty Rooms due to the existing fixed noise sources has been evaluated. Compliance with relevant noise criteria is anticipated. Potential fixed noise sources impact due to the Project on existing noise sensitive receiver (e.g. Le Prestige Lohas Park) has been evaluated. With proper implementation of good design practices, no adverse fixed noise sources impact is anticipated. Therefore, it is anticipated that there will be no adverse fixed noise sources impact during the operational phase.

4.8.1.3 When comparing with the heavily trafficked existing roads (e.g. Wan Po Road), the induced traffic due to the operation of the Project is insignificant. Also, there is only limited number of traffic on the Access Road for the landfill restoration operator and the PRS. Therefore, it is anticipated that there will be no adverse road traffic noise impact during the operational phase.

5. Water Quality

5.1 Legislation, Standards and Guidelines

5.1.1 General

5.1.1.1 The relevant legislation, standards and guidelines applicable to the present study for the water quality impact assessment of both construction and operational phase include the following:

- Water Control Ordinance (WPCO) (Cap. 358);
- Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems (TM-DSS);
- Hong Kong Planning Standards and Guidelines (HKPSG);
- ProPECC PN 2/24 – Construction Site Drainage;
- ProPECC PN 1/23 – Drainage Plans Subject to Comment by the Environmental Protection Department;
- ETWB Technical Circular (Works) (ETWB TCW) No. 5/2005 – Protection of Natural Streams / Rivers from Adverse Impact Arising from Construction Works; and
- Water Supplies Department's (WSD) Target Values of Sea Water Quality for Flushing Supply at Intake Point of Salt Water Pumping Station

5.1.2 Water Pollution Control Ordinance

5.1.2.1 The entire Hong Kong waters are divided into ten Water Control Zones (WCZs) and four supplementary WCZs under the WPCO (Cap. 358). Each WCZ has a designated set of statutory Water Quality Objectives (WQOs) designed to protect the inland and/ or marine environment and its users. The Project is located within the Junk Bay WCZ and the corresponding WQOs are summarised in **Table 5.1**.

Table 5.1 Water Quality Objectives for Junk Bay WCZ

Parameters	Objectives	Sub-Zone
Aesthetic appearance	(a) Waste discharges shall cause no objectionable odours or discolouration of the water.	Whole zone
	(b) Tarry residues, floating wood, articles made of glass, plastic, rubber or of any other substances should be absent.	Whole zone
	(c) Mineral oil should not be visible on the surface. Surfactants should not give rise to a lasting foam.	Whole zone
	(d) There should be no recognisable sewage-derived debris.	Whole zone
	(e) Floating, submerged and semi-submerged objects of a size likely to interfere with the free movement of vessels, or cause damage to vessels, should be absent.	Whole zone

Parameters	Objectives	Sub-Zone
	(f) Waste discharges shall not cause the water to contain substances which settle to form objectionable deposits.	Whole zone
Bacteria	(a) The level of *Escherichia coli* should not exceed 610 per 100 milligrams per litre, calculated as the geometric mean of all samples collected in one calendar year.	Secondary Contact Recreation Subzone & Fish Culture Zones
	(b) The level of *Escherichia coli* should not exceed 1000 per 100 ml, calculated as the running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days.	Inland waters
Colour	Waste discharges shall not cause the colour of water to exceed 50 Hazen units.	Inland waters
Dissolved Oxygen	(a) Waste discharges shall not cause the level of dissolved oxygen to fall below 4 mg per litre for 90% of the sampling occasions during the year; values should be calculated as water column average. In addition, the concentration of dissolved oxygen should not be less than 2 milligrams per litre within 2 metres of the seabed for 90% of the sampling occasions during the year.	Marine waters excepting Fish Culture Subzones
	(b) The dissolved oxygen level should not be less than 5 milligrams per litre for 90% of the sampling occasions during the year; values should be calculated as water column average (arithmetic mean of at least 3 measurements at 1 metre below surface, mid-depth and 1 metre above seabed). In addition, the concentration of dissolved oxygen should not be less than 2 milligrams per litre within 2 metres of the seabed for 90% of the sampling occasions during the year.	Fish Culture Subzones
	(c) Waste discharges shall not cause the level of dissolved oxygen to be less than 4 milligrams per litre.	Inland waters
pH	(a) The pH of the water should be within the range of 6.5 - 8.5 units. In addition, waste discharges shall not cause the natural pH range to be extended by more than 0.2 units.	Marine waters
	(b) The pH of the water should be within the range of 6.0 - 9.0 units.	Inland waters
Temperature	Waste discharges shall not cause the natural daily temperature range to change by more than 2.0 °C.	Whole zone
Salinity	Waste discharges shall not cause the natural ambient salinity level to change by more than 10%.	Whole zone
Suspended Solids	(a) Waste discharges shall neither cause the natural ambient level to be raised by 30% nor give rise to accumulation of suspended solids which may adversely affect aquatic communities.	Marine waters
	(b) Waste discharges shall not cause the annual median of suspended solids to exceed 25 milligrams per litre.	Inland waters

Parameters	Objectives	Sub-Zone
Ammonia	The un-ionized ammoniacal nitrogen level should not be more than 0.021 milligram per litre, calculated as the annual average (arithmetic mean), as unionized form.	Whole zone
Nutrients	(a) Nutrients shall not be present in quantities sufficient to cause excessive or nuisance growth of algae or other aquatic plants.	Marine waters
	(b) Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.3 milligram per litre, expressed as annual water column average (arithmetic mean of at least 3 measurements at 1m below surface, mid-depth and 1m above seabed).	Marine waters
5-Day Biochemical Oxygen Demand	Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 5 milligrams per litre.	Inland waters
Chemical Oxygen Demand	Waste discharges shall not cause the chemical oxygen demand to exceed 30 milligrams per litre.	Inland waters
Dangerous Substances	(a) Waste discharges shall not cause the dangerous substances in marine waters to attain such levels as to produce significant toxic effects in humans, fish or any other aquatic organisms, with due regard to biologically cumulative effects in food chains and to interactions of toxic substances with each other.	Whole zone
	(b) Waste discharges of dangerous substances shall not put a risk to any beneficial uses of the aquatic environment.	Whole zone

Note:

[1] Reference: Junk Bay Water Control Zone Statement of Water Quality Objectives

5.1.3 Technical Memorandum on Standard for Effluents Discharged into Drainage and Sewerage Systems (TM-DSS)

5.1.3.1 Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) was issued to control the physical, chemical and microbial quality of effluent discharges into foul sewers, storm water drains, inland and coastal waters. Specific limits apply to different discharge areas and they are different between surface waters and sewers. The limits vary with the rate of effluent flow. Any effluent discharge during the construction and operation phases of the development should comply with the relevant standards as stipulated in the TM-DSS.

5.1.4 Hong Kong Planning Standards and Guidelines (HKPSG)

5.1.4.1 Chapter 9 of the HKPSG outlines environmental requirements that need to be considered in land use planning. The recommended guidelines, standards and guidance cover the selection of suitable locations for the developments and sensitive uses, provision of environmental facilities, and design, layout, phasing and operational controls to minimise adverse environmental impacts. It also lists out environmental factors influencing land use planning and recommend buffer distances for land uses.

5.1.4.2 Section 5 under Chapter 9 of HKPSG provides broad guidelines on water quality which includes the principal framework for planning against water pollution. The overall objectives for planning against water pollution are:

a) Achieving and maintaining the quality of inland waters, coastal waters, marine waters and groundwaters so that they can be used for their legitimate purposes;

b) Providing adequate public sewerage, wastewater treatment and disposal facilities for all wastewaters; and

c) Putting in place and enforce water pollution control legislation aimed at safeguarding the health and welfare of the community.

5.1.5 ProPECC PN 2/24 "Construction Site Drainage"

5.1.5.1 Professional Persons Environmental Consultative Committee Practice Notes (ProPECC PN2/24) on Construction Site Drainage provides guidelines for the handling and disposal of construction discharges. This note is applicable for control of site runoff and wastewater generated during the construction phase of the Development.

5.1.6 Practice Note for Professional Persons on Drainage Plans Subject to Comment by the Environmental Protection Department (ProPECC PN 1/23)

5.1.6.1 ProPECC PN 1/23 on drainage plans subject to comment by the EPD, provides guidelines and practices for handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers during operation phase.

5.1.7 ETWB Technical Circular (Works) (ETWB TCW) No. 5/2005 – Protection of Natural Streams / Rivers from Adverse Impact Arising from Construction Works

5.1.7.1 ETWB TCW No. 5/2005 provides an administrative framework to better protect all natural streams/rivers from the impact of construction works and clarifies and strengthens existing measures for protection of natural streams/rivers from government projects and private developments.

5.1.8 Water Supplies Department's (WSD) Target Values of Sea Water Quality for Flushing Supply at Intake Point of Salt Water Pumping Station

5.1.8.1 The criteria for assessing the water quality impact on the WSD's seawater intakes are based on the Target Values of Sea Water Quality for Flushing Supply at Intake Point of Salt Water Pumping Station (at intake point) issued by the WSD and are summarized under **Table 5.2**.

Table 5.2 WSD's Target values of Sea Water Quality at Intake Point of Salt Water Pumping Stations

Parameter	Target Value
Colour	< 20 Hazen Unit
Turbidity	< 10 Nephelometric Turbidity unit (N.T.U.)
Threshold Odour No.	< 100 odour unit
Ammoniacal Nitrogen	< 1 mg/l
Suspended Solids	< 10 mg/l
Dissolved Oxygen	> 2 mg/l
Biochemical Oxygen Demand	< 10 mg/l
Synthetic Detergents	< 5 mg/l
E. coli	< 20,000 cfu/100 ml

5.2 Description of the Environment

5.2.1 Baseline Water Quality Condition

5.2.1.1 The latest water quality monitoring data in 2023 from EPD's Marine Water Quality in Hong Kong 2023 were adopted to determine the ambient water quality. Details of marine water quality monitoring data from EPD water quality monitoring stations, JM3 and JM4 which are the nearest stations to the Project, are presented in **Table 5.3**. According to the Marine Water Quality in Hong Kong 2023, the water quality of the Junk Bay WCZ has achieved full compliance (100%) with the Water Quality Objectives (WQOs) for the last 24 years. Summary of the marine water quality of the related parameters is presented in **Table 5.3** and the locations of monitoring stations are presented in **Figure 5.1**.

Table 5.3 Summary of Marine Water Quality of Junk Bay WCZ (2023)

Parameters		EPD Monitoring Station	
		JM3	JM4
Temperature (°C)		23.9 (17.7 – 29.8)	23.6 (17.8 – 29.4)
Salinity		32.4 (30.6 – 33.5)	32.8 (32.1 – 33.6)
Dissolved Oxygen (mg/L)	Depth-Average	6.8 (4.9 – 9.8)	6.2 (5.0 – 7.5)
	Bottom	6.3 (4.0 – 11.6)	5.8 (3.5 – 7.9)
Dissolved Oxygen (% Saturation)	Depth-Average	97 (78 - 148)	88 (74 - 100)
	Bottom	90 (63 - 176)	81 (50 - 101)
pH		7.7 (7.1 – 8.1)	7.7 (7.1 – 8.1)
Secchi Disc Depth (m)		2.7 (2.0 – 3.9)	2.8 (1.8 – 3.6)
Turbidity (NTU)		6.5 (1.0 – 35.8)	4.1 (1.6 – 13.3)
Suspended Solids (mg/L)		5.0 (1.6 – 9.2)	5.3 (1.9 – 11.3)
5-day Biochemical Oxygen Demand (mg/L)		0.5 (0.3 – 1.2)	0.4 (0.3 – 0.7)
Ammonia Nitrogen (mg/L)		0.059 (0.033 – 0.098)	0.056 (0.026 – 0.107)
Unionised Ammonia (mg/L)		0.001 (<0.001 – 0.003)	0.001 (<0.001 – 0.003)
Nitrite Nitrogen (mg/L)		0.018 (0.006 – 0.043)	0.019 (0.003 – 0.046)
Nitrate Nitrogen (mg/L)		0.083 (0.030 – 0.177)	0.080 (0.03 – 0.210)

Parameters	EPD Monitoring Station	
	JM3	JM4
Total Inorganic Nitrogen (mg/L)	0.16 (0.10 – 0.28)	0.15 (0.06 – 0.35)
Total Kjeldahl Nitrogen (mg/L)	0.45 (0.16 – 0.79)	0.45 (0.15 – 0.74)
Total Nitrogen (mg/L)	0.55 (0.24 – 0.88)	0.55 (0.21 – 0.93)
Orthophosphate Phosphorus (mg/L)	0.010 (<0.002 – 0.019)	0.013 (0.006 – 0.023)
Total Phosphorus (mg/L)	0.06 (0.05 – 0.12)	0.06 (0.04 – 0.08)
Silica (as SiO_2) (mg/L)	0.60 (0.19 – 1.23)	0.63 (0.17 – 1.23)
Chlorophyll – a (µg/L)	3.3 (0.3 – 10.4)	2.7 (0.3 – 9.5)
E. coli (count/100mL)	67 (5 - 360)	84 (5 - 360)
Faecal Coliforms (count/100mL)	170 (8 - 850)	190 (10 - 1000)

Notes:

[1] Unless otherwise specified, data presented are depth-averaged (A) values calculated by taking the means of three depths: Surface (S), Mid-depth (M), Bottom (B).

[2] Data presented are annual arithmetic means of the depth-averaged results except for E. coli and faecal coliforms. which are annual geometric means.

[3] Data in brackets indicate ranges.

5.3 Water Sensitive Receivers

5.3.1.1 The assessment area for the water quality impact assessment is defined by a distance of 500m from the boundary of the Application Site. Water Sensitive Receivers (WSRs) have been identified in accordance with the HKPSG. There are few channels and watercourses identified in the vicinity of the Application Site, which are considered as the representative WSRs. The details and location of the WSRs within 500m assessment area are presented in **Table 5.4** and **Figure 5.2**.

Table 5.4 Representative Water Sensitive Receivers

WSR ID	Description	Type	Status	Approximate Nearest Distance from the Application Site (m) [Lower / Middle / Upper Platform] [1]
WSR1	Channels along the edge of TKOL II/III Site	Channelized	Active	50 / 375 / 560
WSR2	Channels within TKOL II/III Site	Channelized	Active	10 / 145 / <5

WSR ID	Description	Type	Status	Approximate Nearest Distance from the Application Site (m) [Lower / Middle / Upper Platform] [1]
WSR3	Channels within TKOL II/III Site	Channelized	Active	15 / <5 / <5
WSR4	Channels within TKOL II/III Site	Channelized	Active	645 / 395 / <5
WSR5	Channels within TKOL II/III Site	Channelized	Active	105 / 55 / 115
WSR6	Channels within TKOL II/III Site	Channelized	Active	585 / 290 / 175
WSR7	Channels within TKOL II/III Site	Channelized	Active	255 / 10 / 275
WSR8	Channels within TKOL II/III Site	Channelized	Active	0 / <5 / 545
WSR9	Channels within TKOL II/III Site	Channelized	Active	<5 / 15 / 640
WSR10	Channels along the edge of TKOL II/III Site	Channelized	Active	105 / 65 / 25
WSR11	Watercourse to the north of the Application Site	Natural watercourse	Active	550 / 480 / 45
WSR12	Watercourse to the northeast of the Application Site	Natural watercourse	Active	670 / 495 / 20
WSR13	Watercourse to the northeast of the Application Site	Natural watercourse	Active	790 / 585 / 35
WSR14	Watercourse to the east of the Application Site	Natural watercourse	Active	800 / 550 / 105
WSR15	Watercourse to the south of the Application Site	Natural watercourse	Active	520 / 260 / 380
WSR16	Watercourse to the south of the Application Site	Natural watercourse	Active	210 / 90 / 670
WSR17	Watercourse to the far north south of the Application Site	Natural watercourse	Active	505 / 195 / 150
WSR18	Watercourse to the far south east of the Application Site	Natural watercourse	Active	735 / 515 / 490

WSR ID	Description	Type	Status	Approximate Nearest Distance from the Application Site (m) [Lower / Middle / Upper Platform] [1]
WSR19	Clear Water Bay Country Park	Country Park	Active	550 / 275 / <5

Note:
[1] Distance is rounded to the nearest 5m.

5.4 Construction Phase

5.4.1 General Construction Activities

5.4.1.1 The construction works of the Project are land-based in nature, as discussed in **Section 2.2.2.2**, for example, site clearance, site formation, construction of buildings and structures, etc.

5.4.2 Impacts Evaluation

5.4.2.1 The major pollution sources in construction phase are general construction activities, construction runoff, construction works in close proximity of inland water, sewage from construction workforce and accidental spillage of chemicals. The evaluation of impacts is discussed in the following sections.

Construction Runoff

5.4.2.2 The construction site runoff comprises the following:

- runoff and erosion from site surfaces, earth working areas and stockpiles;
- wash water from dust suppression sprays and wheel washing facilities; and
- fuel, oil, solvents and lubricants from maintenance of construction machinery and equipment.

5.4.2.3 Construction runoff if not properly treated may cause physical, biological and chemical effects. The physical effects include potential blockage of drainage channels and increase of suspended solid (SS) levels in the waterbodies nearby and the Junk Bay WCZ if improperly discharged to open water. Runoff containing significant amounts of concrete and cement-derived material may cause primary chemical effects such as increasing turbidity and discoloration, elevation in pH, and accretion of solids. A number of secondary effects may also result in toxic effects to water biota due to elevated pH values, and reduced decay rates of faecal micro-organisms and photosynthetic rate due to the decreased light penetration.

5.4.2.4 The implementation of measures as specified in the ProPECC PN 2/24 to control construction run-off will be important for preventing runoff with high levels of suspended solids from entering the water environment. With the best management practices as described in **Section 5.4.3**, no adverse water quality impacts are anticipated.

Construction Works in Close Proximity of Inland Water

5.4.2.5 Construction activities may pollute nearby inland waterbodies within and in the vicinity of the construction site through the potential release of construction wastes, which are

generally characterized by high concentration of SS and elevated pH. Based on the latest design, there is no construction work at the watercourse. Thus, neither modification, alternation nor removal of the watercourse is required. Hence, with the implementation of adequate construction site drainage as specified in the ProPECC PN 2/24, and ETWB Technical Circular (Works) (ETWB TCW) No. 5/2005 – Protection of Natural Streams / Rivers from Adverse Impact Arising from Construction Works described in **Section 5.4.3**, no adverse water quality impacts are anticipated.

Sewage from Construction Workforce

5.4.2.6 Sewage arising from the on-site construction workforce is likely to cause water pollution if it is discharged improperly. The sewage is characterised by high levels of biochemical oxygen demand (BOD), ammonia, *E. coli* and oil/ grease. The watercourses polluted by sewage would have aesthetic and odour problem and may become hypoxic due to decay of large amount of oxygen demanding material. Given that sufficient temporary sanitary facilities, e.g. portable chemical toilets, and sewage holding tanks will be provided at the construction site and the control measures proposed in **Section 5.4.3**, no adverse water quality impacts are anticipated.

Accidental Spillage of Chemicals

5.4.2.7 The use of chemicals such as engine oil and lubricants, and their storage as waste materials has the potential to cause adverse water quality impacts if spillage occurs and enters the adjacent water bodies. Waste oil may infiltrate the surface soil layer, or discharged into the nearby water environment, increasing hydrocarbon levels. However, adverse impacts can be mitigated by implementing best management and site practices as described in **Section 5.4.3**.

5.4.3 Control Measures

Construction Runoff

5.4.3.1 In accordance with the ProPECC PN 2/24, good site practices should be implemented as far as practicable to control construction site runoff, contaminated surface runoff and drainage from the works areas, and to prevent runoff and drainage water with high levels of SS from entering the nearby water bodies, listed as below:

- At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities;
- Diversion of natural stormwater should be provided as far as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipment in order to avoid or minimise polluted runoff. Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m³ capacities, are recommended as a general measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped;
- The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/ sediment trap. The

silt/ sediment traps should be incorporated in the permanent drainage channels to enhance deposition rates;

- The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 2/24. The detailed design of the sand/ silt traps should be undertaken by the contractor prior to the commencement of construction;
- Construction works should be programmed to minimise surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means;
- All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas;
- If the excavation of trenches in wet periods is necessary, it should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
- All open stockpiles of construction materials (for example, aggregates, sand and fill material) should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system;
- Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers;
- Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 2/24. Attention should be paid to the control of silty surface runoff during storm events;
- All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient back fall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains;
- If vehicle and plant services areas, vehicle wash bays, lubrication bays or other activities which have the potential to incur oil leakage or spillage are provided within the site, then the Contractor shall make suitable provisions in accordance with the EPD practice notes, for example but not limited to locating in roofed areas and connecting the drainage for this area to the foul sewer via oil interceptor. Any oil interceptors should be emptied and cleaned regularly to prevent the release of oil and

grease into the storm water drainage system after accidental spillage. A bypass should be provided for oil interceptors to prevent flushing during heavy rain;

- Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts;
- All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby; and
- Regular environmental audit on the construction site should be carried out to prevent any malpractices. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the water bodies, marsh and ponds.

5.4.3.2 By adopting the best management practices, it is anticipated that the impacts of general site operation will be reduced to satisfactory levels before discharges, and therefore no adverse water quality impact. The details of best management practices will be highly dependent to actual site condition and Contractor shall apply for a discharge license under WPCO.

Construction Works in Close Proximity of Inland Water

5.4.3.3 The practices outlined in ETWB TC (Works) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" should also be adopted where applicable to minimize the water quality impacts. Relevant measures from the ETWB TC (Works) No. 5/2005 are listed below. With these management practices, no adverse water quality impact is anticipated.

- Construction works close to the inland waters should be carried out in dry season as far as practicable where the flow in the surface channel or stream is low;
- Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches;
- The use of less or smaller construction plants may be specified in areas close to the water courses to reduce the disturbance to the surface water;
- Temporary storage of materials (e.g. equipment, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any watercourses during carrying out of the construction works;
- Stockpiling of construction materials and dusty materials should be covered and located away from any watercourses. Construction debris and spoil should be covered up and / or disposed of as soon as possible to avoid being washed into the nearby water receivers; and
- Proper shoring may need to be erected in order to prevent soil or mud from slipping into the watercourses.

Sewage from Construction Workforce

5.4.3.4 To mitigate the water quality impacts of sewage arising from the on-site construction workers, the following measures should be implemented:

- Sufficient portable chemical toilets shall be provided to serve the construction workers at the construction site to prevent direct disposal of sewage into the water environment. A licensed contractor should be employed to be responsible for appropriate disposal to a suitable government sewage treatment facility offsite and to maintain the cleanliness and operations of the portable toilets; and
- Post notices at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment during the construction phase of the Project.

5.4.3.5 With the implementation of the above control measures, potential water quality impact during construction phase is not anticipated.

Accidental Spillage of Chemicals

5.4.3.6 The Contractor must be registered as a chemical waste producer if chemical wastes are produced from the construction activities. The Waste Disposal Ordinance (Cap. 354) and its subsidiary regulations, in particular the Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C), should be observed and complied with for the control of chemical wastes. The Contractor is also recommended to develop management procedures for the chemicals used and prepare an emergency spillage handling procedure to deal with chemical spillage in case of an accident occurs, a contingency plan for any accidental spillage and heavy rainfall event should also be devised. Since there will be no on-site storage of any pesticides, hence, spillage of pesticides is not anticipated.

5.4.3.7 Any services and maintenance facilities should be located on hard standings within a bunded area, sumps and oil interceptors should be provided. Activities with the potential for accidental leakage and spillage of chemicals, including the maintenance of vehicles and equipment should only be undertaken within areas that are appropriately equipped to control the discharges from these potential accidents. The service and maintenance, and any chemical storage areas should not be positioned near watercourses as a safeguard measure.

5.4.3.8 Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling, and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:

- Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling, and transport;
- Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and
- Storage area should be selected at a safe location on-site and adequate space should be allocated to the storage area.

5.5 Operational Phase

5.5.1 Impacts Evaluation

Sewage from Stables, Staff and Visitors

5.5.1.1 The sewage from the proposed stables, staff and visitors of the Project would be properly collected by sewage system and diverted to the public sewerage system. Sewage from

stables, e.g. horse urine and after-wash water, will be discharged directly to sewage drainage. A separate discharge licence under the WPCO will be obtained. The requirements under the WPCO will be properly implemented. To minimize potential water quality impact, wastes from stables will also be regularly cleared and stockpiled in the enclosed containers inside the proposed manure handling before collection by licensed waste collector engaged. Other than stables, horses could have activity at open areas but limited to arenas and spelling yards mainly. The manure found in the arenas and spelling yards would be cleared regularly to prevent being flushed to the drainage system during heavy rainfall events. The current management control measures adopted by HKJC has been proven to be effective and sufficient in reducing environmental impacts by urine and manure. Therefore, no adverse water quality impact is anticipated.

5.5.1.2 Based on the current development parameters, the average dry weather flow to be generated from the proposed development is estimated to be about 60m^3/day. The 300mm diameter sewer currently utilised by TKOL II/III and 450mm diameter sewer along Chun Sing Street and Chun Yat Street are identified as possible sewerage connection point. The hydraulic capacity of the sewers downstream to the proposed connections would be sufficient. A separated sewerage impact (SIA) assessment report is submitted to ensure all sewage from the Project could be collected and treated before discharge. Therefore, no adverse water quality impact is anticipated.

Surface Runoff

5.5.1.3 During the operational phase, the Application Site will increase the area of impermeable surfaces and hence the peak surface runoff rates. Polluting substances from the Application Site such as dust and lubricant oil deposited and accumulated on the road surfaces may be washed into the drainage system during rainfall or road surface cleaning.

5.5.1.4 Sand traps may be provided at areas near stables, arenas, lungeing pens, horse walkers to prevent sand from being conveyed into the pipe system.

5.5.1.5 Besides, there will be use of pesticides for pest control within the PRS (e.g. administration buildings, auxiliary facilities, waste management and storage facilities, storage facilities, Coach Duty Rooms, etc) and fertilizer for vegetation (e.g. spelling yards). “Practices provided in Good Agricultural Practices for Crop Production” provided by Agriculture, Fisheries and Conservation Department (AFCD) shall be observed and implemented. To safeguard the safety of horses, pesticides will not be applied to the area with potential direct contact of horses (e.g. arenas, spelling yards, lungeing pens, horse walkers, etc.). Therefore, the area with pesticides application is limited, and thus the amount of pesticides would be limited. Also, the pest control service provider will submit a Pest Control Plan to the Club, to ensure that only the pesticides to be used would be safe to public and the equine population, environmental friendly, registered by AFCD and listed with the registration number. Besides, fertilizers should, as far as possible, be organic in nature, and be applied only to the required areas and at the right time, e.g. not to apply during heavy rainfall, or forecasted heavy rainfall. Both pesticides and fertilizers should be kept in a dry, clean and sheltered place and off of the ground, so they will not get caught in rainwater runoff. The surface runoff may still contain trace amount of chemicals during rainfall event. The surface runoff will be diverted to public drainage system, which will be discharged to Junk Bay, of which the water exchange is sufficient. Therefore, adverse water quality impact is not anticipated.

5.5.1.6 For the livestock rearing buildings (i.e. stables), surface drainage system would be provided for the external areas out of the building footprint to prevent rainwater ingress into the buildings. Therefore, adverse water quality impact is not anticipated.

5.5.1.7 As the surface runoff will be properly collected through drainage system with sand traps, adverse water quality impact is not anticipated with proper implementation of best management practices mentioned in **Section 5.5.2**.

5.5.1.8 In addition, there might be maintenance works to be carried out after operation of the PRS. As the scale of the maintenance works is likely to be much smaller than that of the construction works, adverse water quality impact during the maintenance works is not anticipated. The good site practices as discussed in **Section 5.4.3** is also applicable.

5.5.2 Control Measures

Surface Runoff

5.5.2.1 Potential water quality impact may arise from surface runoff from paved area. Best Management Practices (BMPs) recommended in ProPECC PN1/23 for storm water discharge shall be implemented in order to ensure that the proposed works would not pollute the runoff during operation phase. Examples of the BMPs are shown as follows:

- Exposed surface shall be avoided to minimize soil erosion;
- Where appropriate, sand traps shall be provided to remove the pollutants from runoff/stormwater; and
- Existing surface channel's location within the TKOL II/III will be cleaned, maintained and inspected regularly before and after rainstorm.

5.6 Environmental Monitoring and Audit

5.6.1 Construction Phase

5.6.1.1 During construction phase, no adverse water quality impact is anticipated with the implementation of control measures. Nevertheless, site audit is recommended for the construction phase to ensure better environment. Regular site audits would be carried out to ensure proper implementation of pollution control measures.

5.6.2 Operational Phase

5.6.2.1 During operational phase, no adverse water quality impact is anticipated with the implementation of control measures. Thus, EM&A is not required for the operational phase.

5.7 Summary

5.7.1.1 During construction phase, pollution sources will be surface runoff, sewage from construction workforce and accidental spillage of chemicals. With proper implementation of the proposed control measures recommended in ProPECC PN 2/24, PN 1/23 and ETWB TCW No. 5/2005, e.g. provision of silt removal facilities and portable chemical toilets, etc., it is anticipated that there will be no adverse water quality impact during the construction phase.

5.7.1.2 During the operational phase, pollution sources will be sewage from stables, staff and visitors and surface runoff. Wastewater from waste handling processes and sewage from staff will be properly collected and directly diverted to the public sewerage system. Based on preliminary review, the connection points were identified with sufficient hydraulic capacity. A separate sewerage impact assessment report would be submitted. The surface runoff will also be properly collected by drainage system. With the proper implementation

of proposed control measures recommended in ProPECC PN1/23 and "Practices provided in Good Agricultural Practices for Crop Production", it is anticipated that there will be no adverse water quality impact during the operational phase.

5.8 Summary of Sewerage Impact Assessment

5.8.1.1 Source of sewerage arising from the Project includes staffs, visitors and horse cleaning. Two sewerage connection points are identified for the proposed PRS, one at Chung Shing Street/ Chung Yat Street, and another one at manhole S11A currently used by TKOL II/III, and there will be proposed connections within the Application Site. The existing sewerage system downstream to the proposed connection point had been checked to have sufficient capacity. Therefore, no adverse sewerage impact is anticipated due to the proposed development.

6. Waste Management Implications

6.1 Legislation, Standards and Guidelines

6.1.1.1 The relevant legislation, standards and guidelines applicable to the present study for the assessment of waste management implication of both construction and operational phase include the following:

- Waste Disposal Ordinance (Cap. 354);
- Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N);
- Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C);
- Land (Miscellaneous Provisions) Ordinance (Cap. 28); and
- Public Cleansing and Prevention of Nuisances Regulation (Cap. 132BK);
- Relevant guidelines on handling of yard waste on EPD's website (https://www.epd.gov.hk/epd/english/environmentinhk/waste/manage_facility/ypark.html) and Y Park's website (https://www.ypark.hk/zh-hant/); and
- Other relevant guidelines (as listed in **Table 6.1**).

6.1.2 Waste Disposal Ordinance (WDO) (Cap. 354) and Subsidiary Regulations

6.1.2.1 The WDO prohibits any unauthorized disposal of wastes. Construction waste, defined under Cap. 354N of the WDO, refers to a substance, matter or thing which is generated from construction works. It includes all abandoned materials, whether processed or stockpiled or not, before being abandoned, but does not include sludge, screenings or matter removed or generated from desludging, desilting or dredging works.

6.1.2.2 Under the WDO, wastes can only be disposed of at designated waste disposal facilities licensed by EPD. Breach of this Ordinance can lead to a fine and/ or imprisonment. The WDO also stipulates the requirements for issuing licenses for the collection and transportation of wastes.

6.1.3 Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)

6.1.3.1 Under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation, construction waste delivered to a landfill for disposal must not contain more than 50% by weight of inert material. Construction waste delivered to a sorting facility for disposal must contain more than 50% by weight of inert material, and construction waste delivered to a Public Fill Reception Facilities for disposal must consist entirely of inert material.

6.1.4 Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C)

6.1.4.1 Under the WDO, the Waste Disposal (Chemical Waste) (General) Regulation provides regulations for chemical waste control, and administers the possession, storage, collection, transport and disposal of chemical wastes. EPD has also issued a 'guideline' document, the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes (1992), which details how the Contractor should comply with the regulations on chemical wastes.

6.1.5 Land (Miscellaneous Provisions) Ordinance (Cap. 28)

6.1.5.1 The inert portion of Construction and Demolition (C&D) materials may be taken to public filling facilities including public filling area, public filling barging points and stockpiling areas. These facilities usually form part of land reclamation schemes and are operated by Civil Engineering and Development Department (CEDD). The ordinance requires Dumping Licenses (to be issued by CEDD) to be obtained by individuals or companies, who deliver inert C&D materials to the public filling facilities.

6.1.5.2 Individual licenses and windscreen stickers are issued for each vehicle involved. Public filling areas will accept only inert building debris, soil, rock and broken concrete. The material should, however, be free from marine mud, household refuse, plastic, metal, individual and chemical wastes, animal and vegetable matters and any other materials considered unsuitable by the Filling Supervisor.

6.1.6 Public Cleansing and Prevention of Nuisances Regulation (Cap. 132BK)

6.1.6.1 This regulation provides further control on illegal dumping of litter or waste on unauthorized (unlicensed) sites.

6.1.7 Other Relevant Guidelines

6.1.7.1 This regulation provides further control on illegal dumping of litter or waste on unauthorized (unlicensed) sites. An offence of this regulation would result in a fine and/or imprisonment.

Table 6.1 Other Relevant Documents and Guidelines

Bureau / Department	Documents / Guidelines / Technical Circulars
Development Bureau	• Works Branch Technical Circular (WBTC) No. 2/93, Public Dumps • WBTC No 2/93B, Public Filling Facilities • WBTC No. 16/96, Wet Soil in Public Dumps • WBTC Nos. 4/98 and 4/98A, Use of Public Fill in Reclamation and Earth Filling Project • WBTC No. 12/2000, Fill Management • WBTC No. 19/2001, Metallic Site Hoardings and Signboards • WBTC No. 12/2002, Specification Facilitating the Use of Recycled Aggregates • ETWBTC No. 22/2003 & 22/2003A, Additional Measures to Improve Site Cleanliness and Control Mosquito Breeding on Construction Sites • ETWBTCW No. 19/2005, Environmental Management on Construction Sites • Development Bureau Technical Circular (Works) (DEVB TCW) No. 06/2010, Trip-ticket System for Disposal of Construction and Demolition Material • DEVB TCW No. 08/2010, Enhanced Specification for Site Cleanliness and Tidiness • DEVB TCW No. 09/2011, Enhanced Control Measures for Management of Public Fill
Environment Bureau	• Hong Kong Blueprint for the Sustainable Use of Resources 2035 (2021)
CEDD	• Project Administration Handbook for Civil Engineering Works in 2020, Management of C&D Materials • CEDD TC No. 11/2019, Management of Construction and Demolition Materials
EPD	• Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes • A Guide to the Chemical Waste Control Scheme • A Guide to the Registration of Chemical Waste Producers • Monitoring of Solid Waste in Hong Kong

6.2 Construction Phase

6.2.1 Impacts Evaluation

General

6.2.1.1 The major construction activities of the Project which would potentially result in generation of waste include:

- Site clearance;
- Site formation;
- Replacement of top soil for areas with horses' direct contact;
- Construction of buildings and structures;
- Installation of pipeline and utilities; and
- Temporary site office.

6.2.1.2 A variety of different types of waste would be generated during the construction phase that can be divided into the following distinct categories based on their compositions:

- Inert and non-inert C&D materials;
- Chemical wastes; and
- General refuse.

C&D Materials

6.2.1.3 The major waste source of the Project during construction phase is expected to be C&D materials, generated from site clearance, site formation, replacement of top soil, site excavation and construction of buildings and structures. The estimated amount of different type of wastes to be generated during construction phase is summarized in **Table 6.2**. It should however be noted that these quantities are initial estimates only and would need to be further reviewed and updated as the design progresses.

Table 6.2 Estimated Amount of Different Type of Wastes to be Generated during Construction Phase

Source	Waste Type	Total Generated (m^3)	Total On-site Reused (m^3)	Total Disposed (m^3)	Disposal Location
The Project	Soft inert material [1]	~4,470	~490	~3,980	Tuen Mun Area 38 Fill Bank
The Project	Hard inert C&D material [2]	200	0	200	Tuen Mun Area 38 Fill Bank
The Project	Non-inert C&D material [3]	~8,010	0	~8,010	West New Territories (WENT) Landfill

Notes:

[1] "Soft inert C&D Material" mainly refers to excavated soil, etc.

[2] "Hard inert C&D Material" mainly refers to rock and artificial hard materials (AHM). AHM includes, but not limited to, broken concrete, asphalt, bitumen, granular materials, debris, and rubble, etc.

[3] "Non-inert C&D Material" involved in the Project includes top soil, vegetation, timber and steel. In contrast to public fill, non-inert waste is not suitable for land reclamation and subject to recovery of reusable/ recyclable items, is disposed of at landfills as last resort.

6.2.1.4 Inert soft C&D materials will be reused on-site as far as practicable, while hard inert C&D material and non-inert C&D materials will not be reused on-site as these non-inert materials are not suitable to be reused in site formation and superstructure construction. For non-inert materials, on-site segregation and off-site recycling for recyclables shall be considered as far as practicable and disposal at landfills shall only be considered as a last resort. Timber/ woody materials from site preparation works will be sent to the Yard Waste Recycling Centre in Y-Park for recycling as far as possible.

6.2.1.5 In case of C&D material disposal exceeding 50,000m^3, more detailed waste quantity estimations and the corresponding management options will be documented in the Construction and Demolition Material Management Plan (C&DMMP), which will be prepared during detailed design stage for submission to Public Fill Committee for approval in accordance with Section 4.1.3 "Construction and Demolition Materials" of the Project Administration Handbook for Civil Engineering Works.

6.2.1.6 With proper implementation of good construction site practices recommended in in Section **6.2.2**, the on-site handling and reuse of inert C&D materials would not cause adverse environmental impacts.

Chemical Waste

6.2.1.7 Chemical wastes are likely to be generated from the construction activities and associated facilities may include:

- Scrap batteries or spent acid/ alkali from their maintenance;
- Used paint, engine oils, hydraulic fluids and waste fuel;
- Spent mineral oils/ cleansing fluids from mechanical machinery; and
- Spent solvents/ solutions, some of which may be halogenated, from equipment cleansing activities.

6.2.1.8 Chemical waste may pose serious environmental, health and safety hazards if not stored and disposed of in an appropriate manner as outlined in the Waste Disposal (Chemical Waste) (General) Regulation and the *Code of Practice on the Packaging, Labelling and Storage of Chemical Waste*. These hazards may include:

- Toxic effects to workers;
- Adverse effects on water quality from spills; and
- Fire hazards.

6.2.1.9 The amount of chemical waste as it will be dependent on the Contractor's on-site maintenance practice and the quantities of plant and vehicles utilised. Nevertheless, it is anticipated that the quantity of chemical waste, such as lubricating oil and solvent produced from plant maintenance, will be small and in the order of a few hundred litres per month.

6.2.1.10 Suitable arrangements for the storage, handling, transport and disposal of chemical wastes shall be made in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Waste* published by the EPD. Chemical waste should be collected by a licensed chemical waste collector and to be disposed of at a licensed chemical waste treatment and disposal facility. Wherever possible, opportunities for the reuse and recycling of materials will be taken. Control measures for chemical wastes are detailed in

Section 6.2.2. Provided that the handling, storage and disposal of chemical wastes are in accordance with these requirements, adverse environmental impacts are not expected.

General Refuse

6.2.1.11 The general refuse generated by the construction workforces mainly consists of food waste, waste paper, aluminium cans and waste paper. The general refuse will require off-site disposal.

6.2.1.12 Effective collection of site waste will be required to prevent waste materials being blown around by wind, flushed or leached into the marine environment, or creating an odour nuisance or pest and vermin problem. Waste storage areas shall be well maintained and cleaned regularly. In addition, disposal of waste at sites other than approved waste transfer or disposal facilities shall be prohibited. Recycling and reuse of recyclable materials would be considered prior to disposal.

6.2.1.13 The number of work force (clerical staff and workers) to be employed for the Project is not available at this stage, but it is anticipated to be about 200 - 400 workforce for the Project. Based on the generation rate of 0.65 kg/person/day, the total refuse generated per day would be up to 260kg/day. As mentioned in **Section 2.3**, the duration of construction will be about 3 years. Therefore, the estimated amount of general refuse during construction phase is anticipated to up to 244 tonnes (assuming 26 working days per month). Given the proper implementation of good site practices as detailed in **Section 6.2.2**, adverse environmental impacts are not anticipated.

6.2.2 Control Measures

6.2.2.1 The general practices for construction phase are recommended based on the waste management hierarchy principles. Recommendations of good site practices, waste reduction measures as well as waste transportation, storage and collection are described in following sub-sections.

Good Site Practices

6.2.2.2 Adverse waste management implications are not anticipated, provided that good site practices are strictly implemented. The following good site practices are recommended throughout the construction activities.

- Nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all waste generated at the site;
- Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;
- Provision of sufficient waste disposal points and regular collection for disposal;
- Appropriate measures to minimise windblown litter and dust during transportation of waste by transporting waste in enclosed containers;
- Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and
- A Waste Management Plan (WMP) should be prepared as a part of the Environmental Management Plan (EMP) by the Contractor, as recommended in the ETWB TCW No.

19/2005 Environmental Management on Construction Sites. The EMP should be submitted to the Authority's Representative for approval.

Waste Reduction Measures

6.2.2.3 Amount of waste generation can be significantly reduced through good management and control. Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction:

- Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;
- Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste;
- Sort out debris from removal works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); and
- Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.

6.2.2.4 In addition to the above recommendations, specific reduction measures are recommended for the specific waste types so as to minimise environmental impacts during handling, transportation and disposal of waste.

Storage, Collection and Transportation of Waste

6.2.2.5 Storage of waste on site may induce adverse environmental implications if not properly managed. The following recommendation should be implemented to minimise the impacts.

- Non-inert C&D materials (if any) should be handled and stored well to ensure secure containment;
- Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and
- Different locations should be designated to stockpile each material to enhance reuse.

6.2.2.6 The collection and transportation of waste from works area to respective disposal sites may also induce adverse environmental impacts if not properly managed. The following recommendation should be implemented to minimise the impacts:

- Remove waste in timely manner;
- Employ the trucks with cover or enclosed containers for waste transportation;
- Obtain relevant waste disposal permits from the appropriate authorities; and
- Disposal of waste should be done at licensed waste disposal facilities.

6.2.2.7 All dump trucks engaged on site should be equipped with Global Positioning System (GPS) or equivalent automatic system for real time tracking and monitoring of their travel routings and parking locations to prohibit illegal dumping and landfilling of C&D materials.

6.2.2.8 In addition to the above measures, other measures on handling the excavated C&D materials, chemical waste and general refuse from construction phase are recommended in the following subsections.

C&D Materials

6.2.2.9 Wherever practicable, C&D materials should be segregated from other waste to avoid contamination and ensure acceptability at Public Fill Reception Facilities areas or reclamation sites. The following reduction measures should be implemented in handling the C&D materials.

- Maintain temporary stockpiles and reuse excavated fill material for backfilling;
- Carry out on-site sorting;
- Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; and
- Implement a trip-ticket system in accordance with DEVB TCW No. 6/2010 Trip Ticket System for Disposal of Construction and Demolition Materials, if dumping trucks are required, for each works contract to ensure that the disposal of C&D materials is properly documented and verified.

6.2.2.10 Details of the recommended on-site sorting and reuse of C&D materials is given below.

On-site Sorting of C&D Materials

6.2.2.11 All C&D materials arising from the construction would be sorted on-site to recover the inert C&D materials and reusable and recyclable materials prior to disposal off-site. Non-inert portion of C&D materials should also be reused whenever possible and be disposed of at landfills as a last resort.

6.2.2.12 The Contractor would be responsible for devising a system to work for on-site sorting of C&D materials and promptly remove all sorted and processed material arising from the construction activities to minimise temporary stocking on-site. It is recommended that the system should include the identification of the source of generation, estimated quantity, arrangement for on-site sorting and/ or collection, temporary storage areas, and frequency of collection by recycling Contractors or frequency of removal off-site.

Reuse of C&D Materials

6.2.2.13 It is anticipated that C&D surplus materials would be generated throughout the construction stage. The construction programme shall be reviewed during the detailed design stage to maximise the quantity of on-site reuse of surplus C&D materials whenever opportunity arises.

Use of Standard Formwork, Pre-cast Walls and Planning of Construction Materials Purchasing

6.2.2.14 Standard formwork should also be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork (e.g. metal hoarding), pre-cast walls or plastic facing should be encouraged in order to enhance the possibility of recycling. The purchasing of construction materials should be carefully planned in order to avoid over ordering and wastage.

Provision of Wheel Wash Facilities

6.2.2.15 Wheel wash facilities have to be provided at the site entrance before the trucks leave the works area. Dust disturbance due to the truck transportation to the public road network could be minimised by such arrangement.

Chemical Waste

6.2.2.16 For those processes which generate chemical waste, it may be possible to find alternatives to eliminate the use of chemicals, to reduce the generation quantities or to select a chemical type of less impact on environment, health and safety as far as possible.

6.2.2.17 If chemical waste is produced at the construction site, the Contractors should register with EPD as chemical waste producers and follow the guidelines stated in the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*. Chemical waste should be stored in appropriate containers and collected by a licensed chemical waste collector. Chemical waste (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre (CWTC), or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.

6.2.2.18 Any unused chemicals or those with remaining functional capacity should be collected for reuse as far as practicable.

General Refuse

6.2.2.19 General refuse should be stored in enclosed bins separately from construction and chemical waste. Recycling bins should also be placed to encourage recycling. Preferably enclosed and covered areas should be provided for general refuse collection, and routine cleaning for these areas should also be implemented to keep these areas clean. A reputable waste collector should be employed to remove general refuse on a daily basis. It is expected that such arrangement would minimise potential environmental impacts.

6.3 Operational Phase

6.3.1 Impacts Evaluation

Wastes from Stables

6.3.1.1 Wastes generated from proposed stables mainly consists of bedding paper scraps, horse feed and horse excretion. With reference to the Approved EIA Report for Main Arena of the 2008 Olympic Equestrian Event (AEIAR-097/2006), the predicted daily waste amount produced from a stable that accommodates 216 horses would be approximately 23 tonnes, the predicted daily waste amount from the proposed stables that will only accommodate not more than 100 horses would be approximately 11 tonnes. Wastes from stables are regularly cleared and stockpiled in the enclosed containers inside the proposed manure handling before collection by licensed waste collector engaged by HKJC. The collected stable wastes will be delivered to the Animal Waste Composting Plant (AWCP) in Ngau Tam Mei for further processing.

General Refuse

6.3.1.2 During the operational phase of the Project, general refuse such as waste paper, food waste and plastic would be generated by on-site staff and visitor. The area outside the proposed stables will also be cleaned regularly to ensure they are free from general refuse. The

number of on-site staffs and visitors per day shall range from 45 to 50 and 200 to 350 respectively. For conservative assessment, the total number of on-site staff and visitors is assumed to be 400 per day. With general refuse generation rate of 0.65kg/person/day, Municipal Solid Waste (MSW) disposal rate of 1.44kg/person/day and its recovery rate of 33% (reference to Monitoring of Solid Waste in Hong Kong 2023), the amount of general refuse to be generated during the operation phase will be about 2.15kg/person/day, and hence 860kg/day. Recyclable refuse such as paper and plastic arise from maintenance and operational activities should be separated from general refuse and recycled at recycling bins or recycling facilities as far as possible prior to disposal at landfill. With proper collection, storage and disposal as discussed in **Section 6.3.2**, adverse environmental impact is not anticipated.

Chemical Waste

6.3.1.3 Chemical waste will be generated from routine maintenance and servicing activities for emergency generators and other electrical and mechanical equipment during operational phase. Chemical waste, such as waste lubricating oil, waste paint and spent chemicals, are expected to be generated. The chemical waste should be properly handled and treated with special storage arrangements by licensed chemical waste collector according to the Waste Disposal (Chemical Waste) (General) Regulation, as discussed in **Section 6.3.2**. Chemical waste should be collected by a licensed chemical waste collector and to be disposed of at a licensed chemical waste treatment and disposal facility.

6.3.1.4 In addition, there might be maintenance works to be carried out after operation of the PRS. As the scale of the maintenance works is likely to be much smaller than that of the construction works, the amount of wastes generated during the maintenance works is likely be insignificant, in the order of few hundreds litres per month. The good site practices as discussed in **Section 6.2.2** is also applicable.

6.3.2 Control Measures

Wastes from Stables

6.3.2.1 Waste from horse stables (mainly the horse manure) would be collected on a regular basis following HKJC's sanitary practices including the following:

- Stable waste will be stockpiled in properly enclosed containers;
- Stable waste will be collected by licensed waste collector daily on a regular basis; and
- Briefings would be given to stable staff on the sanitary practices.

6.3.2.2 The current management control measures adopted by existing stables of HKJC has been proven to be effective and sufficient in reducing nuisance and protecting the environment. These measures would be applied for the proposed stables under the Project.

General Refuse

6.3.2.3 General refuse generated by the Project will be properly collected with lidded bins and separated to recyclables and non-recyclable. The general refuse will be stored in enclosed containers to prevent windblown, vermin, water pollution and visual impact before collection by waste contractor.

6.3.2.4 The recyclables would be collected for off-site recycling. Non-recyclable material will be collected by authorised collectors and transferred to appropriate facilities. It is expected that such arrangement would minimise potential environmental impacts.

Chemical Waste

6.3.2.5 Chemical waste will be generated from routine maintenance and servicing activities for emergency generators and other electrical and mechanical equipment during operational phase. The producers should be registered with the EPD as chemical waste producers and follow the guidelines stated in the *Code of Practice on the Packaging, Labelling and Storing of Chemical Waste*.

6.3.2.6 The localised chemical waste storage areas should be located close to the source of waste generation for temporary storage and drum-type containers with proper labelling should be used.

6.3.2.7 Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc.

6.3.2.8 Licensed chemical waste collector should be deployed to transport and dispose of the chemical wastes at the approved CWTC or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.

6.4 Environmental Monitoring and Audit

6.4.1 Construction Phase

6.4.1.1 During construction phase, no adverse waste management implications is anticipated with the implementation of control measures. Nevertheless, site audit is recommended for the construction phase to ensure better environment. Regular site audits would be carried out to ensure proper implementation of control measures.

6.4.2 Operational Phase

6.4.2.1 During operational phase, it is anticipated that there will be no adverse waste management implications with the implementation of control measures. Thus, EM&A is not required for the operational phase.

6.5 Summary

6.5.1.1 During construction phase, different types of waste would be generated, including inert and non-inert Construction and Demolition ("C&D") materials, chemical wastes and general refuse. With proper implementation of the proposed good site practices, waste reduction measures and proper storage, collection and transportation of wastes, it is anticipated that there will be no adverse environmental impacts from waste management during the construction phase.

6.5.1.2 During the operational phase, wastes from stables, general refuse, and chemical waste will be properly collected, stored and disposed accordingly. With proper implementation of the proposed control measures, it is anticipated that there will be no adverse environmental impact from waste management during the operational phase.

7. Land Contamination

7.1 Legislation, Standards and Guidelines

7.1.1.1 The relevant legislations, standards and guidelines applicable to the present study for the assessment of land contamination include:

- Practice Guide for Investigation and Remediation of Contaminated Land, EPD, 2011 (Revised in April 2023);
- Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management, EPD, 2007 (Revised in April 2023); and
- Guidance Note for Contaminated Land Assessment and Remediation, EPD, 2007 (Revised in April 2023).

7.1.1.2 The EPD's Practice Guide include a summary of the general steps of a detail contamination assessment study. The Guidance Manual introduces risk-based approach in land contamination assessment and presents instructions for comparison of soil and groundwater data to the RBRGs for 54 chemicals of concern commonly found in Hong Kong. Meanwhile, based on the EPD's Guidance Note for Contaminated Land Assessment and Remediation, a contamination assessment evaluation should:

- Provide a clear and detailed account of the present use of the land and the relevant past land history, in relation to possible land contamination;
- Identify areas of potential contamination and associated impacts, risks or hazards; and
- Submit a plan to evaluate the actual contamination conditions for soil and/or groundwater, if required.

7.2 Description of the Environment

7.2.1.1 The historical and present land uses within the works area of the Project have been studied by desktop review, including aerial photographs, topographic maps and relevant information. In order to identify any historical land uses which may have the potential for causing land contamination, the development history within the Application Site has been reviewed with the aid of historical aerial photos between Year 1963 and Year 2023. The historical aerial photos are provided in **Appendix 7.1** and summary of the findings are given in **Table 7.1**.

Table 7.1 Historical Landuse of the Application Site

Year	Description
Year 1963	The Application Site was occupied by open sea, agricultural land and vegetation.
Year 1974	No significant change in land use was observed as compared with that from Year 1963.
Year 1983	No significant change in land use was observed as compared with that from Year 1963.
Year 1993	The Application Site was developed as a landfill. Site office was also observed.
Year 2003	The landfill was restored. The Application Site is occupied by vegetation. Site office, access road, leachate treatment plant and drainage channels were observed.

Year	Description
Year 2013	A concrete pavement was observed at the Upper Platform of the Application Site. A lagoon was also formed near the Lower Platform. No significant change was observed for the rest of the Application Site.
Year 2023	No significant change in land use was observed as compared with that from Year 2013.

7.2.2 Site Survey

7.2.2.1 A site survey was conducted in September 2024 to verify the findings of the desktop review and to identify any other land uses within the Application Site which might have the potential for causing soil and groundwater contamination. The site photos taken on-site was given in **Figure 7.1**. A site walkover checklist is given in **Appendix 7.2**.

7.2.2.2 Majority of the Application Site are covered by vegetation, with some paved area at Lower Platform across the Application Site. A concrete pavement was observed on Upper Platform. Nevertheless, no land contaminating activities were observed. On the Lower Platform, site office, leachate treatment plant and lagoon of TKOL II/III were observed. Nevertheless, the construction works of the Project will not affect these existing restored landfill facilities. Therefore, no land contamination potential from present land uses is anticipated.

7.2.3 Information from EPD

7.2.3.1 EPD is the owner of TKOL II/III, who has maintained the record of chemical waste producers, dangerous good licence, chemical spillage record and incident record. There is a valid chemical waste producer registration record, and also a licence for storage of diesel oils tank for 7,500 L Cat. 5 D.G. Nevertheless, as advised by EPD, there is neither chemical spillage record nor incident record related to land contamination. Therefore, no land contamination potential is anticipated. The correspondence with EPD is provided in **Appendix 7.3**.

7.3 Impacts Evaluation

7.3.1.1 The Project will be constructed on top of a restored landfill. Nevertheless, the construction works of the Project will only affect the top soil (i.e. 500mm only) of the restored landfill. Given the proper restoration works done by EPD, the top soil is unlikely to be contaminated. In addition, as discussed in **Section 7.2**, no other activity with land contamination potential is identified from historical and present land uses within the Application Site. Therefore, no land contamination potential within the Application Site is anticipated.

7.4 Environmental Monitoring and Audit

7.4.1.1 No land contamination potential within the Application Site is anticipated. EM&A is therefore not required.

7.5 Summary

7.5.1.1 Historical and present land uses within the Application Site have been reviewed. No land contaminating activities were identified within the Application Site. In addition, the construction works of the Project will only affect the top soil of the restored landfill. Given the proper restoration works done by EPD, the top soil is unlikely to be contaminated. Therefore, no land contamination potential within the Application Site is anticipated.

8. Ecology

8.1 Legislation, Standards and Guidelines

8.1.1.1 The relevant legislation and associated guidelines applicable to the ecological impact assessment include:

- Environmental Impact Assessment Ordinance (Cap. 499) and the associated Technical Memorandum (EIAO-TM);
- EIAO Guidance Note No. 3/2023 Flexibility and Enforceability of Mitigation Measures Proposed in an Environmental Impact Assessment Report;
- EIAO Guidance Note No. 6/2023 Some Observations on Ecological Assessment from the Environmental Impact Assessment Ordinance Perspective;
- EIAO Guidance Note No. 7/2023 Ecological Baseline Survey for Ecological Assessment;
- EIAO Guidance Note No. 10/2023 Methodologies for Terrestrial and Freshwater Ecological Baseline Surveys;
- Country Parks Ordinance (Cap. 208) and its subsidiary legislation, Country Parks and Special Areas Regulations (Cap. 208A);
- Marine Parks Ordinance (Cap. 476);
- Forests and Countryside Ordinance (Cap. 96) and its subsidiary legislation, the Forestry Regulations (Cap. 96A);
- Wild Animals Protection Ordinance (Cap. 170);
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586);
- Town Planning Ordinance (Cap. 131); and
- Hong Kong Planning Standards and Guidelines (HKPSG).

8.1.1.2 This section also makes reference to the following international conventions and national legislation:

- The International Union for Conservation of Nature (IUCN) Red List of Threatened Species;
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora ("CITES"). This Convention regulates international trade in animal and plant species considered to be at risk from such trade. The main categories of species relevant to Hong Kong are Appendices I and II. Species listed in Appendix I are species threatened with extinction that are or may be affected by trade; species listed in Appendix II are those that, while not necessarily under current threat of extinction, may become threatened unless trade is subject to strict regulation. Hong Kong's obligations under this Convention are enforced via the Protection of Endangered Species of Animals and Plants Ordinance;
- The Red List of of Threatened Species of the International Union for Conservation of Nature ("IUCN"). This Red List (see http://www.redlist.org) is considered the

authoritative publication to classify species as critically endangered, endangered, vulnerable, or lower-risk; and

- The People's Republic of China National Protection Lists of Important Wild Animals and Plants.

8.2 Criteria of Evaluating Species of Conservation Importance

8.2.1.1 Species of flora and fauna with conservation importance were given special attention. In accordance with Table 3, Annex 8 of the EIAO-TM, the ecological value of species was assessed in terms of protection status, distribution, and rarity. Flora or fauna species protected by the following laws/regulations, listed under the following conventions and/or endemic to Hong Kong will be considered to be species of conservation importance. However, this excludes exotic weeds, escaped cultivars or captive species, vagrants and introduced species which have lower ecological value. Species which are classified by IUCN as Least Concern (LC), Near Threatened (NT), Data Deficient (DD), or Not Evaluated (NE), and not covered by any other laws/regulations/conventions will not be considered of conservation importance in the present Study.

- The International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species;
- China Plant Red Data Book;
- China Species Red List;
- China Red Data Book of Endangered Animals;
- Category I or II protected species in mainland China;
- Threatened Species List of China's Higher Plants (Qin *et al*. 2017);
- Red List of China's Vertebrates;
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- Forestry Regulations (Cap. 96A) which are subsidiary legislation of the Forests and Countryside Ordinance (Cap. 96);
- Wild Animals Protection Ordinance (Cap. 170) (except birds as all wild birds are protected under the ordinance but their conservation importance is not equal);
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586);
- PRC Wild Animal Protection Law;
- Plant species considered 'Rare' or 'Very Rare' listed by Corlett *et al*. (2000), or regarded as rare by Yip *et al*. (2010) where applicable; and
- Fauna species considered of concern in Fellowes *et al*. (2002).

8.3 Literature Review

8.3.1.1 The purpose of the literature review is to identify existing information on the habitats and species present within the assessment area. The following literature were reviewed:

- Approved Tseung Kwan O Outline Zoning Plan (No. S/TKO/32 exhibited on 17 October 2025);
- Preliminary Environmental Review Report for Recommended Short-term Infrastructure Provision Option – Tseung Kwan O Stage II/III Landfill;
- Preliminary Environmental Review Report for Recommended Long-term Infrastructure Provision Option – Tseung Kwan O Stage II/III Landfill;
- Feasibility Study for the Development of Public Riding School at Tseung Kwan O and Ma Yau Tong Final Report;
- Methodologies for monitoring fireflies in Hong Kong (Yiu Vor 2020);
- The Terrestrial Biodiversity Survey conducted by HKU;
- Annual reports and other publications of The Hong Kong Bird Watching Society;
- Porcupine! – Newsletter of Division of Ecology & Biodiversity of University of Hong Kong;
- Hong Kong Biodiversity – Newsletter of the Department of Agriculture, Fisheries and Conservation;
- AFCD Hong Kong Biodiversity Database; and
- AFCD Newsletters.

8.4 Ecological Survey Methodology

8.4.1.1 The Study Area is defined as the terrestrial areas within 100m area from the boundary of Application Site, including areas of associated works (e.g. site formation). In view of the ecological sensitivity of the Clear Water Bay Country Park (CWBCP), the Study Area also covers the CWBCP within 300m from the boundary of Application Site (Figure 1 of **Appendix 8.1**).

8.4.1.2 An ecological verification survey was conducted for the habitats, vegetation, mammals, bird species, reptiles and amphibians, butterflies and dragonflies, fireflies, and freshwater communities present within the assessment area. The survey programme is shown in **Table 8.1**. The habitat of the Study Area is mapped based on recent aerial photographs and detailed ground-truthing. The surveys were carried out in June 2024 during the wet season, primarily along the designated transect lines (Figure 2 of **Appendix 8.1**). Observations were also made in areas adjacent to these transect lines during the surveys. The methodology for the ecological surveys adhered to the technical guidelines outlined in Annex 16 of the EIAO-TM, as well as the relevant Guidance Notes (GN 7/2023 and GN 10/2023). Detail survey data is shown in Appendix A to Appendix J of **Appendix 8.1**. Data recorded within the entire Study Area are presented by habitats, while those recorded within the Application Site are also shown in a separate column for easy reference.

Habitat and Vegetation

8.4.1.3 Habitats within the Study Area were mapped based on aerial photos and ground truthing. Walk-over surveys were conducted at representative areas of each habitat type. Vascular plant species in each habitat type were identified and their relative abundance were recorded, with special attention to rare and protected species. Color photographs of all

habitats encountered on site and of ecological features of special importance were taken. A habitat map of the Study Area was produced at a suitable scale using GIS software. Nomenclature of vascular plant species followed Hong Kong Herbarium (2021), whilst their rarity in Hong Kong followed Corlett *et al*. (2000) and Yip *et al*. (2010) where applicable.

Mammal

8.4.1.4 Mammals were recorded if sighted during the survey. All sightings, tracks, and signs of mammals found were recorded. As some mammal species, both non-flying and flying (e.g., bats), are nocturnal, night surveys will also be conducted. Nomenclature of mammals followed the Hong Kong Biodiversity Information Hub maintained by Agriculture, Fisheries and Conservation Department (AFCD 2024).

Avifauna

8.4.1.5 The avifauna of each habitat types within the Study Area were recorded during the survey. All avifauna seen or heard were identified and recorded. Signs of breeding (e.g. nests, recently fledged juveniles) if any, were also recorded. As some birds (e.g., owls, nightjars) are nocturnal, night surveys were also conducted. Ornithological nomenclature followed the Hong Kong Biodiversity Information Hub maintained by Agriculture, Fisheries and Conservation Department (AFCD 2024).

Herpetofauna

8.4.1.6 Herpetofauna within the Study Area were recorded during the survey. All reptiles and amphibians sighted were recorded. As herpetofauna are mostly nocturnal, night surveys were carried out. Potential microhabitats of herpetofauna such as wall, fallen logs, litter, Modified Watercourse/nullah, underneath of stones or other materials, artificial container (e.g., pots) were searched during surveys to locate cryptic or secretive herpetofauna species. Amphibians were also identified by their calls during night surveys. Nomenclature followed the Hong Kong Biodiversity Information Hub maintained by Agriculture, Fisheries and Conservation Department (AFCD 2024).

Butterfly and Odonata

8.4.1.7 Butterflies and odonates observed within the Study Area were identified and their abundance recorded by habitat. Butterflies and odonates encountered outside survey transects but within the Study Area were also recorded in order to produce a complete species list. Nomenclature of butterfly and odonate followed the Hong Kong Biodiversity Information Hub maintained by Agriculture, Fisheries and Conservation Department (AFCD 2024).

Firefly

8.4.1.8 Firefly survey were conducted shortly after dusk and in the nighttime by direct observation and active searching along transect and its vicinity within the Study Area, with particular attention given to their potential habitats (vegetation and watercourses). During the survey, lighting devices were switched off and fireflies occurring on both sides of the transect were detected, identified and counted. Active searching of the ground were also carried out during the survey to locate any flightless adults and larvae. Nomenclature followed the Hong Kong Biodiversity Information Hub maintained by Agriculture, Fisheries and Conservation Department (AFCD 2024).

Freshwater Communities

8.4.1.9 Surveys of freshwater communities were undertaken at the stream/watercourse (either natural and man-made) likely to be affected by the Project by means of active searching and direct observation. All freshwater fauna encountered will be identified to the lowest possible taxonomic level, and the nomenclature for fish followed the Hong Kong Biodiversity Information Hub maintained by Agriculture, Fisheries and Conservation Department (AFCD 2024).

Table 8.1 Ecological Survey Programme

Survey	2024
	Jun
Habitat / Vegetation	D
Mammal	D + N
Avifauna	D + N
Herpetofauna	D + N
Butterfly and Odonate	D
Firefly	N
Freshwater Communities	D + N

Note:

[1] D: Day Time; N: Night/evening Time

8.5 Ecological Baseline Conditions

8.5.1 Literature Review

Preliminary Environmental Review Report for Recommended Short-term Infrastructure Provision Option – Tseung Kwan O Stage II/III Landfill

8.5.1.1 Ecological survey had been conducted in June 2021 in this preliminary environmental review. Six habitats had been identified in the area, namely Channels, Developed Area, Mixed Woodland, Plantation, Turfgrass land, and Watercourse, where Turfgrass Land and Plantation being the most common habitat in the area. The ecological value of Turfgrass Land was considered as Low while Plantation was considered as Low to medium. Species of conservation importance had been identified, including four flora species, five avifauna, one herpetofauna, one mammal and two freshwater species. Most of these species were located in the Mixed Woodlands and Natural Watercourse within the CWBCP. Locations of these species are shown in Figure 3a of **Appendix 8.1**.

Preliminary Environmental Review Report for Recommended Long-term Infrastructure Provision Option – Tseung Kwan O Stage II/III Landfill

8.5.1.2 Ecological survey had been conducted in 2021, 2023 and 2024 in this preliminary environmental review. Six habitats had been identified in the area, namely Developed Area, Mixed Woodland, Plantation, Turfgrass Land, Modified Watercourse and Natural Watercourse, where Turfgrass Land and Plantation with low ecological value being the most common habitat in the area. Species of conservation importance had been identified, including four flora species, six avifauna, one herpetofauna, five mammal and two freshwater species. Most of these species were located in the Mixed Woodlands and Natural Watercourse located within the CWBCP and few were located in the Plantation and Turfgrass Land of the Study Area. Locations of these species are shown in Figure 3a of **Appendix 8.1**.

Clear Water Bay Country Park

8.5.1.3 Clear Water Bay Country Park (CWBCP) spans approximately 615 hectares on the Clear Water Bay Peninsula, extending from Hang Hau to Joss House Bay and eastward to Lung Ha Wan (AFCD 2023). CWBCP features diverse habitats, primarily dominated by shrubland and plantations, with smaller areas of woodland and feng shui woods. Common plant species include Ivy Tree (*Schefflera heptaphylla*), Lance-leaved Sterculia (*Sterculia lanceolata*), and various pine species.

8.5.1.4 Fauna within CWBCP includes common bird species such as the Chinese Bulbul (*Pycnonotus sinensis*) and Spotted Dove (*Steptopelia chinensis*), as well as unusual species such as the Chinese Francolin (*Francolinus pintadeanus*) and Black-eared Kite (*Milvus migrans*). Coastal regions near Tai Hang Tun and Lung Ha Wan frequently host Common Gulls (*Larus canus*). The park's abundant flora supports numerous butterfly species, including the Common Mormon (*Papilio polytes*) and Glassy Tiger (*Parantica aglea melanoides*). Mammals like the Wild Boar (*Sus scrofa*) and Masked Palm Civet (*Paguma larvata*) are occasionally observed.

Conservation Area

8.5.1.5 Areas adjoining the Clear Water Bay Country Park around Clear Water Bay Road in the west is zoned Conservation Area (CA). According to the Explanatory Statement for Approved Clear Water Bay Peninsula South Outline Zoning Plan (No. S/SK-CWBS/2), the CA is designated to safeguard the well-vegetated and undisturbed hillslopes extending from the Country Park. It also provides a buffer for the sensitive natural system in the Country Park. The CA is over 450m away from the nearest boundary of the Application Site, and separated by the CWBCP. The Application Site would not encroach into these CAs.

8.5.2 Survey Results

Habitats

8.5.2.1 Seven types of habitats were identified, Developed Area, Mixed Woodland, Modified Watercourse, Natural Watercourse, Plantation, Shrubland and Turfgrass Land, with Mixed Woodland and Turfgrass Land being the dominant habitat. The area of each habitat was calculated, and these are presented in **Table 8.2**. Habitat map and representative photos of the habitats are available in Figure 3 and Figure 4 of **Appendix 8.1**. Plant species and their relative abundance within each habitat are listed in Appendix A of **Appendix 8.1**.

Table 8.2 Size of Habitats within the Study Area

Habitat	Application Site [1] [2] [3]		Study Area [1] [2]	
	Size (ha)	Length (m)	Size (ha)	Length (m)
Developed area	0.25	NA	7.19	NA
Mixed woodland	NA	NA	31.93	NA
Modified watercourse	NA	99	NA	4,261
Natural watercourse	NA	NA	NA	849
Plantation	0.25	NA	11.35	NA

Habitat	Application Site [1] [2] [3]		Study Area [1] [2]	
	Size (ha)	Length (m)	Size (ha)	Length (m)
Shrubland	NA	NA	5.37	NA
Turfgrass land	4.13	NA	19.65	NA
Total	4.63	99	75.49	5,110

Notes:

[1] Habitat sizes / lengths are round-off figures

[2] NA – Not applicable

[3] Including areas of associated works (e.g. site formation)

Habitats within the Study Area

8.5.2.2 Developed Area, Mixed Woodland, Modified Watercourse, Natural Watercourse, Plantation, Shrubland and Turfgrass Land are the seven types of habitats which could be identified within the Study Area. The Study Area was primarily dominated by Mixed Woodland and Turfgrass Land, accounting for 41.5% and 25.6% of the total area respectively.

Developed Area

8.5.2.3 Developed Area was found within the Application Site and to the west of the Application Site. This habitat consisted of anthropogenic structures such as roads and buildings. The Developed Area within the Application Site comprised of roads and the roads were paved with concrete, providing limited space for the growth of vegetation. The existing access road, which will be widened, is also a Developed Area. In general, this habitat was prone to human disturbance and vegetation recorded were mainly weedy species such as *Bidens alba, Eleusine indica* and *Wedelia trilobata*.

Mixed Woodland

8.5.2.4 Mixed Woodland stands were identified near the boundary of the Study Area and were located to the northeast and south of the Application Site. Mixed Woodland was found within CWBCP. Mixed Woodland outside CWBCP was in continuum with Mixed Woodland within CWBCP and they had similar floristic composition. The tree canopies reached 8 to 16 meters. This habitat had been a Plantation and the tall trees were Plantation species such as *Acacia* spp., *Eucalyptus* spp. and *Pinus massoniana*. However, this habitat has been succussed to a Mixed Woodland with some pioneer native trees species, such as *Mallotus paniculatus* and *Schefflera heptaphylla*, colonized and reached the canopies. The understorey was mainly consisted of shade-tolerant shrubs such as *Psychotria asiatica* and *Maesa perlarius*, and seedlings the whips of trees. Climbers were also commonly encountered in this habitat, the representative species are *Piper kadsura* and *Millettia dielsiana*.

Modified Watercourse

8.5.2.5 Numerous Modified Watercourse in the Study Area were built within the landfill for the purpose of drainage. Some sections of Modified Watercourses fell within CWBCP. This habitat was completely man-made and paved with concrete. The concrete surface provided limited opportunities for the growth of vegetation, only very few vegetation was found in this habitat.

Natural Watercourse

8.5.2.6 Natural Watercourses were identified within Mixed Woodland outside the Project but within the Study Area. Most watercourses fell within CWBCP. In general, these watercourses were natural with beds composed of stones. Most of them were seasonal watercourses. Hydrophilic species, such as, *Acorus gramineus* and *Pogonatherum crinitum* were commonly encountered in this habitat. Riparian vegetation, such as *Cleistocalyx nervosum* and *Adina pilulifera*, was also abundant along the two sides of the watercourses. Climbers, namely *Pothos chinensis*, were also commonly encountered in this habitat.

Plantation

8.5.2.7 Patches of Plantation were identified on the landfill platforms and at the engineering slopes within Study Area. Some patches of Plantation fall within CWBCP. The canopies of this habitat were mainly composed of exotic Plantation species such as *Eucalyptus* spp., *Acacia* spp. and *Ficus microcarpa*. In general, the understorey was poorly developed and was dominated by weedy species such as *Bidens alba, Panicum maximum* and *Wedelia trilobata*.

Shrubland

8.5.2.8 Patches of Shrubland were found within the Study Area. All of the Shrubland fall within CWBCP. These Shrubland patches were on exposed slopes and subject to frequent hill fire. The canopy of this habitat was mainly open and the structure was simple. The dominated species were shrub and herb species such as *Rhodomyrtus tomentosa* and *Dicranopteris pedata*. In short, this habitat had low structural complexity and supported low flora diversity.

Turfgrass Land

8.5.2.9 Large patches of Turfgrass Land could be found in the landfill and this is the major habitat within the Study Area. Some part of the Turfgrass Land fell within CWBCP. This habitat was dominated by grasses and the representative species were *Ischaemum barbatum*, *Paspalum conjugatum*, *Imperata cylindrica*, *Panicum maximum* and *Wedelia trilobata*.

Habitats within the Application Site

8.5.2.10 Developed Area, Modified Watercourse, Plantation and Turfgrass Land are the four types of habitats which could be identified within the Application Site. The Application Site was primarily dominated by Turfgrass Land.

Developed Area

8.5.2.11 Developed Area within the Application Site comprised of roads and buildings. This habitat was highly disturbed with low ecological interest and mainly comprised landscaping and self-colonized species.

Modified Watercourse

8.5.2.12 Sections of Modified Watercourse were found within the Application Site. This habitat was completely man-made and paved with concrete, in which only sparse vegetation was found.

Plantation

8.5.2.13 Plantation were found highly fragmented and in small strips within the Application Site. This habitat has a simple floristic composition. The canopies of this habitat were composed of exotic Plantation species such as *Acacia confusa* and self-colonized *Leucaena leucocephala*. Native tree species such as *Macaranga tanarius* var. *tomentosa* was also recorded. In general, the understorey was poorly developed and was dominated by weedy species such as *Lantana camara*, *Bidens alba* and *Wedelia trilobata*.

Turfgrass Land

8.5.2.14 Large patches of Turfgrass Land were identified extensively across platform within the Application Site, which covered most of the area of the Application Site. The Turfgrass Land within the Application Site was majorly open area dominated by common ruderal species such as *Eragrostis tenella, Panicum maximum* and *Wedelia trilobata*.

8.5.3 Flora and Fauna within the Study Area and Application Site

Vegetation

8.5.3.1 A total of 302 plant species were recorded within the Study Area, among which 215 and 85 are known to be native and exotic to Hong Kong respectively and the remaining two species are of uncertain origin (Appendix A of **Appendix 8.1**). *Aquilaria sinensis, Commelina paludosa*, *Pavetta hongkongensis* and *Phymatodes longissima* are the four flora species of conservation importance recorded within the Study Area, among which some individuals of all the mentioned were also recorded within CWBCP. Locations of these species of conservation importance within the Study Area are shown in Figure 3b of **Appendix 8.1**.

8.5.3.2 Fourteen individuals of *Aquilaria sinensis* were recorded in the Mixed Woodland and Shrubland outside the Application Site but within the Study Area. Individuals located in the Mixed Woodland and Shrubland are wild and are considered as species of conservation importance, their locations are indicated in Figure 3b of **Appendix 8.1**. Eleven individuals recorded in Mixed Woodland and Shrubland fell within CWBCP. *Aquilaria sinensis* is common in the lowland forests and fung shui woods of Hong Kong (Corlett *et al*. 2000) and was included in the book "Rare and Precious Plants of Hong Kong" (Hu *et al*. 2003). In south China, particularly Hong Kong, it is threatened by illegal felling and over-exploitation and is listed in Appendix II of CITES and protected under Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance in Hong Kong. Moreover, it is included in China Plant Red Data Book (Fu and Chin 1992) and Illustration of Rare & Endangered plant in Guangdong Province (Wu and Hu 1988), and wild individuals are listed in Category II of the List of Wild Plants under State Protection (State Forestry Administration & Ministry of Agriculture 1999). It is also categorized as "Vulnerable" in China Red Data Book (Fu and Chin 1992), the Threatened Species List of China's Higher Plants (Qin *et al*. 2017) and the IUCN Red List (IUCN 2024).

8.5.3.3 Two individuals of *Commelina paludosa* were recorded in Natural Watercourse outside the Application Site but within the Study Area. The species recorded fell within CWBCP. It is rare species in Hong Kong (Corlett *et al*. 2000).

8.5.3.4 Two individuals of *Pavetta hongkongensis* were found in Natural Watercourse outside the Application Site but within the Study Area, which were also found within CWBCP. Another individual was found in Mixed Woodland outside the Application Site but within the Study Area outside CWBCP. It is a shrub or small tree species which is considered

common in fung shui woods and lowland forest by Corlett *et al*. (2000). It is protected under Cap. 96 Forests and Countryside Ordinance in Hong Kong.

8.5.3.5 Two individuals of *Phymatodes longissima* were recorded in Natural Watercourse outside the Application Site but within the Study Area. The species recorded fell within CWBCP. It is rare species in Hong Kong (Corlett *et al*. 2000).

8.5.3.6 *Araucaria heterophylla* is cultivated and exotic to Hong Kong, thus, it is not considered of conservation importance, despite being listed as Vulnerable in IUCN Red List.

8.5.3.7 *Canarium pimela*, *Casuarina equisetifolia*, and *Crateva trifoliata* are exotic to Hong Kong, thus, it is not considered of conservation importance, despite being considered rare by Corlett *et al*. (2000).

8.5.3.8 *Coccinia grandis* is cultivated, thus, it is not considered of conservation importance, despite being considered very rare by Corlett *et al*. (2000).

8.5.3.9 *Dalbergia* spp. are listed under Appendix II of CITES and protected under Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance in Hong Kong as species in this genus is facing threat due to the overexploitation for its valuable wood (known as rosewood). In the current study, *Dalbergia benthamii* was recorded. As the recorded Dalbergia is climber which is not relevant to the timber exploitation. In addition, this species is very common in Hong Kong and considered as "common" by Corlett *et al.* (2000). Thus, it is not considered as species of conservation importance in the current Study.

8.5.3.10 *Dimocarpus longan* is exotic to Hong Kong, thus, it is not considered of conservation importance, despite being listed as Vulnerable in China Plant Red Data Book and in Threatened Species List of China's Higher Plants, and listed under Category II in the List of Wild Plants under State Protection (Part 1).

8.5.3.11 *Lagerstroemia speciosa* is cultivated and exotic to Hong Kong, thus, it is not considered of conservation importance, despite being protected under Cap. 96 in Hong Kong.

8.5.3.12 *Michelia x alba* is cultivated and exotic to Hong Kong, thus, it is not considered of conservation importance, despite being protected under Cap. 96 in Hong Kong.

8.5.3.13 *Pinus massoniana* is cultivated, thus, it is not considered of conservation importance, despite being listed as Endangered in China Plant Red Data Book.

8.5.3.14 *Terminalia catappa* is cultivated and exotic to Hong Kong, thus, it is not considered of conservation importance, despite being considered as very rare in Hong Kong (Corlett *et al*. 2000).

Fauna

Avifauna

8.5.3.15 22 species of bird were recorded within the Study Area in total. 11 bird species were recorded within the Application Site, of which one species is of conservation importance, while 21 species were recorded within the Study area outside the Application Site, including four species of conservation importance (Appendix B of **Appendix 8.1**). Most of the recorded species are common and widespread in Hong Kong. No breeding record, nesting or roosting location or behaviour was exhibited by the observed bird species. All wild birds are protected under Cap. 170 Wild Animals Protection Ordinance. List of bird species of conservation importance recorded within the Study Area is presented in **Table 8.14** for further evaluation. The abundance of each avifauna species recorded in each

habitat within the Study Area is summed throughout the ecological survey period and tabulated in Appendix B of **Appendix 8.1**. Locations of these species are shown in Figure 3b of **Appendix 8.1**.

8.5.3.16 Four bird species of conservation importance recorded within the Study Area include Crested Serpent Eagle (*Spilornis cheela*), Black Kite (*Milvus migrans*), Collared Scops Owl (*Otus lettia*) and Black-throated Laughingthrush (*Garrulax chinensis*).

Butterfly

8.5.3.17 28 species of butterfly were recorded within the Study Area in total. 15 butterfly species were recorded within the Application Site with no species of conservation importance recorded, while 19 species were recorded within the Study area outside the Application Site, including one species of conservation importance (Appendix C of **Appendix 8.1**).

8.5.3.18 The butterfly species of conservation importance recorded within the Study Area is the Metallic Cerulean (*Jamides alecto*). It was recorded in Natural Watercourse within the Study area outside the Application Site. It is a very rare species found in Victoria Peak, Fung Yuen, Chuen Lung, Mui Wo. Location of this species is shown in Figure 3b of **Appendix 8.1**.

Odonate

8.5.3.19 Seven species of dragonfly were recorded within the Study Area in total. Five dragonfly species were recorded within the Application Site with no species of conservation importance recorded, while seven species were recorded within the Study area outside the Application Site, including one species of conservation importance (Appendix D of **Appendix 8.1**).

8.5.3.20 The odonate species of conservation importance recorded within the Study Area is the Hong Kong Clubtail (*Leptogomphus hongkongensis*). It was recorded in Mixed Woodland within the Study area outside the Application Site. It is considered as Local Concern by Fellowes *et al*. (2002) and dragonfly species of conservation interest under Reels (2019). It is a common species widely distributed in the woodlands adjacent to streams throughout Hong Kong. Location of this conservation importance species is shown in Figure 3b of **Appendix 8.1**.

Firefly

8.5.3.21 A firefly active searching survey was conducted within the Study Area with particular attention given to their potential habitats (such as vegetation and watercourses). Only one firefly species (a doubtfully identified species by Yiu, V. (2024)) was recorded in Natural Watercourse and Mixed Woodland within the Study area outside the Application Site (Appendix E of **Appendix 8.1**). Adult individuals were observed at the North-east Natural Watercourse and adjacent Mixed Woodland habitat, which is about 200m from the nearest works boundary. This firefly species is currently considered as "Species inquirenda" in Hong Kong and is not defined as species of conservation importance. It can be found in several locations such as Tai Po Kau, Shing Mun Reservoir and Tai Po Shan. Apart from the firefly species mentioned, no other firefly species of conservation importance was recorded within the Study Area.

Herpetofauna

8.5.3.22 Six species of reptile were recorded within the Study Area in total. Two reptile species were recorded within the Application Site, while six species were recorded within the Study Area outside the Application Site. No reptile species of conservation importance was recorded within the Study Area (Appendix F of **Appendix 8.1**).

8.5.3.23 Four species of amphibian were recorded within the Study Area in total. Two amphibian species were recorded within the Application Site, while four species were recorded within the Study area outside the Application Site. No amphibian species of conservation importance was recorded within the Study Area (Appendix G of **Appendix 8.1**).

Mammal - Terrestrial species

8.5.3.24 Two terrestrial mammal species were recorded within the Study Area in total. Two mammal species were recorded within the Application Site, while one species was recorded within the Study area outside the Application Site. No mammal species of conservation importance was recorded within the Study Area (Appendix H of **Appendix 8.1**).

Mammal - Bat species

8.5.3.25 Analysing echolocation calls recorded by bat detector (Wildlife Acoustics – Echo Meter Touch 2 PRO) within the Study Area during the surveys, four bat species were identified within the Study Area in total (Appendix I of **Appendix 8.1**). Due to the detection range of Echo Meter Touch 2 Pro and the relatively high habitat heterogeneity observed, it is not considered accurate to determine the exact habitat usage by the bat species recorded by ultrasonic bat detector. All bat species are protected under Cap. 170 Wild Animals Protection Ordinance and are considered as species of conservation importance. No roosting and breeding behaviour were directly observed during the survey period. Bat species recorded within the Study Area include Japanese Pipistrelle (*Pipistrellus abramus*), Least Pipistrelle (*Pipistrellus tenuis*), Lesser Yellow Bat (*Scotophilus kuhlii*) and Lesser Bamboo Bat (*Tylonycteris pachypus*).

Aquatic fauna

8.5.3.26 Nine aquatic fauna species were recorded within the Study Area in total. No aquatic fauna species was recorded within the Application Site, while nine species were recorded within the Study area outside the Application Site (Appendix J of **Appendix 8.1**). Two freshwater crab species, Hong Kong Freshwater Crab (*Nanhaipotamon hongkongense*) and Stream Crab (*Cryptopotamon anacoluthonis*) considered of conservation importance were recorded in Natural Watercourse and Modified Watercourse within the Study Area outside the Application Site. Location of these conservation importance species are shown in Figure 3b of **Appendix 8.1**.

8.6 Evaluation of Habitats and Species

8.6.1.1 The ecological importance of habitats within the Study Area as well as the Application Site was evaluated with reference to the criteria stipulated in Annex 8 of EIAO-TM (**Table 8.3** to **Table 8.12**).

8.6.1.2 With reference to Table 3, Annex 8 of the EIAO-TM, the ecological value of species recorded within the Study Area was assessed in terms of protection/conservation status (e.g. fauna protected under WAPO (except birds), and flora and fauna protected under

regional/global legislation/conventions), species distribution (e.g. endemic), and rarity (e.g. rare or restricted).

Table 8.3 Evaluation of Developed Area within the Application Site*

Criterion	Description
Naturalness	Man-made
Size	About 0.25 ha
Diversity	Low floral diversity Low faunal diversity
Rarity	No flora species of conservation importance. No fauna species of conservation importance.
Re-creatability	Easy to re-create
Fragmentation	Fragmented
Ecological linkage	Not functionally linked to habitats of conservation importance
Potential value	Low
Nursery/breeding ground	No significant breeding ground observed.
Age	N/A
Abundance/richness of wildlife	Low abundance
Overall ecological value	Very Low

* Including areas of associated works (e.g. site formation)

Table 8.4 Evaluation of Modified Watercourse within the Application Site*

Criterion	Description
Naturalness	Man-made habitat
Size	About 99 m
Diversity	Very Low floral diversity Low faunal diversity
Rarity	No flora species of conservation importance. No fauna species of conservation importance.
Re-creatability	Easy to re-create
Fragmentation	None
Ecological linkage	No significant linkage with habitats of conservation importance
Potential value	Low
Nursery/breeding ground	No significant breeding ground observed.
Age	N/A
Abundance/richness of wildlife	Very Low abundance
Overall ecological value	Very Low

* Including areas of associated works (e.g. site formation)

Table 8.5 Evaluation of Plantation within the Application Site*

Criterion	Description
Naturalness	Man-made
Size	About 0.25 ha
Diversity	Low floral diversity Low faunal diversity
Rarity	No flora species of conservation importance. No fauna species of conservation importance.
Re-creatability	Medium. It would take several years to mature.
Fragmentation	Fragmented
Ecological linkage	Not functionally linked to habitats of conservation importance

Criterion	Description
Potential value	Low to medium
Nursery/breeding ground	No significant breeding ground observed.
Age	Up to 10 years
Abundance/richness of wildlife	Low fauna abundance.
Overall ecological value	Low

* Including areas of associated works (e.g. site formation)

Table 8.6 Evaluation of Turfgrass Land within the Application Site*

Criterion	Description
Naturalness	Man-made
Size	About 4.13 ha
Diversity	Low floral diversity Low faunal diversity
Rarity	No flora species of conservation importance. Fauna species of conservation importance: Black Kite *Milvus migrans*
Re-creatability	Easy to re-create
Fragmentation	None
Ecological linkage	Not functionally linked to habitats of conservation importance
Potential value	Low
Nursery/breeding ground	No significant record but may provide foraging ground for bird and bat species
Age	N/A
Abundance/richness of wildlife	Low abundance
Overall ecological value	Low

* Including areas of associated works (e.g. site formation)

Table 8.7 Evaluation of Developed Area within the Study Area

Criterion	Description
Naturalness	Man-made
Size	About 7.19 ha
Diversity	Low floral diversity Low faunal diversity
Rarity	Outside CWBCP: No flora species of conservation importance. No fauna species of conservation importance. Within CWBCP: No flora species of conservation importance. No fauna species of conservation importance.
Re-creatability	Easy to re-create
Fragmentation	Fragmented
Ecological linkage	Not functionally linked to habitats of conservation importance
Potential value	Low
Nursery/breeding ground	No significant records.
Age	N/A
Abundance/richness of wildlife	Low abundance
Overall ecological value	Very Low

Table 8.8 Evaluation of Modified Watercourse and Natural Watercourse within the Study Area

Criterion	Description	
	Modified Watercourse	Natural Watercourse
Naturalness	Man-made habitat	Natural
Size	About 4261 m	About 849 m
Diversity	Very Low floral diversity Low faunal diversity	Low floral diversity Low faunal diversity
Rarity	Outside CWBCP: No flora species of conservation importance. No fauna species of conservation importance. Within CWBCP: No flora species of conservation importance. Fauna species of conservation importance: Stream Crab *Cryptopotamon anacoluthon*, Hong Kong Freshwater Crab *Nanhaipotamon hongkongense*	Outside CWBCP: No flora species of conservation importance. No fauna species of conservation importance. Within CWBCP: Flora of conservation importance: *Commelina paludosa*, *Pavetta hongkongensis*, *Phymatodes longissimi* Fauna of conservation importance: Stream Crab *Cryptopotamon anacoluthon*, Hong Kong Freshwater Crab *Nanhaipotamon hongkongense*
Re-creatability	Easy to re-create	Low
Fragmentation	None	None
Ecological linkage	Some linkage with the adjacent Natural Watercourse	Functionally linked with the neighboring natural Mixed Woodland and Clear Water Bay Country Park
Potential value	Low	Low to medium
Nursery/breeding ground	Provide breeding habitats for amphibian and aquatic fauna species	Provide breeding habitats for amphibian and aquatic fauna species
Age	N/A	N/A
Abundance/richness of wildlife	Low abundance	Low abundance
Overall ecological value	Low to medium	Medium

Table 8.9 Evaluation of Mixed Woodland within the Study Area

Criterion	Description
Naturalness	Semi-natural
Size	About 31.93 ha
Diversity	Medium floral diversity Medium faunal diversity
Rarity	Outside CWBCP: Flora of conservation importance: *Aquilaria sinensis*, *Pavetta hongkongensis* No fauna species of conservation importance. Within CWBCP: Flora of conservation importance: *Aquilaria sinensis* Fauna of conservation importance: Crested Serpent Eagle *Spilornis cheela*, Black Kite *Milvus migrans*, Collared Scops Owl *Otus lettia*, Black-throated Laughingthrush *Garrulax chinensis*, Metallic Cerulean *Jamides alecto*, Hong Kong Clubtail *Leptogomphus hongkongensis*
Re-creatability	Low. It would take a long time to become woodland
Fragmentation	None
Ecological linkage	Functionally linked to woodland and other natural habitats within Clear Water Bay Country Park
Potential value	Medium. It could become woodland habitat of higher ecological value
Nursery/breeding ground	No significant record but may provide suitable nursery/breeding habitats for bird and terrestrial mammal species
Age	10 – 15 years
Abundance/richness of wildlife	Low to medium fauna abundance.
Overall ecological value	Medium

Table 8.10 Evaluation of Plantation within the Study Area

Criterion	Description
Naturalness	Man-made
Size	About 11.35 ha
Diversity	Low floral diversity Medium faunal diversity
Rarity	Outside CWBCP: No flora species of conservation importance. No fauna species of conservation importance. Within CWBCP: No flora species of conservation importance. No fauna species of conservation importance.
Re-creatability	Medium. It would take several years to mature.
Fragmentation	Fragmented, scattered Plantation habitats within the Study Area
Ecological linkage	Some area of Plantation is linked to neighbouring Mixed Woodland
Potential value	Low to medium
Nursery/breeding ground	No significant breeding ground observed.
Age	Up to 10 years
Abundance/richness of wildlife	Low to medium fauna abundance.
Overall ecological value	Low

Table 8.11 Evaluation of Shrubland within the Study Area

Criterion	Description
Naturalness	Natural
Size	About 5.37 ha
Diversity	Low floral diversity Low faunal diversity
Rarity	Within CWBCP: Flora of conservation importance: *Aquilaria sinensis* No fauna species of conservation importance.
Re-creatability	Medium. It would take several years to mature.
Fragmentation	Limited fragmentation
Ecological linkage	Linked to neighbouring Mixed Woodland
Potential value	Low to medium
Nursery/breeding ground	No significant breeding ground observed.
Age	N/A
Abundance/richness of wildlife	Low abundance
Overall ecological value	Low to medium

Table 8.12 Evaluation of Turfgrass Land within the Study Area

Criterion	Description
Naturalness	Man-made
Size	About 19.65 ha
Diversity	Low floral diversity Low to medium faunal diversity
Rarity	Outside CWBCP: No flora species of conservation importance. No fauna species of conservation importance. Within CWBCP: No flora species of conservation importance. No fauna species of conservation importance.

Criterion	Description
Re-creatability	Easy to re-create
Fragmentation	None
Ecological linkage	Not functionally linked to habitats of conservation importance
Potential value	Low
Nursery/breeding ground	No significant record but may provide foraging ground for bird and bat species
Age	N/A
Abundance/richness of wildlife	Medium abundance
Overall ecological value	Low

8.6.1.3 Species of flora and fauna with conservation importance were given special attention. With reference to Table 3, Annex 8 of the EIAO-TM, the ecological value of species was assessed in terms of protection status, distribution, and rarity. Flora or fauna species protected by the following laws/regulations, listed under the following conventions and/or endemic to Hong Kong, were considered to be species of conservation importance. However, this excludes exotic weeds, escaped cultivars or captive species, vagrants and introduced species which have lower ecological value. Species which are classified by IUCN as Near Threatened (NT), Least Concern (LC), Data Deficient (DD), or Not Evaluated (NE), and not covered by any other laws/regulations/conventions are not considered of conservation importance in the present study. Flora and fauna species of conservation importance recorded within the Study Area were evaluated with reference to EIAO-TM in **Table 8.13** and **Table 8.14**.

Table 8.13 Evaluation of Flora Species of Conservation Importance Recorded within the Study Area

Scientific Name	Conservation/Protection Status [1 2 3 5 6 7 8 9 10]	Distribution[4]	Rarity[4]	Location
Aquilaria sinensis	IUCN Red List of Threatened Species (2024): Vulnerable [7] Appendix II of CITES [3] Threatened Species List of China's Higher Plants: Vulnerable [8] China Plant Red Data Book: Vulnerable [5] Included in Illustrations of Rare & Endangered Plant in Guangdong Province [10] Listed in Rare and Precious Plants of Hong Kong [6] Cap. 586 [1] State Protection (Category II) [9]	Lowland forests and fung shui woods	Common	In Mixed Woodland outside the Application Site but within the Study Area. (Outside CWBCP) In Mixed Woodland outside the Application Site but within the Study Area. (Within CWBCP) In Shrubland outside the Application Site but within the Study Area. (Within CWBCP)
Commelina paludosa	N/A	Streamsides. Tai Mo Shan	Rare	In Natural Watercourse outside the Application Site but within the Study Area. (Within CWBCP)
Pavetta hongkongensis	Cap. 96A [2]	Fung shui woods and lowland forest	Common	In Mixed Woodland outside the Application Site but within the Study Area. (Outside CWBCP) In Natural Watercourse outside the Application Site but within the Study Area. (Within CWBCP)
Phymatodes longissima	N/A	Streamsides. Sai Kung, Wu Kau Tang, Sha Tau Kok, Ho Pui Reservoir, Clear Water Bay, Hei Ling	Rare	In Natural Watercourse outside the Application Site but within the Study Area. (Within CWBCP)

Scientific Name	Conservation/Protection Status [1] [2] [3] [5] [6] [7] [8] [9] [10]	Distribution[4]	Rarity[4]	Location
		Chau and Lamma Island.		

Notes:

[1] Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance

[2] Cap. 96A Forestry Regulations

[3] Convention on International Trade in Endangered Species (CITES) of Wild Flora and Fauna. Appendices I, II and III.

[4] Corlett *et al*. (2000). Hong Kong Vascular Plants: Distribution and Status.

[5] Fu & Chin (1992). China Plant Red Data Book – Rare and Endangered Plants.

[6] Hu *et al*. (2003). 100 Rare and Precious Plants of Hong Kong.

[7] IUCN (2024). The International Union for Conservation of Nature's Red List of Threatened Species (IUCN) Red List Version 2024.

[8] Qin *et al*. (2017). Threatened Species List of China's Higher Plants.

[9] State Forestry Administration & Ministry of Agriculture (1999). List of Wild Plants under State Protection (Part 1)

[10] Wu & Hu (1988). Illustration of Rare & endangered plant in Guangdong Province.

Table 8.14 Evaluation of Fauna Species of Conservation Importance Recorded within the Study Area

Species Name[1]	Conservation Status [2] [3] [4] [5] [6] [7] [8] [9]	Rarity and Distribution[1]	Location
Bird (Remark: all wild bird species are protected under Cap. 170 Wild Animals Protection Ordinance in Hong Kong)[2]			
Crested Serpent Eagle *Spilornis cheela*	CITES: Appendix II; List of Wild Animals under State Priority Conservation: Class II; Fellowes *et al*. (2002): (LC); Cap. 586	Common resident. Widely distributed in Shrublands on hillsides throughout Hong Kong.	Study Area outside the Application Site: MW (within CWBCP)
Black Kite *Milvus migrans*	CITES: Appendix II; List of Wild Animals under State Priority Conservation: Class II; Fellowes *et al*. (2002): (RC); Cap. 586	Common resident and winter visitor. Widely distributed in Hong Kong.	Application Site: TL (Outside CWBCP); Study Area outside the Application Site: MW (within CWBCP)
Collared Scops Owl *Otus lettia*	CITES: Appendix II; List of Wild Animals under State Priority Conservation: Class II; Cap. 586	Common resident. Widely distributed in Shrubland throughout Hong Kong.	Study Area outside the Application Site: MW (within CWBCP)
Black-throated Laughingthrush *Garrulax chinensis*	List of Wild Animals under State Priority Conservation: Class II	Common resident. Widely distributed in woodland and Shrubland throughout Hong Kong.	Study Area outside the Application Site: MW (within CWBCP)
Butterflies			
Metallic Cerulean Jamides alecto	-	Very Rare. Victoria Peak, Fung Yuen, Chuen Lung, Mui Wo	Study Area outside the Application Site: NWAT (within CWBCP)
Odonate			
Hong Kong Clubtail *Leptogomphus hongkongensis*	Fellowes *et al*. (2002): LC; Reels (2019): Dragonfly species of conservation interest	Common. Widely distributed in the woodlands adjacent to streams throughout Hong Kong.	Study Area outside the Application Site: MW (within CWBCP)
Bat Species (Remark: all bat species are protected under Cap. 170 Wild Animals Protection Ordinance in Hong Kong) [2]			
Japanese Pipistrelle *Pipistrellus abramus*	Cap. 170	Very Common. Widely distributed throughout Hong Kong.	Study Area
Least Pipistrelle *Pipistrellus tenuis*	Cap. 170	Uncommon. Ten-something records found in Nam Chung, Sheung Wo Hang, Lin Ma Hang, Plover Cove Country Park, Yuen Long, Shek Pik,	Study Area

Species Name[1]	Conservation Status [2,3,4,5,6,7,8,9]	Rarity and Distribution[1]	Location
		Deep Water Bay, Ho Pui and Ho Chung.	
Lesser Yellow Bat *Scotophilus kuhlii*	Fellowes *et al*. (2002): (LC); Cap. 170	Uncommon. Fairly widely distributed in countryside areas throughout Hong Kong.	Study Area
Lesser Bamboo Bat *Tylonycteris pachypus*	Fellowes *et al*. (2002): (LC); Cap. 170	Very Common. Fairly widely distributed in countryside areas throughout Hong Kong.	Study Area
Aquatic Fauna			
Hong Kong Freshwater Crab *Nanhaipotamon hongkongense*	Fellowes *et al*. (2002): PGC	Widely distributed within Hong Kong; recorded throughout the New Territories, Hong Kong, Lamma and Lantau Islands	Study Area outside the Application Site: MWAT (within CWBCP), NWAT (within CWBCP)
Stream Crab *Cryptopotamon anacoluthon*	Fellowes *et al*. (2002): PGC; IUCN Red List of Threatened Species (2024): Vulnerable	Widely distributed within Hong Kong; recorded throughout the New Territories, Hong Kong and Lantau Islands	Study Area outside the Application Site: MWAT (within CWBCP), NWAT (within CWBCP)

Notes:

[1] Agriculture, Fisheries and Conservation Department (2024). Species Database of the Hong Kong Biodiversity Information Hub

[2] Cap. 170 Wild Animals Protection Ordinance

[3] Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance

[4] Convention on International Trade in Endangered Species (CITES) of Wild Flora and Fauna. Appendices I, II and III.

[5] Fellowes *et al*. (2002). Wild animals to watch: Terrestrial and freshwater fauna of conservation concern in Hong Kong.

- For conservation status listed by Fellowes *et al*. (2002), letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.

[6] IUCN (2024). The International Union for Conservation of Nature's Red List of Threatened Species (IUCN) Red List Version 2024.

[7] National Forestry and Grassland Administration and the Ministry of Agricultural and Rural Affairs. (2023). List of Wild Animals under State Priority Conservation.

[8] Stanton *et al*. (2017). Distribution of *Cryptopotamon anacoluthon* (Kemp, 1918) (Crustacea: Brachyura: Potamidae), a freshwater crab endemic to Hong Kong.

[9] Stanton *et al*. (2018). Distribution of *Nanhaipotamon hongkongense* (Shen, 1940) (Crustacea: Brachyura: Potamidae), a freshwater crab endemic to Hong Kong.

Abbreviations:

- Conservation Status in Fellowes *et al*. (2002): LC = Local Concern, RC = Regional Concern, PGC = Potential Global Concern
- Habitats: DA = Developed Area; MW = Mixed Woodland; MWAT = Modified Watercourse; NWAT = Natural Watercourse; PL = Plantation; SH = Shrubland; TL = Turfgrass Land

8.7 Construction Phase

8.7.1 Impacts Evaluation – Direct Impacts

Habitat Loss

8.7.1.1 Permanent habitat loss is anticipated from the construction works (e.g. site formation) of the Project (4.63 ha). Habitat involved include Developed Area, Plantation, Turfgrass Land and Modified Watercourse. These habitats are expected to be occupied by permanent structures of the Project (e.g. buildings, paddocks, footpaths, carpark, etc.). The estimated loss of habitat during construction phase is shown on **Table 8.15**.

Table 8.15 Permanent Habitat Loss During Construction Phase

Habitat	Ecological Value	Area (ha) / Length (m)
		Application Site[1]
Developed area	Very Low	0.25 ha
Modified watercourse	Very Low	99 m
Plantation	Low	0.25 ha
Turfgrass land	Low	4.13 ha

Note:

[1] Including areas of associated works (e.g. site formation)

8.7.1.2 The impact due to loss of Developed Area (0.25 ha) is considered as **Insignificant** due to the man-made nature with low species diversity and simple structure.

8.7.1.3 For the area of Turfgrass Land being affected from the works at the Application Site (4.13 ha), it is of low ecological value due to the man-made nature with low species diversity and simple structure. The impact of habitat loss to Turfgrass Land is ranked as **Insignificant**.

8.7.1.4 For the area of Plantation being affected from the works at the Application Site (0.25 ha), it is relatively small in scale and also of low ecological value due to the fragmented nature of the habitat within the Application Site. The area of Plantation within CWBCP close to the Application Site is small in scale and low in ecological value. The potential impact of habitat loss to Plantation is ranked as **Insignificant**.

8.7.1.5 For the area of Modified Watercourse being affected from the works at the Application Site (99m), it is seasonal, small in scale and also of very low ecological value due to its man-made nature and low species diversity. The potential impact of habitat loss to Modified Watercourse is ranked as **Insignificant**.

8.7.2 Impacts Evaluation – Indirect Impact

Water Quality Issue due to Construction Site Runoff

8.7.2.1 During the construction phase, Watercourse near the works areas would potentially be impacted by surface runoff, especially during rainstorm. The surface runoff might be polluted by sedimentation from site surfaces; earth working areas and stockpiles, wash water from dust suppression sprays and wheel washing facilities; and chemicals spillage such as lubrication oils, solvents and petroleum products from maintenance of construction machinery and equipment, and sewage from the construction workforce.

8.7.2.2 Elevated suspended solids levels caused by site runoff could increase the suspended solids load in the water bodies and could decrease dissolved oxygen levels. A lower oxygen level would affect stationary species, whilst mobile species would tend to temporarily avoid the area. The result could be a temporary reduction in aquatic life abundance and/or change in distribution. With proper control of surface runoff as discussed in **Section 5.4.3**, the potential impact on the Watercourse due to runoff is considered **Minor**.

General Construction Disturbance

8.7.2.3 During the construction phase, increased human activity and machinery use at the Application Site will generate additional noise, dust and glare, potentially increase

disturbance to nearby habitat, such as the Mixed Woodland. Most habitats are already disturbed by regular maintenance, such that most highly mobile wildlife in vicinity to the Application Site, such as birds and butterflies, will have already avoided or adapted to the disturbance. In general, construction works within country parks shall be conducted at daytime (i.e. 8am to 6pm) on non-public holiday between Mondays and Saturdays. Therefore, the impacts from disturbance are anticipated to be **Minor** with standard environmental controls.

Impact on Sites of Conservation Importance

8.7.2.4 The CWBCP is a site of conservation importance which may experience indirect disturbance during the construction phase. The site boundary of the Upper Platform is partially adjacent to the boundary of the CWBCP. Construction works within in the Application Site will generate additional noise, and dust, which may induce additional disturbance to fauna species within the CWBCP. Although the existing access road to the Upper Platform is already frequently used for landfill restoration works that have caused certain disturbance, given that the access road usage will increase significantly during construction phase, control measures should be implemented to minimize the additional impact on the CWBCP. With suitable control measures in place, the impact on CWBCP is deemed **Minor**.

8.7.2.5 Another site of conservation importance is a Conservation Area located over 450m from the Application Site and is separated by the CWBCP. As such, no significant impact is anticipated to the Conservation Area.

Impact on Species of Conservation Importance

8.7.2.6 Only one avifauna species (Black Kite) was recorded within the Application Site, while four flora and 13 fauna species of conservation importance were recorded outside the Application Site. One aquatic species of conservation importance, *Nanhaipotamon hongkongense*, was recorded in proximity but outside the boundary of the Application Site. Details of these species are available in **Table 8.13** and **Table 8.14**. Since the terrestrial species of conservation importance are highly mobile which enables them to avoid potential disturbance during the construction phase, and measures to control surface runoff in place as mentioned in **Section 5.4.3** to minimize disturbance to aquatic species of conservation importance, disturbance to these species during construction phase is considered **Minor**.

8.7.3 Control Measures

8.7.3.1 General environmental control measures should be adopted during the construction phase to minimize the indirect disturbance caused to nearby sensitive ecological resources. The key measures include the following items:

- Confining the works within the construction site boundary;
- Controlling access of site staff to avoid damage to the vegetation in surrounding areas; and
- Placement of equipment or stockpile in the existing disturbed/urbanized land within the site boundary of the Project to minimize disturbance to vegetated areas.
- The use of quiet plant and EPD's Quality Powered Mechanical Equipment (QPME);
- The use of movable noise barrier;

- The use of temporary noise screening structures or purpose-built temporary noise barriers;
- Installation of site hoarding as temporary noise barrier where construction works will be undertaken; and
- Compliance of control measures stipulated in the ProPECC PN 2/24 "Construction Site Drainage" to minimize water quality impact.

8.7.3.2 Regular site audits and inspections will be undertaken during the construction phase to ensure that the control measures have been properly implemented, all the aboveground works areas do not encroach on the CWBCP and all aboveground construction activities are confined within their boundaries.

8.7.3.3 To miminise light glare impact during the construction phase, construction work should be conducted during daytime as far as possible, and limit the use of artificial lightings to necessary applications such as security and safety measures within the construction site. The incidence angle of artificial lighting should be directed towards areas with necessity of lighting only and away from natural habitats.

8.8 Operational Phase

8.8.1 Impacts Evaluation – Direct Impact

Habitat Loss

8.8.1.1 Operational phase direct impacts would be the habitats lost permanently during the construction, no additional habitat loss will occur during operational phase. Therefore, the potential impacts to the loss of habitats are considered **Insignificant**.

8.8.2 Impacts Evaluation– Indirect Impact

General Operational Disturbance

8.8.2.1 There may be potential disturbances including noise pollution and glare caused by the Project during operational phase. Two out of the three platforms (i.e. Lower and Middle Platforms), which are the major works area of the Project, are located downhill at more than 150 meters away from the ecologically sensitive CWBCP. Therefore, the potential disturbances from the Lower Platform and Middle Platform are considered as minimal.

8.8.2.2 Regarding the Upper Platform located close to the CWBCP, potential noise disturbances are also evaluated. Since the usage of the Upper Platform is restricted to students, coaches and staff of the PRS, while other pedestrian and visitors of the PRS will be located at Lower Platform, with minimal noise disturbance to the CWBCP. Limited traffic is anticipated. In addition, the existing access road has already been utilized by the operators of restored landfill. It is believed that the habitat along the access road would have been adapted to the road traffic noise from the access road. Therefore, potential noise disturbances due to the operation of PRS is considered minimal.

8.8.2.3 Artificial lighting used in the Upper Platform located close to the CWBCP during the night-time operation of the PRS could potentially affect light-sensitive birds, nocturnal mammals, and fireflies. An unnamed species of firefly identified at the Natural Watercourse in CWBCP, which is located at about 200m away from the Application Site. Most of the light will be screened by the dense foliage of the woodland, where most light sensitive wildlife are present. In addition, the operating hour of the PRS is between 7am

to 9pm, with roughly 1 hour preparation before and after the operating hour. The lights will be turned off after use. Potential disturbance caused to light-sensitive wildlife by artificial lighting during operation is therefore considered as **Minor**.

8.8.2.4 The western side of the Upper Platform is located at more than 50m away from the CWBCP. As there will be no lighting direct on the CWBCP, and there will be some screening by the woodland in between, potential glare impact is unlikely. The eastern side of the Upper Platform (i.e. the proposed paddock) is located closer to the CWBCP. Therefore, good lighting design measures as discussed in **Section 8.8.3** would be adopted as far as practicable to minimize the ecological impact from glare, while fulfilling the safety requirement as stipulated in relevant ordinances / guidelines (e.g. Public Lighting Design Manual issued by Highways Department). The lowest lighting class suggested for footpaths and cycle tracks in the guideline will be adopted. In addition, the woodland in between could provide screening to the fireflies at about 200m away from the Application Site. Adverse glare impact, particularly to the fireflies, is not anticipated.

8.8.3 Control Measures

8.8.3.1 Since the Project is anticipated to operate during nighttime, the following good design measures shall be adopted for outdoor lighting in the Upper Platform to minimize glare impact on the surrounding habitats and terrestrial fauna.

- Minimize the intensity of artificial lighting as much as possible while fulfilling the safety requirement as stipulated in relevant ordinances / guidelines (e.g. Public Lighting Design Manual issued by Highways Department);
- Using the shortest possible pole height to minimize light spill; and
- Positioning and directing the incidence angle of artificial lighting towards areas with necessity of lighting and away from natural habitats adjacent to the Application Site.

8.8.3.2 The number of proposed lighting along the Access Road would be 38 nos. Based on the latest proposal, and the exact number of new lightings will be further reviewed and reduced, if possible, and alternative lighting designs will also be explored during the detailed design stage to further minimize the potential glare impact. Good design measures have already incorporated in lighting proposal for the Access Road. The operation of the Project will also follow the measures when using the Access Road.

- Warm white color (i.e. 2700K) will be adopted for lights on the Access Road to reduce lighting impact to wild animals;
- Adopt lighting fixtures for Access Road (e.g. installation of glare shield) with relatively narrow beam angle and adjust the incidence angle to reduce light spill outside the Access Road; and
- Pole light on the Access Road will be turned off during non-operating hour under normal operation, except during guard patrol period or in case of emergency.

8.8.3.3 With these measures applied, unnecessary glare impact on light sensitive species, such as nocturnal mammals and fireflies, shall be minimized.

8.9 Environmental Monitoring and Audit

8.9.1 Construction Phase

8.9.1.1 During construction phase, it is anticipated that there will be no adverse ecological impact with the implementation of control measures. Nevertheless, site audit is recommended for the construction phase to ensure better environment. Regular site audits would be carried out to ensure proper implementation of pollution control measures.

8.9.2 Operational Phase

8.9.2.1 During the operational phase, it is anticipated that there will be no adverse ecological impact with the implementation of control measures. Nevertheless, site audit prior to operation commencement is recommended to ensure the recommended measures in minimizing glare impact are properly implemented.

8.10 Summary

8.10.1.1 During the construction phase, habitat loss due to the permanent structures of the Project and temporary habitat loss due to the works areas of the Project are anticipated. Nevertheless, the ecological value of these habitats ranges from "Very Low" to "Low". The potential impacts on site of conservation importance (e.g. CWBCP and Conservation Area) and species of conservation importance are considered to be insignificant. Given the proper implementation of control measures during construction phase, the indirect disturbance from construction works is anticipated to be minor.

8.10.1.2 During the operational phase, potential disturbance is considered minimal given the nature of the Project. In addition, various control measures have been proposed to minimize the potential glare impact due to the use of artificial lighting. Therefore, it is anticipated that there will be no adverse ecological impact during the operational phase.

8.10.1.3 Summary of potential ecological impacts on the habitats within the Study Area associated with the construction and operation of the Project have been summarised in **Table 8.16 to Table 8.22**.

Table 8.16 Evaluation of Impact Significance to Developed Area within Study Area

Evaluation Criteria	Developed Area
Habitat Quality	Very Low
Species	Within Application Site: No flora and fauna species of conservation importance. Outside Application Site: No flora and fauna species of conservation importance.
Size/Abundance	Permanent loss of 0.25 ha of this habitat from construction of the Project.
Duration	Direct impact of habitat loss (0.25 ha) would be permanent. Indirect impact of disturbance and increased human activities from construction phase would be temporary. Indirect impact of disturbance and increased human activities from operation phase would be permanent.
Reversibility	Permanent habitat loss of 0.25 ha would be irreversible. Disturbance and increased human activities from construction phase would be reversible. Disturbance and increased human activities from operation phase would be irreversible.
Magnitude	Low
Overall Impact Evaluation	Insignificant

Table 8.17 Evaluation of Impact Significance to Plantation within Study Area

Evaluation Criteria	Plantation
Habitat Quality	Very Low
Species	Within Application Site: No flora and fauna species of conservation importance. Outside Application Site: No flora and fauna species of conservation importance.
Size/Abundance	Permanent loss of 0.25 ha of this habitat from construction of the Project.
Duration	Direct impact of habitat loss (0.25 ha) would be permanent. Indirect impact of disturbance and increased human activities from construction phase would be temporary. Indirect impact of disturbance and increased human activities from operation phase would be permanent.
Reversibility	Permanent habitat loss of 0.25 ha would be irreversible. Disturbance and increased human activities from construction phase would be reversible. Disturbance and increased human activities from operation phase would be irreversible.
Magnitude	Low
Overall Impact Evaluation	Insignificant

Table 8.18 Evaluation of Impact Significance to Shrubland within Study Area

Evaluation Criteria	Shrubland
Habitat Quality	Low
Species	Outside Application Site: 1 flora species of conservation importance. No fauna species of conservation importance.
Size/Abundance	This habitat will not be directly affected.
Duration	Indirect impact of disturbance and increased human activities from construction phase would be temporary. Indirect impact of disturbance and increased human activities from operation phase would be permanent.
Reversibility	Disturbance and increased human activities from construction phase would be reversible. Disturbance and increased human activities from operation phase would be irreversible.
Magnitude	Low
Overall Impact Evaluation	Insignificant

Table 8.19 Evaluation of Impact Significance to Turfgrass Land within Study Area

Evaluation Criteria	Turfgrass Land
Habitat Quality	Low
Species	Within Application Site: No flora species of conservation importance. 1 fauna species of conservation importance. Outside Application Site: No flora and fauna species of conservation importance.
Size/Abundance	Permanent loss of 4.13 ha of this habitat from construction of the Project.
Duration	Direct impact of habitat loss (4.13ha) would be permanent. Indirect impact of disturbance and increased human activities from construction phase would be temporary. Indirect impact of disturbance and increased human activities from operation phase would be permanent.

Evaluation Criteria	Turfgrass Land
Reversibility	Permanent habitat loss of 4.13 ha would be irreversible. Disturbance and increased human activities from construction phase would be reversible. Disturbance and increased human activities from operation phase would be irreversible.
Magnitude	Low
Overall Impact Evaluation	Insignificant

Table 8.20 Evaluation of Impact Significance to Mixed Woodland within Study Area

Evaluation Criteria	Mixed Woodland
Habitat Quality	Low to Medium
Species	Outside Application Site: 2 flora species of conservation importance. 6 fauna species of conservation importance.
Size/Abundance	This habitat will not be directly affected.
Duration	Indirect impact of disturbance and increased human activities from construction phase would be temporary. Indirect impact of disturbance and increased human activities from operation phase would be permanent.
Reversibility	Disturbance and increased human activities from construction phase would be reversible. Disturbance and increased human activities from operation phase would be irreversible.
Magnitude	Low
Overall Impact Evaluation	Minor

Table 8.21 Evaluation of Impact Significance to Modified Watercourse within Study Area

Evaluation Criteria	Modified Watercourse
Habitat Quality	Low
Species	Within Application Site: No fauna and flora species of conservation importance. Outside Application Site: No flora species of conservation importance. 2 fauna species of conservation importance.
Size/Abundance	Permanent loss of 99m of this habitat from construction of the Project.
Duration	Direct impact of habitat loss (99m) would be permanent. Indirect impact of disturbance and increased human activities from construction phase would be temporary. Indirect impact of disturbance and increased human activities from operation phase would be permanent.
Reversibility	Permanent habitat loss of 99m would be irreversible. Disturbance and increased human activities from construction phase would be reversible. Disturbance and increased human activities from operation phase would be irreversible.
Magnitude	Very Low
Overall Impact Evaluation	Insignificant

Table 8.22 Evaluation of Impact Significance to Natural Watercourse within Study Area

Evaluation Criteria	Natural Watercourse
Habitat Quality	Low to Medium
Species	Outside Application Site: 3 flora species of conservation importance.

Evaluation Criteria	Natural Watercourse
	2 fauna species of conservation importance.
Size/Abundance	This habitat will not be directly affected.
Duration	Indirect impact of disturbance and increased human activities from construction phase would be temporary. Indirect impact of disturbance and increased human activities from operation phase would be permanent.
Reversibility	Disturbance and increased human activities from construction phase would be reversible. Disturbance and increased human activities from operation phase would be irreversible.
Magnitude	Low
Overall Impact Evaluation	Minor

9. Landscape and Visual

9.1 Landscape Impacts

9.1.1.1 Please refer to Tree Preservation and Removal Proposal, which is included as Appendix 2 in the Supplementary Planning Statement.

9.2 Visual Impacts

9.2.1.1 Please refer to Visual Impact Assessment, which is included as Appendix 5 in the Supplementary Planning Statement.

10. Landfill Gas Hazard

10.1 Legislation, Standards and Guidelines

10.1.1.1 EPD issued two guidance notes regarding the landfill gas hazard assessment, namely:

- Landfill Gas Hazard Assessment Guidance Note (2022) (EPD/TR8/97);
- Landfill Gas Hazard Assessment for Development Adjacent to Landfills (ProPECC PN 3/96);
- Section 1.1(f) in Annex 7 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM);
- Section 3.3 in Annex 19 of the EIAO-TM; and
- The Hong Kong Planning Standards and Guidelines (HKPSG), Chapter 9

10.1.1.2 These guidelines provide an assessment framework for evaluating the risks posed by landfill gas for any development proposed within 250m Landfill Consultation Zone as described under Section 6.5, Chapter 9 of the HKPSG.

10.2 Description of the Environment

10.2.1 Tseung Wan O Stage II/III Restored Landfill (TKOL II/III)

10.2.1.1 TKOL II/III is located underneath the Project (see **Figure 10.1**). It covers an area of 42 hectares, with its boundary defined by hills on three sides. It received waste from 1988 to 1994. A total of approximately 12.6 million tonnes of domestic, commercial and industrial (C&I), construction, chemical, clinical and special wastes were landfilled. The maximum waste depth is about 90m.

10.2.1.2 TKOL II/III was subject to restoration works commissioned by the Government in 1997. A restoration works contract was awarded to a restoration contractor who designed and implemented a system of controls to achieve the contractual limits on environmental emissions and is responsible for the management of installed environmental control facilities and environmental impacts arising from the landfill following completion of the works.

10.2.1.3 TKOL II/III was originally not fully lined and no leachate or gas abstraction system was installed during the landfill operation. The major restoration works regarding the management of landfill gas and leachate under the contract include:

- Placing of a membrane over the waste;
- Placing of soil above the membrane and the installation of a comprehensive surface water drainage system
- Installation of a landfill gas collection and abstraction system;
- Utilization of landfill gas abstracted;
- Treatment of surplus landfill gas in landfill gas flare; and
- Collection and storage of leachate and landfill gas condensate for treatment.

10.2.1.4 The leachate collected is pumped to the Leachate Pre-treatment Works (LPTW) at the landfill for treatment prior to be discharged to sewer leading to the TKO Preliminary Treatment Works (TKOPTW).

10.2.1.5 Active groundwater control in the form of groundwater abstraction wells, were installed at TKOL II/III, upstream of the waste boundary. The wells reduce the ingress of groundwater to the waste and hence minimize leachate generation. Groundwater collected from groundwater extraction wells at TKOL II/III is used in the LPTW and the excess groundwater is discharged to the stormwater drains. Sixteen groundwater wells were monitored quarterly throughout the aftercare period after the completion of landfill restoration works in 1999.

10.2.2 South East New Territories (SENT) Landfill and Tseung Wan O Stage I Restored Landfill (TKOL I)

10.2.2.1 The Project is located at more than 0.5km and 1km from the SENT Landfill and TKOL I, which is outside their 250m consultation zone (see **Figure 10.1**). Potential landfill gas hazard from them is not anticipated.

10.3 Identification of Landfill Gas Generation, Characteristics and Hazards

10.3.1 Landfill Gas Generation

10.3.1.1 When water infiltrates a landfill, it triggers the decomposition of organic materials, leading to the generation of gases. As biodegradation begins, the available oxygen is quickly depleted, and without any replenishment, the waste mass becomes anaerobic. During anaerobic fermentation, methanogens produce methane and carbon dioxide, which are the primary components of landfill gas. Typically, landfill gas consists of approximately 60% methane and 40% carbon dioxide by volume, although these proportions can vary significantly based on site conditions. Additionally, trace amounts of hydrogen sulphide, nitrogen, and gaseous hydrocarbons are present.

10.3.1.2 The rate of degradation and the volume of landfill gas produced per unit of waste can vary greatly due to the high variability in biodegradation settings, waste composition, and individual site characteristics. The generation of landfill gas is influenced by various environmental factors, including temperature, pH, substrate availability, moisture content, and oxygen content.

10.3.2 Landfill Gas Characteristics

10.3.2.1 Landfill gas presents a number of potential hazards as follow:

Methane

10.3.2.2 It is odourless, colourless and typically associated with numerous highly odoriferous compounds in landfill gas which will give some warning of its presence. However, the absence of odour should not be taken to mean that there is no methane – this can only be confirmed by using appropriately calibrated methane detectors. Methane is a flammable gas and will burn when mixed with air between approximately 5% and 15% by volume, the Lower Explosive Limit (LEL) and Upper Explosive Limit (UEL) respectively. A mixture of methane and air with a composition between the LEL and UEL ignited in a confined space could lead to an explosion. Methane is also an asphyxiant.

Carbon Dioxide

10.3.2.3 It is another major component of landfill gas, which could induce asphyxia and adverse health effects at relatively low concentrations. The long-term eight-hour Occupational Exposure Limit (OEL) is 0.5% by volume. Similar to methane, it is also odourless and colourless and can only detected using appropriately calibrated detectors.

Gas Buoyancy

10.3.2.4 Methane is lighter than air whereas carbon dioxide is heavier than air. Typical mixtures of landfill gas are likely to have a density close to or equal to that of air. However, site conditions may result in a ratio of methane to carbon dioxide which may make the gas mixture lighter than air or heavier than air. As a result, landfill gas may be concentrated in the bottoms of trenches or excavations or may rise up and accumulate beneath structures and foundations.

10.3.3 Landfill Gas Hazard

10.3.3.1 Due to the flammability, asphyxiant properties, and gaseous density of landfill gas, there is a potential hazard if the gas migrates from the landfill and accumulates in confined spaces such as building basements, underground car parks, lift shafts, pumping stations, and maintenance chambers. Similarly, temporary structures like site huts and other unventilated enclosures erected during the construction stage may also be exposed to landfill gas hazards. Underground services, including sewer drains, storm drains, and service ducts, can act as pathways for landfill gas, making them susceptible to potential hazards. Additionally, any faults in the geological formation can also serve as pathways for landfill gas.

10.3.4 Landfill Gas Migration

10.3.4.1 Methane migrates along pressure gradients, moving from areas of higher pressure to areas of lower pressure. The primary mechanism for significant methane migration in subsurface unsaturated soils is pressure-driven flow. While diffusion also occurs, its rates are too low to result in unacceptable indoor air concentrations under reasonably likely scenarios.

10.3.4.2 The ability of landfill gas to migrate beyond the waste boundary depends on various factors, including the type of landfill construction details, the presence of gas and leachate control measures, restoration details, and the permeability of the ground through which the gas must travel. Changes in atmospheric pressure can also encourage gas migration.

10.3.4.3 If gas intercepts any buried service routes, especially where the utility has been laid in an open conduit or the trench excavation has been backfilled around the utility line with coarse gravel, these may be susceptible to potential hazards and/or act as preferential gas migration pathways.

10.4 Assessment Criteria

10.4.1.1 In accordance with EPD's Guidance Notes, the risk due to landfill gas shall be evaluated based upon the following three criteria:

Source the location, nature and likely quantities/concentrations of landfill gas which has the potential to affect the proposed development

Pathway the nature and length of potential pathways through which landfill gas must pass to reach the proposed development

Target the elements of the development which are sensitive to the effects of landfill gas

10.4.2 Source

10.4.2.1 The classification of the Source (i.e. the landfill) should be undertaken as follows:

Minor

- Landfill sites at which gas controls have been installed and proven to be effective by comprehensive monitoring which has demonstrated that there is no migration of gas beyond the landfill boundary (or any specific control measures) and at which control of gas does not rely solely on an active gas extraction system or any other single control measures which is vulnerable to failure; or
- Old landfill sites where the maximum concentration of methane within the waste, as measured at several locations across the landfill and on at least four occasions over a period of at least 3 months (preferably longer), is less than 5% by volume (v/v).

Medium

- Landfill site at which some form of gas control has been installed (e.g. lined site or one where vents or barriers have been retrospectively installed) but where there are only limited monitoring data to demonstrate its efficacy to prevent migration of gas; or
- Landfill site where comprehensive monitoring has demonstrated that there is no migration of gas beyond the landfill boundary but where the control of gas relies solely on an active gas extraction system or any other single control system which is vulnerable to failure.

Major

- Recently filled landfill site at which there is little or no control to prevent migration of gas or at which the efficacy of the gas control measures has not been assessed; or
- Any landfill site at which monitoring has demonstrated that there is significant migration of gas beyond the site boundary.

10.4.3 Pathway

10.4.3.1 Generally, three types of pathways are identified for the transmission of landfill gas which are:

- Man-made pathways, e.g. utility connections, stormwater channels, etc.;
- Natural pathways such as rock jointing planes, fissures, and other naturally occurring phenomena which may promote or give rise to the transmission of gas over distances; and
- A combination of the previous categories. An example of the latter may be, for instance, where a specific geological feature promotes gas transmission but which stops short of directly linking the landfill and target. A man-made connection, however, may also co-exist near the edge of the geological feature, in combination with the former, may act to link the two sites. In this instance, careful assessment of the likelihood of the mechanism acting to link the two pathways needs to be undertaken before assigning an appropriate pathway classification.

10.4.3.2 The broad classification of the Pathway should be undertaken as follows:

Very short/direct Path length of less than 50m for unsaturated permeable strata and fissured rock or less than 100m for man-made conduits

Moderately short/direct	Path length of 50-100m for unsaturated permeable soil or fissured rock or 100-250m for man-made conduits
Long/indirect	Path length of 100-250m for unsaturated permeable soils and fissured rock

10.4.4 Target

10.4.4.1 Different types of target may be broadly classified as follow:

Highly sensitive

- Buildings and structures with ground level or below ground rooms/voids or into which services enter directly from the ground and to which members of the general public have unrestricted access or which contain sources of ignition.
- This would include any developments where there is a possibility of additional structures being erected directly on the ground on an ad hoc basis and thereby without due regard to the potential risks.

Medium sensitivity

- Other buildings, structures or service voids where there is access only by authorised well trained personnel, such as the staff of utility companies, who have been briefed on the potential hazards relating to landfill gas and the specific safety procedures to be followed.
- Deep excavations.

Low sensitivity

- Buildings/structures which are less prone to gas ingress by virtue of their design (such as those with a raised floor slab).
- Shallow excavations.
- Developments which involve essentially outdoor activities but where evolution of gas could pose potential problems.

10.4.4.2 The above categories should be used as a general guide only and particular aspects of a building or development may render it more or less sensitive than indicated. Account should be taken of any particular circumstances when assigning a target to one of the three categories.

10.4.4.3 Following the determination of the categories of source, pathway and target, the overall risk levels are classified in accordance with **Table 10.1**.

Table 10.1 Classification of Risk Categories

Sources	Pathway	Target	Risk Category
Major	Very short/direct	High	Very High
		Medium	High
		Low	Medium
	Moderately short/direct	High	High
		Medium	Medium
		Low	Low
	Long/indirect	High	High

Sources	Pathway	Target	Risk Category
		Medium	Medium
		Low	Low
Medium	Very short/direct	High	High
		Medium	Medium
		Low	Low
	Moderately short/direct	High	High
		Medium	Medium
		Low	Low
	Long/indirect	High	Medium
		Medium	Low
		Low	Very Low
Minor	Very short/direct	High	High
		Medium	Medium
		Low	Low
	Moderately short/direct	High	Medium
		Medium	Low
		Low	Very Low
	Long/indirect	High	Medium
		Medium	Low
		Low	Very Low

10.4.4.4 The potential implications associated with the various qualitative risk categories are summarized in **Table 10.2**.

Table 10.2 General Categorisations of Risks

Category	Level of Risk	Implication
A	Very high (undesirable)	The type of development being proposed is very undesirable and a less sensitive form of development should be considered. At the very least, extensive engineering measures, alarm systems and emergency action plans are likely to be required.
B	High	Significant engineering measures will be required to protect the planned development.
C	Medium	Engineering measures will be required to protect the proposed development.
D	Low	Some precautionary measures will be required to ensure that the planned development is safe.

Category	Level of Risk	Implication
E	Very low (Insignificant)	The risk is so low that no precautionary measures are required.

10.4.4.5 Five generic forms of protection will be used in minimizing the hazards to developments. These generic forms corresponding to the five risk levels are set out in **Table 10.3**. The terms used in **Table 10.3** are defined in **Table 10.4**.

Table 10.3 Generic Protection Measures for Planning Stage Categorisation

Category	Generic Protection Measures
A	For the planned development active control of gas, supported by barriers and detection systems. Another, less sensitive form of development should also be considered.
B	Active control of gas, including barriers and detection systems [1]
C	Use of "semi active" or enhanced passive controls. Detection systems in some situations.
D	Passive control of gas only.
E	No precautionary measures required.

Note:

[1] The gas protection measures required to allow the safe development of Category A risk development will need to be more extensive than those for a Category B risk development.

Table 10.4 Definition of Control Terms

Term	Definition
Active control	Control of gas by mechanical means e.g. ventilation of spaces with air to dilute gas, or extraction of gas from the development site using fans or blowers.
"Semi active" control	Use of wind driven cowls and other devices which assist in the ventilation of gas but do not rely on electrically powered fans.
Passive control	Provision of barriers to the movement of gas e.g. membranes in floors or walls, or in trenches, coupled with high permeability vents such as no-fines gravel in trenches or voids/permeable layers below structures.
Detection systems	Electronic systems based upon, for example, catalytic oxidation or infra-red measurement principles, which can detect low concentrations of gas in the atmosphere and can be linked to alarms and/or telemetry systems.

10.5 Qualitative Risk Assessment in Construction Phase

10.5.1 Assessment Methodology

10.5.1.1 In accordance with the procedures recommended in Landfill Gas Hazard Assessment Guidance Note, the following tasks have been undertaken to allow a full consideration of the potential risk of LFG from the TKOL II/III to the Project.

- Review of background information (including landfill gas monitoring data, if any) and studies related to the TKOL II/III Site;

- Identification of the nature and extent of the sources, including the likely concentrations/amounts of hazardous emissions which might have the potential for causing impacts on the Project;
- Identification of possible pathways through the ground, underground cavities, utilities or groundwater, and the nature of these pathways through which hazardous emissions must traverse if they were to reach the facilities within the Application Site;
- Identification of the potential targets associated with the Project which are sensitive to the impacts of the hazardous emissions;
- Qualitative assessment on the degree of risk which the hazardous emissions may pose to the target for each of the source-pathway-target combinations;
- Design of suitable level of precautionary measures and types of protection measures and emergency procedures for the construction and operation of the development proposed under the Project; and
- Identification of monitoring requirements for assessing the adequacy and performance of the implemented protection measures.

10.5.2 Desktop Study

10.5.2.1 The information and documents which have been used as background materials for the preparation of this assessment include the following:

- Environmental Impact Assessment Report of Desalination Plant at Tseung Kwan O (July 2015); and
- Landfill gas monitoring data for the TKOL II/III – Annual Environmental Audit Report (from 2020 to 2024) provided by EPD.

History of TKOL II/III

10.5.2.2 The TKOL II/III commenced its operation in Year 1988 and ceased operation in Year 1995. The restoration works were implemented and completed in Year 1999 upon the completion as a waste disposal site. It is now in the Aftercare period undertaken by EPD's Restoration Contractor. Regular inspection on LFG, leachate, groundwater, surface water, etc., are carried out by the Contractor on a regular basis.

Restoration Facilities

10.5.2.3 The restoration works at TKOL II/III include a multi-layer capping system (consisting of compacted soil, geomembrane, geonet and geotextile), a landfill gas and leachate extraction, collection and treatment system.

i. Landfill Capping Tunnel

10.5.2.4 According to the as-built drawings of TKOL II/III, the components of the landfill capping layer include the following (from top to bottom):

- An approximately 850mm thick soil layer of general cover, hydroseeded to act as the growing medium;
- A low permeability Linear Low Density Polyethylene (LLDPE) geo-membrane and subsoil drainage later (geocomposite); and

- A 500mm thick final intermediate soil cover.

ii. Landfill Gas Management System

10.5.2.5 Landfill gas management system is in place for all the restored landfills for safety and health reasons. The system included placement of a membrane over the waste to contain the landfill gas, installation of a landfill gas extraction system, utilisation of the landfill gas as a fuel to generate electricity and for leachate treatment, and combustion of the surplus gas in enclosed flares. There is a total of 50 vertical wells to extract landfill gas.

iii. Leachate Management System

10.5.2.6 The leachate collected is pumped to the Leachate Pre-treatment Works (LPTW) at the landfill for treatment prior to be discharged to sewer leading to the TKOPTW. Active groundwater control in the form of groundwater abstraction wells, were installed at TKOL II/III, upstream of the waste boundary. The wells reduce the ingress of groundwater to the wastes and hence minimise leachate generation. Groundwater collected from groundwater extraction wells at TKOL II/III is used in the LPTW and the excess groundwater is discharged to the stormwater drains. Groundwater wells were monitored quarterly throughout the aftercare period which is 30 years from the landfill restoration works completion date.

10.5.3 Source

10.5.3.1 Landfill gas management system was installed to control gas emission and prevent off-site gas migration. 14 monitoring wells were installed outside the boundary of the landfill where landfill gas was monitored (**Appendix 10.1**). The gas monitoring data at these monitoring wells for the past 5 years between January 2020 and December 2024, i.e. the aftercare period of the landfill, has been obtained from EPD and reviewed. The data are tabulated in **Appendix 10.1** and are summarized in **Table 10.5**.

Table 10.5 Summary of Landfill Gas Monitoring Data at TKOL II/III (Jan 2020 to December 2024)

Wells No.	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)	
	Range	Average	Range	Average	Range	Average
DG1	0.0 - 0.0	0.0	0.0 - 5.5	0.9	8.9 - 23.6	18.6
DG2	0.0 - 0.0	0.0	0.0 - 2.8	0.9	16.1 - 23.5	19.6
DG3	0.0 - 0.0	0.0	0.0 - 13.3	5.9	0.0 - 22.7	11.0
DG4	0.0 - 0.0	0.0	0.0 - 7.4	2.1	5.1 - 22.9	17.6
DG5	0.0 - 0.0	0.0	0.0 - 2.7	0.1	18.0 - 22.3	20.4
DG6	0.0 - 0.0	0.0	0.0 - 6.5	0.7	16.9 - 22.2	19.8
DG7	0.0 - 0.0	0.0	0.0 - 5.5	1.0	5.0 - 22.6	18.6
UG1	0.0 - 0.0	0.0	0.0 - 2.2	0.6	17.2 - 22.9	19.8
UG2	0.0 - 0.0	0.0	0.0 - 2.2	0.6	17.3 - 22.7	19.9
UG3	0.0 - 0.0	0.0	0.0 - 1.1	0.4	18.3 - 22.9	20.3
UG4	0.0 - 0.0	0.0	0.0 - 1.3	0.3	18.7 - 23.4	20.4

Wells No.	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)	
	Range	Average	Range	Average	Range	Average
UG5	0.0 - 0.0	0.0	0.0 - 1.8	0.3	18.0 - 23.1	20.3
UG6	0.0 - 0.0	0.0	0.0 - 1.7	0.2	19.2 - 22.7	20.6
UG7	0.0 - 0.0	0.0	0.0 - 2.7	0.2	17.9 - 22.9	20.5
UG8	0.0 - 0.0	0.0	0.0 - 1.4	0.5	17.8 - 22.7	20.2
UG9	0.0 - 0.0	0.0	0.0 - 6.9	2.0	8.3 - 23.6	18.2

10.5.3.2 According to the above monitoring data, nearly zero concentration of methane has been observed in all the monitoring wells of the TKO Stage II/III Restored Landfill from January 2020 and December 2024. As the methane concentration for all monitoring wells is 0.0% v/v, this suggests that the landfill gas migration is under effective control.

10.5.3.3 Under some circumstances, the methane component of landfill gas may be oxidised leaving reduced concentration of oxygen and relatively high concentrations of carbon dioxide and the reduced oxygen concentrations are assumed to be associated with a potential landfill gas presence. As shown in above monitoring data, the average carbon dioxide concentrations ranged from 0.1% to 5.9% v/v across the monitoring wells. Low concentrations (below 5% v/v on average) of carbon dioxide concentrations have been observed in the monitoring wells except for DG3. In accordance with the EPD's Guidance Note, levels of carbon dioxide concentration greater than 5% v/v above background levels in any monitoring well indicates the sign of migration of landfill gas. In the absence of the background carbon dioxide information for comparison, it is assumed on conservative side that the potential of migration of landfill gas cannot be eliminated.

10.5.3.4 Oxygen concentrations ranged from <0.1% to 23.6% v/v across the monitoring wells, which oxygen concentrations in monitoring wells are typically 20% v/v. Low levels of oxygen concentrations were only recorded in DG3, which further support the potential of landfill gas migration. However, as advised by EPD/RLG, there was no any records of landfill oxidation events over the past 5 years.

10.5.3.5 In summary, nearly zero concentration of methane and low concentrations of carbon dioxide was detected in the monitoring wells for the TKO Stage II/III Restored Landfill. This suggests that off-site landfill gas migration in these areas is under effective control. Therefore, it can be regarded as "Minor" source according to EPD's guidance notes. However, elevated carbon dioxide and reduced oxygen levels have been recorded in DG3, which suggest that there might be a potential for off-site migration of landfill gas. Therefore, the source of the TKOL II/III is categorised as "**Medium**" as conservative assessment.

10.5.4 Pathways

Natural Pathways

10.5.4.1 As the Application Site is located right above the TKOL II/III, the potential natural pathway for landfill gas migration is categorized as "**Very Short/Direct**".

Man-made Pathways

10.5.4.2 There are existing water supply, sewerage and drainage systems within the TKOL II/III. Landfill has extraction wells and buried landfill gas extraction pipe works could be found

in TKOL II/III. The telecom cable and power supply run along Chun Tat Street and internal access road to the site office. Channel at the eastern side of the TKOL II/III connects to the drainage system which runs along Chun Sing Street. All of the proposed works will be within the landfill site boundary. It is therefore concluded that the potential man-made pathway for landfill gas migration is categorized as "**Very Short/Direct**".

Combination of Natural and Man-made Pathways

10.5.4.3 The potential pathway of landfill gas migration from the source to the targets of the Project can be a combination of natural strata (i.e. the natural pathways) and subsequently through man-made facilities such as utilities connections (i.e. the man-made pathways).

10.5.4.4 This mode of transmission generally requires a series of events to occur in order for gas to potentially affect the Project. The path length for the migration of landfill gas by a combination of natural and man-made pathways is generally much longer than the direct distance between the source and the target. However, the target is located right atop or adjacent to TKOL II/III. The potential combination of natural and man-made pathway for landfill gas migration is therefore categorized as "**Very Short/Direct**".

10.5.5 Targets

10.5.5.1 As the Application Site is located right above TKOL II/III, construction works will be undertaken within the Consultation Zone. The construction works associated with the Project include:

- Site clearance;
- Site formation;
- Replacement of top soil for areas with horses' direct contact;
- Construction of buildings and structures;
- Installation of pipeline and utilities; and
- Temporary site office.

10.5.5.2 During construction phase, excavation may be required and the areas of confined spaces and trenches are especially at a higher risk to the exposure of landfill gas. In addition, indoor construction workers working in buildings and ancillary facilities such as master meter room and pumping rooms may also at risk to the exposure of landfill gas.

10.5.5.3 Nevertheless, during construction phase, the construction site would only be accessible by authorized well-trained personnel who would have been briefed on the potential hazards relating to landfill gas and the specific safety procedures to be followed. As such, the sensitivity of construction workforce is considered as "**Medium Sensitive"**.

10.5.6 Impact Evaluation

10.5.6.1 With all information regarding the sources, pathways and receivers identified in the previous sections, a qualitative assessment of landfill gas hazards during construction phase is summarised in **Table 10.6**.

Table 10.6 Qualitative Risk Assessment of Landfill Gas Hazards During Construction Phase

Source	Pathway	Target	Risk
TKOL II/III as landfill source: **Medium Source**	Natural: **Very Short/Direct** Man-made: **Very Short/Direct** Combined natural and man-made pathway: **Very Short / Direct**	Construction site: **Medium**	**Medium**

10.5.7 Recommended Precautionary and Protective Measures

10.5.7.1 The source-pathway-target analysis as summarized in **Table 10.6** concluded that the overall risk level for construction phase is "**Medium**". With reference to **Table 10.3** and **Table 10.4**, for medium risk targets, engineering measures would be required to protect the construction site which includes the use of "semi-active", enhanced passive gas controls and/or detection systems in some situations.

10.5.7.2 The following sub-sections provide recommendations of precautionary and protective measures for the avoidance of environmental impacts related to landfill gas during the construction phases. Where applicable, specific measures for handling the hazards identified during the construction phase will also be addressed to further reduce the likelihood of incidents and increase the level of the safety to the works.

General Hazards which May Be Encountered

10.5.7.3 All contractors participating in the works should be aware that methane and carbon dioxide are always likely to be present in the soil and rock voids. In addition, the contractors should be aware of the potential hazards and other properties of landfill gas as described in **Section 10.3**.

Outline of Safety Requirements

10.5.7.4 Safety procedures should be implemented to minimize the risks of:

- Fires and explosions;
- Asphyxiation of workers; and
- Toxicity effects.

10.5.7.5 Precautions should be clearly laid down and rigidly adhered to with respect to:

- Trenching and excavation; and
- Creation of confined spaces at, near to or below ground level.

10.5.7.6 In addition, gas detection equipment and appropriate breathing apparatus should be provided and used when entering confined spaces.

Appointment of Safety Officer

10.5.7.7 A safety officer, trained in the use of gas detection equipment and landfill gas related hazards, should be present on site throughout the ground works phase. The Safety Officer should be provided with an intrinsically safe portable instrument, which is appropriately calibrated and able to measure the following gases in the ranges indicated below:

Methane 0-100% LEL and 1-100% v/v

Carbon dioxide	0-100%
Oxygen	0-21%

Safety Measures

10.5.7.8 During all the construction work within / adjacent to landfill sites, the safety measures recommended in Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note should also be strictly followed and the following safety measures should be implemented:

- All personnel who work on site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it;
- Those staff who work in, or have responsibility for "at risk" areas, including all excavation workers, supervisors and engineers working within the construction site, should receive appropriate training on working in areas susceptible to landfill gas, fire and explosion hazards;
- An excavation procedure or code of practice to minimise landfill gas related risk should be devised and carried out by the project proponent;
- No worker should be allowed to work alone at any time in or near to any excavation. At least one other worker should be available to assist with a rescue if needed;
- Smoking and naked flames should be prohibited within confined spaces. "No Smoking" and "No Naked Flame" notices in Chinese and English should be posted prominently around the construction site. Safety notices should be posted warning of the potential hazards;
- Welding, flame-cutting or other hot works should be confined to open areas at least 15m from any trench or excavation;
- Welding, flame-cutting or other hot works may only be carried out in confined spaces when controlled by a "permit to work" procedure, properly authorized by the Safety Officer;
- The permit to work procedure should set down clearly the requirements for continuous monitoring of methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure should also require the presence of a competent environmental specialist who shall be responsible for reviewing the gas measurements as they are made, and who shall have executive responsibility for suspending the work in the event of unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise should be permitted to carry out hot works in confined areas;
- Ground level construction plant should be fitted with vertical exhausts at least 0.6m above ground level and with spark arrestors;
- Any electrical equipment, such as motors and extension cords, should be intrinsically safe;
- During piping assembly or conduiting construction, all valves/seals should be closed immediately after installation. As construction progresses, all valves/seals should be

closed as installed to prevent the migration of gases through the pipeline/conduit. All piping / conduiting should be capped at the end of each working day;

- Mobile offices, equipment stores, mess rooms etc. should be located on an area which has been proven to be gas free (by survey with portable gas detectors) and ongoing monitoring should be carried out to ensure that these areas remain gas free. Alternatively, such buildings should be raised clear of the ground. If buildings are raised clear of the ground, a minimum, clear separation distance (as measured from the highest point on the ground surface to the underside of the lowest floor joist) should be 500mm;
- During the construction works, adequate fire extinguishers and breathing apparatus sets should be made available on site and appropriate training given in their use.
- Fire drills should be organised at not less than six monthly intervals; and
- The contractor should formulate a health and safety policy standards and instructions for site personnel to follow.

10.5.7.9 The site constraints for the construction works within the restored landfill imposed by EPD/RLG will be observed (e.g. excavation limit, load limit at platforms and 2m spacing from existing landfill facilities) to prevent damage of existing landfill facilities and facilitate future maintenance works. A safety plan and construction method statement would be submitted to the restoration contractor for coordination. Throughout the construction phase, regular coordination with the restoration contractor will be maintained. As agreed with the restoration contractor, the post-works inspection will be arranged by the restoration contractor.

Monitoring

10.5.7.10 The following monitoring measures should be taken during construction phase:

- Routine monitoring should be carried out in all excavations, manholes, chambers and any other confined spaces that may have been created;
- All measurements in excavations should be made with the monitoring tube located not more than 10 mm from the exposed ground surface;
- Monitoring should be performed properly to make sure that the area is free of landfill gas before any person enter into the area;
- Monitoring shall cover methane, carbon dioxide and oxygen using approximately calibrated portable gas detection equipment; and
- Monitoring frequency and areas to be monitored should be set down prior to commencement of ground-works by the Safety Officer.

For excavations deeper than 1m, measurements should be carried out:

- at the ground surface before excavation commences;
- immediately before any worker enters the excavation area;
- at the beginning of each working day for the entire period the excavation remains open; and

- periodically throughout the working day whilst workers are in the excavation area.

For excavations between 0.3m and 1m deep, measurements should be carried out:

- directly after the excavation has been completed; and
- periodically whilst the excavation remains open.

For excavations less than 0.3m deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately competent environmental specialist.

10.5.7.11 In addition, the restoration contractor will carry out routine monitoring and inspection works on the existing landfill facilities regularly during the construction phase.

Actions in the Event of Gas Being Detected

10.5.7.12 Depending on the results of the measurements, actions required will vary and should be set down by the Safety Officer or other appropriately competent environmental specialist. As a minimum these should encompass those actions specified in **Table 10.7** below.

Table 10.7 Actions in the Event of Landfill Gas Being Detected in Excavations

Parameter	Monitoring Result	Action
Oxygen	<19% v/v	• Ventilation to restore oxygen to >19% v/v
	<18% v/v	• Stop work • Evacuate all personnel/prohibit entry • Increase ventilation to restore oxygen level to >19%
Methane	>10% LEL (i.e. >0.5% by volume)	• Post "No Smoking" signs • Prohibit hot works • Ventilate to restore Methane to <10% LEL
	>20% LEL (i.e. >1% by volume)	• Stop work • Evacuate all personnel/prohibit entry • Increase ventilation to restore Methane to <10% LEL
Carbon dioxide	>0.5% v/v	• Ventilate to restore carbon dioxide to <0.5% v/v
	>1.5% v/v	• Stop work • Evacuate all personnel/prohibit entry • Increase ventilation to restore carbon dioxide to <0.5%

Emergency Management

10.5.7.13 To ensure that evacuation procedures are implemented in the event of the trigger levels specified in **Table 10.7** above being exceeded, it is recommended that a person, such as the Safety Officer, is nominated, with deputies, to be responsible for dealing with any emergency which may occur due to landfill gas.

10.5.7.14 In an emergency situation the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas. The following organizations should also be contacted as appropriate:

- Hong Kong Police Force;
- Fire Services Department; and
- Environmental Protection Department.

10.6 Qualitative Risk Assessment in Operational Phase

10.6.1 Assessment Methodology

10.6.1.1 The assessment methodology on operational phase follows that on the construction phase as discussed in **Section 10.5.1**.

10.6.2 Source

10.6.2.1 The risk level of the source has been assessed in detail in **Section 10.5.3**. The landfill has source of TKOL II/III is classified as "**Medium**".

10.6.3 Pathways

Natural Pathways

10.6.3.1 As the Application Site is located right above the TKOL II/III, the potential natural pathway for landfill gas migration is categorized as "**Very Short/Direct**".

Man-made Pathways

10.6.3.2 Since utilities such as water storage tank, fresh and flushing water pump room would be supplied upon completion of the Project, new underground utilities will have been installed in the Application Site. The underground utilities include but not limited to the power cables, water pipelines and drainage pipelines. In view of the short distance between the source and targets, the potential man-made pathway for landfill gas migration is categorized as **Very Short/Direct**".

Combination of Natural and Man-made Pathways

10.6.3.3 The potential pathway of landfill gas migration from the source to the targets of the Project can be a combination of natural strata (i.e. the natural pathways) and subsequently through man-made facilities such as utilities connections (i.e. the man-made pathways).

10.6.3.4 This mode of transmission generally requires a series of events to occur in order for gas to potentially affect the Project. The path length for the migration of landfill gas by a combination of natural and man-made pathways is generally much longer than the direct distance between the source and the target. However, the target is located right atop or adjacent to TKOL II/III. The potential combination of natural and man-made pathway for landfill gas migration is therefore categorized as "**Very Short/Direct**".

10.6.4 Targets

10.6.4.1 As the Application Site is located right above TKOL II/III, operation will be undertaken within the Consultation Zone. Users and staff associated with the operation of the Project are identified as follows:

- Indoor area;
- Indoor area (with habitation);
- Farrier room; and

- Outdoor Area.

10.6.4.2 Indoor areas where would be occupied by staff or the public during normal working hour such as lecture, viewing lounge, changing room, etc. Underground utilities may entre directly from the ground. The sensitivity of the target is categorised as "**Highly Sensitive**".

10.6.4.3 Indoor areas where habitation would be occurred during such as Coach Duty Rooms and stables. The sensitivity of the target is categorised as "**Highly Sensitive**".

10.6.4.4 For farrier rooms, since naked flame is required for some process with the use of Liquefied Petroleum Gas (LPG), the sensitivity of the target is categorized as "**Highly Sensitive**".

10.6.4.5 For the outdoor open spaces of the Project, release of landfill gas is possible and may pose potential problems to visitors and staff. As landfill gas is likely to be diluted in open area, the sensitivity of the target is categorised as "**Low Sensitive**".

10.6.5 Evaluation of Potential Impacts on Targets

10.6.5.1 With all information regarding the sources, pathways and receivers identified in the previous sections, a qualitative assessment of landfill gas hazards during operational phase is summarised in **Table 10.8**.

Table 10.8 Qualitative Risk Assessment of Landfill Gas Hazards During Operational Phase

Source	Pathway	Target	Risk
TKOL II/III as landfill source: **Medium Source**	Natural: **Very Short/Direct** Man-made: **Very Short/Direct** Combined natural and man-made pathway: **Very Short / Direct**	Indoor areas: **Highly Sensitive**	**High**
		Indoor areas (with habitation): **Highly Sensitive**	**High**
		Farrier room: **Highly Sensitive**	**High**
		Outdoor areas: **Low Sensitive**	**Low**

10.6.5.2 The proposed farrier room is an essential facility at PRS for the well-being of horses and to ensure they receive proper hoof care. The farrier room must be located nearby the stables to minimize horse transport, otherwise, it will cause impact on horses' welfare and affect the operation efficiency. Therefore farrier rooms are needed to be located on the Middle and Upper Platforms. The farrier rooms involve the use of forge to craft and modify horseshoes daily, where naked flame will be involved. Daily use of fire would be required for the operation of farrier room. The operation hour of the farrier room would be 8am to 5pm, which fire would be used around 2 to 4 hours per day within the operation hour. Alternative equipment without the use of naked flame has been explored. Since the temperature for hot-shoeing required a very high temperature (at least 1300 °C) and the current market does not have such practical electrical product, the use of naked flames is required for the daily farrier operations. As use of naked flame is necessary for the operation of the proposed farrier room, preventive and design measures have been proposed and discussed in **Section 10.6.9**.

10.6.5.3 In addition, there will be on-site LPG storage at the farrier room. As confirmed by HKJC, only limited amount of LPG (i.e. around 4 bottles of 13.5L of LPG) will be stored on-site, limited to only a few days' worth of usage. Therefore, there is no bulk LPG storage on-site. The LPG storage will be replenished on a regular basis, ensuring that there is always an adequate supply for the farrier's needs. The storage of LPG will follow the Code of Practice for Hong Kong LPG Industry – Module 1: "LPG Compounds and Cylinder

Stores". Therefore, the on-site LPG storage will be minimized, and the associated risk will be further minimized by proper implementation of good storage practices.

10.6.5.4 As discussed in **Section 10.5.3**, there is a relatively higher concentration of carbon dioxide at DG3 (i.e. ~5.9% v/v). While the recommended precautions and protective measures proposed in **Section 10.6.6** is considered sufficient to minimize the risk, attention shall be made during the detailed design stage to ensure the finalized set of mitigation measures are sufficient.

10.6.5.5 Besides, there might be maintenance works to be carried out after operation of the PRS. The precautionary and protective measures as discussed in **Section 10.5.7** are applicable to mitigate the potential landfill gas hazards.

10.6.6 Recommended Precautionary and Protective Measures

10.6.6.1 The source-pathway-target analysis as summarized in **Table 10.8** concluded that the overall risk level is "**High**" for the indoor areas, and also "**High**" for the farrier room, in which there would be use of LPG and naked flame. With reference to **Table 10.3** and **Table 10.4**, precautionary measures will be required to ensure that the planned development is safe which includes use of active gas control and gas detection system for implementation of "Alert, Action, and Alarm Level and contingency actions".

10.6.6.2 For the outdoor area including outdoor carpark and community play area, the overall risk level for operational phases is "**Low**", which indicates the risk is low that no precautionary measures are required.

10.6.6.3 The following sub-sections provide general advice and recommendations for the avoidance of environmental impacts related to landfill gas during the operational phases. The summary of the recommendations for different targets is given in **Table 10.9**.

Table 10.9 Summary of the recommendations for different targets

Section	Category	Recommendations
Indoor Areas (General) – High Risk		
10.6.7.1	B	Active gas control (e.g. use of mechanical ventilation system)
10.6.7.2 to 10.6.7.3	B	Gas detection system
10.6.7.4 to 10.6.7.5	C	Semi-active gas control (e.g. installation of wind scoops)
10.6.7.7 to 10.6.7.11	D	Gas-proof membrane / Clear void under the structure [1]
10.6.7.12 to 10.6.7.13	D	Compacted high-density concrete
10.6.7.14	D	Ventilation by natural air movement
10.6.7.15	D	Gas vents
10.6.7.16	D	Location of service entry points above ground
10.6.7.17	E	Measures due to power failure
10.6.7.18 to 10.6.7.23	E	Good site management, entry safety procedures
10.6.10	E	Other safety measures and monitoring
Indoor Areas (with Habitation) – High Risk		
-	-	Recommendations proposed for **Indoor Areas (General)**
10.6.8.1	D	Auto-opening windows
10.6.7.17	D	Wind scoops
Farrier rooms – High Risk		
-	-	Recommendations proposed for **Indoor Areas (General)**

Section	Category	Recommendations
10.6.9.4	B	Active gas control (e.g. use of mechanical ventilation system)
10.6.9.5	D	Auto-opening windows
10.6.9.6	B	Use of fire-rated building materials
10.6.9.7	D	Physical separation from other buildings
10.6.9.8	D	Natural ventilation
10.6.9.9	E	Proper storage of LPG
10.6.9.10	E	No unauthorized entry

Note:
[1] Based on current schematic design of the Project, majority of the proposed building would be provided with clear void underneath the structures which is considered as one of the mitigation measures. For proposed buildings that would not be able to provide clear void, gas-proof membrane would be used to avoid the migration of landfill gas from the landfill site to the indoor area.

10.6.6.4 Nevertheless, as the design of the Project is still subject to change during the detailed design stage, a detailed Landfill Gas Hazard Assessment shall be carried out to finalize the proposed landfill gas hazard mitigation measures.

10.6.7 Generic Design Measures

Active Gas Control

10.6.7.1 Active gas control mainly relies on the use of mechanical ventilation system. Mechanical ventilation system makes use of electrical energy to accelerate the dispersion of any accumulated landfill gas. The mechanical ventilation system may or may not integrate with the air conditioning system to control the air temperature.

Gas Detection System

10.6.7.2 Always-on gas detection system would be provided at all rooms, stables and indoor environment such as changing rooms, Coach Duty Rooms , offices, etc. which will be occupied by medium and highly sensitive targets and be involved in the long-term uses. The gas detector is used to monitor the methane, carbon dioxide and oxygen gas concentrations and should be calibrated on a regular basis according to the manufacturers' recommendations. These sensors should detect gas by catalytic oxidation or infra-red techniques and be capable of measuring concentrations of gas in the range 0-100% of LEL.

10.6.7.3 The gas detection system should include an alarm set at the trigger levels as mentioned in **Table 10.10** in order to give warning to the public and evacuate sensitive targets from buildings. The gas detection system will also interlock with the mechanical ventilation system where applicable. In case the gas concentrations exceed the trigger levels, mechanical ventilation system will be operated to restore methane, carbon dioxide and oxygen levels to safe concentrations as soon as possible. In the event of a power failure, the detectors should have an 8-hour battery back-up system, and the procedures should indicate for manual monitoring in the station in the event of prolonged power failure (of longer than 8 hours). **Appendix 10.2** shows the schematic layout of automatic gas detection system.

Table 10.10 Actions in the event of Landfill Gas being detected in the building structure

Parameter	Monitoring Results	Actions
Methane	>10% LEL (i.e. >0.5% v/v)	• Inform EPD, Landfill Contractor and the nominated person (e.g. proposed riding school facility manager);

Parameter	Monitoring Results	Actions
Carbon Dioxide	>0.5% v/v	• Remove all source of ignition from the affected areas of the building; • Ventilate the affected area to restore methane to <10% LEL (<0.5% v/v), carbon dioxide to <0.5% and/or oxygen levels to >19% v/v; • Seek specialist to review the existing precautionary measures to ensure the continuous safety of the occupants.
Oxygen	<19% v/v	
Methane	>20% LEL (i.e. >1% v/v)	• Inform EPD, Landfill Contractor and the nominated person (e.g. proposed riding school facility manager); • Advise and evacuate occupants/prohibit entry to the affected areas of the building; • Remove all source of ignition from the affected areas of the building; • Ventilate the affected area to restore methane to <10% LEL (<0.5% v/v), carbon dioxide to <0.5% and/or oxygen levels to >19% v/v; • Seek specialist to review the existing precautionary measures to ensure the continuous safety of the occupants.
Carbon Dioxide	>1.5% v/v	
Oxygen	<18% v/v	

Semi-active Gas Control

10.6.7.4 Semi-active gas control such as wind scoops are recommended.

10.6.7.5 Wind scoops would be installed to facilities where mechanical ventilation system with air extraction is not provided to facilitate the ventilation. They will be installed on the roof of the ancillary facilities with pipes to extract air from the stables. When wind strikes the wind scoops, the fans of the scoops would move and create negative pressure to extract air in the car park. Electricity supply is not required for wind scoops. This acts as a semi-active control to extract, if any, landfill gas from the indoor facilities.

Passive Gas Control

10.6.7.6 Passive controls involve the use of-compacted high density concrete and ventilation by natural air movement.

i. Gas-Proof Membrane

10.6.7.7 Gas proof membrane may be made use of polymeric membranes such as high-density polyethylene (HDPE) membrane liner. The material of the membrane should consist of a high strength woven fabric with an impermeable coating on both sides with equivalent materials. The permeability of the membrane should meet the requirements stated in the EPD's guidance note which is 10^{-12} m/s or lower and should possess a long-term stability which will guarantee a lifetime of at least 30 years.

10.6.7.8 To achieve a continuous high integrity barrier to prevent methane and carbon dioxide gas ingress into buildings and structures, the membrane liner should be installed beneath the ground floor slab to form a continuous strip of membrane and around the perimeter edges of the buildings. The membrane should also be applied to the floor and wall of the underground tank, if any, as a continuous sealed layer.

10.6.7.9 As for barriers used to prevent movement of gas through the ground, use may be made of clay (or clay-rich soils), bentonite or polymeric membranes (such as HDPE). A gas barrier used to prevent movement of gas through services may form part of a more extensive

barrier to prevent general migration towards the development (see above). The design detail at the point where the service penetrates the membrane is important and, in the case of HDPE membranes, pre-formed shrouds are often available.

10.6.7.10 In the case of water pipes and sewers which are not always fully filled, water traps, such as U-bends, should be provided to effectively seal off the conduit and prevent gas-phase transport. Typically drawing are shown in **Appendix 10.3**.

ii. Clear Void under the structure

10.6.7.11 Creating a clear void beneath the structure, ventilated by natural airflow, serves as an effective measure to prevent landfill gas from migrating to the indoor environment of the proposed development. This design provides preferential pathways for the release of gas, ensuring that any accumulated landfill gas can disperse safely into the atmosphere. Similar to the use of compacted high-density concrete, which slows the movement of gas through building materials, the ventilated void helps prevent gas buildup within the structure. By facilitating natural ventilation, this measure reduces the risk of hazardous concentrations of gas accumulating over time, thereby enhancing the overall safety of the building. **Appendix 10.4** illustrates the design of the clear void and its ventilation pathways.

iii. Compacted High-Density Concrete

10.6.7.12 To increase the resistance to gas permeation to the building, compacted high density concrete should be used for the floors and/or the walls directly in contact with the ground and/or slope of the landfill. Whilst concrete is permeable to gas, the rate of movement of gas through the concrete is slow and any build-up of gas could only occur over a long period of time.

10.6.7.13 By incorporating materials that can withstand high temperatures and resist ignition, the structure minimizes the risk of fire spreading in the event of a gas leak. Fire-tolerant materials act as a barrier, reducing the likelihood of flames coming into contact with any accumulated landfill gas, thereby lowering the chances of an explosion. This proactive approach not only enhances the safety of the facility but also protects the horses and personnel working within it.

iv. Ventilation by Natural Air Movement

10.6.7.14 As the Application Site is located on top of the TKOL II/III, which is situated in the valley surrounded by hills and near the coastline, effective utilisation of natural wind resources can enhance the dispersion of any potential landfill gas in the area. The landfill's location allows for prevailing easterly and southerly winds to flow unobstructed. Openings have been incorporated into the southern and eastern facades of the indoor facility to enhance ventilation, taking advantage of these winds to promote air circulation and mitigate any landfill gas accumulation.

v. Gas Vents

10.6.7.15 Vent pipes or gridded manhole covers may be used to avoid build-up of gas in underground utilities manholes. Venting stacks may be built into inspection chambers or connected to collection pipes within high permeability drainage layers adjacent to gas barriers. A typical vented manhole arrangement and vent pipes is shown in **Appendix 10.5**.

vi. Location of Service Entry Points Above Ground

10.6.7.16 In some cases, it is possible to route service entries into a building above ground level, thereby providing a discontinuity in the gas migration pathway and thus eliminating the

risk of gas entry to the building interior. **Appendix 10.6** show the typical service entry above ground and typical surface detail for above ground termination of services within the Consultation Zone respectively.

vii. Measures due to Power Failure

10.6.7.17 For rooms with window provisions that are not occupied overnight, it is recommended to manually open windows or doors to ensure proper ventilation and avoid the inhalation of accumulated landfill gas. For rooms without window provisions, wind scoops will be installed to provide ventilation in case of a power failure.

Good Site Management

10.6.7.18 Proper site management can further reduce the risk of landfill gas. "No Smoking", "No Naked Flame" and "Potential Hazard of Landfill Gas" signs should be posted in the Application Site clearly visible to the public. Site staff will carry out inspection to ensure that no smoking and no naked flame are in place in the Application Site.

10.6.7.19 Flame cooking would be banned in all catering facilities. Electronic cooking devices should be used instead. All electric appliances such as ventilation systems, lighting systems, pumps and switches used within Application Site should be spark-proofed.

Entry Safety Procedures

10.6.7.20 Confined spaces, including water storage tanks, manholes, etc., exist in the Application Site during the operational phase. In confined spaces which is large enough to permit access to, personnel should be subject to entry safety procedures as stipulated in the Factory and Industrial Undertakings (F&IU) (Confined Spaces) Regulation.

10.6.7.21 In accordance with the Regulation, "confined spaces" means any place in which, by virtue of its enclosed nature, there arises a reasonably foreseeable specified risk and without limiting the generality of the foregoing, includes any chamber, tank, vat, pit, well, sewer, tunnel, pipe, flue, boiler, pressure receiver, hatch, caisson, shaft or silo in which "specified risk" arises in which "specified risk" represents:

(a) Serious injury to any person at work arising from a fire or explosion;

(b) The loss of consciousness of any person at work arising from an increase in body temperature;

(c) the loss of consciousness or asphyxiation of any person at work arising from gas, fume, vapour or the lack of oxygen;

(d) the drowning of any person at work arising from an increase in the level of liquid; or

(e) the asphyxiation of any person at work arising from a free flowing solid or the inability to reach a respirable environment due to entrapment by a free flowing solid.

10.6.7.22 The key issues with regards to confined spaces which are at risk of landfill gas build-up are set up below.

- The entry or access point should be clearly marked with a warning notice (in English and Chinese) which states that there is the possibility of flammable and asphyxiating gases accumulating within.
- The warning notice should also give the telephone number of an appropriate competent person who can advise on the safety precautions to be followed before entry and during occupation of the manhole.

- Personnel should be made aware of the dangers of entering confined spaces potentially containing hazardous gases and, where appropriate, should be trained in the use of gas detection equipment.
- Prior to entry, the atmosphere within the chamber should be checked for oxygen, methane and carbon dioxide concentrations. The chamber may then only be entered if oxygen is greater than 18% by volume, methane is less than 10% of the Lower Explosive Limit (LEL), which is equivalent to 0.5% by volume (approximately), and carbon dioxide is less than 0.5% by volume.
- If either carbon dioxide or methane are higher, or oxygen lower, than the values given above, then entry to the chamber should be prohibited and expert advice sought.
- Even if conditions are safe for entry, no worker should be permitted to enter the chamber without having another worker present at the surface. The worker who enters the chamber should wear an appropriate safety/recovery harness and, preferably, should carry a portable methane, carbon dioxide and oxygen meter.

10.6.7.23 In general, when work is being undertaken in confined spaces, sufficient approved resuscitation equipment, breathing apparatus and safety torches should be available. Persons involved in or supervising such work should be trained and practised in the use of such equipment. A permit-to-work system for entry into confined spaces should be developed by an appropriately qualified person and consistently employed.

10.6.8 Additional Design Measures for Proposed Indoor Areas with Habitation

i. Measures due to Power Failure (for Rooms with Habitation)

10.6.8.1 In the event of a power failure, rooms with window provisions that are occupied overnight (e.g. Coach Duty Rooms and stables) will be equipped with auto-opening windows. Alternatively, the security on-site overnight will alert occupants about the power failure and take action to open windows and doors to allow natural ventilation.

10.6.9 Additional Design Measures for Farrier Rooms

10.6.9.1 This Project would require the use of Liquefied Petroleum Gas (LPG) at farrier rooms as it is essential in the horseshoeing process due to its ability to provide high, consistent temperatures required for forging and shaping horseshoes. LPG-powered forges provide the high temperatures needed to heat metal quickly, allowing farriers to manipulate it into the desired shape without unnecessary delays.

10.6.9.2 However, the use of LPG-powered forges could pose landfill gas hazards if proper precautions are not taken. When the leaked landfill gas combined with the open flames generated by LPG forges, this could lead to hazardous situations, including fire outbreaks or even explosions. Therefore, it is crucial to implement adequate ventilation, regular monitoring for gas leaks, and safety protocols to mitigate these risks, ensuring a safe working environment for farriers and the horses they care for.

10.6.9.3 The recommended precautionary and protective measures mentioned in **Section 10.6.5.2** and **Section 10.6.6.4** should be implemented. Moreover, additional measures such as use of active gas control with auto-opening window system, use of fire-rated building material and isolation from other buildings shall be applied at the proposed farrier rooms.

i. Active Gas Control

10.6.9.4 Active gas control mainly relies on the use of mechanical ventilation system. Mechanical ventilation system makes use of electrical energy to accelerate the dispersion of any

accumulated landfill gas. The mechanical ventilation system may or may not integrate with the air conditioning system to control the air temperature. The mechanical ventilation system will also be interlocked with the always-on gas detection system to regulate the air flow based on the methane, carbon dioxide and oxygen gas concentration. In case of exceedance of trigger levels in **Table 10.7**. The mechanical ventilation system will be set to operate in full load to reduce the gas concentrations to safe concentrations as soon as possible.

10.6.9.5 In case of power failure, an automatic window system equipped with a rechargeable backup battery would automatically open the windows of the farrier room to allow natural ventilation to avoid accumulation of landfill gas. When the power supply is recovered, trained staff with proper safety precautions have to carry appropriate portable gas meters to the farrier room and confirm the methane, carbon dioxide and oxygen gas levels are well within the safe limit and the mechanical ventilation system is operated normally. A risk assessment would be conducted by qualified staff to ensure the affected areas are safe prior to re-open for access.

ii. Use of Fire-rated Building Materials

10.6.9.6 By incorporating materials that can withstand high temperatures and resist ignition, the structure minimizes the risk of fire spreading in the event of a gas leak. Fire-tolerant materials act as a barrier, reducing the likelihood of flames coming into contact with any accumulated landfill gas, thereby lowering the chances of an explosion. This proactive approach not only enhances the safety of the facility but also protects the horses and personnel working within it.

iii. Physical Separation from Other Buildings

10.6.9.7 By strategically physically separating horseshoeing facilities away from adjacent structures, the risk of fire spreading to nearby buildings is greatly reduced. This separation[4] ensures that, in the event of a fire caused by a landfill gas ignition, the flames have limited opportunities to spread, protecting both the horseshoeing area and surrounding properties. Additionally, proper physical separation facilitates better airflow and natural ventilation, which can help dissipate any accumulated landfill gas before it reaches hazardous concentrations. Together, these measures create a safer environment for both farriers and horses, ensuring that operations can continue with minimal risk.

iv. Natural Ventilation

10.6.9.8 Apart from the above design measures, natural ventilation would be allowed through two large gates at two sides of the farrier room during the use of naked flame.

v. Proper Storage of LPG

10.6.9.9 The storage of LPG will follow the Code of Practice for Hong Kong LPG Industry – Module 1: "LPG Compounds and Cylinder Stores", some measures are extracted below:

- LPG cylinder stores shall be enclosed by walls or an industrial type fence not less than 1.8m high. The floor of the stores shall be level;
- A sterile area of at least 1m shall be provided around the LPG cylinder store and should be conspicuously marked on the floor with yellow lines;

[4] According to Clause C5.2 of Code of Practice for Fire Safety in Buildings 2011 (2024 Edition) published by Buildings Department, buildings on the same site are regarded as adjoining buildings if they are less than 1.8m apart.

- Drains shall be avoided in the floor area or in the immediate vicinity of the LPG cylinder store;
- Electrical apparatus shall not be installed inside the LPG cylinder store or within the required separation distance outside the LPG cylinder store;
- Warning signs and emergency instructions in both English and Chinese shall be posted near each entrance on the outside wall/fence of the installation. The size of letters/characters of the warning signs, e.g. "No Smoking", "LPG Highly Flammable" and "LPG Store", shall be at least of 120mm in height;
- LPG cylinder stores shall be located in a well-ventilated area and shall be easily accessible for transportation of cylinders and emergency services; and
- LPG cylinder stores shall be readily accessible at ground level.

vi. No Unauthorized Entry

10.6.9.10 To safeguard the safety of the farrier room, no unauthorized entry is allowed. Only authorised well trained personnel who would have been briefed on the potential hazards relating to landfill gas and the specific safety procedures to be followed will be accessible to the farrier room. Visitors could only access the farrier room under supervision of the well-trained personnel, and shall be informed of the potential landfill gas hazard, fire and explosion.

vii. Precaution Measures in Daily Operation

10.6.9.11 Apart from the additional measures proposed above, a comprehensive training programme and setup standard working practices/ procedures has been established to ensure that all farriers are well-trained and well-experienced and working in a safe environment, which are listed below:

- Safe Forge Practices/ Safe Work Instruction: to ensure the use and operation of forge safely and in good working order;
- Storage, Operation and Routine Maintenance of Forge Gas Supply: Guide to safe working practice in routine maintenance and emergency work conducted;
- Instruction on the wall: The instruction is clear and straight-forward to ensure the proper use of forge;
- Comprehensive training programme: only HKJC Farriers are allowed to operate the fire forges, who are locally trained under the HKJC 51-month Farrier Training Programme;
- Refresher workshop safety training: Provided every year to all farrier staff; and
- Periodic inspection: Whole setup (fire forges, LPG pipes, LPG store, etc.) are inspected regularly to ensure everything is in order for safety use.

10.6.10 Other Safety Measures and Monitoring

10.6.10.1 On-site staff should be informed of the potential LFG hazards, and appropriate safety procedures should be followed. On-site Safety Officer will be appointed specifically for the operation of the Project. During the operational phase, regular coordination with the restoration contractor will be maintained.

10.6.10.2 In the event of high landfill gas concentrations being detected during the operational phase, actions listed in **Table 10.10** shall be implemented. In addition, an Emergency Action Plan shall be developed and followed by the on-site staff to ensure proper measures would be immediately taken to further minimise the potential risk.

10.6.10.3 Moreover, a Departmental Safety Manager (DSM) would be appointed to identify Occupational Safety and Health (OSH) problems and monitor the implementation of control measures in each riding school. DSM will conduct and prepare a monthly on-site inspection report in each riding school with the designated Safety Representative, who is responsible to implement and oversee the routine OSH works. The Farrier Services Department also has a Farrier Operation and Workshop Officer who will regularly conduct workshop safety inspections and training to all farrier users within the department.

10.6.10.4 In addition, the restoration contractor will carry out routine monitoring and inspection works on the existing landfill facilities regularly during the operational phase.

10.7 Environmental Monitoring and Audit

10.7.1 Construction Phase

10.7.1.1 Periodically during ground-works construction, the works area should be monitored by the On-site Safety Officer for oxygen, methane and carbon dioxide gas concentrations using appropriately calibrated portable gas detection equipment. Routine monitoring should be carried out in all excavations, manholes and any other confined spaces that may have been created. The monitoring requirement of excavations stated in Section 8.25 to 8.27 of the Landfill Gas Hazard Assessment Guidance Note will be followed. All measurements of landfill gas should be recorded and documented by a standard record form to be approved by EPD. The form will detail the location, time of monitoring and equipment used, together with the gas concentrations measured to ensure all relevant data are recorded.

10.7.1.2 Adequate site supervision will be required to ensure that protection measures are implemented and constructed in accordance with the design. In addition, a maintenance and monitoring programme should be established to ensure the continued performance of the implemented protection measures. Safety measures such as gas detection system should be regularly maintained and calibrated (if appropriate). Regular maintenance and calibration shall be properly recorded as one of the good site management measures.

10.7.2 Operational Phase

10.7.2.1 Regular monitoring of landfill gas, including indoor landfill gas monitoring, surface landfill gas emission monitoring and surface water monitoring, should be conducted to verify the effectiveness of the implemented protection measures. Landfill gas monitoring would continuously be undertaken by EPD's landfill operator during the operational phase of the Project at the existing monitoring locations. In addition, always-on gas detection system should be installed at the rooms and indoor environment, such as lecture, changing room and Coach Duty Rooms, etc. which will be occupied by medium and high sensitive targets and be involved in the long-term uses to monitor the methane, carbon dioxide and oxygen gas concentrations. They should also be installed in confined spaces with significant size where entry of person is possible. Exceedance signal generated by the gas detection system would be delivered to the riding school operator, EPD and the existing landfill contractor.

10.7.2.2 Adequate site supervision will be required to ensure that protection measures are implemented and maintained in accordance with the design. In addition, a maintenance

and monitoring programme should be established to ensure the continued performance of the implemented protection measures. Safety measures such as gas detection system, mechanical ventilation system, etc. should be regularly maintained and calibrated (if appropriate). Regular maintenance and calibration shall be properly recorded as one of the good site management measures.

10.8 Summary

10.8.1 Construction Phase

10.8.1.1 The results of this qualitative risk assessment for landfill gas hazards indicate the risk level from the Project during the construction phase is "**Medium**". With the implementation of appropriate protective and precautionary measures according to Landfill Gas Hazard Assessment Guidance Note, adverse impacts on the targets are mitigated to acceptable level.

10.8.2 Operational Phase

10.8.2.1 The results of this qualitative risk assessment for LFG hazards indicate the risk level from the Project during the operational phase is from "**Low**" to "**High**". For the high risk targets such as indoor areas with free public access and medium risk targets such as indoor areas with limited public access, a combination of passive control system, gas detection system and good site management should be provided. Maintenance staff working in the confined spaces should implement entry safety procedures as stipulated in the F&IU (Confined Spaces) Regulation. By the provision of active and semi-active control systems, passive control system, gas detection system, good site management and entry safety procedures, the risk of the targets have been reduced to acceptable levels.

Figures

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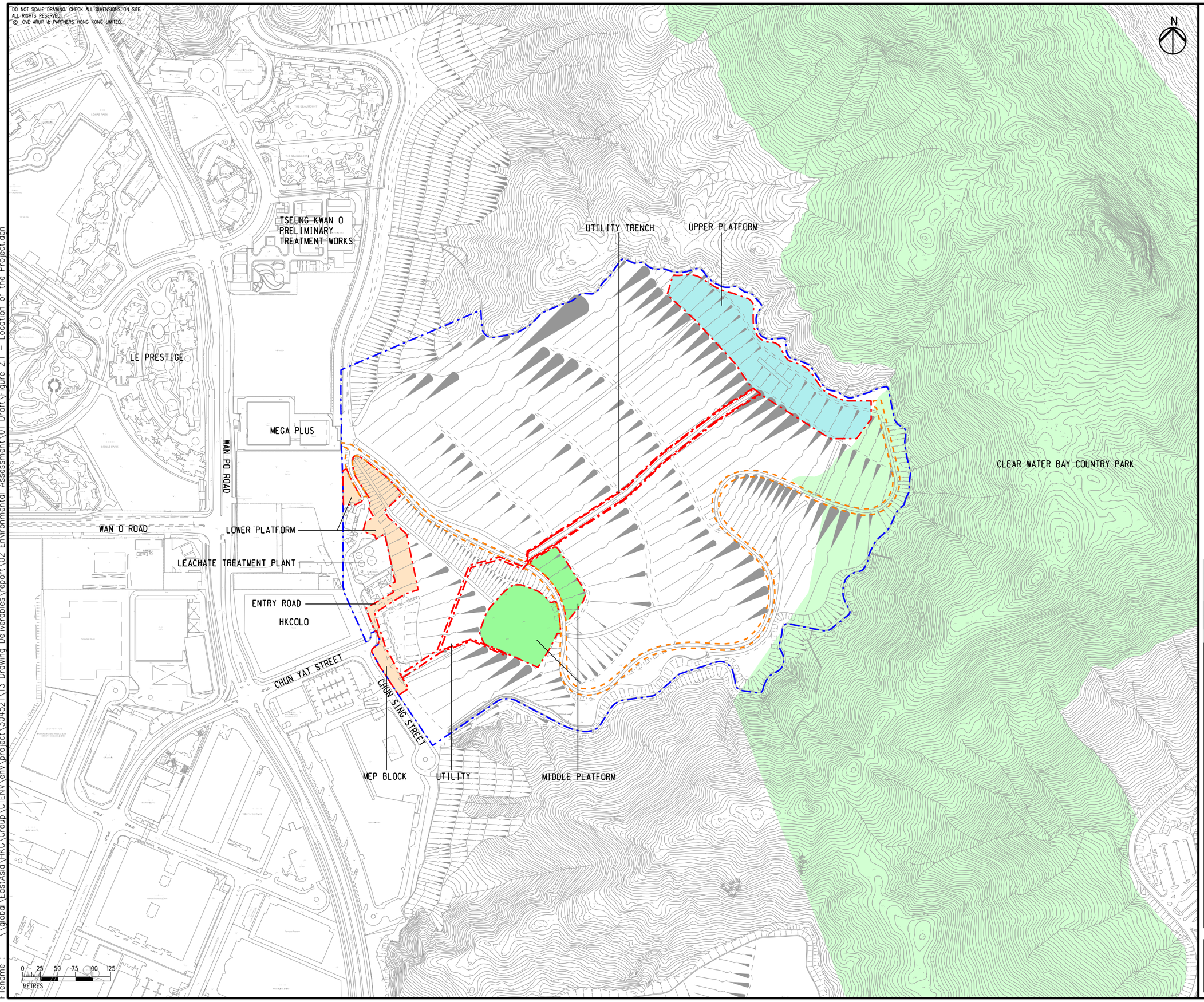

LEGEND

- APPLICATION SITE
- LOWER PLATFORM
- MIDDLE PLATFORM
- UPPER PLATFORM
- ACCESS ROAD (BY EPD)
- BOUNDARY OF TKOL II/III
- CLEAR WATER BAY COUNTRY PARK

Rev	Description	By	Date
B	SECOND ISSUE	GL	06/25
A	FIRST ISSUE	GL	01/25

Consultant

ARUP

Project title

Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

LOCATION OF THE PROJECT

Drawing no.	Rev.
FIGURE 2.1	B

Drawn	Date	Checked	Approved
GL	06/25	TL	FC

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Printed by : Lawrence.Tam 30/1/2026
Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\304521\13 Drawing Deliverables\report\02 Environmental Assessment\01 Draft\Figure 2.1 – Location of the Project.dgn

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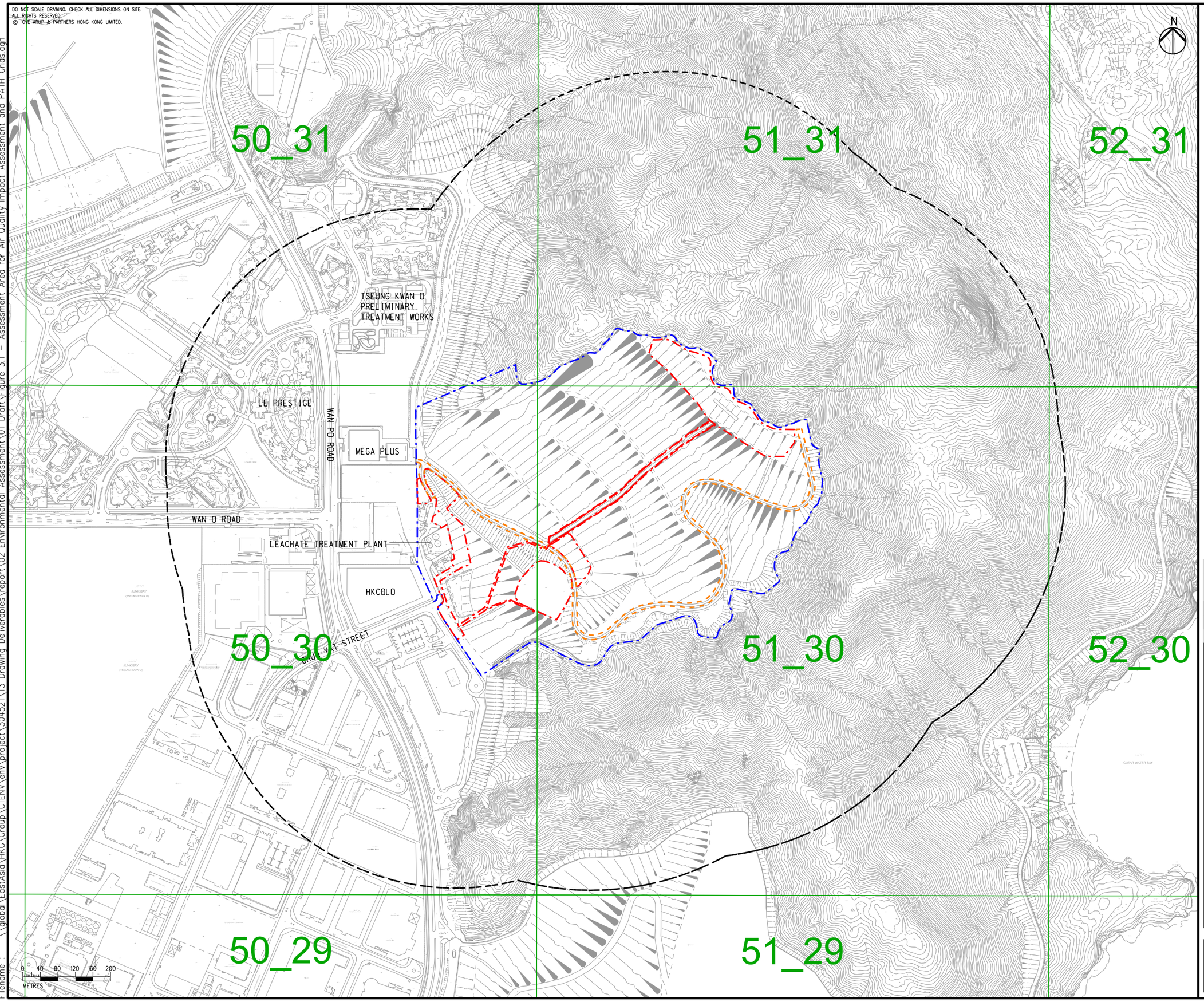

LEGEND

- APPLICATION SITE
- ACCESS ROAD (BY EPD)
- BOUNDARY OF TKOL II/III
- 500m ASSESSMENT AREA
- 51_30 PATH GRIDS

Rev	Description	By	Date
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Project title

Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

ASSESSMENT AREA FOR AIR QUALITY IMPACT ASSESSMENT AND PATH GRIDS

Drawing no.			Rev.
FIGURE 3.1			B
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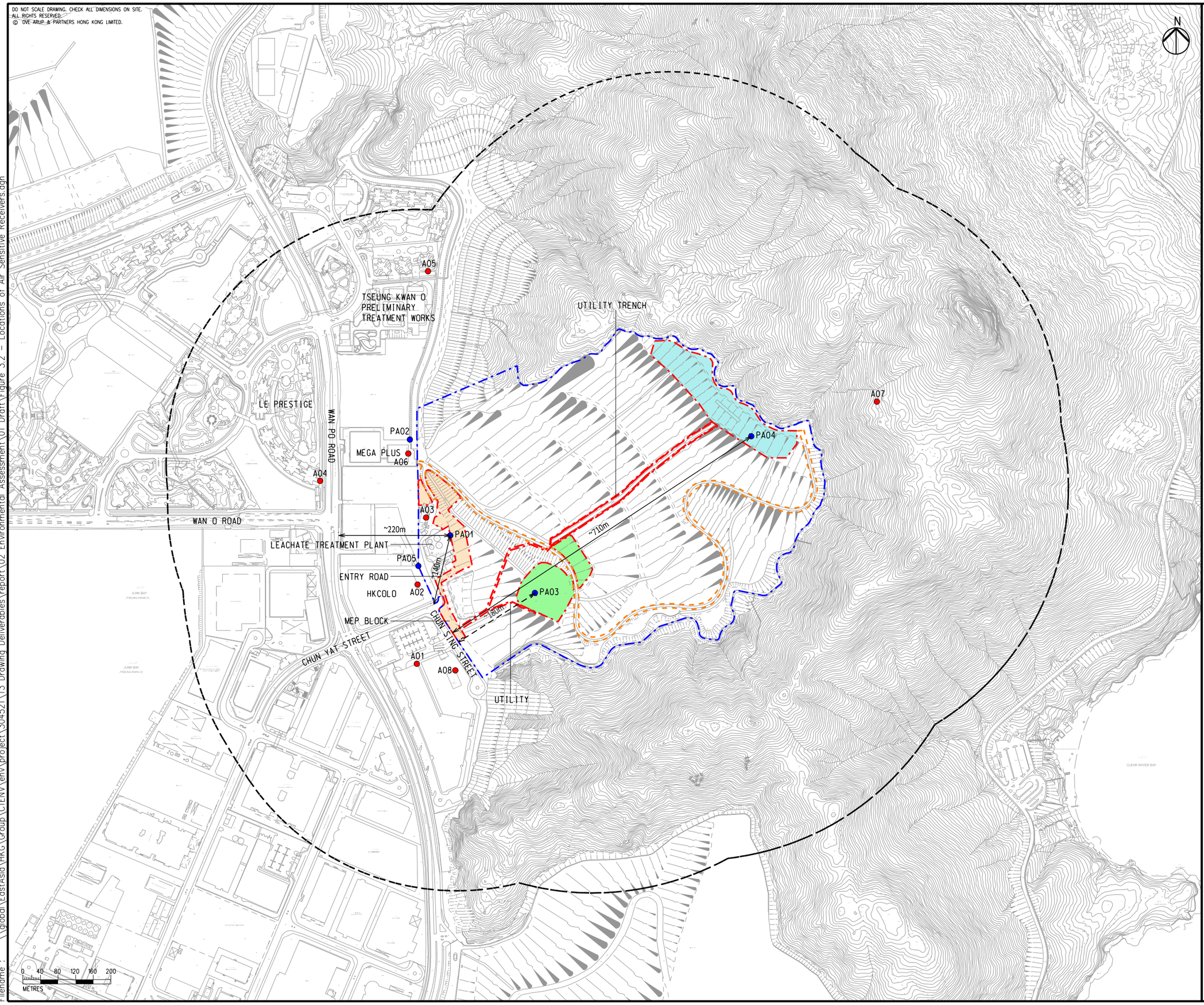

LEGEND

- APPLICATION SITE
- LOWER PLATFORM
- MIDDLE PLATFORM
- UPPER PLATFORM
- ACCESS ROAD (BY EPD)
- BOUNDARY OF TKOL II/III
- 500m ASSESSMENT AREA
- EXISTING AIR SENSITIVE RECEIVERS
- PLANNED AIR SENSITIVE RECEIVERS

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Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

LOCATIONS OF AIR SENSITIVE RECEIVERS

Drawing no.		Rev.
FIGURE 3.2		B
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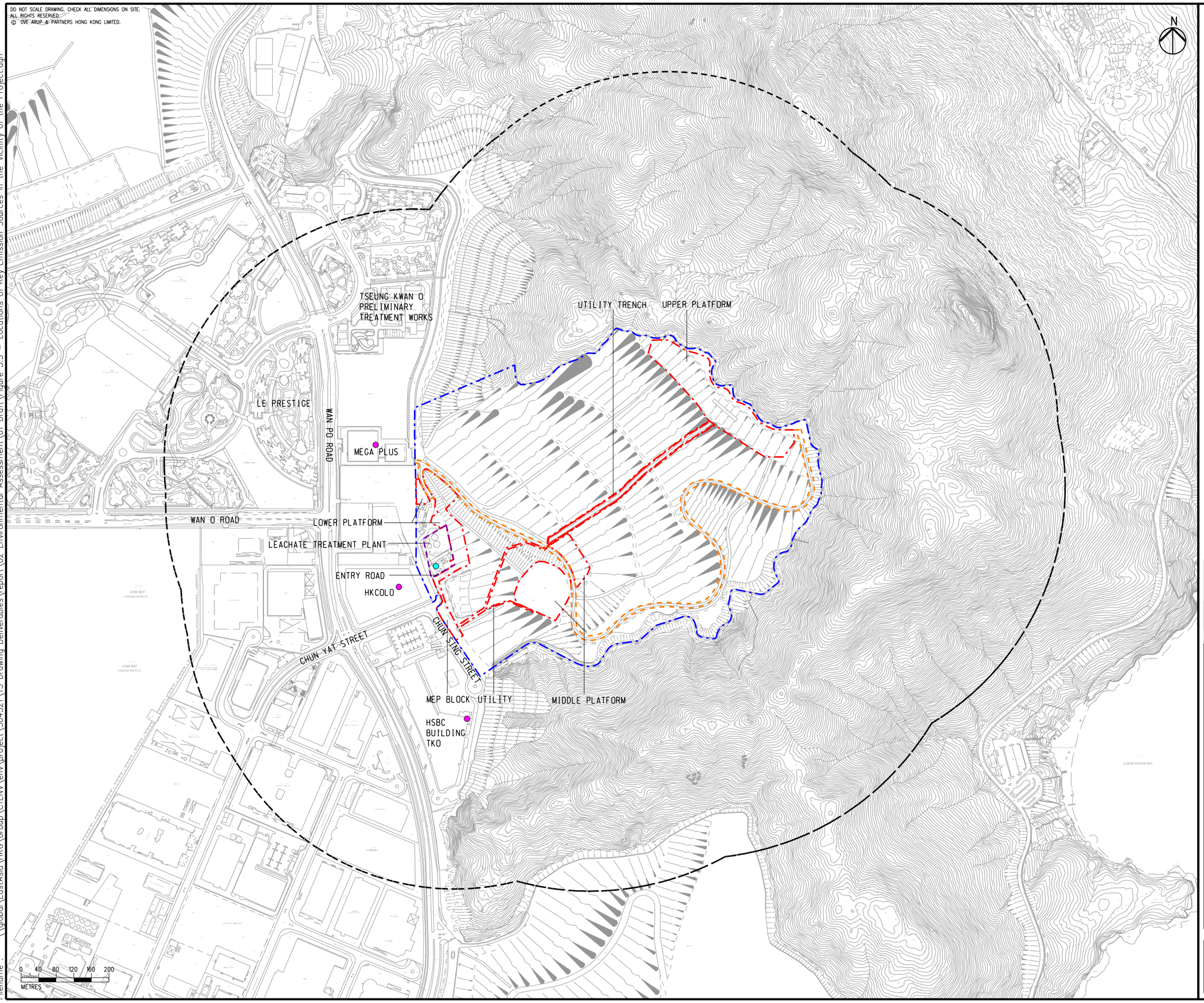

LEGEND

- APPLICATION SITE
- ACCESS ROAD (BY EPD)
- 500m ASSESSMENT AREA
- LEACHATE TREATMENT PLANT
- SOURCES UNDER SPECIFIED PROCESS LICENSE
- SOURCE FROM EXISTING LEACHATE TREATMENT PLANT

Rev	Description	By	Date
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Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

LOCATIONS OF KEY EMISSION SOURCES IN THE VICINITY OF THE PROJECT

Drawing no.			Rev.
FIGURE 3.3			B
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Filename : \\global\EastAsia\HKG\Group\C1ENV\env\project\304521\13 Drawing Deliverables\report\02 Environmental Assessment\01 Draft\Figure 3.3 - Locations of Key Emission Sources in the Vicinity of the Project.dgn

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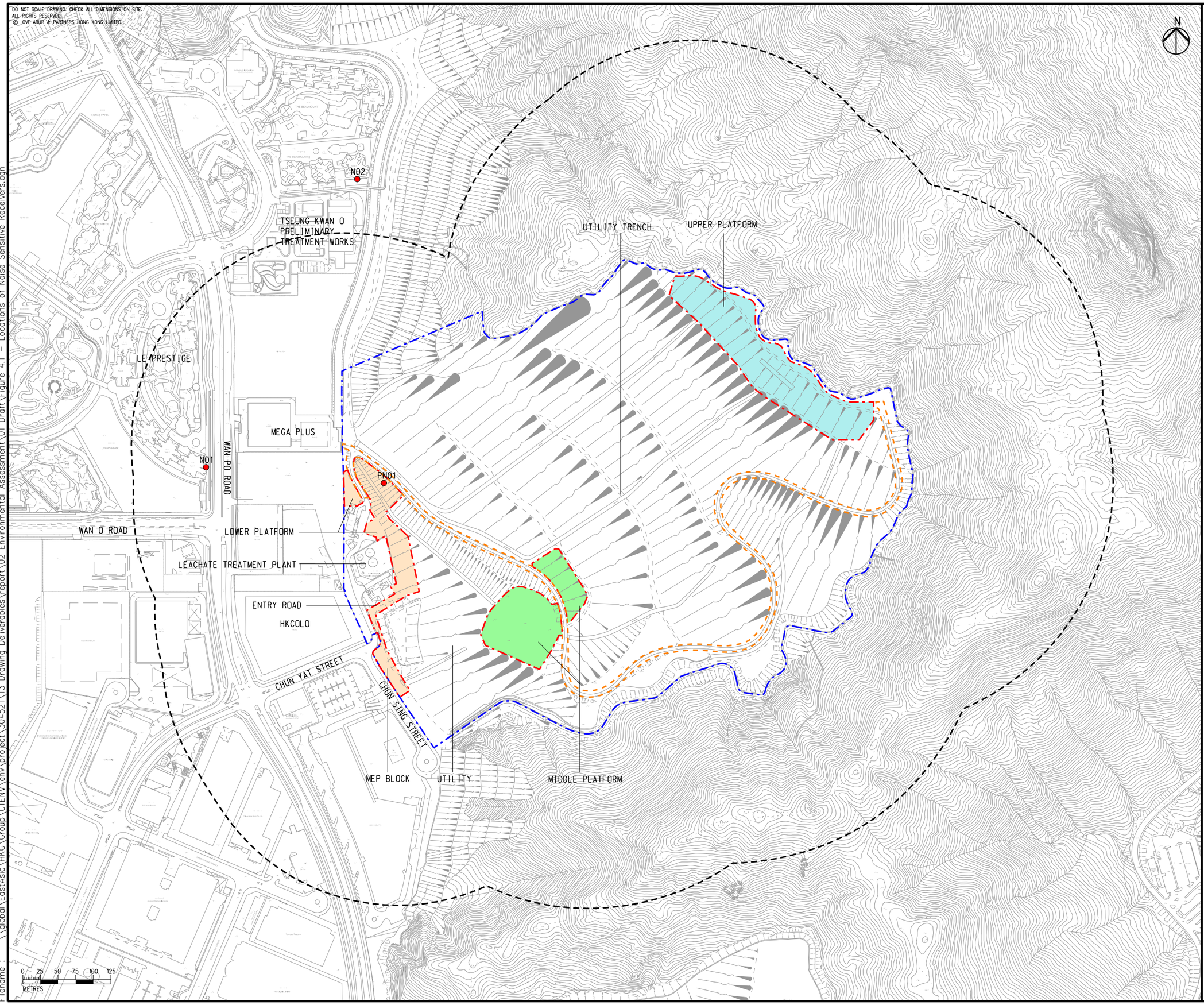

LEGEND

- APPLICATION SITE
- LOWER PLATFORM
- MIDDLE PLATFORM
- UPPER PLATFORM
- ACCESS ROAD (BY EPD)
- BOUNDARY OF TKOL II/III
- 300m ASSESSMENT AREA
- NOISE SENSITIVE RECEIVERS

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Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

LOCATIONS OF NOISE SENSITIVE RECEIVERS

Drawing no.			Rev.
FIGURE 4.1			B
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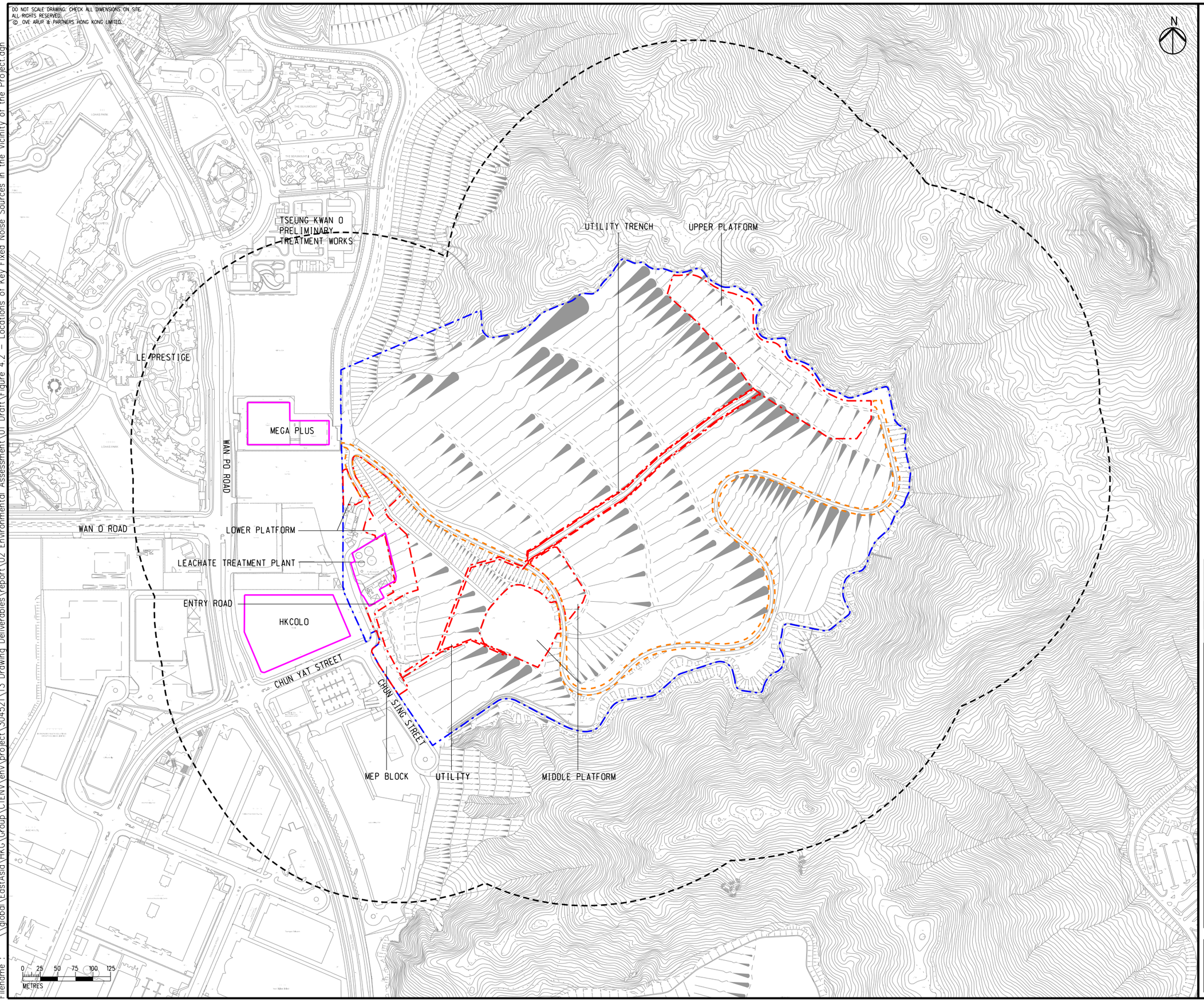

LEGEND

- APPLICATION SITE
- ACCESS ROAD (BY EPD)
- BOUNDARY OF TKOL II/III
- 300m ASSESSMENT AREA
- KEY FIXED NOISE SOURCES

Rev	Description	By	Date
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Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

LOCATIONS OF KEY FIXED NOISE SOURCES IN THE VICINITY OF THE PROJECT

Drawing no.			Rev.
FIGURE 4.2			B
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Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\304521\13 Drawing Deliverables\report\02 Environmental Assessment\01 Draft\Figure 4.2 - Locations of Key Fixed Noise Sources in the Vicinity of the Project.dgn

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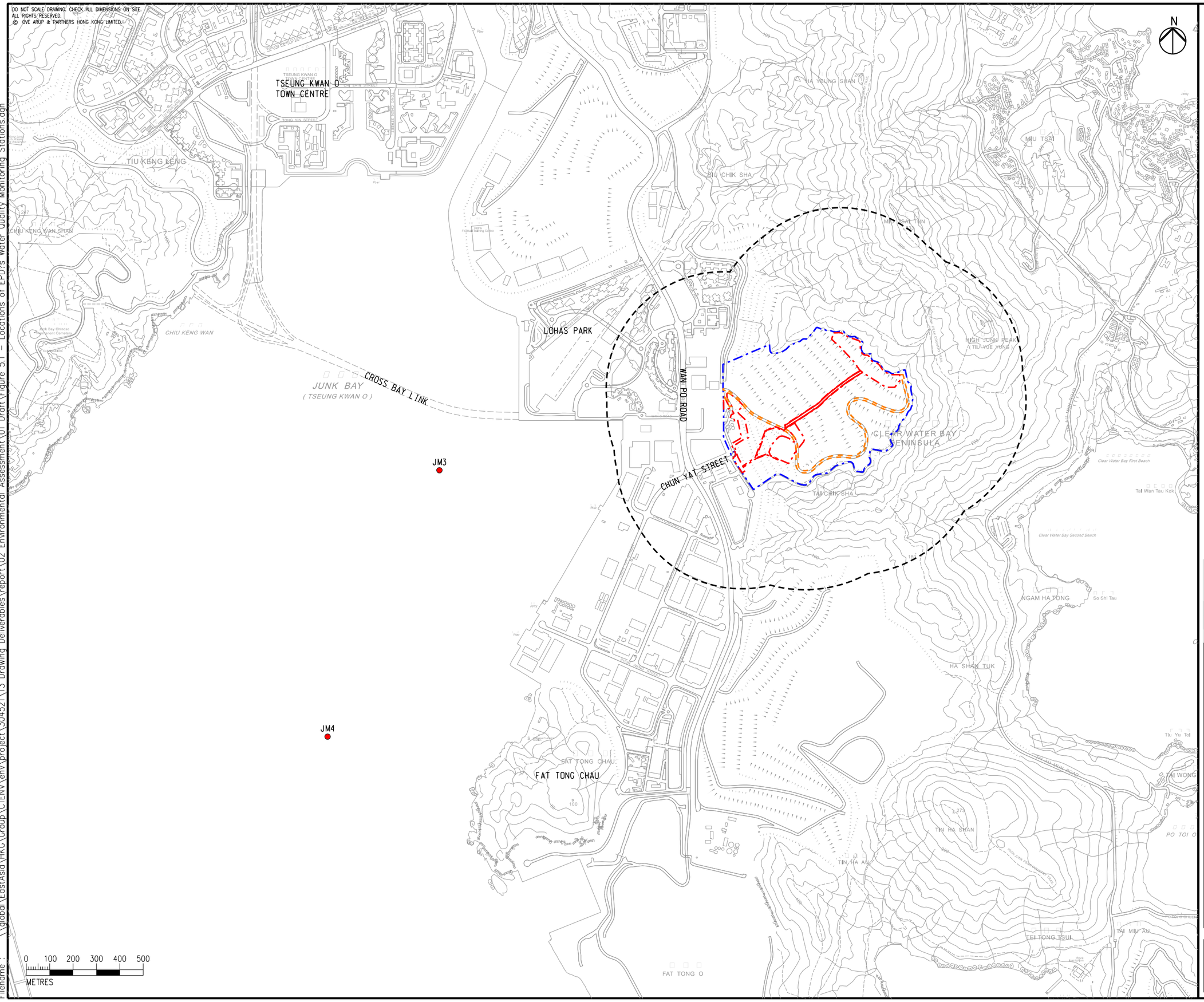

LEGEND

- APPLICATION SITE
- ACCESS ROAD (BY EPD)
- BOUNDARY OF TKOL II/III
- 500m ASSESSMENT AREA
- MARINE WATER MONITORING STATIONS

Rev	Description	By	Date
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Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

LOCATIONS OF EPD'S WATER QUALITY MONITORING STATIONS

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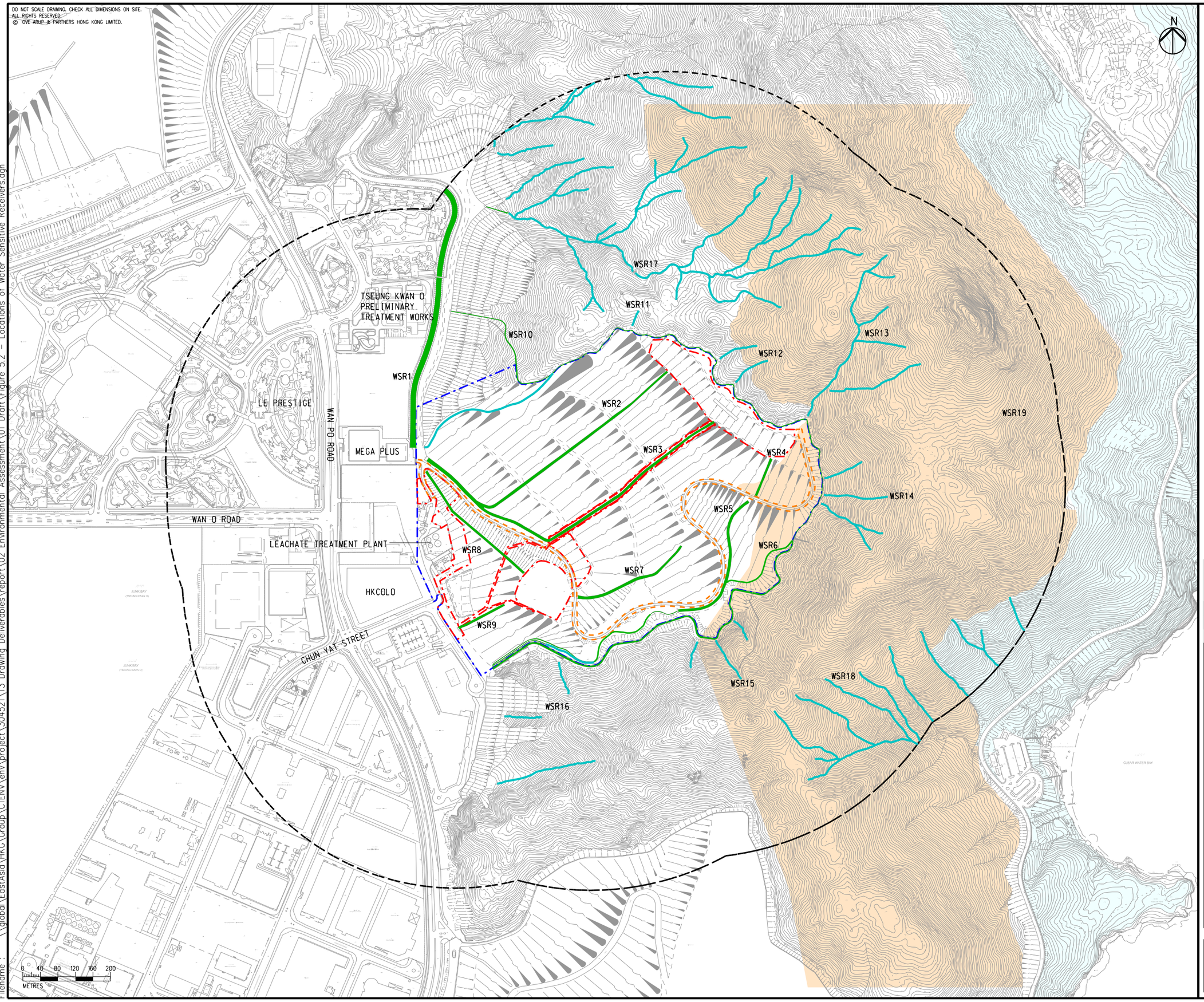

LEGEND

- APPLICATION SITE
- ACCESS ROAD (BY EPD)
- BOUNDARY OF TKOL II/III
- 500m ASSESSMENT AREA
- CONSERVATION AREA
- CLEAR WATER BAY COUNTRY PARK
- CHANNELS
- WATERCOURCES

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Project title

Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

LOCATIONS OF WATER SENSITIVE RECEIVERS

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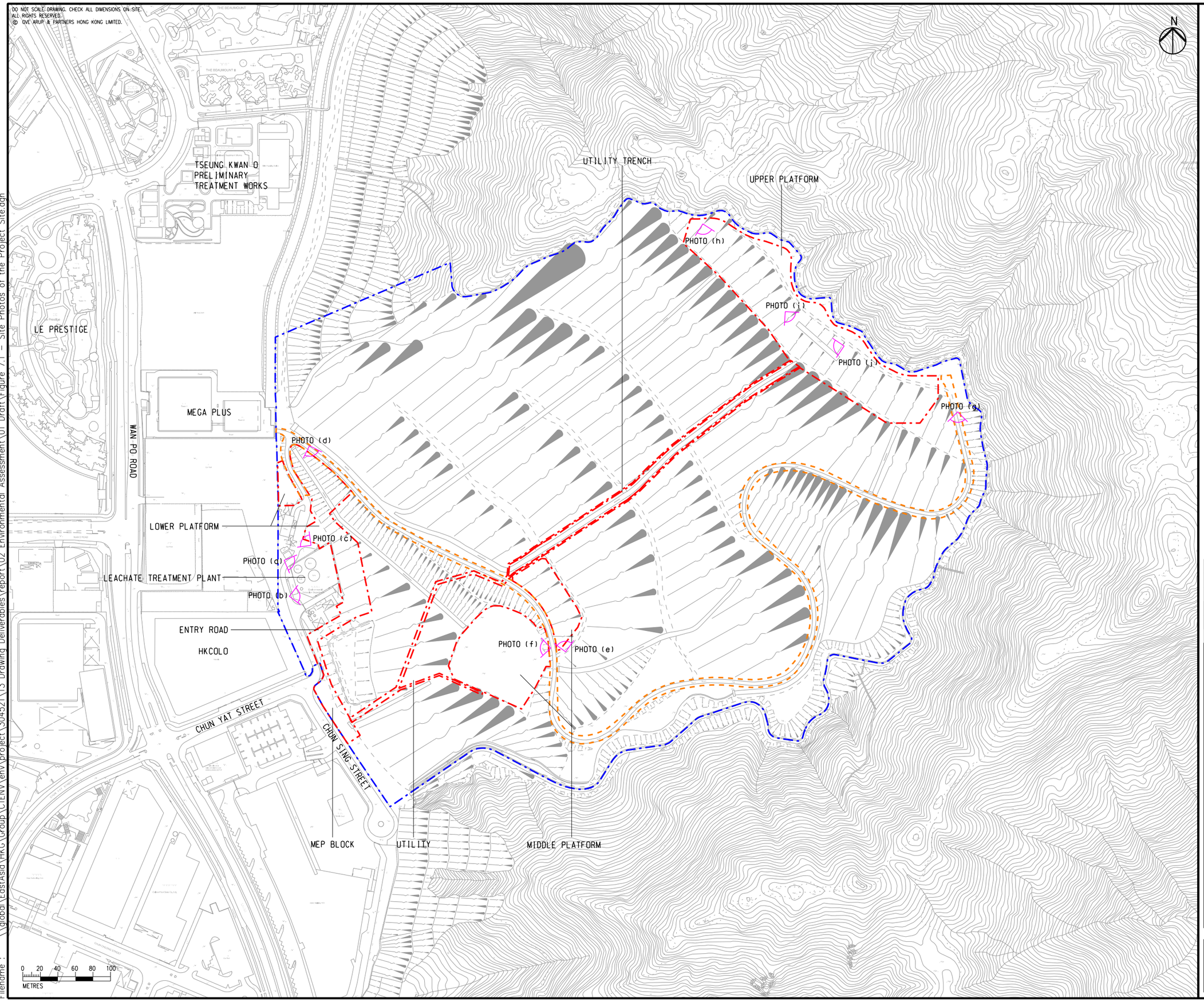

LEGEND

- APPLICATION SITE
- ACCESS ROAD (BY EPD)
- BOUNDARY OF TKOL II/III
- VIEW ANGLE

Rev	Description	By	Date
B	SECOND ISSUE	GL	06/25
A	FIRST ISSUE	GL	01/25

Consultant

ARUP

Project title

Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

SITE PHOTOS OF THE APPLICATION SITE (SHEET 1 OF 2)

Drawing no.			Rev.
FIGURE 7.1			B
Drawn: GL	Date: 06/25	Checked: TL	Approved: FC
Scale: 1:4000 @ A3		Status: PRELIMINARY	

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Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\304521\13 Drawing Deliverables\report\02 Environmental Assessment\01 Draft\Figure 7.1 - Site Photos of the Project Site.dgn
30/1/2026

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PHOTO (a)

PHOTO (b)

PHOTO (c)

PHOTO (d)

PHOTO (e)

PHOTO (f)

PHOTO (g)

PHOTO (h)

PHOTO (i)

PHOTO (j)

Rev	Description	By	Date
A	FIRST ISSUE	GL	01/25

Consultant

ARUP

Project title

Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

SITE PHOTOS OF THE APPLICATION SITE (SHEET 2 OF 2)

Drawing no.			Rev.
FIGURE 7.1a			A
Drawn: GL	Date: 01/25	Checked: TL	Approved: FC
Scale: N.T.S.		Status: PRELIMINARY	

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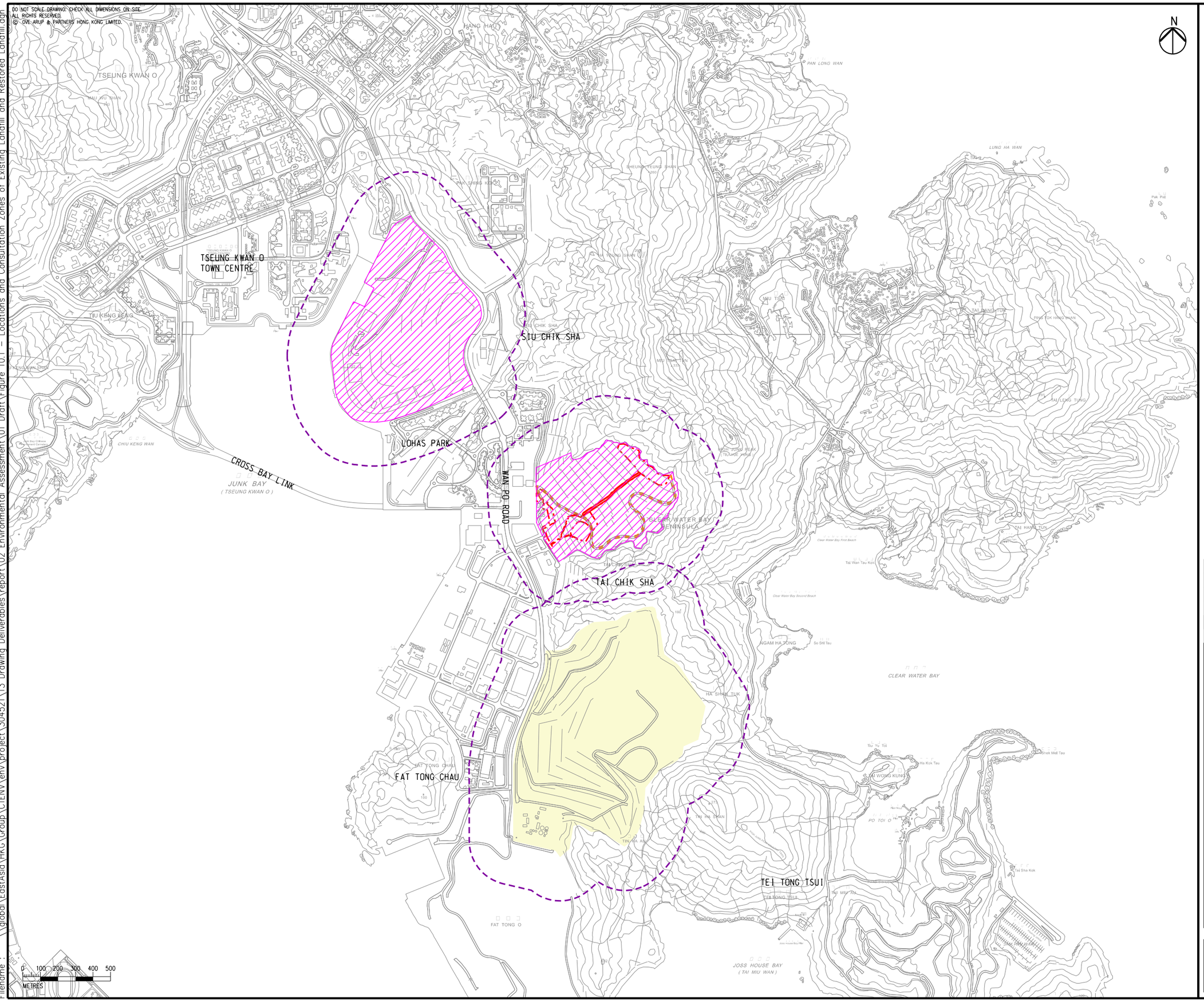

LEGEND

- APPLICATION SITE
- ACCESS ROAD (BY EPD)
- EXISTING LANDFILL
- RESTORED LANDFILL
- CONSULTATION ZONE

Rev	Description	By	Date
A	FIRST ISSUE	GL	06/25

Consultant

ARUP

Project title

Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

LOCATIONS AND CONSULTATION ZONES OF EXISTING LANDFILL AND RESTORED LANDFILL IN THE VICINITY OF THE PROJECT

Drawing no.			Rev.
FIGURE 10.1			A
Drawn: GL	Date: 06/25	Checked: TL	Approved: FC
Scale: 1:20000 @ A3		Status: PRELIMINARY	

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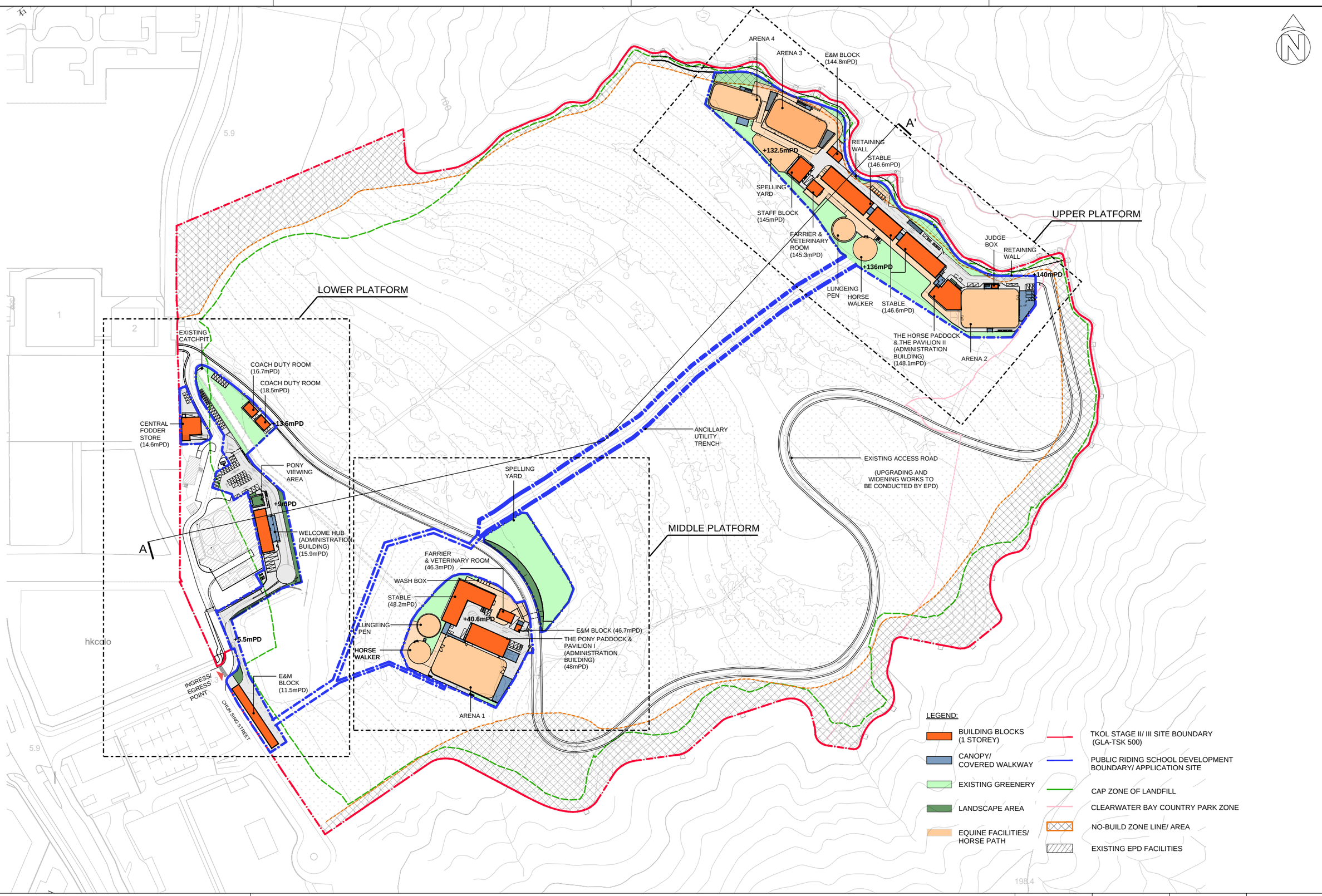
Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\304521\13 Drawing Deliverables\report\02 Environmental Assessment\01 Draft\Figure 10.1 – Locations and Consultation Zones of Existing Landfill and Restored Landfill.dgn

Appendix 2.1

Tentative Master Layout Plan



WONG TUNG 王董

Title

Indicative Master Layout Plan

Checked	SKW	Drawn	RYT
Rev	0	Date	FEB 2026
Scale 1 : 3000		Figure Appendix 1 (Fig. 1.1)	

Appendix 2.2

Tentative Site Formation Plan for PRS

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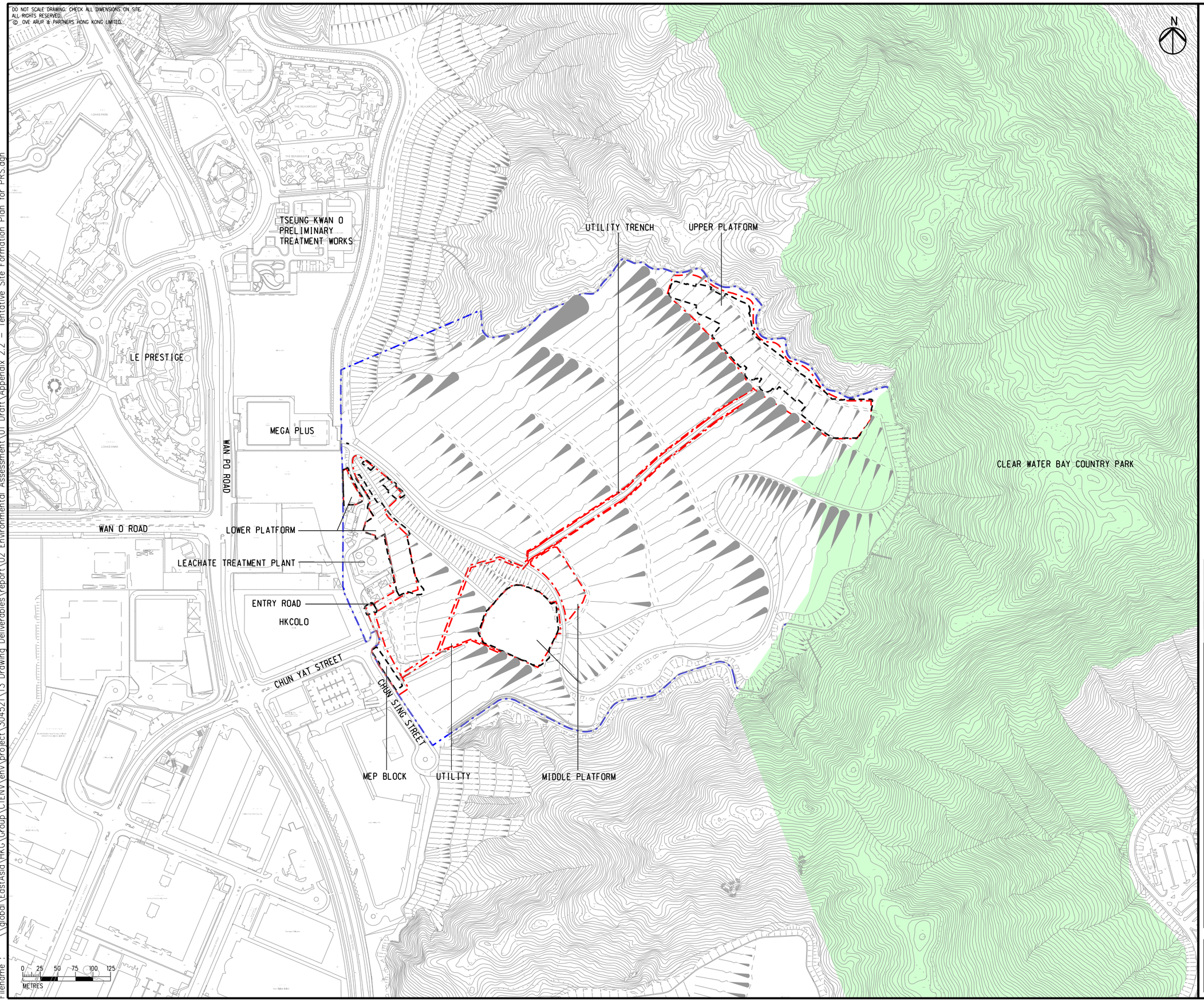

LEGEND

- APPLICATION SITE
- SITE FORMATION
- BOUNDARY OF TKOL II/III
- CLEAR WATER BAY COUNTRY PARK

Rev	Description	By	Date
A	FIRST ISSUE	GL	01/26

Consultant

ARUP

Project title

Proposed Place of Recreation, Sports or Culture (Public Riding School) with Ancillary Facilities at Government Land in D.D. 233, The Restored Landfill Site (TKOL II/III) in TKO Area 105, Tseung Kwan O (GLA TSK-500 (Part))

Drawing title

TENTATIVE SITE FORMATION PLAN FOR PRS

Drawing no.	Rev.
APPENDIX 2.2	A

Drawn	Date	Checked	Approved
GL	01/26	TL	FC

Scale	Status
1:5000 @ A3	PRELIMINARY

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Appendix 3.1

Stack Gas Monitoring Data of Leachate Treatment Plant

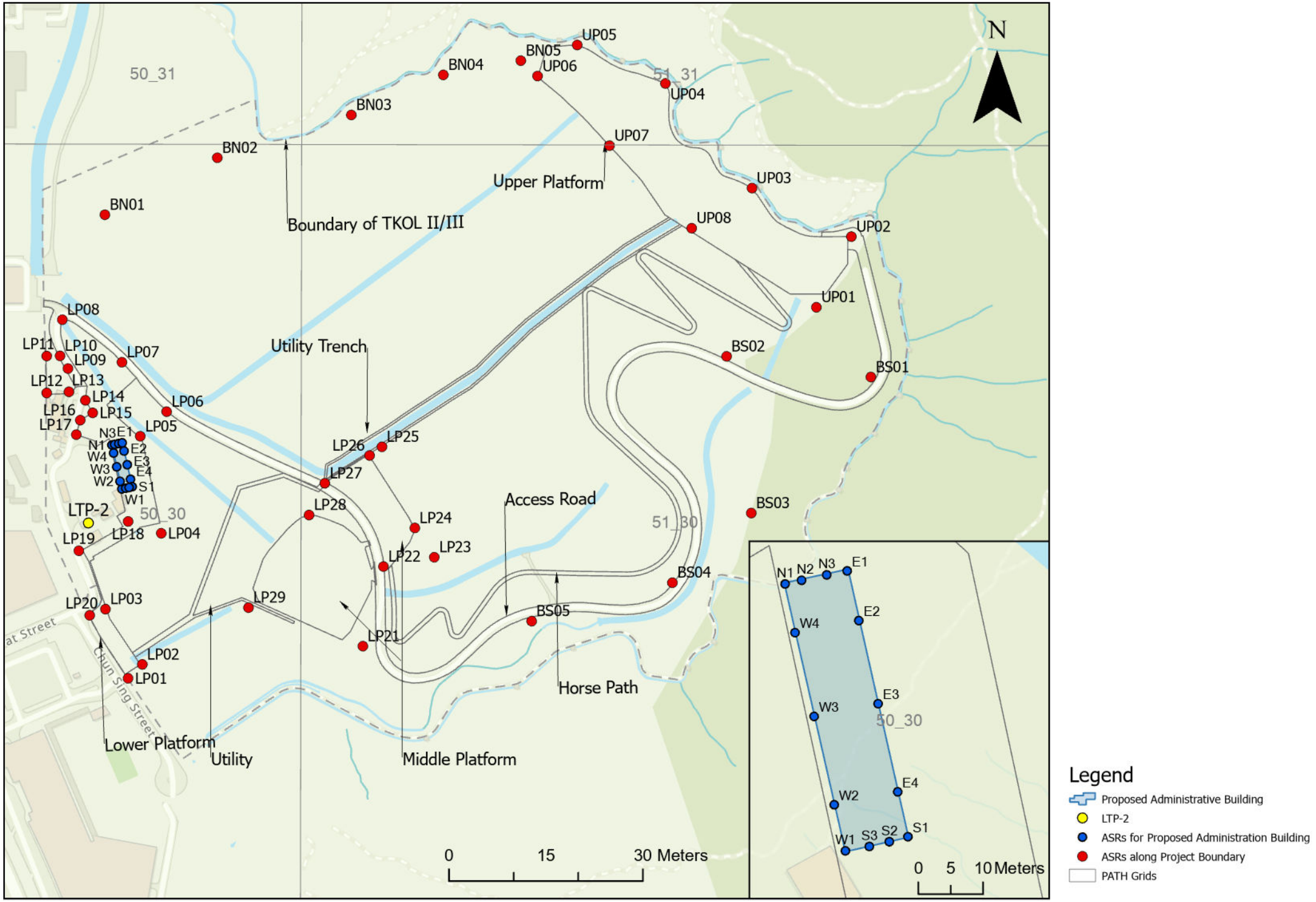
Stack Gas Monitoring Data of Leachate Treatment Plant (Year 2020 to 2024)

Sample location	Stage II/ III Thermal Oxidiser 1	Stage II/ III Thermal Oxidiser 2 (Flare)	Stage II/ III Thermal Oxidiser 1 (Flare)	Stage II/ III Thermal Oxidiser 2	Stage II/ III Thermal Oxidiser 1	Stage II/ III Thermal Oxidiser 2 (Flare)	Stage II/ III Thermal Oxidiser 1 (Flare)	Stage II/ III Thermal Oxidiser 2	Stage II/ III Thermal Oxidiser 1	Stage II/ III Thermal Oxidiser 2 (Flare)
Date of sampling	8-Jan-20	14-Jan-20	20-Jan-21	22-Jan-21	24-Jan-22	20-Jan-22	26-Jan-23	19-Jan-23	16-Jan-24	29-Jan-24
Particulates, mg/m^3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	<0.1
Fluorine & Its Compounds, mg/m^3 (expressed as hydrogen floride)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1
Chlorine & Its Compounds, mg/m^3 (expressed as hydrogen chloride)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1	<1.0	<0.1	<0.1
Hydrogen Bromide, mg/m^3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1
Nitrogen Oxides, mg/m^3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Sulphur Dioxide, mg/m^3	<10	<10	<10	<10	<10	<10	<1.0	<1.0	<0.1	<0.1
Hydrogen Sulphide, mg/m^3	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.025	<0.025
Total Non-methane HC, mg C/m^3	6.50	<1.92	<1.86	<1.90	<1.88	<1.86	<1.88	<1.88	<1.90	<1.88
Trichloroethylene, ppbv	<0.4	<0.4	<0.4	1.0	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Vinyl Chloride, ppbv	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Methylene Chloride, ppbv	2.2	1.8	0.9	8.8	1.2	1.8	0.6	1.1	2.4	3.0
Chloroform, ppbv	<0.4	<0.4	<0.4	0.5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,2-dichloroethane, ppbv	<0.4	0.6	<0.4	1.2	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,1,1-trichloroethane, ppbv	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Carbon tetrachloride, ppbv	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Tetrachloroethylene, ppbv	<0.4	<0.4	<0.4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,2-dibromoethane, ppbv	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Benzene, ppbv	1.0	0.9	0.5	1.1	<0.4	0.7	0.7	0.8	<0.4	0.8
Methane, ppmv	4.1	4.0	3.4	3.4	3.6	3.6	3.2	3.4	3.2	3.2
Carbon Monoxide, mg/m^3CO	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19
Smoke, ringlemann	<1	<1	<1	<1	<1	<1	<1	<1	0.0	0.0

Appendix 3.2

List of Air Sensitive Receivers

Appendix 3.2 List of Air Sensitive Receivers



Grid	50_30
Number of ASRs:	37
Number of Levels:	3

ASR ID	ASR Description	Land Uses	X-co	Y-co	Z-co	Level, in m avove local ground		
E1	TKO PRS Administration Building	Office	846472	817002	8	1.5	5	10
E2	TKO PRS Administration Building	Office	846474	816994	8	1.5	5	10
E3	TKO PRS Administration Building	Office	846477	816981	8	1.5	5	10
E4	TKO PRS Administration Building	Office	846480	816968	8	1.5	5	10
N1	TKO PRS Administration Building	Office	846463	817000	8	1.5	5	10
N2	TKO PRS Administration Building	Office	846465	817001	8	1.5	5	10
N3	TKO PRS Administration Building	Office	846469	817001	8	1.5	5	10
S1	TKO PRS Administration Building	Office	846482	816961	8	1.5	5	10
S2	TKO PRS Administration Building	Office	846479	816960	7	1.5	5	10
S3	TKO PRS Administration Building	Office	846476	816959	8	1.5	5	10
W1	TKO PRS Administration Building	Office	846472	816959	8	1.5	5	10
W2	TKO PRS Administration Building	Office	846470	816966	7	1.5	5	10
W3	TKO PRS Administration Building	Office	846467	816979	8	1.5	5	10
W4	TKO PRS Administration Building	Office	846464	816992	8	1.5	5	10
BN01	TKO II/III Boundary	Recreational	846456	817216	33	1.5	5	10
BN02	TKO II/III Boundary	Recreational	846562	817270	94	1.5	5	10
LP01	TKO PRS Lower Platform	Recreational	846478	816781	7	1.5	5	10
LP02	TKO PRS Lower Platform	Recreational	846491	816794	7	1.5	5	10
LP03	TKO PRS Lower Platform	Recreational	846456	816846	7	1.5	5	10
LP04	TKO PRS Lower Platform	Recreational	846509	816917	14	1.5	5	10
LP05	TKO PRS Lower Platform	Recreational	846489	817008	12	1.5	5	10
LP06	TKO PRS Lower Platform	Recreational	846514	817031	18	1.5	5	10
LP07	TKO PRS Lower Platform	Recreational	846472	817078	13	1.5	5	10
LP08	TKO PRS Lower Platform	Recreational	846416	817118	8	1.5	5	10
LP09	TKO PRS Lower Platform	Recreational	846421	817072	8	1.5	5	10
LP10	TKO PRS Lower Platform	Recreational	846414	817084	8	1.5	5	10
LP11	TKO PRS Lower Platform	Recreational	846401	817084	7	1.5	5	10
LP12	TKO PRS Lower Platform	Recreational	846401	817049	7	1.5	5	10
LP13	TKO PRS Lower Platform	Recreational	846422	817050	7	1.5	5	10
LP14	TKO PRS Lower Platform	Recreational	846438	817042	8	1.5	5	10
LP15	TKO PRS Lower Platform	Recreational	846444	817030	8	1.5	5	10
LP16	TKO PRS Lower Platform	Recreational	846433	817023	7	1.5	5	10
LP17	TKO PRS Lower Platform	Recreational	846429	817010	7	1.5	5	10
LP18	TKO PRS Lower Platform	Recreational	846478	816928	7	1.5	5	10
LP19	TKO PRS Lower Platform	Recreational	846431	816900	7	1.5	5	10
LP20	TKO PRS Lower Platform	Recreational	846442	816840	6	1.5	5	10
LP29	TKO PRS Middle Platform	Recreational	846591	816847	37	1.5	5	10

Grid	51_30
Number of ASRs:	18
Number of Levels:	3

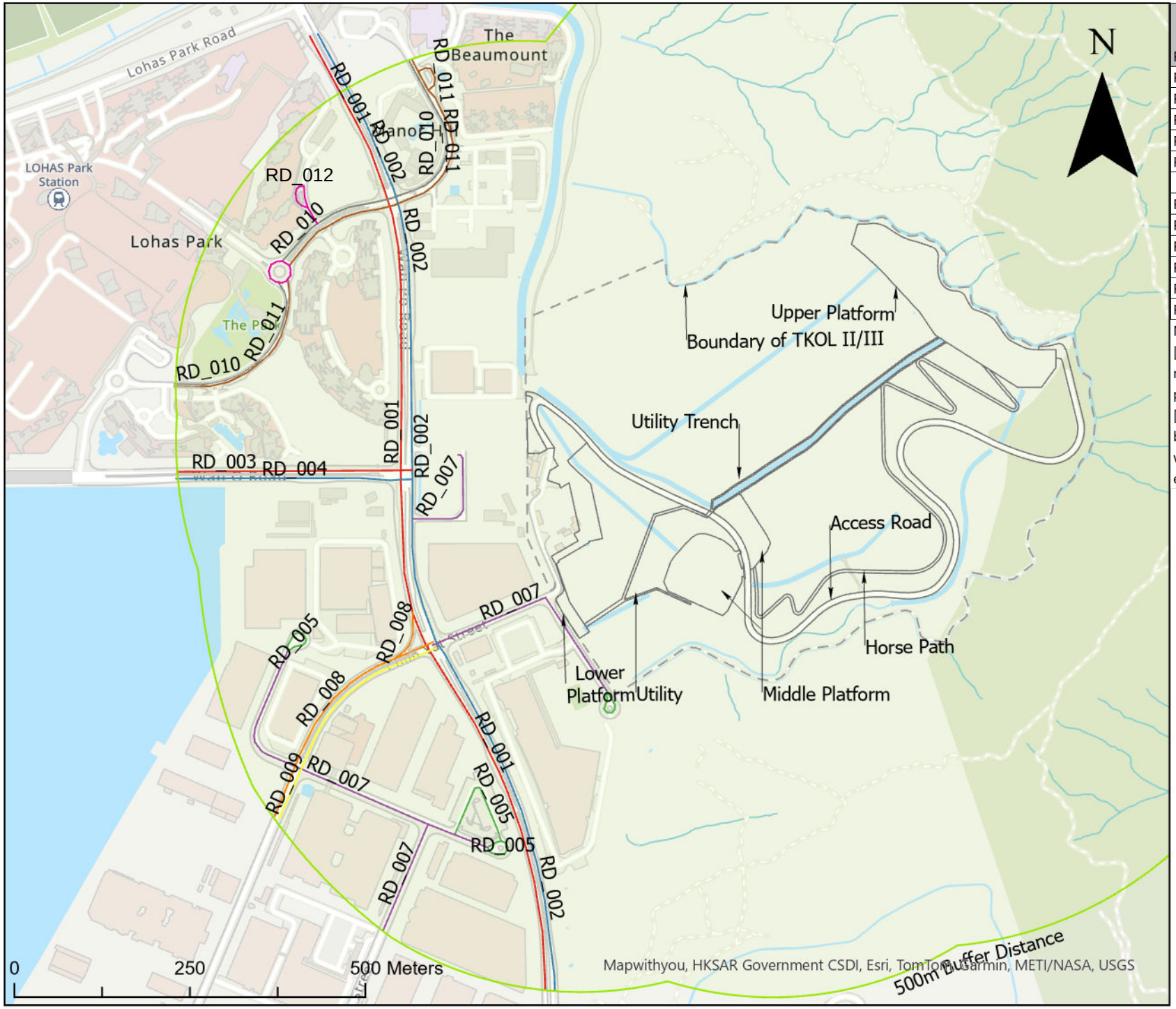
ASR ID	ASR Description	Land Uses	X-co	Y-co	Z-co	Level, in m avove local ground		
BS01	TKO II/III Boundary	Recreational	847175	817064	134	1.5	5	10
BS02	TKO II/III Boundary	Recreational	847040	817083	114	1.5	5	10
BS03	TKO II/III Boundary	Recreational	847063	816936	104	1.5	5	10
BS04	TKO II/III Boundary	Recreational	846989	816870	83	1.5	5	10
BS05	TKO II/III Boundary	Recreational	846857	816834	70	1.5	5	10
LP21	TKO PRS Middle Platform	Recreational	846698	816811	47	1.5	5	10
LP22	TKO PRS Middle Platform	Recreational	846718	816886	41	1.5	5	10
LP23	TKO PRS Middle Platform	Recreational	846765	816894	51	1.5	5	10
LP24	TKO PRS Middle Platform	Recreational	846747	816922	40	1.5	5	10
LP25	TKO PRS Middle Platform	Recreational	846716	816998	40	1.5	5	10
LP26	TKO PRS Middle Platform	Recreational	846705	816990	39	1.5	5	10
LP27	TKO PRS Middle Platform	Recreational	846663	816964	34	1.5	5	10
LP28	TKO PRS Middle Platform	Recreational	846648	816934	39	1.5	5	10
UP01	TKO PRS Upper Platform	Recreational	847124	817129	134	1.5	5	10
UP02	TKO PRS Upper Platform	Recreational	847157	817196	141	1.5	5	10
UP03	TKO PRS Upper Platform	Recreational	847064	817241	141	1.5	5	10
UP07	TKO PRS Upper Platform	Recreational	846930	817281	134	1.5	5	10
UP08	TKO PRS Upper Platform	Recreational	847007	817204	134	1.5	5	10

Grid	51_31
Number of ASRs:	6
Number of Levels:	3

ASR ID	ASR Description	Land Uses	X-co	Y-co	Z-co	Level, in m avove local ground		
BN03	TKO II/III Boundary	Recreational	846687	817310	106	1.5	5	10
BN04	TKO II/III Boundary	Recreational	846774	817348	125	1.5	5	10
BN05	TKO II/III Boundary	Recreational	846847	817361	131	1.5	5	10
UP04	TKO PRS Upper Platform	Recreational	846982	817340	139	1.5	5	10
UP05	TKO PRS Upper Platform	Recreational	846900	817376	137	1.5	5	10
UP06	TKO PRS Upper Platform	Recreational	846862	817347	136	1.5	5	10

Appendix 3.3

Calculation of Vehicular Emissions



Road ID	Corresponding Road ID in TKO137	Shared Road Justification [1]	Direction [2]
RD_001	3	Wan Po Road	WB
RD_002	4	Wan Po Road	EB
RD_003	233	Cross Bay Link	NB
RD_004	234	Cross Bay Link	SB
RD_005	43	Industrial	NB
RD_007	44,43	Industrial	2-way
RD_008	35	Chun Yat St	WB
RD_009	36	Chun Yat St	EB
RD_010	63	Residential	NB
RD_011	64	Residential	SB
RD_012	63,64	Residential	2-way

Notes:

[1] Selected roads in TKO 137 correspond to the same road in the Project or reflect the similar underlying purpose.

[2] EB, WB, NB and SB stand for East-bound, West-bound, North-bound and South-bound, respectively. 2-way refers to combined flow and their average speed is estimated by weighting.

Legend

500m Assessment Area from Application Site

Existing Open Roads

ID

- RD_001
- RD_002
- RD_003
- RD_004
- RD_005
- RD_007
- RD_008
- RD_009
- RD_010
- RD_011
- RD_012

Proportion of local and rural roads within Hong Kong

Region	RoadType [1]	VKT [2]	%
Hong Kong Island	UT/EX/PD/DD	4,627,075	81.1%
	LD	1,075,005	18.9%
Kowloon	UT/EX/PD/DD	7,413,967	85.6%
	LD	1,249,077	14.4%
New Territories	UT/EX/PD/DD/RT	19,371,357	75.1%
	LD/RR	6,432,203	24.9%
Entire Hong Kong	UT/EX/PD/DD/RT	31,412,399	78.2%
	LD/RR	8,756,286	21.8%

Note:

[1] DD - District Distributor; EX - Expressway; LD - Local Distributor; PD - Primary Distributor; RR - Rural Road; RT - Rural Trunk Road; and UT - Urban Trunk Road

[2] Source: The Hong Kong Annual Traffic Census (ATC) 2023 and raw data in computing VKT provided by Transport Department.

Default Scenario

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
WAN PO ROAD L	RD_001		70	67.43	Y	0000-0100	825	55.09%	32.17%	0.03%	3.14%	1.13%	0.30%	0.59%	0.21%	0.11%	0.88%	0.29%	0.20%	0.43%	0.03%	1.93%	3.33%	0.16%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.23	Y	0100-0200	562	55.48%	29.93%	0.04%	3.43%	1.23%	0.38%	0.75%	0.22%	0.16%	1.28%	0.42%	0.29%	0.63%	0.03%	1.93%	3.61%	0.20%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.63	Y	0200-0300	430	55.93%	27.60%	0.04%	3.72%	1.33%	0.47%	0.92%	0.24%	0.22%	1.70%	0.55%	0.38%	0.84%	0.03%	1.91%	3.87%	0.24%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.97	Y	0300-0400	322	56.29%	25.31%	0.04%	4.02%	1.44%	0.55%	1.08%	0.26%	0.27%	2.10%	0.69%	0.48%	1.04%	0.03%	1.94%	4.19%	0.28%	0.00%	100%
WAN PO ROAD L	RD_001		70	69.01	Y	0400-0500	304	56.75%	22.90%	0.05%	4.32%	1.55%	0.63%	1.25%	0.28%	0.32%	2.52%	0.82%	0.57%	1.26%	0.03%	1.93%	4.47%	0.33%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.59	Y	0500-0600	428	57.21%	20.46%	0.05%	4.64%	1.67%	0.72%	1.42%	0.30%	0.38%	2.95%	0.97%	0.67%	1.47%	0.03%	1.93%	4.77%	0.37%	0.00%	100%
WAN PO ROAD L	RD_001		70	66.01	Y	0600-0700	1203	57.78%	17.88%	0.05%	4.95%	1.78%	0.82%	1.61%	0.32%	0.44%	3.44%	1.12%	0.77%	1.70%	0.03%	1.88%	5.03%	0.42%	0.00%	100%
WAN PO ROAD L	RD_001		70	61.69	Y	0700-0800	2175	58.27%	15.31%	0.06%	5.27%	1.89%	0.91%	1.79%	0.34%	0.50%	3.90%	1.26%	0.88%	1.93%	0.03%	1.86%	5.33%	0.47%	0.00%	100%
WAN PO ROAD L	RD_001		70	60.02	Y	0800-0900	2369	62.02%	18.97%	0.05%	4.52%	1.62%	0.69%	1.36%	0.21%	0.23%	1.76%	0.88%	0.61%	1.34%	0.04%	1.44%	3.90%	0.36%	0.00%	100%
WAN PO ROAD L	RD_001		70	63.29	Y	0900-1000	1985	56.70%	18.37%	0.08%	7.97%	2.86%	1.45%	2.86%	0.28%	0.17%	1.34%	0.63%	0.44%	0.96%	0.04%	1.85%	3.24%	0.75%	0.00%	100%
WAN PO ROAD L	RD_001		70	63.63	Y	1000-1100	1868	51.60%	23.51%	0.09%	9.09%	3.26%	1.75%	3.44%	0.19%	0.16%	1.24%	0.24%	0.17%	0.36%	0.09%	1.96%	1.96%	0.90%	0.00%	100%
WAN PO ROAD L	RD_001		70	64.00	Y	1100-1200	1775	53.46%	22.41%	0.08%	7.94%	2.85%	1.76%	3.47%	0.32%	0.12%	0.95%	0.37%	0.26%	0.57%	0.02%	1.77%	2.75%	0.91%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.48	Y	1200-1300	714	52.18%	18.10%	0.10%	9.45%	3.39%	2.03%	3.99%	1.32%	0.33%	2.56%	0.67%	0.47%	1.02%	0.08%	1.86%	1.41%	1.04%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.37	Y	1300-1400	727	45.68%	18.87%	0.12%	11.30%	4.06%	2.05%	4.03%	2.03%	0.32%	2.53%	1.18%	0.82%	1.80%	0.10%	2.00%	2.05%	1.05%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.42	Y	1400-1500	736	52.88%	16.39%	0.10%	9.60%	3.45%	2.12%	4.17%	1.25%	0.28%	2.15%	0.54%	0.37%	0.81%	0.05%	1.89%	2.86%	1.09%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.43	Y	1500-1600	735	52.08%	18.73%	0.10%	9.92%	3.56%	2.25%	4.43%	1.17%	0.21%	1.68%	0.22%	0.15%	0.34%	0.04%	1.93%	2.02%	1.16%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.24	Y	1600-1700	795	52.07%	18.00%	0.11%	10.45%	3.75%	1.59%	3.13%	1.19%	0.17%	1.30%	0.68%	0.47%	1.04%	0.05%	2.01%	3.18%	0.82%	0.00%	100%
WAN PO ROAD L	RD_001		70	66.97	Y	1700-1800	925	61.69%	13.27%	0.07%	6.77%	2.43%	0.81%	1.60%	1.51%	0.14%	1.12%	0.72%	0.50%	1.09%	0.03%	1.70%	6.13%	0.42%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.00	Y	1800-1900	937	67.26%	14.87%	0.05%	4.87%	1.75%	0.59%	1.16%	1.58%	0.02%	0.18%	0.48%	0.34%	0.74%	0.01%	1.80%	3.99%	0.30%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.40	Y	1900-2000	821	64.36%	20.35%	0.05%	4.39%	1.58%	0.19%	0.38%	1.60%	0.03%	0.23%	0.49%	0.34%	0.74%	0.09%	2.05%	3.04%	0.10%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.89	Y	2000-2100	667	62.75%	22.92%	0.04%	3.93%	1.41%	0.36%	0.71%	1.25%	0.01%	0.08%	0.43%	0.30%	0.65%	0.04%	2.16%	2.78%	0.18%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.99	Y	2100-2200	636	56.20%	30.32%	0.04%	3.80%	1.36%	0.25%	0.49%	1.49%	0.01%	0.08%	0.33%	0.23%	0.50%	0.03%	2.41%	2.31%	0.13%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.08	Y	2200-2300	618	52.86%	35.44%	0.04%	3.49%	1.25%	0.19%	0.38%	1.12%	0.01%	0.08%	0.03%	0.02%	0.04%	0.03%	2.23%	2.68%	0.10%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.50	Y	2300-0000	478	53.01%	33.24%	0.04%	3.84%	1.38%	0.30%	0.59%	1.23%	0.06%	0.46%	0.15%	0.11%	0.23%	0.03%	2.24%	2.94%	0.15%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.09	Y	0000-0100	278	49.89%	29.14%	0.08%	7.83%	2.81%	0.75%	1.48%	0.73%	0.10%	0.79%	0.26%	0.18%	0.39%	0.03%	2.12%	3.01%	0.39%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.36	Y	0100-0200	192	49.69%	26.80%	0.09%	8.45%	3.03%	0.94%	1.86%	0.79%	0.15%	1.15%	0.37%	0.26%	0.57%	0.03%	2.11%	3.23%	0.49%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.50	Y	0200-0300	148	49.54%	24.45%	0.09%	9.06%	3.25%	1.14%	2.24%	0.84%	0.19%	1.50%	0.49%	0.34%	0.74%	0.03%	2.06%	3.43%	0.59%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.62	Y	0300-0400	112	49.30%	22.16%	0.10%	9.68%	3.48%	1.32%	2.60%	0.91%	0.24%	1.84%	0.60%	0.42%	0.91%	0.03%	2.07%	3.67%	0.68%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.63	Y	0400-0500	107	49.13%	19.83%	0.11%	10.30%	3.70%	1.51%	2.97%	0.96%	0.28%	2.18%	0.71%	0.50%	1.09%	0.03%	2.04%	3.87%	0.78%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.46	Y	0500-0600	153	48.96%	17.51%	0.11%	10.92%	3.92%	1.70%	3.34%	1.02%	0.32%	2.52%	0.83%	0.57%	1.26%	0.03%	2.01%	4.08%	0.87%	0.00%	100%
WAN PO ROAD R	RD_002		70	68.46	Y	0600-0700	434	48.87%	15.12%	0.12%	11.51%	4.13%	1.91%	3.75%	1.07%	0.37%	2.91%	0.94%	0.65%	1.44%	0.03%	1.93%	4.25%	0.98%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.14	Y	0700-0800	794	48.72%	12.80%	0.13%	12.12%	4.35%	2.10%	4.13%	1.12%	0.42%	3.26%	1.06%	0.73%	1.61%	0.03%	1.89%	4.45%	1.08%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.10	Y	0800-0900	838	53.46%	16.35%	0.11%	10.71%	3.85%	1.65%	3.24%	0.72%	0.19%	1.52%	0.76%	0.53%	1.16%	0.04%	1.51%	3.36%	0.85%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.08	Y	0900-1000	783	43.87%	14.21%	0.18%	16.97%	6.09%	3.10%	6.09%	0.87%	0.13%	1.04%	0.49%	0.34%	0.74%	0.04%	1.75%	2.51%	1.59%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.11	Y	1000-1100	761	38.66%	17.61%	0.20%	18.75%	6.73%	3.60%	7.09%	0.56%	0.12%	0.93%	0.18%	0.12%	0.27%	0.08%	1.79%	1.47%	1.85%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.33	Y	1100-1200	710	40.77%	17.09%	0.17%	16.66%	5.98%	3.70%	7.28%	0.95%	0.09%	0.73%	0.28%	0.20%	0.43%	0.02%	1.64%	2.10%	1.90%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.36	Y	1200-1300	1066	56.00%	19.42%	0.07%	7.01%	2.52%	1.51%	2.96%	0.95%	0.35%	2.74%	0.72%	0.50%	1.10%	0.08%	1.79%	1.51%	0.77%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.23	Y	1300-1400	1073	49.58%	20.48%	0.09%	8.48%	3.05%	1.54%	3.03%	1.48%	0.35%	2.75%	1.28%	0.89%	1.95%	0.10%	1.94%	2.22%	0.79%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.27	Y	1400-1500	1098	56.83%	17.61%	0.07%	7.13%	2.56%	1.58%	3.10%	0.90%	0.30%	2.31%	0.58%	0.40%	0.88%	0.05%	1.82%	3.08%	0.81%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.30	Y	1500-1600	1094	56.12%	20.18%	0.08%	7.39%	2.65%	1.68%	3.30%	0.84%	0.23%	1.81%	0.24%	0.17%	0.36%	0.04%	1.87%	2.17%	0.86%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.00	Y	1600-1700	1189	55.83%	19.30%	0.08%	7.75%	2.78%	1.18%	2.32%	0.86%	0.18%	1.39%	0.73%	0.51%	1.11%	0.05%	1.93%	3.41%	0.61%	0.00%	100%
WAN PO ROAD R	RD_002		70	65.45	Y	1700-1800	1417	64.54%	13.89%	0.05%	4.90%	1.76%	0.59%	1.16%	1.06%	0.15%	1.17%	0.75%	0.52%	1.14%	0.03%	1.60%	6.41%	0.30%	0.00%	100%
WAN PO ROAD R	RD_002		70	65.44	Y	1800-1900	1452	69.63%	15.39%	0.04%	3.49%	1.25%	0.42%	0.83%	1.09%	0.02%	0.19%	0.50%	0.35%	0.76%	0.01%	1.67%	4.13%	0.22%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.00	Y	1900-2000	1279	66.22%	20.94%	0.03%	3.12%	1.12%	0.14%	0.27%	1.10%	0.03%	0.24%	0.50%	0.35%	0.76%	0.08%	1.89%	3.13%	0.07%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.75	Y	2000-2100	1040	64.49%	23.55%	0.03%	2.79%	1.00%	0.26%	0.50%	0.86%	0.01%	0.08%	0.44%	0.31%	0.67%	0.04%	1.99%	2.85%	0.13%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.90	Y	2100-2200	992	57.71%	31.14%	0.03%	2.70%	0.97%	0.18%	0.35%	1.02%	0.01%	0.08%	0.34%	0.24%	0.52%	0.03%	2.22%	2.37%	0.09%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.03	Y	2200-2300	968	54.10%	36.27%	0.03%	2.47%	0.89%	0.14%	0.27%	0.76%	0.01%	0.08%	0.03%	0.02%	0.04%	0.03%	2.05%	2.74%	0.07%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.69	Y	2300-0000	746	54.42%	34.12%	0.03%	2.72%	0.98%	0.21%	0.42%	0.85%	0.06%	0.48%	0.16%	0.11%	0.24%	0.03%	2.06%	3.01%	0.11%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0000-0100	369	52.61%	30.72%	0.07%	6.78%	2.43%	0.65%	1.28%	0.00%	0.11%	0.84%	0.27%	0.19%	0.41%	0.00%	0.12%	3.18%	0.33%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0100-0200	254	52.57%	28.36%	0.08%	7.33%	2.63%	0.82%	1.61%	0.00%	0.16%	1.21%	0.39%	0.27%	0.60%	0.00%	0.12%	3.42%	0.42%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0200-0300	196	52.57%	25.94%	0.08%	7.89%	2.83%	0.99%	1.95%	0.00%	0.20%	1.59%	0.52%	0.36%	0.79%	0.00%	0.12%	3.64%	0.51%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0300-0400	148	52.50%	23.60%	0.09%	8.46%	3.04%	1.16%	2.27%	0.00%	0.25%	1.96%	0.64%	0.44%	0.97%	0.00%	0.12%	3.90%	0.59%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0400-0500	140	52.49%	21.18%	0.09%	9.03%	3.24%	1.33%	2.61%	0.00%	0.30%	2.33%	0.76%	0.53%	1.16%	0.00%	0.12%	4.13%	0.68%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0500-0600	200	52.47%	18.77%	0.10%	9.61%	3.45%	1.50%	2.94%	0.00%	0.35%	2.71%	0.89%	0.61%	1.35%	0.00%	0.12%	4.37%	0.77%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0600-0700	566	52.51%	16.25%	0.11%	10.16%	3.65%	1.68%	3.31%	0.00%	0.40%	3.12%	1.01%	0.70%	1.54%	0.00%	0.11%	4.57%	0.86%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0700-0800	1032	52.51%	13.80%	0.11%	10.72%	3.85%	1.86%	3.65%	0.00%	0.45%	3.51%	1.14%	0.79%	1.74%	0.00%	0.11%	4.80%	0.95%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0800-0900	1107	56.78%	17.36%	0.10%	9.34%	3.35%	1.44%	2.82%	0.00%	0.21%	1.61%	0.81%	0.56%	1.23%	0.00%	0.09%	3.57%	0.74%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0900-1000	1002	48.02%	15.56%	0.16%	15.25%	5.48%	2.78%	5.47%	0.00%	0.15%	1.14%	0.53%	0.37%	0.81%	0.00%	0.10%	2.75%	1.43%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1000-1100	969	42.56%	19.39%	0.18%	16.94%	6.08%	3.26%	6.40%	0.00%	0.13%	1.02%	0.20%	0.14%	0.30%	0.00%	0.11%	1.62%	1.67%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1100-1200	907	44.76%	18.76%	0.16%	15.01%	5.39%	3.34%	6.56%	0.00%	0.10%	0.80%	0.31%	0.22%	0.47%	0.00%	0.10%	2.30%	1.71%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1200-1300	1142	57.95%	20.10%	0.07%	6.80%	2.44%	1.46%	2.87%	0.00%	0.36%	2.84%	0.75%	0.52%	1.14%	0.02%	0.36%	1.56%	0.75%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1300-1400	1140	51.74%	21.38%	0.09%	8.30%	2.98%	1.51%	2.96%	0.00%	0.37%	2.87%	1.34%	0.93%	2.04%	0.02%	0.40%	2.32%	0.77%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1400-1500	1176	58.80%	18.22%	0.07%	6.92%	2.49%	1.53%	3.01%	0.00%	0.31%	2.39%	0.59%	0.41%	0.91%	0.01%	0.37%	3.18%	0.79%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1500-1600	1172	58.08%	20.89%	0.07%	7.17%	2.58%	1.63%	3.20%	0.00%	0.24%	1.87%	0.25%	0.17%	0.37%	0.01%	0.38%	2.25%	0.84%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1600-1700	1274	57.78%	19.97%	0.08%	7.52%	2.70%	1.14%	2.25%	0.00%	0.18%	1.44%	0.75%	0.52%	1.15%	0.01%	0.39%	3.53%	0.59%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1700-1800	1525	66.47%	14.30%	0.05%	4.73%	1.70%	0.57%	1.12%	0.00%	0.15%	1.20%	0.77%	0.53%	1.17%	0.01%	0.32%	6.61%	0.29%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1800-1900	1563	71.66%	15.84%	0.04%	3.37%	1.21%	0.41%	0.80%	0.00%	0.02%	0.19%	0.52%	0.36%	0.79%	0.00%	0.34%	4.25%	0.21%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1900-2000	1375	68.26%	21.59%	0.03%	3.02%	1.08%	0.13%	0.26%	0.00%	0.03%	0.24%	0.51%	0.36%	0.78%	0.02%	0.38%	3.23%	0.07%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	2000-2100	1121	66.33%	24.23%	0.03%	2.69%	0.97%	0.25%	0.48%	0.00%	0.01%	0.08%	0.45%	0.32%	0.69%	0.01%	0.40%	2.93%	0.13%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	2100-2200	1066	59.56%	32.13%	0.03%	2.61%	0.94%	0.17%	0.34%	0.00%	0.01%	0.09%	0.35%	0.24%	0.53%	0.01%	0.45%	2.45%	0.09%	0.00%	100%

Appendix 3.3 Calculation of Vehicular Emissions
Traffic Data and Road Segments (Year 2041)
Default Scenario

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
CROSS BAY LINK L	RD_003		80	80.00	Y	2200-2300	1044	55.59%	37.27%	0.02%	2.38%	0.85%	0.13%	0.26%	0.00%	0.01%	0.09%	0.03%	0.02%	0.05%	0.01%	0.41%	2.81%	0.07%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	2300-0000	804	55.99%	35.11%	0.03%	2.63%	0.94%	0.20%	0.40%	0.00%	0.06%	0.49%	0.16%	0.11%	0.24%	0.01%	0.42%	3.10%	0.10%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0000-0100	996	57.48%	33.57%	0.02%	1.91%	0.69%	0.18%	0.36%	0.00%	0.12%	0.91%	0.30%	0.21%	0.45%	0.00%	0.23%	3.47%	0.09%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0100-0200	677	58.07%	31.33%	0.02%	2.09%	0.75%	0.23%	0.46%	0.00%	0.17%	1.34%	0.44%	0.30%	0.66%	0.00%	0.23%	3.78%	0.12%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0200-0300	516	58.73%	28.98%	0.02%	2.27%	0.82%	0.29%	0.56%	0.00%	0.23%	1.78%	0.58%	0.40%	0.88%	0.00%	0.23%	4.07%	0.15%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0300-0400	385	59.32%	26.67%	0.03%	2.47%	0.89%	0.34%	0.66%	0.00%	0.28%	2.21%	0.72%	0.50%	1.10%	0.00%	0.23%	4.41%	0.17%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0400-0500	362	60.00%	24.21%	0.03%	2.66%	0.96%	0.39%	0.77%	0.00%	0.34%	2.67%	0.87%	0.60%	1.33%	0.00%	0.23%	4.73%	0.20%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0500-0600	508	60.69%	21.71%	0.03%	2.87%	1.03%	0.45%	0.88%	0.00%	0.40%	3.13%	1.02%	0.71%	1.56%	0.00%	0.23%	5.06%	0.23%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0600-0700	1424	61.48%	19.02%	0.03%	3.07%	1.10%	0.51%	1.00%	0.00%	0.47%	3.66%	1.19%	0.82%	1.81%	0.00%	0.23%	5.35%	0.26%	0.00%	100%
CROSS BAY LINK R	RD_004		80	76.84	Y	0700-0800	2566	62.22%	16.35%	0.03%	3.28%	1.18%	0.57%	1.12%	0.00%	0.53%	4.16%	1.35%	0.94%	2.06%	0.00%	0.23%	5.69%	0.29%	0.00%	100%
CROSS BAY LINK R	RD_004		80	75.32	Y	0800-0900	2832	65.36%	19.99%	0.03%	2.77%	1.00%	0.43%	0.84%	0.00%	0.24%	1.86%	0.93%	0.64%	1.41%	0.00%	0.17%	4.11%	0.22%	0.00%	100%
CROSS BAY LINK R	RD_004		80	79.24	Y	0900-1000	2285	62.05%	20.11%	0.05%	5.08%	1.82%	0.93%	1.82%	0.00%	0.19%	1.47%	0.69%	0.48%	1.05%	0.01%	0.23%	3.55%	0.48%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1000-1100	2124	57.17%	26.05%	0.06%	5.87%	2.11%	1.13%	2.22%	0.00%	0.18%	1.37%	0.26%	0.18%	0.40%	0.01%	0.25%	2.17%	0.58%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1100-1200	2035	58.74%	24.62%	0.05%	5.08%	1.83%	1.13%	2.22%	0.00%	0.13%	1.05%	0.41%	0.28%	0.62%	0.00%	0.22%	3.02%	0.58%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1200-1300	835	56.81%	19.70%	0.08%	7.73%	2.78%	1.66%	3.26%	0.00%	0.36%	2.78%	0.73%	0.51%	1.11%	0.00%	0.10%	1.53%	0.85%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1300-1400	836	50.56%	20.89%	0.10%	9.40%	3.38%	1.71%	3.35%	0.00%	0.36%	2.80%	1.31%	0.91%	1.99%	0.01%	0.11%	2.27%	0.88%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1400-1500	860	57.60%	17.85%	0.08%	7.86%	2.82%	1.74%	3.42%	0.00%	0.30%	2.34%	0.58%	0.40%	0.89%	0.00%	0.10%	3.12%	0.89%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1500-1600	858	56.84%	20.44%	0.08%	8.14%	2.92%	1.85%	3.63%	0.00%	0.23%	1.83%	0.24%	0.17%	0.37%	0.00%	0.10%	2.20%	0.95%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1600-1700	931	56.65%	19.58%	0.09%	8.54%	3.07%	1.30%	2.56%	0.00%	0.18%	1.41%	0.74%	0.51%	1.13%	0.00%	0.11%	3.46%	0.67%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1700-1800	1105	65.74%	14.15%	0.06%	5.43%	1.95%	0.65%	1.28%	0.00%	0.15%	1.19%	0.76%	0.53%	1.16%	0.00%	0.09%	6.53%	0.33%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1800-1900	1128	71.15%	15.73%	0.04%	3.87%	1.39%	0.47%	0.93%	0.00%	0.02%	0.19%	0.51%	0.36%	0.78%	0.00%	0.09%	4.22%	0.24%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1900-2000	990	67.96%	21.49%	0.04%	3.48%	1.25%	0.15%	0.30%	0.00%	0.03%	0.24%	0.51%	0.36%	0.78%	0.00%	0.11%	3.21%	0.08%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	2000-2100	807	66.05%	24.12%	0.03%	3.11%	1.12%	0.28%	0.56%	0.00%	0.01%	0.08%	0.45%	0.31%	0.69%	0.00%	0.11%	2.92%	0.15%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	2100-2200	766	59.36%	32.02%	0.03%	3.02%	1.08%	0.20%	0.39%	0.00%	0.01%	0.09%	0.35%	0.24%	0.53%	0.00%	0.12%	2.44%	0.10%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	2200-2300	750	55.43%	37.16%	0.03%	2.75%	0.99%	0.15%	0.30%	0.00%	0.01%	0.09%	0.03%	0.02%	0.05%	0.00%	0.12%	2.80%	0.08%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	2300-0000	578	55.78%	34.98%	0.03%	3.03%	1.09%	0.24%	0.46%	0.00%	0.06%	0.49%	0.16%	0.11%	0.24%	0.00%	0.12%	3.09%	0.12%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.42	Y	0000-0100	5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.48%	98.52%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.61	Y	0100-0200	3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.49%	98.51%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.70	Y	0200-0300	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.46%	98.54%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.77	Y	0300-0400	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.52%	98.48%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.79	Y	0400-0500	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.50%	98.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.70	Y	0500-0600	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.50%	98.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.18	Y	0600-0700	7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.38%	98.62%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.54	Y	0700-0800	12	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.35%	98.65%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.75	Y	0800-0900	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.40%	97.60%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.66	Y	0900-1000	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.20%	97.80%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.63	Y	1000-1100	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.40%	95.60%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.87	Y	1100-1200	9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.28%	98.72%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.81	Y	1200-1300	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.25%	95.75%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.69	Y	1300-1400	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.79%	95.21%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.77	Y	1400-1500	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.51%	97.49%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.75	Y	1500-1600	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.17%	97.83%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.59	Y	1600-1700	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.61%	97.39%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.63	Y	1700-1800	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.56%	98.44%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.54	Y	1800-1900	12	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%	99.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.49	Y	1900-2000	12	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.98%	96.02%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.74	Y	2000-2100	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.88%	98.12%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.67	Y	2100-2200	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.34%	98.66%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.80	Y	2200-2300	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.41%	98.59%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.07	Y	2300-0000	7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.44%	98.56%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	29.42	Y	0000-0100	5	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.48%	98.52%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	30.07	Y	0100-0200	3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.49%	98.51%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	29.70	Y	0200-0300	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.46%	98.54%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	31.07	Y	0300-0400	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.52%	98.48%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	29.79	Y	0400-0500	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.50%	98.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	32.07	Y	0500-0600	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.50%	98.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	29.18	Y	0600-0700	7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.38%	98.62%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	33.07	Y	0700-0800	13	4.29%	1.13%	0.01%	0.64%	0.23%	0.11%	0.22%	0.00%	0.04%	0.29%	0.09%	0.06%	0.14%	1.25%	91.06%	0.39%	0.06%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.86	Y	0800-0900	11	5.43%	1.66%	0.01%	0.65%	0.23%	0.10%	0.20%	0.00%	0.02%	0.15%	0.08%	0.05%	0.12%	2.18%	88.73%	0.34%	0.05%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	34.07	Y	0900-1000	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.20%	97.80%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.63	Y	1000-1100	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.40%	95.60%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	35.07	Y	1100-1200	9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.28%	98.72%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.81	Y	1200-1300	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.25%	95.75%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	36.07	Y	1300-1400	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.79%	95.21%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.77	Y	1400-1500	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.51%	97.49%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	37.07	Y	1500-1600	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.17%	97.83%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.59	Y	1600-1700	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.61%	97.39%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	38.07	Y	1700-1800	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.56%	98.44%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.54	Y	1800-1900	12	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%	99.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	39.07	Y	1900-2000	12	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.98%	96.02%	0.00%	0.00%	0.00%	100%

Appendix 3.3 Calculation of Vehicular Emissions
Traffic Data and Road Segments (Year 2041)
Default Scenario

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
INDUSTRIAL ROAD C	RD_007		50	28.74	Y	2000-2100	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.88%	98.12%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	40.07	Y	2100-2200	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.34%	98.66%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.80	Y	2200-2300	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.41%	98.59%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	41.07	Y	2300-0000	7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.44%	98.56%	0.00%	0.00%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.82	Y	0000-0100	3	14.19%	8.29%	0.07%	6.48%	2.33%	0.62%	1.22%	65.14%	0.03%	0.23%	0.07%	0.05%	0.11%	0.00%	0.00%	0.86%	0.32%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.87	Y	0100-0200	2	13.33%	7.19%	0.07%	6.59%	2.37%	0.74%	1.45%	66.35%	0.04%	0.31%	0.10%	0.07%	0.15%	0.00%	0.00%	0.87%	0.38%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.89	Y	0200-0300	2	12.61%	6.22%	0.07%	6.71%	2.41%	0.84%	1.66%	67.33%	0.05%	0.38%	0.12%	0.09%	0.19%	0.00%	0.00%	0.87%	0.43%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.91	Y	0300-0400	1	11.87%	5.34%	0.07%	6.78%	2.44%	0.93%	1.82%	68.43%	0.06%	0.44%	0.14%	0.10%	0.22%	0.00%	0.00%	0.88%	0.48%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.91	Y	0400-0500	1	11.27%	4.55%	0.07%	6.88%	2.47%	1.01%	1.99%	69.26%	0.06%	0.50%	0.16%	0.11%	0.25%	0.00%	0.00%	0.89%	0.52%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.87	Y	0500-0600	2	10.72%	3.83%	0.07%	6.96%	2.50%	1.08%	2.13%	70.05%	0.07%	0.55%	0.18%	0.13%	0.28%	0.00%	0.00%	0.89%	0.56%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.60	Y	0600-0700	5	10.31%	3.19%	0.07%	7.07%	2.54%	1.17%	2.30%	70.51%	0.08%	0.61%	0.20%	0.14%	0.30%	0.00%	0.00%	0.90%	0.60%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.24	Y	0700-0800	10	9.87%	2.59%	0.07%	7.14%	2.56%	1.24%	2.43%	71.12%	0.08%	0.66%	0.21%	0.15%	0.33%	0.00%	0.00%	0.90%	0.64%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.43	Y	0800-0900	8	14.82%	4.53%	0.09%	8.64%	3.10%	1.33%	2.61%	62.12%	0.05%	0.42%	0.21%	0.15%	0.32%	0.00%	0.00%	0.93%	0.68%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.34	Y	0900-1000	9	10.12%	3.28%	0.12%	11.39%	4.09%	2.08%	4.09%	62.56%	0.03%	0.24%	0.11%	0.08%	0.17%	0.00%	0.00%	0.58%	1.07%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.48	Y	1000-1100	7	11.19%	5.10%	0.16%	15.79%	5.67%	3.04%	5.97%	50.62%	0.03%	0.27%	0.05%	0.04%	0.08%	0.00%	0.00%	0.42%	1.56%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.35	Y	1100-1200	9	8.78%	3.68%	0.11%	10.44%	3.75%	2.32%	4.56%	64.34%	0.02%	0.16%	0.06%	0.04%	0.09%	0.00%	0.00%	0.45%	1.19%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.70	Y	1200-1300	19	27.66%	9.59%	0.07%	6.59%	2.37%	1.42%	2.78%	45.38%	0.17%	1.36%	0.36%	0.25%	0.54%	0.00%	0.00%	0.75%	0.73%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.30	Y	1300-1400	24	19.46%	8.04%	0.07%	6.33%	2.27%	1.15%	2.26%	56.12%	0.14%	1.08%	0.50%	0.35%	0.77%	0.00%	0.00%	0.87%	0.59%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.70	Y	1400-1500	19	28.71%	8.90%	0.07%	6.86%	2.46%	1.52%	2.98%	43.92%	0.15%	1.17%	0.29%	0.20%	0.44%	0.00%	0.00%	1.55%	0.78%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.74	Y	1500-1600	19	29.04%	10.44%	0.08%	7.28%	2.61%	1.65%	3.25%	42.22%	0.12%	0.94%	0.12%	0.09%	0.19%	0.00%	0.00%	1.12%	0.85%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.64	Y	1600-1700	21	28.88%	9.98%	0.08%	7.62%	2.74%	1.16%	2.28%	42.87%	0.09%	0.72%	0.38%	0.26%	0.57%	0.00%	0.00%	1.76%	0.60%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.28	Y	1700-1800	26	31.06%	6.68%	0.05%	4.49%	1.61%	0.54%	1.06%	49.36%	0.07%	0.56%	0.36%	0.25%	0.55%	0.00%	0.00%	3.09%	0.28%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.25	Y	1800-1900	27	33.33%	7.37%	0.03%	3.18%	1.14%	0.39%	0.76%	50.76%	0.01%	0.09%	0.24%	0.17%	0.37%	0.00%	0.00%	1.98%	0.20%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.47	Y	1900-2000	24	31.90%	10.09%	0.03%	2.86%	1.03%	0.13%	0.25%	51.24%	0.01%	0.11%	0.24%	0.17%	0.37%	0.00%	0.00%	1.51%	0.06%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.92	Y	2000-2100	17	34.98%	12.78%	0.03%	2.88%	1.04%	0.26%	0.52%	45.01%	0.01%	0.04%	0.24%	0.17%	0.37%	0.00%	0.00%	1.55%	0.14%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.87	Y	2100-2200	18	28.87%	15.58%	0.03%	2.57%	0.92%	0.17%	0.33%	49.66%	0.01%	0.04%	0.17%	0.12%	0.26%	0.00%	0.00%	1.19%	0.09%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.07	Y	2200-2300	15	30.97%	20.77%	0.03%	2.69%	0.97%	0.15%	0.29%	42.38%	0.01%	0.05%	0.02%	0.01%	0.03%	0.00%	0.00%	1.57%	0.08%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.23	Y	2300-0000	12	29.72%	18.63%	0.03%	2.83%	1.02%	0.22%	0.43%	44.80%	0.03%	0.26%	0.08%	0.06%	0.13%	0.00%	0.00%	1.65%	0.11%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.94	Y	0000-0100	1	1.78%	1.04%	0.09%	8.25%	2.96%	0.79%	1.56%	82.96%	0.00%	0.03%	0.01%	0.01%	0.01%	0.00%	0.00%	0.11%	0.41%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.95	Y	0100-0200	1	1.64%	0.88%	0.09%	8.23%	2.95%	0.92%	1.81%	82.83%	0.00%	0.04%	0.01%	0.01%	0.02%	0.00%	0.00%	0.11%	0.47%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.96	Y	0200-0300	1	1.52%	0.75%	0.09%	8.24%	2.96%	1.04%	2.04%	82.63%	0.01%	0.05%	0.01%	0.01%	0.02%	0.00%	0.00%	0.11%	0.53%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.97	Y	0300-0400	0	1.41%	0.63%	0.09%	8.19%	2.94%	1.12%	2.20%	82.63%	0.01%	0.05%	0.02%	0.01%	0.03%	0.00%	0.00%	0.10%	0.57%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.97	Y	0400-0500	0	1.32%	0.53%	0.09%	8.19%	2.94%	1.20%	2.36%	82.51%	0.01%	0.06%	0.02%	0.01%	0.03%	0.00%	0.00%	0.10%	0.62%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.95	Y	0500-0600	1	1.24%	0.44%	0.09%	8.19%	2.94%	1.27%	2.50%	82.43%	0.01%	0.06%	0.02%	0.01%	0.03%	0.00%	0.00%	0.10%	0.65%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.86	Y	0600-0700	2	1.18%	0.37%	0.09%	8.24%	2.96%	1.37%	2.68%	82.17%	0.01%	0.07%	0.02%	0.02%	0.03%	0.00%	0.00%	0.10%	0.70%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.73	Y	0700-0800	4	1.12%	0.29%	0.09%	8.24%	2.96%	1.43%	2.81%	82.07%	0.01%	0.07%	0.02%	0.02%	0.04%	0.00%	0.00%	0.10%	0.73%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.80	Y	0800-0900	3	1.81%	0.55%	0.11%	10.71%	3.85%	1.65%	3.24%	76.99%	0.01%	0.05%	0.03%	0.02%	0.04%	0.00%	0.00%	0.11%	0.85%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.76	Y	0900-1000	3	1.15%	0.37%	0.14%	13.12%	4.71%	2.39%	4.71%	72.05%	0.00%	0.03%	0.01%	0.01%	0.02%	0.00%	0.00%	0.07%	1.23%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.82	Y	1000-1100	2	1.30%	0.59%	0.20%	18.69%	6.71%	3.59%	7.06%	59.91%	0.00%	0.03%	0.01%	0.00%	0.01%	0.00%	0.00%	0.05%	1.85%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.76	Y	1100-1200	3	0.98%	0.41%	0.12%	11.86%	4.26%	2.64%	5.18%	73.09%	0.00%	0.02%	0.01%	0.00%	0.01%	0.00%	0.00%	0.05%	1.35%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.24	Y	1200-1300	10	2.95%	1.02%	0.05%	4.50%	1.61%	0.97%	1.90%	86.15%	0.02%	0.14%	0.04%	0.03%	0.06%	0.00%	0.00%	0.08%	0.50%	0.00%	100%
CHUN YAT STREET R	RD_009		50	28.85	Y	1300-1400	15	1.75%	0.72%	0.04%	3.65%	1.31%	0.66%	1.30%	89.90%	0.01%	0.10%	0.05%	0.03%	0.07%	0.00%	0.00%	0.08%	0.34%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.25	Y	1400-1500	10	3.13%	0.97%	0.05%	4.78%	1.72%	1.06%	2.08%	85.26%	0.02%	0.13%	0.03%	0.02%	0.05%	0.00%	0.00%	0.17%	0.54%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.29	Y	1500-1600	9	3.24%	1.17%	0.05%	5.21%	1.87%	1.18%	2.33%	84.05%	0.01%	0.10%	0.01%	0.01%	0.02%	0.00%	0.00%	0.13%	0.61%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.22	Y	1600-1700	10	3.21%	1.11%	0.06%	5.43%	1.95%	0.83%	1.63%	84.95%	0.01%	0.08%	0.04%	0.03%	0.06%	0.00%	0.00%	0.20%	0.42%	0.00%	100%
CHUN YAT STREET R	RD_009		50	28.93	Y	1700-1800	14	3.19%	0.69%	0.03%	2.95%	1.06%	0.35%	0.70%	90.35%	0.01%	0.06%	0.04%	0.03%	0.06%	0.00%	0.00%	0.32%	0.18%	0.00%	100%
CHUN YAT STREET R	RD_009		50	28.89	Y	1800-1900	15	3.38%	0.75%	0.02%	2.07%	0.74%	0.25%	0.49%	91.87%	0.00%	0.01%	0.02%	0.02%	0.04%	0.00%	0.00%	0.20%	0.13%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.03	Y	1900-2000	13	3.24%	1.02%	0.02%	1.86%	0.67%	0.08%	0.16%	92.66%	0.00%	0.01%	0.02%	0.02%	0.04%	0.00%	0.00%	0.15%	0.04%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.37	Y	2000-2100	9	3.96%	1.45%	0.02%	2.09%	0.75%	0.19%	0.38%	90.80%	0.00%	0.00%	0.03%	0.02%	0.04%	0.00%	0.00%	0.18%	0.10%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.30	Y	2100-2200	10	3.01%	1.63%	0.02%	1.72%	0.62%	0.11%	0.22%	92.43%	0.00%	0.00%	0.02%	0.01%	0.03%	0.00%	0.00%	0.12%	0.06%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.48	Y	2200-2300	7	3.71%	2.48%	0.02%	2.06%	0.74%	0.11%	0.22%	90.39%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.19%	0.06%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.56	Y	2300-0000	6	3.38%	2.12%	0.02%	2.06%	0.74%	0.16%	0.32%	90.87%	0.00%	0.03%	0.01%	0.01%	0.01%	0.00%	0.00%	0.19%	0.08%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.63	Y	0000-0100	230	56.85%	33.20%	0.03%	2.67%	0.96%	0.26%	0.50%	0.00%	0.12%	0.90%	0.29%	0.20%	0.45%	0.00%	0.00%	3.43%	0.13%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	24.37	Y	0100-0200	156	57.34%	30.93%	0.03%	2.91%	1.05%	0.33%	0.64%	0.00%	0.17%	1.32%	0.43%	0.30%	0.66%	0.00%	0.00%	3.73%	0.17%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	24.74	Y	0200-0300	119	57.89%	28.57%	0.03%	3.17%	1.14%	0.40%	0.78%	0.00%	0.22%	1.76%	0.57%	0.40%	0.87%	0.00%	0.00%	4.01%	0.20%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	25.25	Y	0300-0400	89	58.36%	26.24%	0.04%	3.43%	1.23%	0.47%	0.92%	0.00%	0.28%	2.18%	0.71%	0.49%	1.08%	0.00%	0.00%	4.34%	0.24%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	25.48	Y	0400-0500	84	58.92%	23.78%	0.04%	3.69%	1.33%	0.54%	1.07%	0.00%	0.34%	2.62%	0.86%	0.59%	1.30%	0.00%	0.00%	4.64%	0.28%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	24.71	Y	0500-0600	118	59.49%	21.28%	0.04%	3.97%	1.42%	0.62%	1.21%	0.00%	0.39%	3.07%	1.00%	0.70%	1.53%	0.00%	0.00%	4.96%	0.32%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	22.35	Y	0600-0700	332	60.14%	18.61%	0.04%	4.24%	1.52%	0.70%	1.38%	0.00%	0.46%	3.58%	1.16%	0.81%	1.77%	0.00%	0.00%	5.23%	0.36%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	19.34	Y	0700-0800	599	60.75%	15.96%	0.05%	4.52%	1.62%	0.78%	1.54%	0.00%	0.52%	4.07%	1.32%	0.91%	2.01%	0.00%	0.00%	5.55%	0.40%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	18.90	Y	0800-0900	659	64.08%	19.60%	0.04%	3.84%	1.38%	0.59%	1.16%	0.00%	0.23%	1.82%	0.91%	0.63%	1.39%	0.00%	0.00%	4.03%	0.30%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	19.96	Y	0900-1000	542	59.69%	19.34%	0.07%	6.90%	2.48%	1.26%	2.48%	0.00%	0.18%	1.41%	0.66%	0.46%	1.01%	0.00%	0.00%	3.42%	0.65%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	20.32	Y	1000-1100	507	54.62%	24.88%	0.08%	7.92%	2.84%	1.52%	2.99%	0.00%	0.17%	1.31%	0.25%	0.17%	0.38%	0.00%	0.00%	2.07%	0.78%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	20.60	Y	1100-1200	484	56.34%	23.61%	0.07%	6.88%	2.47%	1.53%	3.01%	0.00%	0.13%	1.01%	0.39%	0.27%	0.60%	0.00%	0.00%	2.90%	0.79%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.32	Y	1200-1300	235	57.83%	20.06%	0.07%	7.07%	2.54%	1.52%	2.99%	0.00%	0.36%	2.83%	0.74%	0.52%	1.13%	0.00%	0.00%	1.56%	0.78%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.26	Y	1300-1400	234	51.60%	21.32%	0.09%	8.62%	3.10%	1.56%	3.08%	0.00%	0.37%	2.86%	1.33%	0.92%	2.03%	0.00%	0.00%	2.32%	0.80%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.26	Y	1400-1500	242	58.66%	18.18%	0.08%	7.19%	2.58%	1.59%	3.13%	0.00%	0.31%	2.39%	0.59%	0.41%	0.90%	0.00%	0.00%	3.18%	0.82%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.28	Y	1500-1600	241	57.93%	20.83%	0.08%	7.45%	2.68%	1.69%	3.33%	0.00%	0.24%	1.87%	0.25%	0.17%	0.37%	0.00%	0.00%	2.24%	0.87%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.06	Y	1600-1700	262	57.67%	19.93%	0.08%	7.81%	2.81%	1.19%	2.34%	0.00%	0.18%	1.43%	0.75%	0.52%	1.15%	0.00%	0.00%	3.52%	0.61%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	22.65	Y	1700-1800	313	66.46%	14.30%	0.05%	4.93%	1.77%	0.59%	1.16%	0.00%	0.15%	1.20%	0.77%	0.53%	1.17%	0.00%	0.00%	6.60%	0.30%	0.00%	100%

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
RESIDENTIAL ROAD L	RD_010		50	22.65	Y	1800-1900	320	71.72%	15.86%	0.04%	3.51%	1.26%	0.43%	0.84%	0.00%	0.02%	0.20%	0.52%	0.36%	0.79%	0.00%	0.00%	4.25%	0.22%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.08	Y	1900-2000	281	68.40%	21.63%	0.03%	3.15%	1.13%	0.14%	0.27%	0.00%	0.03%	0.24%	0.52%	0.36%	0.79%	0.00%	0.00%	3.24%	0.07%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.62	Y	2000-2100	229	66.48%	24.28%	0.03%	2.81%	1.01%	0.26%	0.51%	0.00%	0.01%	0.08%	0.46%	0.32%	0.69%	0.00%	0.00%	2.94%	0.13%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.75	Y	2100-2200	218	59.73%	32.22%	0.03%	2.73%	0.98%	0.18%	0.35%	0.00%	0.01%	0.09%	0.35%	0.24%	0.54%	0.00%	0.00%	2.45%	0.09%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.83	Y	2200-2300	213	55.74%	37.37%	0.03%	2.48%	0.89%	0.14%	0.27%	0.00%	0.01%	0.09%	0.03%	0.02%	0.05%	0.00%	0.00%	2.82%	0.07%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	24.31	Y	2300-0000	164	56.13%	35.20%	0.03%	2.74%	0.98%	0.21%	0.42%	0.00%	0.06%	0.49%	0.16%	0.11%	0.24%	0.00%	0.00%	3.11%	0.11%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	25.56	Y	0000-0100	79	51.09%	29.84%	0.07%	6.29%	2.26%	0.60%	1.19%	0.00%	0.10%	0.81%	0.26%	0.18%	0.40%	0.05%	3.44%	3.09%	0.31%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	26.91	Y	0100-0200	54	51.09%	27.56%	0.07%	6.81%	2.45%	0.76%	1.50%	0.00%	0.15%	1.18%	0.38%	0.27%	0.58%	0.05%	3.43%	3.32%	0.39%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	27.59	Y	0200-0300	42	51.15%	25.24%	0.08%	7.34%	2.64%	0.92%	1.82%	0.00%	0.20%	1.55%	0.50%	0.35%	0.77%	0.05%	3.37%	3.54%	0.47%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	28.16	Y	0300-0400	32	51.10%	22.97%	0.08%	7.88%	2.83%	1.08%	2.11%	0.00%	0.24%	1.91%	0.62%	0.43%	0.95%	0.05%	3.40%	3.80%	0.55%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	28.23	Y	0400-0500	30	51.14%	20.64%	0.09%	8.41%	3.02%	1.24%	2.43%	0.00%	0.29%	2.27%	0.74%	0.52%	1.13%	0.05%	3.36%	4.03%	0.63%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	27.45	Y	0500-0600	43	51.17%	18.31%	0.09%	8.96%	3.22%	1.39%	2.74%	0.00%	0.34%	2.64%	0.86%	0.60%	1.32%	0.05%	3.33%	4.26%	0.72%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.54	Y	0600-0700	120	51.31%	15.88%	0.10%	9.48%	3.41%	1.57%	3.09%	0.00%	0.39%	3.05%	0.99%	0.69%	1.51%	0.05%	3.21%	4.46%	0.81%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	23.31	Y	0700-0800	219	51.36%	13.50%	0.10%	10.03%	3.60%	1.74%	3.42%	0.00%	0.44%	3.44%	1.11%	0.77%	1.70%	0.04%	3.16%	4.69%	0.89%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	23.25	Y	0800-0900	234	55.81%	17.07%	0.09%	8.78%	3.15%	1.35%	2.65%	0.00%	0.20%	1.59%	0.79%	0.55%	1.21%	0.06%	2.50%	3.51%	0.69%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	23.34	Y	0900-1000	212	47.25%	15.31%	0.15%	14.34%	5.15%	2.62%	5.15%	0.00%	0.14%	1.12%	0.52%	0.36%	0.80%	0.07%	2.98%	2.70%	1.34%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	23.38	Y	1000-1100	205	41.88%	19.08%	0.17%	15.94%	5.72%	3.06%	6.02%	0.00%	0.13%	1.00%	0.19%	0.13%	0.29%	0.14%	3.06%	1.59%	1.57%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	23.58	Y	1100-1200	191	44.16%	18.51%	0.15%	14.16%	5.08%	3.15%	6.19%	0.00%	0.10%	0.79%	0.31%	0.21%	0.47%	0.04%	2.81%	2.27%	1.62%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.30	Y	1200-1300	136	49.82%	17.28%	0.11%	10.83%	3.89%	2.33%	4.57%	0.00%	0.31%	2.44%	0.64%	0.44%	0.98%	0.16%	3.65%	1.34%	1.19%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.22	Y	1300-1400	139	43.62%	18.02%	0.14%	12.95%	4.65%	2.35%	4.62%	0.00%	0.31%	2.42%	1.13%	0.78%	1.72%	0.20%	3.93%	1.96%	1.21%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.25	Y	1400-1500	141	50.40%	15.62%	0.11%	10.98%	3.94%	2.43%	4.77%	0.00%	0.26%	2.05%	0.51%	0.35%	0.78%	0.10%	3.71%	2.73%	1.25%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.25	Y	1500-1600	141	49.50%	17.80%	0.12%	11.32%	4.06%	2.57%	5.06%	0.00%	0.20%	1.59%	0.21%	0.15%	0.32%	0.08%	3.78%	1.92%	1.32%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.13	Y	1600-1700	152	49.61%	17.15%	0.12%	11.95%	4.29%	1.82%	3.58%	0.00%	0.16%	1.23%	0.65%	0.45%	0.99%	0.11%	3.94%	3.03%	0.93%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.00	Y	1700-1800	173	60.04%	12.92%	0.08%	7.91%	2.84%	0.95%	1.87%	0.00%	0.14%	1.09%	0.70%	0.48%	1.06%	0.05%	3.41%	5.97%	0.49%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.04	Y	1800-1900	174	65.89%	14.57%	0.06%	5.73%	2.06%	0.70%	1.37%	0.00%	0.02%	0.18%	0.47%	0.33%	0.72%	0.02%	3.62%	3.91%	0.36%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.29	Y	1900-2000	153	63.10%	19.95%	0.00	5.16%	1.85%	0.23%	0.45%	0.00%	0.03%	0.23%	0.48%	0.33%	0.72%	0.17%	4.14%	2.98%	0.12%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.61	Y	2000-2100	124	61.28%	22.38%	0.05%	4.61%	1.65%	0.42%	0.83%	0.00%	0.01%	0.08%	0.42%	0.29%	0.64%	0.08%	4.33%	2.71%	0.22%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.67	Y	2100-2200	118	54.93%	29.63%	0.05%	4.46%	1.60%	0.29%	0.58%	0.00%	0.01%	0.08%	0.32%	0.22%	0.49%	0.07%	4.85%	2.26%	0.15%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.73	Y	2200-2300	115	51.64%	34.62%	0.04%	4.09%	1.47%	0.23%	0.45%	0.00%	0.01%	0.08%	0.03%	0.02%	0.04%	0.06%	4.49%	2.61%	0.12%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	25.04	Y	2300-0000	89	51.76%	32.45%	0.05%	4.49%	1.61%	0.35%	0.69%	0.00%	0.06%	0.45%	0.15%	0.10%	0.23%	0.07%	4.50%	2.87%	0.18%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	24.12	Y	0000-0100	309	55.38%	32.34%	0.04%	3.60%	1.29%	0.35%	0.68%	0.00%	0.11%	0.88%	0.28%	0.19%	0.44%	0.01%	0.88%	3.34%	0.18%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	25.02	Y	0100-0200	210	55.73%	30.06%	0.04%	3.91%	1.41%	0.44%	0.86%	0.00%	0.16%	1.28%	0.42%	0.29%	0.64%	0.01%	0.88%	3.62%	0.23%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	25.48	Y	0200-0300	161	56.13%	27.70%	0.04%	4.26%	1.53%	0.54%	1.05%	0.00%	0.21%	1.71%	0.55%	0.39%	0.84%	0.01%	0.88%	3.89%	0.27%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	26.02	Y	0300-0400	121	56.44%	25.38%	0.05%	4.61%	1.65%	0.63%	1.23%	0.00%	0.27%	2.11%	0.69%	0.47%	1.05%	0.01%	0.90%	4.20%	0.32%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	26.20	Y	0400-0500	114	56.87%	22.95%	0.05%	4.93%	1.77%	0.72%	1.43%	0.00%	0.33%	2.53%	0.83%	0.57%	1.26%	0.01%	0.88%	4.48%	0.37%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	25.45	Y	0500-0600	161	57.27%	20.49%	0.05%	5.30%	1.90%	0.83%	1.62%	0.00%	0.38%	2.96%	0.96%	0.67%	1.47%	0.01%	0.89%	4.77%	0.43%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	22.93	Y	0600-0700	452	57.80%	17.89%	0.06%	5.63%	2.02%	0.93%	1.83%	0.00%	0.44%	3.44%	1.11%	0.78%	1.70%	0.01%	0.85%	5.03%	0.48%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	20.40	Y	0700-0800	818	58.24%	15.30%	0.06%	6.00%	2.15%	1.04%	2.04%	0.00%	0.50%	3.90%	1.26%	0.87%	1.93%	0.01%	0.85%	5.32%	0.53%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	20.04	Y	0800-0900	893	61.91%	18.94%	0.05%	5.13%	1.84%	0.79%	1.55%	0.00%	0.22%	1.76%	0.88%	0.61%	1.34%	0.02%	0.66%	3.89%	0.40%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	20.91	Y	0900-1000	754	56.19%	18.21%	0.09%	8.99%	3.23%	1.64%	3.23%	0.00%	0.17%	1.33%	0.62%	0.43%	0.95%	0.02%	0.84%	3.22%	0.84%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	21.20	Y	1000-1100	712	50.95%	23.21%	0.11%	10.23%	3.67%	1.96%	3.86%	0.00%	0.16%	1.22%	0.23%	0.16%	0.35%	0.04%	0.88%	1.93%	1.01%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	21.45	Y	1100-1200	675	52.89%	22.17%	0.09%	8.94%	3.21%	1.99%	3.91%	0.00%	0.12%	0.95%	0.37%	0.25%	0.56%	0.01%	0.80%	2.72%	1.02%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.68	Y	1200-1300	371	54.89%	19.04%	0.08%	8.45%	3.03%	1.82%	3.57%	0.00%	0.34%	2.69%	0.70%	0.49%	1.08%	0.06%	1.34%	1.48%	0.93%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.62	Y	1300-1400	373	48.63%	20.09%	0.11%	10.23%	3.68%	1.85%	3.65%	0.00%	0.35%	2.70%	1.26%	0.87%	1.91%	0.07%	1.46%	2.19%	0.95%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.62	Y	1400-1500	383	55.62%	17.24%	0.09%	8.59%	3.08%	1.90%	3.73%	0.00%	0.29%	2.26%	0.56%	0.39%	0.86%	0.04%	1.37%	3.01%	0.98%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.64	Y	1500-1600	382	54.82%	19.71%	0.09%	8.88%	3.19%	2.01%	3.97%	0.00%	0.23%	1.77%	0.24%	0.16%	0.35%	0.03%	1.40%	2.12%	1.04%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.45	Y	1600-1700	414	54.71%	18.91%	0.09%	9.33%	3.35%	1.42%	2.80%	0.00%	0.17%	1.36%	0.71%	0.49%	1.09%	0.04%	1.45%	3.34%	0.73%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.13	Y	1700-1800	486	64.17%	13.81%	0.06%	5.99%	2.15%	0.72%	1.41%	0.00%	0.15%	1.16%	0.75%	0.51%	1.13%	0.02%	1.21%	6.38%	0.37%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.14	Y	1800-1900	494	69.67%	15.41%	0.05%	4.29%	1.54%	0.53%	1.03%	0.00%	0.02%	0.19%	0.50%	0.35%	0.77%	0.01%	1.28%	4.13%	0.27%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.51	Y	1900-2000	434	66.53%	21.04%	0.04%	3.86%	1.38%	0.17%	0.33%	0.00%	0.03%	0.24%	0.51%	0.35%	0.77%	0.06%	1.46%	3.15%	0.09%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.97	Y	2000-2100	353	64.65%	23.61%	0.04%	3.44%	1.23%	0.32%	0.62%	0.00%	0.01%	0.08%	0.45%	0.31%	0.67%	0.03%	1.52%	2.86%	0.16%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	24.08	Y	2100-2200	336	58.04%	31.31%	0.04%	3.34%	1.20%	0.22%	0.43%	0.00%	0.01%	0.09%	0.34%	0.23%	0.52%	0.02%	1.70%	2.38%	0.11%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	24.15	Y	2200-2300	328	54.30%	36.41%	0.03%	3.04%	1.09%	0.17%	0.33%	0.00%	0.01%	0.09%	0.03%	0.02%	0.05%	0.02%	1.57%	2.75%	0.09%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	24.57	Y	2300-0000	253	54.59%	34.23%	0.04%	3.36%	1.20%	0.26%	0.51%	0.00%	0.06%	0.48%	0.16%	0.11%	0.24%	0.02%	1.58%	3.03%	0.13%	0.00%	100%

Appendix 3.3 Calculation of Vehicular Emissions
Traffic Data and Road Segments (Year 2041)

Road ID	Segment ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Road height (mAG)	Physical Road width (m)	Road elevation (m)	Barrier 1 width (m)	Barrier 1 height (m)	Barrier 1 DCL (m)	Barrier 2 width (m)	Barrier 2 height (m)	Barrier 2 DCL (m)	Portal ID
RD_001	RD_001_001	846256.09	816775.06	846251.03	816786.06		8.95								
RD_001	RD_001_002	846251.03	816786.06	846237.20	816820.49		8.19								
RD_001	RD_001_003	846208.48	817387.39	846176.50	817480.43		11.10								
RD_001	RD_001_004	846176.50	817480.43	846159.88	817513.75		7.47								
RD_001	RD_001_005	846159.88	817513.75	846135.30	817560.20		8.96								
RD_001	RD_001_006	846220.28	817010.50	846221.54	817135.41		20.34								
RD_001	RD_001_007	846221.54	817135.41	846220.52	817287.67		8.03								
RD_001	RD_001_008	846220.52	817287.67	846216.88	817341.15		9.69								
RD_001	RD_001_009	846216.88	817341.15	846208.50	817387.10		13.13								
RD_001	RD_001_010	846237.20	816820.49	846225.31	816877.40		8.36								
RD_001	RD_001_011	846225.31	816877.40	846220.28	817010.50		20.07								
RD_001	RD_001_012	846426.03	816285.66	846425.71	816300.05		5.78								
RD_001	RD_001_013	846425.71	816300.05	846422.27	816365.72		6.14								
RD_001	RD_001_014	846422.27	816365.72	846410.47	816437.91		6.80								
RD_001	RD_001_015	846410.47	816437.91	846399.00	816484.63		7.03								
RD_001	RD_001_016	846399.00	816484.63	846391.05	816512.53		6.97								
RD_001	RD_001_017	846391.05	816512.53	846372.88	816564.34		6.85								
RD_001	RD_001_018	846372.88	816564.34	846360.49	816593.90		7.10								
RD_001	RD_001_019	846360.49	816593.90	846325.82	816662.86		7.48								
RD_001	RD_001_020	846325.82	816662.86	846269.29	816753.74		7.80								
RD_001	RD_001_021	846269.29	816753.74	846256.24	816774.91		9.58								
RD_002	RD_002_001	846146.00	817566.10	846170.80	817518.63		7.90								
RD_002	RD_002_002	846229.14	817340.94	846231.42	817322.34		7.21								
RD_002	RD_002_003	846231.42	817322.34	846234.36	817233.09		8.15								
RD_002	RD_002_004	846234.36	817233.09	846236.12	817053.37		11.30								
RD_002	RD_002_005	846236.12	817053.37	846236.98	817010.85		11.18								
RD_002	RD_002_006	846270.25	816780.30	846283.10	816761.50		19.09								
RD_002	RD_002_007	846283.10	816761.50	846346.03	816646.16		8.15								
RD_002	RD_002_008	846346.03	816646.16	846368.12	816599.77		7.00								
RD_002	RD_002_009	846368.12	816599.77	846392.68	816538.00		7.49								
RD_002	RD_002_010	846392.68	816538.00	846413.96	816464.60		7.51								
RD_002	RD_002_011	846413.96	816464.60	846425.33	816411.12		6.94								
RD_002	RD_002_012	846425.33	816411.12	846439.11	816304.27		7.62								
RD_002	RD_002_013	846439.11	816304.27	846439.63	816284.34		8.69								
RD_002	RD_002_014	846236.60	816954.48	846236.52	816915.50		7.65								
RD_002	RD_002_015	846236.52	816915.50	846240.67	816870.21		7.40								
RD_002	RD_002_016	846240.67	816870.21	846251.93	816830.14		10.68								
RD_002	RD_002_017	846251.93	816830.14	846265.97	816791.83		15.84								
RD_002	RD_002_018	846265.97	816791.83	846270.29	816780.18		23.24								
RD_002	RD_002_019	846236.98	817010.85	846236.60	816954.48		8.14								
RD_002	RD_002_020	846219.60	817392.56	846220.45	817389.75		7.97								
RD_002	RD_002_021	846208.35	817428.50	846219.60	817392.56		10.18								
RD_002	RD_002_022	846170.66	817518.55	846208.50	817428.46		10.02								
RD_002	RD_002_023	846220.13	817390.26	846229.12	817341.15		6.90								
RD_003	RD_003_001	846044.89	817022.52	846207.70	817023.45		10.30		12.61	6.369	5.65				
RD_003	RD_003_002	846207.70	817023.45	846236.58	817024.03		11.82								
RD_003	RD_003_003	846044.89	817022.52	846207.70	817023.45		10.30		12.61	6.369	5.65				
RD_003	RD_003_004	845901.54	817021.71	846044.89	817022.52		7.30		9.60	5.668	4.65				
RD_004	RD_004_001	846220.28	817010.50	846205.03	817009.39		21.71								
RD_004	RD_004_002	846205.03	817009.39	846163.09	817012.68		7.30								
RD_004	RD_004_003	846163.09	817012.68	845992.44	817012.46		7.30								
RD_004	RD_004_004	845992.44	817012.46	845900.52	817011.85		7.30								
RD_004	RD_004_005	846220.28	817010.50	846236.98	817010.85		20.63								
RD_005	RD_005_001	846298.11	816506.73	846325.57	816570.51		17.76								
RD_005	RD_005_002	846325.57	816570.51	846331.14	816571.84		22.78								
RD_005	RD_005_003	846331.14	816571.84	846333.41	816570.74		24.29								
RD_005	RD_005_004	846333.41	816570.74	846357.97	816512.06		18.38								
RD_005	RD_005_005	846357.97	816512.06	846363.24	816495.35		11.45								
RD_005	RD_005_006	846344.10	816486.73	846357.05	816494.01		11.86								
RD_005	RD_005_007	846357.05	816494.01	846363.24	816495.35		11.42								
RD_005	RD_005_008	846058.85	816765.57	846058.64	816773.10		7.95								
RD_005	RD_005_009	846058.64	816773.10	846068.22	816790.49		6.77								
RD_005	RD_005_010	846068.22	816790.49	846075.43	816792.71		9.52								
RD_005	RD_005_011	846075.43	816792.71	846081.30	816790.94		11.11								
RD_005	RD_005_012	846081.30	816790.94	846085.43	816782.64		11.52								
RD_005	RD_005_013	846085.43	816782.64	846084.30	816778.09		11.30								
RD_005	RD_005_014	846084.30	816778.09	846080.18	816774.88		11.35								
RD_005	RD_005_015	846080.18	816774.88	846068.85	816772.44		11.12								
RD_005	RD_005_016	846068.85	816772.44	846059.35	816765.84		10.32								
RD_005	RD_005_017	846363.24	816495.35	846369.42	816493.25		10.77								
RD_005	RD_005_018	846369.42	816493.25	846372.93	816486.49		9.35								
RD_005	RD_005_019	846372.93	816486.49	846372.31	816482.95		10.04								
RD_005	RD_005_020	846372.31	816482.95	846367.78	816476.97		10.52								
RD_005	RD_005_021	846367.78	816476.97	846359.02	816476.08		10.47								
RD_005	RD_005_022	846359.02	816476.08	846349.85	816478.40		8.92								
RD_005	RD_005_023	846349.85	816478.40	846346.76	816480.50		8.20								
RD_005	RD_005_024	846346.76	816480.50	846343.97	816486.36		11.48								
RD_005	RD_005_025	846513.24	816710.49	846525.62	816689.57		10.60								
RD_005	RD_005_026	846525.62	816689.57	846525.11	816683.48		10.07								
RD_005	RD_005_027	846525.11	816683.48	846520.99	816678.38		8.07								
RD_005	RD_005_028	846520.99	816678.38	846513.88	816678.71		8.22								
RD_005	RD_005_029	846513.88	816678.71	846509.86	816683.69		9.50								
RD_005	RD_005_030	846509.86	816683.69	846514.49	816697.43		11.47								
RD_005	RD_005_031	846514.49	816697.43	846513.24	816710.49		10.91								
RD_007	RD_007_001	846426.39	816842.54	846513.24	816710.49		9.76								
RD_007	RD_007_002	846236.60	816954.48	846292.35	816954.63		7.25								
RD_007	RD_007_003	846292.35	816954.63	846299.46	816956.18		8.29								
RD_007	RD_007_004	846299.46	816956.18	846305.23	816960.73		13.50								
RD_007	RD_007_005	846305.23	816960.73	846309.24	816967.59		13.15								
RD_007	RD_007_006	846309.24	816967.59	846308.47	817041.12		9.27								
RD_007	RD_007_007	846308.47	817041.12	846305.48	817045.33		12.41								
RD_007	RD_007_008	846305.48	817045.33	846301.87	817045.88		18.97								
RD_007	RD_007_009	846426.39	816842.54	846266.19	816774.89		20.53								
RD_007	RD_007_010	846073.39	816600.36	846259.45	816519.31		22.85								
RD_007	RD_007_011	846296.76	816504.61	846259.45	816519.31		14.55								
RD_007	RD_007_012	846058.85	816765.57	846016.25	816666.10		10.23								
RD_007	RD_007_013	846016.25	816666.10	846012.76	816656.35		10.25								
RD_007	RD_007_014	846012.76	816656.35	846011.11	816645.28		10.67								
RD_007	RD_007_015	846011.11	816645.28	846012.46	816636.42		10.74								
RD_007	RD_007_016	846012.46	816636.42	846021.95	816623.69		12.09								
RD_007	RD_007_017	846021.95	816623.69	846028.03	816619.71		12.87								
RD_007	RD_007_018	846028.03	816619.71	846073.39	816600.36		21.66								
RD_007	RD_007_019	846343.97	816486.36	846296.76	816504.61		14.20								
RD_007	RD_007_020	846195.61	816368.96	846259.09	816519.27		13.79								
RD_008	RD_008_001	846210.76	816755.03	846225.80	816766.67		5.73								
RD_008	RD_008_002	846225.80	816766.67	846232.59	816774.87		5.35								
RD_008	RD_008_003	846232.59	816774.87	846237.63	816790.37		5.55								
RD_008	RD_008_004	846237.63	816790.37	846237.20	816820.49		7.28								
RD_008	RD_008_005	846210.76	816755.03	846247.33	816770.12		5.82								
RD_008	RD_008_006	846247.33	816770.11	846266.22	816779.06		18.05								
RD_008	RD_008_007	846041.05	816531.17	846076.26	816617.97		6.73								
RD_008	RD_008_008	846076.26	816617.97	846097.56	816661.83		7.52								
RD_008	RD_008_009	846097.56	816661.83	846124.85	816698.95		7.33								
RD_008	RD_008_010	846124.85	816698.95	846149.36	816721.11		7.04								
RD_008	RD_008_011	846149.36	816721.11	846166.25	816732.97		6.99								
RD_008	RD_008_012	846166.25	816732.97	846186.34	816744.61		6.93								
RD_008	RD_008_013	846186.34	816744.61	846210.76	816755.03		6.70								
RD_009	RD_009_001	846269.72	816770.53	846251.25	816762.03		20.75								
RD_009	RD_009_002	846251.25	816762.03	846194.59	816738.63		7.17								

Appendix 3.3 Calculation of Vehicular Emissions
Traffic Data and Road Segments (Year 2041)

Road ID	Segment ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Road height (mAG)	Physical Road width (m)	Road elevation (m)	Barrier 1 width (m)	Barrier 1 height (m)	Barrier 1 DCL (m)	Barrier 2 width (m)	Barrier 2 height (m)	Barrier 2 DCL (m)	Portal ID
RD_009	RD_009_003	846194.59	816738.63	846178.31	816730.10		6.42								
RD_009	RD_009_004	846178.31	816730.10	846137.83	816699.84		6.33								
RD_009	RD_009_005	846137.83	816699.84	846126.81	816687.98		6.48								
RD_009	RD_009_006	846126.81	816687.98	846110.75	816665.49		6.97								
RD_009	RD_009_007	846110.75	816665.49	846100.46	816647.55		6.97								
RD_009	RD_009_008	846100.46	816647.55	846085.54	816613.88		7.08								
RD_009	RD_009_009	846085.54	816613.88	846047.39	816528.28		7.66								
RD_010	RD_010_001	846101.34	817375.08	846123.59	817389.26		7.07								
RD_010	RD_010_002	846123.59	817389.26	846147.49	817398.91		6.39								
RD_010	RD_010_003	846147.49	817398.91	846207.10	817411.48		17.75								
RD_010	RD_010_004	846051.60	817321.78	846092.27	817368.31		10.09								
RD_010	RD_010_005	846092.27	817368.31	846101.34	817375.08		7.19								
RD_010	RD_010_006	846207.26	817411.53	846254.53	817429.32		17.43								
RD_010	RD_010_007	846254.53	817429.32	846266.17	817438.52		6.21								
RD_010	RD_010_008	846266.17	817438.52	846276.98	817452.04		6.53								
RD_010	RD_010_009	846276.98	817452.04	846285.21	817472.64		6.73								
RD_010	RD_010_010	846285.21	817472.64	846287.58	817486.15		6.88								
RD_010	RD_010_011	846287.58	817486.15	846283.64	817510.95		6.39								
RD_010	RD_010_012	846283.64	817510.95	846280.86	817518.70		6.04								
RD_010	RD_010_013	846280.86	817518.70	846262.49	817551.58		6.14								
RD_010	RD_010_014	846262.49	817551.58	846232.90	817605.59		6.15								
RD_010	RD_010_015	845898.06	817146.95	845940.52	817146.20		4.78								
RD_010	RD_010_016	845940.52	817146.20	845971.33	817152.64		4.58								
RD_010	RD_010_017	845971.33	817152.64	845988.64	817159.96		3.50								
RD_010	RD_010_018	845988.64	817159.96	846002.23	817167.94		3.50								
RD_010	RD_010_019	846002.23	817167.94	846016.86	817178.91		3.50								
RD_010	RD_010_020	846016.86	817178.91	846031.48	817194.42		3.50								
RD_010	RD_010_021	846031.48	817194.42	846043.32	817212.48		3.89								
RD_010	RD_010_022	846043.32	817212.48	846051.04	817229.54		4.51								
RD_010	RD_010_023	846051.04	817229.54	846055.97	817247.59		4.85								
RD_010	RD_010_024	846055.97	817247.59	846057.92	817262.98		5.21								
RD_010	RD_010_025	846057.92	817262.98	846054.10	817278.26		4.91								
RD_010	RD_010_026	846054.10	817278.26	846045.95	817291.77		8.11								
RD_011	RD_011_001	846209.77	817401.07	846164.60	817392.17		17.11								
RD_011	RD_011_002	846164.60	817392.17	846146.36	817386.84		6.32								
RD_011	RD_011_003	846146.36	817386.84	846137.91	817383.85		6.73								
RD_011	RD_011_004	846137.91	817383.85	846116.80	817371.65		8.11								
RD_011	RD_011_005	846116.80	817371.65	846102.68	817364.11		7.00								
RD_011	RD_011_006	846102.68	817364.11	846088.68	817349.49		6.00								
RD_011	RD_011_007	846088.68	817349.49	846061.60	817315.70		9.95								
RD_011	RD_011_008	846237.11	817607.37	846245.05	817591.98		15.00								
RD_011	RD_011_009	846264.76	817559.77	846269.09	817555.13		9.45								
RD_011	RD_011_010	846269.09	817555.13	846289.52	817513.28		7.22								
RD_011	RD_011_011	846289.52	817513.28	846294.99	817487.26		9.01								
RD_011	RD_011_012	846294.99	817487.26	846292.84	817472.53		7.98								
RD_011	RD_011_013	846292.84	817472.53	846282.65	817448.05		6.32								
RD_011	RD_011_014	846282.65	817448.05	846274.31	817436.86		7.00								
RD_011	RD_011_015	846274.31	817436.86	846263.60	817426.45		11.31								
RD_011	RD_011_016	846263.60	817426.45	846252.89	817418.69		11.35								
RD_011	RD_011_017	846252.89	817418.69	846210.05	817401.13		17.52								
RD_011	RD_011_018	846245.05	817591.98	846259.50	817565.31		14.28								
RD_011	RD_011_019	846259.50	817565.31	846264.76	817559.77		13.18								
RD_011	RD_011_020	846059.24	817296.32	846061.73	817276.16		7.05								
RD_011	RD_011_021	846061.73	817276.16	846061.33	817259.22		3.60								
RD_011	RD_011_022	846061.33	817259.22	846056.70	817235.41		3.50								
RD_011	RD_011_023	846056.70	817235.41	846049.61	817214.59		5.06								
RD_011	RD_011_024	846049.61	817214.59	846041.78	817200.08		6.86								
RD_011	RD_011_025	846041.78	817200.08	846031.59	817187.11		5.28								
RD_011	RD_011_026	846031.59	817187.11	846002.34	817163.62		4.43								
RD_011	RD_011_027	846002.34	817163.62	845974.63	817149.65		7.32								
RD_011	RD_011_028	845974.63	817149.65	845948.46	817143.54		10.15								
RD_011	RD_011_029	845948.46	817143.54	845923.62	817142.53		6.51								
RD_011	RD_011_030	845923.62	817142.53	845897.96	817143.29		3.50								
RD_011	RD_011_031	846245.05	817591.98	846255.56	817597.09		11.10								
RD_011	RD_011_032	846255.56	817597.09	846262.98	817595.87		7.07								
RD_011	RD_011_033	846262.98	817595.87	846268.86	817583.81		6.99								
RD_011	RD_011_034	846268.86	817583.81	846268.97	817579.93		7.07								
RD_011	RD_011_035	846268.97	817579.93	846267.63	817572.07		6.40								
RD_011	RD_011_036	846267.63	817572.07	846259.50	817565.31		10.09								
RD_012	RD_012_001	846101.34	817375.08	846087.93	817397.77		8.74								
RD_012	RD_012_002	846087.93	817397.77	846077.21	817401.75		6.46								
RD_012	RD_012_003	846077.21	817401.75	846071.74	817408.39		5.10								
RD_012	RD_012_004	846071.74	817408.39	846070.50	817418.46		6.28								
RD_012	RD_012_005	846070.50	817418.46	846071.94	817424.67		5.85								
RD_012	RD_012_006	846071.94	817424.67	846075.54	817428.21		8.45								
RD_012	RD_012_007	846075.54	817428.21	846082.14	817428.99		10.19								
RD_012	RD_012_008	846082.14	817428.99	846083.49	817412.16		7.76								
RD_012	RD_012_009	846083.49	817412.16	846087.93	817397.77		7.81								
RD_012	RD_012_010	846045.95	817291.77	846042.14	817292.21		10.27								
RD_012	RD_012_011	846042.14	817292.21	846034.72	817297.19		8.06								
RD_012	RD_012_012	846034.72	817297.19	846032.13	817307.37		10.49								
RD_012	RD_012_013	846039.13	817318.78	846043.77	817321.11		11.74								
RD_012	RD_012_014	846043.77	817321.11	846051.60	817321.78		12.14								
RD_012	RD_012_015	846032.13	817307.37	846035.53	817316.90		12.26								
RD_012	RD_012_016	846035.53	817316.90	846039.13	817318.78		12.07								
RD_012	RD_012_017	846051.60	817321.78	846061.60	817315.70		13.35								
RD_012	RD_012_018	846061.60	817315.70	846063.25	817310.38		11.02								
RD_012	RD_012_019	846063.25	817310.38	846063.05	817301.08		8.33								
RD_012	RD_012_020	846063.05	817301.08	846059.24	817296.32		8.87								
RD_012	RD_012_021	846059.24	817296.32	846056.46	817292.99		12.12								
RD_012	RD_012_022	846056.46	817292.99	846051.21	817291.11		15.05								
RD_012	RD_012_023	846051.21	817291.11	846045.95	817291.77		14.05								

Appendix 3.3 Calculation of Vehicular Emissions
Traffic Data and Road Segments (Year 2041)

Start Profile	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9
Y	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total Emission (Tonne Per Year)

Year 2030 (traffic year 2041)	AnnualHourMin	MonthlyHourMin	MonthlyHourAverage
NO2	1.47	1.38	1.30
NO	11.45	10.44	9.59
NOX	12.91	-	10.89
PM25	0.31	-	-
PM10	0.34	-	-

Road Segments

Road Name	Road ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Grid (I,J)	Vehicle height (m)	Release height (m)	Szinit (m)	Width (m)	Elevation (m)
WAN PO ROAD L	RD_001_001	846256.09	816775.06	846251.03	816786.06	50,30	1.8	1.5	1.4	15.0	7
WAN PO ROAD L	RD_001_002	846251.03	816786.06	846237.20	816820.49	50,30	1.8	1.5	1.4	14.2	7
WAN PO ROAD L	RD_001_003	846208.48	817387.39	846176.50	817480.43	50,31	1.8	1.5	1.4	17.1	7
WAN PO ROAD L	RD_001_004	846176.50	817480.43	846159.88	817513.75	50,31	1.8	1.5	1.4	13.5	7
WAN PO ROAD L	RD_001_005	846159.88	817513.75	846135.30	817560.20	50,31	1.8	1.5	1.4	15.0	7
WAN PO ROAD L	RD_001_006	846220.28	817010.50	846221.54	817135.41	50,30	1.8	1.5	1.4	26.3	8
WAN PO ROAD L	RD_001_007	846221.54	817135.41	846220.52	817287.67	50,30	1.8	1.5	1.4	14.0	8
WAN PO ROAD L	RD_001_008	846220.52	817287.67	846216.88	817341.15	50,31	1.8	1.5	1.4	15.7	6
WAN PO ROAD L	RD_001_009	846216.88	817341.15	846208.50	817387.10	50,31	1.8	1.5	1.4	19.1	6
WAN PO ROAD L	RD_001_010	846237.20	816820.49	846225.31	816877.40	50,30	1.8	1.5	1.4	14.4	7
WAN PO ROAD L	RD_001_011	846225.31	816877.40	846220.28	817010.50	50,30	1.8	1.5	1.4	26.1	6
WAN PO ROAD L	RD_001_012	846426.03	816285.66	846425.71	816300.05	50,30	1.8	1.5	1.4	11.8	7
WAN PO ROAD L	RD_001_013	846425.71	816300.05	846422.27	816365.72	50,30	1.8	1.5	1.4	12.1	7
WAN PO ROAD L	RD_001_014	846422.27	816365.72	846410.47	816437.91	50,30	1.8	1.5	1.4	12.8	7
WAN PO ROAD L	RD_001_015	846410.47	816437.91	846399.00	816484.63	50,30	1.8	1.5	1.4	13.0	7
WAN PO ROAD L	RD_001_016	846399.00	816484.63	846391.05	816512.53	50,30	1.8	1.5	1.4	13.0	7
WAN PO ROAD L	RD_001_017	846391.05	816512.53	846372.88	816564.34	50,30	1.8	1.5	1.4	12.8	6
WAN PO ROAD L	RD_001_018	846372.88	816564.34	846360.49	816593.90	50,30	1.8	1.5	1.4	13.1	6
WAN PO ROAD L	RD_001_019	846360.49	816593.90	846325.82	816662.86	50,30	1.8	1.5	1.4	13.5	6
WAN PO ROAD L	RD_001_020	846325.82	816662.86	846269.29	816753.74	50,30	1.8	1.5	1.4	13.8	7
WAN PO ROAD L	RD_001_021	846269.29	816753.74	846256.24	816774.91	50,30	1.8	1.5	1.4	15.6	7
WAN PO ROAD R	RD_002_001	846146.00	817566.10	846170.80	817518.63	50,31	1.8	1.5	1.4	13.9	7
WAN PO ROAD R	RD_002_002	846229.14	817340.94	846231.42	817322.34	50,31	1.8	1.5	1.4	13.2	6
WAN PO ROAD R	RD_002_003	846231.42	817322.34	846234.36	817233.09	50,30	1.8	1.5	1.4	14.1	7
WAN PO ROAD R	RD_002_004	846234.36	817233.09	846236.12	817053.37	50,30	1.8	1.5	1.4	17.3	9
WAN PO ROAD R	RD_002_005	846236.12	817053.37	846236.98	817010.84	50,30	1.8	1.5	1.4	17.2	7
WAN PO ROAD R	RD_002_006	846270.25	816780.30	846283.10	816761.50	50,30	1.8	1.5	1.4	25.1	7
WAN PO ROAD R	RD_002_007	846283.10	816761.50	846346.03	816646.16	50,30	1.8	1.5	1.4	14.2	6
WAN PO ROAD R	RD_002_008	846346.03	816646.16	846368.12	816599.77	50,30	1.8	1.5	1.4	13.0	6
WAN PO ROAD R	RD_002_009	846368.12	816599.77	846392.68	816538.00	50,30	1.8	1.5	1.4	13.5	7
WAN PO ROAD R	RD_002_010	846392.68	816538.00	846413.96	816464.60	50,30	1.8	1.5	1.4	13.5	7
WAN PO ROAD R	RD_002_011	846413.96	816464.60	846425.33	816411.12	50,30	1.8	1.5	1.4	12.9	8
WAN PO ROAD R	RD_002_012	846425.33	816411.12	846439.11	816304.27	50,30	1.8	1.5	1.4	13.6	7
WAN PO ROAD R	RD_002_013	846439.11	816304.27	846439.63	816284.34	50,30	1.8	1.5	1.4	14.7	7
WAN PO ROAD R	RD_002_014	846236.60	816954.48	846236.52	816915.50	50,30	1.8	1.5	1.4	13.6	6
WAN PO ROAD R	RD_002_015	846236.52	816915.50	846240.67	816870.21	50,30	1.8	1.5	1.4	13.4	6
WAN PO ROAD R	RD_002_016	846240.67	816870.21	846251.93	816830.14	50,30	1.8	1.5	1.4	16.7	6
WAN PO ROAD R	RD_002_017	846251.93	816830.14	846265.97	816791.83	50,30	1.8	1.5	1.4	21.8	6
WAN PO ROAD R	RD_002_018	846265.97	816791.83	846270.29	816780.18	50,30	1.8	1.5	1.4	29.2	7
WAN PO ROAD R	RD_002_019	846236.98	817010.84	846236.60	816954.48	50,30	1.8	1.5	1.4	14.1	7
WAN PO ROAD R	RD_002_020	846219.60	817392.56	846220.45	817389.75	50,31	1.8	1.5	1.4	14.0	7
WAN PO ROAD R	RD_002_021	846208.35	817428.50	846219.60	817392.56	50,31	1.8	1.5	1.4	16.2	7
WAN PO ROAD R	RD_002_022	846170.66	817518.55	846208.50	817428.46	50,31	1.8	1.5	1.4	16.0	7
WAN PO ROAD R	RD_002_023	846220.13	817390.26	846229.12	817341.15	50,31	1.8	1.5	1.4	12.9	7
CROSS BAY LINK L	RD_003_001	846044.82	817036.32	846207.63	817037.25	50,30	1.8	6.4	0.0	13.8	7
CROSS BAY LINK L	RD_003_002	846207.70	817023.45	846236.58	817024.03	50,30	1.8	1.5	1.4	17.8	7
CROSS BAY LINK L	RD_003_003	846044.82	817036.32	846207.63	817037.25	50,30	1.8	6.4	0.0	13.8	7
CROSS BAY LINK L	RD_003_004	845901.49	817032.26	846044.84	817033.08	50,30	1.8	5.7	0.0	11.3	7
CROSS BAY LINK R	RD_004_001	846220.28	817010.50	846205.03	817009.39	50,30	1.7	1.4	1.3	27.7	7
CROSS BAY LINK R	RD_004_002	846205.03	817009.39	846163.09	817012.68	50,30	1.7	1.4	1.3	13.3	7
CROSS BAY LINK R	RD_004_003	846163.09	817012.68	845992.44	817012.46	50,30	1.7	1.4	1.3	13.3	6
CROSS BAY LINK R	RD_004_004	845992.44	817012.46	845900.52	817011.85	50,30	1.7	1.4	1.3	13.3	7
CROSS BAY LINK R	RD_004_005	846220.28	817010.50	846236.98	817010.84	50,30	1.7	1.4	1.3	26.6	7
INDUSTRIAL ROAD L	RD_005_001	846298.11	816506.73	846325.57	816570.51	50,30	4.4	3.7	3.5	23.8	6
INDUSTRIAL ROAD L	RD_005_002	846325.57	816570.51	846331.14	816571.84	50,30	4.4	3.7	3.5	28.8	6
INDUSTRIAL ROAD L	RD_005_003	846331.14	816571.84	846333.41	816570.74	50,30	4.4	3.7	3.5	30.3	6
INDUSTRIAL ROAD L	RD_005_004	846333.41	816570.74	846357.97	816512.06	50,30	4.4	3.7	3.5	24.4	6
INDUSTRIAL ROAD L	RD_005_005	846357.97	816512.06	846363.24	816495.35	50,30	4.4	3.7	3.5	17.4	6
INDUSTRIAL ROAD L	RD_005_006	846344.10	816486.73	846357.05	816494.01	50,30	4.4	3.7	3.5	17.9	6
INDUSTRIAL ROAD L	RD_005_007	846357.05	816494.01	846363.24	816495.35	50,30	4.4	3.7	3.5	17.4	6
INDUSTRIAL ROAD L	RD_005_008	846058.85	816765.57	846058.64	816773.10	50,30	4.4	3.7	3.5	13.9	5
INDUSTRIAL ROAD L	RD_005_009	846058.64	816773.10	846068.22	816790.49	50,30	4.4	3.7	3.5	12.8	5
INDUSTRIAL ROAD L	RD_005_010	846068.22	816790.49	846075.43	816792.71	50,30	4.4	3.7	3.5	15.5	6
INDUSTRIAL ROAD L	RD_005_011	846075.43	816792.71	846081.30	816790.94	50,30	4.4	3.7	3.5	17.1	6
INDUSTRIAL ROAD L	RD_005_012	846081.30	816790.94	846085.43	816782.64	50,30	4.4	3.7	3.5	17.5	6
INDUSTRIAL ROAD L	RD_005_013	846085.43	816782.64	846084.30	816778.09	50,30	4.4	3.7	3.5	17.3	6
INDUSTRIAL ROAD L	RD_005_014	846084.30	816778.09	846080.18	816774.88	50,30	4.4	3.7	3.5	17.3	6
INDUSTRIAL ROAD L	RD_005_015	846080.18	816774.88	846068.85	816772.44	50,30	4.4	3.7	3.5	17.1	5
INDUSTRIAL ROAD L	RD_005_016	846068.85	816772.44	846059.35	816765.84	50,30	4.4	3.7	3.5	16.3	5
INDUSTRIAL ROAD L	RD_005_017	846363.24	816495.35	846369.42	816493.25	50,30	4.4	3.7	3.5	16.8	6
INDUSTRIAL ROAD L	RD_005_018	846369.42	816493.25	846372.93	816486.49	50,30	4.4	3.7	3.5	15.4	6

Road Name	Road ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Grid (I,J)	Vehicle height (m)	Release height (m)	Szinit (m)	Width (m)	Elevation (m)
INDUSTRIAL ROAD L	RD_005_019	846372.93	816486.49	846372.31	816482.95	50,30	4.4	3.7	3.5	16.0	6
INDUSTRIAL ROAD L	RD_005_020	846372.31	816482.95	846367.78	816476.97	50,30	4.4	3.7	3.5	16.5	6
INDUSTRIAL ROAD L	RD_005_021	846367.78	816476.97	846359.02	816476.08	50,30	4.4	3.7	3.5	16.5	6
INDUSTRIAL ROAD L	RD_005_022	846359.02	816476.08	846349.85	816478.40	50,30	4.4	3.7	3.5	14.9	6
INDUSTRIAL ROAD L	RD_005_023	846349.85	816478.40	846346.76	816480.50	50,30	4.4	3.7	3.5	14.2	6
INDUSTRIAL ROAD L	RD_005_024	846346.76	816480.50	846343.97	816486.36	50,30	4.4	3.7	3.5	17.5	6
INDUSTRIAL ROAD L	RD_005_025	846513.24	816710.49	846525.62	816689.57	50,30	4.4	3.7	3.5	16.6	7
INDUSTRIAL ROAD L	RD_005_026	846525.62	816689.57	846525.11	816683.48	50,30	4.4	3.7	3.5	16.1	7
INDUSTRIAL ROAD L	RD_005_027	846525.11	816683.48	846520.99	816678.38	50,30	4.4	3.7	3.5	14.1	7
INDUSTRIAL ROAD L	RD_005_028	846520.99	816678.38	846513.88	816678.71	50,30	4.4	3.7	3.5	14.2	7
INDUSTRIAL ROAD L	RD_005_029	846513.88	816678.71	846509.86	816683.69	50,30	4.4	3.7	3.5	15.5	7
INDUSTRIAL ROAD L	RD_005_030	846509.86	816683.69	846514.49	816697.43	50,30	4.4	3.7	3.5	17.5	7
INDUSTRIAL ROAD L	RD_005_031	846514.49	816697.43	846513.24	816710.49	50,30	4.4	3.7	3.5	16.9	7
INDUSTRIAL ROAD C	RD_007_001	846426.39	816842.54	846513.24	816710.49	50,30	4.4	3.7	3.4	15.8	6
INDUSTRIAL ROAD C	RD_007_002	846236.60	816954.48	846292.35	816954.63	50,30	4.4	3.7	3.4	13.2	6
INDUSTRIAL ROAD C	RD_007_003	846292.35	816954.63	846299.46	816956.18	50,30	4.4	3.7	3.4	14.3	6
INDUSTRIAL ROAD C	RD_007_004	846299.46	816956.18	846305.23	816960.73	50,30	4.4	3.7	3.4	19.5	6
INDUSTRIAL ROAD C	RD_007_005	846305.23	816960.73	846309.24	816967.59	50,30	4.4	3.7	3.4	19.1	6
INDUSTRIAL ROAD C	RD_007_006	846309.24	816967.59	846308.47	817041.12	50,30	4.4	3.7	3.4	15.3	7
INDUSTRIAL ROAD C	RD_007_007	846308.47	817041.12	846305.48	817045.33	50,30	4.4	3.7	3.4	18.4	6
INDUSTRIAL ROAD C	RD_007_008	846305.48	817045.33	846301.87	817045.88	50,30	4.4	3.7	3.4	25.0	6
INDUSTRIAL ROAD C	RD_007_009	846426.39	816842.54	846266.19	816774.89	50,30	4.4	3.7	3.4	26.5	6
INDUSTRIAL ROAD C	RD_007_010	846073.39	816600.36	846259.45	816519.31	50,30	4.4	3.7	3.4	28.9	5
INDUSTRIAL ROAD C	RD_007_011	846296.76	816504.61	846259.45	816519.31	50,30	4.4	3.7	3.4	20.5	6
INDUSTRIAL ROAD C	RD_007_012	846058.85	816765.57	846016.25	816666.10	50,30	4.4	3.7	3.4	16.2	5
INDUSTRIAL ROAD C	RD_007_013	846016.25	816666.10	846012.76	816656.35	50,30	4.4	3.7	3.4	16.2	5
INDUSTRIAL ROAD C	RD_007_014	846012.76	816656.35	846011.11	816645.28	50,30	4.4	3.7	3.4	16.7	5
INDUSTRIAL ROAD C	RD_007_015	846011.11	816645.28	846012.46	816636.42	50,30	4.4	3.7	3.4	16.7	6
INDUSTRIAL ROAD C	RD_007_016	846012.46	816636.42	846021.95	816623.69	50,30	4.4	3.7	3.4	18.1	5
INDUSTRIAL ROAD C	RD_007_017	846021.95	816623.69	846028.03	816619.71	50,30	4.4	3.7	3.4	18.9	5
INDUSTRIAL ROAD C	RD_007_018	846028.03	816619.71	846073.39	816600.36	50,30	4.4	3.7	3.4	27.7	5
INDUSTRIAL ROAD C	RD_007_019	846343.97	816486.36	846296.76	816504.61	50,30	4.4	3.7	3.4	20.2	6
INDUSTRIAL ROAD C	RD_007_020	846195.61	816368.96	846259.09	816519.27	50,30	4.4	3.7	3.4	19.8	5
CHUN YAT STREET L	RD_008_001	846210.76	816755.03	846225.80	816766.67	50,30	2.4	2.1	1.9	11.7	7
CHUN YAT STREET L	RD_008_002	846225.80	816766.67	846232.59	816774.87	50,30	2.4	2.1	1.9	11.4	7
CHUN YAT STREET L	RD_008_003	846232.59	816774.87	846237.63	816790.37	50,30	2.4	2.1	1.9	11.5	7
CHUN YAT STREET L	RD_008_004	846237.63	816790.37	846237.20	816820.49	50,30	2.4	2.1	1.9	13.3	7
CHUN YAT STREET L	RD_008_005	846210.76	816755.03	846247.33	816770.11	50,30	2.4	2.1	1.9	11.8	7
CHUN YAT STREET L	RD_008_006	846247.33	816770.11	846266.22	816779.06	50,30	2.4	2.1	1.9	24.1	7
CHUN YAT STREET L	RD_008_007	846041.05	816531.17	846076.26	816617.97	50,30	2.4	2.1	1.9	12.7	5
CHUN YAT STREET L	RD_008_008	846076.26	816617.97	846097.56	816661.83	50,30	2.4	2.1	1.9	13.5	5
CHUN YAT STREET L	RD_008_009	846097.56	816661.83	846124.85	816698.95	50,30	2.4	2.1	1.9	13.3	5
CHUN YAT STREET L	RD_008_010	846124.85	816698.95	846149.36	816721.11	50,30	2.4	2.1	1.9	13.0	5
CHUN YAT STREET L	RD_008_011	846149.36	816721.11	846166.25	816732.97	50,30	2.4	2.1	1.9	13.0	6
CHUN YAT STREET L	RD_008_012	846166.25	816732.97	846186.34	816744.61	50,30	2.4	2.1	1.9	12.9	6
CHUN YAT STREET L	RD_008_013	846186.34	816744.61	846210.76	816755.03	50,30	2.4	2.1	1.9	12.7	6
CHUN YAT STREET R	RD_009_001	846269.72	816770.53	846251.25	816762.03	50,30	2.9	2.5	2.3	26.7	7
CHUN YAT STREET R	RD_009_002	846251.25	816762.03	846194.59	816738.63	50,30	2.9	2.5	2.3	13.2	7
CHUN YAT STREET R	RD_009_003	846194.59	816738.63	846178.31	816730.10	50,30	2.9	2.5	2.3	12.4	6
CHUN YAT STREET R	RD_009_004	846178.31	816730.10	846137.83	816699.84	50,30	2.9	2.5	2.3	12.3	5
CHUN YAT STREET R	RD_009_005	846137.83	816699.84	846126.81	816687.98	50,30	2.9	2.5	2.3	12.5	5
CHUN YAT STREET R	RD_009_006	846126.81	816687.98	846110.75	816665.49	50,30	2.9	2.5	2.3	13.0	5
CHUN YAT STREET R	RD_009_007	846110.75	816665.49	846100.46	816647.55	50,30	2.9	2.5	2.3	13.0	5
CHUN YAT STREET R	RD_009_008	846100.46	816647.55	846085.54	816613.88	50,30	2.9	2.5	2.3	13.1	5
CHUN YAT STREET R	RD_009_009	846085.54	816613.88	846047.39	816528.28	50,30	2.9	2.5	2.3	13.7	5
RESIDENTIAL ROAD L	RD_010_001	846101.34	817375.08	846123.59	817389.26	50,31	1.7	1.5	1.3	13.1	7
RESIDENTIAL ROAD L	RD_010_002	846123.59	817389.26	846147.49	817398.91	50,31	1.7	1.5	1.3	12.4	7
RESIDENTIAL ROAD L	RD_010_003	846147.49	817398.91	846207.10	817411.48	50,31	1.7	1.5	1.3	23.7	6
RESIDENTIAL ROAD L	RD_010_004	846051.60	817321.78	846092.27	817368.31	50,31	1.7	1.5	1.3	16.1	7
RESIDENTIAL ROAD L	RD_010_005	846092.27	817368.31	846101.34	817375.08	50,31	1.7	1.5	1.3	13.2	7
RESIDENTIAL ROAD L	RD_010_006	846207.26	817411.53	846254.53	817429.32	50,31	1.7	1.5	1.3	23.4	7
RESIDENTIAL ROAD L	RD_010_007	846254.53	817429.32	846266.17	817438.52	50,31	1.7	1.5	1.3	12.2	7
RESIDENTIAL ROAD L	RD_010_008	846266.17	817438.52	846276.98	817452.04	50,31	1.7	1.5	1.3	12.5	7
RESIDENTIAL ROAD L	RD_010_009	846276.98	817452.04	846285.21	817472.64	50,31	1.7	1.5	1.3	12.7	7
RESIDENTIAL ROAD L	RD_010_010	846285.21	817472.64	846287.58	817486.15	50,31	1.7	1.5	1.3	12.9	7
RESIDENTIAL ROAD L	RD_010_011	846287.58	817486.15	846283.64	817510.95	50,31	1.7	1.5	1.3	12.4	6
RESIDENTIAL ROAD L	RD_010_012	846283.64	817510.95	846280.86	817518.70	50,31	1.7	1.5	1.3	12.0	7
RESIDENTIAL ROAD L	RD_010_013	846280.86	817518.70	846262.49	817551.58	50,31	1.7	1.5	1.3	12.1	6
RESIDENTIAL ROAD L	RD_010_014	846262.49	817551.58	846232.90	817605.59	50,31	1.7	1.5	1.3	12.2	6
RESIDENTIAL ROAD L	RD_010_015	845898.06	817146.95	845940.52	817146.20	50,30	1.7	1.5	1.3	10.8	5
RESIDENTIAL ROAD L	RD_010_016	845940.52	817146.20	845971.33	817152.64	50,30	1.7	1.5	1.3	10.6	6
RESIDENTIAL ROAD L	RD_010_017	845971.33	817152.64	845988.64	817159.96	50,30	1.7	1.5	1.3	9.5	6

Road Name	Road ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Grid (I,J)	Vehicle height (m)	Release height (m)	Szinit (m)	Width (m)	Elevation (m)
RESIDENTIAL ROAD L	RD_010_018	845988.64	817159.96	846002.23	817167.94	50,30	1.7	1.5	1.3	9.5	7
RESIDENTIAL ROAD L	RD_010_019	846002.23	817167.94	846016.86	817178.91	50,30	1.7	1.5	1.3	9.5	7
RESIDENTIAL ROAD L	RD_010_020	846016.86	817178.91	846031.48	817194.42	50,30	1.7	1.5	1.3	9.5	7
RESIDENTIAL ROAD L	RD_010_021	846031.48	817194.42	846043.32	817212.48	50,30	1.7	1.5	1.3	9.9	8
RESIDENTIAL ROAD L	RD_010_022	846043.32	817212.48	846051.04	817229.54	50,30	1.7	1.5	1.3	10.5	7
RESIDENTIAL ROAD L	RD_010_023	846051.04	817229.54	846055.97	817247.59	50,30	1.7	1.5	1.3	10.9	7
RESIDENTIAL ROAD L	RD_010_024	846055.97	817247.59	846057.92	817262.98	50,30	1.7	1.5	1.3	11.2	7
RESIDENTIAL ROAD L	RD_010_025	846057.92	817262.98	846054.10	817278.26	50,30	1.7	1.5	1.3	10.9	8
RESIDENTIAL ROAD L	RD_010_026	846054.10	817278.26	846045.95	817291.77	50,31	1.7	1.5	1.3	14.1	7
RESIDENTIAL ROAD R	RD_011_001	846209.77	817401.07	846164.60	817392.17	50,31	1.9	1.6	1.5	23.1	6
RESIDENTIAL ROAD R	RD_011_002	846164.60	817392.17	846146.36	817386.84	50,31	1.9	1.6	1.5	12.3	6
RESIDENTIAL ROAD R	RD_011_003	846146.36	817386.84	846137.91	817383.85	50,31	1.9	1.6	1.5	12.7	7
RESIDENTIAL ROAD R	RD_011_004	846137.91	817383.85	846116.80	817371.65	50,31	1.9	1.6	1.5	14.1	7
RESIDENTIAL ROAD R	RD_011_005	846116.80	817371.65	846102.68	817364.11	50,31	1.9	1.6	1.5	13.0	7
RESIDENTIAL ROAD R	RD_011_006	846102.68	817364.11	846088.68	817349.49	50,31	1.9	1.6	1.5	12.0	7
RESIDENTIAL ROAD R	RD_011_007	846088.68	817349.49	846061.60	817315.70	50,31	1.9	1.6	1.5	16.0	7
RESIDENTIAL ROAD R	RD_011_008	846237.11	817607.37	846245.05	817591.98	50,31	1.9	1.6	1.5	21.0	6
RESIDENTIAL ROAD R	RD_011_009	846264.76	817559.77	846269.09	817555.13	50,31	1.9	1.6	1.5	15.5	6
RESIDENTIAL ROAD R	RD_011_010	846269.09	817555.13	846289.52	817513.28	50,31	1.9	1.6	1.5	13.2	7
RESIDENTIAL ROAD R	RD_011_011	846289.52	817513.28	846294.99	817487.26	50,31	1.9	1.6	1.5	15.0	7
RESIDENTIAL ROAD R	RD_011_012	846294.99	817487.26	846292.84	817472.53	50,31	1.9	1.6	1.5	14.0	7
RESIDENTIAL ROAD R	RD_011_013	846292.84	817472.53	846282.65	817448.05	50,31	1.9	1.6	1.5	12.3	7
RESIDENTIAL ROAD R	RD_011_014	846282.65	817448.05	846274.31	817436.86	50,31	1.9	1.6	1.5	13.0	7
RESIDENTIAL ROAD R	RD_011_015	846274.31	817436.86	846263.60	817426.45	50,31	1.9	1.6	1.5	17.3	7
RESIDENTIAL ROAD R	RD_011_016	846263.60	817426.45	846252.89	817418.69	50,31	1.9	1.6	1.5	17.3	7
RESIDENTIAL ROAD R	RD_011_017	846252.89	817418.69	846210.05	817401.13	50,31	1.9	1.6	1.5	23.5	7
RESIDENTIAL ROAD R	RD_011_018	846245.05	817591.98	846259.50	817565.31	50,31	1.9	1.6	1.5	20.3	6
RESIDENTIAL ROAD R	RD_011_019	846259.50	817565.31	846264.76	817559.77	50,31	1.9	1.6	1.5	19.2	6
RESIDENTIAL ROAD R	RD_011_020	846059.24	817296.32	846061.73	817276.16	50,31	1.9	1.6	1.5	13.1	7
RESIDENTIAL ROAD R	RD_011_021	846061.73	817276.16	846061.33	817259.22	50,30	1.9	1.6	1.5	9.6	7
RESIDENTIAL ROAD R	RD_011_022	846061.33	817259.22	846056.70	817235.41	50,30	1.9	1.6	1.5	9.5	7
RESIDENTIAL ROAD R	RD_011_023	846056.70	817235.41	846049.61	817214.59	50,30	1.9	1.6	1.5	11.1	7
RESIDENTIAL ROAD R	RD_011_024	846049.61	817214.59	846041.78	817200.08	50,30	1.9	1.6	1.5	12.9	7
RESIDENTIAL ROAD R	RD_011_025	846041.78	817200.08	846031.59	817187.11	50,30	1.9	1.6	1.5	11.3	7
RESIDENTIAL ROAD R	RD_011_026	846031.59	817187.11	846002.34	817163.62	50,30	1.9	1.6	1.5	10.4	7
RESIDENTIAL ROAD R	RD_011_027	846002.34	817163.62	845974.63	817149.65	50,30	1.9	1.6	1.5	13.3	6
RESIDENTIAL ROAD R	RD_011_028	845974.63	817149.65	845948.46	817143.54	50,30	1.9	1.6	1.5	16.2	6
RESIDENTIAL ROAD R	RD_011_029	845948.46	817143.54	845923.62	817142.53	50,30	1.9	1.6	1.5	12.5	6
RESIDENTIAL ROAD R	RD_011_030	845923.62	817142.53	845897.96	817143.29	50,30	1.9	1.6	1.5	9.5	5
RESIDENTIAL ROAD R	RD_011_031	846245.05	817591.98	846255.56	817597.09	50,31	1.9	1.6	1.5	17.1	6
RESIDENTIAL ROAD R	RD_011_032	846255.56	817597.09	846262.98	817595.87	50,31	1.9	1.6	1.5	13.1	6
RESIDENTIAL ROAD R	RD_011_033	846262.98	817595.87	846268.86	817583.81	50,31	1.9	1.6	1.5	13.0	6
RESIDENTIAL ROAD R	RD_011_034	846268.86	817583.81	846268.97	817579.93	50,31	1.9	1.6	1.5	13.1	6
RESIDENTIAL ROAD R	RD_011_035	846268.97	817579.93	846267.63	817572.07	50,31	1.9	1.6	1.5	12.4	6
RESIDENTIAL ROAD R	RD_011_036	846267.63	817572.07	846259.50	817565.31	50,31	1.9	1.6	1.5	16.1	6
RESIDENTIAL ROAD C	RD_012_001	846101.34	817375.08	846087.93	817397.77	50,31	1.8	1.5	1.4	14.7	7
RESIDENTIAL ROAD C	RD_012_002	846087.93	817397.77	846077.21	817401.75	50,31	1.8	1.5	1.4	12.5	7
RESIDENTIAL ROAD C	RD_012_003	846077.21	817401.75	846071.74	817408.39	50,31	1.8	1.5	1.4	11.1	7
RESIDENTIAL ROAD C	RD_012_004	846071.74	817408.39	846070.50	817418.46	50,31	1.8	1.5	1.4	12.3	7
RESIDENTIAL ROAD C	RD_012_005	846070.50	817418.46	846071.94	817424.67	50,31	1.8	1.5	1.4	11.8	7
RESIDENTIAL ROAD C	RD_012_006	846071.94	817424.67	846075.54	817428.21	50,31	1.8	1.5	1.4	14.4	7
RESIDENTIAL ROAD C	RD_012_007	846075.54	817428.21	846082.14	817428.99	50,31	1.8	1.5	1.4	16.2	7
RESIDENTIAL ROAD C	RD_012_008	846082.14	817428.99	846083.49	817412.16	50,31	1.8	1.5	1.4	13.8	7
RESIDENTIAL ROAD C	RD_012_009	846083.49	817412.16	846087.93	817397.77	50,31	1.8	1.5	1.4	13.8	7
RESIDENTIAL ROAD C	RD_012_010	846045.95	817291.77	846042.14	817292.21	50,31	1.8	1.5	1.4	16.3	7
RESIDENTIAL ROAD C	RD_012_011	846042.14	817292.21	846034.72	817297.19	50,31	1.8	1.5	1.4	14.1	7
RESIDENTIAL ROAD C	RD_012_012	846034.72	817297.19	846032.13	817307.37	50,31	1.8	1.5	1.4	16.5	7
RESIDENTIAL ROAD C	RD_012_013	846039.13	817318.78	846043.77	817321.11	50,31	1.8	1.5	1.4	17.7	7
RESIDENTIAL ROAD C	RD_012_014	846043.77	817321.11	846051.60	817321.78	50,31	1.8	1.5	1.4	18.1	7
RESIDENTIAL ROAD C	RD_012_015	846032.13	817307.37	846035.53	817316.90	50,31	1.8	1.5	1.4	18.3	8
RESIDENTIAL ROAD C	RD_012_016	846035.53	817316.90	846039.13	817318.78	50,31	1.8	1.5	1.4	18.1	8
RESIDENTIAL ROAD C	RD_012_017	846051.60	817321.78	846061.60	817315.70	50,31	1.8	1.5	1.4	19.3	7
RESIDENTIAL ROAD C	RD_012_018	846061.60	817315.70	846063.25	817310.38	50,31	1.8	1.5	1.4	17.0	7
RESIDENTIAL ROAD C	RD_012_019	846063.25	817310.38	846063.05	817301.08	50,31	1.8	1.5	1.4	14.3	7
RESIDENTIAL ROAD C	RD_012_020	846063.05	817301.08	846059.24	817296.32	50,31	1.8	1.5	1.4	14.9	7
RESIDENTIAL ROAD C	RD_012_021	846059.24	817296.32	846056.46	817292.99	50,31	1.8	1.5	1.4	18.1	7
RESIDENTIAL ROAD C	RD_012_022	846056.46	817292.99	846051.21	817291.11	50,31	1.8	1.5	1.4	21.0	7
RESIDENTIAL ROAD C	RD_012_023	846051.21	817291.11	846045.95	817291.77	50,31	1.8	1.5	1.4	20.1	7

Met Summary

Grid (I,J)	Hour	Annual Minimum		Month Minimum																					
				January		February		March		April		May		June		July		August		September		October		November		December	
		Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH
50,30	0000-0100	13	30	13	41	16	65	17	75	21	78	21	70	26	72	26	76	27	72	25	36	22	40	17	46	13	30
50,30	0100-0200	12	30	13	42	16	63	17	76	21	76	21	74	26	78	27	74	27	75	24	39	22	52	17	47	12	30
50,30	0200-0300	12	30	12	42	16	62	17	75	21	72	21	74	26	82	27	73	25	77	24	39	22	56	16	45	12	30
50,30	0300-0400	11	29	12	41	16	60	17	69	21	73	20	73	25	82	27	71	26	78	23	41	21	56	16	46	11	29
50,30	0400-0500	11	29	12	40	16	59	17	67	21	75	21	72	25	82	27	72	26	76	23	43	21	57	15	46	11	29
50,30	0500-0600	10	29	11	43	16	61	17	67	20	77	21	71	24	77	27	73	26	75	23	43	21	57	15	48	10	29
50,30	0600-0700	10	28	11	45	15	66	17	59	20	76	21	68	24	66	27	77	26	76	23	44	20	51	15	47	10	28
50,30	0700-0800	11	30	12	48	16	67	17	49	20	74	21	60	24	67	27	70	26	68	23	40	21	47	16	44	11	30
50,30	0800-0900	12	30	13	49	15	66	18	48	20	69	22	60	25	61	27	66	27	63	24	36	22	44	17	44	12	30
50,30	0900-1000	13	29	14	46	16	63	18	47	20	67	22	54	25	59	27	62	28	54	25	32	23	42	18	43	13	29
50,30	1000-1100	14	27	14	41	17	61	19	46	20	61	22	58	25	61	27	58	27	51	26	30	24	41	19	41	14	27
50,30	1100-1200	15	25	15	37	19	59	19	50	20	59	22	59	26	56	25	52	28	48	27	30	24	41	20	38	15	25
50,30	1200-1300	15	23	16	35	19	57	19	51	21	59	23	58	27	50	27	57	27	47	27	27	24	43	20	38	15	23
50,30	1300-1400	16	22	16	33	19	54	18	55	21	61	22	58	28	47	28	56	26	49	27	28	24	42	20	37	16	22
50,30	1400-1500	16	22	16	34	20	55	18	54	21	60	22	60	27	51	26	58	27	45	28	27	25	42	20	36	16	22
50,30	1500-1600	16	23	16	41	19	54	18	57	21	62	22	59	28	55	26	60	26	54	27	26	25	45	20	38	16	23
50,30	1600-1700	16	24	16	43	19	58	18	60	21	65	22	63	26	55	26	64	27	59	27	27	25	47	20	38	16	24
50,30	1700-1800	16	25	16	48	20	66	18	62	21	69	22	65	27	53	28	65	27	62	27	26	24	47	19	44	16	25
50,30	1800-1900	16	23	16	50	20	70	18	68	21	73	22	67	27	63	27	66	27	66	27	26	24	52	19	36	17	23
50,30	1900-2000	14	23	16	53	17	73	18	73	21	72	22	75	27	68	27	68	28	66	27	29	24	55	19	37	14	23
50,30	2000-2100	14	26	16	54	17	77	18	75	20	75	22	77	26	73	27	71	27	68	26	28	24	59	19	39	14	26
50,30	2100-2200	13	26	15	51	17	77	18	75	21	76	22	75	26	75	27	71	27	70	26	31	24	59	19	40	13	26
50,30	2200-2300	14	28	16	44	16	78	18	73	21	79	22	73	26	76	26	71	25	64	26	31	23	39	18	41	14	28
50,30	2300-0000	13	28	15	41	15	78	18	70	21	80	22	71	26	77	26	74	26	73	25	33	23	39	17	44	13	28
50,31	0000-0100	12	30	13	41	16	65	17	75	20	78	21	71	26	72	26	77	27	74	24	36	22	40	17	46	12	30
50,31	0100-0200	12	30	12	42	16	63	17	77	21	77	21	74	26	78	26	74	26	75	24	39	21	53	17	47	12	30
50,31	0200-0300	11	30	12	42	16	62	17	76	20	72	21	76	26	83	27	74	25	76	24	40	21	57	16	45	11	30
50,31	0300-0400	11	29	12	41	15	61	16	70	20	73	20	75	25	83	27	72	26	78	23	41	21	57	15	46	11	29
50,31	0400-0500	11	29	11	40	15	59	16	67	20	75	20	73	24	83	27	73	26	77	23	43	21	57	15	47	11	29
50,31	0500-0600	10	28	11	42	15	61	16	67	20	78	21	73	24	78	27	74	26	77	23	43	20	57	15	48	10	28
50,31	0600-0700	10	28	11	45	15	66	16	60	20	77	20	70	24	67	27	78	26	78	23	44	20	52	15	47	10	28
50,31	0700-0800	10	29	11	48	15	67	17	50	20	73	21	59	24	67	27	71	26	70	23	40	20	48	15	44	10	29
50,31	0800-0900	12	31	13	49	15	67	18	48	20	68	22	60	25	62	27	67	26	62	24	36	22	45	17	43	12	31
50,31	0900-1000	13	29	13	46	16	63	18	47	20	66	22	55	25	59	27	61	28	54	25	33	23	43	18	42	13	29
50,31	1000-1100	14	27	14	41	17	61	19	46	20	61	22	58	25	60	27	57	28	50	26	30	24	41	18	41	14	27
50,31	1100-1200	15	24	15	37	18	60	19	50	20	58	22	59	26	55	25	51	28	48	26	30	24	41	19	38	15	24
50,31	1200-1300	15	22	16	36	19	57	18	51	20	58	22	58	27	49	26	55	26	46	27	28	24	42	20	38	15	22
50,31	1300-1400	15	22	16	33	19	54	18	54	20	60	22	57	28	46	27	55	26	46	27	28	24	41	20	37	15	22
50,31	1400-1500	15	22	16	34	19	55	18	54	21	59	22	59	27	49	26	58	26	43	28	27	25	42	20	37	15	22
50,31	1500-1600	16	23	16	41	19	54	18	56	21	61	22	59	28	54	26	59	26	52	27	27	25	43	20	38	16	23
50,31	1600-1700	16	24	16	43	19	57	18	60	20	64	22	63	26	53	26	62	26	58	27	28	24	47	19	38	16	24
50,31	1700-1800	16	25	16	48	19	67	18	62	20	67	22	65	27	53	28	66	27	63	27	25	24	46	19	44	16	26
50,31	1800-1900	15	23	15	51	19	70	18	69	20	72	22	68	27	63	27	66	26	67	26	26	24	50	19	36	16	23
50,31	1900-2000	14	23	15	54	17	74	18	74	20	72	21	76	26	67	27	69	27	66	26	29	24	55	19	37	14	23
50,31	2000-2100	13	26	15	54	17	78	18	76	20	74	21	79	26	73	27	71	26	68	26	28	24	60	19	39	13	26
50,31	2100-2200	13	26	15	51	17	79	18	75	20	76	22	76	25	75	26	72	27	70	26	32	24	60	18	41	13	26
50,31	2200-2300	13	27	15	45	16	79	17	74	20	80	21	73	26	76	26	71	25	65	25	31	23	40	17	41	13	27
50,31	2300-0000	13	28	15	41	15	79	17	71	20	80	21	72	26	77	26	75	26	73	25	34	22	39	17	44	13	28

Met Summary

Grid (I,J)	Hour	Month Average																					
		January		February		March		April		May		June		July		August		September		October		November		December	
		Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH
50,30	0000-0100	18	80	21	89	21	88	24	90	25	90	28	88	29	83	28	85	27	76	26	70	21	71	17	73
50,30	0100-0200	18	80	21	89	21	88	24	90	25	91	28	89	29	83	28	86	27	77	25	71	21	70	17	73
50,30	0200-0300	18	80	21	89	21	89	24	90	25	91	28	90	29	84	28	87	27	77	25	72	20	70	17	72
50,30	0300-0400	18	79	20	89	21	88	24	90	25	91	28	90	29	84	28	88	27	77	25	73	20	69	17	71
50,30	0400-0500	18	79	20	90	21	88	24	91	25	91	28	90	28	84	28	88	26	77	25	74	20	70	17	70
50,30	0500-0600	17	79	20	90	21	88	24	92	25	91	28	90	28	85	28	88	26	77	24	75	20	70	16	70
50,30	0600-0700	17	80	20	91	21	87	24	90	25	88	28	87	29	83	28	85	26	76	24	74	19	69	16	69
50,30	0700-0800	17	78	20	88	21	83	25	85	26	84	28	84	29	79	29	81	27	72	25	71	20	66	17	67
50,30	0800-0900	18	75	21	83	22	79	26	81	26	81	29	80	30	76	29	77	28	68	26	67	21	63	18	64
50,30	0900-1000	19	73	22	79	23	76	26	78	27	78	30	76	30	74	30	72	28	64	26	64	22	60	18	61
50,30	1000-1100	19	70	22	77	23	73	27	75	27	77	30	75	31	70	31	69	29	62	27	62	23	57	19	59
50,30	1100-1200	20	68	23	75	23	72	27	73	27	75	30	73	31	69	31	68	30	60	27	60	23	55	20	58
50,30	1200-1300	20	67	23	73	23	72	27	72	28	75	30	72	31	68	31	68	30	59	27	59	24	54	20	57
50,30	1300-1400	20	67	23	73	24	72	27	72	27	75	31	72	31	69	31	69	30	59	27	59	24	55	20	56
50,30	1400-1500	21	67	23	73	24	72	27	73	28	74	31	73	31	69	31	69	30	60	28	59	24	56	21	56
50,30	1500-1600	21	68	23	74	24	73	27	74	28	75	30	74	31	70	31	71	30	61	27	60	24	58	21	57
50,30	1600-1700	20	70	23	76	23	75	26	76	27	78	30	74	31	73	30	73	30	63	27	62	23	62	20	60
50,30	1700-1800	20	73	22	80	23	78	26	80	27	81	30	76	30	75	30	76	29	64	27	65	23	65	20	64
50,30	1800-1900	20	75	22	82	23	81	25	83	27	84	29	79	30	77	30	79	29	66	27	66	23	66	20	66
50,30	1900-2000	20	76	22	84	22	82	25	84	26	85	29	80	30	78	29	79	29	67	27	69	23	67	19	67
50,30	2000-2100	19	79	21	87	22	84	25	87	26	88	29	84	29	81	29	82	28	69	26	70	22	68	19	70
50,30	2100-2200	19	79	21	88	22	86	25	88	26	89	28	85	29	82	29	83	28	71	26	71	22	69	18	72
50,30	2200-2300	19	78	21	89	22	87	25	89	26	90	28	86	29	83	29	84	28	72	26	71	22	70	18	72
50,30	2300-0000	19	79	21	90	22	87	24	90	25	90	28	86	29	83	29	85	28	73	26	72	21	72	18	73
50,31	0000-0100	18	81	20	90	21	89	24	91	25	91	28	88	29	84	28	86	27	77	25	71	21	72	17	74
50,31	0100-0200	18	80	20	89	21	89	24	91	25	91	28	89	29	84	28	87	27	78	25	72	21	71	17	74
50,31	0200-0300	18	80	20	90	21	89	24	91	25	92	28	90	28	84	28	88	26	78	25	73	20	71	17	73
50,31	0300-0400	17	80	20	90	21	89	24	91	25	92	28	91	28	85	28	88	26	78	24	74	20	70	16	72
50,31	0400-0500	17	80	20	90	21	89	24	91	25	91	27	91	28	85	28	89	26	78	24	75	20	70	16	71
50,31	0500-0600	17	80	20	91	21	88	24	92	25	91	27	90	28	86	28	88	26	78	24	76	19	71	16	70
50,31	0600-0700	17	80	20	91	21	88	24	90	25	89	28	87	28	84	28	86	26	77	24	75	19	70	16	69
50,31	0700-0800	17	78	20	88	21	83	25	86	26	85	28	84	29	79	29	81	27	73	25	71	20	66	16	67
50,31	0800-0900	18	75	21	84	22	79	25	81	26	81	29	80	30	76	29	77	28	68	25	68	21	63	17	64
50,31	0900-1000	19	73	22	79	22	76	26	78	27	78	29	76	30	73	30	73	28	65	26	65	22	60	18	61
50,31	1000-1100	19	70	22	77	23	73	27	74	27	76	30	74	31	70	31	69	29	61	27	61	22	57	19	59
50,31	1100-1200	20	68	23	74	23	74	27	73	27	75	30	73	31	69	31	67	30	59	27	60	23	54	20	58
50,31	1200-1300	20	66	23	73	23	72	27	72	28	74	30	71	31	68	31	67	30	58	27	59	24	53	20	57
50,31	1300-1400	20	66	23	72	24	71	27	72	28	74	31	71	31	68	31	68	30	59	27	59	24	54	20	56
50,31	1400-1500	21	67	23	73	24	71	27	72	28	74	30	73	31	68	31	69	30	59	27	58	24	55	21	56
50,31	1500-1600	21	68	23	74	24	72	27	73	28	75	30	73	31	70	31	70	30	62	27	60	24	59	21	57
50,31	1600-1700	20	71	23	76	23	75	26	76	27	78	30	74	31	72	30	73	29	63	27	63	23	62	20	60
50,31	1700-1800	20	74	22	80	23	78	26	79	27	81	30	76	30	75	30	76	29	64	27	65	23	65	19	65
50,31	1800-1900	20	75	22	83	22	81	25	83	26	84	29	79	30	77	29	80	29	67	26	67	23	66	19	67
50,31	1900-2000	20	77	21	85	22	83	25	84	26	86	29	81	30	78	29	80	29	67	26	69	22	68	19	68
50,31	2000-2100	19	80	21	88	22	85	25	87	26	89	29	84	29	81	29	82	28	70	26	71	22	70	18	71
50,31	2100-2200	19	80	21	89	22	86	25	88	25	90	28	86	29	82	29	84	28	72	26	72	22	70	18	73
50,31	2200-2300	19	79	21	90	21	87	24	89	25	90	28	86	29	83	28	85	28	73	25	72	21	71	17	73
50,31	2300-0000	19	79	21	91	21	87	24	90	25	91	28	87	29	84	28	85	27	74	25	72	21	73	17	73

Composite Emission Rate (January 2030)

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
WAN PO ROAD L	RD_001	0000-0100	0.0255212	3.53E-07	2.806E-05	0.0238192	3.295E-07	2.619E-05	0.316797	4.382E-06	0.0003484	0.2822531	3.904E-06	0.0003104	0.3060723	4.234E-06	0.0003366
WAN PO ROAD L	RD_001	0100-0200	0.0287083	2.705E-07	2.15E-05	0.0268731	2.532E-07	2.013E-05	0.3220872	3.035E-06	0.0002413	0.2881845	2.715E-06	0.0002159	0.3150576	2.969E-06	0.000236
WAN PO ROAD L	RD_001	0200-0300	0.0320063	2.307E-07	1.834E-05	0.0299702	2.16E-07	1.717E-05	0.3281997	2.366E-06	0.0001881	0.2928821	2.111E-06	0.0001678	0.3228523	2.327E-06	0.000185
WAN PO ROAD L	RD_001	0300-0400	0.035456	1.914E-07	1.522E-05	0.0333303	1.799E-07	1.43E-05	0.3362338	1.815E-06	0.0001443	0.3024528	1.633E-06	0.0001298	0.3357831	1.813E-06	0.0001441
WAN PO ROAD L	RD_001	0400-0500	0.0388968	1.982E-07	1.576E-05	0.0365476	1.862E-07	1.48E-05	0.3420542	1.743E-06	0.0001385	0.3083363	1.571E-06	0.0001249	0.344884	1.757E-06	0.0001397
WAN PO ROAD L	RD_001	0500-0600	0.0423975	3.042E-07	2.419E-05	0.0400798	2.876E-07	2.286E-05	0.3488207	2.503E-06	0.000199	0.317695	2.28E-06	0.0001812	0.3577748	2.567E-06	0.0002041
WAN PO ROAD L	RD_001	0600-0700	0.0460369	9.286E-07	7.382E-05	0.0435446	8.783E-07	6.982E-05	0.3519535	7.099E-06	0.0005644	0.3220831	6.497E-06	0.0005165	0.3656277	7.375E-06	0.0005863
WAN PO ROAD L	RD_001	0700-0800	0.0500028	1.823E-06	0.0001449	0.0476254	1.736E-06	0.000138	0.3567955	1.301E-05	0.0010342	0.3310599	1.207E-05	0.0009596	0.3786852	1.381E-05	0.0010976
WAN PO ROAD L	RD_001	0800-0900	0.03685	1.463E-06	0.0001163	0.0349915	1.39E-06	0.0001105	0.2935081	1.166E-05	0.0009266	0.269944	1.072E-05	0.0008522	0.3049355	1.211E-05	0.0009627
WAN PO ROAD L	RD_001	0900-1000	0.0490759	1.633E-06	0.0001298	0.0467561	1.556E-06	0.0001237	0.356076	1.185E-05	0.0009418	0.3293279	1.096E-05	0.0008711	0.376084	1.251E-05	0.0009948
WAN PO ROAD L	RD_001	1000-1100	0.0510696	1.599E-06	0.0001271	0.0486653	1.524E-06	0.0001212	0.3811835	1.194E-05	0.000949	0.351842	1.102E-05	0.000876	0.4005073	1.254E-05	0.0009971
WAN PO ROAD L	RD_001	1100-1200	0.0499193	1.486E-06	0.0001181	0.0473934	1.41E-06	0.0001121	0.3632222	1.081E-05	0.0008593	0.3333393	9.92E-06	0.0007886	0.3807327	1.133E-05	0.0009007
WAN PO ROAD L	RD_001	1200-1300	0.0613458	7.343E-07	5.837E-05	0.0584771	6.999E-07	5.564E-05	0.3921357	4.694E-06	0.0003731	0.3651771	4.371E-06	0.0003475	0.4236543	5.071E-06	0.0004031
WAN PO ROAD L	RD_001	1300-1400	0.0699732	8.527E-07	6.779E-05	0.0665589	8.111E-07	6.448E-05	0.4363394	5.317E-06	0.0004227	0.4055824	4.942E-06	0.0003929	0.4721413	5.754E-06	0.0004574
WAN PO ROAD L	RD_001	1400-1500	0.0609221	7.517E-07	5.976E-05	0.0577121	7.121E-07	5.661E-05	0.3924011	4.841E-06	0.0003849	0.3624497	4.472E-06	0.0003555	0.4201618	5.184E-06	0.0004121
WAN PO ROAD L	RD_001	1500-1600	0.0590218	7.272E-07	5.781E-05	0.0561778	6.921E-07	5.502E-05	0.3906815	4.813E-06	0.0003826	0.362426	4.465E-06	0.000355	0.4186038	5.157E-06	0.00041
WAN PO ROAD L	RD_001	1600-1700	0.0546966	7.29E-07	5.796E-05	0.0522467	6.964E-07	5.536E-05	0.3822212	5.094E-06	0.000405	0.3568006	4.756E-06	0.0003781	0.4090473	5.452E-06	0.0004334
WAN PO ROAD L	RD_001	1700-1800	0.0393246	6.098E-07	4.848E-05	0.0374946	5.814E-07	4.622E-05	0.3058421	4.743E-06	0.000377	0.2850696	4.42E-06	0.0003514	0.3225642	5.002E-06	0.0003976
WAN PO ROAD L	RD_001	1800-1900	0.0308295	4.842E-07	3.849E-05	0.0292896	4.6E-07	3.657E-05	0.2797777	4.394E-06	0.0003493	0.2597953	4.08E-06	0.0003244	0.2890849	4.54E-06	0.0003609
WAN PO ROAD L	RD_001	1900-2000	0.0266929	3.674E-07	2.921E-05	0.0253131	3.484E-07	2.77E-05	0.2905808	4E-06	0.000318	0.2688632	3.701E-06	0.0002942	0.2941763	4.049E-06	0.0003219
WAN PO ROAD L	RD_001	2000-2100	0.0277843	3.107E-07	2.47E-05	0.0265317	2.967E-07	2.358E-05	0.3035825	3.394E-06	0.0002699	0.2828928	3.163E-06	0.0002515	0.3094245	3.46E-06	0.000275
WAN PO ROAD L	RD_001	2100-2200	0.0272122	2.901E-07	2.306E-05	0.0257771	2.748E-07	2.184E-05	0.3364347	3.586E-06	0.0002851	0.3083387	3.287E-06	0.0002613	0.3341158	3.562E-06	0.0002831
WAN PO ROAD L	RD_001	2200-2300	0.0225829	2.339E-07	1.86E-05	0.02125	2.201E-07	1.75E-05	0.3240582	3.357E-06	0.0002669	0.2948105	3.054E-06	0.0002428	0.3160605	3.274E-06	0.0002603
WAN PO ROAD L	RD_001	2300-0000	0.0264055	2.116E-07	1.682E-05	0.0247586	1.984E-07	1.577E-05	0.3363012	2.695E-06	0.0002142	0.3029212	2.427E-06	0.000193	0.3276798	2.626E-06	0.0002087
WAN PO ROAD R	RD_002	0000-0100	0.037018	1.881E-07	1.377E-05	0.0347839	1.767E-07	1.294E-05	0.3618857	1.839E-06	0.0001346	0.3264986	1.659E-06	0.0001215	0.3612825	1.836E-06	0.0001344
WAN PO ROAD R	RD_002	0100-0200	0.0418071	1.468E-07	1.075E-05	0.0394036	1.383E-07	1.013E-05	0.3723204	1.307E-06	9.57E-05	0.33735	1.184E-06	8.671E-05	0.3767536	1.323E-06	9.684E-05
WAN PO ROAD R	RD_002	0200-0300	0.0465157	1.258E-07	9.213E-06	0.0438022	1.185E-07	8.676E-06	0.3812686	1.031E-06	7.552E-05	0.3447622	9.326E-07	6.829E-05	0.3885643	1.051E-06	7.696E-05
WAN PO ROAD R	RD_002	0300-0400	0.0512751	1.05E-07	7.688E-06	0.048419	9.915E-08	7.26E-06	0.3927192	8.042E-07	5.888E-05	0.3575863	7.323E-07	5.361E-05	0.4060054	8.314E-07	6.087E-05
WAN PO ROAD R	RD_002	0400-0500	0.055996	1.095E-07	8.019E-06	0.0528823	1.034E-07	7.573E-06	0.4020119	7.863E-07	5.757E-05	0.3667343	7.173E-07	5.252E-05	0.4196166	8.208E-07	6.009E-05
WAN PO ROAD R	RD_002	0500-0600	0.0607028	1.697E-07	1.243E-05	0.0576079	1.611E-07	1.179E-05	0.4118907	1.152E-06	8.433E-05	0.379226	1.06E-06	7.764E-05	0.4368339	1.222E-06	8.944E-05
WAN PO ROAD R	RD_002	0600-0700	0.0654799	5.194E-07	3.803E-05	0.0621808	4.933E-07	3.612E-05	0.4172178	3.31E-06	0.0002423	0.3857273	3.06E-06	0.000224	0.4479081	3.553E-06	0.0002602
WAN PO ROAD R	RD_002	0700-0800	0.0698869	1.014E-06	7.428E-05	0.0668543	9.704E-07	7.105E-05	0.4227947	6.137E-06	0.0004493	0.3957069	5.744E-06	0.0004206	0.4625612	6.714E-06	0.0004916
WAN PO ROAD R	RD_002	0800-0900	0.0542184	8.307E-07	6.082E-05	0.0518279	7.941E-07	5.814E-05	0.3520346	5.394E-06	0.0003949	0.3275091	5.018E-06	0.0003674	0.379337	5.812E-06	0.0004255
WAN PO ROAD R	RD_002	0900-1000	0.0776949	1.112E-06	8.144E-05	0.0742776	1.063E-06	7.786E-05	0.4413593	6.319E-06	0.0004626	0.4127775	5.909E-06	0.0004327	0.4870551	6.973E-06	0.0005105
WAN PO ROAD R	RD_002	1000-1100	0.0835551	1.163E-06	8.512E-05	0.0799206	1.112E-06	8.142E-05	0.471766	6.564E-06	0.0004806	0.4408533	6.134E-06	0.0004491	0.5207739	7.246E-06	0.0005305
WAN PO ROAD R	RD_002	1100-1200	0.0830852	1.078E-06	7.895E-05	0.0791548	1.027E-06	7.522E-05	0.4592318	5.96E-06	0.0004364	0.4270703	5.543E-06	0.0004058	0.5062251	6.57E-06	0.0004811
WAN PO ROAD R	RD_002	1200-1300	0.0520092	1.014E-06	7.421E-05	0.0495354	9.654E-07	7.068E-05	0.357858	6.974E-06	0.0005106	0.3319653	6.469E-06	0.0004737	0.3815007	7.435E-06	0.0005444
WAN PO ROAD R	RD_002	1300-1400	0.060886	1.194E-06	8.745E-05	0.0578641	1.135E-06	8.311E-05	0.4034271	7.914E-06	0.0005794	0.3737156	7.331E-06	0.0005368	0.4315797	8.466E-06	0.0006199
WAN PO ROAD R	RD_002	1400-1500	0.0512172	1.028E-06	7.528E-05	0.0484409	9.725E-07	7.12E-05	0.3569432	7.166E-06	0.0005247	0.3282971	6.591E-06	0.0004826	0.376738	7.563E-06	0.0005538
WAN PO ROAD R	RD_002	1500-1600	0.0486615	9.731E-07	7.125E-05	0.0462522	9.25E-07	6.772E-05	0.3540187	7.08E-06	0.0005184	0.327012	6.54E-06	0.0004788	0.3732642	7.465E-06	0.0005465
WAN PO ROAD R	RD_002	1600-1700	0.0465494	1.012E-06	7.41E-05	0.0444069	9.655E-07	7.069E-05	0.3512848	7.637E-06	0.0005592	0.3268046	7.105E-06	0.0005202	0.3712115	8.071E-06	0.0005909
WAN PO ROAD R	RD_002	1700-1800	0.0340816	8.831E-07	6.466E-05	0.0324512	8.408E-07	6.156E-05	0.2827729	7.327E-06	0.0005364	0.2627829	6.809E-06	0.0004985	0.2952341	7.65E-06	0.0005601
WAN PO ROAD R	RD_002	1800-1900	0.0263783	7.001E-07	5.126E-05	0.0250854	6.658E-07	4.875E-05	0.2575345	6.836E-06	0.0005005	0.2382628	6.324E-06	0.000463	0.2633482	6.99E-06	0.0005118
WAN PO ROAD R	RD_002	1900-2000	0.0236446	5.528E-07	4.048E-05	0.0224655	5.252E-07	3.846E-05	0.2709351	6.334E-06	0.0004638	0.2498737	5.842E-06	0.0004277	0.2723392	6.367E-06	0.0004662
WAN PO ROAD R	RD_002	2000-2100	0.0242887	4.618E-07	3.381E-05	0.0231742	4.406E-07	3.226E-05	0.2825192	5.372E-06	0.0003933	0.2624274	4.99E-06	0.0003653	0.2856016	5.43E-06	0.0003976
WAN PO ROAD R	RD_002	2100-2200	0.0240427	4.36E-07	3.192E-05	0.0227147	4.119E-07	3.016E-05	0.315458	5.721E-06	0.0004189	0.2879832	5.223E-06	0.0003824	0.3106979	5.635E-06	0.0004126
WAN PO ROAD R	RD_002	2200-2300	0.0197292	3.491E-07	2.556E-05	0.0185409	3.281E-07	2.402E-05	0.305092	5.399E-06	0.0003953	0.2764173	4.892E-06	0.0003582	0.2949582	5.22E-06	0.0003822
WAN PO ROAD R	RD_002	2300-0000	0.0230506	3.144E-07	2.302E-05	0.021556	2.94E-07	2.153E-05	0.3154815	4.303E-06	0.0003151	0.2828126	3.857E-06	0.0002824	0.3043686	4.151E-06	0.000304
CROSS BAY LINK L	RD_003	0000-0100	0.0242335	1.866E-07	4.452E-06	0.0224274	1.727E-07	4.12E-06	0.2053419	1.581E-06	3.772E-05	0.1758952	1.354E-06	3.231E-05	0.1983226	1.527E-06	3.643E-05
CROSS BAY LINK L	RD_003	0100-0200	0.0287112	1.521E-07	3.63E-06	0.0267376	1.417E-07	3.381E-06	0.2145647	1.137E-06	2.713E-05	0.1859966	9.856E-07	2.352E-05	0.2127342	1.127E-06	2.69E-05
CROSS BAY LINK L	RD_003	0200-0300	0.0334601	1.368E-07	3.264E-06	0.0311491	1.274E-07	3.039E-06	0.2268131	9.274E-07	2.213E-05	0.1962094	8.022E-07	1.914E-05	0.2273585	9.296E-07	2.218E-05
CROSS BAY LINK L	RD_003	0300-0400	0.0379301	1.171E-07	2.795E-06	0.0354379	1.094E-07	2.611E-06	0.2362457	7.294E-07	1.741E-05	0.2064972	6.376E-07	1.521E-05	0.2419351	7.47E-07	1.782E-05
CROSS BAY LINK L	RD_003	0400-0500	0.0425378	1.242E-07	2.964E-06	0.0398214	1.163E-07	2.775E-06	0.2459317	7.182E-07	1.714E-05	0.2166697	6.328E-07	1.51E-05	0.2564911	7.491E-07	1.787E-05
CROSS BAY LINK L	RD_003	0500-0600	0.0471398	1.967E-07	4.694E-06	0.0444666	1.856E-07	4.428E-06	0.2568007	1.072E-06	2.557E-05	0.2299181	9.595E-07	2.29E-05	0.2743847	1.145E-06	2.732E-05
CROSS BAY LINK L	RD_003	0600-0700	0.05182	6.118E-07	1.46E-05	0.0489752	5.782E-07	1.38E-05	0.2652087	3.131E-06	7.472E-05	0.2393017	2.825E-06	6.742E-05	0.2882768	3.404E-06	8.122E-05

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
CROSS BAY LINK L	RD_003	0700-0800	0.056228	1.211E-06	2.889E-05	0.0535943	1.154E-06	2.753E-05	0.2719535	5.855E-06	0.0001397	0.2503402	5.39E-06	0.0001286	0.3039345	6.544E-06	0.0001561
CROSS BAY LINK L	RD_003	0800-0900	0.0425003	9.817E-07	2.343E-05	0.0404719	9.349E-07	2.231E-05	0.2294015	5.299E-06	0.0001264	0.2088791	4.825E-06	0.0001151	0.249351	5.76E-06	0.0001374
CROSS BAY LINK L	RD_003	0900-1000	0.0627219	1.311E-06	3.129E-05	0.0598445	1.251E-06	2.985E-05	0.2935551	6.137E-06	0.0001464	0.2705732	5.657E-06	0.000135	0.3304177	6.908E-06	0.0001648
CROSS BAY LINK L	RD_003	1000-1100	0.0678066	1.371E-06	3.271E-05	0.0646874	1.308E-06	3.121E-05	0.3202329	6.474E-06	0.0001545	0.2944437	5.953E-06	0.000142	0.3591312	7.261E-06	0.0001733
CROSS BAY LINK L	RD_003	1100-1200	0.067804	1.283E-06	3.061E-05	0.06446	1.22E-06	2.91E-05	0.3172655	6.003E-06	0.0001432	0.2905478	5.498E-06	0.0001312	0.3550078	6.718E-06	0.0001603
CROSS BAY LINK L	RD_003	1200-1300	0.0432255	1.03E-06	2.457E-05	0.0410111	9.771E-07	2.331E-05	0.2434978	5.801E-06	0.0001384	0.2217836	5.284E-06	0.0001261	0.2627947	6.261E-06	0.0001494
CROSS BAY LINK L	RD_003	1300-1400	0.0513963	1.223E-06	2.918E-05	0.0487008	1.159E-06	2.765E-05	0.2791711	6.642E-06	0.0001585	0.2543432	6.051E-06	0.0001444	0.303044	7.21E-06	0.000172
CROSS BAY LINK L	RD_003	1400-1500	0.0423004	1.038E-06	2.477E-05	0.0398581	9.78E-07	2.334E-05	0.241235	5.919E-06	0.0001412	0.2176224	5.34E-06	0.0001274	0.2574805	6.318E-06	0.0001508
CROSS BAY LINK L	RD_003	1500-1600	0.0395099	9.661E-07	2.305E-05	0.0374046	9.147E-07	2.183E-05	0.235895	5.768E-06	0.0001376	0.2134867	5.22E-06	0.0001246	0.2508913	6.135E-06	0.0001464
CROSS BAY LINK L	RD_003	1600-1700	0.0373722	9.934E-07	2.37E-05	0.0355184	9.441E-07	2.253E-05	0.2303154	6.122E-06	0.0001461	0.2101675	5.587E-06	0.0001333	0.2456859	6.531E-06	0.0001558
CROSS BAY LINK L	RD_003	1700-1800	0.0263732	8.391E-07	2.002E-05	0.024992	7.951E-07	1.897E-05	0.1813628	5.77E-06	0.0001377	0.1651987	5.256E-06	0.0001254	0.1901907	6.051E-06	0.0001444
CROSS BAY LINK L	RD_003	1800-1900	0.0186073	6.069E-07	1.448E-05	0.0175494	5.724E-07	1.366E-05	0.152966	4.989E-06	0.000119	0.1379172	4.498E-06	0.0001073	0.1554666	5.07E-06	0.000121
CROSS BAY LINK L	RD_003	1900-2000	0.0149865	4.299E-07	1.026E-05	0.0140374	4.027E-07	9.608E-06	0.1538518	4.413E-06	0.0001053	0.1373357	3.94E-06	9.4E-05	0.1513731	4.342E-06	0.0001036
CROSS BAY LINK L	RD_003	2000-2100	0.015604	3.65E-07	8.709E-06	0.0147157	3.442E-07	8.213E-06	0.1619115	3.787E-06	9.036E-05	0.1461681	3.419E-06	8.158E-05	0.1608838	3.763E-06	8.979E-05
CROSS BAY LINK L	RD_003	2100-2200	0.0143608	3.194E-07	7.622E-06	0.0133204	2.963E-07	7.069E-06	0.1821085	4.05E-06	9.665E-05	0.1592392	3.542E-06	8.451E-05	0.1725596	3.838E-06	9.158E-05
CROSS BAY LINK L	RD_003	2200-2300	0.0108649	2.367E-07	5.647E-06	0.0099549	2.168E-07	5.174E-06	0.1813568	3.95E-06	9.426E-05	0.1577629	3.436E-06	8.2E-05	0.1677178	3.653E-06	8.717E-05
CROSS BAY LINK L	RD_003	2300-0000	0.0140026	2.349E-07	5.604E-06	0.012789	2.145E-07	5.119E-06	0.1914349	3.211E-06	7.662E-05	0.1636674	2.745E-06	6.551E-05	0.1764564	2.96E-06	7.062E-05
CROSS BAY LINK R	RD_004	0000-0100	0.0143775	2.721E-07	4.82E-06	0.0130327	2.467E-07	4.369E-06	0.1833437	3.47E-06	6.147E-05	0.1539094	2.913E-06	5.16E-05	0.1669421	3.16E-06	5.597E-05
CROSS BAY LINK R	RD_004	0100-0200	0.0171515	2.207E-07	3.908E-06	0.015702	2.02E-07	3.578E-06	0.1871348	2.408E-06	4.264E-05	0.1587491	2.042E-06	3.618E-05	0.1744512	2.244E-06	3.975E-05
CROSS BAY LINK R	RD_004	0200-0300	0.0202066	1.981E-07	3.51E-06	0.0185073	1.815E-07	3.214E-06	0.194048	1.903E-06	3.37E-05	0.1636692	1.605E-06	2.843E-05	0.1821764	1.786E-06	3.164E-05
CROSS BAY LINK R	RD_004	0300-0400	0.0230866	1.689E-07	2.992E-06	0.021274	1.557E-07	2.757E-06	0.1982735	1.451E-06	2.57E-05	0.1689508	1.236E-06	2.19E-05	0.1902248	1.392E-06	2.465E-05
CROSS BAY LINK R	RD_004	0400-0500	0.0261104	1.796E-07	3.182E-06	0.0241568	1.662E-07	2.943E-06	0.2026174	1.394E-06	2.469E-05	0.1740528	1.197E-06	2.121E-05	0.1982096	1.364E-06	2.415E-05
CROSS BAY LINK R	RD_004	0500-0600	0.0292538	2.824E-07	5.003E-06	0.0273197	2.638E-07	4.672E-06	0.2085368	2.013E-06	3.566E-05	0.1823413	1.76E-06	3.118E-05	0.209661	2.024E-06	3.585E-05
CROSS BAY LINK R	RD_004	0600-0700	0.0325462	8.808E-07	1.56E-05	0.0304801	8.249E-07	1.461E-05	0.2123229	5.746E-06	0.0001018	0.1873676	5.071E-06	8.982E-05	0.2178477	5.896E-06	0.0001044
CROSS BAY LINK R	RD_004	0700-0800	0.0356844	1.74E-06	3.082E-05	0.033785	1.648E-06	2.918E-05	0.2143925	1.046E-05	0.0001852	0.1938705	9.455E-06	0.0001675	0.2276555	1.11E-05	0.0001966
CROSS BAY LINK R	RD_004	0800-0900	0.024899	1.34E-06	2.374E-05	0.0234501	1.262E-06	2.236E-05	0.1791661	9.643E-06	0.0001708	0.1595463	8.587E-06	0.0001521	0.1829964	9.849E-06	0.0001745
CROSS BAY LINK R	RD_004	0900-1000	0.0310474	1.348E-06	2.388E-05	0.0293819	1.276E-06	2.26E-05	0.2021565	8.78E-06	0.0001555	0.1811668	7.868E-06	0.0001394	0.2105487	9.144E-06	0.000162
CROSS BAY LINK R	RD_004	1000-1100	0.0307387	1.241E-06	2.198E-05	0.0290365	1.172E-06	2.076E-05	0.2157651	8.711E-06	0.0001543	0.1916751	7.738E-06	0.0001371	0.2207116	8.91E-06	0.0001578
CROSS BAY LINK R	RD_004	1100-1200	0.0306664	1.186E-06	2.1E-05	0.0288567	1.116E-06	1.976E-05	0.2103712	8.135E-06	0.0001441	0.1861097	7.196E-06	0.0001275	0.2149664	8.312E-06	0.0001472
CROSS BAY LINK R	RD_004	1200-1300	0.0452277	7.177E-07	1.271E-05	0.0429094	6.809E-07	1.206E-05	0.2348953	3.727E-06	6.602E-05	0.2134813	3.387E-06	6E-05	0.2563907	4.068E-06	7.206E-05
CROSS BAY LINK R	RD_004	1300-1400	0.0533338	8.476E-07	1.501E-05	0.0505313	8.031E-07	1.423E-05	0.2686413	4.27E-06	7.563E-05	0.2442198	3.881E-06	6.875E-05	0.294751	4.685E-06	8.298E-05
CROSS BAY LINK R	RD_004	1400-1500	0.0444566	7.266E-07	1.287E-05	0.0418896	6.846E-07	1.213E-05	0.2326725	3.803E-06	6.735E-05	0.2093798	3.422E-06	6.061E-05	0.2512694	4.106E-06	7.274E-05
CROSS BAY LINK R	RD_004	1500-1600	0.0418943	6.831E-07	1.21E-05	0.0396676	6.468E-07	1.146E-05	0.2274794	3.709E-06	6.57E-05	0.205383	3.349E-06	5.932E-05	0.2450506	3.996E-06	7.077E-05
CROSS BAY LINK R	RD_004	1600-1700	0.0389256	6.887E-07	1.22E-05	0.0369897	6.545E-07	1.159E-05	0.2192963	3.88E-06	6.873E-05	0.1995033	3.53E-06	6.253E-05	0.236493	4.184E-06	7.412E-05
CROSS BAY LINK R	RD_004	1700-1800	0.0269039	5.65E-07	1.001E-05	0.0254831	5.352E-07	9.479E-06	0.1701276	3.573E-06	6.328E-05	0.1542774	3.24E-06	5.739E-05	0.1797605	3.775E-06	6.687E-05
CROSS BAY LINK R	RD_004	1800-1900	0.0186875	4.006E-07	7.095E-06	0.0176061	3.774E-07	6.685E-06	0.1393224	2.986E-06	5.29E-05	0.1246654	2.672E-06	4.733E-05	0.1422714	3.05E-06	5.402E-05
CROSS BAY LINK R	RD_004	1900-2000	0.0143543	2.701E-07	4.783E-06	0.0134036	2.522E-07	4.467E-06	0.1366006	2.57E-06	4.552E-05	0.1205727	2.268E-06	4.018E-05	0.1339764	2.521E-06	4.465E-05
CROSS BAY LINK R	RD_004	2000-2100	0.0150502	2.308E-07	4.088E-06	0.0141593	2.171E-07	3.846E-06	0.1439776	2.208E-06	3.911E-05	0.128705	1.974E-06	3.496E-05	0.1428644	2.191E-06	3.881E-05
CROSS BAY LINK R	RD_004	2100-2200	0.0134878	1.963E-07	3.477E-06	0.0124527	1.813E-07	3.21E-06	0.1606876	2.339E-06	4.143E-05	0.1384718	2.015E-06	3.57E-05	0.1509244	2.197E-06	3.891E-05
CROSS BAY LINK R	RD_004	2200-2300	0.0100902	1.438E-07	2.548E-06	0.0091851	1.309E-07	2.319E-06	0.1624279	2.315E-06	4.101E-05	0.1394391	1.988E-06	3.521E-05	0.1486243	2.119E-06	3.753E-05
CROSS BAY LINK R	RD_004	2300-0000	0.0134038	1.472E-07	2.608E-06	0.0121867	1.339E-07	2.371E-06	0.1723771	1.894E-06	3.354E-05	0.1453046	1.596E-06	2.827E-05	0.1574912	1.73E-06	3.064E-05
INDUSTRIAL ROAD L	RD_005	0000-0100	0.5651605	4.106E-08	1.117E-06	0.5426715	3.943E-08	1.073E-06	8.6536005	6.288E-07	1.71E-05	8.2325329	5.982E-07	1.627E-05	8.7752043	6.376E-07	1.734E-05
INDUSTRIAL ROAD L	RD_005	0100-0200	0.5585427	2.435E-08	6.623E-07	0.5371515	2.342E-08	6.37E-07	8.535918	3.721E-07	1.012E-05	8.1322955	3.545E-07	9.643E-06	8.669447	3.78E-07	1.028E-05
INDUSTRIAL ROAD L	RD_005	0200-0300	0.5594827	1.626E-08	4.423E-07	0.5371937	1.561E-08	4.247E-07	8.5535769	2.486E-07	6.762E-06	8.1340379	2.364E-07	6.43E-06	8.6712315	2.52E-07	6.855E-06
INDUSTRIAL ROAD L	RD_005	0300-0400	0.5596923	1.627E-08	4.425E-07	0.5375078	1.562E-08	4.249E-07	8.5552453	2.486E-07	6.763E-06	8.1386618	2.365E-07	6.434E-06	8.6761697	2.522E-07	6.859E-06
INDUSTRIAL ROAD L	RD_005	0400-0500	0.5600204	1.628E-08	4.427E-07	0.5375359	1.562E-08	4.249E-07	8.5619087	2.488E-07	6.769E-06	8.1398247	2.366E-07	6.435E-06	8.6773606	2.522E-07	6.86E-06
INDUSTRIAL ROAD L	RD_005	0500-0600	0.5599204	1.627E-08	4.426E-07	0.5397254	1.569E-08	4.267E-07	8.5608222	2.488E-07	6.768E-06	8.1806672	2.378E-07	6.467E-06	8.7203926	2.534E-07	6.894E-06
INDUSTRIAL ROAD L	RD_005	0600-0700	0.5658053	5.756E-08	1.566E-06	0.5451005	5.545E-08	1.508E-06	8.66979	8.819E-07	2.399E-05	8.2809754	8.424E-07	2.291E-05	8.826076	8.978E-07	2.442E-05
INDUSTRIAL ROAD L	RD_005	0700-0800	0.5641564	9.838E-08	2.676E-06	0.5460388	9.522E-08	2.59E-06	8.6384818	1.506E-06	4.097E-05	8.2982932	1.447E-06	3.936E-05	8.844332	1.542E-06	4.195E-05
INDUSTRIAL ROAD L	RD_005	0800-0900	0.561224	8.156E-08	2.218E-06	0.5436632	7.9E-08	2.149E-06	8.5492873	1.242E-06	3.379E-05	8.2197081	1.194E-06	3.249E-05	8.7633713	1.273E-06	3.464E-05
INDUSTRIAL ROAD L	RD_005	0900-1000	0.5615152	8.976E-08	2.441E-06	0.5426538	8.674E-08	2.359E-06	8.5604195	1.368E-06	3.722E-05	8.2069341	1.312E-06	3.568E-05	8.7495879	1.399E-06	3.804E-05
INDUSTRIAL ROAD L	RD_005	1000-1100	0.5599631	8.951E-08	2.435E-06	0.5409447	8.647E-08	2.352E-06	8.4562556	1.352E-06	3.677E-05	8.1034564	1.295E-06	3.523E-05	8.6444011	1.382E-06	3.759E-05
INDUSTRIAL ROAD L	RD_005	1100-1200	0.565057	7.39E-08	2.01E-06	0.5440466	7.115E-08	1.935E-06	8.6581579	1.132E-06	3.08E-05	8.2648955	1.081E-06	2.94E-05	8.8089421	1.152E-06	3.134E-05
INDUSTRIAL ROAD L	RD_005	1200-1300	0.5604799	8.145E-08	2.215E-06	0.5404646	7.854E-08	2.136E-06	8.4717245	1.231E-06	3.349E-05	8.0990477	1.177E-06	3.201E-05	8.6395124	1.255E-06	3.415E-05
INDUSTRIAL ROAD L	RD_005	1300-1400	0.5604694	8.145E-08	2.215E-06	0.5397047	7.843E-08	2.133E-06	8.4526146	1.228E-06	3.341E-05	8.0671829	1.172E-06	3.189E-05	8.6068876	1.251E-06	3.402E-05
INDUSTRIAL ROAD L	RD_005	1400-1500	0.5634425	8.188E-08	2.227E-06	0.5406332	7.856E-08	2.137E-06	8.5865872	1.248E-06	3.394E-05	8.1594192	1.186E-06	3.225E-05	8.7000524	1.264E-06	3.439E-05

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
INDUSTRIAL ROAD L	RD_005	1500-1600	0.5612614	8.156E-08	2.219E-06	0.5405133	7.855E-08	2.137E-06	8.5568551	1.243E-06	3.382E-05	8.1693372	1.187E-06	3.229E-05	8.7098505	1.266E-06	3.443E-05
INDUSTRIAL ROAD L	RD_005	1600-1700	0.5598237	8.949E-08	2.434E-06	0.5411881	8.651E-08	2.353E-06	8.5153716	1.361E-06	3.702E-05	8.1676733	1.306E-06	3.551E-05	8.7088614	1.392E-06	3.787E-05
INDUSTRIAL ROAD L	RD_005	1700-1800	0.5594705	8.943E-08	2.433E-06	0.5411672	8.651E-08	2.353E-06	8.5433687	1.366E-06	3.715E-05	8.200942	1.311E-06	3.566E-05	8.7421092	1.397E-06	3.801E-05
INDUSTRIAL ROAD L	RD_005	1800-1900	0.5602177	9.769E-08	2.657E-06	0.5416487	9.445E-08	2.569E-06	8.5935237	1.499E-06	4.076E-05	8.2439137	1.438E-06	3.91E-05	8.7855624	1.532E-06	4.167E-05
INDUSTRIAL ROAD L	RD_005	1900-2000	0.5604814	9.774E-08	2.659E-06	0.5422202	9.455E-08	2.572E-06	8.4721854	1.477E-06	4.019E-05	8.1339663	1.418E-06	3.858E-05	8.6761865	1.513E-06	4.115E-05
INDUSTRIAL ROAD L	RD_005	2000-2100	0.5566189	8.089E-08	2.2E-06	0.5402223	7.85E-08	2.135E-06	8.4802171	1.232E-06	3.352E-05	8.1727279	1.188E-06	3.23E-05	8.7129502	1.266E-06	3.444E-05
INDUSTRIAL ROAD L	RD_005	2100-2200	0.5598913	8.95E-08	2.434E-06	0.5409757	8.648E-08	2.352E-06	8.5588978	1.368E-06	3.721E-05	8.2043261	1.311E-06	3.567E-05	8.7453017	1.398E-06	3.802E-05
INDUSTRIAL ROAD L	RD_005	2200-2300	0.5611835	8.155E-08	2.218E-06	0.5413752	7.867E-08	2.14E-06	8.5817327	1.247E-06	3.392E-05	8.2090384	1.193E-06	3.245E-05	8.7504136	1.272E-06	3.459E-05
INDUSTRIAL ROAD L	RD_005	2300-0000	0.5633282	5.73E-08	1.559E-06	0.5408362	5.502E-08	1.496E-06	8.6210515	8.77E-07	2.385E-05	8.1984746	8.34E-07	2.268E-05	8.7393107	8.89E-07	2.418E-05
INDUSTRIAL ROAD C	RD_007	0000-0100	0.5651605	3.714E-08	3.28E-06	0.5426715	3.566E-08	3.149E-06	8.6536005	5.686E-07	5.022E-05	8.2325329	5.41E-07	4.777E-05	8.7752043	5.766E-07	5.092E-05
INDUSTRIAL ROAD C	RD_007	0100-0200	0.5585427	2.202E-08	1.945E-06	0.5371515	2.118E-08	1.87E-06	8.535918	3.365E-07	2.972E-05	8.1322955	3.206E-07	2.832E-05	8.669447	3.418E-07	3.019E-05
INDUSTRIAL ROAD C	RD_007	0200-0300	0.5594827	1.471E-08	1.299E-06	0.5371937	1.412E-08	1.247E-06	8.5535769	2.248E-07	1.985E-05	8.1340379	2.138E-07	1.888E-05	8.6712315	2.279E-07	2.013E-05
INDUSTRIAL ROAD C	RD_007	0300-0400	0.5537877	1.456E-08	1.285E-06	0.5323048	1.399E-08	1.236E-06	8.4503746	2.221E-07	1.962E-05	8.0447711	2.115E-07	1.867E-05	8.5770759	2.254E-07	1.991E-05
INDUSTRIAL ROAD C	RD_007	0400-0500	0.5600204	1.472E-08	1.3E-06	0.5375359	1.413E-08	1.248E-06	8.5619087	2.25E-07	1.987E-05	8.1398247	2.14E-07	1.889E-05	8.6773606	2.281E-07	2.014E-05
INDUSTRIAL ROAD C	RD_007	0500-0600	0.5486129	1.442E-08	1.273E-06	0.5294194	1.392E-08	1.229E-06	8.3566897	2.197E-07	1.94E-05	7.9964247	2.102E-07	1.856E-05	8.5258441	2.241E-07	1.979E-05
INDUSTRIAL ROAD C	RD_007	0600-0700	0.5658053	5.205E-08	4.597E-06	0.5451005	5.015E-08	4.429E-06	8.66979	7.976E-07	7.044E-05	8.2809754	7.618E-07	6.728E-05	8.826076	8.12E-07	7.171E-05
INDUSTRIAL ROAD C	RD_007	0700-0800	0.5054119	8.635E-08	7.626E-06	0.4901134	8.374E-08	7.395E-06	7.6267804	1.303E-06	0.0001151	7.3421818	1.254E-06	0.0001108	7.8322952	1.338E-06	0.0001182
INDUSTRIAL ROAD C	RD_007	0800-0900	0.5154684	7.452E-08	6.581E-06	0.4991612	7.216E-08	6.373E-06	7.8018124	1.128E-06	9.961E-05	7.4990209	1.084E-06	9.574E-05	7.9981821	1.156E-06	0.0001021
INDUSTRIAL ROAD C	RD_007	0900-1000	0.534391	7.725E-08	6.823E-06	0.5179318	7.488E-08	6.612E-06	8.0737447	1.167E-06	0.0001031	7.7639729	1.122E-06	9.912E-05	8.2819047	1.197E-06	0.0001057
INDUSTRIAL ROAD C	RD_007	1000-1100	0.5599631	8.095E-08	7.149E-06	0.5409447	7.82E-08	6.906E-06	8.4562556	1.222E-06	0.000108	8.1034564	1.171E-06	0.0001035	8.6444011	1.25E-06	0.0001104
INDUSTRIAL ROAD C	RD_007	1100-1200	0.5331403	6.306E-08	5.569E-06	0.5153312	6.095E-08	5.383E-06	8.0800957	9.557E-07	8.44E-05	7.7435187	9.159E-07	8.089E-05	8.25885	9.769E-07	8.627E-05
INDUSTRIAL ROAD C	RD_007	1200-1300	0.5604799	7.366E-08	6.505E-06	0.5404646	7.103E-08	6.273E-06	8.4717245	1.113E-06	9.832E-05	8.0990477	1.064E-06	9.4E-05	8.6395124	1.135E-06	0.0001003
INDUSTRIAL ROAD C	RD_007	1300-1400	0.5241976	6.889E-08	6.084E-06	0.5069425	6.662E-08	5.884E-06	7.8099743	1.026E-06	9.064E-05	7.4879392	9.841E-07	8.691E-05	7.9948816	1.051E-06	9.279E-05
INDUSTRIAL ROAD C	RD_007	1400-1500	0.5634425	7.405E-08	6.539E-06	0.5406332	7.105E-08	6.275E-06	8.5865872	1.128E-06	9.966E-05	8.1594192	1.072E-06	9.47E-05	8.7000524	1.143E-06	0.000101
INDUSTRIAL ROAD C	RD_007	1500-1600	0.5215289	6.854E-08	6.053E-06	0.5047829	6.634E-08	5.859E-06	7.8379807	1.03E-06	9.097E-05	7.521267	9.885E-07	8.729E-05	8.0260499	1.055E-06	9.315E-05
INDUSTRIAL ROAD C	RD_007	1600-1700	0.5598237	8.093E-08	7.147E-06	0.5411881	7.824E-08	6.909E-06	8.5153716	1.231E-06	0.0001087	8.1676733	1.181E-06	0.0001043	8.7088614	1.259E-06	0.0001112
INDUSTRIAL ROAD C	RD_007	1700-1800	0.5165471	7.468E-08	6.595E-06	0.5020438	7.258E-08	6.41E-06	7.7612376	1.122E-06	9.909E-05	7.4875496	1.082E-06	9.559E-05	7.9895934	1.155E-06	0.000102
INDUSTRIAL ROAD C	RD_007	1800-1900	0.5602177	8.835E-08	7.802E-06	0.5416487	8.542E-08	7.544E-06	8.5935237	1.355E-06	0.0001197	8.2439137	1.3E-06	0.0001148	8.7855624	1.386E-06	0.0001224
INDUSTRIAL ROAD C	RD_007	1900-2000	0.5079098	8.01E-08	7.074E-06	0.4942486	7.795E-08	6.884E-06	7.5338738	1.188E-06	0.0001049	7.2769224	1.148E-06	0.0001013	7.7711709	1.226E-06	0.0001082
INDUSTRIAL ROAD C	RD_007	2000-2100	0.5566189	7.315E-08	6.46E-06	0.5402223	7.1E-08	6.27E-06	8.4802171	1.115E-06	9.842E-05	8.1727279	1.074E-06	9.485E-05	8.7129502	1.145E-06	0.0001011
INDUSTRIAL ROAD C	RD_007	2100-2200	0.5100698	7.374E-08	6.512E-06	0.4956569	7.166E-08	6.328E-06	7.6457864	1.105E-06	9.761E-05	7.3740267	1.066E-06	9.414E-05	7.8696836	1.138E-06	0.0001005
INDUSTRIAL ROAD C	RD_007	2200-2300	0.5611835	7.375E-08	6.513E-06	0.5413752	7.115E-08	6.283E-06	8.5817327	1.128E-06	9.96E-05	8.2090384	1.079E-06	9.528E-05	8.7504136	1.15E-06	0.0001016
INDUSTRIAL ROAD C	RD_007	2300-0000	0.5094051	4.686E-08	4.139E-06	0.492616	4.532E-08	4.002E-06	7.6311862	7.02E-07	6.2E-05	7.3139307	6.729E-07	5.942E-05	7.8065467	7.182E-07	6.342E-05
CHUN YAT STREET L	RD_008	0000-0100	0.11939	7.474E-09	1.535E-07	0.1095572	6.859E-09	1.408E-07	0.661508	4.141E-08	8.504E-07	0.5794257	3.627E-08	7.449E-07	0.6889829	4.313E-08	8.858E-07
CHUN YAT STREET L	RD_008	0100-0200	0.124046	5.177E-09	1.063E-07	0.1140593	4.76E-09	9.776E-08	0.6750957	2.818E-08	5.786E-07	0.5932883	2.476E-08	5.085E-07	0.7073476	2.952E-08	6.062E-07
CHUN YAT STREET L	RD_008	0200-0300	0.1286978	5.37E-09	1.103E-07	0.117984	4.923E-09	1.011E-07	0.6935288	2.894E-08	5.942E-07	0.605339	2.526E-08	5.187E-07	0.723323	3.018E-08	6.198E-07
CHUN YAT STREET L	RD_008	0300-0400	0.1325798	2.766E-09	5.681E-08	0.1216934	2.539E-09	5.214E-08	0.7061576	1.473E-08	3.026E-07	0.6178177	1.289E-08	2.647E-07	0.7395111	1.543E-08	3.169E-07
CHUN YAT STREET L	RD_008	0400-0500	0.1361539	2.841E-09	5.834E-08	0.124858	2.605E-09	5.35E-08	0.7173195	1.497E-08	3.073E-07	0.6276419	1.31E-08	2.689E-07	0.7524999	1.57E-08	3.224E-07
CHUN YAT STREET L	RD_008	0500-0600	0.1392852	5.813E-09	1.194E-07	0.1289126	5.38E-09	1.105E-07	0.7295871	3.045E-08	6.252E-07	0.6461166	2.696E-08	5.537E-07	0.7750292	3.234E-08	6.642E-07
CHUN YAT STREET L	RD_008	0600-0700	0.1419474	1.481E-08	3.041E-07	0.1314925	1.372E-08	2.817E-07	0.7361049	7.679E-08	1.577E-06	0.6528675	6.811E-08	1.399E-06	0.78436	8.182E-08	1.68E-06
CHUN YAT STREET L	RD_008	0700-0800	0.146475	3.056E-08	6.276E-07	0.1369112	2.857E-08	5.866E-07	0.7476811	1.56E-07	3.203E-06	0.674273	1.407E-07	2.889E-06	0.8111842	1.692E-07	3.476E-06
CHUN YAT STREET L	RD_008	0800-0900	0.1372285	2.291E-08	4.704E-07	0.1284365	2.144E-08	4.403E-07	0.7017289	1.171E-07	2.405E-06	0.6339963	1.058E-07	2.173E-06	0.7624328	1.273E-07	2.614E-06
CHUN YAT STREET L	RD_008	0900-1000	0.1563189	2.936E-08	6.029E-07	0.1458656	2.74E-08	5.626E-07	0.7658326	1.438E-07	2.954E-06	0.6913144	1.298E-07	2.666E-06	0.83718	1.572E-07	3.229E-06
CHUN YAT STREET L	RD_008	1000-1100	0.1678531	2.451E-08	5.034E-07	0.1567941	2.29E-08	4.703E-07	0.7954527	1.162E-07	2.386E-06	0.721314	1.053E-07	2.163E-06	0.8781081	1.282E-07	2.634E-06
CHUN YAT STREET L	RD_008	1100-1200	0.1625181	3.052E-08	6.267E-07	0.150623	2.828E-08	5.808E-07	0.7879773	1.48E-07	3.038E-06	0.7055531	1.325E-07	2.721E-06	0.8561761	1.608E-07	3.301E-06
CHUN YAT STREET L	RD_008	1200-1300	0.117862	4.674E-08	9.598E-07	0.1093639	4.337E-08	8.906E-07	0.5972105	2.368E-07	4.863E-06	0.5347508	2.12E-07	4.354E-06	0.6441147	2.554E-07	5.245E-06
CHUN YAT STREET L	RD_008	1300-1400	0.1313206	6.576E-08	1.35E-06	0.1213545	6.077E-08	1.248E-06	0.6684358	3.347E-07	6.874E-06	0.5957572	2.983E-07	6.127E-06	0.7171117	3.591E-07	7.375E-06
CHUN YAT STREET L	RD_008	1400-1500	0.1171316	4.644E-08	9.536E-07	0.1076454	4.268E-08	8.764E-07	0.5923784	2.349E-07	4.823E-06	0.5226325	2.072E-07	4.255E-06	0.6302779	2.499E-07	5.131E-06
CHUN YAT STREET L	RD_008	1500-1600	0.1141855	4.527E-08	9.296E-07	0.105771	4.193E-08	8.611E-07	0.5815502	2.306E-07	4.735E-06	0.5176337	2.052E-07	4.214E-06	0.6234047	2.472E-07	5.075E-06
CHUN YAT STREET L	RD_008	1600-1700	0.1084202	4.75E-08	9.755E-07	0.1010886	4.429E-08	9.095E-07	0.5661357	2.48E-07	5.094E-06	0.5094667	2.232E-07	4.584E-06	0.6105553	2.675E-07	5.493E-06
CHUN YAT STREET L	RD_008	1700-1800	0.0994104	5.394E-08	1.108E-06	0.0925905	5.024E-08	1.032E-06	0.5346503	2.901E-07	5.957E-06	0.4799007	2.604E-07	5.347E-06	0.5724912	3.106E-07	6.379E-06
CHUN YAT STREET L	RD_008	1800-1900	0.0924056	5.207E-08	1.069E-06	0.0858552	4.838E-08	9.935E-07	0.5090488	2.868E-07	5.891E-06	0.4548213	2.563E-07	5.263E-06	0.5406766	3.047E-07	6.257E-06
CHUN YAT STREET L	RD_008	1900-2000	0.0868065	4.347E-08	8.927E-07	0.0807495	4.044E-08	8.304E-07	0.4989356	2.499E-07	5.131E-06	0.445272	2.23E-07	4.579E-06	0.5260215	2.634E-07	5.41E-06
CHUN YAT STREET L	RD_008	2000-2100	0.0795694	2.823E-08	5.797E-07	0.0744487	2.641E-08	5.424E-07	0.4657155	1.652E-07	3.393E-06	0.420342	1.491E-07	3.063E-06	0.4947907	1.755E-07	3.605E-06
CHUN YAT STREET L	RD_008	2100-2200	0.0833688	3.132E-08	6.431E-07	0.0771844	2.899E-08	5.954E-07	0.50539	1.898E-07	3.898E-06	0.4466365	1.678E-07	3.445E-06	0.5238209	1.968E-07	4.041E-06
CHUN YAT STREET L	RD_008	2200-2300	0.0716934	2.244E-08	4.609E-07	0.0660974	2.069E-08	4.249E-07	0.4692747	1.469E-07	3.017E-06	0.4130176	1.293E-07	2.655E-06	0.479115	1.5E-07	3.08E-06

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
CHUN YAT STREET L	RD_008	2300-0000	0.0788025	1.973E-08	4.052E-07	0.0719054	1.8E-08	3.697E-07	0.4973038	1.245E-07	2.557E-06	0.4303506	1.078E-07	2.213E-06	0.502256	1.258E-07	2.583E-06
CHUN YAT STREET R	RD_009	0000-0100	0.1483597	2.972E-09	5.128E-08	0.1363548	2.731E-09	4.713E-08	0.7808855	1.564E-08	2.699E-07	0.6885028	1.379E-08	2.38E-07	0.8248575	1.652E-08	2.851E-07
CHUN YAT STREET R	RD_009	0100-0200	0.1506401	3.017E-09	5.207E-08	0.1386841	2.778E-09	4.793E-08	0.7863217	1.575E-08	2.718E-07	0.6948116	1.392E-08	2.402E-07	0.8334958	1.669E-08	2.881E-07
CHUN YAT STREET R	RD_009	0200-0300	0.1534029	3.073E-09	5.302E-08	0.1407921	2.82E-09	4.866E-08	0.7983196	1.599E-08	2.759E-07	0.7004574	1.403E-08	2.421E-07	0.8412495	1.685E-08	2.908E-07
CHUN YAT STREET R	RD_009	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHUN YAT STREET R	RD_009	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHUN YAT STREET R	RD_009	0500-0600	0.1583602	3.171E-09	5.472E-08	0.1466445	2.936E-09	5.067E-08	0.81564	1.633E-08	2.818E-07	0.7243265	1.45E-08	2.503E-07	0.870971	1.744E-08	3.009E-07
CHUN YAT STREET R	RD_009	0600-0700	0.1597769	6.4E-09	1.104E-07	0.1480699	5.932E-09	1.024E-07	0.8179618	3.277E-08	5.654E-07	0.7270825	2.913E-08	5.026E-07	0.8751524	3.506E-08	6.05E-07
CHUN YAT STREET R	RD_009	0700-0800	0.1599498	1.281E-08	2.211E-07	0.1496872	1.199E-08	2.069E-07	0.8118875	6.504E-08	1.122E-06	0.7331886	5.874E-08	1.014E-06	0.8828757	7.073E-08	1.22E-06
CHUN YAT STREET R	RD_009	0800-0900	0.1610178	9.676E-09	1.67E-07	0.1508516	9.065E-09	1.564E-07	0.8061784	4.845E-08	8.36E-07	0.7308332	4.392E-08	7.579E-07	0.8816849	5.298E-08	9.143E-07
CHUN YAT STREET R	RD_009	0900-1000	0.1733299	1.042E-08	1.797E-07	0.1618784	9.727E-09	1.679E-07	0.8367606	5.028E-08	8.676E-07	0.7572558	4.55E-08	7.852E-07	0.9191341	5.523E-08	9.531E-07
CHUN YAT STREET R	RD_009	1000-1100	0.1919188	7.687E-09	1.327E-07	0.1795183	7.191E-09	1.241E-07	0.8864987	3.551E-08	6.127E-07	0.8071038	3.233E-08	5.579E-07	0.9866221	3.952E-08	6.82E-07
CHUN YAT STREET R	RD_009	1100-1200	0.1788886	1.075E-08	1.854E-07	0.1660209	9.973E-09	1.721E-07	0.8527454	5.122E-08	8.84E-07	0.7656673	4.599E-08	7.937E-07	0.9316882	5.597E-08	9.658E-07
CHUN YAT STREET R	RD_009	1200-1300	0.1532266	3.069E-08	5.297E-07	0.1419927	2.844E-08	4.908E-07	0.7816945	1.566E-07	2.702E-06	0.6989405	1.4E-07	2.416E-06	0.8409333	1.685E-07	2.907E-06
CHUN YAT STREET R	RD_009	1300-1400	0.1508621	4.533E-08	7.821E-07	0.1393205	4.186E-08	7.223E-07	0.7818986	2.349E-07	4.054E-06	0.6954538	2.089E-07	3.606E-06	0.8347743	2.508E-07	4.328E-06
CHUN YAT STREET R	RD_009	1400-1500	0.1544581	3.094E-08	5.339E-07	0.1417159	2.838E-08	4.898E-07	0.7849966	1.572E-07	2.713E-06	0.6904871	1.383E-07	2.387E-06	0.832203	1.667E-07	2.876E-06
CHUN YAT STREET R	RD_009	1500-1600	0.1543023	2.781E-08	4.799E-07	0.1427383	2.573E-08	4.439E-07	0.778962	1.404E-07	2.423E-06	0.6922915	1.248E-07	2.153E-06	0.8350298	1.505E-07	2.597E-06
CHUN YAT STREET R	RD_009	1600-1700	0.1483315	2.971E-08	5.127E-07	0.1381958	2.768E-08	4.777E-07	0.7625913	1.527E-07	2.636E-06	0.6861158	1.374E-07	2.371E-06	0.8243116	1.651E-07	2.849E-06
CHUN YAT STREET R	RD_009	1700-1800	0.1404805	3.94E-08	6.798E-07	0.1308683	3.67E-08	6.333E-07	0.737714	2.069E-07	3.57E-06	0.6625478	1.858E-07	3.206E-06	0.7934161	2.225E-07	3.84E-06
CHUN YAT STREET R	RD_009	1800-1900	0.1381755	4.151E-08	7.162E-07	0.1284644	3.859E-08	6.659E-07	0.7294122	2.191E-07	3.781E-06	0.65359	1.963E-07	3.388E-06	0.7820544	2.349E-07	4.054E-06
CHUN YAT STREET R	RD_009	1900-2000	0.1348023	3.509E-08	6.056E-07	0.125611	3.27E-08	5.643E-07	0.7188976	1.872E-07	3.23E-06	0.6452616	1.68E-07	2.899E-06	0.7708725	2.007E-07	3.463E-06
CHUN YAT STREET R	RD_009	2000-2100	0.1348106	2.43E-08	4.194E-07	0.1263206	2.277E-08	3.929E-07	0.7155899	1.29E-07	2.226E-06	0.6501771	1.172E-07	2.023E-06	0.7764977	1.4E-07	2.415E-06
CHUN YAT STREET R	RD_009	2100-2200	0.1358936	2.722E-08	4.696E-07	0.1261243	2.526E-08	4.359E-07	0.7304749	1.463E-07	2.525E-06	0.652492	1.307E-07	2.255E-06	0.7786162	1.559E-07	2.691E-06
CHUN YAT STREET R	RD_009	2200-2300	0.1341469	1.88E-08	3.245E-07	0.1241643	1.741E-08	3.003E-07	0.7237875	1.015E-07	1.751E-06	0.646373	9.061E-08	1.564E-06	0.7705373	1.08E-07	1.864E-06
CHUN YAT STREET R	RD_009	2300-0000	0.1347889	1.62E-08	2.795E-07	0.1235404	1.485E-08	2.562E-07	0.7295527	8.767E-08	1.513E-06	0.6407912	7.7E-08	1.329E-06	0.7643316	9.185E-08	1.585E-06
RESIDENTIAL ROAD L	RD_010	0000-0100	0.0263878	1.216E-07	4.197E-06	0.0234244	1.079E-07	3.725E-06	0.2934844	1.352E-06	4.667E-05	0.2403738	1.107E-06	3.823E-05	0.2637982	1.215E-06	4.195E-05
RESIDENTIAL ROAD L	RD_010	0100-0200	0.0321183	1.004E-07	3.465E-06	0.0287324	8.98E-08	3.1E-06	0.3050642	9.534E-07	3.291E-05	0.2506771	7.835E-07	2.704E-05	0.2794095	8.733E-07	3.014E-05
RESIDENTIAL ROAD L	RD_010	0200-0300	0.0368608	8.788E-08	3.034E-06	0.0331221	7.897E-08	2.726E-06	0.3078218	7.339E-07	2.533E-05	0.2544373	6.066E-07	2.094E-05	0.2875594	6.856E-07	2.367E-05
RESIDENTIAL ROAD L	RD_010	0300-0400	0.0423593	7.553E-08	2.607E-06	0.03852	6.868E-08	2.371E-06	0.3168689	5.65E-07	1.95E-05	0.2681611	4.781E-07	1.651E-05	0.3066811	5.468E-07	1.888E-05
RESIDENTIAL ROAD L	RD_010	0400-0500	0.0483379	8.134E-08	2.808E-06	0.0439159	7.39E-08	2.551E-06	0.3285777	5.529E-07	1.909E-05	0.2779408	4.677E-07	1.614E-05	0.3218568	5.416E-07	1.87E-05
RESIDENTIAL ROAD L	RD_010	0500-0600	0.0541032	1.279E-07	4.415E-06	0.0495426	1.171E-07	4.043E-06	0.3374702	7.977E-07	2.754E-05	0.2897499	6.849E-07	2.364E-05	0.3392925	8.02E-07	2.769E-05
RESIDENTIAL ROAD L	RD_010	0600-0700	0.0656116	4.364E-07	1.506E-05	0.0602599	4.008E-07	1.383E-05	0.3716046	2.471E-06	8.531E-05	0.3225134	2.145E-06	7.404E-05	0.3827733	2.546E-06	8.788E-05
RESIDENTIAL ROAD L	RD_010	0700-0800	0.0794648	9.535E-07	3.292E-05	0.0735412	8.824E-07	3.046E-05	0.4119907	4.944E-06	0.0001707	0.3644281	4.373E-06	0.000151	0.4379693	5.255E-06	0.0001814
RESIDENTIAL ROAD L	RD_010	0800-0900	0.0565388	7.464E-07	2.577E-05	0.0523022	6.905E-07	2.383E-05	0.3466672	4.576E-06	0.000158	0.3045303	4.02E-06	0.0001388	0.3568325	4.711E-06	0.0001626
RESIDENTIAL ROAD L	RD_010	0900-1000	0.0736417	7.996E-07	2.76E-05	0.067914	7.375E-07	2.546E-05	0.4113792	4.467E-06	0.0001542	0.3614889	3.925E-06	0.0001355	0.4294029	4.663E-06	0.000161
RESIDENTIAL ROAD L	RD_010	1000-1100	0.07492	7.608E-07	2.626E-05	0.0691932	7.026E-07	2.425E-05	0.4457908	4.527E-06	0.0001563	0.3919427	3.98E-06	0.0001374	0.4611359	4.683E-06	0.0001616
RESIDENTIAL ROAD L	RD_010	1100-1200	0.0726184	7.041E-07	2.43E-05	0.0667848	6.475E-07	2.235E-05	0.4207618	4.08E-06	0.0001408	0.3676009	3.564E-06	0.000123	0.4343857	4.212E-06	0.0001454
RESIDENTIAL ROAD L	RD_010	1200-1300	0.0789687	3.718E-07	1.283E-05	0.0732267	3.447E-07	1.19E-05	0.4083655	1.922E-06	6.636E-05	0.3647381	1.717E-06	5.927E-05	0.4379648	2.062E-06	7.117E-05
RESIDENTIAL ROAD L	RD_010	1300-1400	0.0949097	4.449E-07	1.536E-05	0.0877419	4.113E-07	1.42E-05	0.4750926	2.227E-06	7.688E-05	0.4237688	1.986E-06	6.857E-05	0.5115107	2.398E-06	8.277E-05
RESIDENTIAL ROAD L	RD_010	1400-1500	0.0772481	3.745E-07	1.293E-05	0.0707761	3.431E-07	1.185E-05	0.4014773	1.946E-06	6.719E-05	0.3532771	1.713E-06	5.913E-05	0.4240532	2.056E-06	7.097E-05
RESIDENTIAL ROAD L	RD_010	1500-1600	0.0719259	3.472E-07	1.199E-05	0.0663668	3.204E-07	1.106E-05	0.393104	1.898E-06	6.551E-05	0.3476681	1.678E-06	5.794E-05	0.4140348	1.999E-06	6.9E-05
RESIDENTIAL ROAD L	RD_010	1600-1700	0.0682224	3.58E-07	1.236E-05	0.0633089	3.322E-07	1.147E-05	0.383203	2.011E-06	6.942E-05	0.3418007	1.794E-06	6.192E-05	0.4051097	2.126E-06	7.339E-05
RESIDENTIAL ROAD L	RD_010	1700-1800	0.0467004	2.928E-07	1.011E-05	0.043274	2.713E-07	9.365E-06	0.2840299	1.781E-06	6.146E-05	0.2527427	1.584E-06	5.469E-05	0.2960167	1.856E-06	6.406E-05
RESIDENTIAL ROAD L	RD_010	1800-1900	0.0324119	2.078E-07	7.174E-06	0.0298061	1.911E-07	6.597E-06	0.2326092	1.491E-06	5.148E-05	0.2025482	1.299E-06	4.483E-05	0.2323543	1.49E-06	5.143E-05
RESIDENTIAL ROAD L	RD_010	1900-2000	0.0250101	1.408E-07	4.86E-06	0.0228114	1.284E-07	4.433E-06	0.2289725	1.289E-06	4.449E-05	0.1960419	1.104E-06	3.809E-05	0.2188533	1.232E-06	4.253E-05
RESIDENTIAL ROAD L	RD_010	2000-2100	0.0253235	1.162E-07	4.011E-06	0.0232525	1.067E-07	3.683E-06	0.2346926	1.077E-06	3.717E-05	0.2031682	9.321E-07	3.218E-05	0.2264207	1.039E-06	3.586E-05
RESIDENTIAL ROAD L	RD_010	2100-2200	0.0224252	9.792E-08	3.38E-06	0.020254	8.844E-08	3.053E-06	0.2607214	1.138E-06	3.93E-05	0.2199055	9.602E-07	3.315E-05	0.2401595	1.049E-06	3.62E-05
RESIDENTIAL ROAD L	RD_010	2200-2300	0.0160814	6.862E-08	2.369E-06	0.0141687	6.046E-08	2.087E-06	0.2652316	1.132E-06	3.907E-05	0.2198625	9.382E-07	3.239E-05	0.2340312	9.987E-07	3.447E-05
RESIDENTIAL ROAD L	RD_010	2300-0000	0.021743	7.143E-08	2.466E-06	0.0192176	6.313E-08	2.179E-06	0.2786753	9.154E-07	3.16E-05	0.229642	7.544E-07	2.604E-05	0.2488596	8.175E-07	2.822E-05
RESIDENTIAL ROAD R	RD_011	0000-0100	0.0591495	8.717E-08	3.551E-06	0.0545293	8.036E-08	3.273E-06	0.6398424	9.43E-07	3.841E-05	0.5718796	8.428E-07	3.433E-05	0.6264089	9.232E-07	3.76E-05
RESIDENTIAL ROAD R	RD_011	0100-0200	0.0651971	6.569E-08	2.676E-06	0.0602124	6.066E-08	2.471E-06	0.6450125	6.499E-07	2.647E-05	0.5773246	5.817E-07	2.369E-05	0.637537	6.423E-07	2.616E-05
RESIDENTIAL ROAD R	RD_011	0200-0300	0.0707417	5.543E-08	2.258E-06	0.0653889	5.124E-08	2.087E-06	0.6446355	5.051E-07	2.058E-05	0.5779906	4.529E-07	1.845E-05	0.6433795	5.042E-07	2.054E-05
RESIDENTIAL ROAD R	RD_011	0300-0400	0.0778453	4.648E-08	1.893E-06	0.0723884	4.322E-08	1.761E-06	0.6625294	3.956E-07	1.611E-05	0.6007464	3.587E-07	1.461E-05	0.6731349	4.019E-07	1.637E-05
RESIDENTIAL ROAD R	RD_011	0400-0500	0.0849842	4.757E-08	1.938E-06	0.0788444	4.413E-08	1.798E-06	0.6775292	3.792E-07	1.545E-05	0.6130181	3.431E-07	1.398E-05	0.6918625	3.873E-07	1.577E-05
RESIDENTIAL ROAD R	RD_011	0500-0600	0.0938409	7.529E-08	3.067E-06	0.0873443	7.008E-08	2.855E-06	0.7030422	5.641E-07	2.298E-05	0.6401457	5.136E-07	2.092E-05	0.72749	5.837E-07	2.378E-05
RESIDENTIAL ROAD R	RD_011	0600-0700	0.105628	2.365E-07	9.634E-06	0.0983834	2.203E-07	8.973E-06	0.7366328	1.649E-06	6.718E-05	0.6730302	1.507E-06	6.138E-05	0.7714135	1.727E-06	7.036E-05

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
RESIDENTIAL ROAD R	RD_011	0700-0800	0.1187928	4.854E-07	1.977E-05	0.1112572	4.546E-07	1.852E-05	0.7794845	3.185E-06	0.0001297	0.7187855	2.937E-06	0.0001196	0.8300427	3.392E-06	0.0001381
RESIDENTIAL ROAD R	RD_011	0800-0900	0.0910225	3.974E-07	1.619E-05	0.0854191	3.73E-07	1.519E-05	0.6443412	2.813E-06	0.0001146	0.5926251	2.588E-06	0.0001054	0.6780441	2.961E-06	0.0001206
RESIDENTIAL ROAD R	RD_011	0900-1000	0.1305706	5.165E-07	2.104E-05	0.121905	4.822E-07	1.964E-05	0.8243863	3.261E-06	0.0001328	0.7575148	2.997E-06	0.0001221	0.8794198	3.479E-06	0.0001417
RESIDENTIAL ROAD R	RD_011	1000-1100	0.1399235	5.351E-07	2.179E-05	0.1308655	5.004E-07	2.038E-05	0.8842756	3.381E-06	0.0001377	0.8137914	3.112E-06	0.0001268	0.9446569	3.612E-06	0.0001471
RESIDENTIAL ROAD R	RD_011	1100-1200	0.1345557	4.796E-07	1.954E-05	0.1252427	4.464E-07	1.818E-05	0.8256267	2.943E-06	0.0001199	0.7553798	2.693E-06	0.0001097	0.8806226	3.139E-06	0.0001279
RESIDENTIAL ROAD R	RD_011	1200-1300	0.1233485	3.13E-07	1.275E-05	0.1154651	2.93E-07	1.193E-05	0.8261518	2.096E-06	8.538E-05	0.7640734	1.939E-06	7.896E-05	0.8795384	2.232E-06	9.09E-05
RESIDENTIAL ROAD R	RD_011	1300-1400	0.1394396	3.617E-07	1.473E-05	0.1300702	3.374E-07	1.374E-05	0.9158595	2.376E-06	9.677E-05	0.84438	2.19E-06	8.921E-05	0.9744502	2.528E-06	0.000103
RESIDENTIAL ROAD R	RD_011	1400-1500	0.123161	3.24E-07	1.32E-05	0.1140893	3.001E-07	1.223E-05	0.8285677	2.18E-06	8.879E-05	0.7578332	1.994E-06	8.121E-05	0.8719225	2.294E-06	9.343E-05
RESIDENTIAL ROAD R	RD_011	1500-1600	0.1200997	3.16E-07	1.287E-05	0.1120443	2.948E-07	1.201E-05	0.8288003	2.181E-06	8.882E-05	0.7626586	2.007E-06	8.173E-05	0.8747029	2.301E-06	9.374E-05
RESIDENTIAL ROAD R	RD_011	1600-1700	0.1109707	3.148E-07	1.282E-05	0.1040753	2.952E-07	1.202E-05	0.8161006	2.315E-06	9.429E-05	0.7559749	2.144E-06	8.734E-05	0.8600502	2.44E-06	9.937E-05
RESIDENTIAL ROAD R	RD_011	1700-1800	0.0787074	2.541E-07	1.035E-05	0.0738579	2.384E-07	9.711E-06	0.6425603	2.074E-06	8.449E-05	0.5957105	1.923E-06	7.833E-05	0.6695684	2.161E-06	8.804E-05
RESIDENTIAL ROAD R	RD_011	1800-1900	0.0629892	2.045E-07	8.331E-06	0.0590454	1.917E-07	7.809E-06	0.5990243	1.945E-06	7.923E-05	0.5528031	1.795E-06	7.311E-05	0.6118486	1.987E-06	8.092E-05
RESIDENTIAL ROAD R	RD_011	1900-2000	0.0548695	1.566E-07	6.38E-06	0.0514701	1.469E-07	5.985E-06	0.6299705	1.798E-06	7.325E-05	0.5800383	1.656E-06	6.744E-05	0.6315084	1.803E-06	7.343E-05
RESIDENTIAL ROAD R	RD_011	2000-2100	0.0567621	1.313E-07	5.35E-06	0.0535151	1.238E-07	5.044E-06	0.6457737	1.494E-06	6.086E-05	0.5982723	1.384E-06	5.638E-05	0.6517874	1.508E-06	6.143E-05
RESIDENTIAL ROAD R	RD_011	2100-2200	0.0558162	1.229E-07	5.005E-06	0.0523402	1.152E-07	4.694E-06	0.7126258	1.569E-06	6.391E-05	0.6534985	1.439E-06	5.86E-05	0.7058388	1.554E-06	6.33E-05
RESIDENTIAL ROAD R	RD_011	2200-2300	0.0473247	1.016E-07	4.136E-06	0.0441092	9.465E-08	3.855E-06	0.6836713	1.467E-06	5.976E-05	0.6201743	1.331E-06	5.421E-05	0.6642835	1.425E-06	5.806E-05
RESIDENTIAL ROAD R	RD_011	2300-0000	0.0541775	8.998E-08	3.665E-06	0.0502178	8.34E-08	3.397E-06	0.7036338	1.169E-06	4.76E-05	0.6346457	1.054E-06	4.293E-05	0.6848634	1.137E-06	4.633E-05
RESIDENTIAL ROAD C	RD_012	0000-0100	0.0354379	1.979E-07	2.244E-06	0.031949	1.785E-07	2.023E-06	0.3888228	2.172E-06	2.462E-05	0.3306736	1.847E-06	2.094E-05	0.3626226	2.025E-06	2.296E-05
RESIDENTIAL ROAD C	RD_012	0100-0200	0.0408481	1.551E-07	1.758E-06	0.0369468	1.403E-07	1.59E-06	0.3956109	1.502E-06	1.703E-05	0.3362372	1.277E-06	1.447E-05	0.3731841	1.417E-06	1.606E-05
RESIDENTIAL ROAD C	RD_012	0200-0300	0.0469419	1.366E-07	1.549E-06	0.0426343	1.241E-07	1.407E-06	0.4057793	1.181E-06	1.339E-05	0.3475092	1.012E-06	1.147E-05	0.3901436	1.136E-06	1.287E-05
RESIDENTIAL ROAD C	RD_012	0300-0400	0.0518903	1.135E-07	1.287E-06	0.0477128	1.044E-07	1.183E-06	0.4100343	8.97E-07	1.017E-05	0.3596738	7.868E-07	8.92E-06	0.4073866	8.912E-07	1.01E-05
RESIDENTIAL ROAD C	RD_012	0400-0500	0.0581508	1.198E-07	1.359E-06	0.0533346	1.099E-07	1.246E-06	0.4235518	8.729E-07	9.896E-06	0.3695949	7.617E-07	8.635E-06	0.4229295	8.716E-07	9.881E-06
RESIDENTIAL ROAD C	RD_012	0500-0600	0.0659299	1.919E-07	2.176E-06	0.0606779	1.766E-07	2.002E-06	0.4431308	1.29E-06	1.462E-05	0.3899582	1.135E-06	1.287E-05	0.450636	1.312E-06	1.487E-05
RESIDENTIAL ROAD C	RD_012	0600-0700	0.0763405	6.238E-07	7.072E-06	0.0704898	5.76E-07	6.53E-06	0.4706271	3.846E-06	4.36E-05	0.417661	3.413E-06	3.869E-05	0.4881508	3.989E-06	4.522E-05
RESIDENTIAL ROAD C	RD_012	0700-0800	0.091111	1.347E-06	1.527E-05	0.0844981	1.25E-06	1.417E-05	0.5196493	7.685E-06	8.712E-05	0.4665899	6.9E-06	7.822E-05	0.551088	8.149E-06	9.239E-05
RESIDENTIAL ROAD C	RD_012	0800-0900	0.0663933	1.072E-06	1.215E-05	0.0617099	9.963E-07	1.129E-05	0.4307232	6.954E-06	7.883E-05	0.3856624	6.226E-06	7.059E-05	0.4473723	7.222E-06	8.188E-05
RESIDENTIAL ROAD C	RD_012	0900-1000	0.0902856	1.231E-06	1.395E-05	0.0835597	1.139E-06	1.291E-05	0.5328795	7.264E-06	8.236E-05	0.476448	6.495E-06	7.363E-05	0.5600077	7.634E-06	8.655E-05
RESIDENTIAL ROAD C	RD_012	1000-1100	0.094377	1.215E-06	1.377E-05	0.0876433	1.128E-06	1.279E-05	0.5765405	7.419E-06	8.411E-05	0.5176275	6.661E-06	7.552E-05	0.6052708	7.789E-06	8.831E-05
RESIDENTIAL ROAD C	RD_012	1100-1200	0.093601	1.142E-06	1.295E-05	0.0864516	1.055E-06	1.196E-05	0.5541114	6.762E-06	7.666E-05	0.4939577	6.028E-06	6.834E-05	0.5804094	7.083E-06	8.03E-05
RESIDENTIAL ROAD C	RD_012	1200-1300	0.0937975	6.291E-07	7.132E-06	0.0874913	5.868E-07	6.652E-06	0.5544924	3.719E-06	4.216E-05	0.5055868	3.391E-06	3.844E-05	0.593078	3.978E-06	4.509E-05
RESIDENTIAL ROAD C	RD_012	1300-1400	0.1098184	7.406E-07	8.396E-06	0.1020476	6.882E-07	7.802E-06	0.63149	4.258E-06	4.828E-05	0.5740388	3.871E-06	4.389E-05	0.6760864	4.559E-06	5.169E-05
RESIDENTIAL ROAD C	RD_012	1400-1500	0.0927804	6.424E-07	7.283E-06	0.0855074	5.921E-07	6.712E-06	0.5521876	3.823E-06	4.335E-05	0.4965437	3.438E-06	3.898E-05	0.5820511	4.03E-06	4.569E-05
RESIDENTIAL ROAD C	RD_012	1500-1600	0.0884214	6.106E-07	6.923E-06	0.0820902	5.669E-07	6.427E-06	0.547583	3.782E-06	4.287E-05	0.495272	3.42E-06	3.878E-05	0.5773622	3.987E-06	4.52E-05
RESIDENTIAL ROAD C	RD_012	1600-1700	0.0849921	6.361E-07	7.212E-06	0.0792024	5.928E-07	6.72E-06	0.5491485	4.11E-06	4.659E-05	0.4997878	3.741E-06	4.241E-05	0.5789902	4.333E-06	4.913E-05
RESIDENTIAL ROAD C	RD_012	1700-1800	0.0588008	5.166E-07	5.856E-06	0.054771	4.812E-07	5.455E-06	0.4167293	3.661E-06	4.15E-05	0.3791032	3.33E-06	3.776E-05	0.4338741	3.812E-06	4.321E-05
RESIDENTIAL ROAD C	RD_012	1800-1900	0.0437783	3.91E-07	4.433E-06	0.040594	3.626E-07	4.111E-06	0.3672664	3.281E-06	3.719E-05	0.3299025	2.947E-06	3.341E-05	0.3704965	3.309E-06	3.752E-05
RESIDENTIAL ROAD C	RD_012	1900-2000	0.0351699	2.759E-07	3.128E-06	0.0325039	2.55E-07	2.891E-06	0.3681574	2.888E-06	3.275E-05	0.3281927	2.575E-06	2.919E-05	0.3606966	2.83E-06	3.208E-05
RESIDENTIAL ROAD C	RD_012	2000-2100	0.0368685	2.353E-07	2.668E-06	0.0342612	2.187E-07	2.479E-06	0.3851801	2.458E-06	2.787E-05	0.3456604	2.206E-06	2.501E-05	0.3799216	2.425E-06	2.749E-05
RESIDENTIAL ROAD C	RD_012	2100-2200	0.0345554	2.099E-07	2.379E-06	0.031877	1.936E-07	2.195E-06	0.4243523	2.577E-06	2.922E-05	0.376183	2.285E-06	2.59E-05	0.40806	2.478E-06	2.81E-05
RESIDENTIAL ROAD C	RD_012	2200-2300	0.0274036	1.625E-07	1.842E-06	0.0249272	1.478E-07	1.676E-06	0.418349	2.481E-06	2.813E-05	0.3639934	2.159E-06	2.447E-05	0.3889205	2.306E-06	2.615E-05
RESIDENTIAL ROAD C	RD_012	2300-0000	0.0327863	1.5E-07	1.7E-06	0.0298442	1.365E-07	1.547E-06	0.424133	1.94E-06	2.199E-05	0.3688432	1.687E-06	1.913E-05	0.3986873	1.823E-06	2.067E-05

Doubled Traffic Scenario

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
WAN PO ROAD L	RD_001		70	67.43	Y	0000-0100	1650	55.09%	32.17%	0.03%	3.14%	1.13%	0.30%	0.59%	0.21%	0.11%	0.88%	0.29%	0.20%	0.43%	0.03%	1.93%	3.33%	0.16%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.23	Y	0100-0200	1124	55.48%	29.93%	0.04%	3.43%	1.23%	0.38%	0.75%	0.22%	0.16%	1.28%	0.42%	0.29%	0.63%	0.03%	1.93%	3.61%	0.20%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.63	Y	0200-0300	860	55.93%	27.60%	0.04%	3.72%	1.33%	0.47%	0.92%	0.24%	0.22%	1.70%	0.55%	0.38%	0.84%	0.03%	1.91%	3.87%	0.24%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.97	Y	0300-0400	644	56.29%	25.31%	0.04%	4.02%	1.44%	0.55%	1.08%	0.26%	0.27%	2.10%	0.69%	0.48%	1.04%	0.03%	1.94%	4.19%	0.28%	0.00%	100%
WAN PO ROAD L	RD_001		70	69.01	Y	0400-0500	608	56.75%	22.90%	0.05%	4.32%	1.55%	0.63%	1.25%	0.28%	0.32%	2.52%	0.82%	0.57%	1.26%	0.03%	1.93%	4.47%	0.33%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.59	Y	0500-0600	856	57.21%	20.46%	0.05%	4.64%	1.67%	0.72%	1.42%	0.30%	0.38%	2.95%	0.97%	0.67%	1.47%	0.03%	1.93%	4.77%	0.37%	0.00%	100%
WAN PO ROAD L	RD_001		70	66.01	Y	0600-0700	2406	57.78%	17.88%	0.05%	4.95%	1.78%	0.82%	1.61%	0.32%	0.44%	3.44%	1.12%	0.77%	1.70%	0.03%	1.88%	5.03%	0.42%	0.00%	100%
WAN PO ROAD L	RD_001		70	61.69	Y	0700-0800	4350	58.27%	15.31%	0.06%	5.27%	1.89%	0.91%	1.79%	0.34%	0.50%	3.90%	1.26%	0.88%	1.93%	0.03%	1.86%	5.33%	0.47%	0.00%	100%
WAN PO ROAD L	RD_001		70	60.02	Y	0800-0900	4738	62.02%	18.97%	0.05%	4.52%	1.62%	0.69%	1.36%	0.21%	0.23%	1.76%	0.88%	0.61%	1.34%	0.04%	1.44%	3.90%	0.36%	0.00%	100%
WAN PO ROAD L	RD_001		70	63.29	Y	0900-1000	3970	56.70%	18.37%	0.08%	7.97%	2.86%	1.45%	2.86%	0.28%	0.17%	1.34%	0.63%	0.44%	0.96%	0.04%	1.85%	3.24%	0.75%	0.00%	100%
WAN PO ROAD L	RD_001		70	63.63	Y	1000-1100	3736	51.60%	23.51%	0.09%	9.09%	3.26%	1.75%	3.44%	0.19%	0.16%	1.24%	0.24%	0.17%	0.36%	0.09%	1.96%	1.96%	0.90%	0.00%	100%
WAN PO ROAD L	RD_001		70	64.00	Y	1100-1200	3550	53.46%	22.41%	0.08%	7.94%	2.85%	1.76%	3.47%	0.32%	0.12%	0.95%	0.37%	0.26%	0.57%	0.02%	1.77%	2.75%	0.91%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.48	Y	1200-1300	1428	52.18%	18.10%	0.10%	9.45%	3.39%	2.03%	3.99%	1.32%	0.33%	2.56%	0.67%	0.47%	1.02%	0.08%	1.86%	1.41%	1.04%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.37	Y	1300-1400	1454	45.68%	18.87%	0.12%	11.30%	4.06%	2.05%	4.03%	2.03%	0.32%	2.53%	1.18%	0.82%	1.80%	0.10%	2.00%	2.05%	1.05%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.42	Y	1400-1500	1472	52.88%	16.39%	0.10%	9.60%	3.45%	2.12%	4.17%	1.25%	0.28%	2.15%	0.54%	0.37%	0.81%	0.05%	1.89%	2.86%	1.09%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.43	Y	1500-1600	1470	52.08%	18.73%	0.10%	9.92%	3.56%	2.25%	4.43%	1.17%	0.21%	1.68%	0.22%	0.15%	0.34%	0.04%	1.93%	2.02%	1.16%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.24	Y	1600-1700	1590	52.07%	18.00%	0.11%	10.45%	3.75%	1.59%	3.13%	1.19%	0.17%	1.30%	0.68%	0.47%	1.04%	0.05%	2.01%	3.18%	0.82%	0.00%	100%
WAN PO ROAD L	RD_001		70	66.97	Y	1700-1800	1850	61.69%	13.27%	0.07%	6.77%	2.43%	0.81%	1.60%	1.51%	0.14%	1.12%	0.72%	0.50%	1.09%	0.03%	1.70%	6.13%	0.42%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.00	Y	1800-1900	1874	67.26%	14.87%	0.05%	4.87%	1.75%	0.59%	1.16%	1.58%	0.02%	0.18%	0.48%	0.34%	0.74%	0.01%	1.80%	3.99%	0.30%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.40	Y	1900-2000	1642	64.36%	20.35%	0.05%	4.39%	1.58%	0.19%	0.38%	1.60%	0.03%	0.23%	0.49%	0.34%	0.74%	0.09%	2.05%	3.04%	0.10%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.89	Y	2000-2100	1334	62.75%	22.92%	0.04%	3.93%	1.41%	0.36%	0.71%	1.25%	0.01%	0.08%	0.43%	0.30%	0.65%	0.04%	2.16%	2.78%	0.18%	0.00%	100%
WAN PO ROAD L	RD_001		70	67.99	Y	2100-2200	1272	56.20%	30.32%	0.04%	3.80%	1.36%	0.25%	0.49%	1.49%	0.01%	0.08%	0.33%	0.23%	0.50%	0.03%	2.41%	2.31%	0.13%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.08	Y	2200-2300	1236	52.86%	35.44%	0.04%	3.49%	1.25%	0.19%	0.38%	1.12%	0.01%	0.08%	0.03%	0.02%	0.04%	0.03%	2.23%	2.68%	0.10%	0.00%	100%
WAN PO ROAD L	RD_001		70	68.50	Y	2300-0000	956	53.01%	33.24%	0.04%	3.84%	1.38%	0.30%	0.59%	1.23%	0.06%	0.46%	0.15%	0.11%	0.23%	0.03%	2.24%	2.94%	0.15%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.09	Y	0000-0100	556	49.89%	29.14%	0.08%	7.83%	2.81%	0.75%	1.48%	0.73%	0.10%	0.79%	0.26%	0.18%	0.39%	0.03%	2.12%	3.01%	0.39%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.36	Y	0100-0200	384	49.69%	26.80%	0.09%	8.45%	3.03%	0.94%	1.86%	0.79%	0.15%	1.15%	0.37%	0.26%	0.57%	0.03%	2.11%	3.23%	0.49%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.50	Y	0200-0300	296	49.54%	24.45%	0.09%	9.06%	3.25%	1.14%	2.24%	0.84%	0.19%	1.50%	0.49%	0.34%	0.74%	0.03%	2.06%	3.43%	0.59%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.62	Y	0300-0400	224	49.30%	22.16%	0.10%	9.68%	3.48%	1.32%	2.60%	0.91%	0.24%	1.84%	0.60%	0.42%	0.91%	0.03%	2.07%	3.67%	0.68%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.63	Y	0400-0500	214	49.13%	19.83%	0.11%	10.30%	3.70%	1.51%	2.97%	0.96%	0.28%	2.18%	0.71%	0.50%	1.09%	0.03%	2.04%	3.87%	0.78%	0.00%	100%
WAN PO ROAD R	RD_002		70	69.46	Y	0500-0600	306	48.96%	17.51%	0.11%	10.92%	3.92%	1.70%	3.34%	1.02%	0.32%	2.52%	0.83%	0.57%	1.26%	0.03%	2.01%	4.08%	0.87%	0.00%	100%
WAN PO ROAD R	RD_002		70	68.46	Y	0600-0700	868	48.87%	15.12%	0.12%	11.51%	4.13%	1.91%	3.75%	1.07%	0.37%	2.91%	0.94%	0.65%	1.44%	0.03%	1.93%	4.25%	0.98%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.14	Y	0700-0800	1588	48.72%	12.80%	0.13%	12.12%	4.35%	2.10%	4.13%	1.12%	0.42%	3.26%	1.06%	0.73%	1.61%	0.03%	1.89%	4.45%	1.08%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.10	Y	0800-0900	1676	53.46%	16.35%	0.11%	10.71%	3.85%	1.65%	3.24%	0.72%	0.19%	1.52%	0.76%	0.53%	1.16%	0.04%	1.51%	3.36%	0.85%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.08	Y	0900-1000	1566	43.87%	14.21%	0.18%	16.97%	6.09%	3.10%	6.09%	0.87%	0.13%	1.04%	0.49%	0.34%	0.74%	0.04%	1.75%	2.51%	1.59%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.11	Y	1000-1100	1522	38.66%	17.61%	0.20%	18.75%	6.73%	3.60%	7.09%	0.56%	0.12%	0.93%	0.18%	0.12%	0.27%	0.08%	1.79%	1.47%	1.85%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.33	Y	1100-1200	1420	40.77%	17.09%	0.17%	16.66%	5.98%	3.70%	7.28%	0.95%	0.09%	0.73%	0.28%	0.20%	0.43%	0.02%	1.64%	2.10%	1.90%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.36	Y	1200-1300	2132	56.00%	19.42%	0.07%	7.01%	2.52%	1.51%	2.96%	0.95%	0.35%	2.74%	0.72%	0.50%	1.10%	0.08%	1.79%	1.51%	0.77%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.23	Y	1300-1400	2146	49.58%	20.48%	0.09%	8.48%	3.05%	1.54%	3.03%	1.48%	0.35%	2.75%	1.28%	0.89%	1.95%	0.10%	1.94%	2.22%	0.79%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.27	Y	1400-1500	2196	56.83%	17.61%	0.07%	7.13%	2.56%	1.58%	3.10%	0.90%	0.30%	2.31%	0.58%	0.40%	0.88%	0.05%	1.82%	3.08%	0.81%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.30	Y	1500-1600	2188	56.12%	20.18%	0.08%	7.39%	2.65%	1.68%	3.30%	0.84%	0.23%	1.81%	0.24%	0.17%	0.36%	0.04%	1.87%	2.17%	0.86%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.00	Y	1600-1700	2378	55.83%	19.30%	0.08%	7.75%	2.78%	1.18%	2.32%	0.86%	0.18%	1.39%	0.73%	0.51%	1.11%	0.05%	1.93%	3.41%	0.61%	0.00%	100%
WAN PO ROAD R	RD_002		70	65.45	Y	1700-1800	2834	64.54%	13.89%	0.05%	4.90%	1.76%	0.59%	1.16%	1.06%	0.15%	1.17%	0.75%	0.52%	1.14%	0.03%	1.60%	6.41%	0.30%	0.00%	100%
WAN PO ROAD R	RD_002		70	65.44	Y	1800-1900	2904	69.63%	15.39%	0.04%	3.49%	1.25%	0.42%	0.83%	1.09%	0.02%	0.19%	0.50%	0.35%	0.76%	0.01%	1.67%	4.13%	0.22%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.00	Y	1900-2000	2558	66.22%	20.94%	0.03%	3.12%	1.12%	0.14%	0.27%	1.10%	0.03%	0.24%	0.50%	0.35%	0.76%	0.08%	1.89%	3.13%	0.07%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.75	Y	2000-2100	2080	64.49%	23.55%	0.03%	2.79%	1.00%	0.26%	0.50%	0.86%	0.01%	0.08%	0.44%	0.31%	0.67%	0.04%	1.99%	2.85%	0.13%	0.00%	100%
WAN PO ROAD R	RD_002		70	66.90	Y	2100-2200	1984	57.71%	31.14%	0.03%	2.70%	0.97%	0.18%	0.35%	1.02%	0.01%	0.08%	0.34%	0.24%	0.52%	0.03%	2.22%	2.37%	0.09%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.03	Y	2200-2300	1936	54.10%	36.27%	0.03%	2.47%	0.89%	0.14%	0.27%	0.76%	0.01%	0.08%	0.03%	0.02%	0.04%	0.03%	2.05%	2.74%	0.07%	0.00%	100%
WAN PO ROAD R	RD_002		70	67.69	Y	2300-0000	1492	54.42%	34.12%	0.03%	2.72%	0.98%	0.21%	0.42%	0.85%	0.06%	0.48%	0.16%	0.11%	0.24%	0.03%	2.06%	3.01%	0.11%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0000-0100	738	52.61%	30.72%	0.07%	6.78%	2.43%	0.65%	1.28%	0.00%	0.11%	0.84%	0.27%	0.19%	0.41%	0.00%	0.12%	3.18%	0.33%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0100-0200	508	52.57%	28.36%	0.08%	7.33%	2.63%	0.82%	1.61%	0.00%	0.16%	1.21%	0.39%	0.27%	0.60%	0.00%	0.12%	3.42%	0.42%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0200-0300	392	52.57%	25.94%	0.08%	7.89%	2.83%	0.99%	1.95%	0.00%	0.20%	1.59%	0.52%	0.36%	0.79%	0.00%	0.12%	3.64%	0.51%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0300-0400	296	52.50%	23.60%	0.09%	8.46%	3.04%	1.16%	2.27%	0.00%	0.25%	1.96%	0.64%	0.44%	0.97%	0.00%	0.12%	3.90%	0.59%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0400-0500	280	52.49%	21.18%	0.09%	9.03%	3.24%	1.33%	2.61%	0.00%	0.30%	2.33%	0.76%	0.53%	1.16%	0.00%	0.12%	4.13%	0.68%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0500-0600	400	52.47%	18.77%	0.10%	9.61%	3.45%	1.50%	2.94%	0.00%	0.35%	2.71%	0.89%	0.61%	1.35%	0.00%	0.12%	4.37%	0.77%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0600-0700	1132	52.51%	16.25%	0.11%	10.16%	3.65%	1.68%	3.31%	0.00%	0.40%	3.12%	1.01%	0.70%	1.54%	0.00%	0.11%	4.57%	0.86%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0700-0800	2064	52.51%	13.80%	0.11%	10.72%	3.85%	1.86%	3.65%	0.00%	0.45%	3.51%	1.14%	0.79%	1.74%	0.00%	0.11%	4.80%	0.95%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0800-0900	2214	56.78%	17.36%	0.10%	9.34%	3.35%	1.44%	2.82%	0.00%	0.21%	1.61%	0.81%	0.56%	1.23%	0.00%	0.09%	3.57%	0.74%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	0900-1000	2004	48.02%	15.56%	0.16%	15.25%	5.48%	2.78%	5.47%	0.00%	0.15%	1.14%	0.53%	0.37%	0.81%	0.00%	0.10%	2.75%	1.43%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1000-1100	1938	42.56%	19.39%	0.18%	16.94%	6.08%	3.26%	6.40%	0.00%	0.13%	1.02%	0.20%	0.14%	0.30%	0.00%	0.11%	1.62%	1.67%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1100-1200	1814	44.76%	18.76%	0.16%	15.01%	5.39%	3.34%	6.56%	0.00%	0.10%	0.80%	0.31%	0.22%	0.47%	0.00%	0.10%	2.30%	1.71%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1200-1300	2284	57.95%	20.10%	0.07%	6.80%	2.44%	1.46%	2.87%	0.00%	0.36%	2.84%	0.75%	0.52%	1.14%	0.02%	0.36%	1.56%	0.75%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1300-1400	2280	51.74%	21.38%	0.09%	8.30%	2.98%	1.51%	2.96%	0.00%	0.37%	2.87%	1.34%	0.93%	2.04%	0.02%	0.40%	2.32%	0.77%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1400-1500	2352	58.80%	18.22%	0.07%	6.92%	2.49%	1.53%	3.01%	0.00%	0.31%	2.39%	0.59%	0.41%	0.91%	0.01%	0.37%	3.18%	0.79%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1500-1600	2344	58.08%	20.89%	0.07%	7.17%	2.58%	1.63%	3.20%	0.00%	0.24%	1.87%	0.25%	0.17%	0.37%	0.01%	0.38%	2.25%	0.84%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1600-1700	2548	57.78%	19.97%	0.08%	7.52%	2.70%	1.14%	2.25%	0.00%	0.18%	1.44%	0.75%	0.52%	1.15%	0.01%	0.39%	3.53%	0.59%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1700-1800	3050	66.47%	14.30%	0.05%	4.73%	1.70%	0.57%	1.12%	0.00%	0.15%	1.20%	0.77%	0.53%	1.17%	0.01%	0.32%	6.61%	0.29%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1800-1900	3126	71.66%	15.84%	0.04%	3.37%	1.21%	0.41%	0.80%	0.00%	0.02%	0.19%	0.52%	0.36%	0.79%	0.00%	0.34%	4.25%	0.21%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	1900-2000	2750	68.26%	21.59%	0.03%	3.02%	1.08%	0.13%	0.26%	0.00%	0.03%	0.24%	0.51%	0.36%	0.78%	0.02%	0.38%	3.23%	0.07%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	2000-2100	2242	66.33%	24.23%	0.03%	2.69%	0.97%	0.25%	0.48%	0.00%	0.01%	0.08%	0.45%	0.32%	0.69%	0.01%	0.40%	2.93%	0.13%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	2100-2200	2132	59.56%	32.13%	0.03%	2.61%	0.94%	0.17%	0.34%	0.00%	0.01%	0.09%	0.35%	0.24%	0.53%	0.01%	0.45%	2.45%	0.09%	0.00%	100%

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
CROSS BAY LINK L	RD_003		80	80.00	Y	2200-2300	2088	55.59%	37.27%	0.02%	2.38%	0.85%	0.13%	0.26%	0.00%	0.01%	0.09%	0.03%	0.02%	0.05%	0.01%	0.41%	2.81%	0.07%	0.00%	100%
CROSS BAY LINK L	RD_003		80	80.00	Y	2300-0000	1608	55.99%	35.11%	0.03%	2.63%	0.94%	0.20%	0.40%	0.00%	0.06%	0.49%	0.16%	0.11%	0.24%	0.01%	0.42%	3.10%	0.10%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0000-0100	1992	57.48%	33.57%	0.02%	1.91%	0.69%	0.18%	0.36%	0.00%	0.12%	0.91%	0.30%	0.21%	0.45%	0.00%	0.23%	3.47%	0.09%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0100-0200	1354	58.07%	31.33%	0.02%	2.09%	0.75%	0.23%	0.46%	0.00%	0.17%	1.34%	0.44%	0.30%	0.66%	0.00%	0.23%	3.78%	0.12%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0200-0300	1032	58.73%	28.98%	0.02%	2.27%	0.82%	0.29%	0.56%	0.00%	0.23%	1.78%	0.58%	0.40%	0.88%	0.00%	0.23%	4.07%	0.15%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0300-0400	770	59.32%	26.67%	0.03%	2.47%	0.89%	0.34%	0.66%	0.00%	0.28%	2.21%	0.72%	0.50%	1.10%	0.00%	0.23%	4.41%	0.17%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0400-0500	724	60.00%	24.21%	0.03%	2.66%	0.96%	0.39%	0.77%	0.00%	0.34%	2.67%	0.87%	0.60%	1.33%	0.00%	0.23%	4.73%	0.20%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0500-0600	1016	60.69%	21.71%	0.03%	2.87%	1.03%	0.45%	0.88%	0.00%	0.40%	3.13%	1.02%	0.71%	1.56%	0.00%	0.23%	5.06%	0.23%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	0600-0700	2848	61.48%	19.02%	0.03%	3.07%	1.10%	0.51%	1.00%	0.00%	0.47%	3.66%	1.19%	0.82%	1.81%	0.00%	0.23%	5.35%	0.26%	0.00%	100%
CROSS BAY LINK R	RD_004		80	76.84	Y	0700-0800	5132	62.22%	16.35%	0.03%	3.28%	1.18%	0.57%	1.12%	0.00%	0.53%	4.16%	1.35%	0.94%	2.06%	0.00%	0.23%	5.69%	0.29%	0.00%	100%
CROSS BAY LINK R	RD_004		80	75.32	Y	0800-0900	5664	65.36%	19.99%	0.03%	2.77%	1.00%	0.43%	0.84%	0.00%	0.24%	1.86%	0.93%	0.64%	1.41%	0.00%	0.17%	4.11%	0.22%	0.00%	100%
CROSS BAY LINK R	RD_004		80	79.24	Y	0900-1000	4570	62.05%	20.11%	0.05%	5.08%	1.82%	0.93%	1.82%	0.00%	0.19%	1.47%	0.69%	0.48%	1.05%	0.01%	0.23%	3.55%	0.48%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1000-1100	4248	57.17%	26.05%	0.06%	5.87%	2.11%	1.13%	2.22%	0.00%	0.18%	1.37%	0.26%	0.18%	0.40%	0.01%	0.25%	2.17%	0.58%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1100-1200	4070	58.74%	24.62%	0.05%	5.08%	1.83%	1.13%	2.22%	0.00%	0.13%	1.05%	0.41%	0.28%	0.62%	0.00%	0.22%	3.02%	0.58%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1200-1300	1670	56.81%	19.70%	0.08%	7.73%	2.78%	1.66%	3.26%	0.00%	0.36%	2.78%	0.73%	0.51%	1.11%	0.00%	0.10%	1.53%	0.85%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1300-1400	1672	50.56%	20.89%	0.10%	9.40%	3.38%	1.71%	3.35%	0.00%	0.36%	2.80%	1.31%	0.91%	1.99%	0.01%	0.11%	2.27%	0.88%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1400-1500	1720	57.60%	17.85%	0.08%	7.86%	2.82%	1.74%	3.42%	0.00%	0.30%	2.34%	0.58%	0.40%	0.89%	0.00%	0.10%	3.12%	0.89%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1500-1600	1716	56.84%	20.44%	0.08%	8.14%	2.92%	1.85%	3.63%	0.00%	0.23%	1.83%	0.24%	0.17%	0.37%	0.00%	0.10%	2.20%	0.95%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1600-1700	1862	56.65%	19.58%	0.09%	8.54%	3.07%	1.30%	2.56%	0.00%	0.18%	1.41%	0.74%	0.51%	1.13%	0.00%	0.11%	3.46%	0.67%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1700-1800	2210	65.74%	14.15%	0.06%	5.43%	1.95%	0.65%	1.28%	0.00%	0.15%	1.19%	0.76%	0.53%	1.16%	0.00%	0.09%	6.53%	0.33%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1800-1900	2256	71.15%	15.73%	0.04%	3.87%	1.39%	0.47%	0.93%	0.00%	0.02%	0.19%	0.51%	0.36%	0.78%	0.00%	0.09%	4.22%	0.24%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	1900-2000	1980	67.96%	21.49%	0.04%	3.48%	1.25%	0.15%	0.30%	0.00%	0.03%	0.24%	0.51%	0.36%	0.78%	0.00%	0.11%	3.21%	0.08%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	2000-2100	1614	66.05%	24.12%	0.03%	3.11%	1.12%	0.28%	0.56%	0.00%	0.01%	0.08%	0.45%	0.31%	0.69%	0.00%	0.11%	2.92%	0.15%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	2100-2200	1532	59.36%	32.02%	0.03%	3.02%	1.08%	0.20%	0.39%	0.00%	0.01%	0.09%	0.35%	0.24%	0.53%	0.00%	0.12%	2.44%	0.10%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	2200-2300	1500	55.43%	37.16%	0.03%	2.75%	0.99%	0.15%	0.30%	0.00%	0.01%	0.09%	0.03%	0.02%	0.05%	0.00%	0.12%	2.80%	0.08%	0.00%	100%
CROSS BAY LINK R	RD_004		80	80.00	Y	2300-0000	1156	55.78%	34.98%	0.03%	3.03%	1.09%	0.24%	0.46%	0.00%	0.06%	0.49%	0.16%	0.11%	0.24%	0.00%	0.12%	3.09%	0.12%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.42	Y	0000-0100	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.48%	98.52%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.61	Y	0100-0200	6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.49%	98.51%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.70	Y	0200-0300	4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.46%	98.54%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.77	Y	0300-0400	4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.52%	98.48%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.79	Y	0400-0500	4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.50%	98.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.70	Y	0500-0600	4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.50%	98.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.18	Y	0600-0700	14	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.38%	98.62%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.54	Y	0700-0800	24	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.35%	98.65%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.75	Y	0800-0900	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.40%	97.60%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.66	Y	0900-1000	22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.20%	97.80%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.63	Y	1000-1100	22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.40%	95.60%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.87	Y	1100-1200	18	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.28%	98.72%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.81	Y	1200-1300	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.25%	95.75%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.69	Y	1300-1400	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.79%	95.21%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.77	Y	1400-1500	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.51%	97.49%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.75	Y	1500-1600	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.17%	97.83%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.59	Y	1600-1700	22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.61%	97.39%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.63	Y	1700-1800	22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.56%	98.44%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.54	Y	1800-1900	24	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%	99.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.49	Y	1900-2000	24	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.98%	96.02%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.74	Y	2000-2100	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.88%	98.12%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.67	Y	2100-2200	22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.34%	98.66%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	28.80	Y	2200-2300	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.41%	98.59%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD L	RD_005		50	29.07	Y	2300-0000	14	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.44%	98.56%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	29.42	Y	0000-0100	10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.48%	98.52%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	30.07	Y	0100-0200	6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.49%	98.51%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	29.70	Y	0200-0300	4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.46%	98.54%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	31.07	Y	0300-0400	4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.52%	98.48%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	29.79	Y	0400-0500	4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.50%	98.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	32.07	Y	0500-0600	4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.50%	98.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	29.18	Y	0600-0700	14	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.38%	98.62%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	33.07	Y	0700-0800	26	4.29%	1.13%	0.01%	0.64%	0.23%	0.11%	0.22%	0.00%	0.04%	0.29%	0.09%	0.06%	0.14%	1.25%	91.06%	0.39%	0.06%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.86	Y	0800-0900	22	5.43%	1.66%	0.01%	0.65%	0.23%	0.10%	0.20%	0.00%	0.02%	0.15%	0.08%	0.05%	0.12%	2.18%	88.73%	0.34%	0.05%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	34.07	Y	0900-1000	22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.20%	97.80%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.63	Y	1000-1100	22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.40%	95.60%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	35.07	Y	1100-1200	18	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.28%	98.72%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.81	Y	1200-1300	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.25%	95.75%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	36.07	Y	1300-1400	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.79%	95.21%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.77	Y	1400-1500	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.51%	97.49%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	37.07	Y	1500-1600	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.17%	97.83%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.59	Y	1600-1700	22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.61%	97.39%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	38.07	Y	1700-1800	22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.56%	98.44%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.54	Y	1800-1900	24	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%	99.50%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	39.07	Y	1900-2000	24	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.98%	96.02%	0.00%	0.00%	0.00%	100%

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
INDUSTRIAL ROAD C	RD_007		50	28.74	Y	2000-2100	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.88%	98.12%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	40.07	Y	2100-2200	22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.34%	98.66%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	28.80	Y	2200-2300	20	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.41%	98.59%	0.00%	0.00%	0.00%	100%
INDUSTRIAL ROAD C	RD_007		50	41.07	Y	2300-0000	14	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.44%	98.56%	0.00%	0.00%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.82	Y	0000-0100	6	14.19%	8.29%	0.07%	6.48%	2.33%	0.62%	1.22%	65.14%	0.03%	0.23%	0.07%	0.05%	0.11%	0.00%	0.00%	0.86%	0.32%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.87	Y	0100-0200	4	13.33%	7.19%	0.07%	6.59%	2.37%	0.74%	1.45%	66.35%	0.04%	0.31%	0.10%	0.07%	0.15%	0.00%	0.00%	0.87%	0.38%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.89	Y	0200-0300	4	12.61%	6.22%	0.07%	6.71%	2.41%	0.84%	1.66%	67.33%	0.05%	0.38%	0.12%	0.09%	0.19%	0.00%	0.00%	0.87%	0.43%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.91	Y	0300-0400	2	11.87%	5.34%	0.07%	6.78%	2.44%	0.93%	1.82%	68.43%	0.06%	0.44%	0.14%	0.10%	0.22%	0.00%	0.00%	0.88%	0.48%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.91	Y	0400-0500	2	11.27%	4.55%	0.07%	6.88%	2.47%	1.01%	1.99%	69.26%	0.06%	0.50%	0.16%	0.11%	0.25%	0.00%	0.00%	0.89%	0.52%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.87	Y	0500-0600	4	10.72%	3.83%	0.07%	6.96%	2.50%	1.08%	2.13%	70.05%	0.07%	0.55%	0.18%	0.13%	0.28%	0.00%	0.00%	0.89%	0.56%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.60	Y	0600-0700	10	10.31%	3.19%	0.07%	7.07%	2.54%	1.17%	2.30%	70.51%	0.08%	0.61%	0.20%	0.14%	0.30%	0.00%	0.00%	0.90%	0.60%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.24	Y	0700-0800	20	9.87%	2.59%	0.07%	7.14%	2.56%	1.24%	2.43%	71.12%	0.08%	0.66%	0.21%	0.15%	0.33%	0.00%	0.00%	0.90%	0.64%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.43	Y	0800-0900	16	14.82%	4.53%	0.09%	8.64%	3.10%	1.33%	2.61%	62.12%	0.05%	0.42%	0.21%	0.15%	0.32%	0.00%	0.00%	0.93%	0.68%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.34	Y	0900-1000	18	10.12%	3.28%	0.12%	11.39%	4.09%	2.08%	4.09%	62.56%	0.03%	0.24%	0.11%	0.08%	0.17%	0.00%	0.00%	0.58%	1.07%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.48	Y	1000-1100	14	11.19%	5.10%	0.16%	15.79%	5.67%	3.04%	5.97%	50.62%	0.03%	0.27%	0.05%	0.04%	0.08%	0.00%	0.00%	0.42%	1.56%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.35	Y	1100-1200	18	8.78%	3.68%	0.11%	10.44%	3.75%	2.32%	4.56%	64.34%	0.02%	0.16%	0.06%	0.04%	0.09%	0.00%	0.00%	0.45%	1.19%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.70	Y	1200-1300	38	27.66%	9.59%	0.07%	6.59%	2.37%	1.42%	2.78%	45.38%	0.17%	1.36%	0.36%	0.25%	0.54%	0.00%	0.00%	0.75%	0.73%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.30	Y	1300-1400	48	19.46%	8.04%	0.07%	6.33%	2.27%	1.15%	2.26%	56.12%	0.14%	1.08%	0.50%	0.35%	0.77%	0.00%	0.00%	0.87%	0.59%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.70	Y	1400-1500	38	28.71%	8.90%	0.07%	6.86%	2.46%	1.52%	2.98%	43.92%	0.15%	1.17%	0.29%	0.20%	0.44%	0.00%	0.00%	1.55%	0.78%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.74	Y	1500-1600	38	29.04%	10.44%	0.08%	7.28%	2.61%	1.65%	3.25%	42.22%	0.12%	0.94%	0.12%	0.09%	0.19%	0.00%	0.00%	1.12%	0.85%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.64	Y	1600-1700	42	28.88%	9.98%	0.08%	7.62%	2.74%	1.16%	2.28%	42.87%	0.09%	0.72%	0.38%	0.26%	0.57%	0.00%	0.00%	1.76%	0.60%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.28	Y	1700-1800	52	31.06%	6.68%	0.05%	4.49%	1.61%	0.54%	1.06%	49.36%	0.07%	0.56%	0.36%	0.25%	0.55%	0.00%	0.00%	3.09%	0.28%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.25	Y	1800-1900	54	33.33%	7.37%	0.03%	3.18%	1.14%	0.39%	0.76%	50.76%	0.01%	0.09%	0.24%	0.17%	0.37%	0.00%	0.00%	1.98%	0.20%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.47	Y	1900-2000	48	31.90%	10.09%	0.03%	2.86%	1.03%	0.13%	0.25%	51.24%	0.01%	0.11%	0.24%	0.17%	0.37%	0.00%	0.00%	1.51%	0.06%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.92	Y	2000-2100	34	34.98%	12.78%	0.03%	2.88%	1.04%	0.26%	0.52%	45.01%	0.01%	0.04%	0.24%	0.17%	0.37%	0.00%	0.00%	1.55%	0.14%	0.00%	100%
CHUN YAT STREET L	RD_008		50	28.87	Y	2100-2200	36	28.87%	15.58%	0.03%	2.57%	0.92%	0.17%	0.33%	49.66%	0.01%	0.04%	0.17%	0.12%	0.26%	0.00%	0.00%	1.19%	0.09%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.07	Y	2200-2300	30	30.97%	20.77%	0.03%	2.69%	0.97%	0.15%	0.29%	42.38%	0.01%	0.05%	0.02%	0.01%	0.03%	0.00%	0.00%	1.57%	0.08%	0.00%	100%
CHUN YAT STREET L	RD_008		50	29.23	Y	2300-0000	24	29.72%	18.63%	0.03%	2.83%	1.02%	0.22%	0.43%	44.80%	0.03%	0.26%	0.08%	0.06%	0.13%	0.00%	0.00%	1.65%	0.11%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.94	Y	0000-0100	2	1.78%	1.04%	0.09%	8.25%	2.96%	0.79%	1.56%	82.96%	0.00%	0.03%	0.01%	0.01%	0.01%	0.00%	0.00%	0.11%	0.41%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.95	Y	0100-0200	2	1.64%	0.88%	0.09%	8.23%	2.95%	0.92%	1.81%	82.83%	0.00%	0.04%	0.01%	0.01%	0.02%	0.00%	0.00%	0.11%	0.47%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.96	Y	0200-0300	2	1.52%	0.75%	0.09%	8.24%	2.96%	1.04%	2.04%	82.63%	0.01%	0.05%	0.01%	0.01%	0.02%	0.00%	0.00%	0.11%	0.53%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.97	Y	0300-0400	0	1.41%	0.63%	0.09%	8.19%	2.94%	1.12%	2.20%	82.63%	0.01%	0.05%	0.02%	0.01%	0.03%	0.00%	0.00%	0.10%	0.57%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.97	Y	0400-0500	0	1.32%	0.53%	0.09%	8.19%	2.94%	1.20%	2.36%	82.51%	0.01%	0.06%	0.02%	0.01%	0.03%	0.00%	0.00%	0.10%	0.62%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.95	Y	0500-0600	2	1.24%	0.44%	0.09%	8.19%	2.94%	1.27%	2.50%	82.43%	0.01%	0.06%	0.02%	0.01%	0.03%	0.00%	0.00%	0.10%	0.65%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.86	Y	0600-0700	4	1.18%	0.37%	0.09%	8.24%	2.96%	1.37%	2.68%	82.17%	0.01%	0.07%	0.02%	0.02%	0.03%	0.00%	0.00%	0.10%	0.70%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.73	Y	0700-0800	8	1.12%	0.29%	0.09%	8.24%	2.96%	1.43%	2.81%	82.07%	0.01%	0.07%	0.02%	0.02%	0.04%	0.00%	0.00%	0.10%	0.73%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.80	Y	0800-0900	6	1.81%	0.55%	0.11%	10.71%	3.85%	1.65%	3.24%	76.99%	0.01%	0.05%	0.03%	0.02%	0.04%	0.00%	0.00%	0.11%	0.85%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.76	Y	0900-1000	6	1.15%	0.37%	0.14%	13.12%	4.71%	2.39%	4.71%	72.05%	0.00%	0.03%	0.01%	0.01%	0.02%	0.00%	0.00%	0.07%	1.23%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.82	Y	1000-1100	4	1.30%	0.59%	0.20%	18.69%	6.71%	3.59%	7.06%	59.91%	0.00%	0.03%	0.01%	0.00%	0.01%	0.00%	0.00%	0.05%	1.85%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.76	Y	1100-1200	6	0.98%	0.41%	0.12%	11.86%	4.26%	2.64%	5.18%	73.09%	0.00%	0.02%	0.01%	0.00%	0.01%	0.00%	0.00%	0.05%	1.35%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.24	Y	1200-1300	20	2.95%	1.02%	0.05%	4.50%	1.61%	0.97%	1.90%	86.15%	0.02%	0.14%	0.04%	0.03%	0.06%	0.00%	0.00%	0.08%	0.50%	0.00%	100%
CHUN YAT STREET R	RD_009		50	28.85	Y	1300-1400	30	1.75%	0.72%	0.04%	3.65%	1.31%	0.66%	1.30%	89.90%	0.01%	0.10%	0.05%	0.03%	0.07%	0.00%	0.00%	0.08%	0.34%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.25	Y	1400-1500	20	3.13%	0.97%	0.05%	4.78%	1.72%	1.06%	2.08%	85.26%	0.02%	0.13%	0.03%	0.02%	0.05%	0.00%	0.00%	0.17%	0.54%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.29	Y	1500-1600	18	3.24%	1.17%	0.05%	5.21%	1.87%	1.18%	2.33%	84.05%	0.01%	0.10%	0.01%	0.01%	0.02%	0.00%	0.00%	0.13%	0.61%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.22	Y	1600-1700	20	3.21%	1.11%	0.06%	5.43%	1.95%	0.83%	1.63%	84.95%	0.01%	0.08%	0.04%	0.03%	0.06%	0.00%	0.00%	0.20%	0.42%	0.00%	100%
CHUN YAT STREET R	RD_009		50	28.93	Y	1700-1800	28	3.19%	0.69%	0.03%	2.95%	1.06%	0.35%	0.70%	90.35%	0.01%	0.06%	0.04%	0.03%	0.06%	0.00%	0.00%	0.32%	0.18%	0.00%	100%
CHUN YAT STREET R	RD_009		50	28.89	Y	1800-1900	30	3.38%	0.75%	0.02%	2.07%	0.74%	0.25%	0.49%	91.87%	0.00%	0.01%	0.02%	0.02%	0.04%	0.00%	0.00%	0.20%	0.13%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.03	Y	1900-2000	26	3.24%	1.02%	0.02%	1.86%	0.67%	0.08%	0.16%	92.66%	0.00%	0.01%	0.02%	0.02%	0.04%	0.00%	0.00%	0.15%	0.04%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.37	Y	2000-2100	18	3.96%	1.45%	0.02%	2.09%	0.75%	0.19%	0.38%	90.80%	0.00%	0.00%	0.03%	0.02%	0.04%	0.00%	0.00%	0.18%	0.10%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.30	Y	2100-2200	20	3.01%	1.63%	0.02%	1.72%	0.62%	0.11%	0.22%	92.43%	0.00%	0.00%	0.02%	0.01%	0.03%	0.00%	0.00%	0.12%	0.06%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.48	Y	2200-2300	14	3.71%	2.48%	0.02%	2.06%	0.74%	0.11%	0.22%	90.39%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.19%	0.06%	0.00%	100%
CHUN YAT STREET R	RD_009		50	29.56	Y	2300-0000	12	3.38%	2.12%	0.02%	2.06%	0.74%	0.16%	0.32%	90.87%	0.00%	0.03%	0.01%	0.01%	0.01%	0.00%	0.00%	0.19%	0.08%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.63	Y	0000-0100	460	56.85%	33.20%	0.03%	2.67%	0.96%	0.26%	0.50%	0.00%	0.12%	0.90%	0.29%	0.20%	0.45%	0.00%	0.00%	3.43%	0.13%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	24.37	Y	0100-0200	312	57.34%	30.93%	0.03%	2.91%	1.05%	0.33%	0.64%	0.00%	0.17%	1.32%	0.43%	0.30%	0.66%	0.00%	0.00%	3.73%	0.17%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	24.74	Y	0200-0300	238	57.89%	28.57%	0.03%	3.17%	1.14%	0.40%	0.78%	0.00%	0.22%	1.76%	0.57%	0.40%	0.87%	0.00%	0.00%	4.01%	0.20%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	25.25	Y	0300-0400	178	58.36%	26.24%	0.04%	3.43%	1.23%	0.47%	0.92%	0.00%	0.28%	2.18%	0.71%	0.49%	1.08%	0.00%	0.00%	4.34%	0.24%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	25.48	Y	0400-0500	168	58.92%	23.78%	0.04%	3.69%	1.33%	0.54%	1.07%	0.00%	0.34%	2.62%	0.86%	0.59%	1.30%	0.00%	0.00%	4.64%	0.28%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	24.71	Y	0500-0600	236	59.49%	21.28%	0.04%	3.97%	1.42%	0.62%	1.21%	0.00%	0.39%	3.07%	1.00%	0.70%	1.53%	0.00%	0.00%	4.96%	0.32%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	22.35	Y	0600-0700	664	60.14%	18.61%	0.04%	4.24%	1.52%	0.70%	1.38%	0.00%	0.46%	3.58%	1.16%	0.81%	1.77%	0.00%	0.00%	5.23%	0.36%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	19.34	Y	0700-0800	1198	60.75%	15.96%	0.05%	4.52%	1.62%	0.78%	1.54%	0.00%	0.52%	4.07%	1.32%	0.91%	2.01%	0.00%	0.00%	5.55%	0.40%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	18.90	Y	0800-0900	1318	64.08%	19.60%	0.04%	3.84%	1.38%	0.59%	1.16%	0.00%	0.23%	1.82%	0.91%	0.63%	1.39%	0.00%	0.00%	4.03%	0.30%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	19.96	Y	0900-1000	1084	59.69%	19.34%	0.07%	6.90%	2.48%	1.26%	2.48%	0.00%	0.18%	1.41%	0.66%	0.46%	1.01%	0.00%	0.00%	3.42%	0.65%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	20.32	Y	1000-1100	1014	54.62%	24.88%	0.08%	7.92%	2.84%	1.52%	2.99%	0.00%	0.17%	1.31%	0.25%	0.17%	0.38%	0.00%	0.00%	2.07%	0.78%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	20.60	Y	1100-1200	968	56.34%	23.61%	0.07%	6.88%	2.47%	1.53%	3.01%	0.00%	0.13%	1.01%	0.39%	0.27%	0.60%	0.00%	0.00%	2.90%	0.79%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.32	Y	1200-1300	470	57.83%	20.06%	0.07%	7.07%	2.54%	1.52%	2.99%	0.00%	0.36%	2.83%	0.74%	0.52%	1.13%	0.00%	0.00%	1.56%	0.78%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.26	Y	1300-1400	468	51.60%	21.32%	0.09%	8.62%	3.10%	1.56%	3.08%	0.00%	0.37%	2.86%	1.33%	0.92%	2.03%	0.00%	0.00%	2.32%	0.80%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.26	Y	1400-1500	484	58.66%	18.18%	0.08%	7.19%	2.58%	1.59%	3.13%	0.00%	0.31%	2.39%	0.59%	0.41%	0.90%	0.00%	0.00%	3.18%	0.82%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.28	Y	1500-1600	482	57.93%	20.83%	0.08%	7.45%	2.68%	1.69%	3.33%	0.00%	0.24%	1.87%	0.25%	0.17%	0.37%	0.00%	0.00%	2.24%	0.87%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.06	Y	1600-1700	524	57.67%	19.93%	0.08%	7.81%	2.81%	1.19%	2.34%	0.00%	0.18%	1.43%	0.75%	0.52%	1.15%	0.00%	0.00%	3.52%	0.61%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	22.65	Y	1700-1800	626	66.46%	14.30%	0.05%	4.93%	1.77%	0.59%	1.16%	0.00%	0.15%	1.20%	0.77%	0.53%	1.17%	0.00%	0.00%	6.60%	0.30%	0.00%	100%

Road Name	Road ID	Road Type	Speed Limit (km/hr)	Average Speed (km/hr)	Start Emission Estimated by Broad Brush Approach (Y/N)	Hour	Total Vehicles (Veh/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t	Total
								PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9	
RESIDENTIAL ROAD L	RD_010		50	22.65	Y	1800-1900	640	71.72%	15.86%	0.04%	3.51%	1.26%	0.43%	0.84%	0.00%	0.02%	0.20%	0.52%	0.36%	0.79%	0.00%	0.00%	4.25%	0.22%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.08	Y	1900-2000	562	68.40%	21.63%	0.03%	3.15%	1.13%	0.14%	0.27%	0.00%	0.03%	0.24%	0.52%	0.36%	0.79%	0.00%	0.00%	3.24%	0.07%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.62	Y	2000-2100	458	66.48%	24.28%	0.03%	2.81%	1.01%	0.26%	0.51%	0.00%	0.01%	0.08%	0.46%	0.32%	0.69%	0.00%	0.00%	2.94%	0.13%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.75	Y	2100-2200	436	59.73%	32.22%	0.03%	2.73%	0.98%	0.18%	0.35%	0.00%	0.01%	0.09%	0.35%	0.24%	0.54%	0.00%	0.00%	2.45%	0.09%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	23.83	Y	2200-2300	426	55.74%	37.37%	0.03%	2.48%	0.89%	0.14%	0.27%	0.00%	0.01%	0.09%	0.03%	0.02%	0.05%	0.00%	0.00%	2.82%	0.07%	0.00%	100%
RESIDENTIAL ROAD L	RD_010		50	24.31	Y	2300-0000	328	56.13%	35.20%	0.03%	2.74%	0.98%	0.21%	0.42%	0.00%	0.06%	0.49%	0.16%	0.11%	0.24%	0.00%	0.00%	3.11%	0.11%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	25.56	Y	0000-0100	158	51.09%	29.84%	0.07%	6.29%	2.26%	0.60%	1.19%	0.00%	0.10%	0.81%	0.26%	0.18%	0.40%	0.05%	3.44%	3.09%	0.31%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	26.91	Y	0100-0200	108	51.09%	27.56%	0.07%	6.81%	2.45%	0.76%	1.50%	0.00%	0.15%	1.18%	0.38%	0.27%	0.58%	0.05%	3.43%	3.32%	0.39%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	27.59	Y	0200-0300	84	51.15%	25.24%	0.08%	7.34%	2.64%	0.92%	1.82%	0.00%	0.20%	1.55%	0.50%	0.35%	0.77%	0.05%	3.37%	3.54%	0.47%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	28.16	Y	0300-0400	64	51.10%	22.97%	0.08%	7.88%	2.83%	1.08%	2.11%	0.00%	0.24%	1.91%	0.62%	0.43%	0.95%	0.05%	3.40%	3.80%	0.55%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	28.23	Y	0400-0500	60	51.14%	20.64%	0.09%	8.41%	3.02%	1.24%	2.43%	0.00%	0.29%	2.27%	0.74%	0.52%	1.13%	0.05%	3.36%	4.03%	0.63%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	27.45	Y	0500-0600	86	51.17%	18.31%	0.09%	8.96%	3.22%	1.39%	2.74%	0.00%	0.34%	2.64%	0.86%	0.60%	1.32%	0.05%	3.33%	4.26%	0.72%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.54	Y	0600-0700	240	51.31%	15.88%	0.10%	9.48%	3.41%	1.57%	3.09%	0.00%	0.39%	3.05%	0.99%	0.69%	1.51%	0.05%	3.21%	4.46%	0.81%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	23.31	Y	0700-0800	438	51.36%	13.50%	0.10%	10.03%	3.60%	1.74%	3.42%	0.00%	0.44%	3.44%	1.11%	0.77%	1.70%	0.04%	3.16%	4.69%	0.89%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	23.25	Y	0800-0900	468	55.81%	17.07%	0.09%	8.78%	3.15%	1.35%	2.65%	0.00%	0.20%	1.59%	0.79%	0.55%	1.21%	0.06%	2.50%	3.51%	0.69%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	23.34	Y	0900-1000	424	47.25%	15.31%	0.15%	14.34%	5.15%	2.62%	5.15%	0.00%	0.14%	1.12%	0.52%	0.36%	0.80%	0.07%	2.98%	2.70%	1.34%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	23.38	Y	1000-1100	410	41.88%	19.08%	0.17%	15.94%	5.72%	3.06%	6.02%	0.00%	0.13%	1.00%	0.19%	0.13%	0.29%	0.14%	3.06%	1.59%	1.57%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	23.58	Y	1100-1200	382	44.16%	18.51%	0.15%	14.16%	5.08%	3.15%	6.19%	0.00%	0.10%	0.79%	0.31%	0.21%	0.47%	0.04%	2.81%	2.27%	1.62%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.30	Y	1200-1300	272	49.82%	17.28%	0.11%	10.83%	3.89%	2.33%	4.57%	0.00%	0.31%	2.44%	0.64%	0.44%	0.98%	0.16%	3.65%	1.34%	1.19%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.22	Y	1300-1400	278	43.62%	18.02%	0.14%	12.95%	4.65%	2.35%	4.62%	0.00%	0.31%	2.42%	1.13%	0.78%	1.72%	0.20%	3.93%	1.96%	1.21%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.25	Y	1400-1500	282	50.40%	15.62%	0.11%	10.98%	3.94%	2.43%	4.77%	0.00%	0.26%	2.05%	0.51%	0.35%	0.78%	0.10%	3.71%	2.73%	1.25%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.25	Y	1500-1600	282	49.50%	17.80%	0.12%	11.32%	4.06%	2.57%	5.06%	0.00%	0.20%	1.59%	0.21%	0.15%	0.32%	0.08%	3.78%	1.92%	1.32%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.13	Y	1600-1700	304	49.61%	17.15%	0.12%	11.95%	4.29%	1.82%	3.58%	0.00%	0.16%	1.23%	0.65%	0.45%	0.99%	0.11%	3.94%	3.03%	0.93%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.00	Y	1700-1800	346	60.04%	12.92%	0.08%	7.91%	2.84%	0.95%	1.87%	0.00%	0.14%	1.09%	0.70%	0.48%	1.06%	0.05%	3.41%	5.97%	0.49%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.04	Y	1800-1900	348	65.89%	14.57%	0.06%	5.73%	2.06%	0.70%	1.37%	0.00%	0.02%	0.18%	0.47%	0.33%	0.72%	0.02%	3.62%	3.91%	0.36%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.29	Y	1900-2000	306	63.10%	19.95%	0.00	5.16%	1.85%	0.23%	0.45%	0.00%	0.03%	0.23%	0.48%	0.33%	0.72%	0.17%	4.14%	2.98%	0.12%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.61	Y	2000-2100	248	61.28%	22.38%	0.05%	4.61%	1.65%	0.42%	0.83%	0.00%	0.01%	0.08%	0.42%	0.29%	0.64%	0.08%	4.33%	2.71%	0.22%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.67	Y	2100-2200	236	54.93%	29.63%	0.05%	4.46%	1.60%	0.29%	0.58%	0.00%	0.01%	0.08%	0.32%	0.22%	0.49%	0.07%	4.85%	2.26%	0.15%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	24.73	Y	2200-2300	230	51.64%	34.62%	0.04%	4.09%	1.47%	0.23%	0.45%	0.00%	0.01%	0.08%	0.03%	0.02%	0.04%	0.06%	4.49%	2.61%	0.12%	0.00%	100%
RESIDENTIAL ROAD R	RD_011		50	25.04	Y	2300-0000	178	51.76%	32.45%	0.05%	4.49%	1.61%	0.35%	0.69%	0.00%	0.06%	0.45%	0.15%	0.10%	0.23%	0.07%	4.50%	2.87%	0.18%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	24.12	Y	0000-0100	618	55.38%	32.34%	0.04%	3.60%	1.29%	0.35%	0.68%	0.00%	0.11%	0.88%	0.28%	0.19%	0.44%	0.01%	0.88%	3.34%	0.18%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	25.02	Y	0100-0200	420	55.73%	30.06%	0.04%	3.91%	1.41%	0.44%	0.86%	0.00%	0.16%	1.28%	0.42%	0.29%	0.64%	0.01%	0.88%	3.62%	0.23%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	25.48	Y	0200-0300	322	56.13%	27.70%	0.04%	4.26%	1.53%	0.54%	1.05%	0.00%	0.21%	1.71%	0.55%	0.39%	0.84%	0.01%	0.88%	3.89%	0.27%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	26.02	Y	0300-0400	242	56.44%	25.38%	0.05%	4.61%	1.65%	0.63%	1.23%	0.00%	0.27%	2.11%	0.69%	0.47%	1.05%	0.01%	0.90%	4.20%	0.32%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	26.20	Y	0400-0500	228	56.87%	22.95%	0.05%	4.93%	1.77%	0.72%	1.43%	0.00%	0.33%	2.53%	0.83%	0.57%	1.26%	0.01%	0.88%	4.48%	0.37%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	25.45	Y	0500-0600	322	57.27%	20.49%	0.05%	5.30%	1.90%	0.83%	1.62%	0.00%	0.38%	2.96%	0.96%	0.67%	1.47%	0.01%	0.89%	4.77%	0.43%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	22.93	Y	0600-0700	904	57.80%	17.89%	0.06%	5.63%	2.02%	0.93%	1.83%	0.00%	0.44%	3.44%	1.11%	0.78%	1.70%	0.01%	0.85%	5.03%	0.48%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	20.40	Y	0700-0800	1636	58.24%	15.30%	0.06%	6.00%	2.15%	1.04%	2.04%	0.00%	0.50%	3.90%	1.26%	0.87%	1.93%	0.01%	0.85%	5.32%	0.53%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	20.04	Y	0800-0900	1786	61.91%	18.94%	0.05%	5.13%	1.84%	0.79%	1.55%	0.00%	0.22%	1.76%	0.88%	0.61%	1.34%	0.02%	0.66%	3.89%	0.40%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	20.91	Y	0900-1000	1508	56.19%	18.21%	0.09%	8.99%	3.23%	1.64%	3.23%	0.00%	0.17%	1.33%	0.62%	0.43%	0.95%	0.02%	0.84%	3.22%	0.84%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	21.20	Y	1000-1100	1424	50.95%	23.21%	0.11%	10.23%	3.67%	1.96%	3.86%	0.00%	0.16%	1.22%	0.23%	0.16%	0.35%	0.04%	0.88%	1.93%	1.01%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	21.45	Y	1100-1200	1350	52.89%	22.17%	0.09%	8.94%	3.21%	1.99%	3.91%	0.00%	0.12%	0.95%	0.37%	0.25%	0.56%	0.01%	0.80%	2.72%	1.02%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.68	Y	1200-1300	742	54.89%	19.04%	0.08%	8.45%	3.03%	1.82%	3.57%	0.00%	0.34%	2.69%	0.70%	0.49%	1.08%	0.06%	1.34%	1.48%	0.93%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.62	Y	1300-1400	746	48.63%	20.09%	0.11%	10.23%	3.68%	1.85%	3.65%	0.00%	0.35%	2.70%	1.26%	0.87%	1.91%	0.07%	1.46%	2.19%	0.95%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.62	Y	1400-1500	766	55.62%	17.24%	0.09%	8.59%	3.08%	1.90%	3.73%	0.00%	0.29%	2.26%	0.56%	0.39%	0.86%	0.04%	1.37%	3.01%	0.98%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.64	Y	1500-1600	764	54.82%	19.71%	0.09%	8.88%	3.19%	2.01%	3.97%	0.00%	0.23%	1.77%	0.24%	0.16%	0.35%	0.03%	1.40%	2.12%	1.04%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.45	Y	1600-1700	828	54.71%	18.91%	0.09%	9.33%	3.35%	1.42%	2.80%	0.00%	0.17%	1.36%	0.71%	0.49%	1.09%	0.04%	1.45%	3.34%	0.73%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.13	Y	1700-1800	972	64.17%	13.81%	0.06%	5.99%	2.15%	0.72%	1.41%	0.00%	0.15%	1.16%	0.75%	0.51%	1.13%	0.02%	1.21%	6.38%	0.37%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.14	Y	1800-1900	988	69.67%	15.41%	0.05%	4.29%	1.54%	0.53%	1.03%	0.00%	0.02%	0.19%	0.50%	0.35%	0.77%	0.01%	1.28%	4.13%	0.27%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.51	Y	1900-2000	868	66.53%	21.04%	0.04%	3.86%	1.38%	0.17%	0.33%	0.00%	0.03%	0.24%	0.51%	0.35%	0.77%	0.06%	1.46%	3.15%	0.09%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	23.97	Y	2000-2100	706	64.65%	23.61%	0.04%	3.44%	1.23%	0.32%	0.62%	0.00%	0.01%	0.08%	0.45%	0.31%	0.67%	0.03%	1.52%	2.86%	0.16%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	24.08	Y	2100-2200	672	58.04%	31.31%	0.04%	3.34%	1.20%	0.22%	0.43%	0.00%	0.01%	0.09%	0.34%	0.23%	0.52%	0.02%	1.70%	2.38%	0.11%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	24.15	Y	2200-2300	656	54.30%	36.41%	0.03%	3.04%	1.09%	0.17%	0.33%	0.00%	0.01%	0.09%	0.03%	0.02%	0.05%	0.02%	1.57%	2.75%	0.09%	0.00%	100%
RESIDENTIAL ROAD C	RD_012		50	24.57	Y	2300-0000	506	54.59%	34.23%	0.04%	3.36%	1.20%	0.26%	0.51%	0.00%	0.06%	0.48%	0.16%	0.11%	0.24%	0.02%	1.58%	3.03%	0.13%	0.00%	100%

Appendix 3.3 Calculation of Vehicular Emissions
Traffic Data and Road Segments (Year 2041)

Road ID	Segment ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Road height (mAG)	Physical Road width (m)	Road elevation (m)	Barrier 1 width (m)	Barrier 1 height (m)	Barrier 1 DCL (m)	Barrier 2 width (m)	Barrier 2 height (m)	Barrier 2 DCL (m)	Portal ID
RD_001	RD_001_001	846256.09	816775.06	846251.03	816786.06		8.95								
RD_001	RD_001_002	846251.03	816786.06	846237.20	816820.49		8.19								
RD_001	RD_001_003	846208.48	817387.39	846176.50	817480.43		11.10								
RD_001	RD_001_004	846176.50	817480.43	846159.88	817513.75		7.47								
RD_001	RD_001_005	846159.88	817513.75	846135.30	817560.20		8.96								
RD_001	RD_001_006	846220.28	817010.50	846221.54	817135.41		20.34								
RD_001	RD_001_007	846221.54	817135.41	846220.52	817287.67		8.03								
RD_001	RD_001_008	846220.52	817287.67	846216.88	817341.15		9.69								
RD_001	RD_001_009	846216.88	817341.15	846208.50	817387.10		13.13								
RD_001	RD_001_010	846237.20	816820.49	846225.31	816877.40		8.36								
RD_001	RD_001_011	846225.31	816877.40	846220.28	817010.50		20.07								
RD_001	RD_001_012	846426.03	816285.66	846425.71	816300.05		5.78								
RD_001	RD_001_013	846425.71	816300.05	846422.27	816365.72		6.14								
RD_001	RD_001_014	846422.27	816365.72	846410.47	816437.91		6.80								
RD_001	RD_001_015	846410.47	816437.91	846399.00	816484.63		7.03								
RD_001	RD_001_016	846399.00	816484.63	846391.05	816512.53		6.97								
RD_001	RD_001_017	846391.05	816512.53	846372.88	816564.34		6.85								
RD_001	RD_001_018	846372.88	816564.34	846360.49	816593.90		7.10								
RD_001	RD_001_019	846360.49	816593.90	846325.82	816662.86		7.48								
RD_001	RD_001_020	846325.82	816662.86	846269.29	816753.74		7.80								
RD_001	RD_001_021	846269.29	816753.74	846256.24	816774.91		9.58								
RD_002	RD_002_001	846146.00	817566.10	846170.80	817518.63		7.90								
RD_002	RD_002_002	846229.14	817340.94	846231.42	817322.34		7.21								
RD_002	RD_002_003	846231.42	817322.34	846234.36	817233.09		8.15								
RD_002	RD_002_004	846234.36	817233.09	846236.12	817053.37		11.30								
RD_002	RD_002_005	846236.12	817053.37	846236.98	817010.85		11.18								
RD_002	RD_002_006	846270.25	816780.30	846283.10	816761.50		19.09								
RD_002	RD_002_007	846283.10	816761.50	846346.03	816646.16		8.15								
RD_002	RD_002_008	846346.03	816646.16	846368.12	816599.77		7.00								
RD_002	RD_002_009	846368.12	816599.77	846392.68	816538.00		7.49								
RD_002	RD_002_010	846392.68	816538.00	846413.96	816464.60		7.51								
RD_002	RD_002_011	846413.96	816464.60	846425.33	816411.12		6.94								
RD_002	RD_002_012	846425.33	816411.12	846439.11	816304.27		7.62								
RD_002	RD_002_013	846439.11	816304.27	846439.63	816284.34		8.69								
RD_002	RD_002_014	846236.60	816954.48	846236.52	816915.50		7.65								
RD_002	RD_002_015	846236.52	816915.50	846240.67	816870.21		7.40								
RD_002	RD_002_016	846240.67	816870.21	846251.93	816830.14		10.68								
RD_002	RD_002_017	846251.93	816830.14	846265.97	816791.83		15.84								
RD_002	RD_002_018	846265.97	816791.83	846270.29	816780.18		23.24								
RD_002	RD_002_019	846236.98	817010.85	846236.60	816954.48		8.14								
RD_002	RD_002_020	846219.60	817392.56	846220.45	817389.75		7.97								
RD_002	RD_002_021	846208.35	817428.50	846219.60	817392.56		10.18								
RD_002	RD_002_022	846170.66	817518.55	846208.50	817428.46		10.02								
RD_002	RD_002_023	846220.13	817390.26	846229.12	817341.15		6.90								
RD_003	RD_003_001	846044.89	817022.52	846207.70	817023.45		10.30		12.61	6.369	5.65				
RD_003	RD_003_002	846207.70	817023.45	846236.58	817024.03		11.82								
RD_003	RD_003_003	846044.89	817022.52	846207.70	817023.45		10.30		12.61	6.369	5.65				
RD_003	RD_003_004	845901.54	817021.71	846044.89	817022.52		7.30		9.60	5.668	4.65				
RD_004	RD_004_001	846220.28	817010.50	846205.03	817009.39		21.71								
RD_004	RD_004_002	846205.03	817009.39	846163.09	817012.68		7.30								
RD_004	RD_004_003	846163.09	817012.68	845992.44	817012.46		7.30								
RD_004	RD_004_004	845992.44	817012.46	845900.52	817011.85		7.30								
RD_004	RD_004_005	846220.28	817010.50	846236.98	817010.85		20.63								
RD_005	RD_005_001	846298.11	816506.73	846325.57	816570.51		17.76								
RD_005	RD_005_002	846325.57	816570.51	846331.14	816571.84		22.78								
RD_005	RD_005_003	846331.14	816571.84	846333.41	816570.74		24.29								
RD_005	RD_005_004	846333.41	816570.74	846357.97	816512.06		18.38								
RD_005	RD_005_005	846357.97	816512.06	846363.24	816495.35		11.45								
RD_005	RD_005_006	846344.10	816486.73	846357.05	816494.01		11.86								
RD_005	RD_005_007	846357.05	816494.01	846363.24	816495.35		11.42								
RD_005	RD_005_008	846058.85	816765.57	846058.64	816773.10		7.95								
RD_005	RD_005_009	846058.64	816773.10	846068.22	816790.49		6.77								
RD_005	RD_005_010	846068.22	816790.49	846075.43	816792.71		9.52								
RD_005	RD_005_011	846075.43	816792.71	846081.30	816790.94		11.11								
RD_005	RD_005_012	846081.30	816790.94	846085.43	816782.64		11.52								
RD_005	RD_005_013	846085.43	816782.64	846084.30	816778.09		11.30								
RD_005	RD_005_014	846084.30	816778.09	846080.18	816774.88		11.35								
RD_005	RD_005_015	846080.18	816774.88	846068.85	816772.44		11.12								
RD_005	RD_005_016	846068.85	816772.44	846059.35	816765.84		10.32								
RD_005	RD_005_017	846363.24	816495.35	846369.42	816493.25		10.77								
RD_005	RD_005_018	846369.42	816493.25	846372.93	816486.49		9.35								
RD_005	RD_005_019	846372.93	816486.49	846372.31	816482.95		10.04								
RD_005	RD_005_020	846372.31	816482.95	846367.78	816476.97		10.52								
RD_005	RD_005_021	846367.78	816476.97	846359.02	816476.08		10.47								
RD_005	RD_005_022	846359.02	816476.08	846349.85	816478.40		8.92								
RD_005	RD_005_023	846349.85	816478.40	846346.76	816480.50		8.20								
RD_005	RD_005_024	846346.76	816480.50	846343.97	816486.36		11.48								
RD_005	RD_005_025	846513.24	816710.49	846525.62	816689.57		10.60								
RD_005	RD_005_026	846525.62	816689.57	846525.11	816683.48		10.07								
RD_005	RD_005_027	846525.11	816683.48	846520.99	816678.38		8.07								
RD_005	RD_005_028	846520.99	816678.38	846513.88	816678.71		8.22								
RD_005	RD_005_029	846513.88	816678.71	846509.86	816683.69		9.50								
RD_005	RD_005_030	846509.86	816683.69	846514.49	816697.43		11.47								
RD_005	RD_005_031	846514.49	816697.43	846513.24	816710.49		10.91								
RD_007	RD_007_001	846426.39	816842.54	846513.24	816710.49		9.76								
RD_007	RD_007_002	846236.60	816954.48	846292.35	816954.63		7.25								
RD_007	RD_007_003	846292.35	816954.63	846299.46	816956.18		8.29								
RD_007	RD_007_004	846299.46	816956.18	846305.23	816960.73		13.50								
RD_007	RD_007_005	846305.23	816960.73	846309.24	816967.59		13.15								
RD_007	RD_007_006	846309.24	816967.59	846308.47	817041.12		9.27								
RD_007	RD_007_007	846308.47	817041.12	846305.48	817045.33		12.41								
RD_007	RD_007_008	846305.48	817045.33	846301.87	817045.88		18.97								
RD_007	RD_007_009	846426.39	816842.54	846266.19	816774.89		20.53								
RD_007	RD_007_010	846073.39	816600.36	846259.45	816519.31		22.85								
RD_007	RD_007_011	846296.76	816504.61	846259.45	816519.31		14.55								
RD_007	RD_007_012	846058.85	816765.57	846016.25	816666.10		10.23								
RD_007	RD_007_013	846016.25	816666.10	846012.76	816656.35		10.25								
RD_007	RD_007_014	846012.76	816656.35	846011.11	816645.28		10.67								
RD_007	RD_007_015	846011.11	816645.28	846012.46	816636.42		10.74								
RD_007	RD_007_016	846012.46	816636.42	846021.95	816623.69		12.09								
RD_007	RD_007_017	846021.95	816623.69	846028.03	816619.71		12.87								
RD_007	RD_007_018	846028.03	816619.71	846073.39	816600.36		21.66								
RD_007	RD_007_019	846343.97	816486.36	846296.76	816504.61		14.20								
RD_007	RD_007_020	846195.61	816368.96	846259.09	816519.27		13.79								
RD_008	RD_008_001	846210.76	816755.03	846225.80	816766.67		5.73								
RD_008	RD_008_002	846225.80	816766.67	846232.59	816774.87		5.35								
RD_008	RD_008_003	846232.59	816774.87	846237.63	816790.37		5.55								
RD_008	RD_008_004	846237.63	816790.37	846237.20	816820.49		7.28								
RD_008	RD_008_005	846210.76	816755.03	846247.33	816770.12		5.82								
RD_008	RD_008_006	846247.33	816770.11	846266.22	816779.06		18.05								
RD_008	RD_008_007	846041.05	816531.17	846076.26	816617.97		6.73								
RD_008	RD_008_008	846076.26	816617.97	846097.56	816661.83		7.52								
RD_008	RD_008_009	846097.56	816661.83	846124.85	816698.95		7.33								
RD_008	RD_008_010	846124.85	816698.95	846149.36	816721.11		7.04								
RD_008	RD_008_011	846149.36	816721.11	846166.25	816732.97		6.99								
RD_008	RD_008_012	846166.25	816732.97	846186.34	816744.61		6.93								
RD_008	RD_008_013	846186.34	816744.61	846210.76	816755.03		6.70								
RD_009	RD_009_001	846269.72	816770.53	846251.25	816762.03		20.75								
RD_009	RD_009_002	846251.25	816762.03	846194.59	816738.63		7.17								

Appendix 3.3 Calculation of Vehicular Emissions
Traffic Data and Road Segments (Year 2041)

Road ID	Segment ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Road height (mAG)	Physical Road width (m)	Road elevation (m)	Barrier 1 width (m)	Barrier 1 height (m)	Barrier 1 DCL (m)	Barrier 2 width (m)	Barrier 2 height (m)	Barrier 2 DCL (m)	Portal ID
RD_009	RD_009_003	846194.59	816738.63	846178.31	816730.10		6.42								
RD_009	RD_009_004	846178.31	816730.10	846137.83	816699.84		6.33								
RD_009	RD_009_005	846137.83	816699.84	846126.81	816687.98		6.48								
RD_009	RD_009_006	846126.81	816687.98	846110.75	816665.49		6.97								
RD_009	RD_009_007	846110.75	816665.49	846100.46	816647.55		6.97								
RD_009	RD_009_008	846100.46	816647.55	846085.54	816613.88		7.08								
RD_009	RD_009_009	846085.54	816613.88	846047.39	816528.28		7.66								
RD_010	RD_010_001	846101.34	817375.08	846123.59	817389.26		7.07								
RD_010	RD_010_002	846123.59	817389.26	846147.49	817398.91		6.39								
RD_010	RD_010_003	846147.49	817398.91	846207.10	817411.48		17.75								
RD_010	RD_010_004	846051.60	817321.78	846092.27	817368.31		10.09								
RD_010	RD_010_005	846092.27	817368.31	846101.34	817375.08		7.19								
RD_010	RD_010_006	846207.26	817411.53	846254.53	817429.32		17.43								
RD_010	RD_010_007	846254.53	817429.32	846266.17	817438.52		6.21								
RD_010	RD_010_008	846266.17	817438.52	846276.98	817452.04		6.53								
RD_010	RD_010_009	846276.98	817452.04	846285.21	817472.64		6.73								
RD_010	RD_010_010	846285.21	817472.64	846287.58	817486.15		6.88								
RD_010	RD_010_011	846287.58	817486.15	846283.64	817510.95		6.39								
RD_010	RD_010_012	846283.64	817510.95	846280.86	817518.70		6.04								
RD_010	RD_010_013	846280.86	817518.70	846262.49	817551.58		6.14								
RD_010	RD_010_014	846262.49	817551.58	846232.90	817605.59		6.15								
RD_010	RD_010_015	845898.06	817146.95	845940.52	817146.20		4.78								
RD_010	RD_010_016	845940.52	817146.20	845971.33	817152.64		4.58								
RD_010	RD_010_017	845971.33	817152.64	845988.64	817159.96		3.50								
RD_010	RD_010_018	845988.64	817159.96	846002.23	817167.94		3.50								
RD_010	RD_010_019	846002.23	817167.94	846016.86	817178.91		3.50								
RD_010	RD_010_020	846016.86	817178.91	846031.48	817194.42		3.50								
RD_010	RD_010_021	846031.48	817194.42	846043.32	817212.48		3.89								
RD_010	RD_010_022	846043.32	817212.48	846051.04	817229.54		4.51								
RD_010	RD_010_023	846051.04	817229.54	846055.97	817247.59		4.85								
RD_010	RD_010_024	846055.97	817247.59	846057.92	817262.98		5.21								
RD_010	RD_010_025	846057.92	817262.98	846054.10	817278.26		4.91								
RD_010	RD_010_026	846054.10	817278.26	846045.95	817291.77		8.11								
RD_011	RD_011_001	846209.77	817401.07	846164.60	817392.17		17.11								
RD_011	RD_011_002	846164.60	817392.17	846146.36	817386.84		6.32								
RD_011	RD_011_003	846146.36	817386.84	846137.91	817383.85		6.73								
RD_011	RD_011_004	846137.91	817383.85	846116.80	817371.65		8.11								
RD_011	RD_011_005	846116.80	817371.65	846102.68	817364.11		7.00								
RD_011	RD_011_006	846102.68	817364.11	846088.68	817349.49		6.00								
RD_011	RD_011_007	846088.68	817349.49	846061.60	817315.70		9.95								
RD_011	RD_011_008	846237.11	817607.37	846245.05	817591.98		15.00								
RD_011	RD_011_009	846264.76	817559.77	846269.09	817555.13		9.45								
RD_011	RD_011_010	846269.09	817555.13	846289.52	817513.28		7.22								
RD_011	RD_011_011	846289.52	817513.28	846294.99	817487.26		9.01								
RD_011	RD_011_012	846294.99	817487.26	846292.84	817472.53		7.98								
RD_011	RD_011_013	846292.84	817472.53	846282.65	817448.05		6.32								
RD_011	RD_011_014	846282.65	817448.05	846274.31	817436.86		7.00								
RD_011	RD_011_015	846274.31	817436.86	846263.60	817426.45		11.31								
RD_011	RD_011_016	846263.60	817426.45	846252.89	817418.69		11.35								
RD_011	RD_011_017	846252.89	817418.69	846210.05	817401.13		17.52								
RD_011	RD_011_018	846245.05	817591.98	846259.50	817565.31		14.28								
RD_011	RD_011_019	846259.50	817565.31	846264.76	817559.77		13.18								
RD_011	RD_011_020	846059.24	817296.32	846061.73	817276.16		7.05								
RD_011	RD_011_021	846061.73	817276.16	846061.33	817259.22		3.60								
RD_011	RD_011_022	846061.33	817259.22	846056.70	817235.41		3.50								
RD_011	RD_011_023	846056.70	817235.41	846049.61	817214.59		5.06								
RD_011	RD_011_024	846049.61	817214.59	846041.78	817200.08		6.86								
RD_011	RD_011_025	846041.78	817200.08	846031.59	817187.11		5.28								
RD_011	RD_011_026	846031.59	817187.11	846002.34	817163.62		4.43								
RD_011	RD_011_027	846002.34	817163.62	845974.63	817149.65		7.32								
RD_011	RD_011_028	845974.63	817149.65	845948.46	817143.54		10.15								
RD_011	RD_011_029	845948.46	817143.54	845923.62	817142.53		6.51								
RD_011	RD_011_030	845923.62	817142.53	845897.96	817143.29		3.50								
RD_011	RD_011_031	846245.05	817591.98	846255.56	817597.09		11.10								
RD_011	RD_011_032	846255.56	817597.09	846262.98	817595.87		7.07								
RD_011	RD_011_033	846262.98	817595.87	846268.86	817583.81		6.99								
RD_011	RD_011_034	846268.86	817583.81	846268.97	817579.93		7.07								
RD_011	RD_011_035	846268.97	817579.93	846267.63	817572.07		6.40								
RD_011	RD_011_036	846267.63	817572.07	846259.50	817565.31		10.09								
RD_012	RD_012_001	846101.34	817375.08	846087.93	817397.77		8.74								
RD_012	RD_012_002	846087.93	817397.77	846077.21	817401.75		6.46								
RD_012	RD_012_003	846077.21	817401.75	846071.74	817408.39		5.10								
RD_012	RD_012_004	846071.74	817408.39	846070.50	817418.46		6.28								
RD_012	RD_012_005	846070.50	817418.46	846071.94	817424.67		5.85								
RD_012	RD_012_006	846071.94	817424.67	846075.54	817428.21		8.45								
RD_012	RD_012_007	846075.54	817428.21	846082.14	817428.99		10.19								
RD_012	RD_012_008	846082.14	817428.99	846083.49	817412.16		7.76								
RD_012	RD_012_009	846083.49	817412.16	846087.93	817397.77		7.81								
RD_012	RD_012_010	846045.95	817291.77	846042.14	817292.21		10.27								
RD_012	RD_012_011	846042.14	817292.21	846034.72	817297.19		8.06								
RD_012	RD_012_012	846034.72	817297.19	846032.13	817307.37		10.49								
RD_012	RD_012_013	846039.13	817318.78	846043.77	817321.11		11.74								
RD_012	RD_012_014	846043.77	817321.11	846051.60	817321.78		12.14								
RD_012	RD_012_015	846032.13	817307.37	846035.53	817316.90		12.26								
RD_012	RD_012_016	846035.53	817316.90	846039.13	817318.78		12.07								
RD_012	RD_012_017	846051.60	817321.78	846061.60	817315.70		13.35								
RD_012	RD_012_018	846061.60	817315.70	846063.25	817310.38		11.02								
RD_012	RD_012_019	846063.25	817310.38	846063.05	817301.08		8.33								
RD_012	RD_012_020	846063.05	817301.08	846059.24	817296.32		8.87								
RD_012	RD_012_021	846059.24	817296.32	846056.46	817292.99		12.12								
RD_012	RD_012_022	846056.46	817292.99	846051.21	817291.11		15.05								
RD_012	RD_012_023	846051.21	817291.11	846045.95	817291.77		14.05								

Appendix 3.3 Calculation of Vehicular Emissions
Traffic Data and Road Segments (Year 2041)

Start Profile	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<=2.5t	04 - Light Goods Vehicles 2.5-3.5t	05 - Light Goods Vehicles>3.5t	06 - Medium Goods Vehicles<=15t	07 - Medium Goods Vehicles15-24t	08 - Public Light Buses	09 - Private Light Bus <=3.5t	10 - Private Light Bus >3.5t	11 - Non-franchised Bus<=6.4t	12 - Non-franchised Bus 6.4-15t	13 - Non-franchised Bus 15-24t	14 - Franchised Bus Single Deck	15 - Franchised Bus Double Deck	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
	PC	TAXI	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	HGV9	NFB9
Y	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total Emission (Tonne Per Year)

Year 2030 (traffic year 2041)	AnnualHourMin	MonthlyHourMin	MonthlyHourAverage
NO2	2.93	2.77	2.60
NO	22.89	20.87	19.19
NOX	25.82	-	21.79
PM25	0.62	-	-
PM10	0.67	-	-

Road Segments

Road Name	Road ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Grid (I,J)	Vehicle height (m)	Release height (m)	Szinit (m)	Width (m)	Elevation (m)
WAN PO ROAD L	RD_001_001	846256.09	816775.06	846251.03	816786.06	50,30	1.8	1.53	1.42	14.95	7
WAN PO ROAD L	RD_001_002	846251.03	816786.06	846237.20	816820.49	50,30	1.8	1.53	1.42	14.19	7
WAN PO ROAD L	RD_001_003	846208.48	817387.39	846176.50	817480.43	50,31	1.8	1.53	1.42	17.10	7
WAN PO ROAD L	RD_001_004	846176.50	817480.43	846159.88	817513.75	50,31	1.8	1.53	1.42	13.47	7
WAN PO ROAD L	RD_001_005	846159.88	817513.75	846135.30	817560.20	50,31	1.8	1.53	1.42	14.96	7
WAN PO ROAD L	RD_001_006	846220.28	817010.50	846221.54	817135.41	50,30	1.8	1.53	1.42	26.34	8
WAN PO ROAD L	RD_001_007	846221.54	817135.41	846220.52	817287.67	50,30	1.8	1.53	1.42	14.03	8
WAN PO ROAD L	RD_001_008	846220.52	817287.67	846216.88	817341.15	50,31	1.8	1.53	1.42	15.69	6
WAN PO ROAD L	RD_001_009	846216.88	817341.15	846208.50	817387.10	50,31	1.8	1.53	1.42	19.13	6
WAN PO ROAD L	RD_001_010	846237.20	816820.49	846225.31	816877.40	50,30	1.8	1.53	1.42	14.36	7
WAN PO ROAD L	RD_001_011	846225.31	816877.40	846220.28	817010.50	50,30	1.8	1.53	1.42	26.07	6
WAN PO ROAD L	RD_001_012	846426.03	816285.66	846425.71	816300.05	50,30	1.8	1.53	1.42	11.78	7
WAN PO ROAD L	RD_001_013	846425.71	816300.05	846422.27	816365.72	50,30	1.8	1.53	1.42	12.14	7
WAN PO ROAD L	RD_001_014	846422.27	816365.72	846410.47	816437.91	50,30	1.8	1.53	1.42	12.80	7
WAN PO ROAD L	RD_001_015	846410.47	816437.91	846399.00	816484.63	50,30	1.8	1.53	1.42	13.03	7
WAN PO ROAD L	RD_001_016	846399.00	816484.63	846391.05	816512.53	50,30	1.8	1.53	1.42	12.97	7
WAN PO ROAD L	RD_001_017	846391.05	816512.53	846372.88	816564.34	50,30	1.8	1.53	1.42	12.85	6
WAN PO ROAD L	RD_001_018	846372.88	816564.34	846360.49	816593.90	50,30	1.8	1.53	1.42	13.10	6
WAN PO ROAD L	RD_001_019	846360.49	816593.90	846325.82	816662.86	50,30	1.8	1.53	1.42	13.48	6
WAN PO ROAD L	RD_001_020	846325.82	816662.86	846269.29	816753.74	50,30	1.8	1.53	1.42	13.80	7
WAN PO ROAD L	RD_001_021	846269.29	816753.74	846256.24	816774.91	50,30	1.8	1.53	1.42	15.58	7
WAN PO ROAD R	RD_002_001	846146.00	817566.10	846170.80	817518.63	50,31	1.8	1.54	1.44	13.90	7
WAN PO ROAD R	RD_002_002	846229.14	817340.94	846231.42	817322.34	50,31	1.8	1.54	1.44	13.21	6
WAN PO ROAD R	RD_002_003	846231.42	817322.34	846234.36	817233.09	50,30	1.8	1.54	1.44	14.15	7
WAN PO ROAD R	RD_002_004	846234.36	817233.09	846236.12	817053.37	50,30	1.8	1.54	1.44	17.30	9
WAN PO ROAD R	RD_002_005	846236.12	817053.37	846236.98	817010.84	50,30	1.8	1.54	1.44	17.18	7
WAN PO ROAD R	RD_002_006	846270.25	816780.30	846283.10	816761.50	50,30	1.8	1.54	1.44	25.09	7
WAN PO ROAD R	RD_002_007	846283.10	816761.50	846346.03	816646.16	50,30	1.8	1.54	1.44	14.15	6
WAN PO ROAD R	RD_002_008	846346.03	816646.16	846368.12	816599.77	50,30	1.8	1.54	1.44	13.00	6
WAN PO ROAD R	RD_002_009	846368.12	816599.77	846392.68	816538.00	50,30	1.8	1.54	1.44	13.49	7
WAN PO ROAD R	RD_002_010	846392.68	816538.00	846413.96	816464.60	50,30	1.8	1.54	1.44	13.51	7
WAN PO ROAD R	RD_002_011	846413.96	816464.60	846425.33	816411.12	50,30	1.8	1.54	1.44	12.94	8
WAN PO ROAD R	RD_002_012	846425.33	816411.12	846439.11	816304.27	50,30	1.8	1.54	1.44	13.62	7
WAN PO ROAD R	RD_002_013	846439.11	816304.27	846439.63	816284.34	50,30	1.8	1.54	1.44	14.69	7
WAN PO ROAD R	RD_002_014	846236.60	816954.48	846236.52	816915.50	50,30	1.8	1.54	1.44	13.65	6
WAN PO ROAD R	RD_002_015	846236.52	816915.50	846240.67	816870.21	50,30	1.8	1.54	1.44	13.40	6
WAN PO ROAD R	RD_002_016	846240.67	816870.21	846251.93	816830.14	50,30	1.8	1.54	1.44	16.68	6
WAN PO ROAD R	RD_002_017	846251.93	816830.14	846265.97	816791.83	50,30	1.8	1.54	1.44	21.84	6
WAN PO ROAD R	RD_002_018	846265.97	816791.83	846270.29	816780.18	50,30	1.8	1.54	1.44	29.24	7
WAN PO ROAD R	RD_002_019	846236.98	817010.84	846236.60	816954.48	50,30	1.8	1.54	1.44	14.14	7
WAN PO ROAD R	RD_002_020	846219.60	817392.56	846220.45	817389.75	50,31	1.8	1.54	1.44	13.97	7
WAN PO ROAD R	RD_002_021	846208.35	817428.50	846219.60	817392.56	50,31	1.8	1.54	1.44	16.18	7
WAN PO ROAD R	RD_002_022	846170.66	817518.55	846208.50	817428.46	50,31	1.8	1.54	1.44	16.02	7
WAN PO ROAD R	RD_002_023	846220.13	817390.26	846229.12	817341.15	50,31	1.8	1.54	1.44	12.90	7
CROSS BAY LINK L	RD_003_001	846044.82	817036.32	846207.63	817037.25	50,30	1.8	6.37	0.00	13.80	7
CROSS BAY LINK L	RD_003_002	846207.70	817023.45	846236.58	817024.03	50,30	1.8	1.49	1.39	17.82	7
CROSS BAY LINK L	RD_003_003	846044.82	817036.32	846207.63	817037.25	50,30	1.8	6.37	0.00	13.80	7
CROSS BAY LINK L	RD_003_004	845901.49	817032.26	846044.84	817033.08	50,30	1.8	5.67	0.00	11.30	7
CROSS BAY LINK R	RD_004_001	846220.28	817010.50	846205.03	817009.39	50,30	1.7	1.44	1.34	27.71	7
CROSS BAY LINK R	RD_004_002	846205.03	817009.39	846163.09	817012.68	50,30	1.7	1.44	1.34	13.30	7
CROSS BAY LINK R	RD_004_003	846163.09	817012.68	845992.44	817012.46	50,30	1.7	1.44	1.34	13.30	6
CROSS BAY LINK R	RD_004_004	845992.44	817012.46	845900.52	817011.85	50,30	1.7	1.44	1.34	13.30	7
CROSS BAY LINK R	RD_004_005	846220.28	817010.50	846236.98	817010.84	50,30	1.7	1.44	1.34	26.63	7
INDUSTRIAL ROAD L	RD_005_001	846298.11	816506.73	846325.57	816570.51	50,30	4.4	3.72	3.46	23.76	6
INDUSTRIAL ROAD L	RD_005_002	846325.57	816570.51	846331.14	816571.84	50,30	4.4	3.72	3.46	28.78	6
INDUSTRIAL ROAD L	RD_005_003	846331.14	816571.84	846333.41	816570.74	50,30	4.4	3.72	3.46	30.29	6
INDUSTRIAL ROAD L	RD_005_004	846333.41	816570.74	846357.97	816512.06	50,30	4.4	3.72	3.46	24.38	6
INDUSTRIAL ROAD L	RD_005_005	846357.97	816512.06	846363.24	816495.35	50,30	4.4	3.72	3.46	17.45	6
INDUSTRIAL ROAD L	RD_005_006	846344.10	816486.73	846357.05	816494.01	50,30	4.4	3.72	3.46	17.86	6
INDUSTRIAL ROAD L	RD_005_007	846357.05	816494.01	846363.24	816495.35	50,30	4.4	3.72	3.46	17.42	6
INDUSTRIAL ROAD L	RD_005_008	846058.85	816765.57	846058.64	816773.10	50,30	4.4	3.72	3.46	13.95	5
INDUSTRIAL ROAD L	RD_005_009	846058.64	816773.10	846068.22	816790.49	50,30	4.4	3.72	3.46	12.77	5
INDUSTRIAL ROAD L	RD_005_010	846068.22	816790.49	846075.43	816792.71	50,30	4.4	3.72	3.46	15.52	6
INDUSTRIAL ROAD L	RD_005_011	846075.43	816792.71	846081.30	816790.94	50,30	4.4	3.72	3.46	17.11	6
INDUSTRIAL ROAD L	RD_005_012	846081.30	816790.94	846085.43	816782.64	50,30	4.4	3.72	3.46	17.52	6
INDUSTRIAL ROAD L	RD_005_013	846085.43	816782.64	846084.30	816778.09	50,30	4.4	3.72	3.46	17.30	6
INDUSTRIAL ROAD L	RD_005_014	846084.30	816778.09	846080.18	816774.88	50,30	4.4	3.72	3.46	17.35	6
INDUSTRIAL ROAD L	RD_005_015	846080.18	816774.88	846068.85	816772.44	50,30	4.4	3.72	3.46	17.12	5
INDUSTRIAL ROAD L	RD_005_016	846068.85	816772.44	846059.35	816765.84	50,30	4.4	3.72	3.46	16.32	5
INDUSTRIAL ROAD L	RD_005_017	846363.24	816495.35	846369.42	816493.25	50,30	4.4	3.72	3.46	16.77	6
INDUSTRIAL ROAD L	RD_005_018	846369.42	816493.25	846372.93	816486.49	50,30	4.4	3.72	3.46	15.35	6

Road Name	Road ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Grid (I,J)	Vehicle height (m)	Release height (m)	Szinit (m)	Width (m)	Elevation (m)
INDUSTRIAL ROAD L	RD_005_019	846372.93	816486.49	846372.31	816482.95	50,30	4.4	3.72	3.46	16.04	6
INDUSTRIAL ROAD L	RD_005_020	846372.31	816482.95	846367.78	816476.97	50,30	4.4	3.72	3.46	16.52	6
INDUSTRIAL ROAD L	RD_005_021	846367.78	816476.97	846359.02	816476.08	50,30	4.4	3.72	3.46	16.47	6
INDUSTRIAL ROAD L	RD_005_022	846359.02	816476.08	846349.85	816478.40	50,30	4.4	3.72	3.46	14.92	6
INDUSTRIAL ROAD L	RD_005_023	846349.85	816478.40	846346.76	816480.50	50,30	4.4	3.72	3.46	14.20	6
INDUSTRIAL ROAD L	RD_005_024	846346.76	816480.50	846343.97	816486.36	50,30	4.4	3.72	3.46	17.48	6
INDUSTRIAL ROAD L	RD_005_025	846513.24	816710.49	846525.62	816689.57	50,30	4.4	3.72	3.46	16.60	7
INDUSTRIAL ROAD L	RD_005_026	846525.62	816689.57	846525.11	816683.48	50,30	4.4	3.72	3.46	16.07	7
INDUSTRIAL ROAD L	RD_005_027	846525.11	816683.48	846520.99	816678.38	50,30	4.4	3.72	3.46	14.07	7
INDUSTRIAL ROAD L	RD_005_028	846520.99	816678.38	846513.88	816678.71	50,30	4.4	3.72	3.46	14.22	7
INDUSTRIAL ROAD L	RD_005_029	846513.88	816678.71	846509.86	816683.69	50,30	4.4	3.72	3.46	15.50	7
INDUSTRIAL ROAD L	RD_005_030	846509.86	816683.69	846514.49	816697.43	50,30	4.4	3.72	3.46	17.47	7
INDUSTRIAL ROAD L	RD_005_031	846514.49	816697.43	846513.24	816710.49	50,30	4.4	3.72	3.46	16.91	7
INDUSTRIAL ROAD C	RD_007_001	846426.39	816842.54	846513.24	816710.49	50,30	4.4	3.70	3.44	15.76	6
INDUSTRIAL ROAD C	RD_007_002	846236.60	816954.48	846292.35	816954.63	50,30	4.4	3.70	3.44	13.25	6
INDUSTRIAL ROAD C	RD_007_003	846292.35	816954.63	846299.46	816956.18	50,30	4.4	3.70	3.44	14.29	6
INDUSTRIAL ROAD C	RD_007_004	846299.46	816956.18	846305.23	816960.73	50,30	4.4	3.70	3.44	19.50	6
INDUSTRIAL ROAD C	RD_007_005	846305.23	816960.73	846309.24	816967.59	50,30	4.4	3.70	3.44	19.15	6
INDUSTRIAL ROAD C	RD_007_006	846309.24	816967.59	846308.47	817041.12	50,30	4.4	3.70	3.44	15.27	7
INDUSTRIAL ROAD C	RD_007_007	846308.47	817041.12	846305.48	817045.33	50,30	4.4	3.70	3.44	18.41	6
INDUSTRIAL ROAD C	RD_007_008	846305.48	817045.33	846301.87	817045.88	50,30	4.4	3.70	3.44	24.97	6
INDUSTRIAL ROAD C	RD_007_009	846426.39	816842.54	846266.19	816774.89	50,30	4.4	3.70	3.44	26.53	6
INDUSTRIAL ROAD C	RD_007_010	846073.39	816600.36	846259.45	816519.31	50,30	4.4	3.70	3.44	28.85	5
INDUSTRIAL ROAD C	RD_007_011	846296.76	816504.61	846259.45	816519.31	50,30	4.4	3.70	3.44	20.55	6
INDUSTRIAL ROAD C	RD_007_012	846058.85	816765.57	846016.25	816666.10	50,30	4.4	3.70	3.44	16.23	5
INDUSTRIAL ROAD C	RD_007_013	846016.25	816666.10	846012.76	816656.35	50,30	4.4	3.70	3.44	16.25	5
INDUSTRIAL ROAD C	RD_007_014	846012.76	816656.35	846011.11	816645.28	50,30	4.4	3.70	3.44	16.67	5
INDUSTRIAL ROAD C	RD_007_015	846011.11	816645.28	846012.46	816636.42	50,30	4.4	3.70	3.44	16.74	6
INDUSTRIAL ROAD C	RD_007_016	846012.46	816636.42	846021.95	816623.69	50,30	4.4	3.70	3.44	18.09	5
INDUSTRIAL ROAD C	RD_007_017	846021.95	816623.69	846028.03	816619.71	50,30	4.4	3.70	3.44	18.87	5
INDUSTRIAL ROAD C	RD_007_018	846028.03	816619.71	846073.39	816600.36	50,30	4.4	3.70	3.44	27.66	5
INDUSTRIAL ROAD C	RD_007_019	846343.97	816486.36	846296.76	816504.61	50,30	4.4	3.70	3.44	20.20	6
INDUSTRIAL ROAD C	RD_007_020	846195.61	816368.96	846259.09	816519.27	50,30	4.4	3.70	3.44	19.79	5
CHUN YAT STREET L	RD_008_001	846210.76	816755.03	846225.80	816766.67	50,30	2.4	2.06	1.92	11.73	7
CHUN YAT STREET L	RD_008_002	846225.80	816766.67	846232.59	816774.87	50,30	2.4	2.06	1.92	11.35	7
CHUN YAT STREET L	RD_008_003	846232.59	816774.87	846237.63	816790.37	50,30	2.4	2.06	1.92	11.55	7
CHUN YAT STREET L	RD_008_004	846237.63	816790.37	846237.20	816820.49	50,30	2.4	2.06	1.92	13.28	7
CHUN YAT STREET L	RD_008_005	846210.76	816755.03	846247.33	816770.11	50,30	2.4	2.06	1.92	11.82	7
CHUN YAT STREET L	RD_008_006	846247.33	816770.11	846266.22	816779.06	50,30	2.4	2.06	1.92	24.05	7
CHUN YAT STREET L	RD_008_007	846041.05	816531.17	846076.26	816617.97	50,30	2.4	2.06	1.92	12.73	5
CHUN YAT STREET L	RD_008_008	846076.26	816617.97	846097.56	816661.83	50,30	2.4	2.06	1.92	13.52	5
CHUN YAT STREET L	RD_008_009	846097.56	816661.83	846124.85	816698.95	50,30	2.4	2.06	1.92	13.33	5
CHUN YAT STREET L	RD_008_010	846124.85	816698.95	846149.36	816721.11	50,30	2.4	2.06	1.92	13.04	5
CHUN YAT STREET L	RD_008_011	846149.36	816721.11	846166.25	816732.97	50,30	2.4	2.06	1.92	12.99	6
CHUN YAT STREET L	RD_008_012	846166.25	816732.97	846186.34	816744.61	50,30	2.4	2.06	1.92	12.93	6
CHUN YAT STREET L	RD_008_013	846186.34	816744.61	846210.76	816755.03	50,30	2.4	2.06	1.92	12.70	6
CHUN YAT STREET R	RD_009_001	846269.72	816770.53	846251.25	816762.03	50,30	2.9	2.48	2.31	26.75	7
CHUN YAT STREET R	RD_009_002	846251.25	816762.03	846194.59	816738.63	50,30	2.9	2.48	2.31	13.17	7
CHUN YAT STREET R	RD_009_003	846194.59	816738.63	846178.31	816730.10	50,30	2.9	2.48	2.31	12.42	6
CHUN YAT STREET R	RD_009_004	846178.31	816730.10	846137.83	816699.84	50,30	2.9	2.48	2.31	12.33	5
CHUN YAT STREET R	RD_009_005	846137.83	816699.84	846126.81	816687.98	50,30	2.9	2.48	2.31	12.48	5
CHUN YAT STREET R	RD_009_006	846126.81	816687.98	846110.75	816665.49	50,30	2.9	2.48	2.31	12.97	5
CHUN YAT STREET R	RD_009_007	846110.75	816665.49	846100.46	816647.55	50,30	2.9	2.48	2.31	12.97	5
CHUN YAT STREET R	RD_009_008	846100.46	816647.55	846085.54	816613.88	50,30	2.9	2.48	2.31	13.08	5
CHUN YAT STREET R	RD_009_009	846085.54	816613.88	846047.39	816528.28	50,30	2.9	2.48	2.31	13.66	5
RESIDENTIAL ROAD L	RD_010_001	846101.34	817375.08	846123.59	817389.26	50,31	1.7	1.45	1.35	13.07	7
RESIDENTIAL ROAD L	RD_010_002	846123.59	817389.26	846147.49	817398.91	50,31	1.7	1.45	1.35	12.39	7
RESIDENTIAL ROAD L	RD_010_003	846147.49	817398.91	846207.10	817411.48	50,31	1.7	1.45	1.35	23.75	6
RESIDENTIAL ROAD L	RD_010_004	846051.60	817321.78	846092.27	817368.31	50,31	1.7	1.45	1.35	16.09	7
RESIDENTIAL ROAD L	RD_010_005	846092.27	817368.31	846101.34	817375.08	50,31	1.7	1.45	1.35	13.19	7
RESIDENTIAL ROAD L	RD_010_006	846207.26	817411.53	846254.53	817429.32	50,31	1.7	1.45	1.35	23.43	7
RESIDENTIAL ROAD L	RD_010_007	846254.53	817429.32	846266.17	817438.52	50,31	1.7	1.45	1.35	12.21	7
RESIDENTIAL ROAD L	RD_010_008	846266.17	817438.52	846276.98	817452.04	50,31	1.7	1.45	1.35	12.53	7
RESIDENTIAL ROAD L	RD_010_009	846276.98	817452.04	846285.21	817472.64	50,31	1.7	1.45	1.35	12.73	7
RESIDENTIAL ROAD L	RD_010_010	846285.21	817472.64	846287.58	817486.15	50,31	1.7	1.45	1.35	12.88	7
RESIDENTIAL ROAD L	RD_010_011	846287.58	817486.15	846283.64	817510.95	50,31	1.7	1.45	1.35	12.39	6
RESIDENTIAL ROAD L	RD_010_012	846283.64	817510.95	846280.86	817518.70	50,31	1.7	1.45	1.35	12.04	7
RESIDENTIAL ROAD L	RD_010_013	846280.86	817518.70	846262.49	817551.58	50,31	1.7	1.45	1.35	12.14	6
RESIDENTIAL ROAD L	RD_010_014	846262.49	817551.58	846232.90	817605.59	50,31	1.7	1.45	1.35	12.15	6
RESIDENTIAL ROAD L	RD_010_015	845898.06	817146.95	845940.52	817146.20	50,30	1.7	1.45	1.35	10.78	5
RESIDENTIAL ROAD L	RD_010_016	845940.52	817146.20	845971.33	817152.64	50,30	1.7	1.45	1.35	10.58	6
RESIDENTIAL ROAD L	RD_010_017	845971.33	817152.64	845988.64	817159.96	50,30	1.7	1.45	1.35	9.50	6

Road Name	Road ID	X coordinate of endpoint 1	Y coordinate of endpoint 1	X coordinate of endpoint 2	Y coordinate of endpoint 2	Grid (I,J)	Vehicle height (m)	Release height (m)	Szinit (m)	Width (m)	Elevation (m)
RESIDENTIAL ROAD L	RD_010_018	845988.64	817159.96	846002.23	817167.94	50,30	1.7	1.45	1.35	9.50	7
RESIDENTIAL ROAD L	RD_010_019	846002.23	817167.94	846016.86	817178.91	50,30	1.7	1.45	1.35	9.50	7
RESIDENTIAL ROAD L	RD_010_020	846016.86	817178.91	846031.48	817194.42	50,30	1.7	1.45	1.35	9.50	7
RESIDENTIAL ROAD L	RD_010_021	846031.48	817194.42	846043.32	817212.48	50,30	1.7	1.45	1.35	9.89	8
RESIDENTIAL ROAD L	RD_010_022	846043.32	817212.48	846051.04	817229.54	50,30	1.7	1.45	1.35	10.51	7
RESIDENTIAL ROAD L	RD_010_023	846051.04	817229.54	846055.97	817247.59	50,30	1.7	1.45	1.35	10.85	7
RESIDENTIAL ROAD L	RD_010_024	846055.97	817247.59	846057.92	817262.98	50,30	1.7	1.45	1.35	11.21	7
RESIDENTIAL ROAD L	RD_010_025	846057.92	817262.98	846054.10	817278.26	50,30	1.7	1.45	1.35	10.91	8
RESIDENTIAL ROAD L	RD_010_026	846054.10	817278.26	846045.95	817291.77	50,31	1.7	1.45	1.35	14.11	7
RESIDENTIAL ROAD R	RD_011_001	846209.77	817401.07	846164.60	817392.17	50,31	1.9	1.62	1.50	23.11	6
RESIDENTIAL ROAD R	RD_011_002	846164.60	817392.17	846146.36	817386.84	50,31	1.9	1.62	1.50	12.32	6
RESIDENTIAL ROAD R	RD_011_003	846146.36	817386.84	846137.91	817383.85	50,31	1.9	1.62	1.50	12.73	7
RESIDENTIAL ROAD R	RD_011_004	846137.91	817383.85	846116.80	817371.65	50,31	1.9	1.62	1.50	14.11	7
RESIDENTIAL ROAD R	RD_011_005	846116.80	817371.65	846102.68	817364.11	50,31	1.9	1.62	1.50	13.00	7
RESIDENTIAL ROAD R	RD_011_006	846102.68	817364.11	846088.68	817349.49	50,31	1.9	1.62	1.50	12.00	7
RESIDENTIAL ROAD R	RD_011_007	846088.68	817349.49	846061.60	817315.70	50,31	1.9	1.62	1.50	15.95	7
RESIDENTIAL ROAD R	RD_011_008	846237.11	817607.37	846245.05	817591.98	50,31	1.9	1.62	1.50	21.00	6
RESIDENTIAL ROAD R	RD_011_009	846264.76	817559.77	846269.09	817555.13	50,31	1.9	1.62	1.50	15.45	6
RESIDENTIAL ROAD R	RD_011_010	846269.09	817555.13	846289.52	817513.28	50,31	1.9	1.62	1.50	13.22	7
RESIDENTIAL ROAD R	RD_011_011	846289.52	817513.28	846294.99	817487.26	50,31	1.9	1.62	1.50	15.01	7
RESIDENTIAL ROAD R	RD_011_012	846294.99	817487.26	846292.84	817472.53	50,31	1.9	1.62	1.50	13.98	7
RESIDENTIAL ROAD R	RD_011_013	846292.84	817472.53	846282.65	817448.05	50,31	1.9	1.62	1.50	12.32	7
RESIDENTIAL ROAD R	RD_011_014	846282.65	817448.05	846274.31	817436.86	50,31	1.9	1.62	1.50	13.00	7
RESIDENTIAL ROAD R	RD_011_015	846274.31	817436.86	846263.60	817426.45	50,31	1.9	1.62	1.50	17.31	7
RESIDENTIAL ROAD R	RD_011_016	846263.60	817426.45	846252.89	817418.69	50,31	1.9	1.62	1.50	17.35	7
RESIDENTIAL ROAD R	RD_011_017	846252.89	817418.69	846210.05	817401.13	50,31	1.9	1.62	1.50	23.52	7
RESIDENTIAL ROAD R	RD_011_018	846245.05	817591.98	846259.50	817565.31	50,31	1.9	1.62	1.50	20.28	6
RESIDENTIAL ROAD R	RD_011_019	846259.50	817565.31	846264.76	817559.77	50,31	1.9	1.62	1.50	19.18	6
RESIDENTIAL ROAD R	RD_011_020	846059.24	817296.32	846061.73	817276.16	50,31	1.9	1.62	1.50	13.05	7
RESIDENTIAL ROAD R	RD_011_021	846061.73	817276.16	846061.33	817259.22	50,30	1.9	1.62	1.50	9.60	7
RESIDENTIAL ROAD R	RD_011_022	846061.33	817259.22	846056.70	817235.41	50,30	1.9	1.62	1.50	9.50	7
RESIDENTIAL ROAD R	RD_011_023	846056.70	817235.41	846049.61	817214.59	50,30	1.9	1.62	1.50	11.06	7
RESIDENTIAL ROAD R	RD_011_024	846049.61	817214.59	846041.78	817200.08	50,30	1.9	1.62	1.50	12.86	7
RESIDENTIAL ROAD R	RD_011_025	846041.78	817200.08	846031.59	817187.11	50,30	1.9	1.62	1.50	11.28	7
RESIDENTIAL ROAD R	RD_011_026	846031.59	817187.11	846002.34	817163.62	50,30	1.9	1.62	1.50	10.43	7
RESIDENTIAL ROAD R	RD_011_027	846002.34	817163.62	845974.63	817149.65	50,30	1.9	1.62	1.50	13.32	6
RESIDENTIAL ROAD R	RD_011_028	845974.63	817149.65	845948.46	817143.54	50,30	1.9	1.62	1.50	16.15	6
RESIDENTIAL ROAD R	RD_011_029	845948.46	817143.54	845923.62	817142.53	50,30	1.9	1.62	1.50	12.51	6
RESIDENTIAL ROAD R	RD_011_030	845923.62	817142.53	845897.96	817143.29	50,30	1.9	1.62	1.50	9.50	5
RESIDENTIAL ROAD R	RD_011_031	846245.05	817591.98	846255.56	817597.09	50,31	1.9	1.62	1.50	17.10	6
RESIDENTIAL ROAD R	RD_011_032	846255.56	817597.09	846262.98	817595.87	50,31	1.9	1.62	1.50	13.07	6
RESIDENTIAL ROAD R	RD_011_033	846262.98	817595.87	846268.86	817583.81	50,31	1.9	1.62	1.50	12.99	6
RESIDENTIAL ROAD R	RD_011_034	846268.86	817583.81	846268.97	817579.93	50,31	1.9	1.62	1.50	13.07	6
RESIDENTIAL ROAD R	RD_011_035	846268.97	817579.93	846267.63	817572.07	50,31	1.9	1.62	1.50	12.40	6
RESIDENTIAL ROAD R	RD_011_036	846267.63	817572.07	846259.50	817565.31	50,31	1.9	1.62	1.50	16.09	6
RESIDENTIAL ROAD C	RD_012_001	846101.34	817375.08	846087.93	817397.77	50,31	1.8	1.50	1.40	14.74	7
RESIDENTIAL ROAD C	RD_012_002	846087.93	817397.77	846077.21	817401.75	50,31	1.8	1.50	1.40	12.46	7
RESIDENTIAL ROAD C	RD_012_003	846077.21	817401.75	846071.74	817408.39	50,31	1.8	1.50	1.40	11.10	7
RESIDENTIAL ROAD C	RD_012_004	846071.74	817408.39	846070.50	817418.46	50,31	1.8	1.50	1.40	12.28	7
RESIDENTIAL ROAD C	RD_012_005	846070.50	817418.46	846071.94	817424.67	50,31	1.8	1.50	1.40	11.85	7
RESIDENTIAL ROAD C	RD_012_006	846071.94	817424.67	846075.54	817428.21	50,31	1.8	1.50	1.40	14.45	7
RESIDENTIAL ROAD C	RD_012_007	846075.54	817428.21	846082.14	817428.99	50,31	1.8	1.50	1.40	16.19	7
RESIDENTIAL ROAD C	RD_012_008	846082.14	817428.99	846083.49	817412.16	50,31	1.8	1.50	1.40	13.76	7
RESIDENTIAL ROAD C	RD_012_009	846083.49	817412.16	846087.93	817397.77	50,31	1.8	1.50	1.40	13.81	7
RESIDENTIAL ROAD C	RD_012_010	846045.95	817291.77	846042.14	817292.21	50,31	1.8	1.50	1.40	16.27	7
RESIDENTIAL ROAD C	RD_012_011	846042.14	817292.21	846034.72	817297.19	50,31	1.8	1.50	1.40	14.06	7
RESIDENTIAL ROAD C	RD_012_012	846034.72	817297.19	846032.13	817307.37	50,31	1.8	1.50	1.40	16.49	7
RESIDENTIAL ROAD C	RD_012_013	846039.13	817318.78	846043.77	817321.11	50,31	1.8	1.50	1.40	17.74	7
RESIDENTIAL ROAD C	RD_012_014	846043.77	817321.11	846051.60	817321.78	50,31	1.8	1.50	1.40	18.14	7
RESIDENTIAL ROAD C	RD_012_015	846032.13	817307.37	846035.53	817316.90	50,31	1.8	1.50	1.40	18.26	8
RESIDENTIAL ROAD C	RD_012_016	846035.53	817316.90	846039.13	817318.78	50,31	1.8	1.50	1.40	18.07	8
RESIDENTIAL ROAD C	RD_012_017	846051.60	817321.78	846061.60	817315.70	50,31	1.8	1.50	1.40	19.35	7
RESIDENTIAL ROAD C	RD_012_018	846061.60	817315.70	846063.25	817310.38	50,31	1.8	1.50	1.40	17.02	7
RESIDENTIAL ROAD C	RD_012_019	846063.25	817310.38	846063.05	817301.08	50,31	1.8	1.50	1.40	14.33	7
RESIDENTIAL ROAD C	RD_012_020	846063.05	817301.08	846059.24	817296.32	50,31	1.8	1.50	1.40	14.87	7
RESIDENTIAL ROAD C	RD_012_021	846059.24	817296.32	846056.46	817292.99	50,31	1.8	1.50	1.40	18.12	7
RESIDENTIAL ROAD C	RD_012_022	846056.46	817292.99	846051.21	817291.11	50,31	1.8	1.50	1.40	21.05	7
RESIDENTIAL ROAD C	RD_012_023	846051.21	817291.11	846045.95	817291.77	50,31	1.8	1.50	1.40	20.05	7

Met Summary

Grid (I,J)	Hour	Annual Minimum		Month Minimum																					
				January		February		March		April		May		June		July		August		September		October		November		December	
		Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH
50,30	0000-0100	13	30	13	41	16	65	17	75	21	78	21	70	26	72	26	76	27	72	25	36	22	40	17	46	13	30
50,30	0100-0200	12	30	13	42	16	63	17	76	21	76	21	74	26	78	27	74	27	75	24	39	22	52	17	47	12	30
50,30	0200-0300	12	30	12	42	16	62	17	75	21	72	21	74	26	82	27	73	25	77	24	39	22	56	16	45	12	30
50,30	0300-0400	11	29	12	41	16	60	17	69	21	73	20	73	25	82	27	71	26	78	23	41	21	56	16	46	11	29
50,30	0400-0500	11	29	12	40	16	59	17	67	21	75	21	72	25	82	27	72	26	76	23	43	21	57	15	46	11	29
50,30	0500-0600	10	29	11	43	16	61	17	67	20	77	21	71	24	77	27	73	26	75	23	43	21	57	15	48	10	29
50,30	0600-0700	10	28	11	45	15	66	17	59	20	76	21	68	24	66	27	77	26	76	23	44	20	51	15	47	10	28
50,30	0700-0800	11	30	12	48	16	67	17	49	20	74	21	60	24	67	27	70	26	68	23	40	21	47	16	44	11	30
50,30	0800-0900	12	30	13	49	15	66	18	48	20	69	22	60	25	61	27	66	27	63	24	36	22	44	17	44	12	30
50,30	0900-1000	13	29	14	46	16	63	18	47	20	67	22	54	25	59	27	62	28	54	25	32	23	42	18	43	13	29
50,30	1000-1100	14	27	14	41	17	61	19	46	20	61	22	58	25	61	27	58	27	51	26	30	24	41	19	41	14	27
50,30	1100-1200	15	25	15	37	19	59	19	50	20	59	22	59	26	56	25	52	28	48	27	30	24	41	20	38	15	25
50,30	1200-1300	15	23	16	35	19	57	19	51	21	59	23	58	27	50	27	57	27	47	27	27	24	43	20	38	15	23
50,30	1300-1400	16	22	16	33	19	54	18	55	21	61	22	58	28	47	28	56	26	49	27	28	24	42	20	37	16	22
50,30	1400-1500	16	22	16	34	20	55	18	54	21	60	22	60	27	51	26	58	27	45	28	27	25	42	20	36	16	22
50,30	1500-1600	16	23	16	41	19	54	18	57	21	62	22	59	28	55	26	60	26	54	27	26	25	45	20	38	16	23
50,30	1600-1700	16	24	16	43	19	58	18	60	21	65	22	63	26	55	26	64	27	59	27	27	25	47	20	38	16	24
50,30	1700-1800	16	25	16	48	20	66	18	62	21	69	22	65	27	53	28	65	27	62	27	26	24	47	19	44	16	25
50,30	1800-1900	16	23	16	50	20	70	18	68	21	73	22	67	27	63	27	66	27	66	27	26	24	52	19	36	17	23
50,30	1900-2000	14	23	16	53	17	73	18	73	21	72	22	75	27	68	27	68	28	66	27	29	24	55	19	37	14	23
50,30	2000-2100	14	26	16	54	17	77	18	75	20	75	22	77	26	73	27	71	27	68	26	28	24	59	19	39	14	26
50,30	2100-2200	13	26	15	51	17	77	18	75	21	76	22	75	26	75	27	71	27	70	26	31	24	59	19	40	13	26
50,30	2200-2300	14	28	16	44	16	78	18	73	21	79	22	73	26	76	26	71	25	64	26	31	23	39	18	41	14	28
50,30	2300-0000	13	28	15	41	15	78	18	70	21	80	22	71	26	77	26	74	26	73	25	33	23	39	17	44	13	28
50,31	0000-0100	12	30	13	41	16	65	17	75	20	78	21	71	26	72	26	77	27	74	24	36	22	40	17	46	12	30
50,31	0100-0200	12	30	12	42	16	63	17	77	21	77	21	74	26	78	26	74	26	75	24	39	21	53	17	47	12	30
50,31	0200-0300	11	30	12	42	16	62	17	76	20	72	21	76	26	83	27	74	25	76	24	40	21	57	16	45	11	30
50,31	0300-0400	11	29	12	41	15	61	16	70	20	73	20	75	25	83	27	72	26	78	23	41	21	57	15	46	11	29
50,31	0400-0500	11	29	11	40	15	59	16	67	20	75	20	73	24	83	27	73	26	77	23	43	21	57	15	47	11	29
50,31	0500-0600	10	28	11	42	15	61	16	67	20	78	21	73	24	78	27	74	26	77	23	43	20	57	15	48	10	28
50,31	0600-0700	10	28	11	45	15	66	16	60	20	77	20	70	24	67	27	78	26	78	23	44	20	52	15	47	10	28
50,31	0700-0800	10	29	11	48	15	67	17	50	20	73	21	59	24	67	27	71	26	70	23	40	20	48	15	44	10	29
50,31	0800-0900	12	31	13	49	15	67	18	48	20	68	22	60	25	62	27	67	26	62	24	36	22	45	17	43	12	31
50,31	0900-1000	13	29	13	46	16	63	18	47	20	66	22	55	25	59	27	61	28	54	25	33	23	43	18	42	13	29
50,31	1000-1100	14	27	14	41	17	61	19	46	20	61	22	58	25	60	27	57	28	50	26	30	24	41	18	41	14	27
50,31	1100-1200	15	24	15	37	18	60	19	50	20	59	22	59	26	55	25	51	28	48	26	30	24	41	19	38	15	24
50,31	1200-1300	15	22	16	36	19	57	18	51	20	58	22	58	27	49	26	55	26	46	27	28	24	42	20	38	15	22
50,31	1300-1400	15	22	16	33	19	54	18	54	20	60	22	57	28	46	27	55	26	46	27	28	24	41	20	37	15	22
50,31	1400-1500	15	22	16	34	19	55	18	54	21	59	22	59	27	49	26	58	26	43	28	27	25	42	20	37	15	22
50,31	1500-1600	16	23	16	41	19	54	18	56	21	61	22	59	28	54	26	59	26	52	27	27	25	43	20	38	16	23
50,31	1600-1700	16	24	16	43	19	57	18	60	20	64	22	63	26	53	26	62	26	58	27	28	24	47	19	38	16	24
50,31	1700-1800	16	25	16	48	19	67	18	62	20	67	22	65	27	53	28	66	27	63	27	25	24	46	19	44	16	26
50,31	1800-1900	15	23	15	51	19	70	18	69	20	72	22	68	27	63	27	66	26	67	26	26	24	50	19	36	16	23
50,31	1900-2000	14	23	15	54	17	74	18	74	20	72	21	76	26	67	27	69	27	66	26	29	24	55	19	37	14	23
50,31	2000-2100	13	26	15	54	17	78	18	76	20	74	21	79	26	73	27	71	26	68	26	28	24	60	19	39	13	26
50,31	2100-2200	13	26	15	51	17	79	18	75	20	76	22	76	25	75	26	72	27	70	26	32	24	60	18	41	13	26
50,31	2200-2300	13	27	15	45	16	79	17	74	20	80	21	73	26	76	26	71	25	65	25	31	23	40	17	41	13	27
50,31	2300-0000	13	28	15	41	15	79	17	71	20	80	21	72	26	77	26	75	26	73	25	34	22	39	17	44	13	28

Met Summary

Grid (I,J)	Hour	Month Average																					
		January		February		March		April		May		June		July		August		September		October		November		December	
		Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH	Temperature	RH
50,30	0000-0100	18	80	21	89	21	88	24	90	25	90	28	88	29	83	28	85	27	76	26	70	21	71	17	73
50,30	0100-0200	18	80	21	89	21	88	24	90	25	91	28	89	29	83	28	86	27	77	25	71	21	70	17	73
50,30	0200-0300	18	80	21	89	21	89	24	90	25	91	28	90	29	84	28	87	27	77	25	72	20	70	17	72
50,30	0300-0400	18	79	20	89	21	88	24	90	25	91	28	90	29	84	28	88	27	77	25	73	20	69	17	71
50,30	0400-0500	18	79	20	90	21	88	24	91	25	91	28	90	28	84	28	88	26	77	25	74	20	70	17	70
50,30	0500-0600	17	79	20	90	21	88	24	92	25	91	28	90	28	85	28	88	26	77	24	75	20	70	16	70
50,30	0600-0700	17	80	20	91	21	87	24	90	25	88	28	87	29	83	28	85	26	76	24	74	19	69	16	69
50,30	0700-0800	17	78	20	88	21	83	25	85	26	84	28	84	29	79	29	81	27	72	25	71	20	66	17	67
50,30	0800-0900	18	75	21	83	22	79	26	81	26	81	29	80	30	76	29	77	28	68	26	67	21	63	18	64
50,30	0900-1000	19	73	22	79	23	76	26	78	27	78	30	76	30	74	30	72	28	64	26	64	22	60	18	61
50,30	1000-1100	19	70	22	77	23	73	27	75	27	77	30	75	31	70	31	69	29	62	27	62	23	57	19	59
50,30	1100-1200	20	68	23	75	23	72	27	73	27	75	30	73	31	69	31	68	30	60	27	60	23	55	20	58
50,30	1200-1300	20	67	23	73	23	72	27	72	28	75	30	72	31	68	31	68	30	59	27	59	24	54	20	57
50,30	1300-1400	20	67	23	73	24	72	27	72	27	75	31	72	31	69	31	69	30	59	27	59	24	55	20	56
50,30	1400-1500	21	67	23	73	24	72	27	73	28	74	31	73	31	69	31	69	30	60	28	59	24	56	21	56
50,30	1500-1600	21	68	23	74	24	73	27	74	28	75	30	74	31	70	31	71	30	61	27	60	24	58	21	57
50,30	1600-1700	20	70	23	76	23	75	26	76	27	78	30	74	31	73	30	73	30	63	27	62	23	62	20	60
50,30	1700-1800	20	73	22	80	23	78	26	80	27	81	30	76	30	75	30	76	29	64	27	65	23	65	20	64
50,30	1800-1900	20	75	22	82	23	81	25	83	27	84	29	79	30	77	30	79	29	66	27	66	23	66	20	66
50,30	1900-2000	20	76	22	84	22	82	25	84	26	85	29	80	30	78	29	79	29	67	27	69	23	67	19	67
50,30	2000-2100	19	79	21	87	22	84	25	87	26	88	29	84	29	81	29	82	28	69	26	70	22	68	19	70
50,30	2100-2200	19	79	21	88	22	86	25	88	26	89	28	85	29	82	29	83	28	71	26	71	22	69	18	72
50,30	2200-2300	19	78	21	89	22	87	25	89	26	90	28	86	29	83	29	84	28	72	26	71	22	70	18	72
50,30	2300-0000	19	79	21	90	22	87	24	90	25	90	28	86	29	83	29	85	28	73	26	72	21	72	18	73
50,31	0000-0100	18	81	20	90	21	89	24	91	25	91	28	88	29	84	28	86	27	77	25	71	21	72	17	74
50,31	0100-0200	18	80	20	89	21	89	24	91	25	91	28	89	29	84	28	87	27	78	25	72	21	71	17	74
50,31	0200-0300	18	80	20	90	21	89	24	91	25	92	28	90	28	84	28	88	26	78	25	73	20	71	17	73
50,31	0300-0400	17	80	20	90	21	89	24	91	25	92	28	91	28	85	28	88	26	78	24	74	20	70	16	72
50,31	0400-0500	17	80	20	90	21	89	24	91	25	91	27	91	28	85	28	89	26	78	24	75	20	70	16	71
50,31	0500-0600	17	80	20	91	21	88	24	92	25	91	27	90	28	86	28	88	26	78	24	76	19	71	16	70
50,31	0600-0700	17	80	20	91	21	88	24	90	25	89	28	87	28	84	28	86	26	77	24	75	19	70	16	69
50,31	0700-0800	17	78	20	88	21	83	25	86	26	85	28	84	29	79	29	81	27	73	25	71	20	66	16	67
50,31	0800-0900	18	75	21	84	22	79	25	81	26	81	29	80	30	76	29	77	28	68	25	68	21	63	17	64
50,31	0900-1000	19	73	22	79	22	76	26	78	27	78	29	76	30	73	30	73	28	65	26	65	22	60	18	61
50,31	1000-1100	19	70	22	77	23	73	27	74	27	76	30	74	31	70	31	69	29	61	27	61	22	57	19	59
50,31	1100-1200	20	68	23	74	23	74	27	73	27	75	30	73	31	69	31	67	30	59	27	60	23	54	20	58
50,31	1200-1300	20	66	23	73	23	72	27	72	28	74	30	71	31	68	31	67	30	58	27	59	24	53	20	57
50,31	1300-1400	20	66	23	72	24	71	27	72	28	74	31	71	31	68	31	68	30	59	27	59	24	54	20	56
50,31	1400-1500	21	67	23	73	24	71	27	72	28	74	30	73	31	68	31	69	30	59	27	58	24	55	21	56
50,31	1500-1600	21	68	23	74	24	72	27	73	28	75	30	73	31	70	31	70	30	62	27	60	24	59	21	57
50,31	1600-1700	20	71	23	76	23	75	26	76	27	78	30	74	31	72	30	73	29	63	27	63	23	62	20	60
50,31	1700-1800	20	74	22	80	23	78	26	79	27	81	30	76	30	75	30	76	29	64	27	65	23	65	19	65
50,31	1800-1900	20	75	22	83	22	81	25	83	26	84	29	79	30	77	29	80	29	67	26	67	23	66	19	67
50,31	1900-2000	20	77	21	85	22	83	25	84	26	86	29	81	30	78	29	80	29	67	26	69	22	68	19	68
50,31	2000-2100	19	80	21	88	22	85	25	87	26	89	29	84	29	81	29	82	28	70	26	71	22	70	18	71
50,31	2100-2200	19	80	21	89	22	86	25	88	25	90	28	86	29	82	29	84	28	72	26	72	22	70	18	73
50,31	2200-2300	19	79	21	90	21	87	24	89	25	90	28	86	29	83	28	85	28	73	25	72	21	71	17	73
50,31	2300-0000	19	79	21	91	21	87	24	90	25	91	28	87	29	84	28	85	27	74	25	72	21	73	17	73

Composite Emission Rate (January 2030)

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
WAN PO ROAD L	RD_001	0000-0100	0.0255212	7.061E-07	5.613E-05	0.0238192	6.59E-07	5.239E-05	0.316797	8.764E-06	0.0006967	0.2822531	7.809E-06	0.0006208	0.3060723	8.468E-06	0.0006732
WAN PO ROAD L	RD_001	0100-0200	0.0287083	5.41E-07	4.301E-05	0.0268731	5.064E-07	4.026E-05	0.3220872	6.07E-06	0.0004825	0.2881845	5.431E-06	0.0004317	0.3150576	5.937E-06	0.000472
WAN PO ROAD L	RD_001	0200-0300	0.0320063	4.614E-07	3.668E-05	0.0299702	4.32E-07	3.435E-05	0.3281997	4.731E-06	0.0003761	0.2928821	4.222E-06	0.0003356	0.3228523	4.654E-06	0.00037
WAN PO ROAD L	RD_001	0300-0400	0.035456	3.828E-07	3.043E-05	0.0333303	3.599E-07	2.861E-05	0.3362338	3.63E-06	0.0002886	0.3024528	3.266E-06	0.0002596	0.3357831	3.625E-06	0.0002882
WAN PO ROAD L	RD_001	0400-0500	0.0388968	3.964E-07	3.151E-05	0.0365476	3.724E-07	2.961E-05	0.3420542	3.486E-06	0.0002771	0.3083363	3.142E-06	0.0002498	0.344884	3.514E-06	0.0002794
WAN PO ROAD L	RD_001	0500-0600	0.0423975	6.085E-07	4.837E-05	0.0400798	5.752E-07	4.573E-05	0.3488207	5.006E-06	0.000398	0.317695	4.559E-06	0.0003625	0.3577748	5.135E-06	0.0004082
WAN PO ROAD L	RD_001	0600-0700	0.0460369	1.857E-06	0.0001476	0.0435446	1.757E-06	0.0001396	0.3519535	1.42E-05	0.0011287	0.3220831	1.299E-05	0.0010329	0.3656277	1.475E-05	0.0011726
WAN PO ROAD L	RD_001	0700-0800	0.0500028	3.646E-06	0.0002899	0.0476254	3.473E-06	0.0002761	0.3567955	2.602E-05	0.0020684	0.3310599	2.414E-05	0.0019192	0.3786852	2.761E-05	0.0021953
WAN PO ROAD L	RD_001	0800-0900	0.03685	2.927E-06	0.0002327	0.0349915	2.779E-06	0.0002209	0.2935081	2.331E-05	0.0018533	0.269944	2.144E-05	0.0017045	0.3049355	2.422E-05	0.0019254
WAN PO ROAD L	RD_001	0900-1000	0.0490759	3.266E-06	0.0002596	0.0467561	3.111E-06	0.0002473	0.356076	2.37E-05	0.0018837	0.3293279	2.192E-05	0.0017422	0.376084	2.503E-05	0.0019895
WAN PO ROAD L	RD_001	1000-1100	0.0510696	3.199E-06	0.0002543	0.0486653	3.048E-06	0.0002423	0.3811835	2.388E-05	0.001898	0.351842	2.204E-05	0.0017519	0.4005073	2.509E-05	0.0019943
WAN PO ROAD L	RD_001	1100-1200	0.0499193	2.971E-06	0.0002362	0.0473934	2.821E-06	0.0002242	0.3632222	2.162E-05	0.0017186	0.3333393	1.984E-05	0.0015772	0.3807327	2.266E-05	0.0018014
WAN PO ROAD L	RD_001	1200-1300	0.0613458	1.469E-06	0.0001167	0.0584771	1.4E-06	0.0001113	0.3921357	9.387E-06	0.0007463	0.3651771	8.742E-06	0.000695	0.4236543	1.014E-05	0.0008062
WAN PO ROAD L	RD_001	1300-1400	0.0699732	1.705E-06	0.0001356	0.0665589	1.622E-06	0.000129	0.4363394	1.063E-05	0.0008454	0.4055824	9.885E-06	0.0007858	0.4721413	1.151E-05	0.0009148
WAN PO ROAD L	RD_001	1400-1500	0.0609221	1.503E-06	0.0001195	0.0577121	1.424E-06	0.0001132	0.3924011	9.683E-06	0.0007698	0.3624497	8.944E-06	0.000711	0.4201618	1.037E-05	0.0008242
WAN PO ROAD L	RD_001	1500-1600	0.0590218	1.454E-06	0.0001156	0.0561778	1.384E-06	0.00011	0.3906815	9.627E-06	0.0007653	0.362426	8.93E-06	0.0007099	0.4186038	1.031E-05	0.00082
WAN PO ROAD L	RD_001	1600-1700	0.0546966	1.458E-06	0.0001159	0.0522467	1.393E-06	0.0001107	0.3822212	1.019E-05	0.00081	0.3568006	9.511E-06	0.0007561	0.4090473	1.09E-05	0.0008668
WAN PO ROAD L	RD_001	1700-1800	0.0393246	1.22E-06	9.695E-05	0.0374946	1.163E-06	9.244E-05	0.3058421	9.485E-06	0.000754	0.2850696	8.841E-06	0.0007028	0.3225642	1E-05	0.0007953
WAN PO ROAD L	RD_001	1800-1900	0.0308295	9.684E-07	7.699E-05	0.0292896	9.2E-07	7.314E-05	0.2797777	8.788E-06	0.0006987	0.2597953	8.161E-06	0.0006488	0.2890849	9.081E-06	0.0007219
WAN PO ROAD L	RD_001	1900-2000	0.0266929	7.348E-07	5.842E-05	0.0253131	6.968E-07	5.54E-05	0.2905808	7.999E-06	0.0006359	0.2688632	7.401E-06	0.0005884	0.2941763	8.098E-06	0.0006438
WAN PO ROAD L	RD_001	2000-2100	0.0277843	6.213E-07	4.939E-05	0.0265317	5.933E-07	4.717E-05	0.3035825	6.789E-06	0.0005397	0.2828928	6.326E-06	0.0005029	0.3094245	6.92E-06	0.0005501
WAN PO ROAD L	RD_001	2100-2200	0.0272122	5.801E-07	4.612E-05	0.0257771	5.495E-07	4.369E-05	0.3364347	7.173E-06	0.0005702	0.3083387	6.574E-06	0.0005226	0.3341158	7.123E-06	0.0005663
WAN PO ROAD L	RD_001	2200-2300	0.0225829	4.679E-07	3.719E-05	0.02125	4.403E-07	3.5E-05	0.3240582	6.714E-06	0.0005337	0.2948105	6.108E-06	0.0004856	0.3160605	6.548E-06	0.0005206
WAN PO ROAD L	RD_001	2300-0000	0.0264055	4.232E-07	3.364E-05	0.0247586	3.968E-07	3.154E-05	0.3363012	5.39E-06	0.0004285	0.3029212	4.855E-06	0.0003859	0.3276798	5.251E-06	0.0004175
WAN PO ROAD R	RD_002	0000-0100	0.037018	3.762E-07	2.754E-05	0.0347839	3.535E-07	2.588E-05	0.3618857	3.678E-06	0.0002693	0.3264986	3.318E-06	0.0002429	0.3612825	3.672E-06	0.0002688
WAN PO ROAD R	RD_002	0100-0200	0.0418071	2.935E-07	2.149E-05	0.0394036	2.766E-07	2.026E-05	0.3723204	2.614E-06	0.0001914	0.33735	2.369E-06	0.0001734	0.3767536	2.645E-06	0.0001937
WAN PO ROAD R	RD_002	0200-0300	0.0465157	2.517E-07	1.843E-05	0.0438022	2.37E-07	1.735E-05	0.3812686	2.063E-06	0.000151	0.3447622	1.865E-06	0.0001366	0.3885643	2.102E-06	0.0001539
WAN PO ROAD R	RD_002	0300-0400	0.0512751	2.1E-07	1.538E-05	0.048419	1.983E-07	1.452E-05	0.3927192	1.608E-06	0.0001178	0.3575863	1.465E-06	0.0001072	0.4060054	1.663E-06	0.0001217
WAN PO ROAD R	RD_002	0400-0500	0.055996	2.191E-07	1.604E-05	0.0528823	2.069E-07	1.515E-05	0.4020119	1.573E-06	0.0001151	0.3667343	1.435E-06	0.000105	0.4196166	1.642E-06	0.0001202
WAN PO ROAD R	RD_002	0500-0600	0.0607028	3.395E-07	2.486E-05	0.0576079	3.222E-07	2.359E-05	0.4118907	2.304E-06	0.0001687	0.379226	2.121E-06	0.0001553	0.4368339	2.443E-06	0.0001789
WAN PO ROAD R	RD_002	0600-0700	0.0654799	1.039E-06	7.606E-05	0.0621808	9.865E-07	7.223E-05	0.4172178	6.619E-06	0.0004847	0.3857273	6.12E-06	0.0004481	0.4479081	7.106E-06	0.0005203
WAN PO ROAD R	RD_002	0700-0800	0.0698869	2.029E-06	0.0001486	0.0668543	1.941E-06	0.0001421	0.4227947	1.227E-05	0.0008987	0.3957069	1.149E-05	0.0008411	0.4625612	1.343E-05	0.0009832
WAN PO ROAD R	RD_002	0800-0900	0.0542184	1.661E-06	0.0001216	0.0518279	1.588E-06	0.0001163	0.3520346	1.079E-05	0.0007898	0.3275091	1.004E-05	0.0007348	0.379337	1.162E-05	0.0008511
WAN PO ROAD R	RD_002	0900-1000	0.0776949	2.225E-06	0.0001629	0.0742776	2.127E-06	0.0001557	0.4413593	1.264E-05	0.0009253	0.4127775	1.182E-05	0.0008653	0.4870551	1.395E-05	0.001021
WAN PO ROAD R	RD_002	1000-1100	0.0835551	2.325E-06	0.0001702	0.0799206	2.224E-06	0.0001628	0.471766	1.313E-05	0.0009612	0.4408533	1.227E-05	0.0008982	0.5207739	1.449E-05	0.0010611
WAN PO ROAD R	RD_002	1100-1200	0.0830852	2.157E-06	0.0001579	0.0791548	2.055E-06	0.0001504	0.4592318	1.192E-05	0.0008728	0.4270703	1.109E-05	0.0008117	0.5062251	1.314E-05	0.0009621
WAN PO ROAD R	RD_002	1200-1300	0.0520092	2.027E-06	0.0001484	0.0495354	1.931E-06	0.0001414	0.357858	1.395E-05	0.0010212	0.3319653	1.294E-05	0.0009474	0.3815007	1.487E-05	0.0010887
WAN PO ROAD R	RD_002	1300-1400	0.060886	2.389E-06	0.0001749	0.0578641	2.27E-06	0.0001662	0.4034271	1.583E-05	0.0011589	0.3737156	1.466E-05	0.0010735	0.4315797	1.693E-05	0.0012397
WAN PO ROAD R	RD_002	1400-1500	0.0512172	2.056E-06	0.0001506	0.0484409	1.945E-06	0.0001424	0.3569432	1.433E-05	0.0010493	0.3282971	1.318E-05	0.0009651	0.376738	1.513E-05	0.0011075
WAN PO ROAD R	RD_002	1500-1600	0.0486615	1.946E-06	0.0001425	0.0462522	1.85E-06	0.0001354	0.3540187	1.416E-05	0.0010367	0.327012	1.308E-05	0.0009576	0.3732642	1.493E-05	0.0010931
WAN PO ROAD R	RD_002	1600-1700	0.0465494	2.024E-06	0.0001482	0.0444069	1.931E-06	0.0001414	0.3512848	1.527E-05	0.0011184	0.3268046	1.421E-05	0.0010404	0.3712115	1.614E-05	0.0011818
WAN PO ROAD R	RD_002	1700-1800	0.0340816	1.766E-06	0.0001293	0.0324512	1.682E-06	0.0001231	0.2827729	1.465E-05	0.0010729	0.2627829	1.362E-05	0.0009971	0.2952341	1.53E-05	0.0011202
WAN PO ROAD R	RD_002	1800-1900	0.0263783	1.4E-06	0.0001025	0.0250854	1.332E-06	9.75E-05	0.2575345	1.367E-05	0.001001	0.2382628	1.265E-05	0.0009261	0.2633482	1.398E-05	0.0010236
WAN PO ROAD R	RD_002	1900-2000	0.0236446	1.106E-06	8.095E-05	0.0224655	1.05E-06	7.691E-05	0.2709351	1.267E-05	0.0009276	0.2498737	1.168E-05	0.0008555	0.2723392	1.273E-05	0.0009324
WAN PO ROAD R	RD_002	2000-2100	0.0242887	9.236E-07	6.762E-05	0.0231742	8.812E-07	6.452E-05	0.2825192	1.074E-05	0.0007866	0.2624274	9.979E-06	0.0007306	0.2856016	1.086E-05	0.0007952
WAN PO ROAD R	RD_002	2100-2200	0.0240427	8.721E-07	6.385E-05	0.0227147	8.239E-07	6.032E-05	0.315458	1.144E-05	0.0008378	0.2879832	1.045E-05	0.0007648	0.3106979	1.127E-05	0.0008251
WAN PO ROAD R	RD_002	2200-2300	0.0197292	6.983E-07	5.113E-05	0.0185409	6.562E-07	4.805E-05	0.305092	1.08E-05	0.0007906	0.2764173	9.783E-06	0.0007163	0.2949582	1.044E-05	0.0007644
WAN PO ROAD R	RD_002	2300-0000	0.0230506	6.288E-07	4.604E-05	0.021556	5.88E-07	4.305E-05	0.3154815	8.606E-06	0.0006301	0.2828126	7.715E-06	0.0005649	0.3043686	8.303E-06	0.0006079
CROSS BAY LINK L	RD_003	0000-0100	0.0242335	3.731E-07	8.903E-06	0.0224274	3.453E-07	8.239E-06	0.2053419	3.162E-06	7.544E-05	0.1758952	2.708E-06	6.462E-05	0.1983226	3.053E-06	7.286E-05
CROSS BAY LINK L	RD_003	0100-0200	0.0287112	3.043E-07	7.261E-06	0.0267376	2.834E-07	6.762E-06	0.2145647	2.274E-06	5.426E-05	0.1859966	1.971E-06	4.704E-05	0.2127342	2.255E-06	5.38E-05
CROSS BAY LINK L	RD_003	0200-0300	0.0334601	2.736E-07	6.529E-06	0.0311491	2.547E-07	6.078E-06	0.2268131	1.855E-06	4.426E-05	0.1962094	1.604E-06	3.828E-05	0.2273585	1.859E-06	4.436E-05
CROSS BAY LINK L	RD_003	0300-0400	0.0379301	2.342E-07	5.589E-06	0.0354379	2.188E-07	5.222E-06	0.2362457	1.459E-06	3.481E-05	0.2064972	1.275E-06	3.043E-05	0.2419351	1.494E-06	3.565E-05
CROSS BAY LINK L	RD_003	0400-0500	0.0425378	2.485E-07	5.929E-06	0.0398214	2.326E-07	5.55E-06	0.2459317	1.436E-06	3.428E-05	0.2166697	1.266E-06	3.02E-05	0.2564911	1.498E-06	3.575E-05
CROSS BAY LINK L	RD_003	0500-0600	0.0471398	3.935E-07	9.389E-06	0.0444666	3.711E-07	8.856E-06	0.2568007	2.143E-06	5.115E-05	0.2299181	1.919E-06	4.579E-05	0.2743847	2.29E-06	5.465E-05
CROSS BAY LINK L	RD_003	0600-0700	0.05182	1.224E-06	2.92E-05	0.0489752	1.156E-06	2.76E-05	0.2652087	6.263E-06	0.0001494	0.2393017	5.651E-06	0.0001348	0.2882768	6.807E-06	0.0001624

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
CROSS BAY LINK L	RD_003	0700-0800	0.056228	2.421E-06	5.777E-05	0.0535943	2.308E-06	5.507E-05	0.2719535	1.171E-05	0.0002794	0.2503402	1.078E-05	0.0002572	0.3039345	1.309E-05	0.0003123
CROSS BAY LINK L	RD_003	0800-0900	0.0425003	1.963E-06	4.685E-05	0.0404719	1.87E-06	4.462E-05	0.2294015	1.06E-05	0.0002529	0.2088791	9.65E-06	0.0002303	0.249351	1.152E-05	0.0002749
CROSS BAY LINK L	RD_003	0900-1000	0.0627219	2.623E-06	6.258E-05	0.0598445	2.502E-06	5.971E-05	0.2935551	1.227E-05	0.0002929	0.2705732	1.131E-05	0.00027	0.3304177	1.382E-05	0.0003297
CROSS BAY LINK L	RD_003	1000-1100	0.0678066	2.742E-06	6.542E-05	0.0646874	2.616E-06	6.241E-05	0.3202329	1.295E-05	0.000309	0.2944437	1.191E-05	0.0002841	0.3591312	1.452E-05	0.0003465
CROSS BAY LINK L	RD_003	1100-1200	0.067804	2.566E-06	6.123E-05	0.06446	2.439E-06	5.821E-05	0.3172655	1.201E-05	0.0002865	0.2905478	1.1E-05	0.0002624	0.3550078	1.344E-05	0.0003206
CROSS BAY LINK L	RD_003	1200-1300	0.0432255	2.06E-06	4.915E-05	0.0410111	1.954E-06	4.663E-05	0.2434978	1.16E-05	0.0002769	0.2217836	1.057E-05	0.0002522	0.2627947	1.252E-05	0.0002988
CROSS BAY LINK L	RD_003	1300-1400	0.0513963	2.445E-06	5.835E-05	0.0487008	2.317E-06	5.529E-05	0.2791711	1.328E-05	0.000317	0.2543432	1.21E-05	0.0002888	0.303044	1.442E-05	0.0003441
CROSS BAY LINK L	RD_003	1400-1500	0.0423004	2.076E-06	4.953E-05	0.0398581	1.956E-06	4.667E-05	0.241235	1.184E-05	0.0002825	0.2176224	1.068E-05	0.0002548	0.2574805	1.264E-05	0.0003015
CROSS BAY LINK L	RD_003	1500-1600	0.0395099	1.932E-06	4.611E-05	0.0374046	1.829E-06	4.365E-05	0.235895	1.154E-05	0.0002753	0.2134867	1.044E-05	0.0002491	0.2508913	1.227E-05	0.0002928
CROSS BAY LINK L	RD_003	1600-1700	0.0373722	1.987E-06	4.741E-05	0.0355184	1.888E-06	4.506E-05	0.2303154	1.224E-05	0.0002922	0.2101675	1.117E-05	0.0002666	0.2456859	1.306E-05	0.0003117
CROSS BAY LINK L	RD_003	1700-1800	0.0263732	1.678E-06	4.004E-05	0.024992	1.59E-06	3.795E-05	0.1813628	1.154E-05	0.0002754	0.1651987	1.051E-05	0.0002508	0.1901907	1.21E-05	0.0002888
CROSS BAY LINK L	RD_003	1800-1900	0.0186073	1.214E-06	2.896E-05	0.0175494	1.145E-06	2.732E-05	0.152966	9.978E-06	0.0002381	0.1379172	8.996E-06	0.0002147	0.1554666	1.014E-05	0.000242
CROSS BAY LINK L	RD_003	1900-2000	0.0149865	8.598E-07	2.052E-05	0.0140374	8.054E-07	1.922E-05	0.1538518	8.827E-06	0.0002106	0.1373357	7.879E-06	0.000188	0.1513731	8.685E-06	0.0002072
CROSS BAY LINK L	RD_003	2000-2100	0.015604	7.299E-07	1.742E-05	0.0147157	6.884E-07	1.643E-05	0.1619115	7.574E-06	0.0001807	0.1461681	6.838E-06	0.0001632	0.1608838	7.526E-06	0.0001796
CROSS BAY LINK L	RD_003	2100-2200	0.0143608	6.388E-07	1.524E-05	0.0133204	5.925E-07	1.414E-05	0.1821085	8.101E-06	0.0001933	0.1592392	7.083E-06	0.000169	0.1725596	7.676E-06	0.0001832
CROSS BAY LINK L	RD_003	2200-2300	0.0108649	4.733E-07	1.129E-05	0.0099549	4.337E-07	1.035E-05	0.1813568	7.901E-06	0.0001885	0.1577629	6.873E-06	0.000164	0.1677178	7.307E-06	0.0001743
CROSS BAY LINK L	RD_003	2300-0000	0.0140026	4.697E-07	1.121E-05	0.012789	4.29E-07	1.024E-05	0.1914349	6.422E-06	0.0001532	0.1636674	5.491E-06	0.000131	0.1764564	5.92E-06	0.0001412
CROSS BAY LINK R	RD_004	0000-0100	0.0143775	5.443E-07	9.64E-06	0.0130327	4.934E-07	8.739E-06	0.1833437	6.94E-06	0.0001229	0.1539094	5.826E-06	0.0001032	0.1669421	6.32E-06	0.0001119
CROSS BAY LINK R	RD_004	0100-0200	0.0171515	4.413E-07	7.817E-06	0.015702	4.04E-07	7.156E-06	0.1871348	4.815E-06	8.529E-05	0.1587491	4.085E-06	7.235E-05	0.1744512	4.489E-06	7.951E-05
CROSS BAY LINK R	RD_004	0200-0300	0.0202066	3.963E-07	7.019E-06	0.0185073	3.63E-07	6.429E-06	0.194048	3.806E-06	6.741E-05	0.1636692	3.21E-06	5.685E-05	0.1821764	3.573E-06	6.328E-05
CROSS BAY LINK R	RD_004	0300-0400	0.0230866	3.379E-07	5.984E-06	0.021274	3.113E-07	5.514E-06	0.1982735	2.902E-06	5.139E-05	0.1689508	2.472E-06	4.379E-05	0.1902248	2.784E-06	4.931E-05
CROSS BAY LINK R	RD_004	0400-0500	0.0261104	3.592E-07	6.363E-06	0.0241568	3.324E-07	5.887E-06	0.2026174	2.788E-06	4.938E-05	0.1740528	2.395E-06	4.242E-05	0.1982096	2.727E-06	4.83E-05
CROSS BAY LINK R	RD_004	0500-0600	0.0292538	5.649E-07	1.001E-05	0.0273197	5.275E-07	9.344E-06	0.2085368	4.027E-06	7.132E-05	0.1823413	3.521E-06	6.236E-05	0.209661	4.048E-06	7.171E-05
CROSS BAY LINK R	RD_004	0600-0700	0.0325462	1.762E-06	3.12E-05	0.0304801	1.65E-06	2.922E-05	0.2123229	1.149E-05	0.0002036	0.1873676	1.014E-05	0.0001796	0.2178477	1.179E-05	0.0002089
CROSS BAY LINK R	RD_004	0700-0800	0.0356844	3.48E-06	6.165E-05	0.033785	3.295E-06	5.837E-05	0.2143925	2.091E-05	0.0003704	0.1938705	1.891E-05	0.0003349	0.2276555	2.22E-05	0.0003933
CROSS BAY LINK R	RD_004	0800-0900	0.024899	2.68E-06	4.747E-05	0.0234501	2.524E-06	4.471E-05	0.1791661	1.929E-05	0.0003416	0.1595463	1.717E-05	0.0003042	0.1829964	1.97E-05	0.0003489
CROSS BAY LINK R	RD_004	0900-1000	0.0310474	2.697E-06	4.777E-05	0.0293819	2.552E-06	4.521E-05	0.2021565	1.756E-05	0.000311	0.1811668	1.574E-05	0.0002787	0.2105487	1.829E-05	0.0003239
CROSS BAY LINK R	RD_004	1000-1100	0.0307387	2.482E-06	4.396E-05	0.0290365	2.344E-06	4.153E-05	0.2157651	1.742E-05	0.0003086	0.1916751	1.548E-05	0.0002741	0.2207116	1.782E-05	0.0003157
CROSS BAY LINK R	RD_004	1100-1200	0.0306664	2.372E-06	4.201E-05	0.0288567	2.232E-06	3.953E-05	0.2103712	1.627E-05	0.0002882	0.1861097	1.439E-05	0.0002549	0.2149664	1.662E-05	0.0002945
CROSS BAY LINK R	RD_004	1200-1300	0.0452277	1.435E-06	2.542E-05	0.0429094	1.362E-06	2.412E-05	0.2348953	7.455E-06	0.000132	0.2134813	6.775E-06	0.00012	0.2563907	8.137E-06	0.0001441
CROSS BAY LINK R	RD_004	1300-1400	0.0533338	1.695E-06	3.003E-05	0.0505313	1.606E-06	2.845E-05	0.2686413	8.539E-06	0.0001513	0.2442198	7.763E-06	0.0001375	0.294751	9.369E-06	0.000166
CROSS BAY LINK R	RD_004	1400-1500	0.0444566	1.453E-06	2.574E-05	0.0418896	1.369E-06	2.425E-05	0.2326725	7.605E-06	0.0001347	0.2093798	6.844E-06	0.0001212	0.2512694	8.213E-06	0.0001455
CROSS BAY LINK R	RD_004	1500-1600	0.0418943	1.366E-06	2.42E-05	0.0396676	1.294E-06	2.291E-05	0.2274794	7.418E-06	0.0001314	0.205383	6.698E-06	0.0001186	0.2450506	7.991E-06	0.0001415
CROSS BAY LINK R	RD_004	1600-1700	0.0389256	1.377E-06	2.44E-05	0.0369897	1.309E-06	2.319E-05	0.2192963	7.76E-06	0.0001375	0.1995033	7.06E-06	0.0001251	0.236493	8.369E-06	0.0001482
CROSS BAY LINK R	RD_004	1700-1800	0.0269039	1.13E-06	2.002E-05	0.0254831	1.07E-06	1.896E-05	0.1701276	7.146E-06	0.0001266	0.1542774	6.48E-06	0.0001148	0.1797605	7.55E-06	0.0001337
CROSS BAY LINK R	RD_004	1800-1900	0.0186875	8.012E-07	1.419E-05	0.0176061	7.548E-07	1.337E-05	0.1393224	5.973E-06	0.0001058	0.1246654	5.345E-06	9.467E-05	0.1422714	6.099E-06	0.000108
CROSS BAY LINK R	RD_004	1900-2000	0.0143543	5.401E-07	9.567E-06	0.0134036	5.043E-07	8.933E-06	0.1366006	5.14E-06	9.104E-05	0.1205727	4.537E-06	8.036E-05	0.1339764	5.041E-06	8.929E-05
CROSS BAY LINK R	RD_004	2000-2100	0.0150502	4.616E-07	8.176E-06	0.0141593	4.343E-07	7.692E-06	0.1439776	4.416E-06	7.822E-05	0.128705	3.948E-06	6.992E-05	0.1428644	4.382E-06	7.761E-05
CROSS BAY LINK R	RD_004	2100-2200	0.0134878	3.926E-07	6.955E-06	0.0124527	3.625E-07	6.421E-06	0.1606876	4.678E-06	8.285E-05	0.1384718	4.031E-06	7.14E-05	0.1509244	4.393E-06	7.782E-05
CROSS BAY LINK R	RD_004	2200-2300	0.0100902	2.877E-07	5.096E-06	0.0091851	2.619E-07	4.638E-06	0.1624279	4.631E-06	8.203E-05	0.1394391	3.976E-06	7.042E-05	0.1486243	4.237E-06	7.506E-05
CROSS BAY LINK R	RD_004	2300-0000	0.0134038	2.945E-07	5.216E-06	0.0121867	2.677E-07	4.742E-06	0.1723771	3.787E-06	6.708E-05	0.1453046	3.192E-06	5.655E-05	0.1574912	3.46E-06	6.129E-05
INDUSTRIAL ROAD L	RD_005	0000-0100	0.5651605	8.213E-08	2.234E-06	0.5426715	7.886E-08	2.145E-06	8.6536005	1.258E-06	3.421E-05	8.2325329	1.196E-06	3.254E-05	8.7752043	1.275E-06	3.469E-05
INDUSTRIAL ROAD L	RD_005	0100-0200	0.5585427	4.87E-08	1.325E-06	0.5371515	4.683E-08	1.274E-06	8.535918	7.443E-07	2.024E-05	8.1322955	7.091E-07	1.929E-05	8.669447	7.559E-07	2.056E-05
INDUSTRIAL ROAD L	RD_005	0200-0300	0.5594827	3.252E-08	8.846E-07	0.5371937	3.123E-08	8.494E-07	8.5535769	4.972E-07	1.352E-05	8.1340379	4.728E-07	1.286E-05	8.6712315	5.04E-07	1.371E-05
INDUSTRIAL ROAD L	RD_005	0300-0400	0.5596923	3.253E-08	8.849E-07	0.5375078	3.124E-08	8.499E-07	8.5552453	4.973E-07	1.353E-05	8.1386618	4.731E-07	1.287E-05	8.6761697	5.043E-07	1.372E-05
INDUSTRIAL ROAD L	RD_005	0400-0500	0.5600204	3.255E-08	8.854E-07	0.5375359	3.125E-08	8.499E-07	8.5619087	4.977E-07	1.354E-05	8.1398247	4.731E-07	1.287E-05	8.6773606	5.044E-07	1.372E-05
INDUSTRIAL ROAD L	RD_005	0500-0600	0.5599204	3.255E-08	8.853E-07	0.5397254	3.137E-08	8.534E-07	8.5608222	4.976E-07	1.354E-05	8.1806672	4.755E-07	1.293E-05	8.7203926	5.069E-07	1.379E-05
INDUSTRIAL ROAD L	RD_005	0600-0700	0.5658053	1.151E-07	3.131E-06	0.5451005	1.109E-07	3.016E-06	8.66979	1.764E-06	4.798E-05	8.2809754	1.685E-06	4.583E-05	8.826076	1.796E-06	4.884E-05
INDUSTRIAL ROAD L	RD_005	0700-0800	0.5641564	1.968E-07	5.352E-06	0.5460388	1.904E-07	5.18E-06	8.6384818	3.013E-06	8.195E-05	8.2982932	2.894E-06	7.872E-05	8.844332	3.085E-06	8.39E-05
INDUSTRIAL ROAD L	RD_005	0800-0900	0.561224	1.631E-07	4.437E-06	0.5436632	1.58E-07	4.298E-06	8.5492873	2.485E-06	6.759E-05	8.2197081	2.389E-06	6.498E-05	8.7633713	2.547E-06	6.928E-05
INDUSTRIAL ROAD L	RD_005	0900-1000	0.5615152	1.795E-07	4.883E-06	0.5426538	1.735E-07	4.719E-06	8.5604195	2.737E-06	7.444E-05	8.2069341	2.624E-06	7.137E-05	8.7495879	2.797E-06	7.609E-05
INDUSTRIAL ROAD L	RD_005	1000-1100	0.5599631	1.79E-07	4.869E-06	0.5409447	1.729E-07	4.704E-06	8.4562556	2.703E-06	7.354E-05	8.1034564	2.591E-06	7.047E-05	8.6444011	2.764E-06	7.517E-05
INDUSTRIAL ROAD L	RD_005	1100-1200	0.565057	1.478E-07	4.02E-06	0.5440466	1.423E-07	3.871E-06	8.6581579	2.265E-06	6.16E-05	8.2648955	2.162E-06	5.88E-05	8.8089421	2.304E-06	6.267E-05
INDUSTRIAL ROAD L	RD_005	1200-1300	0.5604799	1.629E-07	4.431E-06	0.5404646	1.571E-07	4.273E-06	8.4717245	2.462E-06	6.697E-05	8.0990477	2.354E-06	6.403E-05	8.6395124	2.511E-06	6.83E-05
INDUSTRIAL ROAD L	RD_005	1300-1400	0.5604694	1.629E-07	4.431E-06	0.5397047	1.569E-07	4.267E-06	8.4526146	2.457E-06	6.682E-05	8.0671829	2.345E-06	6.377E-05	8.6068876	2.501E-06	6.804E-05
INDUSTRIAL ROAD L	RD_005	1400-1500	0.5634425	1.638E-07	4.454E-06	0.5406332	1.571E-07	4.274E-06	8.5865872	2.496E-06	6.788E-05	8.1594192	2.371E-06	6.45E-05	8.7000524	2.529E-06	6.878E-05

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
INDUSTRIAL ROAD L	RD_005	1500-1600	0.5612614	1.631E-07	4.437E-06	0.5405133	1.571E-07	4.273E-06	8.5568551	2.487E-06	6.765E-05	8.1693372	2.374E-06	6.458E-05	8.7098505	2.531E-06	6.886E-05
INDUSTRIAL ROAD L	RD_005	1600-1700	0.5598237	1.79E-07	4.868E-06	0.5411881	1.73E-07	4.706E-06	8.5153716	2.722E-06	7.405E-05	8.1676733	2.611E-06	7.103E-05	8.7088614	2.784E-06	7.573E-05
INDUSTRIAL ROAD L	RD_005	1700-1800	0.5594705	1.789E-07	4.865E-06	0.5411672	1.73E-07	4.706E-06	8.5433687	2.731E-06	7.429E-05	8.200942	2.622E-06	7.132E-05	8.7421092	2.795E-06	7.602E-05
INDUSTRIAL ROAD L	RD_005	1800-1900	0.5602177	1.954E-07	5.315E-06	0.5416487	1.889E-07	5.138E-06	8.5935237	2.997E-06	8.152E-05	8.2439137	2.875E-06	7.821E-05	8.7855624	3.064E-06	8.334E-05
INDUSTRIAL ROAD L	RD_005	1900-2000	0.5604814	1.955E-07	5.317E-06	0.5422202	1.891E-07	5.144E-06	8.4721854	2.955E-06	8.037E-05	8.1339663	2.837E-06	7.716E-05	8.6761865	3.026E-06	8.231E-05
INDUSTRIAL ROAD L	RD_005	2000-2100	0.5566189	1.618E-07	4.4E-06	0.5402223	1.57E-07	4.271E-06	8.4802171	2.465E-06	6.704E-05	8.1727279	2.375E-06	6.461E-05	8.7129502	2.532E-06	6.888E-05
INDUSTRIAL ROAD L	RD_005	2100-2200	0.5598913	1.79E-07	4.869E-06	0.5409757	1.73E-07	4.704E-06	8.5588978	2.736E-06	7.443E-05	8.2043261	2.623E-06	7.135E-05	8.7453017	2.796E-06	7.605E-05
INDUSTRIAL ROAD L	RD_005	2200-2300	0.5611835	1.631E-07	4.436E-06	0.5413752	1.573E-07	4.28E-06	8.5817327	2.494E-06	6.784E-05	8.2090384	2.386E-06	6.49E-05	8.7504136	2.543E-06	6.918E-05
INDUSTRIAL ROAD L	RD_005	2300-0000	0.5633282	1.146E-07	3.117E-06	0.5408362	1.1E-07	2.993E-06	8.6210515	1.754E-06	4.771E-05	8.1984746	1.668E-06	4.537E-05	8.7393107	1.778E-06	4.836E-05
INDUSTRIAL ROAD C	RD_007	0000-0100	0.5651605	7.428E-08	6.559E-06	0.5426715	7.132E-08	6.298E-06	8.6536005	1.137E-06	0.0001004	8.2325329	1.082E-06	9.555E-05	8.7752043	1.153E-06	0.0001018
INDUSTRIAL ROAD C	RD_007	0100-0200	0.5585427	4.404E-08	3.89E-06	0.5371515	4.236E-08	3.741E-06	8.535918	6.731E-07	5.944E-05	8.1322955	6.413E-07	5.663E-05	8.669447	6.836E-07	6.037E-05
INDUSTRIAL ROAD C	RD_007	0200-0300	0.5594827	2.941E-08	2.597E-06	0.5371937	2.824E-08	2.494E-06	8.5535769	4.497E-07	3.971E-05	8.1340379	4.276E-07	3.776E-05	8.6712315	4.558E-07	4.026E-05
INDUSTRIAL ROAD C	RD_007	0300-0400	0.5537877	2.911E-08	2.571E-06	0.5323048	2.798E-08	2.471E-06	8.4503746	4.442E-07	3.923E-05	8.0447711	4.229E-07	3.735E-05	8.5770759	4.509E-07	3.982E-05
INDUSTRIAL ROAD C	RD_007	0400-0500	0.5600204	2.944E-08	2.6E-06	0.5375359	2.826E-08	2.496E-06	8.5619087	4.501E-07	3.975E-05	8.1398247	4.279E-07	3.779E-05	8.6773606	4.562E-07	4.028E-05
INDUSTRIAL ROAD C	RD_007	0500-0600	0.5486129	2.884E-08	2.547E-06	0.5294194	2.783E-08	2.458E-06	8.3566897	4.393E-07	3.88E-05	7.9964247	4.204E-07	3.712E-05	8.5258441	4.482E-07	3.958E-05
INDUSTRIAL ROAD C	RD_007	0600-0700	0.5658053	1.041E-07	9.194E-06	0.5451005	1.003E-07	8.857E-06	8.66979	1.595E-06	0.0001409	8.2809754	1.524E-06	0.0001346	8.826076	1.624E-06	0.0001434
INDUSTRIAL ROAD C	RD_007	0700-0800	0.5054119	1.727E-07	1.525E-05	0.4901134	1.675E-07	1.479E-05	7.6267804	2.606E-06	0.0002301	7.3421818	2.509E-06	0.0002216	7.8322952	2.676E-06	0.0002363
INDUSTRIAL ROAD C	RD_007	0800-0900	0.5154684	1.49E-07	1.316E-05	0.4991612	1.443E-07	1.275E-05	7.8018124	2.256E-06	0.0001992	7.4990209	2.168E-06	0.0001915	7.9981821	2.313E-06	0.0002042
INDUSTRIAL ROAD C	RD_007	0900-1000	0.534391	1.545E-07	1.365E-05	0.5179318	1.498E-07	1.322E-05	8.0737447	2.334E-06	0.0002062	7.7639729	2.245E-06	0.0001982	8.2819047	2.395E-06	0.0002115
INDUSTRIAL ROAD C	RD_007	1000-1100	0.5599631	1.619E-07	1.43E-05	0.5409447	1.564E-07	1.381E-05	8.4562556	2.445E-06	0.0002159	8.1034564	2.343E-06	0.0002069	8.6444011	2.499E-06	0.0002207
INDUSTRIAL ROAD C	RD_007	1100-1200	0.5331403	1.261E-07	1.114E-05	0.5153312	1.219E-07	1.077E-05	8.0800957	1.911E-06	0.0001688	7.7435187	1.832E-06	0.0001618	8.25885	1.954E-06	0.0001725
INDUSTRIAL ROAD C	RD_007	1200-1300	0.5604799	1.473E-07	1.301E-05	0.5404646	1.421E-07	1.255E-05	8.4717245	2.227E-06	0.0001966	8.0990477	2.129E-06	0.000188	8.6395124	2.271E-06	0.0002005
INDUSTRIAL ROAD C	RD_007	1300-1400	0.5241976	1.378E-07	1.217E-05	0.5069425	1.332E-07	1.177E-05	7.8099743	2.053E-06	0.0001813	7.4879392	1.968E-06	0.0001738	7.9948816	2.101E-06	0.0001856
INDUSTRIAL ROAD C	RD_007	1400-1500	0.5634425	1.481E-07	1.308E-05	0.5406332	1.421E-07	1.255E-05	8.5865872	2.257E-06	0.0001993	8.1594192	2.145E-06	0.0001894	8.7000524	2.287E-06	0.0002019
INDUSTRIAL ROAD C	RD_007	1500-1600	0.5215289	1.371E-07	1.211E-05	0.5047829	1.327E-07	1.172E-05	7.8379807	2.06E-06	0.0001819	7.521267	1.977E-06	0.0001746	8.0260499	2.11E-06	0.0001863
INDUSTRIAL ROAD C	RD_007	1600-1700	0.5598237	1.619E-07	1.429E-05	0.5411881	1.565E-07	1.382E-05	8.5153716	2.462E-06	0.0002174	8.1676733	2.362E-06	0.0002086	8.7088614	2.518E-06	0.0002224
INDUSTRIAL ROAD C	RD_007	1700-1800	0.5165471	1.494E-07	1.319E-05	0.5020438	1.452E-07	1.282E-05	7.7612376	2.244E-06	0.0001982	7.4875496	2.165E-06	0.0001912	7.9895934	2.31E-06	0.000204
INDUSTRIAL ROAD C	RD_007	1800-1900	0.5602177	1.767E-07	1.56E-05	0.5416487	1.708E-07	1.509E-05	8.5935237	2.711E-06	0.0002394	8.2439137	2.6E-06	0.0002296	8.7855624	2.771E-06	0.0002447
INDUSTRIAL ROAD C	RD_007	1900-2000	0.5079098	1.602E-07	1.415E-05	0.4942486	1.559E-07	1.377E-05	7.5338738	2.376E-06	0.0002099	7.2769224	2.295E-06	0.0002027	7.7711709	2.451E-06	0.0002165
INDUSTRIAL ROAD C	RD_007	2000-2100	0.5566189	1.463E-07	1.292E-05	0.5402223	1.42E-07	1.254E-05	8.4802171	2.229E-06	0.0001968	8.1727279	2.148E-06	0.0001897	8.7129502	2.29E-06	0.0002022
INDUSTRIAL ROAD C	RD_007	2100-2200	0.5100698	1.475E-07	1.302E-05	0.4956569	1.433E-07	1.266E-05	7.6457864	2.211E-06	0.0001952	7.3740267	2.132E-06	0.0001883	7.8696836	2.275E-06	0.0002009
INDUSTRIAL ROAD C	RD_007	2200-2300	0.5611835	1.475E-07	1.303E-05	0.5413752	1.423E-07	1.257E-05	8.5817327	2.256E-06	0.0001992	8.2090384	2.158E-06	0.0001906	8.7504136	2.3E-06	0.0002031
INDUSTRIAL ROAD C	RD_007	2300-0000	0.5094051	9.373E-08	8.277E-06	0.492616	9.064E-08	8.004E-06	7.6311862	1.404E-06	0.000124	7.3139307	1.346E-06	0.0001188	7.8065467	1.436E-06	0.0001268
CHUN YAT STREET L	RD_008	0000-0100	0.11939	1.495E-08	3.07E-07	0.1095572	1.372E-08	2.817E-07	0.661508	8.283E-08	1.701E-06	0.5794257	7.255E-08	1.49E-06	0.6889829	8.627E-08	1.772E-06
CHUN YAT STREET L	RD_008	0100-0200	0.124046	1.035E-08	2.126E-07	0.1140593	9.521E-09	1.955E-07	0.6750957	5.635E-08	1.157E-06	0.5932883	4.952E-08	1.017E-06	0.7073476	5.904E-08	1.212E-06
CHUN YAT STREET L	RD_008	0200-0300	0.1286978	1.074E-08	2.205E-07	0.117984	9.845E-09	2.022E-07	0.6935288	5.787E-08	1.188E-06	0.605339	5.051E-08	1.037E-06	0.723323	6.036E-08	1.24E-06
CHUN YAT STREET L	RD_008	0300-0400	0.1325798	5.533E-09	1.136E-07	0.1216934	5.079E-09	1.043E-07	0.7061576	2.947E-08	6.052E-07	0.6178177	2.578E-08	5.295E-07	0.7395111	3.086E-08	6.338E-07
CHUN YAT STREET L	RD_008	0400-0500	0.1361539	5.681E-09	1.167E-07	0.124858	5.21E-09	1.07E-07	0.7173195	2.993E-08	6.147E-07	0.6276419	2.619E-08	5.378E-07	0.7524999	3.14E-08	6.448E-07
CHUN YAT STREET L	RD_008	0500-0600	0.1392852	1.163E-08	2.387E-07	0.1289126	1.076E-08	2.21E-07	0.7295871	6.089E-08	1.25E-06	0.6461166	5.393E-08	1.107E-06	0.7750292	6.469E-08	1.328E-06
CHUN YAT STREET L	RD_008	0600-0700	0.1419474	2.962E-08	6.082E-07	0.1314925	2.743E-08	5.634E-07	0.7361049	1.536E-07	3.154E-06	0.6528675	1.362E-07	2.797E-06	0.78436	1.636E-07	3.361E-06
CHUN YAT STREET L	RD_008	0700-0800	0.146475	6.112E-08	1.255E-06	0.1369112	5.713E-08	1.173E-06	0.7476811	3.12E-07	6.407E-06	0.674273	2.814E-07	5.778E-06	0.8111842	3.385E-07	6.951E-06
CHUN YAT STREET L	RD_008	0800-0900	0.1372285	4.581E-08	9.408E-07	0.1284365	4.288E-08	8.805E-07	0.7017289	2.343E-07	4.811E-06	0.6339963	2.117E-07	4.347E-06	0.7624328	2.545E-07	5.227E-06
CHUN YAT STREET L	RD_008	0900-1000	0.1563189	5.872E-08	1.206E-06	0.1458656	5.479E-08	1.125E-06	0.7658326	2.877E-07	5.907E-06	0.6913144	2.597E-07	5.333E-06	0.83718	3.145E-07	6.458E-06
CHUN YAT STREET L	RD_008	1000-1100	0.1678531	4.903E-08	1.007E-06	0.1567941	4.58E-08	9.405E-07	0.7954527	2.323E-07	4.771E-06	0.721314	2.107E-07	4.327E-06	0.8781081	2.565E-07	5.267E-06
CHUN YAT STREET L	RD_008	1100-1200	0.1625181	6.103E-08	1.253E-06	0.150623	5.657E-08	1.162E-06	0.7879773	2.959E-07	6.077E-06	0.7055531	2.65E-07	5.441E-06	0.8561761	3.215E-07	6.603E-06
CHUN YAT STREET L	RD_008	1200-1300	0.117862	9.347E-08	1.92E-06	0.1093639	8.673E-08	1.781E-06	0.5972105	4.736E-07	9.726E-06	0.5347508	4.241E-07	8.709E-06	0.6441147	5.108E-07	1.049E-05
CHUN YAT STREET L	RD_008	1300-1400	0.1313206	1.315E-07	2.701E-06	0.1213545	1.215E-07	2.496E-06	0.6684358	6.695E-07	1.375E-05	0.5957572	5.967E-07	1.225E-05	0.7171117	7.182E-07	1.475E-05
CHUN YAT STREET L	RD_008	1400-1500	0.1171316	9.287E-08	1.907E-06	0.1076454	8.535E-08	1.753E-06	0.5923784	4.697E-07	9.646E-06	0.5226325	4.144E-07	8.51E-06	0.6302779	4.998E-07	1.026E-05
CHUN YAT STREET L	RD_008	1500-1600	0.1141855	9.054E-08	1.859E-06	0.105771	8.387E-08	1.722E-06	0.5815502	4.611E-07	9.469E-06	0.5176337	4.104E-07	8.429E-06	0.6234047	4.943E-07	1.015E-05
CHUN YAT STREET L	RD_008	1600-1700	0.1084202	9.501E-08	1.951E-06	0.1010886	8.858E-08	1.819E-06	0.5661357	4.961E-07	1.019E-05	0.5094667	4.464E-07	9.168E-06	0.6105553	5.35E-07	1.099E-05
CHUN YAT STREET L	RD_008	1700-1800	0.0994104	1.079E-07	2.215E-06	0.0925905	1.005E-07	2.063E-06	0.5346503	5.802E-07	1.191E-05	0.4799007	5.208E-07	1.069E-05	0.5724912	6.212E-07	1.276E-05
CHUN YAT STREET L	RD_008	1800-1900	0.0924056	1.041E-07	2.139E-06	0.0858552	9.676E-08	1.987E-06	0.5090488	5.737E-07	1.178E-05	0.4548213	5.126E-07	1.053E-05	0.5406766	6.093E-07	1.251E-05
CHUN YAT STREET L	RD_008	1900-2000	0.0868065	8.694E-08	1.785E-06	0.0807495	8.088E-08	1.661E-06	0.4989356	4.997E-07	1.026E-05	0.445272	4.46E-07	9.158E-06	0.5260215	5.268E-07	1.082E-05
CHUN YAT STREET L	RD_008	2000-2100	0.0795694	5.646E-08	1.159E-06	0.0744487	5.283E-08	1.085E-06	0.4657155	3.305E-07	6.786E-06	0.420342	2.983E-07	6.125E-06	0.4947907	3.511E-07	7.21E-06
CHUN YAT STREET L	RD_008	2100-2200	0.0833688	6.263E-08	1.286E-06	0.0771844	5.798E-08	1.191E-06	0.50539	3.797E-07	7.797E-06	0.4466365	3.355E-07	6.89E-06	0.5238209	3.935E-07	8.081E-06
CHUN YAT STREET L	RD_008	2200-2300	0.0716934	4.489E-08	9.218E-07	0.0660974	4.138E-08	8.498E-07	0.4692747	2.938E-07	6.034E-06	0.4130176	2.586E-07	5.31E-06	0.479115	3E-07	6.16E-06

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
CHUN YAT STREET L	RD_008	2300-0000	0.0788025	3.946E-08	8.104E-07	0.0719054	3.601E-08	7.395E-07	0.4973038	2.49E-07	5.114E-06	0.4303506	2.155E-07	4.426E-06	0.502256	2.515E-07	5.165E-06
CHUN YAT STREET R	RD_009	0000-0100	0.1483597	5.943E-09	1.026E-07	0.1363548	5.462E-09	9.426E-08	0.7808855	3.128E-08	5.398E-07	0.6885028	2.758E-08	4.759E-07	0.8248575	3.304E-08	5.702E-07
CHUN YAT STREET R	RD_009	0100-0200	0.1506401	6.034E-09	1.041E-07	0.1386841	5.556E-09	9.587E-08	0.7863217	3.15E-08	5.436E-07	0.6948116	2.783E-08	4.803E-07	0.8334958	3.339E-08	5.762E-07
CHUN YAT STREET R	RD_009	0200-0300	0.1534029	6.145E-09	1.06E-07	0.1407921	5.64E-09	9.733E-08	0.7983196	3.198E-08	5.519E-07	0.7004574	2.806E-08	4.842E-07	0.8412495	3.37E-08	5.815E-07
CHUN YAT STREET R	RD_009	0300-0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHUN YAT STREET R	RD_009	0400-0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHUN YAT STREET R	RD_009	0500-0600	0.1583602	6.342E-09	1.094E-07	0.1466445	5.873E-09	1.013E-07	0.81564	3.266E-08	5.637E-07	0.7243265	2.901E-08	5.006E-07	0.870971	3.488E-08	6.019E-07
CHUN YAT STREET R	RD_009	0600-0700	0.1597769	1.28E-08	2.209E-07	0.1480699	1.186E-08	2.047E-07	0.8179618	6.553E-08	1.131E-06	0.7270825	5.825E-08	1.005E-06	0.8751524	7.012E-08	1.21E-06
CHUN YAT STREET R	RD_009	0700-0800	0.1599498	2.563E-08	4.422E-07	0.1496872	2.398E-08	4.139E-07	0.8118875	1.301E-07	2.245E-06	0.7331886	1.175E-07	2.027E-06	0.8828757	1.415E-07	2.441E-06
CHUN YAT STREET R	RD_009	0800-0900	0.1610178	1.935E-08	3.34E-07	0.1508516	1.813E-08	3.129E-07	0.8061784	9.689E-08	1.672E-06	0.7308332	8.784E-08	1.516E-06	0.8816849	1.06E-07	1.829E-06
CHUN YAT STREET R	RD_009	0900-1000	0.1733299	2.083E-08	3.595E-07	0.1618784	1.945E-08	3.357E-07	0.8367606	1.006E-07	1.735E-06	0.7572558	9.1E-08	1.57E-06	0.9191341	1.105E-07	1.906E-06
CHUN YAT STREET R	RD_009	1000-1100	0.1919188	1.537E-08	2.653E-07	0.1795183	1.438E-08	2.482E-07	0.8864987	7.102E-08	1.225E-06	0.8071038	6.466E-08	1.116E-06	0.9866221	7.904E-08	1.364E-06
CHUN YAT STREET R	RD_009	1100-1200	0.1788886	2.149E-08	3.709E-07	0.1660209	1.995E-08	3.442E-07	0.8527454	1.024E-07	1.768E-06	0.7656673	9.199E-08	1.587E-06	0.9316882	1.119E-07	1.932E-06
CHUN YAT STREET R	RD_009	1200-1300	0.1532266	6.139E-08	1.059E-06	0.1419927	5.689E-08	9.817E-07	0.7816945	3.132E-07	5.404E-06	0.6989405	2.8E-07	4.832E-06	0.8409333	3.369E-07	5.814E-06
CHUN YAT STREET R	RD_009	1300-1400	0.1508621	9.065E-08	1.564E-06	0.1393205	8.372E-08	1.445E-06	0.7818986	4.698E-07	8.108E-06	0.6954538	4.179E-07	7.211E-06	0.8347743	5.016E-07	8.656E-06
CHUN YAT STREET R	RD_009	1400-1500	0.1544581	6.187E-08	1.068E-06	0.1417159	5.677E-08	9.796E-07	0.7849966	3.145E-07	5.426E-06	0.6904871	2.766E-07	4.773E-06	0.832203	3.334E-07	5.753E-06
CHUN YAT STREET R	RD_009	1500-1600	0.1543023	5.562E-08	9.598E-07	0.1427383	5.145E-08	8.879E-07	0.778962	2.808E-07	4.845E-06	0.6922915	2.495E-07	4.306E-06	0.8350298	3.01E-07	5.194E-06
CHUN YAT STREET R	RD_009	1600-1700	0.1483315	5.942E-08	1.025E-06	0.1381958	5.536E-08	9.553E-07	0.7625913	3.055E-07	5.272E-06	0.6861158	2.749E-07	4.743E-06	0.8243116	3.302E-07	5.698E-06
CHUN YAT STREET R	RD_009	1700-1800	0.1404805	7.879E-08	1.36E-06	0.1308683	7.34E-08	1.267E-06	0.737714	4.138E-07	7.14E-06	0.6625478	3.716E-07	6.413E-06	0.7934161	4.45E-07	7.679E-06
CHUN YAT STREET R	RD_009	1800-1900	0.1381755	8.301E-08	1.432E-06	0.1284644	7.718E-08	1.332E-06	0.7294122	4.382E-07	7.562E-06	0.65359	3.927E-07	6.776E-06	0.7820544	4.698E-07	8.108E-06
CHUN YAT STREET R	RD_009	1900-2000	0.1348023	7.019E-08	1.211E-06	0.125611	6.54E-08	1.129E-06	0.7188976	3.743E-07	6.459E-06	0.6452616	3.36E-07	5.797E-06	0.7708725	4.014E-07	6.926E-06
CHUN YAT STREET R	RD_009	2000-2100	0.1348106	4.86E-08	8.387E-07	0.1263206	4.554E-08	7.859E-07	0.7155899	2.58E-07	4.452E-06	0.6501771	2.344E-07	4.045E-06	0.7764977	2.8E-07	4.831E-06
CHUN YAT STREET R	RD_009	2100-2200	0.1358936	5.443E-08	9.393E-07	0.1261243	5.052E-08	8.718E-07	0.7304749	2.926E-07	5.049E-06	0.652492	2.614E-07	4.51E-06	0.7786162	3.119E-07	5.382E-06
CHUN YAT STREET R	RD_009	2200-2300	0.1341469	3.761E-08	6.49E-07	0.1241643	3.481E-08	6.007E-07	0.7237875	2.029E-07	3.502E-06	0.646373	1.812E-07	3.127E-06	0.7705373	2.16E-07	3.728E-06
CHUN YAT STREET R	RD_009	2300-0000	0.1347889	3.239E-08	5.59E-07	0.1235404	2.969E-08	5.123E-07	0.7295527	1.753E-07	3.026E-06	0.6407912	1.54E-07	2.657E-06	0.7643316	1.837E-07	3.17E-06
RESIDENTIAL ROAD L	RD_010	0000-0100	0.0263878	2.431E-07	8.393E-06	0.0234244	2.158E-07	7.45E-06	0.2934844	2.704E-06	9.335E-05	0.2403738	2.215E-06	7.645E-05	0.2637982	2.431E-06	8.39E-05
RESIDENTIAL ROAD L	RD_010	0100-0200	0.0321183	2.008E-07	6.93E-06	0.0287324	1.796E-07	6.2E-06	0.3050642	1.907E-06	6.582E-05	0.2506771	1.567E-06	5.409E-05	0.2794095	1.747E-06	6.029E-05
RESIDENTIAL ROAD L	RD_010	0200-0300	0.0368608	1.758E-07	6.067E-06	0.0331221	1.579E-07	5.452E-06	0.3078218	1.468E-06	5.067E-05	0.2544373	1.213E-06	4.188E-05	0.2875594	1.371E-06	4.733E-05
RESIDENTIAL ROAD L	RD_010	0300-0400	0.0423593	1.511E-07	5.215E-06	0.03852	1.374E-07	4.742E-06	0.3168689	1.13E-06	3.901E-05	0.2681611	9.563E-07	3.301E-05	0.3066811	1.094E-06	3.775E-05
RESIDENTIAL ROAD L	RD_010	0400-0500	0.0483379	1.627E-07	5.616E-06	0.0439159	1.478E-07	5.102E-06	0.3285777	1.106E-06	3.817E-05	0.2779408	9.354E-07	3.229E-05	0.3218568	1.083E-06	3.739E-05
RESIDENTIAL ROAD L	RD_010	0500-0600	0.0541032	2.558E-07	8.829E-06	0.0495426	2.342E-07	8.085E-06	0.3374702	1.595E-06	5.507E-05	0.2897499	1.37E-06	4.729E-05	0.3392925	1.604E-06	5.537E-05
RESIDENTIAL ROAD L	RD_010	0600-0700	0.0656116	8.727E-07	3.013E-05	0.0602599	8.015E-07	2.767E-05	0.3716046	4.943E-06	0.0001706	0.3225134	4.29E-06	0.0001481	0.3827733	5.091E-06	0.0001758
RESIDENTIAL ROAD L	RD_010	0700-0800	0.0794648	1.907E-06	6.583E-05	0.0735412	1.765E-06	6.092E-05	0.4119907	9.887E-06	0.0003413	0.3644281	8.746E-06	0.0003019	0.4379693	1.051E-05	0.0003628
RESIDENTIAL ROAD L	RD_010	0800-0900	0.0565388	1.493E-06	5.153E-05	0.0523022	1.381E-06	4.767E-05	0.3466672	9.153E-06	0.000316	0.3045303	8.04E-06	0.0002776	0.3568325	9.421E-06	0.0003252
RESIDENTIAL ROAD L	RD_010	0900-1000	0.0736417	1.599E-06	5.521E-05	0.067914	1.475E-06	5.091E-05	0.4113792	8.934E-06	0.0003084	0.3614889	7.851E-06	0.000271	0.4294029	9.325E-06	0.0003219
RESIDENTIAL ROAD L	RD_010	1000-1100	0.07492	1.522E-06	5.252E-05	0.0691932	1.405E-06	4.851E-05	0.4457908	9.053E-06	0.0003125	0.3919427	7.96E-06	0.0002748	0.4611359	9.365E-06	0.0003233
RESIDENTIAL ROAD L	RD_010	1100-1200	0.0726184	1.408E-06	4.861E-05	0.0667848	1.295E-06	4.47E-05	0.4207618	8.159E-06	0.0002817	0.3676009	7.128E-06	0.0002461	0.4343857	8.423E-06	0.0002908
RESIDENTIAL ROAD L	RD_010	1200-1300	0.0789687	7.435E-07	2.567E-05	0.0732267	6.894E-07	2.38E-05	0.4083655	3.845E-06	0.0001327	0.3647381	3.434E-06	0.0001185	0.4379648	4.124E-06	0.0001423
RESIDENTIAL ROAD L	RD_010	1300-1400	0.0949097	8.898E-07	3.072E-05	0.0877419	8.226E-07	2.84E-05	0.4750926	4.454E-06	0.0001538	0.4237688	3.973E-06	0.0001371	0.5115107	4.795E-06	0.0001655
RESIDENTIAL ROAD L	RD_010	1400-1500	0.0772481	7.49E-07	2.586E-05	0.0707761	6.863E-07	2.369E-05	0.4014773	3.893E-06	0.0001344	0.3532771	3.426E-06	0.0001183	0.4240532	4.112E-06	0.0001419
RESIDENTIAL ROAD L	RD_010	1500-1600	0.0719259	6.945E-07	2.397E-05	0.0663668	6.408E-07	2.212E-05	0.393104	3.796E-06	0.000131	0.3476681	3.357E-06	0.0001159	0.4140348	3.998E-06	0.000138
RESIDENTIAL ROAD L	RD_010	1600-1700	0.0682224	7.161E-07	2.472E-05	0.0633089	6.645E-07	2.294E-05	0.383203	4.022E-06	0.0001388	0.3418007	3.588E-06	0.0001238	0.4051097	4.252E-06	0.0001468
RESIDENTIAL ROAD L	RD_010	1700-1800	0.0467004	5.855E-07	2.021E-05	0.043274	5.426E-07	1.873E-05	0.2840299	3.561E-06	0.0001229	0.2527427	3.169E-06	0.0001094	0.2960167	3.711E-06	0.0001281
RESIDENTIAL ROAD L	RD_010	1800-1900	0.0324119	4.156E-07	1.435E-05	0.0298061	3.822E-07	1.319E-05	0.2326092	2.983E-06	0.000103	0.2025482	2.597E-06	8.966E-05	0.2323543	2.98E-06	0.0001029
RESIDENTIAL ROAD L	RD_010	1900-2000	0.0250101	2.816E-07	9.72E-06	0.0228114	2.568E-07	8.865E-06	0.2289725	2.578E-06	8.899E-05	0.1960419	2.207E-06	7.619E-05	0.2188533	2.464E-06	8.505E-05
RESIDENTIAL ROAD L	RD_010	2000-2100	0.0253235	2.324E-07	8.021E-06	0.0232525	2.134E-07	7.365E-06	0.2346926	2.153E-06	7.434E-05	0.2031682	1.864E-06	6.435E-05	0.2264207	2.078E-06	7.172E-05
RESIDENTIAL ROAD L	RD_010	2100-2200	0.0224252	1.958E-07	6.761E-06	0.020254	1.769E-07	6.106E-06	0.2607214	2.277E-06	7.86E-05	0.2199055	1.92E-06	6.629E-05	0.2401595	2.097E-06	7.24E-05
RESIDENTIAL ROAD L	RD_010	2200-2300	0.0160814	1.372E-07	4.738E-06	0.0141687	1.209E-07	4.174E-06	0.2652316	2.264E-06	7.814E-05	0.2198625	1.876E-06	6.477E-05	0.2340312	1.997E-06	6.895E-05
RESIDENTIAL ROAD L	RD_010	2300-0000	0.021743	1.429E-07	4.931E-06	0.0192176	1.263E-07	4.358E-06	0.2786753	1.831E-06	6.32E-05	0.229642	1.509E-06	5.208E-05	0.2488596	1.635E-06	5.644E-05
RESIDENTIAL ROAD R	RD_011	0000-0100	0.0591495	1.743E-07	7.102E-06	0.0545293	1.607E-07	6.547E-06	0.6398424	1.886E-06	7.682E-05	0.5718796	1.686E-06	6.866E-05	0.6264089	1.846E-06	7.521E-05
RESIDENTIAL ROAD R	RD_011	0100-0200	0.0651971	1.314E-07	5.351E-06	0.0602124	1.213E-07	4.942E-06	0.6450125	1.3E-06	5.294E-05	0.5773246	1.163E-06	4.738E-05	0.637537	1.285E-06	5.233E-05
RESIDENTIAL ROAD R	RD_011	0200-0300	0.0707417	1.109E-07	4.516E-06	0.0653889	1.025E-07	4.174E-06	0.6446355	1.01E-06	4.115E-05	0.5779906	9.058E-07	3.69E-05	0.6433795	1.008E-06	4.107E-05
RESIDENTIAL ROAD R	RD_011	0300-0400	0.0778453	9.296E-08	3.787E-06	0.0723884	8.645E-08	3.521E-06	0.6625294	7.912E-07	3.223E-05	0.6007464	7.174E-07	2.922E-05	0.6731349	8.039E-07	3.274E-05
RESIDENTIAL ROAD R	RD_011	0400-0500	0.0849842	9.514E-08	3.875E-06	0.0788444	8.826E-08	3.595E-06	0.6775292	7.585E-07	3.089E-05	0.6130181	6.862E-07	2.795E-05	0.6918625	7.745E-07	3.155E-05
RESIDENTIAL ROAD R	RD_011	0500-0600	0.0938409	1.506E-07	6.134E-06	0.0873443	1.402E-07	5.709E-06	0.7030422	1.128E-06	4.595E-05	0.6401457	1.027E-06	4.184E-05	0.72749	1.167E-06	4.755E-05
RESIDENTIAL ROAD R	RD_011	0600-0700	0.105628	4.73E-07	1.927E-05	0.0983834	4.406E-07	1.795E-05	0.7366328	3.299E-06	0.0001344	0.6730302	3.014E-06	0.0001228	0.7714135	3.455E-06	0.0001407

Road Name	Road ID	Hour	NO2 Emission						NO Emission						NOX Emission		
			MonthlyHourMin			MonthlyHourAverage			MonthlyHourMin			MonthlyHourAverage			MonthlyHourAverage		
			g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour	g/km/veh	g/s/m2	tonne/hour
RESIDENTIAL ROAD R	RD_011	0700-0800	0.1187928	9.708E-07	3.954E-05	0.1112572	9.092E-07	3.703E-05	0.7794845	6.37E-06	0.0002595	0.7187855	5.874E-06	0.0002393	0.8300427	6.783E-06	0.0002763
RESIDENTIAL ROAD R	RD_011	0800-0900	0.0910225	7.949E-07	3.238E-05	0.0854191	7.459E-07	3.038E-05	0.6443412	5.627E-06	0.0002292	0.5926251	5.175E-06	0.0002108	0.6780441	5.921E-06	0.0002412
RESIDENTIAL ROAD R	RD_011	0900-1000	0.1305706	1.033E-06	4.208E-05	0.121905	9.645E-07	3.928E-05	0.8243863	6.522E-06	0.0002657	0.7575148	5.993E-06	0.0002441	0.8794198	6.958E-06	0.0002834
RESIDENTIAL ROAD R	RD_011	1000-1100	0.1399235	1.07E-06	4.359E-05	0.1308655	1.001E-06	4.077E-05	0.8842756	6.763E-06	0.0002755	0.8137914	6.224E-06	0.0002535	0.9446569	7.225E-06	0.0002943
RESIDENTIAL ROAD R	RD_011	1100-1200	0.1345557	9.593E-07	3.907E-05	0.1252427	8.929E-07	3.637E-05	0.8256267	5.886E-06	0.0002398	0.7553798	5.385E-06	0.0002194	0.8806226	6.278E-06	0.0002557
RESIDENTIAL ROAD R	RD_011	1200-1300	0.1233485	6.259E-07	2.549E-05	0.1154651	5.859E-07	2.387E-05	0.8261518	4.192E-06	0.0001708	0.7640734	3.877E-06	0.0001579	0.8795384	4.463E-06	0.0001818
RESIDENTIAL ROAD R	RD_011	1300-1400	0.1394396	7.234E-07	2.947E-05	0.1300702	6.748E-07	2.749E-05	0.9158595	4.751E-06	0.0001935	0.84438	4.38E-06	0.0001784	0.9744502	5.055E-06	0.0002059
RESIDENTIAL ROAD R	RD_011	1400-1500	0.123161	6.48E-07	2.639E-05	0.1140893	6.003E-07	2.445E-05	0.8285677	4.359E-06	0.0001776	0.7578332	3.987E-06	0.0001624	0.8719225	4.588E-06	0.0001869
RESIDENTIAL ROAD R	RD_011	1500-1600	0.1200997	6.32E-07	2.574E-05	0.1120443	5.896E-07	2.401E-05	0.8288003	4.361E-06	0.0001776	0.7626586	4.013E-06	0.0001635	0.8747029	4.603E-06	0.0001875
RESIDENTIAL ROAD R	RD_011	1600-1700	0.1109707	6.295E-07	2.564E-05	0.1040753	5.904E-07	2.405E-05	0.8161006	4.63E-06	0.0001886	0.7559749	4.289E-06	0.0001747	0.8600502	4.879E-06	0.0001987
RESIDENTIAL ROAD R	RD_011	1700-1800	0.0787074	5.081E-07	2.07E-05	0.0738579	4.768E-07	1.942E-05	0.6425603	4.148E-06	0.000169	0.5957105	3.846E-06	0.0001567	0.6695684	4.323E-06	0.0001761
RESIDENTIAL ROAD R	RD_011	1800-1900	0.0629892	4.091E-07	1.666E-05	0.0590454	3.834E-07	1.562E-05	0.5990243	3.89E-06	0.0001585	0.5528031	3.59E-06	0.0001462	0.6118486	3.973E-06	0.0001618
RESIDENTIAL ROAD R	RD_011	1900-2000	0.0548695	3.133E-07	1.276E-05	0.0514701	2.939E-07	1.197E-05	0.6299705	3.597E-06	0.0001465	0.5800383	3.312E-06	0.0001349	0.6315084	3.605E-06	0.0001469
RESIDENTIAL ROAD R	RD_011	2000-2100	0.0567621	2.627E-07	1.07E-05	0.0535151	2.476E-07	1.009E-05	0.6457737	2.988E-06	0.0001217	0.5982723	2.769E-06	0.0001128	0.6517874	3.016E-06	0.0001229
RESIDENTIAL ROAD R	RD_011	2100-2200	0.0558162	2.458E-07	1.001E-05	0.0523402	2.305E-07	9.387E-06	0.7126258	3.138E-06	0.0001278	0.6534985	2.877E-06	0.0001172	0.7058388	3.108E-06	0.0001266
RESIDENTIAL ROAD R	RD_011	2200-2300	0.0473247	2.031E-07	8.273E-06	0.0441092	1.893E-07	7.711E-06	0.6836713	2.934E-06	0.0001195	0.6201743	2.662E-06	0.0001084	0.6642835	2.851E-06	0.0001161
RESIDENTIAL ROAD R	RD_011	2300-0000	0.0541775	1.8E-07	7.33E-06	0.0502178	1.668E-07	6.794E-06	0.7036338	2.337E-06	9.52E-05	0.6346457	2.108E-06	8.587E-05	0.6848634	2.275E-06	9.266E-05
RESIDENTIAL ROAD C	RD_012	0000-0100	0.0354379	3.959E-07	4.488E-06	0.031949	3.569E-07	4.046E-06	0.3888228	4.344E-06	4.924E-05	0.3306736	3.694E-06	4.188E-05	0.3626226	4.051E-06	4.592E-05
RESIDENTIAL ROAD C	RD_012	0100-0200	0.0408481	3.102E-07	3.516E-06	0.0369468	2.806E-07	3.181E-06	0.3956109	3.004E-06	3.406E-05	0.3362372	2.553E-06	2.895E-05	0.3731841	2.834E-06	3.213E-05
RESIDENTIAL ROAD C	RD_012	0200-0300	0.0469419	2.733E-07	3.098E-06	0.0426343	2.482E-07	2.814E-06	0.4057793	2.362E-06	2.678E-05	0.3475092	2.023E-06	2.294E-05	0.3901436	2.271E-06	2.575E-05
RESIDENTIAL ROAD C	RD_012	0300-0400	0.0518903	2.27E-07	2.574E-06	0.0477128	2.088E-07	2.367E-06	0.4100343	1.794E-06	2.034E-05	0.3596738	1.574E-06	1.784E-05	0.4073866	1.782E-06	2.021E-05
RESIDENTIAL ROAD C	RD_012	0400-0500	0.0581508	2.397E-07	2.717E-06	0.0533346	2.198E-07	2.492E-06	0.4235518	1.746E-06	1.979E-05	0.3695949	1.523E-06	1.727E-05	0.4229295	1.743E-06	1.976E-05
RESIDENTIAL ROAD C	RD_012	0500-0600	0.0659299	3.838E-07	4.351E-06	0.0606779	3.532E-07	4.004E-06	0.4431308	2.58E-06	2.924E-05	0.3899582	2.27E-06	2.574E-05	0.450636	2.623E-06	2.974E-05
RESIDENTIAL ROAD C	RD_012	0600-0700	0.0763405	1.248E-06	1.414E-05	0.0704898	1.152E-06	1.306E-05	0.4706271	7.691E-06	8.72E-05	0.417661	6.826E-06	7.738E-05	0.4881508	7.978E-06	9.044E-05
RESIDENTIAL ROAD C	RD_012	0700-0800	0.091111	2.695E-06	3.055E-05	0.0844981	2.499E-06	2.833E-05	0.5196493	1.537E-05	0.0001742	0.4665899	1.38E-05	0.0001564	0.551088	1.63E-05	0.0001848
RESIDENTIAL ROAD C	RD_012	0800-0900	0.0663933	2.144E-06	2.43E-05	0.0617099	1.993E-06	2.259E-05	0.4307232	1.391E-05	0.0001577	0.3856624	1.245E-05	0.0001412	0.4473723	1.444E-05	0.0001638
RESIDENTIAL ROAD C	RD_012	0900-1000	0.0902856	2.462E-06	2.791E-05	0.0835597	2.278E-06	2.583E-05	0.5328795	1.453E-05	0.0001647	0.476448	1.299E-05	0.0001473	0.5600077	1.527E-05	0.0001731
RESIDENTIAL ROAD C	RD_012	1000-1100	0.094377	2.429E-06	2.754E-05	0.0876433	2.256E-06	2.557E-05	0.5765405	1.484E-05	0.0001682	0.5176275	1.332E-05	0.000151	0.6052708	1.558E-05	0.0001766
RESIDENTIAL ROAD C	RD_012	1100-1200	0.093601	2.285E-06	2.59E-05	0.0864516	2.11E-06	2.392E-05	0.5541114	1.352E-05	0.0001533	0.4939577	1.206E-05	0.0001367	0.5804094	1.417E-05	0.0001606
RESIDENTIAL ROAD C	RD_012	1200-1300	0.0937975	1.258E-06	1.426E-05	0.0874913	1.174E-06	1.33E-05	0.5544924	7.438E-06	8.432E-05	0.5055868	6.782E-06	7.688E-05	0.593078	7.955E-06	9.019E-05
RESIDENTIAL ROAD C	RD_012	1300-1400	0.1098184	1.481E-06	1.679E-05	0.1020476	1.376E-06	1.56E-05	0.63149	8.517E-06	9.656E-05	0.5740388	7.742E-06	8.777E-05	0.6760864	9.118E-06	0.0001034
RESIDENTIAL ROAD C	RD_012	1400-1500	0.0927804	1.285E-06	1.457E-05	0.0855074	1.184E-06	1.342E-05	0.5521876	7.647E-06	8.669E-05	0.4965437	6.876E-06	7.796E-05	0.5820511	8.061E-06	9.138E-05
RESIDENTIAL ROAD C	RD_012	1500-1600	0.0884214	1.221E-06	1.385E-05	0.0820902	1.134E-06	1.285E-05	0.547583	7.563E-06	8.574E-05	0.495272	6.841E-06	7.755E-05	0.5773622	7.975E-06	9.041E-05
RESIDENTIAL ROAD C	RD_012	1600-1700	0.0849921	1.272E-06	1.442E-05	0.0792024	1.186E-06	1.344E-05	0.5491485	8.22E-06	9.319E-05	0.4997878	7.481E-06	8.481E-05	0.5789902	8.667E-06	9.825E-05
RESIDENTIAL ROAD C	RD_012	1700-1800	0.0588008	1.033E-06	1.171E-05	0.054771	9.623E-07	1.091E-05	0.4167293	7.322E-06	8.301E-05	0.3791032	6.661E-06	7.551E-05	0.4338741	7.623E-06	8.642E-05
RESIDENTIAL ROAD C	RD_012	1800-1900	0.0437783	7.821E-07	8.866E-06	0.040594	7.252E-07	8.221E-06	0.3672664	6.561E-06	7.438E-05	0.3299025	5.894E-06	6.681E-05	0.3704965	6.619E-06	7.504E-05
RESIDENTIAL ROAD C	RD_012	1900-2000	0.0351699	5.519E-07	6.257E-06	0.0325039	5.1E-07	5.782E-06	0.3681574	5.777E-06	6.549E-05	0.3281927	5.15E-06	5.838E-05	0.3606966	5.66E-06	6.417E-05
RESIDENTIAL ROAD C	RD_012	2000-2100	0.0368685	4.706E-07	5.335E-06	0.0342612	4.373E-07	4.958E-06	0.3851801	4.917E-06	5.574E-05	0.3456604	4.412E-06	5.002E-05	0.3799216	4.849E-06	5.498E-05
RESIDENTIAL ROAD C	RD_012	2100-2200	0.0345554	4.198E-07	4.759E-06	0.031877	3.872E-07	4.39E-06	0.4243523	5.155E-06	5.844E-05	0.376183	4.57E-06	5.181E-05	0.40806	4.957E-06	5.62E-05
RESIDENTIAL ROAD C	RD_012	2200-2300	0.0274036	3.25E-07	3.685E-06	0.0249272	2.956E-07	3.352E-06	0.418349	4.962E-06	5.625E-05	0.3639934	4.317E-06	4.894E-05	0.3889205	4.613E-06	5.229E-05
RESIDENTIAL ROAD C	RD_012	2300-0000	0.0327863	2.999E-07	3.4E-06	0.0298442	2.73E-07	3.095E-06	0.424133	3.88E-06	4.398E-05	0.3688432	3.374E-06	3.825E-05	0.3986873	3.647E-06	4.135E-05

Appendix 3.4

Calculation of Existing Industrial Chimney Emissions

Detailed Calculation of Nox,RSP, FSP and CO Emissions from LTP-2 of TKOL II/III

Emission from Landfill Gas Consumption [1]

Max. landfill gas consumption rate in LTP-2 of TKOL II/III (past 5 years)	=	1044	m^3/hr [1]
Secondary NOx emission from flare system		650	$kg/10^6$ scm Methane [2]
Secondary PM emission from flare system		270	$kg/10^6$ scm Methane [2]
Secondary CO emission from flare system		920	$kg/10^6$ scm Methane [2]

Standard Conditions (US standard) [3]:

		60	F
	=	15.6	C
	=	288.6	K

Assume LFG at typical ambient temperature:

		25	C
	=	298	K

Therefore,

		1	m^3 at 25°C
	=	0.96830723	scm

Landfill gas to be flared in Flare System		1044	m^3/hr [1]
	=	522	m^3/hr Methane, (50% Methane content in LFG) [1]
	=	505.4564	scm/hr
	=	0.1404045	scm/s
NOx Emission	=	**0.09126**	**g/s**
PM (RSP/FSP) Emission [4]	=	**0.03791**	**g/s**
CO Emission	=	**0.12917**	**g/s**

Release Height of Chimney at LTP-2 Flare	=	18.5	m [1]
Exit Temperature of Chimney at LTP-2 Flare	=	353	K [3]
Internal Diameter of Chimney at LTP-2 Flare	=	3.5	m [1]
Exit Velocity of Chimney at LTP-2 Flare	=	15.0	m/s [3]

Note:

[1] Information provided by TKOL II/III operator. Landfill gas and diesel are consumed for the leachate treatment plant and landfill gas generator as provided by the operator.

[2] Information is made reference to approved EIA Study for Tuen Mun Bypass (AEIAR-256/2023) and Table 2.4-4 of USEPA AP-42 Fifth Edition.

[3] Information is made reference to Appendix 3.5 of the approved EIA report of West New Territories (WENT) Landfill Extension (AEIAR-147/2009) and Appendix 3.8 of the approved EIA report for Tuen Mun Bypass (AERAR-256/2023). No exit temperature and velocity information was provided by the operator; it is assumed to be the same as the Pillar Point Valley landfill flare.

[4] According to Table2.4-4 of USEPA AP-42 Fifth Edition, the emission factor can be used for RSP and FSP.

	SO2		
Flaring H2S concentration (in ppm) in raw LFG	36	ppm	(USEPA AP-42, Section 2.4, Table 2.4-1,
Molecular weight of H2S	34		
Flowrate of LFG	1044	m3/hr	
Conc of H2S (in g/m3) in raw LFG @ 83.8oC	0.04	g/m3	(ppm x MW / (22.414x(273+83.8)/(273)) / 1000)
Mass of H2S	0.012	g/s	(conc of H2S (in g/m3) x LFG flowrate)
Mole ratio of H2S / SO2			(2H2S + 3O2 ---> 2SO2 + 2H2O)
molecular weight of SO2 64 Mass of SO2	0.023	g/s	(mass of H2S x (64 / 34)}
Exhaust flowrate at 850oC	519541	m3/hr	
Emission concentration of SO2 at exhaust (850oC)	**0.16**	mg/m3	(mass of SO2 / exhaust flowrate)
Exhaust Temperature	850		
Raw Leachate Temeperature	83.8		

	Benzene		
Flaring concentration (in ppbv) in raw LFG	1.1		(Information provided by TKOL II/III operator)
Molecular weight	78.11		
Flowrate of LFG	1044	m3/hr	
Conc (in g/m3) in raw LFG @ 83.8oC	0.004	g/m3	
Mass	0.001	g/s	
Exhaust flowrate at 850oC	519541	m3/hr	
Emission concentration at exhaust (850oC)	**3.50**	mg/m3	

Appendix 3.5

Surface Parameters for AERMOD Meteorological Data

Summary of Defaut Albedo, Brown Ratio and Surface Roughness from AERMET

Code	Color Sample	Hong Kong Planning Department Classification	Roughness	Albedo	Bowen Ratio
1		Private Residential	1	0.18	1.5
2		Public Residential	1	0.18	1.5
3		Rural Settlement	0.375	0.165	0.9
11		Commercial/Business and Office	1	0.18	1.5
21		Industrial Land	0.7	0.18	1.5
22		Industrial Estates/Science and Technology Parks	0.7	0.18	1.5
23		Warehouse and Open Storage	0.7	0.18	1.5
31		Government, Institutional and Community Facilities	0.7	0.18	1.5
32		Open Space and Recreation	0.04	0.15	1
41		Roads and Transport Facilities	0.7	0.18	1.5
42		Railways	0.7	0.18	1.5
43		Airport	0.07	0.18	1.5
44		Port Facilities	0.7	0.18	1.5
51		Cemeteries/Funeral Facilities	0.7	0.18	1.5
52		Utilities	0.7	0.18	1.5
53		Vacant Land/Construction in Progress	0.2	0.18	1
54		Others	0.2	0.18	1
61		Agricultural Land	0.1575	0.18	0.55
62		Fish Ponds/Gei Wais	0.001	0.1	0.1
71		Woodland	1.05	0.1625	0.75
72		Shrubland	0.3	0.18	1.25
73		Grassland	0.065	0.185	0.8
74		Mangrove/Swamp	0.065	0.14	0.225
81		Badland	0.15	0.1625	0.75
83		Rocky Shore	0.05	0.2	4.75
91		Reservoirs	0.001	0.1	0.1
92		Streams and Nullahs	0.001	0.1	0.1
99		SZ Residential *	1	0.18	1.5
0		Open Sea *	0.001	0.1	0.1

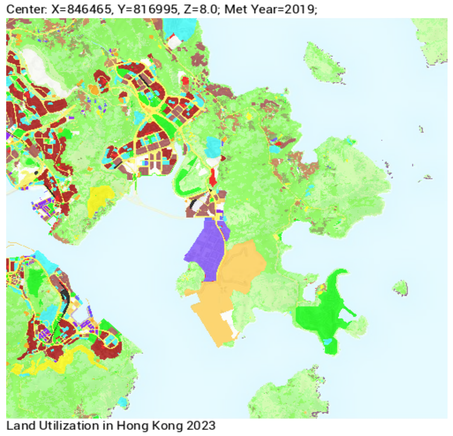
* Non-PlanD Land Utilization categories

Summary of Albedo and Bowen Ratio for the Study Area
Grid 5030

Code	Color Sample	Hong Kong Planni	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Percent	bᴖn/Sn
1		Private Residential	1	0.18	1.5	18520	1.85%	0.0033336	1.007537479
2		Public Residential	1	0.18	1.5	30882	3.09%	0.00555876	1.012600297
3		Rural Settlement	0.375	0.165	0.9	10374	1.04%	0.00171171	0.998907587
11		Commercial/Busin	1	0.18	1.5	2650	0.27%	0.000477	1.00107506
21		Industrial Land	0.7	0.18	1.5	2364	0.24%	0.00042552	1.000958979
22		Industrial Estates/I	0.7	0.18	1.5	8562	0.86%	0.00154116	1.003477625
23		Warehouse and Oj	0.7	0.18	1.5	1222	0.12%	0.00021996	1.000495601
31		Government, Instit	0.7	0.18	1.5	21765	2.18%	0.0039177	1.008864003
32		Open Space and Re	0.04	0.15	1	24831	2.48%	0.00372465	1
41		Roads and Transpc	0.7	0.18	1.5	32742	3.27%	0.00589356	1.013364252
42		Railways	0.7	0.18	1.5	1467	0.15%	0.00026406	1.000594994
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	271	0.03%	0.00004878	1.000109887
51		Cemeteries/Funer	0.7	0.18	1.5	8684	0.87%	0.00156312	1.003527265
52		Utilities	0.7	0.18	1.5	3123	0.31%	0.00056214	1.00126707
53		Vacant Land/Const	0.2	0.18	1	15661	1.57%	0.00281898	1
54		Others	0.2	0.18	1	20932	2.09%	0.00376776	1
61		Agricultural Land	0.1575	0.18	0.55	8555	0.86%	0.0015399	0.994898561
62		Fish Ponds/Gei Wa	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	136088	13.61%	0.0221143	0.961606382
72		Shrubland	0.3	0.18	1.25	92812	9.28%	0.01670616	1.020926348
73		Grassland	0.065	0.185	0.8	72324	7.23%	0.01337994	0.983990896
74		Mangrove/Swamp	0.065	0.14	0.225	17	0.00%	0.00000238	0.999974642
81		Badland	0.15	0.1625	0.75	0	0.00%	0	1
83		Rocky Shore	0.05	0.2	4.75	1742	0.17%	0.0003484	1.002717975
91		Reservoirs	0.001	0.1	0.1	0	0.00%	0	1
92		Streams and Nullal	0.001	0.1	0.1	275	0.03%	0.0000275	0.99936699
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	484137	48.41%	0.0484137	0.32799181
				0.138361	**0.332913**	1000000			

* Non-PlanD Land Utilization categories

Center: X=846465, Y=816995, Z=8.0; Met Year=2019;



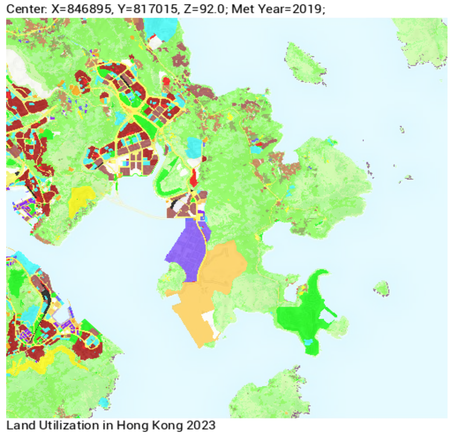
Land Utilization in Hong Kong 2023

Summary of Albedo and Bowen Ratio for the Study Area
Grid 5130

Code	Color Sample	Hong Kong Planni	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Percent	bᴖn/Sn
1		Private Residential	1	0.18	1.5	16289	1.63%	0.00293202	1.00662648
2		Public Residential	1	0.18	1.5	26439	2.64%	0.00475902	1.010777758
3		Rural Settlement	0.375	0.165	0.9	10157	1.02%	0.001675905	0.998930426
11		Commercial/Busin	1	0.18	1.5	2502	0.25%	0.00045036	1.001014988
21		Industrial Land	0.7	0.18	1.5	2121	0.21%	0.00038178	1.000860361
22		Industrial Estates/I	0.7	0.18	1.5	8562	0.86%	0.00154116	1.003477625
23		Warehouse and Oj	0.7	0.18	1.5	1222	0.12%	0.00021996	1.000495601
31		Government, Instit	0.7	0.18	1.5	19570	1.96%	0.0035226	1.007966517
32		Open Space and Re	0.04	0.15	1	23600	2.36%	0.00354	1
41		Roads and Transpc	0.7	0.18	1.5	28166	2.82%	0.00506988	1.011485791
42		Railways	0.7	0.18	1.5	1405	0.14%	0.0002529	1.000569841
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	271	0.03%	0.00004878	1.000109887
51		Cemeteries/Funer	0.7	0.18	1.5	8154	0.82%	0.00146772	1.003311634
52		Utilities	0.7	0.18	1.5	2583	0.26%	0.00046494	1.001047865
53		Vacant Land/Const	0.2	0.18	1	14395	1.44%	0.0025911	1
54		Others	0.2	0.18	1	20806	2.08%	0.00374508	1
61		Agricultural Land	0.1575	0.18	0.55	8540	0.85%	0.0015372	0.994907483
62		Fish Ponds/Gei Wa	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	125594	12.56%	0.020409025	0.964513797
72		Shrubland	0.3	0.18	1.25	90057	9.01%	0.01621026	1.020298916
73		Grassland	0.065	0.185	0.8	72884	7.29%	0.01348354	0.983867944
74		Mangrove/Swamp	0.065	0.14	0.225	17	0.00%	0.00000238	0.999974642
81		Badland	0.15	0.1625	0.75	0	0.00%	0	1
83		Rocky Shore	0.05	0.2	4.75	1875	0.19%	0.000375	1.002925793
91		Reservoirs	0.001	0.1	0.1	0	0.00%	0	1
92		Streams and Nullal	0.001	0.1	0.1	272	0.03%	0.0000272	0.999373893
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	514519	51.45%	0.0514519	0.305830645
				0.136160	**0.309321**	1000000			

* Non-PlanD Land Utilization categories

Center: X=846895, Y=817015, Z=92.0; Met Year=2019;



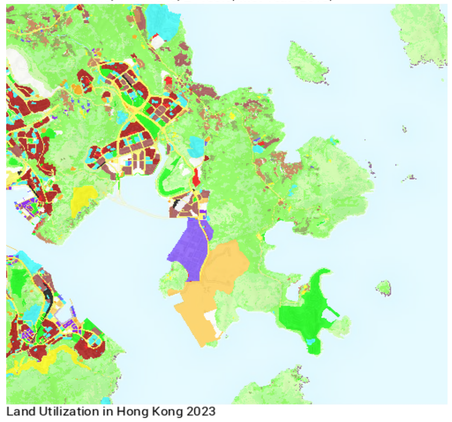
Land Utilization in Hong Kong 2023

Summary of Albedo and Bowen Ratio for the Study Area
Grid 5131

Code	Color Sample	Hong Kong Planni	Roughness	Albedo	Bowen Ratio	Grid Count	Percent	Albedo x Percent	bᴖn/Sn
1		Private Residential	1	0.18	1.5	17146	1.71%	0.00308628	1.006976327
2		Public Residential	1	0.18	1.5	26953	2.70%	0.00485154	1.010988435
3		Rural Settlement	0.375	0.165	0.9	10418	1.04%	0.00171897	0.998902956
11		Commercial/Busin	1	0.18	1.5	2514	0.25%	0.00045252	1.001019859
21		Industrial Land	0.7	0.18	1.5	2148	0.21%	0.00038664	1.000871318
22		Industrial Estates/I	0.7	0.18	1.5	8562	0.86%	0.00154116	1.003477625
23		Warehouse and Oj	0.7	0.18	1.5	1234	0.12%	0.00022212	1.000500469
31		Government, Instit	0.7	0.18	1.5	22098	2.21%	0.00397764	1.009000229
32		Open Space and Re	0.04	0.15	1	23727	2.37%	0.00355905	1
41		Roads and Transpc	0.7	0.18	1.5	29099	2.91%	0.00523782	1.011868508
42		Railways	0.7	0.18	1.5	1410	0.14%	0.0002538	1.000571869
43		Airport	0.07	0.18	1.5	0	0.00%	0	1
44		Port Facilities	0.7	0.18	1.5	271	0.03%	0.00004878	1.000109887
51		Cemeteries/Funer	0.7	0.18	1.5	8253	0.83%	0.00148554	1.003351909
52		Utilities	0.7	0.18	1.5	2699	0.27%	0.00048582	1.001094949
53		Vacant Land/Const	0.2	0.18	1	14715	1.47%	0.0026487	1
54		Others	0.2	0.18	1	20784	2.08%	0.00374112	1
61		Agricultural Land	0.1575	0.18	0.55	8721	0.87%	0.00156978	0.994799831
62		Fish Ponds/Gei Wa	0.001	0.1	0.1	0	0.00%	0	1
71		Woodland	1.05	0.1625	0.75	129505	12.95%	0.021044563	0.963429209
72		Shrubland	0.3	0.18	1.25	88552	8.86%	0.01593936	1.019956325
73		Grassland	0.065	0.185	0.8	71932	7.19%	0.01330742	0.984076971
74		Mangrove/Swamp	0.065	0.14	0.225	16	0.00%	0.00000224	0.999976134
81		Badland	0.15	0.1625	0.75	0	0.00%	0	1
83		Rocky Shore	0.05	0.2	4.75	1487	0.15%	0.0002974	1.002319647
91		Reservoirs	0.001	0.1	0.1	0	0.00%	0	1
92		Streams and Nullal	0.001	0.1	0.1	260	0.03%	0.000026	0.999401507
99		SZ Residential *	1	0.18	1.5	0	0.00%	0	1
0		Open Sea *	0.001	0.1	0.1	507496	50.75%	0.0507496	0.310816453
				0.136634	**0.314399**	1000000			

* Non-PlanD Land Utilization categories

Center: X=846845, Y=817345, Z=133.0; Met Year=2019;

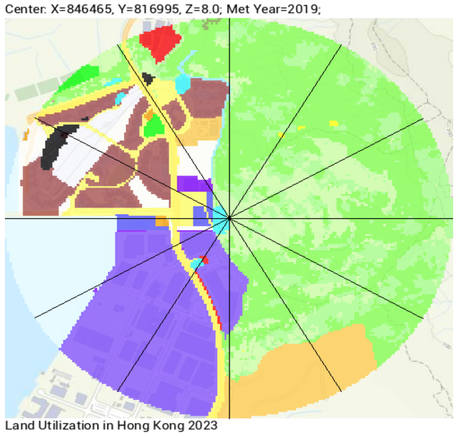


Land Utilization in Hong Kong 2023

Summary of Surface Roughness for the Study Area
Grid 5030

Angle	Group	Inverse-distance S	Roughness
0	0 - 30	5.176452751	**0.539240**
30	30 - 60	5.31768931	**0.326367**
60	60 - 90	5.176452751	**0.238790**
90	90 - 120	5.176452751	**0.282057**
120	120 - 150	5.31768931	**0.282656**
150	150 - 180	5.176452751	**0.295148**
180	180 - 210	5.176452751	**0.622226**
210	210 - 240	5.31768931	**0.442254**
240	240 - 270	5.176452751	**0.031018**
270	270 - 300	5.176452751	**0.470432**
300	300 - 330	5.31768931	**0.470665**
330	330 - 360	5.176452751	**0.325237**

Center: X=846465, Y=816995, Z=8.0; Met Year=2019;

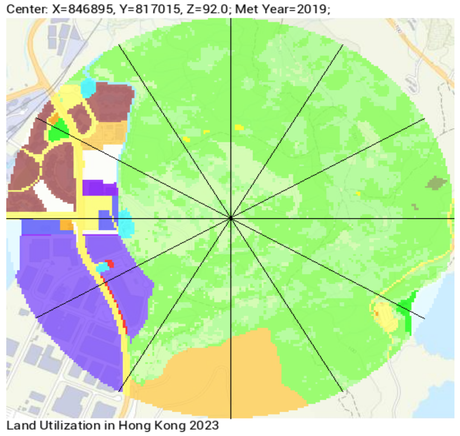


Land Utilization in Hong Kong 2023

Summary of Surface Roughness for the Study Area
Grid 5130

Angle	Group	Inverse-distance S	Roughness
0	0 - 30	5.176452751	**0.375839**
30	30 - 60	5.31768931	**0.405741**
60	60 - 90	5.176452751	**0.487093**
90	90 - 120	5.176452751	**0.399789**
120	120 - 150	5.31768931	**0.480704**
150	150 - 180	5.176452751	**0.389047**
180	180 - 210	5.176452751	**0.287708**
210	210 - 240	5.31768931	**0.515966**
240	240 - 270	5.176452751	**0.240821**
270	270 - 300	5.176452751	**0.319714**
300	300 - 330	5.31768931	**0.345665**
330	330 - 360	5.176452751	**0.498716**

Center: X=846895, Y=817015, Z=92.0; Met Year=2019;

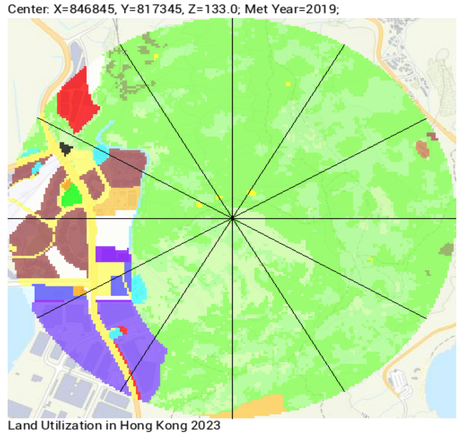


Land Utilization in Hong Kong 2023

Summary of Surface Roughness for the Study Area
Grid 5131

Angle	Group	Inverse-distance S	Roughness
0	0 - 30	5.176452751	**0.771263**
30	30 - 60	5.31768931	**0.542639**
60	60 - 90	5.176452751	**0.535156**
90	90 - 120	5.176452751	**0.414535**
120	120 - 150	5.31768931	**0.351774**
150	150 - 180	5.176452751	**0.310298**
180	180 - 210	5.176452751	**0.265950**
210	210 - 240	5.31768931	**0.328399**
240	240 - 270	5.176452751	**0.524291**
270	270 - 300	5.176452751	**0.565151**
300	300 - 330	5.31768931	**0.589672**
330	330 - 360	5.176452751	**0.837751**

Center: X=846845, Y=817345, Z=133.0; Met Year=2019;



Land Utilization in Hong Kong 2023

Appendix 3.6

Detailed Operational Air Quality Assessment Results for Default Traffic Scenario

Detailed Air Quality Impact Assessment Results - Default Scenario

Annual Averaged NO_2 Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Annual Averaged NO_2 Concentration at different elevation of ASR in metre, µg / m^3		
							1.5	5	10
Hong Kong AQO Criterion					**40**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	11	11	11
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	10	10	10
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	9	9	9
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	9	9	9
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	9	9	9
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	10	10	10
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	10	10	10
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	10	10	10
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	10	10	10
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	10	10	10
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	11	11	12
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	11	11	12
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	11	11	12
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	11	11	12
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	12	12	11
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	11	11	11
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	11	11	11
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	11	11	11
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	11	11	12
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	11	11	11
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	11	11	11
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	11	11	11
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	11	11	11
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	11	11	11
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	11	11	11
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	11	11	11
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	11	11	11
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	11	11	11
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	11	11	11
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	11	11	11
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	11	11	11
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	11	11	11
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	11	11	11
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	12	12	11
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	10	10	10
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	10	10	10
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	10	10	10
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	10	10	10
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	10	10	10
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	10	10	10
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	10	10	10
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	10	10	10
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	11	10	10
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	11	11	12
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	11	11	12
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	11	11	12
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	11	11	11
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	11	11	11
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	11	11	11
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	10	10	10
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	10	10	10
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	10	10	10
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	9	9	9
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	9	9	9
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	9	9	9
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	10	10	10
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	10	10	10
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	11	11	11
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	11	11	12
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	11	11	12
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	11	11	12

Detailed Air Quality Impact Assessment Results - Default Scenario

19th highest 1-hour NO_2 Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	19th highest 1hr NO_2 Concentration at different elevation of ASR in metre, µg / m^3		
							1.5	5	10
Hong Kong AQO Criterion					**200 (18)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	62	62	61
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	61	61	61
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	55	55	55
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	55	55	55
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	55	55	55
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	56	57	56
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	56	56	57
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	56	57	58
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	57	58	59
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	58	56	57
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	65	64	66
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	65	64	68
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	65	64	68
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	65	64	65
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	71	68	66
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	70	67	66
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	69	67	65
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	65	67	90
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	64	65	70
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	66	70	70
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	66	63	66
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	70	70	65
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	72	69	65
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	72	69	65
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	73	71	65
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	73	69	65
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	71	68	65
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	68	65	67
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	67	65	66
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	68	66	65
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	68	65	65
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	65	64	65
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	66	65	63
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	70	70	66
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	58	59	56
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	59	56	56
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	59	56	57
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	58	58	56
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	57	56	56
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	57	56	56
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	57	59	56
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	59	57	58
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	63	62	62
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	65	64	66
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	65	64	66
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	65	64	66
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	65	64	64
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	65	64	64
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	65	64	64
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	56	56	58
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	56	56	58
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	56	57	56
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	55	55	55
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	55	55	55
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	55	55	55
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	56	58	57
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	56	58	58
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	65	64	64
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	65	64	65
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	65	64	66
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	65	64	66

Detailed Air Quality Impact Assessment Results - Default Scenario

10th highest 24-hour NO_2 Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	10th highest 24hr NO_2 Concentration at different elevation of ASR in metre, µg / m^3		
							1.5	5	10
Hong Kong AQO Criterion					**120 (9)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	24	23	23
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	22	22	22
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	21	20	21
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	20	20	20
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	20	20	20
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	20	21	20
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	20	20	21
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	20	21	21
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	20	21	21
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	20	20	21
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	25	25	26
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	25	25	26
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	25	25	26
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	25	25	26
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	26	26	24
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	26	25	24
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	26	25	24
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	25	24	25
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	25	25	27
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	25	25	25
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	25	25	24
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	26	25	25
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	26	25	25
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	26	25	25
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	26	26	25
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	26	25	25
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	26	25	25
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	25	25	25
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	25	25	25
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	25	25	25
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	25	25	25
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	25	25	24
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	25	25	24
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	27	26	25
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	21	21	20
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	21	20	20
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	21	20	21
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	21	20	20
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	21	20	20
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	21	20	20
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	21	21	20
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	21	20	21
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	23	23	23
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	25	25	25
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	25	25	26
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	25	25	26
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	25	25	25
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	25	25	25
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	25	25	25
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	20	20	21
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	20	20	21
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	20	21	20
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	20	20	20
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	20	20	20
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	20	21	20
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	20	21	20
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	20	21	20
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	25	25	25
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	25	25	25
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	25	25	26
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	25	25	26

Detailed Air Quality Impact Assessment Results - Default Scenario

Annual Averaged RSP Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Annual Averaged RSP Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**1.5**	**30**			
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	19	19	19
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	19	19	19
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	19	19	19
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	19	19	19
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	19	19	19
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	19	19	19
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	19	19	19
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	19	19	19
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	19	19	19
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	19	19	19
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	19	19	19
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	19	19	19
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	19	19	19
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	19	19	19
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	19	19	19
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	19	19	19
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	19	19	19
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	19	19	19
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	19	19	19
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	19	19	19
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	19	19	19
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	19	19	19
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	19	19	19
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	19	19	19
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	19	19	19
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	19	19	19
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	19	19	19
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	19	19	19
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	19	19	19
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	19	19	19
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	19	19	19
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	19	19	19
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	19	19	19
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	19	19	19
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	19	19	19
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	19	19	19
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	19	19	19
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	19	19	19
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	19	19	19
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	19	19	19
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	19	19	19
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	19	19	19
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	19	19	19
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	19	19	19
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	19	19	19
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	19	19	19
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	19	19	19
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	19	19	19
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	19	19	19
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	19	19	19
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	19	19	19
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	19	19	19
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	19	19	19
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	19	19	19
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	19	19	19
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	19	19	19
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	19	19	19
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	19	19	19
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	19	19	19
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	19	19	19
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	19	19	19

Detailed Air Quality Impact Assessment Results - Default Scenario

10th Highest 24-hour RSP Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	10th highest 24hr RSP Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**75 (9)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	50	50	50
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	50	50	50
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	50	50	50
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	50	50	50
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	50	50	50
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	51	51	51
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	51	51	51
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	51	51	51
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	51	51	51
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	51	51	51
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	50	50	50
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	50	50	50
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	50	50	50
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	50	50	50
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	50	50	50
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	50	50	50
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	50	50	50
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	50	50	50
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	50	50	50
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	50	50	50
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	50	50	50
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	50	50	50
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	50	50	50
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	50	50	50
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	50	50	50
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	50	50	50
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	50	50	50
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	50	50	50
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	50	50	50
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	50	50	50
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	50	50	50
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	50	50	50
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	50	50	50
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	50	50	50
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	51	51	51
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	51	51	51
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	51	51	51
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	51	51	51
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	51	51	51
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	51	51	51
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	51	51	51
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	51	51	51
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	50	50	50
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	50	50	50
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	50	50	50
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	50	50	50
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	50	50	50
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	50	50	50
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	50	50	50
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	51	51	51
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	51	51	51
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	51	51	51
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	50	50	50
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	50	50	50
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	50	50	50
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	51	51	51
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	51	51	51
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	50	50	50
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	50	50	50
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	50	50	50
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	50	50	50

Detailed Air Quality Impact Assessment Results - Default Scenario

Annual Averaged FSP Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Annual Averaged FSP Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**15**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	11	11	11
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	11	11	11
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	11	11	11
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	11	11	11
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	11	11	11
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	11	11	11
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	11	11	11
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	11	11	11
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	11	11	11
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	11	11	11
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	11	11	12
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	11	11	12
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	11	11	12
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	11	11	12
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	11	11	11
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	11	11	11
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	11	11	11
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	11	11	11
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	11	11	12
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	11	11	12
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	11	11	11
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	11	11	11
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	11	11	11
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	11	11	11
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	11	11	11
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	11	11	11
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	11	11	11
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	11	11	11
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	11	11	11
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	11	11	11
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	11	11	11
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	11	11	11
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	11	11	11
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	11	11	11
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	11	11	11
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	11	11	11
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	11	11	11
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	11	11	11
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	11	11	11
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	11	11	11
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	11	11	11
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	11	11	11
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	11	11	11
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	11	11	12
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	11	11	12
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	11	11	12
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	11	11	11
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	11	11	11
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	11	11	11
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	11	11	11
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	11	11	11
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	11	11	11
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	11	11	11
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	11	11	11
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	11	11	11
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	11	11	11
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	11	11	11
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	11	11	11
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	11	11	11
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	11	11	12
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	11	11	12

Detailed Air Quality Impact Assessment Results - Default Scenario

19th highest 24-hour FSP Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	19th highest 24hr FSP Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**37.5 (18)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	28	28	28
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	28	28	28
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	28	28	28
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	28	28	28
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	28	28	28
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	29	29	29
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	29	29	29
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	29	29	29
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	29	29	29
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	29	29	29
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	28	28	28
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	28	28	28
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	28	28	28
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	28	28	28
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	28	28	28
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	28	28	28
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	28	28	28
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	28	28	28
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	28	28	29
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	28	28	29
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	28	28	28
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	28	28	28
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	28	28	28
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	28	28	28
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	28	28	28
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	28	28	28
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	28	28	28
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	28	28	28
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	28	28	28
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	28	28	28
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	28	28	28
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	28	28	28
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	28	28	28
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	28	28	28
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	29	29	29
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	29	29	29
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	29	29	29
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	29	29	29
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	29	29	29
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	29	29	29
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	29	29	29
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	29	29	29
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	28	28	28
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	28	28	28
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	28	28	28
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	28	28	28
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	28	28	28
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	28	28	28
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	28	28	28
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	29	29	29
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	29	29	29
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	29	29	29
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	28	28	28
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	28	28	28
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	28	28	28
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	29	29	29
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	29	29	29
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	28	28	28
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	28	28	28
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	28	28	28
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	28	28	28

Detailed Air Quality Impact Assessment Results - Default Scenario

4th Highest 24-hour SO2 Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	4th highest 24hr SO2 Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**40 (3)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	7	7	7
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	7	7	7
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	7	7	7
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	7	7	7
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	7	7	7
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	7	7	7
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	7	7	7
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	7	7	7
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	7	7	7
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	7	7	7
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	7	7	7
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	7	7	7
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	7	7	7
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	7	7	7
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	7	7	7
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	7	7	7
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	7	7	7
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	7	7	7
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	7	7	7
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	7	7	7
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	7	7	7
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	7	7	7
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	7	7	7
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	7	7	7
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	7	7	7
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	7	7	7
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	7	7	7
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	7	7	7
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	7	7	7
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	7	7	7
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	7	7	7
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	7	7	7
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	7	7	7
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	7	7	7
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	7	7	7
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	7	7	7
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	7	7	7
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	7	7	7
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	7	7	7
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	7	7	7
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	7	7	7
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	7	7	7
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	7	7	7
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	7	7	7
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	7	7	7
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	7	7	7
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	7	7	7
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	7	7	7
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	7	7	7
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	7	7	7
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	7	7	7
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	7	7	7
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	7	7	7
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	7	7	7
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	7	7	7
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	7	7	7
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	7	7	7
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	7	7	7
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	7	7	7
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	7	7	7
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	7	7	7

Detailed Air Quality Impact Assessment Results - Default Scenario

Maximum 10-minute SO_2 Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 10min SO_2 Concentration at different elevation of ASR in metre, µg / m^3		
							1.5	5	10
Hong Kong AQO Criterion					**500 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	23	23	23
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	23	23	23
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	23	23	23
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	23	23	23
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	23	23	23
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	23	23	23
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	23	23	23
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	23	23	23
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	23	23	23
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	23	23	23
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	23	23	23
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	23	23	23
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	23	23	23
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	23	23	23
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	23	23	23
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	23	23	23
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	23	23	23
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	23	23	28
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	23	23	23
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	23	23	23
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	23	23	23
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	23	23	23
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	23	23	23
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	23	23	23
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	23	23	23
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	23	23	23
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	23	23	23
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	23	23	23
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	23	23	23
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	23	23	23
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	23	23	23
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	23	23	23
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	23	23	23
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	23	23	23
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	23	23	23
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	23	23	23
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	23	23	23
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	23	23	23
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	23	23	23
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	23	23	23
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	23	23	23
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	23	23	23
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	23	23	23
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	23	23	23
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	23	23	23
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	23	23	23
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	23	23	23
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	23	23	23
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	23	23	23
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	23	23	23
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	23	23	23
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	23	23	23
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	23	23	23
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	23	23	23
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	23	23	23
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	23	23	23
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	23	23	23
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	23	23	23
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	23	23	23
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	23	23	23
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	23	23	23

Detailed Air Quality Impact Assessment Results - Default Scenario

Maximum 24-hour CO Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 24hr CO Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**4000 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	445	445	445
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	445	445	445
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	442	442	442
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	442	442	442
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	442	442	442
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	446	446	446
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	446	446	446
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	446	446	446
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	446	446	446
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	446	446	446
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	445	445	445
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	445	445	445
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	445	445	445
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	445	445	445
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	445	445	445
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	445	445	446
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	445	445	445
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	445	445	445
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	445	445	445
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	445	445	445
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	445	445	445
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	445	445	445
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	445	445	445
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	445	445	445
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	445	445	445
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	445	445	445
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	445	445	445
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	445	445	445
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	445	445	445
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	445	445	445
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	445	445	445
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	445	445	445
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	445	445	445
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	446	446	446
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	446	446	446
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	446	446	446
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	446	446	446
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	446	446	446
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	446	446	446
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	446	446	446
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	446	446	446
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	446	446	446
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	445	445	445
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	445	445	445
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	445	445	445
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	445	445	445
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	445	445	445
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	445	445	445
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	445	445	445
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	446	446	446
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	446	446	446
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	446	446	446
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	442	442	442
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	442	442	442
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	442	442	442
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	446	446	446
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	446	446	446
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	445	445	445
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	445	445	445
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	445	445	445
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	445	445	445

Detailed Air Quality Impact Assessment Results - Default Scenario

Maximum 8-hour CO Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 8hr CO Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**10000 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	480	480	480
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	480	480	480
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	476	476	476
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	476	476	476
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	476	476	476
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	481	481	481
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	481	481	481
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	481	481	481
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	481	481	481
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	481	481	481
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	480	480	480
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	480	480	480
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	480	480	480
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	480	480	480
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	480	480	480
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	480	480	480
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	480	480	480
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	480	480	480
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	480	480	480
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	480	480	480
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	480	480	480
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	480	480	480
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	480	480	480
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	480	480	480
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	480	480	480
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	480	480	480
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	480	480	480
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	480	480	480
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	480	480	480
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	480	480	480
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	480	480	480
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	480	480	480
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	480	480	480
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	480	480	480
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	481	481	481
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	481	481	481
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	481	481	481
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	481	481	481
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	481	481	481
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	481	481	481
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	481	481	481
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	481	481	481
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	480	480	480
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	480	480	480
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	480	480	480
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	480	480	480
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	480	480	480
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	480	480	480
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	480	480	480
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	481	481	481
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	481	481	481
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	481	481	481
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	476	476	476
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	476	476	476
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	476	476	476
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	481	481	481
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	481	481	481
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	480	480	480
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	480	480	480
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	480	480	480
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	480	480	480

Detailed Air Quality Impact Assessment Results - Default Scenario

Maximum 1-hour CO Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 1hr CO Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**30000 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	515	515	515
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	515	515	515
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	511	511	511
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	511	511	511
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	511	511	511
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	510	510	510
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	510	510	510
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	510	510	510
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	510	510	510
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	510	510	510
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	515	515	515
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	515	515	515
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	515	515	515
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	515	515	515
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	517	517	516
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	516	516	516
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	518	518	519
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	515	515	515
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	515	515	515
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	515	515	515
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	515	515	515
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	515	515	515
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	515	515	515
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	515	515	515
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	515	515	515
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	515	515	515
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	515	515	515
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	515	515	515
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	515	515	515
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	515	515	515
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	515	515	515
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	515	515	515
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	515	515	515
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	519	519	521
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	510	510	510
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	510	510	510
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	510	510	510
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	510	510	510
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	510	510	510
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	510	510	510
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	510	510	510
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	510	510	510
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	515	515	515
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	515	515	515
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	515	515	515
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	515	515	515
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	515	515	515
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	515	515	515
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	515	515	515
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	510	510	510
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	510	510	510
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	510	510	510
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	511	511	511
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	511	511	511
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	511	511	511
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	510	510	510
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	510	510	510
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	515	515	515
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	515	515	515
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	515	515	515
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	515	515	515

Detailed Air Quality Impact Assessment Results - Default Scenario

Maximum 1-hour Benzene Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 1hr benzene concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Non-AQO Criterion					**27 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	2	2	2
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	2	2	2
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	2	2	2
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	2	2	2
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	2	2	2
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	2	2	2
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	2	2	2
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	2	2	2
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	2	2	2
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	2	2	2
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	2	2	2
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	2	2	2
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	2	2	2
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	2	2	2
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	2	2	2
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	2	2	2
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	2	2	2
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	2	2	3
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	2	2	3
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	2	2	3
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	2	2	2
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	2	2	2
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	2	2	2
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	2	2	2
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	2	2	2
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	2	2	2
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	2	2	2
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	2	2	2
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	2	2	2
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	2	2	2
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	2	2	2
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	2	2	2
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	2	2	2
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	2	2	2
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	2	2	2
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	2	2	2
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	2	2	2
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	2	2	2
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	2	2	2
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	2	2	2
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	2	2	2
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	2	2	2
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	2	2	2
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	2	2	2
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	2	2	2
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	2	2	2
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	2	2	2
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	2	2	2
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	2	2	2
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	2	2	2
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	2	2	2
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	2	2	2
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	2	2	2
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	2	2	2
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	2	2	2
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	2	2	2
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	2	2	2
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	2	2	2
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	2	2	2
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	2	2	2
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	2	2	2

Detailed Air Quality Impact Assessment Results - Default Scenario

Maximum 8-hour Benzene Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 8hr benzene concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Non-AQO Criterion					**3 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	2	2	2
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	2	2	2
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	2	2	2
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	2	2	2
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	2	2	2
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	2	2	2
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	2	2	2
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	2	2	2
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	2	2	2
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	2	2	2
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	2	2	2
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	2	2	2
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	2	2	2
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	2	2	2
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	2	2	2
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	2	2	2
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	2	2	2
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	2	2	2
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	2	2	2
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	2	2	2
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	2	2	2
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	2	2	2
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	2	2	2
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	2	2	2
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	2	2	2
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	2	2	2
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	2	2	2
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	2	2	2
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	2	2	2
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	2	2	2
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	2	2	2
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	2	2	2
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	2	2	2
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	2	2	2
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	2	2	2
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	2	2	2
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	2	2	2
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	2	2	2
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	2	2	2
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	2	2	2
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	2	2	2
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	2	2	2
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	2	2	2
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	2	2	2
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	2	2	2
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	2	2	2
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	2	2	2
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	2	2	2
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	2	2	2
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	2	2	2
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	2	2	2
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	2	2	2
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	2	2	2
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	2	2	2
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	2	2	2
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	2	2	2
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	2	2	2
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	2	2	2
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	2	2	2
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	2	2	2
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	2	2	2

Detailed Air Quality Impact Assessment Results - Default Scenario

Maximum 24-hour Benzene Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 24hr benzene conencentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Non-AQO Criterion					**3 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	1	1	1
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	1	1	1
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	1	1	1
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	1	1	1
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	1	1	1
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	1	1	1
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	1	1	1
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	1	1	1
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	1	1	1
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	1	1	1
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	1	1	1
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	1	1	1
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	1	1	1
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	1	1	1
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	1	1	1
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	1	1	1
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	1	1	1
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	1	1	1
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	1	1	1
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	1	1	1
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	1	1	1
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	1	1	1
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	1	1	1
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	1	1	1
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	1	1	1
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	1	1	1
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	1	1	1
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	1	1	1
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	1	1	1
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	1	1	1
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	1	1	1
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	1	1	1
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	1	1	1
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	1	1	1
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	1	1	1
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	1	1	1
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	1	1	1
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	1	1	1
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	1	1	1
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	1	1	1
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	1	1	1
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	1	1	1
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	1	1	1
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	1	1	1
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	1	1	1
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	1	1	1
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	1	1	1
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	1	1	1
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	1	1	1
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	1	1	1
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	1	1	1
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	1	1	1
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	1	1	1
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	1	1	1
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	1	1	1
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	1	1	1
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	1	1	1
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	1	1	1
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	1	1	1
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	1	1	1
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	1	1	1

Appendix 3.7

Detailed Operational Air Quality Assessment Results with Doubled Traffic Emission

Detailed Air Quality Impact Assessment Results - Doubled Traffic

Annual Averaged NO_2 Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Annual Averaged NO_2 Concentration at different elevation of ASR in metre, µg / m^3		
							1.5	5	10
Hong Kong AQO Criterion						**40**			
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	11	11	11
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	11	11	11
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	9	9	9
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	9	9	9
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	9	9	9
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	10	10	10
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	10	10	10
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	10	10	10
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	10	10	10
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	10	10	10
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	12	12	12
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	12	12	12
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	12	12	12
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	12	12	12
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	13	13	12
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	12	12	12
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	13	12	12
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	11	11	11
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	12	12	12
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	12	12	12
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	12	12	12
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	12	12	12
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	12	12	12
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	12	12	12
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	12	12	12
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	12	12	12
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	12	12	12
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	12	12	12
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	12	12	12
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	12	12	12
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	12	12	12
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	12	12	11
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	12	12	12
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	13	13	12
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	10	10	10
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	10	10	10
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	10	10	10
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	10	10	10
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	10	10	10
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	10	10	10
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	10	10	10
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	10	10	10
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	11	11	11
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	12	12	12
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	12	12	12
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	12	12	12
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	11	11	12
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	12	11	12
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	12	11	12
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	10	10	10
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	10	10	10
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	10	10	10
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	9	9	9
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	9	9	9
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	9	9	9
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	10	10	10
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	10	10	10
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	12	11	12
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	12	12	12
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	12	12	12
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	12	12	12

Detailed Air Quality Impact Assessment Results - Doubled Traffic

19th Highest 1-hour NO_2 Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	19th highest 1hr NO_2 Concentration at different elevation of ASR in metre, µg / m^3		
							1.5	5	10
Hong Kong AQO Criterion					**200 (18)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	63	63	62
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	61	61	61
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	55	55	55
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	55	55	55
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	55	55	55
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	57	58	57
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	57	57	58
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	57	59	59
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	58	59	59
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	59	57	58
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	77	75	72
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	75	75	73
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	75	74	74
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	75	73	70
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	89	81	73
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	80	77	73
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	81	75	72
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	72	73	93
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	75	70	76
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	70	74	74
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	77	71	70
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	86	79	71
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	86	83	73
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	86	79	73
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	89	83	74
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	90	84	75
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	87	82	73
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	83	77	72
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	81	75	72
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	82	79	72
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	80	75	71
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	74	72	68
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	78	75	70
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	87	84	73
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	59	59	57
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	59	57	57
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	59	57	58
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	59	59	57
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	59	57	57
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	59	57	57
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	59	59	57
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	59	58	59
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	64	63	63
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	78	75	71
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	77	75	72
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	77	75	72
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	75	71	68
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	75	73	68
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	75	71	68
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	57	57	59
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	57	57	59
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	57	58	57
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	55	55	55
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	55	55	55
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	55	55	55
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	57	59	58
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	57	59	59
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	75	71	68
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	75	73	68
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	75	74	70
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	76	75	71

Detailed Air Quality Impact Assessment Results - Doubled Traffic

10th highest 24-hour NO_2 Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	10th highest 24hr NO_2 Concentration at different elevation of ASR in metre, µg / m^3		
							1.5	5	10
Hong Kong AQO Criterion					**120 (9)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	25	25	24
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	23	23	23
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	21	21	21
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	21	21	21
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	21	21	21
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	20	22	20
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	21	20	22
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	21	22	21
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	21	21	22
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	21	20	21
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	28	27	27
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	27	27	28
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	27	27	28
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	27	27	28
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	32	30	26
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	30	28	26
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	31	29	26
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	26	26	27
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	27	27	29
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	27	27	27
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	28	27	26
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	29	29	27
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	29	29	27
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	29	29	27
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	30	29	27
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	30	29	27
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	29	29	27
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	29	28	27
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	29	28	27
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	29	28	27
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	29	28	27
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	27	27	25
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	28	28	26
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	34	32	27
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	21	22	20
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	22	20	21
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	21	21	22
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	22	21	20
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	22	20	21
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	22	21	20
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	22	21	21
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	22	21	21
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	24	24	24
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	28	27	27
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	28	27	27
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	28	27	27
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	26	27	27
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	27	27	27
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	27	27	27
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	20	21	22
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	20	21	21
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	21	22	21
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	21	21	21
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	21	21	21
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	21	21	21
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	21	22	21
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	21	22	21
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	27	27	26
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	27	27	27
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	27	27	28
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	27	27	28

Detailed Air Quality Impact Assessment Results - Doubled Traffic

Annual Averaged RSP Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Annual Averaged RSP Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**30**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	19	19	19
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	19	19	19
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	19	19	19
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	19	19	19
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	19	19	19
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	19	19	19
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	19	19	19
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	19	19	19
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	19	19	19
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	19	19	19
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	19	19	19
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	19	19	19
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	19	19	19
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	19	19	19
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	19	19	19
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	19	19	19
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	19	19	19
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	19	19	19
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	19	19	19
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	19	19	19
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	19	19	19
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	19	19	19
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	19	19	19
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	19	19	19
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	19	19	19
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	19	19	19
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	19	19	19
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	19	19	19
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	19	19	19
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	19	19	19
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	19	19	19
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	19	19	19
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	19	19	19
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	19	19	19
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	19	19	19
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	19	19	19
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	19	19	19
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	19	19	19
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	19	19	19
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	19	19	19
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	19	19	19
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	19	19	19
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	19	19	19
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	19	19	19
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	19	19	19
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	19	19	19
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	19	19	19
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	19	19	19
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	19	19	19
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	19	19	19
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	19	19	19
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	19	19	19
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	19	19	19
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	19	19	19
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	19	19	19
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	19	19	19
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	19	19	19
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	19	19	19
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	19	19	19
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	19	19	19
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	19	19	19

Detailed Air Quality Impact Assessment Results - Doubled Traffic

10th highest 24-hour RSP Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	10th highest 24hr RSP Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**75 (9)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	50	50	50
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	50	50	50
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	50	50	50
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	50	50	50
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	50	50	50
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	51	51	51
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	51	51	51
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	51	51	51
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	51	51	51
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	51	51	51
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	50	50	50
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	50	50	50
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	50	50	50
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	50	50	50
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	50	50	50
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	50	50	50
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	50	50	50
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	50	50	50
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	50	50	50
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	50	50	50
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	50	50	50
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	50	50	50
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	50	50	50
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	50	50	50
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	50	50	50
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	50	50	50
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	50	50	50
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	50	50	50
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	50	50	50
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	50	50	50
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	50	50	50
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	50	50	50
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	50	50	50
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	50	50	50
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	51	51	51
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	51	51	51
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	51	51	51
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	51	51	51
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	51	51	51
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	51	51	51
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	51	51	51
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	51	51	51
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	50	50	50
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	50	50	50
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	50	50	50
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	50	50	50
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	50	50	50
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	50	50	50
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	50	50	50
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	51	51	51
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	51	51	51
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	51	51	51
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	50	50	50
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	50	50	50
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	50	50	50
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	51	51	51
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	51	51	51
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	50	50	50
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	50	50	50
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	50	50	50
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	50	50	50

Detailed Air Quality Impact Assessment Results - Doubled Traffic

Annual Averaged FSP Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Annual Averaged FSP Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**15**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	11	11	11
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	11	11	11
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	11	11	11
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	11	11	11
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	11	11	11
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	11	11	11
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	11	11	11
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	11	11	11
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	11	11	11
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	11	11	11
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	11	11	12
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	11	11	12
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	11	11	12
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	11	11	12
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	11	11	11
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	11	11	11
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	11	11	11
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	11	11	11
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	11	11	12
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	11	11	12
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	11	11	11
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	11	11	11
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	11	11	11
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	11	11	11
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	11	11	11
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	11	11	11
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	11	11	11
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	11	11	11
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	11	11	11
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	11	11	11
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	11	11	11
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	11	11	11
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	11	11	11
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	11	11	11
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	11	11	11
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	11	11	11
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	11	11	11
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	11	11	11
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	11	11	11
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	11	11	11
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	11	11	11
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	11	11	11
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	11	11	11
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	11	11	12
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	11	11	12
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	11	11	12
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	11	11	11
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	11	11	11
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	11	11	11
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	11	11	11
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	11	11	11
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	11	11	11
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	11	11	11
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	11	11	11
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	11	11	11
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	11	11	11
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	11	11	11
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	11	11	11
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	11	11	12
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	11	11	12
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	11	11	12

Detailed Air Quality Impact Assessment Results - Doubled Traffic

19th Highest 24-hour FSP Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	19th highest 24hr FSP Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**37.5 (18)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	28	28	28
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	28	28	28
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	28	28	28
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	28	28	28
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	28	28	28
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	29	29	29
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	29	29	29
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	29	29	29
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	29	29	29
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	29	29	29
E1	TKO PRS Administrative Building	846472	817002	8	1.5	10	28	28	28
E2	TKO PRS Administrative Building	846474	816994	8	1.5	10	28	28	28
E3	TKO PRS Administrative Building	846477	816981	8	1.5	10	28	28	28
E4	TKO PRS Administrative Building	846480	816968	8	1.5	10	28	28	28
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	28	28	28
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	28	28	28
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	28	28	28
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	28	28	28
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	28	28	29
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	28	28	29
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	28	28	28
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	28	28	28
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	28	28	28
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	28	28	28
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	28	28	28
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	28	28	28
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	28	28	28
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	28	28	28
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	28	28	28
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	28	28	28
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	28	28	28
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	28	28	28
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	28	28	28
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	28	28	28
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	29	29	29
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	29	29	29
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	29	29	29
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	29	29	29
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	29	29	29
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	29	29	29
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	29	29	29
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	29	29	29
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	28	28	28
N1	TKO PRS Administrative Building	846463	817000	8	1.5	10	28	28	28
N2	TKO PRS Administrative Building	846465	817001	8	1.5	10	28	28	28
N3	TKO PRS Administrative Building	846469	817001	8	1.5	10	28	28	28
S1	TKO PRS Administrative Building	846482	816961	8	1.5	10	28	28	28
S2	TKO PRS Administrative Building	846479	816960	7	1.5	10	28	28	28
S3	TKO PRS Administrative Building	846476	816959	8	1.5	10	28	28	28
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	29	29	29
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	29	29	29
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	29	29	29
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	28	28	28
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	28	28	28
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	28	28	28
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	29	29	29
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	29	29	29
W1	TKO PRS Administrative Building	846472	816959	8	1.5	10	28	28	28
W2	TKO PRS Administrative Building	846470	816966	7	1.5	10	28	28	28
W3	TKO PRS Administrative Building	846467	816979	8	1.5	10	28	28	28
W4	TKO PRS Administrative Building	846464	816992	8	1.5	10	28	28	28

Detailed Air Quality Impact Assessment Results - Doubled Traffic

4th Highest 24-hour SO2 Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	4th highest 24hr SO2 Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion						40 (3)			
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	7	7	7
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	7	7	7
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	7	7	7
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	7	7	7
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	7	7	7
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	7	7	7
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	7	7	7
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	7	7	7
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	7	7	7
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	7	7	7
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	7	7	7
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	7	7	7
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	7	7	7
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	7	7	7
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	7	7	7
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	7	7	7
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	7	7	7
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	7	7	7
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	7	7	7
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	7	7	7
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	7	7	7
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	7	7	7
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	7	7	7
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	7	7	7
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	7	7	7
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	7	7	7
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	7	7	7
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	7	7	7
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	7	7	7
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	7	7	7
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	7	7	7
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	7	7	7
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	7	7	7
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	7	7	7
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	7	7	7
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	7	7	7
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	7	7	7
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	7	7	7
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	7	7	7
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	7	7	7
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	7	7	7
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	7	7	7
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	7	7	7
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	7	7	7
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	7	7	7
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	7	7	7
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	7	7	7
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	7	7	7
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	7	7	7
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	7	7	7
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	7	7	7
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	7	7	7
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	7	7	7
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	7	7	7
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	7	7	7
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	7	7	7
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	7	7	7
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	7	7	7
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	7	7	7
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	7	7	7
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	7	7	7

Detailed Air Quality Impact Assessment Results - Doubled Traffic

Maximum 10-minute SO2 Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 10min SO_2 Concentration at different elevation of ASR in metre, µg / m^3		
							1.5	5	10
Hong Kong AQO Criterion					**500 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	23	23	23
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	23	23	23
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	23	23	23
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	23	23	23
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	23	23	23
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	23	23	23
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	23	23	23
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	23	23	23
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	23	23	23
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	23	23	23
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	23	23	23
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	23	23	23
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	23	23	23
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	23	23	23
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	23	23	23
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	23	23	23
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	23	23	23
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	23	23	28
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	23	23	23
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	23	23	23
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	23	23	23
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	23	23	23
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	23	23	23
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	23	23	23
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	23	23	23
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	23	23	23
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	23	23	23
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	23	23	23
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	23	23	23
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	23	23	23
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	23	23	23
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	23	23	23
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	23	23	23
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	23	23	23
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	23	23	23
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	23	23	23
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	23	23	23
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	23	23	23
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	23	23	23
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	23	23	23
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	23	23	23
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	23	23	23
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	23	23	23
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	23	23	23
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	23	23	23
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	23	23	23
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	23	23	23
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	23	23	23
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	23	23	23
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	23	23	23
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	23	23	23
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	23	23	23
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	23	23	23
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	23	23	23
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	23	23	23
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	23	23	23
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	23	23	23
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	23	23	23
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	23	23	23
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	23	23	23
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	23	23	23

Detailed Air Quality Impact Assessment Results - Doubled Traffic

Maximum 24-hour CO Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 24hr CO Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**4000 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	445	445	445
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	445	445	445
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	442	442	442
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	442	442	442
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	442	442	442
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	446	446	446
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	446	446	446
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	446	446	446
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	446	446	446
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	446	446	446
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	445	445	445
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	445	445	445
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	445	445	445
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	445	445	445
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	445	445	445
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	445	445	446
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	445	445	445
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	445	445	445
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	445	445	445
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	445	445	445
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	445	445	445
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	445	445	445
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	445	445	445
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	445	445	445
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	445	445	445
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	445	445	445
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	445	445	445
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	445	445	445
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	445	445	445
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	445	445	445
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	445	445	445
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	445	445	445
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	445	445	445
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	446	446	446
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	446	446	446
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	446	446	446
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	446	446	446
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	446	446	446
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	446	446	446
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	446	446	446
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	446	446	446
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	446	446	446
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	445	445	445
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	445	445	445
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	445	445	445
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	445	445	445
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	445	445	445
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	445	445	445
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	445	445	445
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	446	446	446
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	446	446	446
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	446	446	446
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	442	442	442
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	442	442	442
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	442	442	442
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	446	446	446
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	446	446	446
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	445	445	445
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	445	445	445
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	445	445	445
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	445	445	445

Detailed Air Quality Impact Assessment Results - Doubled Traffic

Maximum 8-hour CO Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 8hr CO Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**10000 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	480	480	480
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	480	480	480
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	476	476	476
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	476	476	476
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	476	476	476
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	481	481	481
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	481	481	481
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	481	481	481
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	481	481	481
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	481	481	481
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	480	480	480
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	480	480	480
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	480	480	480
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	480	480	480
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	480	480	480
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	480	480	480
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	480	480	480
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	480	480	480
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	480	480	480
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	480	480	480
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	480	480	480
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	480	480	480
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	480	480	480
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	480	480	480
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	480	480	480
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	480	480	480
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	480	480	480
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	480	480	480
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	480	480	480
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	480	480	480
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	480	480	480
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	480	480	480
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	480	480	480
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	480	480	480
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	481	481	481
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	481	481	481
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	481	481	481
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	481	481	481
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	481	481	481
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	481	481	481
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	481	481	481
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	481	481	481
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	480	480	480
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	480	480	480
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	480	480	480
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	480	480	480
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	480	480	480
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	480	480	480
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	480	480	480
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	481	481	481
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	481	481	481
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	481	481	481
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	476	476	476
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	476	476	476
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	476	476	476
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	481	481	481
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	481	481	481
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	480	480	480
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	480	480	480
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	480	480	480
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	480	480	480

Detailed Air Quality Impact Assessment Results - Doubled Traffic

Maximum 1-hour CO Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 1hr CO Concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Hong Kong AQO Criterion					**30000 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	515	515	515
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	515	515	515
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	511	511	511
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	511	511	511
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	511	511	511
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	510	510	510
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	510	510	510
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	510	510	510
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	510	510	510
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	510	510	510
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	515	515	515
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	515	515	515
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	515	515	515
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	515	515	515
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	517	517	516
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	516	516	516
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	518	518	519
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	515	515	515
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	515	515	515
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	515	515	515
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	515	515	515
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	515	515	515
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	515	515	515
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	515	515	515
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	515	515	515
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	515	515	515
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	515	515	515
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	515	515	515
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	515	515	515
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	515	515	515
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	515	515	515
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	515	515	515
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	515	515	515
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	519	519	521
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	510	510	510
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	510	510	510
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	510	510	510
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	510	510	510
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	510	510	510
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	510	510	510
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	510	510	510
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	510	510	510
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	515	515	515
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	515	515	515
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	515	515	515
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	515	515	515
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	515	515	515
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	515	515	515
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	515	515	515
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	510	510	510
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	510	510	510
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	510	510	510
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	511	511	511
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	511	511	511
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	511	511	511
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	510	510	510
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	510	510	510
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	515	515	515
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	515	515	515
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	515	515	515
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	515	515	515

Detailed Air Quality Impact Assessment Results - Doubled Traffic

Maximum 1-hour Benzene Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 1hr benzene concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Non-AQO Criterion					**27 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	2	2	2
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	2	2	2
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	2	2	2
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	2	2	2
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	2	2	2
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	2	2	2
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	2	2	2
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	2	2	2
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	2	2	2
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	2	2	2
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	2	2	2
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	2	2	2
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	2	2	2
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	2	2	2
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	2	2	2
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	2	2	2
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	2	2	2
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	2	2	3
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	2	2	3
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	2	2	3
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	2	2	2
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	2	2	2
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	2	2	2
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	2	2	2
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	2	2	2
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	2	2	2
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	2	2	2
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	2	2	2
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	2	2	2
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	2	2	2
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	2	2	2
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	2	2	2
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	2	2	2
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	2	2	2
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	2	2	2
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	2	2	2
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	2	2	2
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	2	2	2
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	2	2	2
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	2	2	2
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	2	2	2
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	2	2	2
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	2	2	2
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	2	2	2
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	2	2	2
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	2	2	2
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	2	2	2
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	2	2	2
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	2	2	2
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	2	2	2
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	2	2	2
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	2	2	2
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	2	2	2
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	2	2	2
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	2	2	2
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	2	2	2
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	2	2	2
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	2	2	2
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	2	2	2
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	2	2	2
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	2	2	2

Detailed Air Quality Impact Assessment Results - Doubled Traffic

Maximum 8-hour Benzene Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 8hr benzene concentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Non-AQO Criterion					**3 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	2	2	2
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	2	2	2
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	2	2	2
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	2	2	2
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	2	2	2
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	2	2	2
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	2	2	2
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	2	2	2
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	2	2	2
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	2	2	2
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	2	2	2
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	2	2	2
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	2	2	2
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	2	2	2
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	2	2	2
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	2	2	2
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	2	2	2
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	2	2	2
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	2	2	2
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	2	2	2
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	2	2	2
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	2	2	2
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	2	2	2
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	2	2	2
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	2	2	2
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	2	2	2
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	2	2	2
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	2	2	2
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	2	2	2
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	2	2	2
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	2	2	2
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	2	2	2
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	2	2	2
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	2	2	2
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	2	2	2
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	2	2	2
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	2	2	2
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	2	2	2
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	2	2	2
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	2	2	2
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	2	2	2
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	2	2	2
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	2	2	2
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	2	2	2
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	2	2	2
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	2	2	2
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	2	2	2
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	2	2	2
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	2	2	2
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	2	2	2
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	2	2	2
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	2	2	2
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	2	2	2
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	2	2	2
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	2	2	2
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	2	2	2
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	2	2	2
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	2	2	2
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	2	2	2
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	2	2	2
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	2	2	2

Detailed Air Quality Impact Assessment Results - Doubled Traffic

Maximum 24-hour Benzene Concentration

ASRID	Building Name	X	Y	Z	Lowest Assessment Height (mAG)	Highest Assessment Height (mAG)	Maximum 24hr benzene conencentration at different elevation of ASR in metre, µg / m3		
							1.5	5	10
Non-AQO Criterion					**3 (0)**				
BN01	TKOL-II/III Boundary	846456	817216	33	1.5	10	1	1	1
BN02	TKOL-II/III Boundary	846562	817270	94	1.5	10	1	1	1
BN03	TKOL-II/III Boundary	846687	817310	106	1.5	10	1	1	1
BN04	TKOL-II/III Boundary	846774	817348	125	1.5	10	1	1	1
BN05	TKOL-II/III Boundary	846847	817361	131	1.5	10	1	1	1
BS01	TKOL-II/III Boundary	847175	817064	134	1.5	10	1	1	1
BS02	TKOL-II/III Boundary	847040	817083	114	1.5	10	1	1	1
BS03	TKOL-II/III Boundary	847063	816936	104	1.5	10	1	1	1
BS04	TKOL-II/III Boundary	846989	816870	83	1.5	10	1	1	1
BS05	TKOL-II/III Boundary	846857	816834	70	1.5	10	1	1	1
E1	TKO PRS Administration Building	846472	817002	8	1.5	10	1	1	1
E2	TKO PRS Administration Building	846474	816994	8	1.5	10	1	1	1
E3	TKO PRS Administration Building	846477	816981	8	1.5	10	1	1	1
E4	TKO PRS Administration Building	846480	816968	8	1.5	10	1	1	1
LP01	TKO PRS Lower Platform	846478	816781	7	1.5	10	1	1	1
LP02	TKO PRS Lower Platform	846491	816794	7	1.5	10	1	1	1
LP03	TKO PRS Lower Platform	846456	816846	7	1.5	10	1	1	1
LP04	TKO PRS Lower Platform	846509	816917	14	1.5	10	1	1	1
LP05	TKO PRS Lower Platform	846489	817008	12	1.5	10	1	1	1
LP06	TKO PRS Lower Platform	846514	817031	18	1.5	10	1	1	1
LP07	TKO PRS Lower Platform	846472	817078	13	1.5	10	1	1	1
LP08	TKO PRS Lower Platform	846416	817118	8	1.5	10	1	1	1
LP09	TKO PRS Lower Platform	846421	817072	8	1.5	10	1	1	1
LP10	TKO PRS Lower Platform	846414	817084	8	1.5	10	1	1	1
LP11	TKO PRS Lower Platform	846401	817084	7	1.5	10	1	1	1
LP12	TKO PRS Lower Platform	846401	817049	7	1.5	10	1	1	1
LP13	TKO PRS Lower Platform	846422	817050	7	1.5	10	1	1	1
LP14	TKO PRS Lower Platform	846438	817042	8	1.5	10	1	1	1
LP15	TKO PRS Lower Platform	846444	817030	8	1.5	10	1	1	1
LP16	TKO PRS Lower Platform	846433	817023	7	1.5	10	1	1	1
LP17	TKO PRS Lower Platform	846429	817010	7	1.5	10	1	1	1
LP18	TKO PRS Lower Platform	846478	816928	7	1.5	10	1	1	1
LP19	TKO PRS Lower Platform	846431	816900	7	1.5	10	1	1	1
LP20	TKO PRS Lower Platform	846442	816840	6	1.5	10	1	1	1
LP21	TKO PRS Middle Platform	846698	816811	47	1.5	10	1	1	1
LP22	TKO PRS Middle Platform	846718	816886	41	1.5	10	1	1	1
LP23	TKO PRS Middle Platform	846765	816894	51	1.5	10	1	1	1
LP24	TKO PRS Middle Platform	846747	816922	40	1.5	10	1	1	1
LP25	TKO PRS Middle Platform	846716	816998	40	1.5	10	1	1	1
LP26	TKO PRS Middle Platform	846705	816990	39	1.5	10	1	1	1
LP27	TKO PRS Middle Platform	846663	816964	34	1.5	10	1	1	1
LP28	TKO PRS Middle Platform	846648	816934	39	1.5	10	1	1	1
LP29	TKO PRS Middle Platform	846591	816847	37	1.5	10	1	1	1
N1	TKO PRS Administration Building	846463	817000	8	1.5	10	1	1	1
N2	TKO PRS Administration Building	846465	817001	8	1.5	10	1	1	1
N3	TKO PRS Administration Building	846469	817001	8	1.5	10	1	1	1
S1	TKO PRS Administration Building	846482	816961	8	1.5	10	1	1	1
S2	TKO PRS Administration Building	846479	816960	7	1.5	10	1	1	1
S3	TKO PRS Administration Building	846476	816959	8	1.5	10	1	1	1
UP01	TKO PRS Upper Platform	847124	817129	134	1.5	10	1	1	1
UP02	TKO PRS Upper Platform	847157	817196	141	1.5	10	1	1	1
UP03	TKO PRS Upper Platform	847064	817241	141	1.5	10	1	1	1
UP04	TKO PRS Upper Platform	846982	817340	139	1.5	10	1	1	1
UP05	TKO PRS Upper Platform	846900	817376	137	1.5	10	1	1	1
UP06	TKO PRS Upper Platform	846862	817347	136	1.5	10	1	1	1
UP07	TKO PRS Upper Platform	846930	817281	134	1.5	10	1	1	1
UP08	TKO PRS Upper Platform	847007	817204	134	1.5	10	1	1	1
W1	TKO PRS Administration Building	846472	816959	8	1.5	10	1	1	1
W2	TKO PRS Administration Building	846470	816966	7	1.5	10	1	1	1
W3	TKO PRS Administration Building	846467	816979	8	1.5	10	1	1	1
W4	TKO PRS Administration Building	846464	816992	8	1.5	10	1	1	1

Appendix 3.8

(Not Used)

Appendix 3.9

Odour Patrol Record

Tseung Kwan O Restoration Landfills
Odour Patrol Monitoring Summary for TKOL & II/III

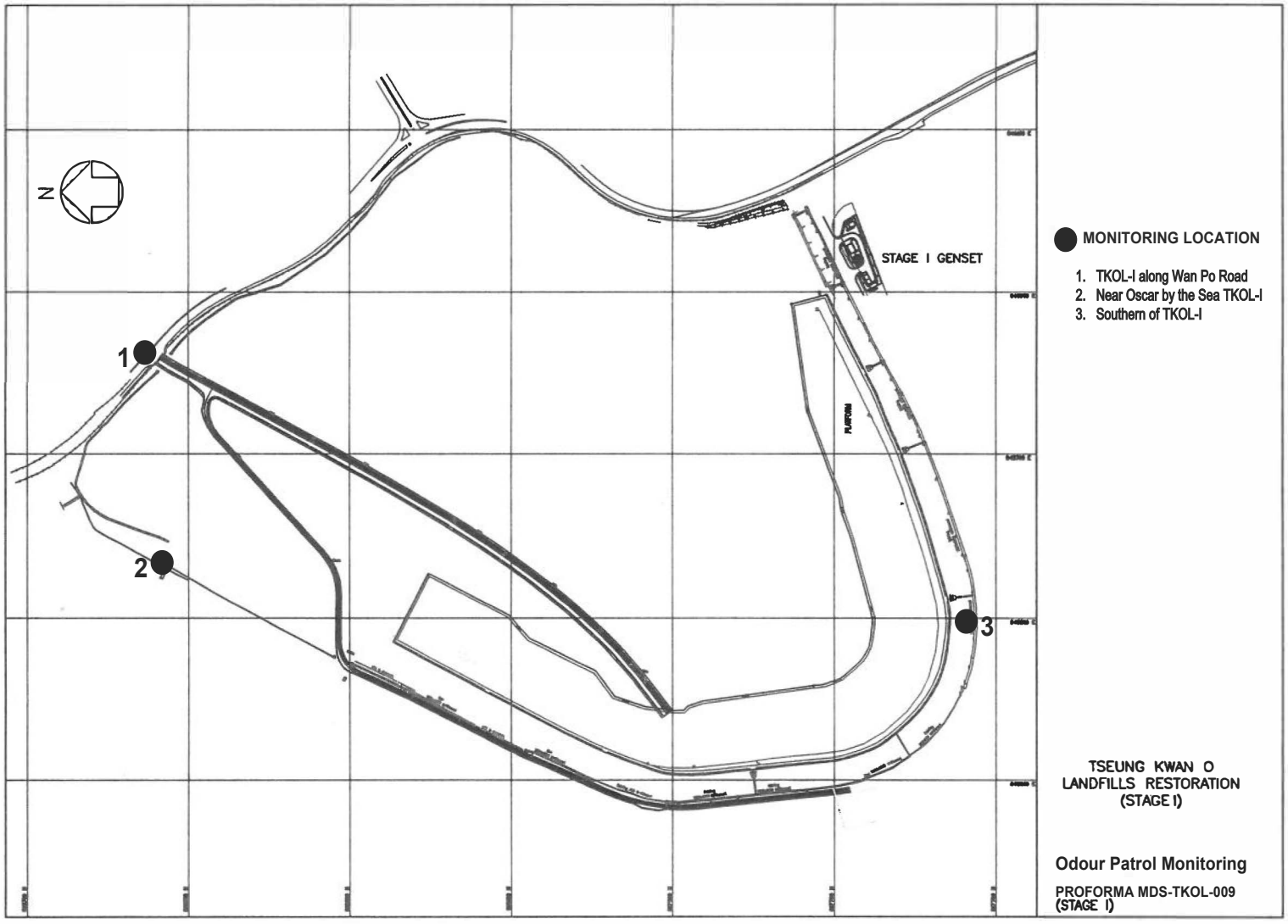
Inspection Date:	06/01/2020		05/02/2020		09/03/2020		06/04/2020		05/05/2020		04/06/2020		02/07/2020		06/08/2020		01/09/2020		05/10/2020		03/11/2020		01/12/2020		08/01/2021		01/02/2021	
Location	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity
Western of TKO II/III	9:50	0	9:50	0	9:50	0	9:50	0	9:45	0	9:45	0	9:45	0	9:55	0	9:45	0	10:15	0	9:50	0	9:35	0	10:05	0	10:05	0
+140mPD platform of TKO II/III	9:20	0	9:35	0	9:25	0	9:25	0	9:15	0	9:20	0	9:20	0	9:30	0	9:15	0	9:35	0	9:20	0	9:05	0	9:35	0	9:35	0
TKO I along Wan Po Road	11:15	0	10:35	0	11:00	0	11:00	0	11:10	0	11:15	0	11:25	0	11:05	0	11:10	0	11:40	0	11:25	0	11:10	0	11:20	0	11:25	0
Near Oscar By The Sea of TKO I	10:20	0	10:10	0	10:15	0	10:35	0	10:10	0	10:15	0	10:15	0	10:25	0	10:15	0	10:45	0	10:25	0	10:10	0	10:30	0	10:35	0
Southern of TKO I	10:50	0	10:25	0	10:35	0	10:10	0	10:40	0	10:45	0	11:00	0	10:45	0	10:45	0	11:10	0	10:50	0	10:40	0	10:55	0	11:00	0

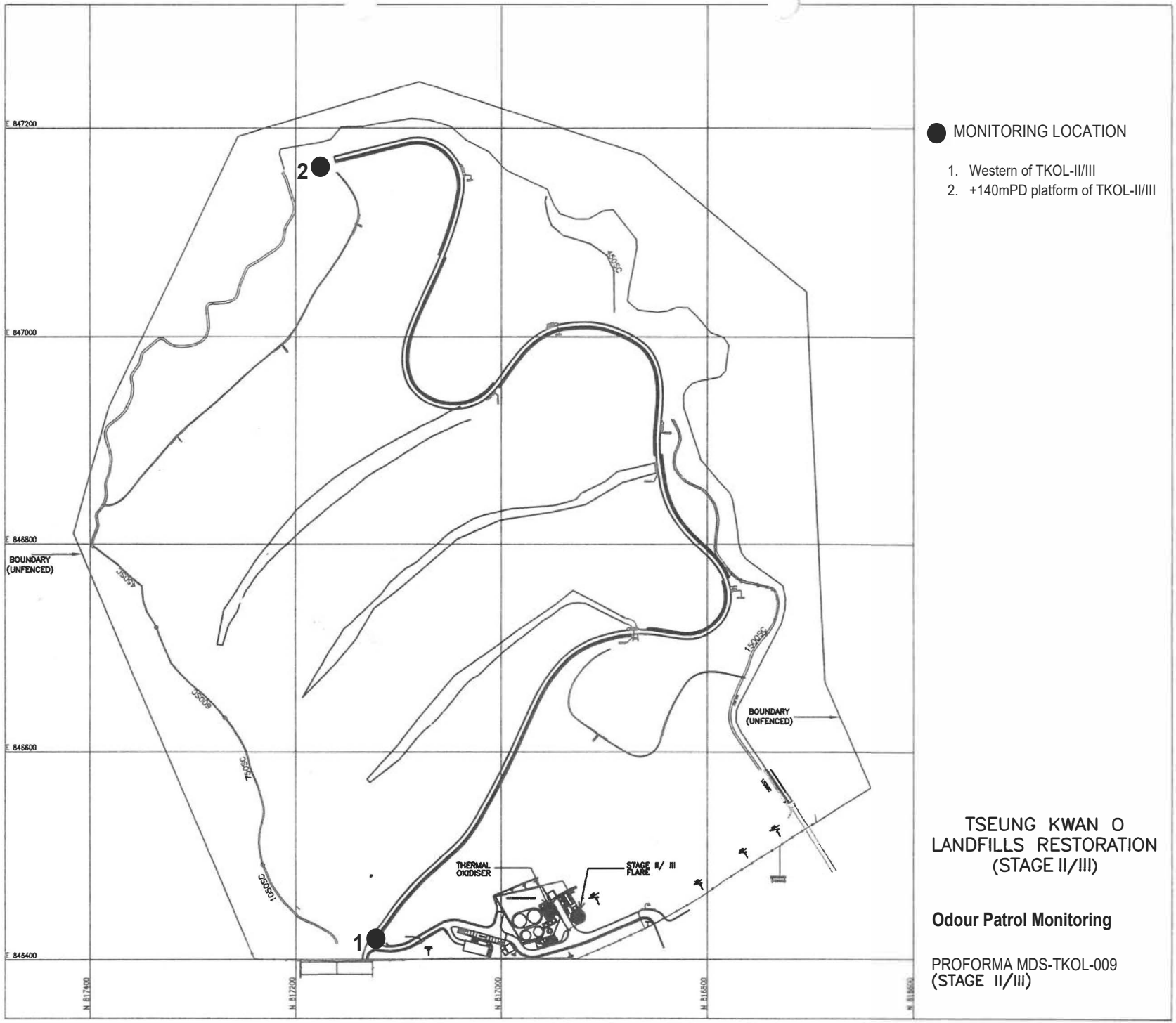
Inspection Date:	04/03/2021		01/04/2021		13/05/2021		01/06/2021		06/07/2021		03/08/2021		03/09/2021		05/10/2021		09/11/2021		01/12/2021		04/01/2022		16/02/2022		18/03/2022		25/04/2022	
Location	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity
Western of TKO II/III	9:50	0	9:20	0	9:20	0	10:00	0	14:15	0	10:05	0	10:05	0	10:05	0	9:55	0	10:20	0	10:05	0	10:05	0	10:05	0	9:40	0
+140mPD platform of TKO II/III	9:20	0	8:55	0	9:45	0	9:35	0	15:00	0	9:35	0	9:25	0	9:25	0	9:20	0	9:30	0	9:25	0	9:25	0	9:15	0	9:15	0
TKO I along Wan Po Road	11:15	0	10:25	0	11:05	0	10:55	0	14:50	0	11:00	0	11:00	0	11:00	0	11:20	0	11:25	0	11:25	0	11:05	0	11:05	0	10:00	0
Near Oscar By The Sea of TKO I	10:20	0	9:45	0	10:15	0	10:15	0	14:30	0	10:15	0	10:15	0	10:15	0	10:10	0	10:35	0	10:45	0	10:25	0	10:50	0	10:30	0
Southern of TKO I	10:55	0	10:05	0	10:40	0	10:35	0	14:45	0	10:45	0	10:40	0	10:45	0	11:00	0	10:55	0	11:10	0	10:50	0	11:25	0	11:15	0

Inspection Date:	19/05/2022		17/06/2022		26/07/2022		16/08/2022		13/09/2022		11/10/2022		11/11/2022		02/12/2022		04/01/2023		08/02/2023		06/03/2023		03/04/2023		04/05/2023		05/06/2023	
Location	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity
Western of TKO II/III	10:00	0	9:30	0	9:00	0	9:45	0	9:50	0	9:50	0	13:50	0	11:45	0	12:15	0	9:50	0	9:45	0	9:40	0	9:45	0	9:35	0
+140mPD platform of TKO II/III	9:15	0	9:15	0	8:45	0	9:20	0	9:25	0	9:30	0	13:40	0	9:30	0	9:00	0	9:20	0	9:10	0	9:00	0	9:10	0	9:10	0
TKO I along Wan Po Road	10:30	0	10:15	0	9:45	0	10:00	0	10:10	0	10:10	0	10:00	0	10:15	0	10:00	0	10:45	0	10:35	0	10:40	0	10:45	0	10:45	0
Near Oscar By The Sea of TKO I	10:50	0	11:00	0	10:30	0	10:30	0	10:40	0	10:30	0	9:30	0	10:45	0	10:30	0	11:20	0	11:10	0	11:15	0	11:10	0	11:00	0
Southern of TKO I	11:20	0	11:30	0	11:00	0	11:00	0	11:05	0	10:45	0	10:45	0	11:25	0	10:55	0	11:00	0	11:30	0	11:35	0	11:30	0	11:15	0

Inspection Date:	19/07/2023		03/08/2023		04/09/2023		12/10/2023		06/11/2023		08/12/2023		05/01/2024		07/02/2024		07/03/2024		05/04/2024		20/05/2024		05/06/2024		10/07/2024		14/08/2024		09/09/2024	
Location	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity	Time	Intensity
Western of TKO II/III	11:40	0	11:40	0	11:30	0	9:45	0	9:45	0	10:00	0	9:30	0	9:30	0	9:30	0	9:30	0	9:00	0	9:20	0	11:20	0	10:00	0	10:00	0
+140mPD platform of TKO II/III	11:50	0	9:15	0	9:00	0	9:15	0	11:45	0	9:15	0	9:10	0	9:10	0	9:10	0	9:10	0	10:30	0	9:05	0	11:30	0	9:50	0	11:00	0
TKO I along Wan Po Road	11:00	0	10:30	0	11:00	0	11:15	0	11:00	0	11:15	0	10:45	0	10:45	0	9:55	0	10:30	0	9:30	0	9:40	0	9:50	0	10:50	0	9:35	0
Near Oscar By The Sea of TKO I	10:15	0	10:00	0	10:00	0	10:20	0	10:15	0	11:00	0	10:30	0	10:30	0	10:40	0	10:00	0	9:45	0	10:25	0	10:40	0	11:15	0	10:45	0
Southern of TKO I	10:40	0	11:00	0	9:30	0	10:00	0	11:30	0	11:30	0	11:00	0	11:00	0	10:50	0	10:50	0	10:15	0	10:45	0	10:50	0	11:30	0	10:50	0

Notes:
Odour intensity
0: Not Detected (No odour Perceived or an odour so weak that it cannot be easily characterised or described)
1: Slight (Identifiable odour, Slight)
2: Moderate (Identifiable odour, Moderate)
3: Strong (Identifiable odour, Strong)
4: Extreme (Severe odour)


N
STAGE I GENSET
1
2
3
MONITORING LOCATION
1. TKOL-I along Wan Po Road
2. Near Oscar by the Sea TKOL-I
3. Southern of TKOL-I
TSEUNG KWAN O
LANDFILLS RESTORATION
(STAGE I)
Odour Patrol Monitoring
PROFORMA MDS-TKOL-009
(STAGE I)


E 847200
E 847000
E 846800
E 846600
E 846400
N 817400
N 817200
N 817000
N 816800
N 816600
BOUNDARY (UNFENCED)
BOUNDARY (UNFENCED)
THERMAL OXIDISER
STAGE II/ III FLARE
1
2
MONITORING LOCATION
1. Western of TKOL-II/III
2. +140mPD platform of TKOL-II/III
TSEUNG KWAN O LANDFILLS RESTORATION (STAGE II/III)
Odour Patrol Monitoring
PROFORMA MDS-TKOL-009 (STAGE II/III)

Lawrence Tam

From: PK LEUNG/EPD <pkleung@epd.gov.hk>
Sent: Monday, 28 April 2025 11:45 am
To: Lawrence Tam
Cc: Toby Lung; HKG C1EnvFile; Edmund YK CHOI/EPD; YL KO/EPD
Subject: Re: Enquiry on Odour Complaint Record at Tseung Kwan O Stage II/III Landfill

You don't often get email from pkleung@epd.gov.hk. Learn why this is important

Dear Mr. Tam,

There was no odour complaint for TKO Restored Landfill Stage II/III in the past five years. Thank you.

Regards,
Rebecca Leung
Regional Office (East) / EPD
Tel: 2117 7523

From: Lawrence Tam <Lawrence.Tam@arup.com>
Sent: Friday, April 25, 2025 4:59 PM
To: Edmund YK CHOI/EPD <edmundykchoi@epd.gov.hk>
Cc: E[RE]41/EPD <e-re41@epd.hksarg>; Toby Lung <toby.lung@arup.com>; HKG C1EnvFile <HKG.C1EnvFile@arup.com>
Subject: RE: Enquiry on Odour Complaint Record at Tseung Kwan O Stage II/III Landfill

Dear Mr. Choi,

I attempted to reach you today but was unsuccessful. Could you kindly provide the odour complaint records as requested?

Thank you.

Regards,
Lawrence Tam
Assistant Consultant | Consulting

Arup
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Kowloon Tong, Kowloon, Hong Kong
d +852 2908 4227 f +852 2865 6493
t +852 2528 3031
arup.com

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From: Lawrence Tam <Lawrence.Tam@arup.com>
Sent: Thursday, April 10, 2025 10:15 AM
To: Edmund YK CHOI/EPD <edmundykchoi@epd.gov.hk>
Cc: E[RE]41/EPD <e-re41@epd.hksarg>; Toby Lung <toby.lung@arup.com>; HKG C1EnvFile

<HKG.C1EnvFile@arup.com>
Subject: RE: Enquiry on Odour Complaint Record at Tseung Kwan O Stage II/III Landfill

Dear Mr. Choi,

We are currently working on a project at TKOL II/III for the Hong Kong Jockey Club. We have submitted a preliminary environmental review (PER) report, and Environmental Assessment team requested the odour complaint record in the past five years.

Thank you.

Regards,
Lawrence

From: Edmund YK CHOI/EPD <edmundykchoi@epd.gov.hk>
Sent: Wednesday, April 9, 2025 4:28 PM
To: Lawrence Tam <Lawrence.Tam@arup.com>
Cc: E[RE]41/EPD <e-re41@epd.hksarg>
Subject: Fw: Enquiry on Odour Complaint Record at Tseung Kwan O Stage II/III Landfill

> You don't often get email from edmundykchoi@epd.gov.hk. Learn why this is important

Dear Lawrence,

Please advise the purpose of your enquiry. Thanks.

Best regards,

Edmund Choi
I(RE)47
Environmental Protection Inspector
Environmental Protection Department

Tel: 2117 7536

From: Lawrence Tam <Lawrence.Tam@arup.com>
Sent: Monday, April 7, 2025 11:20 AM
To: SC LO/EPD <sclo@epd.gov.hk>
Cc: Toby Lung <toby.lung@arup.com>; HKG C1EnvFile <HKG.C1EnvFile@arup.com>
Subject: Enquiry on Odour Complaint Record at Tseung Kwan O Stage II/III Landfill

Dear Mr. Lo,

As per our tele-conversation today, we would like to make an enquiry on the odour complaint record of the past five years at Tseung Kwan O Stage II/III Landfill.

Should you have any queries, please contact me at 2908 4227.

Thank you.

Lawrence Tam
Assistant Consultant | Consulting

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t +852 2528 3031
arup.com

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Appendix 6.1

Site Survey Record for Fixed Noise Sources

Site Survey Record for Fixed Noise Sources

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
MEGA Plus	10 Sep 2024, 27 Sep 2024, 30 Sep 2024	Data Centre	Louvres at facades and chiller plants at rooftop	• Based on site observation, it is in a full day operation. • Noticeable at the location of the proposed Coach Duty Rooms • Dominant noise feature near the proposed Coach Duty Rooms

Site Survey Record for Fixed Noise Sources

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
HKCOLO	10 Sep 2024, 27 Sep 2024, 30 Sep 2024	Data Centre	Louvres at facades and chiller plants at rooftop	• Based on site observation, it is in a full day operation. • Audible at the nearest boundary of the Project Site • Not noticeable at the location of the proposed Coach Duty Rooms

Site Survey Record for Fixed Noise Sources

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Leachate treatment plant of the restored landfill (TKOL II/III)	10 Sep 2024, 27 Sep 2024, 30 Sep 2024	Treatment plant	Operation of plants within the temporary structures with two sides enclosed	• Based on information provided by EPD, the operation hour is subject to wet/dry season, generally 3-5 full days operation per week. • Audible at the boundary of the leachate treatment plant • Not noticeable at the location of the proposed Coach Duty Rooms as it is significantly screened by the temporary structure, and the structures of other installation of the leachate treatment plant

Appendix 6.2

On-site Measurement on Fixed Noise Sources

On-site Noise Measurement at the Proposed Staff Quarters

- 1.2m above-ground
- Free-field noise measurement
- Tonal characteristic identified
- Measurement Period:

Time Period	Measurement Period
Daytime	0930 – 1030 (on 5 December 2024)
Evening Time	2200 – 2300 (on 22 November 2024)
Nighttime	2300 – 1200 (on 23 November 2024)

TONAL CORRECTION FOR MEASURED 1/3 OCTAVE NOISE LEVELS - SINGLE BAND

Max. TONAL CORR.= 3

DATE : March-25
JOB NO.: 304521
PROJECT: Tseung Kwan O Public Riding School

Address: 374
Date of measurement: 30/09/2024
Time of measurement: 9:33 am

MEASURED NOISE LEVELS :

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	58.2	60	56.4	60.7	55.3	52.6	52.2	53.8	51.5	46.9	48.6	52.4	48.4	46.5	47	47.6	45.4	44.4	41.5	39.6	38.7	36.3	33.7	31.7	28.2	25.4	22.3	18.8	14.5	8.7
A-Weighting, dB	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2	-1.9	-0.8	0.0	0.6	1.0	1.2	1.3	1.2	1.0	0.5	-0.1	-1.1	-2.5	-4.3	-6.6	-9.3
A-WT Lp, dB	13.5	20.6	21.8	30.5	29.1	30.1	33.1	37.7	38.1	36.0	40.0	45.8	43.6	43.3	45.1	46.8	45.4	45.0	42.5	40.8	40.0	37.5	34.7	32.2	28.1	24.3	19.8	14.5	7.9	-0.6

A-Wt Sound Pr. Level = 54.9 dB(A)

CORRECTION FOR TONALITY

CORRECTION (a) : MAX = 60.7

Max - X < 15

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	58.2	60.0	56.4	60.7	55.3	52.6	52.2	53.8	51.5	46.9	48.6	52.4	48.4	46.5	47.0	47.6	45.4	44.4	41.5	39.6	38.7	36.3	33.7	31.7	28.2	25.4	22.3	18.8	14.5	8.7
	58.2	60.0	56.4	60.7	55.3	52.6	52.2	53.8	51.5	46.9	48.6	52.4	48.4	46.5	47.0	47.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CORRECTION (b) :

X - adjacent bands >1

0	60.0	0	60.7	0	0	0	53.8	0	0	0	52.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CORRECTION (c) :

X - mean of adjacent bands >3

0	2.7	0	4.9	0	0	0	2.0	0	0	0	3.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ftone= 0	0	0	4.9	0	0	0	0	0	0	0	3.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TONAL CORRECTION :

dB(A)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

TONAL CORR.= **3** dB(A)

TONAL CORRECTION FOR MEASURED 1/3 OCTAVE NOISE LEVELS - PAIR OF BANDS

DATE : March-25
JOB NO.: 304521
PROJECT: Tseung Kwan O Public Riding School

MEASURED NOISE LEVELS :

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	58.2	60.0	56.4	60.7	55.3	52.6	52.2	53.8	51.5	46.9	48.6	52.4	48.4	46.5	47.0	47.6	45.4	44.4	41.5	39.6	38.7	36.3	33.7	31.7	28.2	25.4	22.3	18.8	14.5	8.7
A-Weighting, dB	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2	-1.9	-0.8	0.0	0.6	1.0	1.2	1.3	1.2	1.0	0.5	-0.1	-1.1	-2.5	-4.3	-6.6	-9.3
A-WT Lp, dB	13.5	20.6	21.8	30.5	29.1	30.1	33.1	37.7	38.1	36.0	40.0	45.8	43.6	43.3	45.1	46.8	45.4	45.0	42.5	40.8	40.0	37.5	34.7	32.2	28.1	24.3	19.8	14.5	7.9	-0.6

A-Wt Sound Pr. Level = 54.9 dB(A)

CORRECTION FOR TONALITY

CORRECTION (a) : MAX = 60.7

Max - Max of Xs < 15

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	58.2	60.0	56.4	60.7	55.3	52.6	52.2	53.8	51.5	46.9	48.6	52.4	48.4	46.5	47.0	47.6	45.4	44.4	41.5	39.6	38.7	36.3	33.7	31.7	28.2	25.4	22.3	18.8	14.5	8.7
Ave. Lp of pair	0	58.2	58.6	58.0	54.0	52.4	53.0	52.7	49.2	47.8	50.5	50.4	47.5	46.8	47.3	46.5	44.9	43.0	40.6	39.2	37.5	35.0	32.7	30.0	26.8	23.9	20.6	16.7	11.6	0
	0	58.2	58.6	58.0	54.0	52.4	53.0	52.7	49.2	47.8	50.5	50.4	47.5	46.8	47.3	46.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CORRECTION (b) :

Mean of X - adjacent bands >1

0	0	0	58.0	0	0	0	0	0	0	50.5	50.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CORRECTION (c) :

Mean of X - mean of adjacent bands >3

0	0	0	3.5	0	0	0	0	0	0	2.9	2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ftone= 0	0	0	3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TONAL CORRECTION : **Pair of 1/3 octave bands starting with, Hz**

	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k
dB(A)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TONAL CORR.= **0** dB(A)

TONAL CORRECTION FOR MEASURED 1/3 OCTAVE NOISE LEVELS - SINGLE BAND

Max. TONAL CORR.= 3

DATE : March-25
JOB NO.: 304521
PROJECT: Tseung Kwan O Public Riding School

Address: 313
Date of measurement: 27/09/2024
Time of measurement: 10:02 pm

MEASURED NOISE LEVELS :

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	56.4	53.9	52.6	56.9	53.3	53.7	51.6	53	54.5	47.8	48.9	52.4	48.1	46.2	46.3	47.5	45.4	43.8	41.5	40.4	40.4	44.8	39	35.9	39.9	34.8	30.7	26.8	21.3	13.2
A-Weighting, dB	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2	-1.9	-0.8	0.0	0.6	1.0	1.2	1.3	1.2	1.0	0.5	-0.1	-1.1	-2.5	-4.3	-6.6	-9.3
A-WT Lp, dB	11.7	14.5	18.0	26.7	27.1	31.2	32.5	36.9	41.1	36.9	40.3	45.8	43.3	43.0	44.4	46.7	45.4	44.4	42.5	41.6	41.7	46.0	40.0	36.4	39.8	33.7	28.2	22.5	14.7	3.9

A-Wt Sound Pr. Level = 55.7 dB(A)

CORRECTION FOR TONALITY

CORRECTION (a) : MAX = 56.9

Max - X < 15

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	56.4	53.9	52.6	56.9	53.3	53.7	51.6	53.0	54.5	47.8	48.9	52.4	48.1	46.2	46.3	47.5	45.4	43.8	41.5	40.4	40.4	44.8	39.0	35.9	39.9	34.8	30.7	26.8	21.3	13.2
	56.4	53.9	52.6	56.9	53.3	53.7	51.6	53.0	54.5	47.8	48.9	52.4	48.1	46.2	46.3	47.5	45.4	43.8	0	0	0	44.8	0	0	0	0	0	0	0	0

CORRECTION (b) :

X - adjacent bands >1

0	0	0	56.9	0	0	0	0	54.5	0	0	52.4	0	0	0	47.5	0	0	0	0	0	44.8	0	0	0	0	0	0	0	0

CORRECTION (c) :

X - mean of adjacent bands >3

	0	0	0	4.0	0	0	0	0	4.1	0	0	3.9	0	0	0	1.7	0	0	0	0	0	5.1	0	0	0	0	0	0	0	0
Ftone=	0	0	0	4.0	0	0	0	0	4.1	0	0	3.9	0	0	0	0	0	0	0	0	0	5.1	0	0	0	0	0	0	0	0

TONAL CORRECTION :

dB(A)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		

TONAL CORR.= **3** dB(A)

TONAL CORRECTION FOR MEASURED 1/3 OCTAVE NOISE LEVELS - PAIR OF BANDS

DATE : March-25
JOB NO.: 304521
PROJECT: Tseung Kwan O Public Riding School

MEASURED NOISE LEVELS :

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	56.4	53.9	52.6	56.9	53.3	53.7	51.6	53.0	54.5	47.8	48.9	52.4	48.1	46.2	46.3	47.5	45.4	43.8	41.5	40.4	40.4	44.8	39.0	35.9	39.9	34.8	30.7	26.8	21.3	13.2
A-Weighting, dB	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2	-1.9	-0.8	0.0	0.6	1.0	1.2	1.3	1.2	1.0	0.5	-0.1	-1.1	-2.5	-4.3	-6.6	-9.3
A-WT Lp, dB	11.7	14.5	18.0	26.7	27.1	31.2	32.5	36.9	41.1	36.9	40.3	45.8	43.3	43.0	44.4	46.7	45.4	44.4	42.5	41.6	41.7	46.0	40.0	36.4	39.8	33.7	28.2	22.5	14.7	3.9

A-Wt Sound Pr. Level = 55.7 dB(A)

CORRECTION FOR TONALITY

CORRECTION (a) : MAX = 56.9

Max - Max of Xs < 15

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	56.4	53.9	52.6	56.9	53.3	53.7	51.6	53.0	54.5	47.8	48.9	52.4	48.1	46.2	46.3	47.5	45.4	43.8	41.5	40.4	40.4	44.8	39.0	35.9	39.9	34.8	30.7	26.8	21.3	13.2
Ave. Lp of pair	0	53.3	54.8	55.1	53.5	52.7	52.3	53.8	51.2	48.4	50.7	50.3	47.2	46.3	46.9	46.5	44.6	42.7	41.0	40.4	42.6	41.9	37.5	37.9	37.4	32.8	28.8	24.1	17.3	0
	0	53.3	54.8	55.1	53.5	52.7	52.3	53.8	51.2	48.4	50.7	50.3	47.2	46.3	46.9	46.5	44.6	42.7	0	0	42.6	41.9	0	0	0	0	0	0	0	0

CORRECTION (b) :

Mean of X - adjacent bands >1

	0	0	0	55.1	0	0	0	53.8	0	0	50.7	50.3	0	0	0	0	0	0	0	0	42.6	41.9	0	0	0	0	0	0	0	0

CORRECTION (c) :

Mean of X - mean of adjacent bands >3

	0	0	0	1.9	0	0	0	4.1	0	0	2.7	2.7	0	0	0	0	0	0	0	0	2.9	3.8	0	0	0	0	0	0	0	0
Ftone=	0	0	0	0	0	0	0	4.1	0	0	0	0	0	0	0	0	0	0	0	0	0	3.8	0	0	0	0	0	0	0	0

TONAL CORRECTION : **Pair of 1/3 octave bands starting with, Hz**

	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k
dB(A)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**

TONAL CORR.= **3** dB(A)

TONAL CORRECTION FOR MEASURED 1/3 OCTAVE NOISE LEVELS - SINGLE BAND

Max. TONAL CORR.= 3

DATE : March-25
JOB NO.: 304521
PROJECT: Tseung Kwan O Public Riding School

Address: 2489
Date of measurement: 28/09/2024
Time of measurement: 01:41 am

MEASURED NOISE LEVELS :

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	60.6	57.5	53.1	59.3	55.4	52.7	51.8	53.6	50.1	45.2	47.1	51.6	48.6	46.5	46.5	47.7	44.5	42.3	40.7	39.5	39	41.3	36.2	34.3	34.8	33.8	30.6	25.7	19.5	11.4
A-Weighting, dB	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2	-1.9	-0.8	0.0	0.6	1.0	1.2	1.3	1.2	1.0	0.5	-0.1	-1.1	-2.5	-4.3	-6.6	-9.3
A-WT Lp, dB	15.9	18.1	18.5	29.1	29.2	30.2	32.7	37.5	36.7	34.3	38.5	45.0	43.8	43.3	44.6	46.9	44.5	42.9	41.7	40.7	40.3	42.5	37.2	34.8	34.7	32.7	28.1	21.4	12.9	2.1

A-Wt Sound Pr. Level = 54.7 dB(A)

CORRECTION FOR TONALITY

CORRECTION (a) : MAX = 59.3

Max - X < 15

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	60.6	57.5	53.1	59.3	55.4	52.7	51.8	53.6	50.1	45.2	47.1	51.6	48.6	46.5	46.5	47.7	44.5	42.3	40.7	39.5	39.0	41.3	36.2	34.3	34.8	33.8	30.6	25.7	19.5	11.4
	60.6	57.5	53.1	59.3	55.4	52.7	51.8	53.6	50.1	45.2	47.1	51.6	48.6	46.5	46.5	47.7	44.5	0	0	0	0	0	0	0	0	0	0	0	0	0

CORRECTION (b) :

X - adjacent bands >1

0	0	0	59.3	0	0	0	53.6	0	0	0	51.6	0	0	0	47.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CORRECTION (c) :

X - mean of adjacent bands >3

0	0	0	5.1	0	0	0	2.7	0	0	0	3.8	0	0	0	2.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ftone= 0	0	0	5.1	0	0	0	0	0	0	0	3.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TONAL CORRECTION :

dB(A)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

TONAL CORR.= **3** dB(A)

TONAL CORRECTION FOR MEASURED 1/3 OCTAVE NOISE LEVELS - PAIR OF BANDS

DATE : March-25
JOB NO.: 304521
PROJECT: Tseung Kwan O Public Riding School

MEASURED NOISE LEVELS :

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	60.6	57.5	53.1	59.3	55.4	52.7	51.8	53.6	50.1	45.2	47.1	51.6	48.6	46.5	46.5	47.7	44.5	42.3	40.7	39.5	39.0	41.3	36.2	34.3	34.8	33.8	30.6	25.7	19.5	11.4
A-Weighting, dB	-44.7	-39.4	-34.6	-30.2	-26.2	-22.5	-19.1	-16.1	-13.4	-10.9	-8.6	-6.6	-4.8	-3.2	-1.9	-0.8	0.0	0.6	1.0	1.2	1.3	1.2	1.0	0.5	-0.1	-1.1	-2.5	-4.3	-6.6	-9.3
A-WT Lp, dB	15.9	18.1	18.5	29.1	29.2	30.2	32.7	37.5	36.7	34.3	38.5	45.0	43.8	43.3	44.6	46.9	44.5	42.9	41.7	40.7	40.3	42.5	37.2	34.8	34.7	32.7	28.1	21.4	12.9	2.1

A-Wt Sound Pr. Level = 54.7 dB(A)

CORRECTION FOR TONALITY

CORRECTION (a) : MAX = 59.3

Max - Max of Xs < 15

Freq, Hz	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Lp, dB	60.6	57.5	53.1	59.3	55.4	52.7	51.8	53.6	50.1	45.2	47.1	51.6	48.6	46.5	46.5	47.7	44.5	42.3	40.7	39.5	39.0	41.3	36.2	34.3	34.8	33.8	30.6	25.7	19.5	11.4
Ave. Lp of pair	0	55.3	56.2	57.4	54.1	52.3	52.7	51.9	47.7	46.2	49.4	50.1	47.6	46.5	47.1	46.1	43.4	41.5	40.1	39.3	40.2	38.8	35.3	34.6	34.3	32.2	28.2	22.6	15.5	0
	0	55.3	56.2	57.4	54.1	52.3	52.7	51.9	47.7	46.2	49.4	50.1	47.6	46.5	47.1	46.1	43.4	0	0	0	0	0	0	0	0	0	0	0	0	0

CORRECTION (b) :

Mean of X - adjacent bands >1

0	0	0	57.4	0	0	0	0	0	0	0	50.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CORRECTION (c) :

Mean of X - mean of adjacent bands >3

0	0	0	4.4	0	0	0	0	0	0	0	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ftone= 0	0	0	4.4	0	0	0	0	0	0	0	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TONAL CORRECTION : **Pair of 1/3 octave bands starting with, Hz**

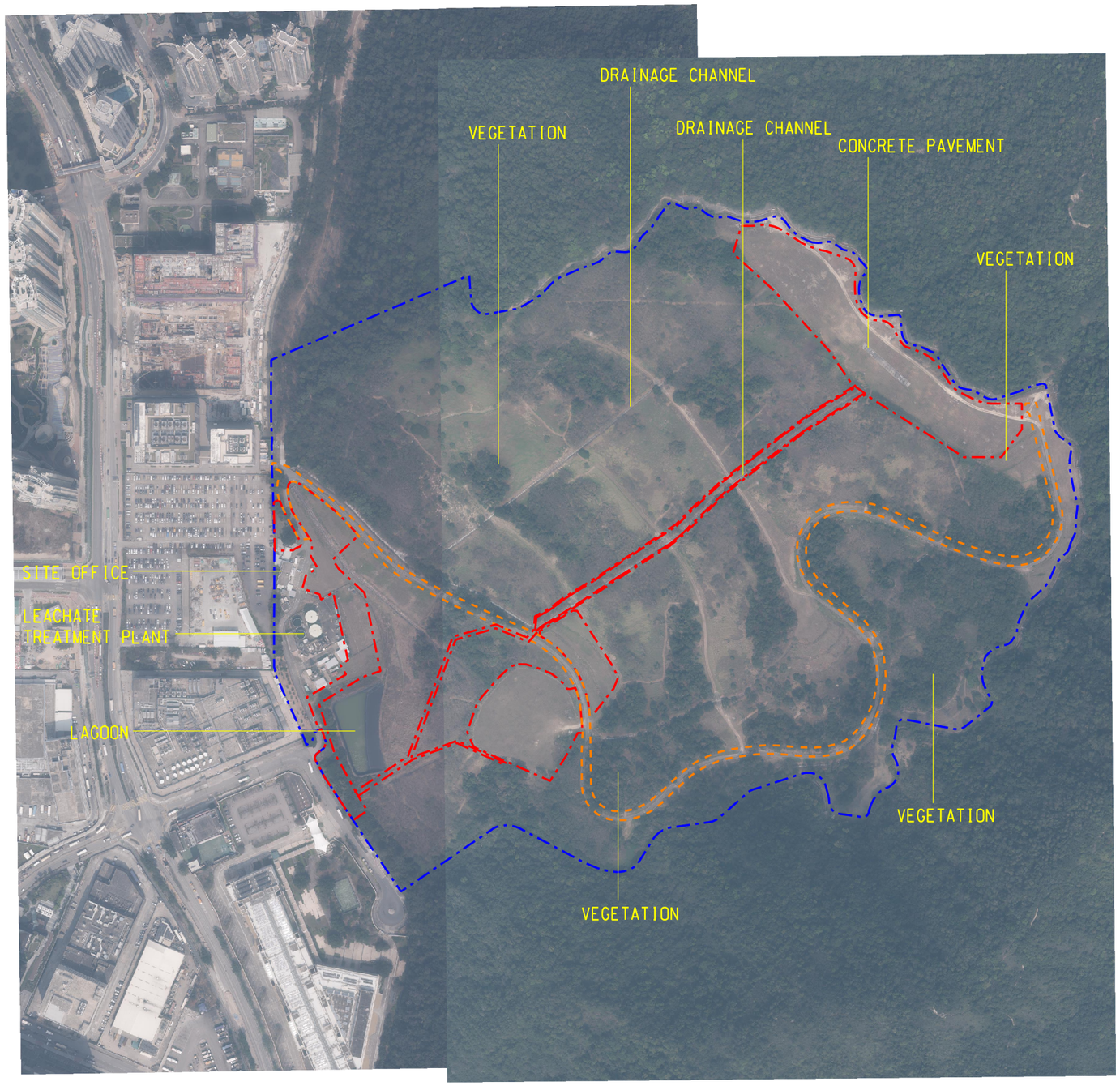
	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k
dB(A)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TONAL CORR.= **3** dB(A)

Appendix 7.1

Historical Aerial Photos

APPENDIX 7.1
HISTORICAL AERIAL PHOTOS - YEAR 2023



N

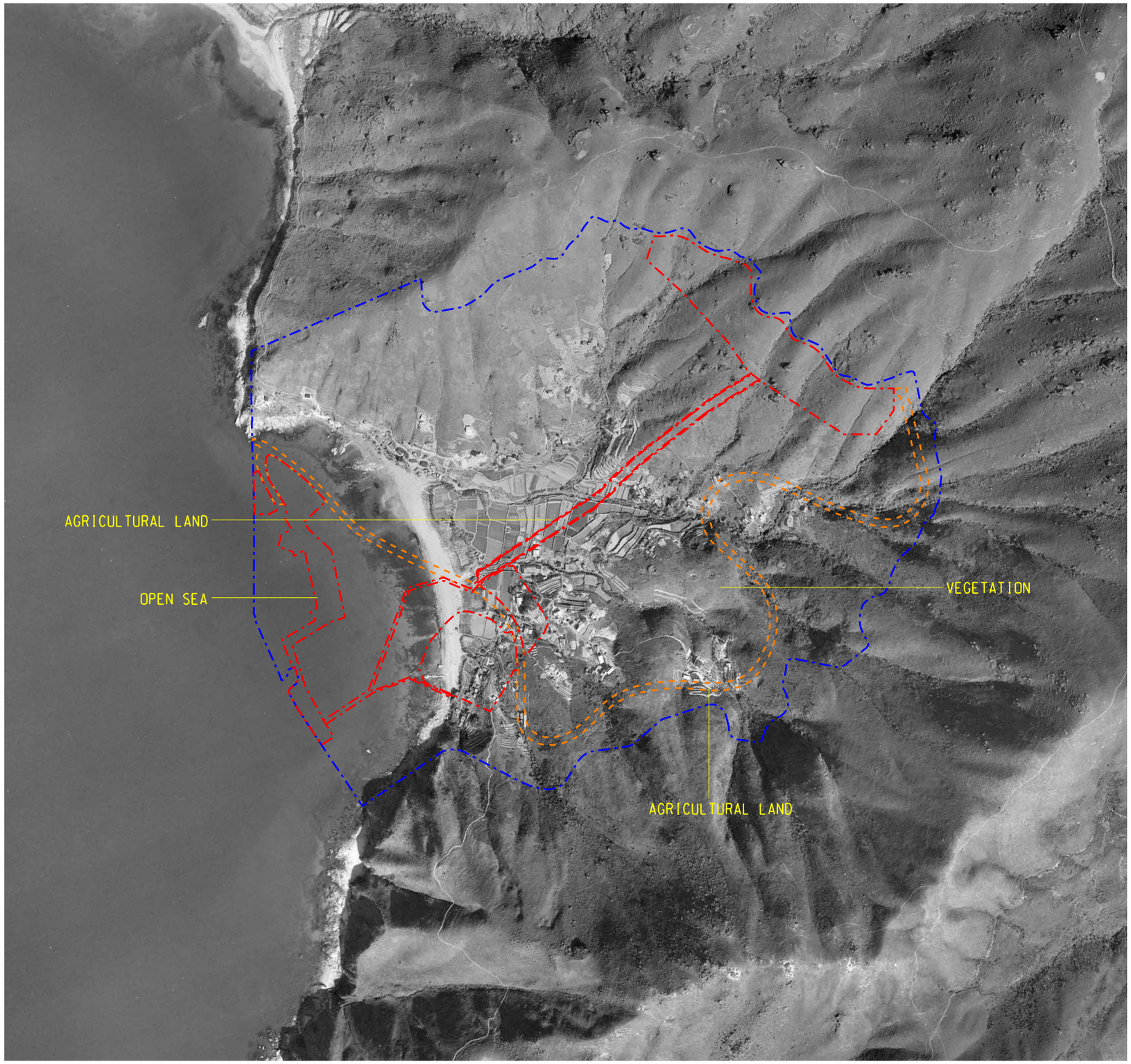
LEGEND
PROJECT SITE
ACCESS ROAD (BY EPD)
BOUNDARY OF TKOL II/III

0 25 50 75 100 125
METRES

Printed by : $DATE$
Filename : $FILE$

APPENDIX 7.1
HISTORICAL AERIAL PHOTOS - YEAR 1963

N



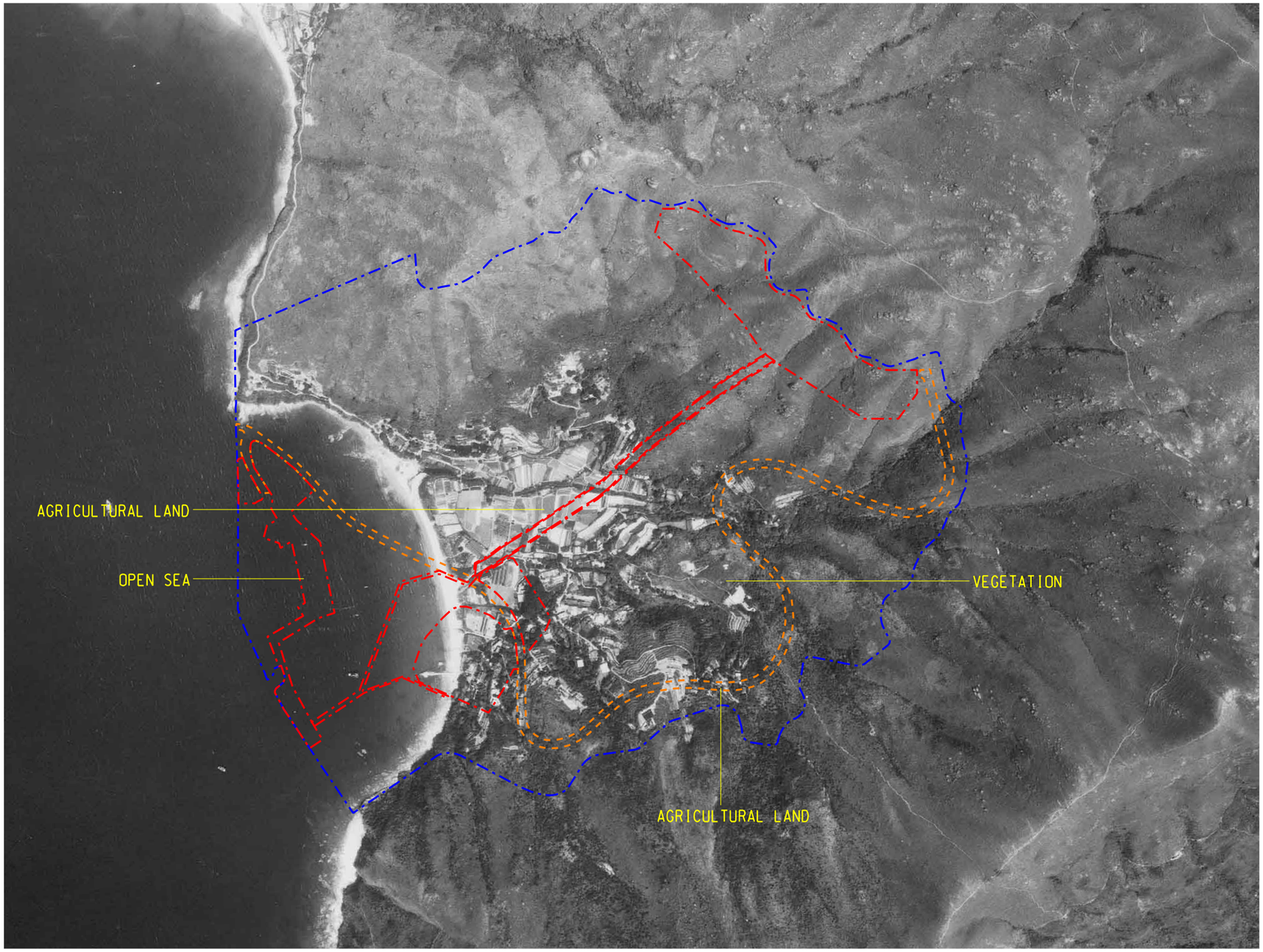
0 25 50 75 100 125
METRES

LEGEND
PROJECT SITE
ACCESS ROAD (BY EPD)
BOUNDARY OF TKOL II/III

Printed by : $DATE$
Filename : $FILE$

APPENDIX 7.1
HISTORICAL AERIAL PHOTOS - YEAR 1974

N



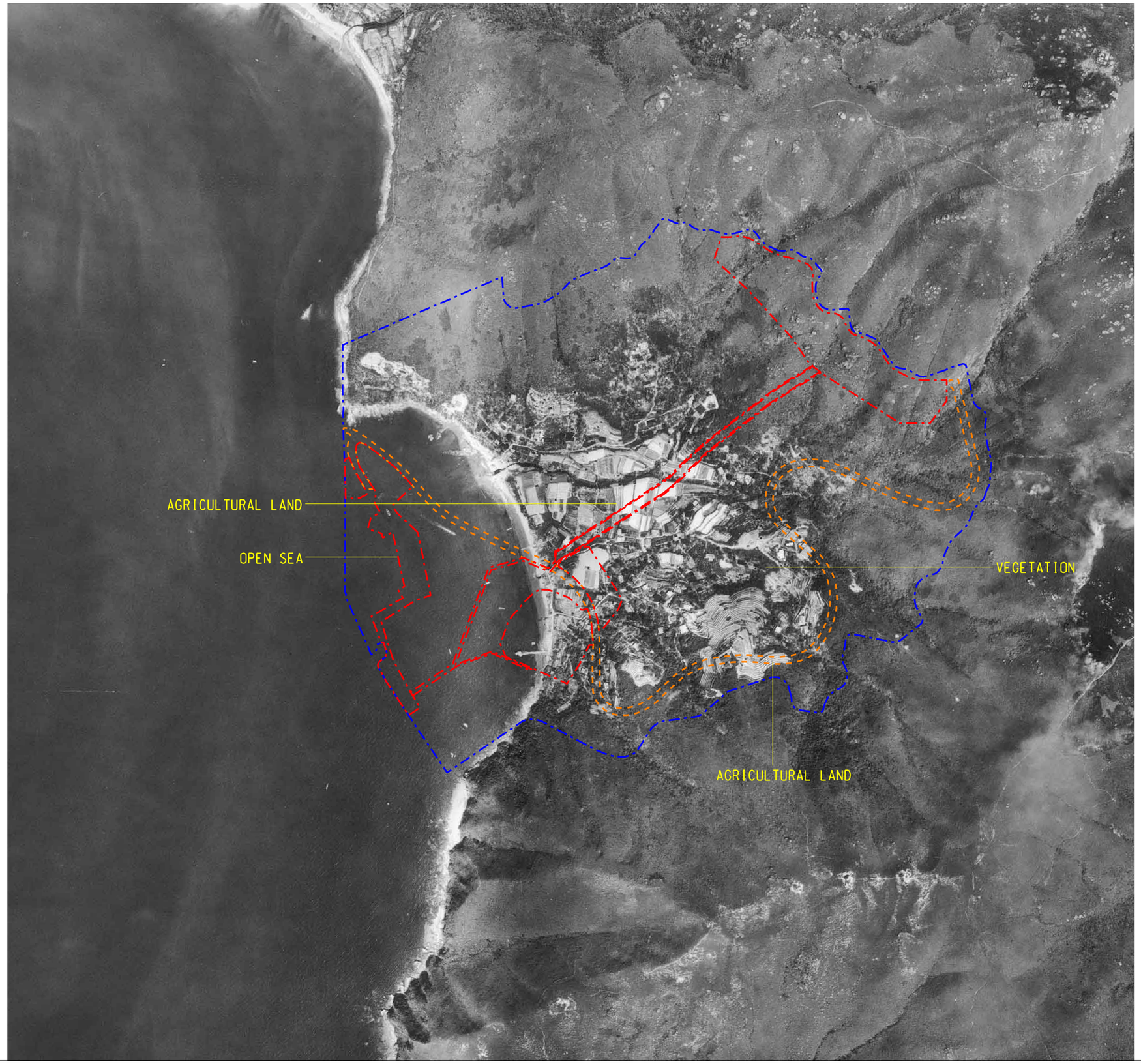
0 25 50 75 100 125
METRES

LEGEND
PROJECT SITE
ACCESS ROAD (BY EPD)
BOUNDARY OF TKOL II/III

Printed by : $DATE$
Filename : $FILE$

APPENDIX 7.1
HISTORICAL AERIAL PHOTOS - YEAR 1983

N



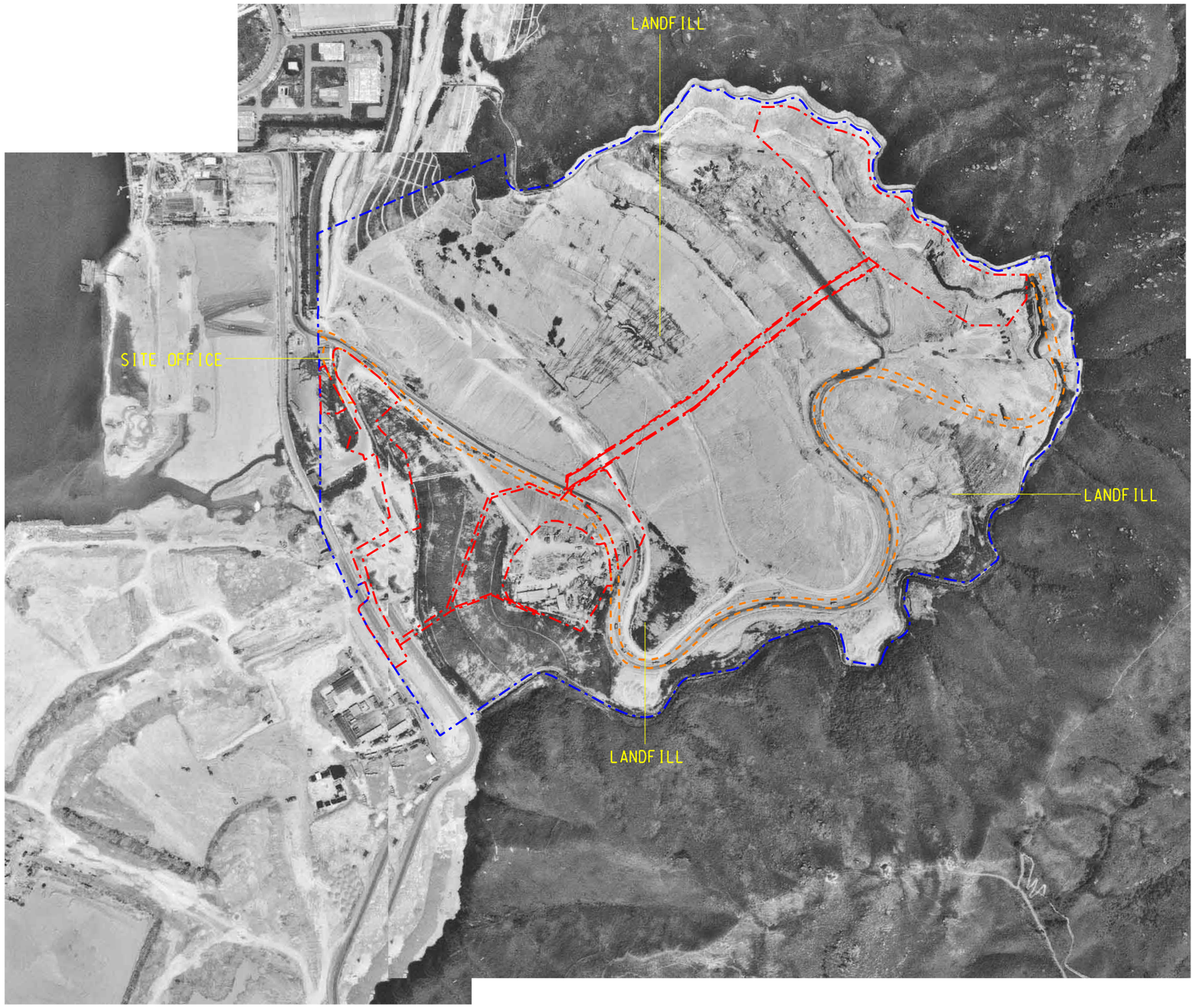
0 25 50 75 100 125
METRES

LEGEND
PROJECT SITE
ACCESS ROAD (BY EPD)
BOUNDARY OF TKOL II/III

Printed by : $DATE$
Filename : $FILE$

APPENDIX 7.1
HISTORICAL AERIAL PHOTOS - YEAR 1993

N



0 25 50 75 100 125
METRES

LEGEND
PROJECT SITE
ACCESS ROAD (BY EPD)
BOUNDARY OF TKOL II/III

Printed by : $DATE$
Filename : $FILE$

APPENDIX 7.1
HISTORICAL AERIAL PHOTOS - YEAR 2003

Printed by : $DATE$
Filename : $FILE$

APPENDIX 7.1
HISTORICAL AERIAL PHOTOS - YEAR 2013

Printed by : $DATE$
Filename : $FILE$

Appendix 7.2

Site Walkover Checklist

ARUP

Site Walkover Checklist

1) GENERAL SITE DETAILS	
Site Owner/ Client	Environmental Protection Department
Property Address	TKOL II/III
Person Conducting the Questionnaire (name & position)	Jansen Shu, Assistant Consultant
Authorised Owner/ Client Representative (if applicable) (name, position & telephone)	N/A

2) ACTIVITIES	
Briefly describe activities carried out on site, including types of products/chemicals/materials handled. **Obtain a flow schematic if possible.**	Landfill Restoration Works
Number of employees:	
- Full-time:	N/A
- Part-time:	N/A
- Temporary/Seasonal:	N/A
Maximum no. of people on site at any time:	N/A
Typical hours of operation:	N/A
Number of shifts:	N/A
Days per week:	N/A
Weeks per year:	N/A
Scheduled plant shut-down:	N/A
Detail the main sources of energy at the site:	
Gas (Yes/No)	No
Electricity (Yes/No)	Yes
Coal (Yes/No)	No
Oil (Yes/No)	No
Other (Yes/No)	No

Site Walkover Checklist

3) SITE DESCRIPTION	
This section is intended to gather information on site setting and environmental receptors on, adjacent or close to the site.	
What is the total site area (m^2):	#N/A
What area of the site is covered by buildings (%):	#N/A
Please list all current and previous owners/occupiers if possible.	N/A
Is a site plan available? (Yes/No) If yes, please attach.	N/A
Are there any other parties on site as tenants or sub-tenants? (Yes/No) If yes, identify those parties.	N/A
Describe surrounding land use (residential, industrial, rural, etc.) and identify neighbouring facilities and types of industry.	
North:	Road
South:	Vegetation
East:	Village house
West:	Vegetation
Describe the topography of the area (flat terrain, rolling hills, mountains, by a large body of water, vegetation, etc.).	Flat terrain
State the size and location of the nearest residential communities.	Village house to the east
Are there any sensitive habitats nearby, such as nature reserves, parks, wetlands, or sites of special scientific interest?	No

Site Walkover Checklist

4) QUESTIONNAIRE WITH EXISTING/ PREVIOUS SITE OWNER OR OCCUPIER		
	Yes/No	**Notes**
1. What are the main activities/operations at the above address?	Yes	Landfill Restoration Works (Leachate Treatment Plant outside Application Site)
2. How long have you been occupying the site?	Yes	Landfill restoration works completed in 1999.
3. Were you the first occupant on site? (If yes, what was the usage of the site prior to occupancy.)	Yes	-
4. Prior to your occupancy, who occupied the site?	No	-
5. What were the main activities/operations during their occupancy?	Yes	It was an active landfill prior to landfill restoration works.
6. Have there been any major changes in operations carried out at the site in the last 10 years?	No	-
7. Have any polluting activities been carried out in the vicinity of the site in the past?	No	-
8. To the best of your knowledge, has the site ever been used as a petrol filling station/car service garage?	No	-
9. Are there any boreholes/wells or natural springs either on the site or in the surrounding area?	No	-
10. Do you have any registered hazardous installations as defined under relevant ordinances? (If yes, please provide details.)	No	-
11. Are any chemicals used in your daily operations? (If yes, please provide details.)	No	-
- Where do you store these chemicals?	No	-
12. Material inventory lists, including quantities and locations available? (If yes, how often are these inventories updated?)	No	-
13. Has the facility produced a separate hazardous substance inventory?	No	-
14. Have there ever been any incidents or accidents (e.g. spills, fires, injuries, etc.) involving any of these materials? (If yes, please provide details.)	No	-
15. How are materials received (e.g. rail, truck, etc.) and stored on site (e.g. drums, tanks, carboys, bays, silos, cisterns, vaults and cylinders)?	No	-

Site Walkover Checklist

4) QUESTIONNAIRE WITH EXISTING/ PREVIOUS SITE OWNER OR OCCUPIER (CONTINUED)		
	Yes/No	**Notes**
16. Do you have any underground storage tanks? (If yes, please provide details.)	No	-
- How many underground storage tanks do you have on site?	-	-
- What are the tanks constructed of?	-	-
- What are the contents of these tanks?	-	-
- Are the pipelines above or below ground?	-	-
- If the pipelines are below ground, has any leak and integrity testing been performed?	-	-
- Have there been any spills associated with these tanks?	-	-
17. Are there any disused underground storage tanks?	No	-
18. Do you have regular check for any spillage and monitoring of chemicals handled? (If yes, please provide details.)	No	-
19. How are the wastes disposed of?	No	-
20. Have you ever received any notices of violation of environmental regulations or received public complains? (If yes, please provide details.)	No	-
21. Have any spills occurred on site? (If yes, please provide details)	No	-
- When did the spill occur?	-	-
- What were the substances spilled?	-	-
- What was the quantity of material spilled?	-	-
- Did you notify the relevant departments of the spill?	-	-
- What were the actions taken to clean up the spill?	-	-
- What were the areas affected?	-	-
22. Do you have any records of major renovation of your site or re-arrangement of underground utilities, pipe work/underground tanks? (If yes, please provide details.)	No	-
23. Have disused underground tanks been removed or otherwise secured (e.g. concrete, sand, etc.)?	No	-
24. Are there any known contaminations on site? (If yes, please provide details.)	No	-
25. Has the site ever been remediated? (If yes, please provide details.)	No	-

Site Walkover Checklist

5) SITE SURVEY INFORMATION	
1. Date of Survey:	10-Sep-24

6) OBSERVATIONS		
	Yes/No	**Notes**
1. Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?	N/A	No chemical storage areas observed during site appraisal
2. What are the conditions of the bund walls and floors?	N/A	-
3. Are any surface water drains located near to drum storage and unloading areas?	N/A	-
4. Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	N/A	-
5. Is there a storage site for the wastes?	No	-
6. Is there an on-site landfill?	No	-
7. Were any stressed vegetation noted on site during the site reconnaissance? (If yes, please indicate location and approximate size.)	No	-
8. Were any stained surfaces noted on-site during the site reconnaissance? (If yes, please provide details.)	No	-
9. Are there any potential off-site sources of contamination?	No	-
10. Does the site have any equipment which might contain polychlorinated biphenyls (PCBs)?	No	-
11. Are there any sumps, effluent pits, interceptors or lagoons on site?	No	-
12. Any noticeable odours during site walkover?	No	-
13. Are any of the following chemicals used on site: fuels, lubricating oils, hydraulic fluids, cleaning solvents, used chemical solutions, acids, anti-corrosive paints, thinners, coal, ash, oily tanks and bilge sludge, metal wastes, wood preservatives, and polyurethane foam?	No	-

Appendix 7.3

Correspondence with EPD

From:	YH LEUNG/EPD
To:	Toby Lung
Cc:	Alan WL YU/EPD; Iris YW CHEUNG/EPD; Lee, Simon K S; Chan, Eric L K; Hui, Terry T L; Lawrence Tam
Subject:	Re: Proposed Development of the Public Riding School at The Restored Landfill Site (TKOL II/III) in Tseung Kwan O - Revised Draft Preliminary Environmental Review Report (Rev. 2)
Date:	Wednesday, January 7, 2026 12:27:07 PM
Attachments:	image006.png image007.png Chemical Waste Producer Registration_TKO-I (2019).pdf Chemical Waste Producer Registration_TKO-II&III (2019).pdf

Dear Toby,

Please be advised that there is no spillage incident related to land contamination according to records available from our side. Please find the attached Chemical Waste Producer Registrations of TKOL-I, II&III for your information. The information should be restricted for the purpose of submission of PER report and should not be disclosed to other parties without prior approval by EPD. Thank you.
[See attachment "Chemical Waste Producer Registration_TKO-I (2019).pdf"]
[See attachment "Chemical Waste Producer Registration_TKO-II&III (2019).pdf"]

Best Regards,

Leo LEUNG
E(RL)22
EPD
Tel: 2872 1763

From: Toby Lung <toby.lung@arup.com>
Sent: Monday, January 5, 2026 12:16 PM
To: Iris YW CHEUNG/EPD <irischeung@epd.gov.hk>
Cc: Alan WL YU/EPD <alanyu@epd.gov.hk>; YH LEUNG/EPD <yhleung@epd.gov.hk>; 'Lee, Simon K S' <simon.ks.lee@hkjc.org.hk>; 'Chan, Eric L K' <eric.lk.chan@hkjc.org.hk>; Hui, Terry T L <terry.tl.hui@hkjc.org.hk>; Lawrence Tam <Lawrence.Tam@arup.com>
Subject: FW: Proposed Development of the Public Riding School at The Restored Landfill Site (TKOL II/III) in Tseung Kwan O - Revised Draft Preliminary Environmental Review Report (Rev. 2)

Dear Iris,

Could you please kindly share with us the Chemical Waste Producer Record (i.e. Name in the register, period of validity and nature of business, if any).

In addition, is there any incident record? If yes, what is the type of incident and its indicative location?

Feel free to call me you have any questions. Many thanks!

Best Regards,

Toby Lung
Senior Consultant | Environmental Consulting

Arup
Level 5, Festival Walk, 80 Tat Chee Avenue
Kowloon Tong, Kowloon, Hong Kong
d +852 3447 6161 f +852 2268 3380
t +852 2528 3031
arup.com

From: YH LEUNG/EPD <yhleung@epd.gov.hk>
Sent: Monday, January 5, 2026 10:59 AM
To: Chan, Eric L K <eric.lk.chan@hkjc.org.hk>; Toby Lung <toby.lung@arup.com>
Cc: Alan WL YU/EPD <alanyu@epd.gov.hk>; Lee, Simon K S <simon.ks.lee@hkjc.org.hk>; Hui, Terry T L <terry.tl.hui@hkjc.org.hk>
Subject: Re: Proposed Development of the Public Riding School at The Restored Landfill Site (TKOL II/III) in Tseung Kwan O - Revised Draft Preliminary Environmental Review Report (Rev. 2)

Dear Eric and Toby,

We have the following information which may be considered related to land contamination. Please review and liaise with Iris for extraction of information if required. Thank you.

- CWP records (permit issued and enforced by EPD local control office, chemical waste collection records were kept and available upon request)
- License for storage of diesel oils tank for 7,500 L Cat.5 D.G. (under FSD requirement, license submitted to RLG after annual renewal)
- No spillage happened on site therefore no spillage records kept.

Best Regards,

Leo LEUNG
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Appendix 8.1

Ecological Baseline Survey Data

Figure 1 Locations of the Project Site, Study Area and Recognized Sites of Conservation Importance

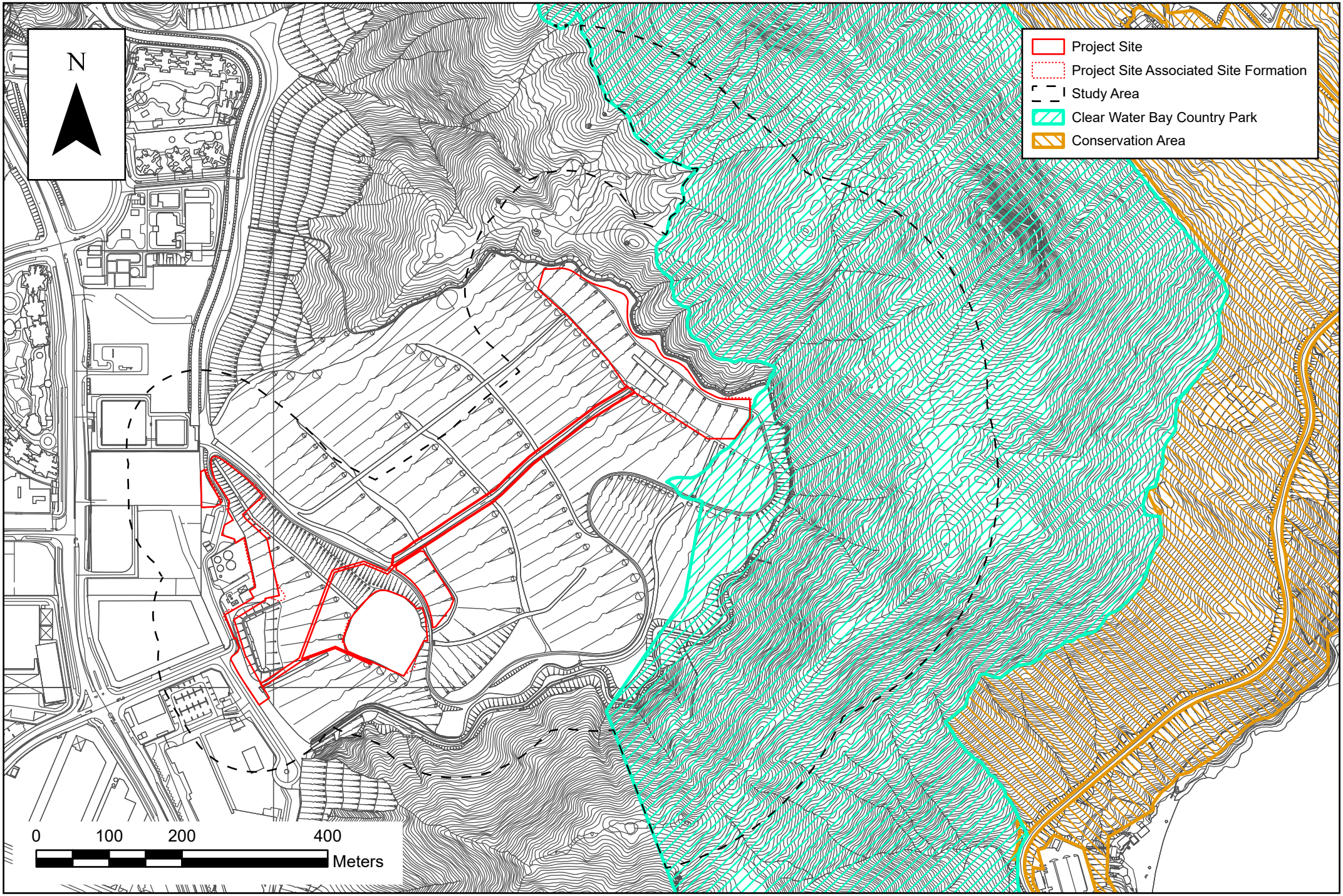

Figure 2 Locations of Survey Transects and Aquatic Sampling Points

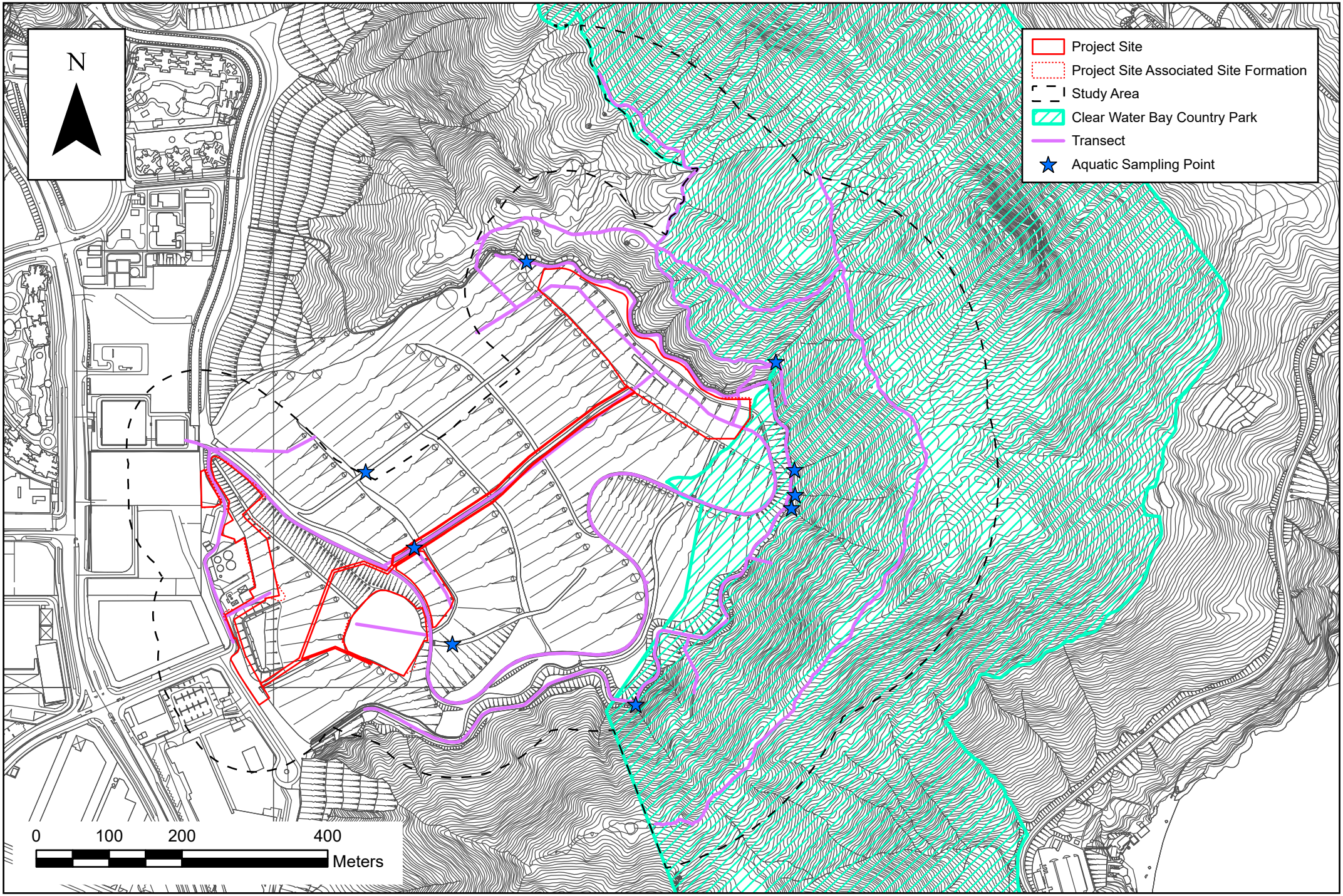

Figure 3a Habitat Map and Locations of the Recorded Species of Conservation Importance in Previous Literature

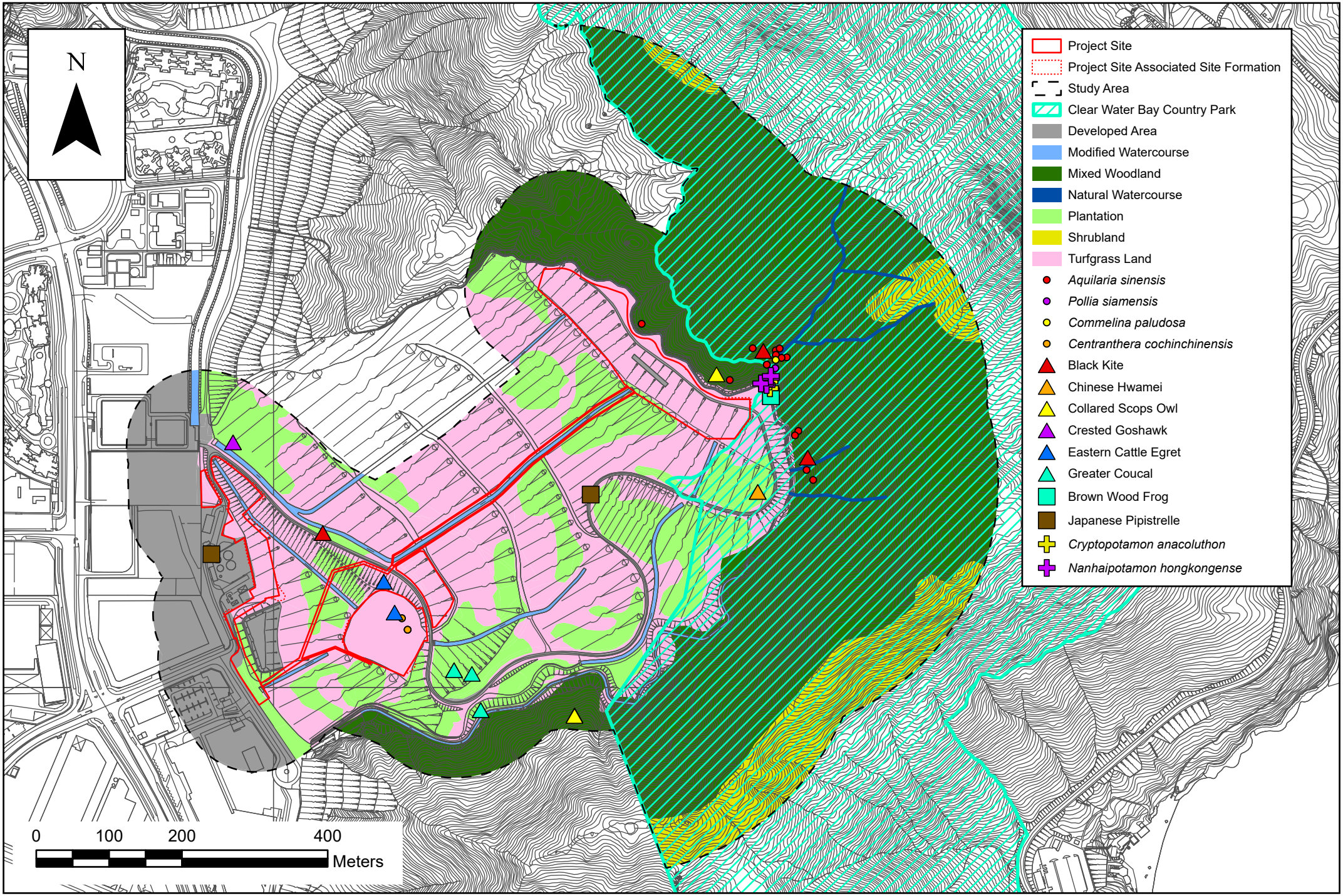

Figure 3b Habitat Map and Locations of the Recorded Species of Conservation Importance and Firefly Species inquirenda 1

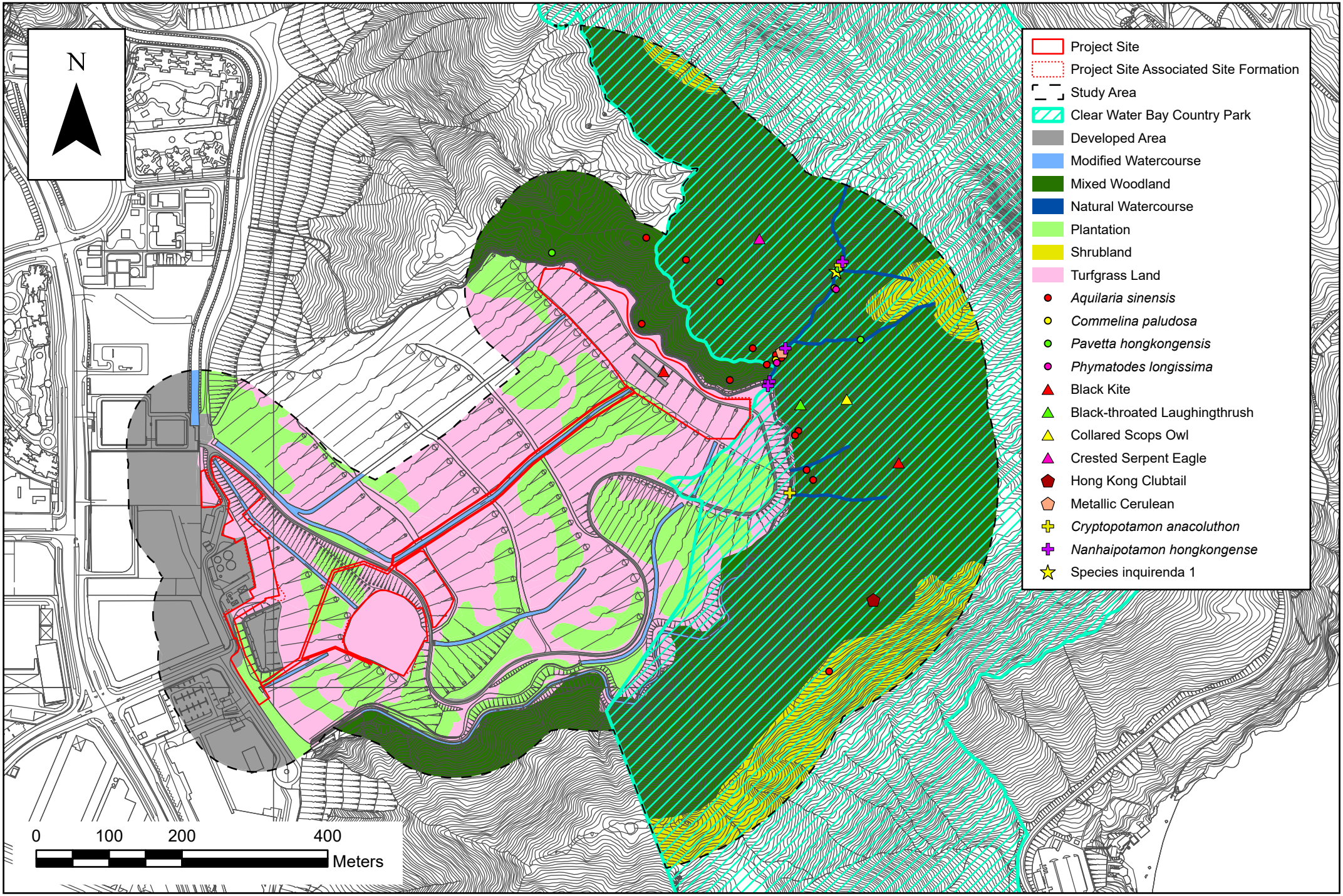

Figure 4 Photos of the Project Site and Habitats within the Study Area

Project Site	Developed Area within Project Site	Modified Watercourse within Project Site
Plantation within Project Site	Turfgrass Land within Project Site	Developed Area
Mixed Woodland	Modified Watercourse	Natural Watercourse

Plantation	Shrubland	Turfgrass Land

Figure 5 Photos of the Species of Conservation Importance

Aquilaria sinensis	*Pavetta hongkongensis*	*Commelina paludosa*
Phymatodes longissima	Hong Kong Freshwater Crab *Nanhaipotamon hongkongense*	Stream Crab *Cryptopotamon anacoluthon*

Appendix A Flora Species Recorded Within the Study Area

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Acacia auriculiformis	Tree	Exotic	-	-						C			O		
Acacia confusa	Tree	Exotic	-	-	S		C	S		C			C		S
Acacia mangium	Tree	Exotic	-	-	S			S		O					
Acorus gramineus	Herb	Native	Very common	-							O	C			
Acronychia pedunculata	Tree	Native	Very common	-						S				S	
Adiantum capillus-veneris	Herb	Native	Common	-						S		S			
Adiantum flabellulatum	Herb	Native	Very common	-						C					
Adina pilulifera	Tree	Native	Very common	-								C			
Adinandra millettii	Shrub	Native	Common	-						S					
Agave americana	Herb	Exotic	-	-					S						
Ageratum conyzoides	Herb	Exotic	Common	-	S			S	S	S					
Aglaia odorata	Shrub	Exotic	-	-					S						
Alangium chinense	Tree	Native	Common	-						S					
Albizia lebbeck	Tree	Exotic	-	-			S			O			S		
Aleurites moluccana	Tree	Exotic	-	-						S					
Alocasia macrorrhizos	Herb	Native	Very common	-			S			S		S	S		
Alternanthera sessilis	Herb	Native	Common	-											S
Alysicarpus vaginalis	Herb	Native	Very common	-				S							O
Alyxia sinensis	Climber	Native	Common	-										S	
Amaranthus viridis	Herb	Native	Very common	-	S			O							S
Ampelopsis heterophylla var. kulingensis	Climber	Native	Common	-						S				S	
Antidesma ghaesembilla	Tree	Native	Common	-						S					
Aporusa dioica	Tree	Native	Very common	-			O			C			S		

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Aquilaria sinensis	**Tree**	**Native**	**Common**	**Cap. 586 Rare and Precious Plants of Hong Kong (Near threatened in China) China Plant Red Data Book (Vulnerable) Illustrations of Rare & endangered plant in Guangdong Province Wild plant under State protection (category II) Threatened Species List of China's Higher Plants (Vulnerable, endemic species) IUCN Red List (Vulnerable) CITES Appendix II**						**S**				**S**	
Araucaria heterophylla	Tree	Exotic	-	IUCN Red List (Vulnerable)						S					
Archidendron clypearia	Tree	Native	Common	-						S					
Archidendron lucidum	Tree	Native	Common	-						O					
Archontophoenix alexandrae	Tree	Exotic	-	-					S						
Ardisia lindleyana	Shrub	Native	Common	-						C					
Ardisia quinquegona	Shrub	Native	Very common	-						S					
Arundinella setosa	Herb	Native	Very common	-				S						S	S
Aster baccharoides	Herb	Native	Very common	-									S		
Asystasia micrantha	Herb	Exotic	-	-					C						
Baeckea frutescens	Tree	Native	Very common	-				S						S	S
Bambusa. sp.	Herb	-	-	-			O		S	S		S	S		
Bauhinia championii	Climber	Native	Common	-						S			S		
Bauhinia purpurea	Tree	Exotic	-	-					S						
Bauhinia variegata	Tree	Exotic	-	-					S						
Begonia cucullata var. *hookeri*	Herb	Exotic	-	-					S						

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Bidens alba	Herb	Exotic	Very common	-	C	S	C	O	C		O		C		C
Bischofia javanica	Tree	Native	Common	-						S					
Blechnum orientale	Herb	Native	Very common	-						C		O			
Boehmeria nivea	Shrub	Exotic	Restricted	-	S			O							S
Boehmeria nivea var. *tenacissima*	Shrub	Native	-	-						S					
Bombax ceiba	Tree	Exotic	-	-					S						
Bothriochloa bladhii	Herb	Native	Very common	-											O
Bougainvillea spectabilis	Climber	Exotic	-	-					S						
Breynia fruticosa	Shrub	Native	Very common	-						S					
Bridelia tomentosa	Shrub	Native	Very common	-						S					
Brucea javanica	Shrub	Native	Common	-						S					
Caesalpinia crista	Climber	Native	Very common	-						S					
Calliandra haematocephala	Shrub	Exotic	-	-	O				S						
Callicarpa kochiana	Shrub	Native	Common	-						S					
Canarium pimela	Tree	Exotic	Rare	-					S						
Carica papaya	Tree	Exotic	-	-					S						
Caryota mitis	Tree	Exotic	-	-					S						
Cassia fistula	Tree	Exotic	-	-					S						
Cassytha filiformis	Climber	Native	Very common	-						S			S		
Castanopsis fissa	Tree	Native	Common	-						O					
Casuarina equisetifolia	Tree	Exotic	Rare	-			S			S			O		
Cayratia corniculata	Climber	Native	Very common	-					S						
Celosia argentea	Herb	Native	Very common	-											S
Celtis sinensis	Tree	Native	Common	-			O	S		S			S		S
Cerbera manghas	Tree	Native	Common	-						S					

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Chloris barbata	Herb	Native	Very common	-				S							S
Chloris virgata	Herb	Native	-	-	S				S						
Choerospondias axillaris	Tree	Native	Common	-						S					
Cinnamomum camphora	Tree	Native	Common	-						O					
Cinnamomum parthenoxylon	Tree	Native	Common	-						S					
Citrus maxima	Tree	Exotic	-	-						S					
Clausena lansium	Tree	Exotic	-	-						S					
Cleistocalyx nervosum	Tree	Native	Common	-						S		O			
Clerodendrum fortunatum	Shrub	Native	Common	-						S					
Clerodendrum japonicum	Shrub	Exotic	-	-						S					
Coccinia grandis	Climber	Native	Very rare	-					S						
Cocculus orbiculatus	Climber	Native	Common	-						S					
Colocasia esculenta	Herb	Exotic	-	-							S				
Commelina paludosa	**Herb**	**Native**	**Rare**	**-**								**S**			
Conyza canadensis	Herb	Exotic	Very common	-					S						S
Crateva trifoliata	Tree	Exotic	Rare	-					S						
Crateva unilocularis	Tree	Exotic	-	-					S						
Cratoxylum cochinchinense	Tree	Native	Very common	-						S					
Cyclosorus parasiticus	Herb	Native	Very common	-						C					
Cynodon dactylon	Herb	Native	Very common	-	S			S							S
Cyperus compressus	Herb	Native	Very common	-											S
Cyperus difformis	Herb	Native	Very common	-		S									S
Cyperus distans	Herb	Native	Common	-											S
Cyperus rotundus	Herb	Native	Very common	-				O							S
Cyrtococcum patens	Herb	Native	Very common	-						S					S
Dactyloctenium aegyptium	Herb	Native	Common	-					S						

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Daemonorops jenkinsiana	Climber	Native	Very common	-						S					
Dalbergia benthamii	Climber	Native	Common	Cap. 586 CITES Appendix II				S		O					
Daphniphyllum calycinum	Tree	Native	Common	-						S					
Daphniphyllum pentandrum	Tree	Native	Common	-						S					
Desmodium heterocarpon	Shrub	Native	Very common	-				S							S
Desmodium tortuosum	Herb	Exotic	Common	-	S			O							S
Desmodium triflorum	Herb	Native	Very common	-				S							S
Desmos chinensis	Shrub	Native	Common	-						S					
Dianella ensifolia	Herb	Native	Very common	-										S	
Dicranopteris pedata	Herb	Native	Very common	-	S			O		S				C	S
Digitaria sanguinalis	Herb	Native	Very common	-				S	O						
Dimocarpus longan	Tree	Exotic	Restricted	China Plant Red Data Book (Vulnerable) Wild plant under State protection (category II) Threatened Species List of China's Higher Plants (Vulnerable)						O					
Dioscorea benthamii	Climber	Native	Common	-						S					
Dioscorea bulbifera	Climber	Native	Common	-						O					
Diospyros morrisiana	Tree	Native	Very common	-						S					
Diplospora dubia	Tree	Native	Common	-						S					
Dracaena fragrans	Shrub	Exotic	-	-									S		
Duhaldea cappa	Herb	Native	Common	-										S	
Duranta erecta	Climber	Exotic	-	-					S	S					
Dypsis lutescens	Shrub	Exotic	-	-					S						
Elaeocarpus chinensis	Tree	Native	Common	-						S					
Elaeocarpus sylvestris	Tree	Native	Very common	-						S					
Elephantopus scaber	Herb	Native	Common	-				S							S
Elephantopus tomentosus	Herb	Native	Common	-						S					

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Eleusine indica	Herb	Native	Very common	-	S			O	O						S
Embelia laeta	Climber	Native	Very common	-						S					
Embelia ribes	Climber	Native	Common	-						S					
Emilia sonchifolia	Herb	Native	Very common	-						S					
Epipremnum aureum	Climber	Exotic	-	-						S					
Eragrostis tenella	Herb	Native	Very common	-	S			C	S						S
Eucalyptus camaldulensis	Tree	Exotic	-	-						C			C		
Eucalyptus citriodora	Tree	Exotic	-	-						C			C		
Eucalyptus exserta	Tree	Exotic	-	-						C			O		
Eucalyptus robusta	Tree	Exotic	-	-						C			O		
Eucalyptus tereticornis	Tree	Exotic	-	-						C			O		
Eucalyptus urophylla	Tree	Exotic	-	-						C			C		
Euphorbia hirta	Herb	Exotic	Very common	-	S				O						
Ficus elastica	Tree	Exotic	-	-					S						
Ficus fistulosa	Tree	Native	Common	-								S			
Ficus hirta	Shrub	Native	Common	-						O					
Ficus hispida	Shrub	Native	Very common	-				S		O		S			S
Ficus microcarpa	Tree	Native	Common	-	S		S		O	S			C		
Ficus variegata var. *chlorocarpa*	Tree	Native	Common	-						S					
Ficus variolosa	Tree	Native	Very common	-						S					
Ficus virens var. *sublanceolata*	Tree	Native	Common	-					S	S					
Fimbristylis dichotoma	Herb	Native	Very common	-				S							S
Floscopa scandens	Herb	Native	Common	-							S				
Gahnia tristis	Herb	Native	Very common	-											S
Garcinia oblongifolia	Tree	Native	Very common	-						S					
Gardenia jasminoides	Shrub	Native	Common	-						S					

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Glochidion lanceolarium	Tree	Native	Common	-						S					
Glochidion wrightii	Shrub	Native	Very common	-						S					
Glochidion zeylanicum	Shrub	Native	Common	-						S		O			
Gnetum luofuense	Climber	Native	Very common	-						S		S			
Hedyotis acutangula	Herb	Native	Very common	-						S					
Hedyotis corymbosa	Herb	Native	Very common	-					O						
Hedyotis hedyotidea	Shrub	Native	Very common	-						O					
Helicteres angustifolia	Shrub	Native	Very common	-				S						S	S
Heterosmilax japonica	Climber	Native	Common	-						O					
Hibiscus rosa-sinensis	Shrub	Exotic	-	-					S						
Ilex asprella	Shrub	Native	Very common	-						O					
Ilex pubescens	Shrub	Native	Very common	-						S					
Imperata cylindrica	Herb	Native	Very common	-				S							C
Ipomoea batatas	Herb	Exotic	-	-					S						O
Ipomoea cairica	Climber	Exotic	Very common	-	O			S	S	S					S
Ipomoea triloba	Herb	Native	-	-					S						S
Ischaemum aristatum var. *glaucum*	Herb	Native	Common	-				O							S
Ischaemum barbatum	Herb	Native	Very common	-				S							C
Itea chinensis	Shrub	Native	Very common	-						S					
Ixora chinensis	Shrub	Native	Restricted	-					S						
Juniperus chinensis	Tree	Exotic	-	-					S						
Kyllinga polyphylla	Herb	Exotic	Common	-	S			S	S						
Lagerstroemia speciosa	Tree	Exotic	-	Cap.96					S						
Lantana camara	Shrub	Exotic	Very common	-	S	O	C	S		S	S				S
Lepidosperma chinense	Herb	Native	Very common	-											S
Leucaena leucocephala	Tree	Exotic	Common	-	C		C	O	C	S			C	S	O
Ligustrum sinense	Tree	Native	Common	-						S			S		
Lindernia crustacea	Herb	Native	Restricted	-											S
Lindsaea ensifolia	Herb	Native	Very common	-						O					

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Liquidambar formosana	Tree	Native	Common	-						S					
Liriope spicata	Herb	Native	Very common	-						C	C				
Litsea cubeba	Shrub	Native	Common	-			S			S					
Litsea glutinosa	Tree	Native	Very common	-						S					
Litsea monopetala	Tree	Native	Restricted	-						S					
Litsea rotundifolia var. *oblongifolia*	Shrub	Native	Very common	-						O					
Livistona chinensis	Tree	Exotic	-	-					S						
Lophatherum gracile	Herb	Native	Very common	-						S					
Lophostemon confertus	Tree	Exotic	-	-					S	C					
Lygodium japonicum	Herb	Native	Very common	-						O		S			
Lygodium scandens	Herb	Native	Common	-								S			S
Macaranga tanarius var. *tomentosa*	Tree	Native	Common	-			S		O				C		
Machilus chekiangensis	Tree	Native	Very common	-						C			S		
Maesa perlarius	Shrub	Native	Common	-						C					
Mallotus apelta	Shrub	Native	Common	-						O					
Mallotus paniculatus	Tree	Native	Very common	-	S		O	S		C		S	O	O	S
Mangifera indica	Tree	Exotic	-	-					S						
Melastoma dodecandrum	Shrub	Native	Common	-						S				S	
Melastoma malabathricum	Shrub	Native	Common	-						S		S			
Melastoma sanguineum	Shrub	Native	Common	-										S	
Melia azedarach	Tree	Exotic	Common	-						S					
Melinis repens	Herb	Exotic	Very common	-											O
Melodinus suaveolens	Climber	Native	Common	-						S					
Michelia x alba	Tree	Exotic	-	Cap.96					S						
Microcos nervosa	Shrub	Native	Common	-			O			S			S		
Microstegium ciliatum	Herb	Native	Very common	-		O				O	C	O			O
Mikania micrantha	Herb	Exotic	Very common	-	O	O		O		S					O
Millettia dielsiana	Climber	Native	Very common	-						C		O			
Millettia speciosa	Climber	Native	Common	-										S	S

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Mimosa pudica	Herb	Exotic	Very common	-				O							S
Miscanthus floridulus	Herb	Native	Common	-						S					
Miscanthus sinensis	Herb	Native	Very common	-						S					
Morinda parvifolia	Climber	Native	Very common	-									S		
Morus alba	Tree	Native	Common	-						S					
Murraya paniculata	Tree	Exotic	-	-					S				S		
Musa x paradisiaca	Herb	Exotic	-	-					S						
Mussaenda erosa	Climber	Native	Common	-						S			S		
Mussaenda pubescens	Climber	Native	Very common	-				S		C					
Nephrolepis auriculata	Herb	Native	Common	-						S		S			
Neyraudia reynaudiana	Herb	Native	Very common	-									S		
Osmunda vachellii	Herb	Native	Common	-						S		C			
Osterium citriodorum	Herb	Native	Common	-						S					
Oxalis corniculata	Herb	Native	Very common	-									S		
Paederia scandens	Climber	Native	Very common	-	S	S			O				O		
Pandanus tectorius	Shrub	Native	Very common	-						S					
Panicum maximum	Herb	Exotic	Common	-	O		O	O					C		C
Panicum repens	Herb	Native	Very common	-				S							S
Parthenocissus dalzielii	Climber	Exotic	-	-					S						
Paspalum conjugatum	Herb	Native	Common	-		S		S							C
Paspalum distichum	Herb	Native	Common	-				S	S						S
Paspalum urvillei	Herb	Exotic	Common	-											O
Passiflora foetida	Climber	Exotic	Very common	-					S						
Pavetta hongkongensis	**Tree**	**Native**	**Common**	**Cap.96**						**S**		**S**			
Pennisetum alopecuroides	Herb	Native	Common	-				O							
Pennisetum polystachion	Herb	Exotic	Very common	-				O			S		S		O
Persicaria barbata	Herb	Native	Common	-							S				
Persicaria chinensis	Herb	Native	Common	-						S					
Phoenix loureiroi	Tree	Native	Common	-					S					O	

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Photinia serratifolia	Tree	Exotic	-	-				O							S
Phyllanthus cochinchinensis	Shrub	Native	Very common	-						S					
Phyllanthus emblica	Tree	Native	Very common	-						S			S		
Phyllanthus urinaria	Herb	Native	Common	-							S				S
Phymatodes longissima	**Herb**	**Native**	**Rare**	**-**								**S**			
Pinus elliottii	Tree	Exotic	-	-						C					
Pinus massoniana	Tree	Native	Common	-						C					
Piper kadsura	Climber	-	-	-						C					
Plumeria rubra	Tree	Exotic	-	-					S						
Pogonatherum crinitum	Herb	Native	Common	-								C			
Polyspora axillaris	Shrub	Native	Very common	-						S					
Pothos chinensis	Herb	Native	Very common	-						S		O			
Psychotria asiatica	Tree	Native	Very common	-						C		S			
Psychotria serpens	Climber	Native	Very common	-						C					
Pteris ensiformis	Herb	Native	Common	-						S					
Pteris semipinnata	Herb	Native	Very common	-						C					
Pteris vittata	Herb	Native	Very common	-						S					
Pueraria lobata var. *montana*	Climber	Native	Common	-			O			S			S		O
Pueraria lobata var. *thomsonii*	Climber	Exotic	-	-								S			S
Pueraria phaseoloides	Climber	Native	Very common	-					S				S		S
Reevesia thyrsoidea	Tree	Native	Common	-						S					
Rhaphiolepis indica	Shrub	Native	Very common	-						S				S	
Rhapis excelsa	Shrub	Native	Common	-					S	S					
Rhodomyrtus tomentosa	Shrub	Native	Very common	-						S				C	
Rhus chinensis	Tree	Native	Common	-						S					
Rhus hypoleuca	Shrub	Native	Common	-			S						S		
Rhus succedanea	Shrub	Native	Common	-	S			S		S					S
Rhynchospora rubra	Herb	Native	Very common	-				O							S
Rourea microphylla	Climber	Native	Common	-						S				S	

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Rubus reflexus	Climber	Native	Very common	-						O					
Sansevieria trifasciata	Herb	Exotic	-	-					S						
Sapium discolor	Tree	Native	Very common	-						S	S				
Sapium sebiferum	Tree	Native	Common	-	S			S		S				S	
Sarcandra glabra	Shrub	Native	Very common	-						C					
Sarcosperma laurinum	Tree	Native	Very common	-						S		S			
Schefflera arboricola	Climber	Exotic	-	-					S				S		
Schefflera heptaphylla	Tree	Native	Very common	-			S			C			S		
Schima superba	Tree	Native	Common	-						S					
Scleria ciliaris	Herb	Native	Very common	-						C	S				O
Scleria levis	Herb	Native	Common	-				S							
Scleria terrestris	Herb	Native	Common	-						S					
Scoparia dulcis	Herb	Exotic	Common	-					S						
Senna alata	Shrub	Exotic	-	-				O							S
Sesbania cannabina	Herb	Exotic	Common	-				S							
Sida rhombifolia	Shrub	Native	Common	-				S							
Smilax china	Climber	Native	Very common	-						C					
Smilax glabra	Climber	Native	Very common	-										S	
Solanum torvum	Shrub	Exotic	Common	-					S						
Solena amplexicaulis	Climber	Native	Very common	-						S					
Spermacoce stricta	Herb	Native	Restricted	-					S						
Sporobolus fertilis	Herb	Native	Very common	-				O	O						
Stachytarpheta jamaicensis	Shrub	Exotic	Common	-					S						
Sterculia lanceolata	Tree	Native	Very common	-			S			C			S		
Strophanthus divaricatus	Climber	Native	Common	-										S	
Syzygium hancei	Tree	Native	Common	-						S			S		
Syzygium jambos	Tree	Exotic	Common	-			S			S			S		
Syzygium levinei	Tree	Native	Common	-						S					
Tadehagi triquetrum	Shrub	Native	Very common	-				O						S	

Scientific name	Growth form	Origin	Rarity in Hong Kong [1]	Protection/Conservation status [2 3 4 5 6 7 8 9 10]	Relative Abundance										
					Project Site				Study Area outside the Project Site						
					DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Terminalia catappa	Tree	Exotic	Very rare	-					S						
Tetracera asiatica	Climber	Native	Very common	-						S				S	
Tetradium glabrifolium	Tree	Native	Common	-						O					
Tradescantia spathacea	Herb	Exotic	-	-					S						
Trema tomentosa	Shrub	Native	Common	-			S			S			S		
Tridax procumbens	Herb	Exotic	Very common	-					O						
Uraria crinita	Shrub	Native	Common	-										S	
Uvaria macrophylla	Climber	Native	Common	-						S				S	
Vernicia montana	Tree	Exotic	-	-						C					
Vernonia cinerea	Herb	Native	Very common	-									O		
Viburnum odoratissimum	Shrub	Native	Very common	-						O		S			
Wedelia chinensis	Herb	Native	Common	-										S	
Wedelia trilobata	Herb	Exotic	Common	-	O		C	C	C				C		C
Wikstroemia indica	Shrub	Native	Common	-						S					
Youngia japonica	Herb	Native	Very common	-				S	S						S
Zanthoxylum avicennae	Tree	Native	Common	-						O			S		
Zanthoxylum nitidum	Climber	Native	Very common	-						S					

Notes:

1. Corlett *et al*. (2000). Hong Kong vascular plants: distribution and status.
2. International Union of Conservation for Nature (2024). The IUCN Red List of Threatened Species. Version 2024-1
3. Convention on International Trade in Endangered Species (CITES) of Wild Flora and Fauna (2020). Appendices I, II and III.
4. Qin *et al*. (2017). Threatened Species List of China's Higher Plants.
5. Fu & Chin (1992). China Plant Red Data Book – Rare and Endangered Plants.
6. Wu *et al*. (1988). Illustration of Rare & endangered plant in Guangdong Province.
7. Hu *et al*. (2003). Rare and Precious Plants of Hong Kong.
8. Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance.
9. State Forestry Administration & Ministry of Agriculture (1999). List of Wild Plants under State Protection (Part 1).
10. Cap. 96 Forests and Countryside Ordinance.

- **Species in bold are considered of conservation importance. Only the protection and/or conservation status of species fulfilling the criteria of being considered of conservation importance according to Note 3 of Annex 16 of EIAO-TM will be supplemented.**

Abbreviations:

- Habitats: DA = Developed Area; MW = Mixed Woodland; MWAT = Modified Watercourse; NWAT = Natural Watercourse; PL = Plantation; SH = Shrubland; TL = Turfgrass Land
- Relative Abundance: C = Common; O = Occasional; S = Sparse

Appendix B Bird Species Recorded within the Study Area

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1]	Conservation status [1,2,3,4,5]	Abundance in each Habitat within the Project Site				Abundance in each Habitat within the Study area outside the Project Site						
				DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Crested Serpent Eagle	***Spilornis cheela***	**Common resident. Widely distributed in shrublands on hillsides throughout Hong Kong.**	**CITES: Appendix II; List of Wild Animals under State Priority Conservation: Class II; Fellowes *et al.* (2002): (LC); Cap. 586**						**2**					
Black Kite	***Milvus migrans***	**Common resident and winter visitor. Widely distributed in Hong Kong.**	**CITES: Appendix II; List of Wild Animals under State Priority Conservation: Class II; Fellowes *et al.* (2002): (RC); Cap. 586**				**2**		**3**					
Spotted Dove	*Spilopelia chinensis*	Abundant resident. Widely distributed in Hong Kong.	-					2	2					
Collared Scops Owl	***Otus lettia***	**Common resident. Widely distributed in shrubland throughout Hong Kong.**	**CITES: Appendix II; List of Wild Animals under State Priority Conservation: Class II; Cap. 586**						**2**					
House Swift	*Apus nipalensis*	Abundant spring migrant and common resident. Widely distributed in Hong Kong.	-						10					
Long-tailed Shrike	*Lanius schach*	Common resident. Widely distributed in open areas throughout Hong Kong.	-				1							1
Hair-crested Drongo	*Dicrurus hottentottus*	Common migrant and winter visitor, and locally common resident. Widely distributed in wooded area throughout Hong Kong.	-						1					
Red-billed Blue Magpie	*Urocissa erythroryncha*	Common resident. Widely distributed in woodland edges throught Hong Kong	-			1			2					

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1]	Conservation status [1,2,3,4,5]	Abundance in each Habitat within the Project Site				Abundance in each Habitat within the Study area outside the Project Site						
				DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Large-billed Crow	*Corvus macrorhynchos*	Common resident. Widely distributed in Hong Kong	-				3		5					
Cinereous Tit	*Parus cinereus*	Common resident. Widely distributed in Hong Kong.	-						3					
Red-whiskered Bulbul	*Pycnonotus jocosus*	Abundant resident. Widely distributed in Hong Kong.	-	2		5	6	8	10			3	4	
Chinese Bulbul	*Pycnonotus sinensis*	Abundant resident. Widely distributed in Hong Kong.	-				2					2		4
Barn Swallow	*Hirundo rustica*	Abundant passage migrant and summer visitor. Widely distributed in Hong Kong.	-	4										
Yellow-bellied Prinia	*Prinia flaviventris*	Common resident. Widely distributed in Hong Kong.	-				1						2	1
Common Tailorbird	*Orthotomus sutorius*	Common resident. Widely distributed in Hong Kong.	-						2			3		
Black-throated Laughingthrush	***Garrulax chinensis***	**Common resident. Widely distributed in woodland and shrubland throughout Hong Kong.**	**List of Wild Animals under State Priority Conservation: Class II**						**3**					
Swinhoe's White-eye	*Zosterops simplex*	Abundant resident. Widely distributed in Hong Kong.	-						5					
Crested Myna	*Acridotheres cristatellus*	Abundant resident. Widely distributed in Hong Kong.	-	5			3	23				5		4
Black-collared Starling	*Gracupica nigricollis*	Common resident. Widely distributed in Hong Kong.	-									4		
Oriental Magpie-Robin	*Copsychus saularis*	Abundant resident. Widely distributed in Hong Kong.	-									1		
Eurasian Tree Sparrow	*Passer montanus*	Abundant resident. Widely distributed in Hong Kong.	-	6				26						
Richard's Pipit	*Anthus richardi*	Common passage migrant, winter visitor and locally common	-				3							3

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1]	Conservation status [1,2,3,4,5]	Abundance in each Habitat within the Project Site				Abundance in each Habitat within the Study area outside the Project Site						
				DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
		resident. Widely distributed in Hong Kong.												

Notes:

1. Agriculture, Fisheries and Conservation Department (2024). Species Database of the Hong Kong Biodiversity Information Hub.
2. Convention on International Trade in Endangered Species (CITES) of Wild Flora and Fauna (2020). Appendices I, II and III.
3. Fellowes *et al*. (2002). Wild animals to watch: Terrestrial and freshwater fauna of conservation concern in Hong Kong.
   - For conservation status listed by Fellowes *et al*. (2002), letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence
4. National Forestry and Grassland Administration and the Ministry of Agricultural and Rural Affairs (2023). List of Wild Animals under State Priority Conservation.
5. Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586)

- **Species in bold are considered of conservation importance. Only the protection and/or conservation status of species fulfilling the criteria of being considered of conservation importance according to Note 3 of Annex 16 of EIAO-TM will be supplemented.**
- **All wild bird species are protected under Cap. 170 Wild Animals Protection Ordinance in Hong Kong.**

Abbreviations:

- Conservation Status in Fellowes *et al.* (2002): LC = Local Concern; RC = Regional Concern
- Habitats: DA = Developed Area; MW = Mixed Woodland; MWAT = Modified Watercourse; NWAT = Natural Watercourse; PL = Plantation; SH = Shrubland; TL = Turfgrass Land

Appendix C Butterfly Species Recorded within the Study Area

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1]	Conservation status [1]	Abundance in each Habitat within the Project Site				Abundance in each Habitat within the Study area outside the Project Site						
				DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Little Branded Swift	*Pelopidas agna*	Uncommon. Widely distributed throughout Hong Kong.	-				1							
Metallic Cerulean	***Jamides alecto***	**Very rare. Victoria Peak, Fung Yuen, Chuen Lung, Mui Wo**	**-**								**1**			
Dark Cerulean	*Jamides bochus*	Common. Widely distributed throughout Hong Kong.	-						1					
Pale Grass Blue	*Pseudozizeeria maha*	Very common. Widely distributed throughout Hong Kong	-				2							
Plain Tiger	*Danaus chrysippus*	Uncommon. Lung Kwu Tan, Tong Fuk, Tai Ho, Tung Chung, Pak Tam Chung	-				2							
Common Indian Crow	*Euploea core*	Common. Widely distributed throughout Hong Kong	-				3							
Blue-spotted Crow	*Euploea midamus*	Very common. Widely distributed throughout Hong Kong	-				4							4
Ceylon Blue Glassy Tiger	*Ideopsis similis*	Very common. Widely distributed throughout Hong Kong	-										3	
Glassy Tiger	*Parantica aglea*	Common. Widely distributed throughout Hong Kong	-				1							
Staff Sergeant	*Athyma selenophora*	Common. Widely distributed throughout Hong Kong	-						1					
Rustic	*Cupha erymanthis*	Very common. Widely distributed throughout Hong Kong	-										2	
Red Ring Skirt	*Hestina assimilis*	Common. Widely distributed throughout Hong Kong.	-						3					3
Great Eggfly	*Hypolimnas bolina*	Common. Widely distributed throughout Hong Kong	-				2							

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1]	Conservation status [1]	Abundance in each Habitat within the Project Site				Abundance in each Habitat within the Study area outside the Project Site						
				DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Blue Admiral	*Kaniska canace*	Common. Widely distributed throughout Hong Kong	-								1			
Common Sailer	*Neptis hylas*	Very common. Widely distributed throughout Hong Kong	-				1							
Large Faun	*Faunis eumeus*	Common. Widely distributed throughout Hong Kong.	-						2					
Angled Red Forester	*Lethe chandica*	Uncommon. New Territories.	-						1					
Common Five-ring	*Ypthima baldus*	Very common. Widely distributed throughout Hong Kong.	-						5					
Tailed Jay	*Graphium agamemnon*	Common. Widely distributed throughout Hong Kong	-						1					
Common Bluebottle	*Graphium sarpedon*	Very common. Widely distributed throughout Hong Kong	-				4							
Red Helen	*Papilio helenus*	Very common. Widely distributed throughout Hong Kong	-				1		1		1			
Great Mormon	*Papilio memnon*	Very common. Widely distributed throughout Hong Kong	-						1					
Paris Peacock	*Papilio paris*	Very common. Widely distributed throughout Hong Kong	-								1			2
Common Mormon	*Papilio polytes*	Very common. Widely distributed throughout Hong Kong	-	2			3				2			
Spangle	*Papilio protenor*	Very common. Widely distributed throughout Hong Kong	-	1		1	2		1					2
Lemon Emigrant	*Catopsilia pomona*	Common. Widely distributed throughout Hong Kong	-	2		1	5		3		4			6
Common Grass Yellow	*Eurema hecabe*	Very common. Widely distributed throughout Hong Kong	-				3	3	8		3			5
Indian Cabbage White	*Pieris canidia*	Very common. Widely distributed throughout Hong Kong	-				6							

Notes:

1. Agriculture, Fisheries and Conservation Department (2024). Species Database of the Hong Kong Biodiversity Information Hub.

- **Species in bold are considered of conservation importance. Only the protection and/or conservation status of species fulfilling the criteria of being considered of conservation importance according to Note 3 of Annex 16 of EIAO-TM will be supplemented.**

Abbreviations:

- Habitats: DA = Developed Area; MW = Mixed Woodland; MWAT = Modified Watercourse; NWAT = Natural Watercourse; PL = Plantation; SH = Shrubland; TL = Turfgrass Land

Appendix D Odonate Species Recorded within the Study Area

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1]	Conservation status [1,2,3]	Abundance in each Habitat within the Project Site				Abundance in each Habitat within the Study area outside the Project Site						
				DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Hong Kong Clubtail	***Leptogomphus hongkongensis***	**Common. Widely distributed in the woodlands adjacent to streams throughout Hong Kong.**	**Fellowes *et al*. (2002): LC; Reels (2019): Dragonfly species of conservation interest**						**1**					
Common Blue Skimmer	*Orthetrum glaucum*	Abundant. Widely distributed in streams, conduits, drainage channels, seepages and road gutters throughout Hong Kong.	-				3	2	3	5	3			3
Marsh Skimmer	*Orthetrum luzonicum*	Abundant. Widely distributed in abandoned paddies, marshy swampy and boggy locations.	-				1			2				
Common Red Skimmer	*Orthetrum pruinosum neglectum*	Abundant. Widely distributed in slow streams, ponds, rain puddles and irrigation conduits.	-				1			6	1			
Wandering Glider	*Pantala flavescens*	Abundant. Widely distributed all over Hong Kong.	-	2			6							3
Saddlebag Glider	*Tramea virginia*	Abundant. Widely distributed in trees adjacent to ponds and lakes throughout Hong Kong.	-				2							1
Indigo Dropwing	*Trithemis festiva*	Abundant. Favours sluggish sections of streams with a strong current or the small rock pools inof mountain streams. Widespread in Hong Kong.	-							4				

Notes:

1. Agriculture, Fisheries and Conservation Department (2024). Species Database of the Hong Kong Biodiversity Information Hub.

2. Fellowes *et al*. (2002). Wild animals to watch: Terrestrial and freshwater fauna of conservation concern in Hong Kong.
    - For conservation status listed by Fellowes *et al*. (2002), letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
3. Reels (2019). An annotated check list of Hong Kong dragonflies and assessment of their local conservation significance.

- **Species in bold are considered of conservation importance. Only the protection and/or conservation status of species fulfilling the criteria of being considered of conservation importance according to Note 3 of Annex 16 of EIAO-TM will be supplemented.**

Abbreviations:

- Conservation Status in Fellowes *et al.* (2002): LC = Local Concern
- Habitats: DA = Developed Area; MW = Mixed Woodland; MWAT = Modified Watercourse; NWAT = Natural Watercourse; PL = Plantation; SH = Shrubland; TL = Turfgrass Land

Appendix E Firefly Species Recorded within the Study Area

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1]	Conservation status [1]	Present/Absent in each Habitat within the Project Site				Present/Absent in each Habitat within the Study area outside the Project Site						
				DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Species inquirenda 1	-	Active in woodland margin close to wetland. Flying male display simple pulsation flash, frequency 11 Hz. According to the male genitalia morphology, there is not a genus into which it could reasonably fit at present. Distribution：Tai Po Kau, Shing Mun Reservoir, Tai Po Shan, Ng Tung Chai, Chek Kent, Ham Tin (Sai Kung), Yi Tung Shan, Tei Tong Chai, Nei Lak Shan.	Unknown						✓		✓			

Notes:

1. Yiu, V. (2024). Hong Kong Fireflies. Retrieved from: http://fireflies.hk

Abbreviations:

- Habitats: DA = Developed Area; MW = Mixed Woodland; MWAT = Modified Watercourse; NWAT = Natural Watercourse; PL = Plantation; SH = Shrubland; TL = Turfgrass Land

Appendix F Reptile Species Recorded within the Study Area

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1]	Conservation status [1]	Abundance in each Habitat within the Project Site				Abundance in each Habitat within the Study area outside the Project Site						
				DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Changeable Lizard	*Calotes versicolor*	Widely distributed throughout Hong Kong.	-				1							2
Common Wolf Snake	*Lycodon capucinus*	Widely distributed at low elevations throughout Hong Kong Island, Lantau Island and Lamma Island. Several individuals recorded in New Territories.	-							1				
Chinese Gecko	*Gekko chinensis*	Widely distributed throughout Hong Kong.	-	2					3					
Garnot's Gecko	*Hemidactylus garnotii*	Distributed in Lantau Island, Hong Kong Island and Eastern New Territories.	-						2					
Long-tailed Skink	*Eutropis longicaudata*	Widely distributed throughout Hong Kong.	-											1
Bamboo Snake	*Trimeresurus albolabris*	Very common and widespread in Hong Kong.	-					1						2

Notes:

1. Agriculture, Fisheries and Conservation Department (2024). Species Database of the Hong Kong Biodiversity Information Hub.

Abbreviations:

- Habitats: DA = Developed Area; MW = Mixed Woodland; MWAT = Modified Watercourse; NWAT = Natural Watercourse; PL = Plantation; SH = Shrubland; TL = Turfgrass Land

Appendix G Amphibian Species Recorded within the Study Area

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1]	Conservation status [1]	Abundance in each Habitat within the Project Site				Abundance in each Habitat within the Study area outside the Project Site						
				DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Asian Common Toad	*Duttaphrynus melanostictus*	Widely distributed in Hong Kong.	-	1				2	3	2	4			
Ornate Pigmy Frog	*Microhyla fissipes*	Widely distributed in Hong Kong.	-				5							8
Gunther's Frog	*Sylvirana guentheri*	Widely distributed throughout Hong Kong.	-							3	2			
Brown Tree Frog	*Polypedates megacephalus*	Widely distributed throughout Hong Kong.	-					4		5	3	2		

Notes:

1. Agriculture, Fisheries and Conservation Department (2024). Species Database of the Hong Kong Biodiversity Information Hub.

Abbreviations:

- Habitats: DA = Developed Area; MW = Mixed Woodland; MWAT = Modified Watercourse; NWAT = Natural Watercourse; PL = Plantation; SH = Shrubland; TL = Turfgrass Land

Appendix H Mammal Species Recorded within the Study Area by Direct Observation

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1]	Conservation status [1]	Abundance in each Habitat within the Project Site				Abundance in each Habitat within the Study area outside the Project Site						
				DA	MWAT	PL	TL	DA	MW	MWAT	NWAT	PL	SH	TL
Domestic Dog	*Canis lupus familiaris*	Common. Widely distributed in urban and countryside areas throughout Hong Kong.	-	4										
Eurasian Wild Pig	*Sus scrofa*	Very common. Very widely distributed in countryside areas throughout Hong Kong.	-				1							1

Notes:

1. Agriculture, Fisheries and Conservation Department (2024). Species Database of the Hong Kong Biodiversity Information Hub.

Abbreviations:

- Habitats: DA = Developed Area; MW = Mixed Woodland; MWAT = Modified Watercourse; NWAT = Natural Watercourse; PL = Plantation; SH = Shrubland; TL = Turfgrass Land

Appendix I Bat Species Recorded within the Study Area using Ultrasonic Bat Detector

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1,4]	Conservation status [1,2,3,4]	Present/Absent within the Study Area
Japanese Pipistrelle	***Pipistrellus abramus***	**Very common. Widely distributed throughout Hong Kong.**	**Cap. 170**	✓
Least Pipistrelle	***Pipistrellus tenuis***	**Uncommon. Ten-something records found in Nam Chung, Sheung Wo Hang, Lin Ma Hang, Plover Cove Country Park, Yuen Long, Shek Pik, Deep Water Bay, Ho Pui and Ho Chung.**	**Cap. 170**	✓
Lesser Yellow Bat	***Scotophilus kuhlii***	**Uncommon. Fairly widely distributed in countryside areas throughout Hong Kong.**	**Fellowes *et al*. (2002): (LC); Cap. 170**	✓
Lesser Bamboo Bat	***Tylonycteris pachypus***	**Very common. Fairly widely distributed in countryside areas throughout Hong Kong.**	**Fellowes *et al*. (2002): (LC); Cap. 170**	✓

Notes:

1. Agriculture, Fisheries and Conservation Department (2024). Species Database of the Hong Kong Biodiversity Information Hub.
2. Cap. 170 Wild Animals Protection Ordinance.
3. Fellowes *et al*. (2002). Wild animals to watch: Terrestrial and freshwater fauna of conservation concern in Hong Kong.
   - For conservation status listed by Fellowes *et al*. (2002), letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
4. Shek (2006). A Field Guide to the Terrestrial Mammals of Hong Kong.

- **Species in bold are considered of conservation importance. Only the protection and/or conservation status of species fulfilling the criteria of being considered of conservation importance according to Note 3 of Annex 16 of EIAO-TM will be supplemented.**
- Due to the detection range of Echo Meter Touch 2 Pro and the relatively high habitat heterogeneity observed, it is not considered accurate to determine the exact habitat usage by the bat species recorded by ultrasonic bat detector.

Abbreviations:

- Protection or conservation status: LC = Local Concern

Appendix J Aquatic Fauna Species Recorded within the Study Area

Common Names [1]	Scientific Names [1]	Rarity and Distribution in Hong Kong [1,4,5,6]	Conservation status [1,2,3,4,5,6]	Relative Abundance Within the Project Site	Relative Abundance Within the Study area outside the Project Site	
				Modified Watercourse	Modified Watercourse	Natural Watercourse
Fish						
Flat-headed loach	*Oreonectes platycephalus*	Common. It can be found in upper streams throughout Hong Kong.	-		+	++
Mosquito fish	*Gambusia affinis*	Common. Introduced as a mosquito-control agent, widespread in local freshwater bodies	-		++	++
Whitecheek Goby	*Rhinogobius duospilus*	Probably the commonest goby in Hong Kong and is widely distributed in upper and middle course of streams, sometimes occurs in lowland streams.	-			+
Invertebrate						
Backswimmer	Notonectidae	-	-		++	+++
Canton Bee Shrimp	*Caridina cantonensis*	The species is known from Guangdong and Guangxi Provinces (China), Hong Kong and possibly northern Vietnam	-		+++	+++
Hong Kong Freshwater Crab	***Nanhaipotamon hongkongense***	**Widely distributed within Hong Kong; recorded throughout the New Territories, Hong Kong, Lamma and Lantau Islands**	**Fellowes *et al*. (2002): PGC**		**+**	**+**
Stream Crab	***Cryptopotamon anacoluthon***	**Widely distributed within Hong Kong; recorded throughout the New Territories, Hong Kong and Lantau Islands**	**Fellowes *et al*. (2002): PGC; IUCN Red List of Threatened Species (2024): Vulnerable**		**+**	**++**
Water Strider	Gerridae	-	-		+++	+++
-	*Macrobrachium sp.*	-	-		+	+

Notes:

1. Agriculture, Fisheries and Conservation Department (2024). Species Database of the Hong Kong Biodiversity Information Hub.
2. Fellowes *et al*. (2002). Wild animals to watch: Terrestrial and freshwater fauna of conservation concern in Hong Kong.
   - For conservation status listed by Fellowes *et al*. (2002), letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
3. International Union of Conservation for Nature (2024). The IUCN Red List of Threatened Species
4. Stanton & Leven (2016). Distribution, habitat utilisation and conservation status of the freshwater crab, *Somanniathelphusa zanklon* Ng & Dudgeon, 1992 (Crustacea: Brachyura: Gecarcinucidae) endemic to Hong Kong.
5. Stanton *et al*. (2017). Distribution *of Cryptopotamon anacoluthon* (Kemp, 1918) (Crustacea: Brachyura: Potamidae), a freshwater crab endemic to Hong Kong.
6. Stanton *et al*. (2018). Distribution of *Nanhaipotamon hongkongense* (Shen, 1940) (Crustacea: Brachyura: Potamidae), a freshwater crab endemic to Hong Kong.

- **Species in bold are considered of conservation importance. Only the protection and/or conservation status of species fulfilling the criteria of being considered of conservation importance according to Note 3 of Annex 16 of EIAO-TM will be supplemented.**

Abbreviations:

- Relative abundance: + = Sparse, ++ = Occasional, +++ = Common
- Protection or conservation status: PGC = Potential Global Concern

Appendix 10.1

Landfill Gas Monitoring Data at TKOL II/III

Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/DG1

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
3-Jan-20	1.4	0.0	18.9
5-Feb-20	0.0	0.0	20.8
4-Mar-20	0.0	0.0	20.6
1-Apr-20	0.1	0.0	20.5
7-May-20	0.4	0.0	19.0
3-Jun-20	0.6	0.0	19.2
6-Jul-20	1.9	0.0	17.1
4-Aug-20	2.2	0.0	17.4
4-Sep-20	2.7	0.0	16.5
21-Oct-20	0.0	0.0	20.1
6-Nov-20	0.2	0.0	18.9
3-Dec-20	0.6	0.0	19.6
20-Jan-21	2.0	0.0	18.7
5-Feb-21	2.4	0.0	17.9
3-Mar-21	2.0	0.0	17.9
23-Apr-21	1.7	0.0	17.1
25-May-21	1.5	0.0	19.9
25-Jun-21	2.4	0.0	17.7
26-Jul-21	3.3	0.0	14.8
18-Aug-21	3.6	0.0	16.5
14-Sep-21	3.6	0.0	18.6
22-Oct-21	5.5	0.0	8.9
23-Nov-21	2.7	0.0	17.2
17-Dec-21	3.8	0.0	15.2
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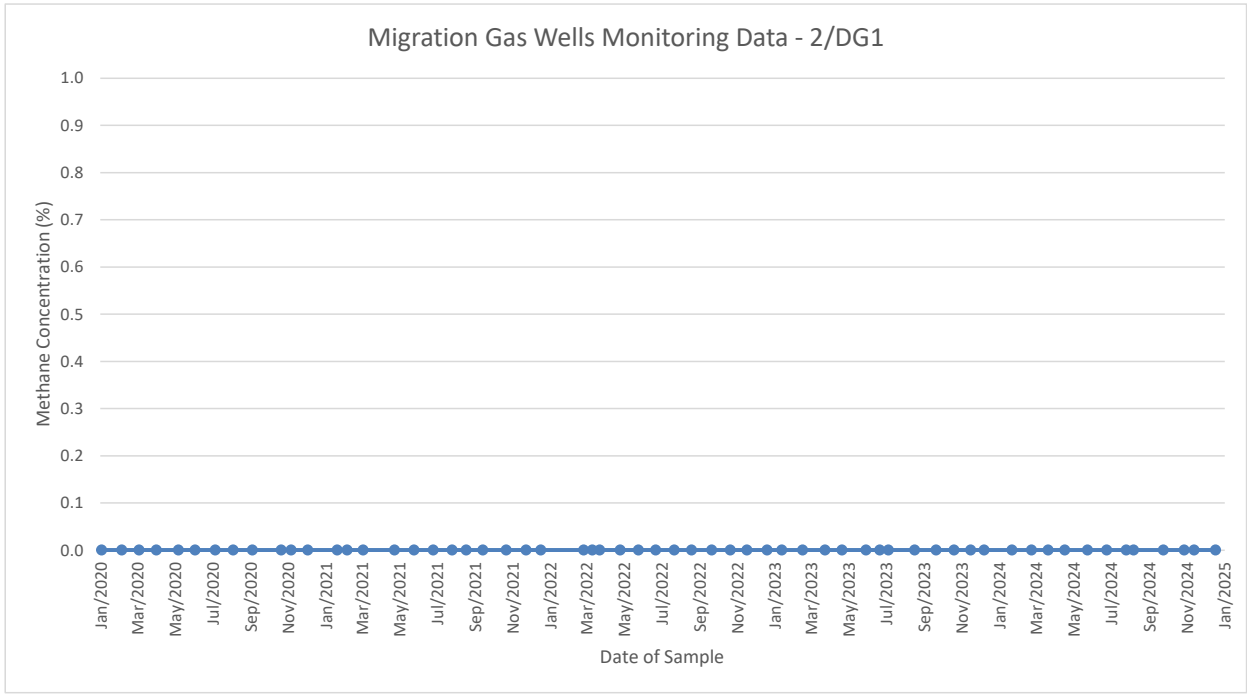
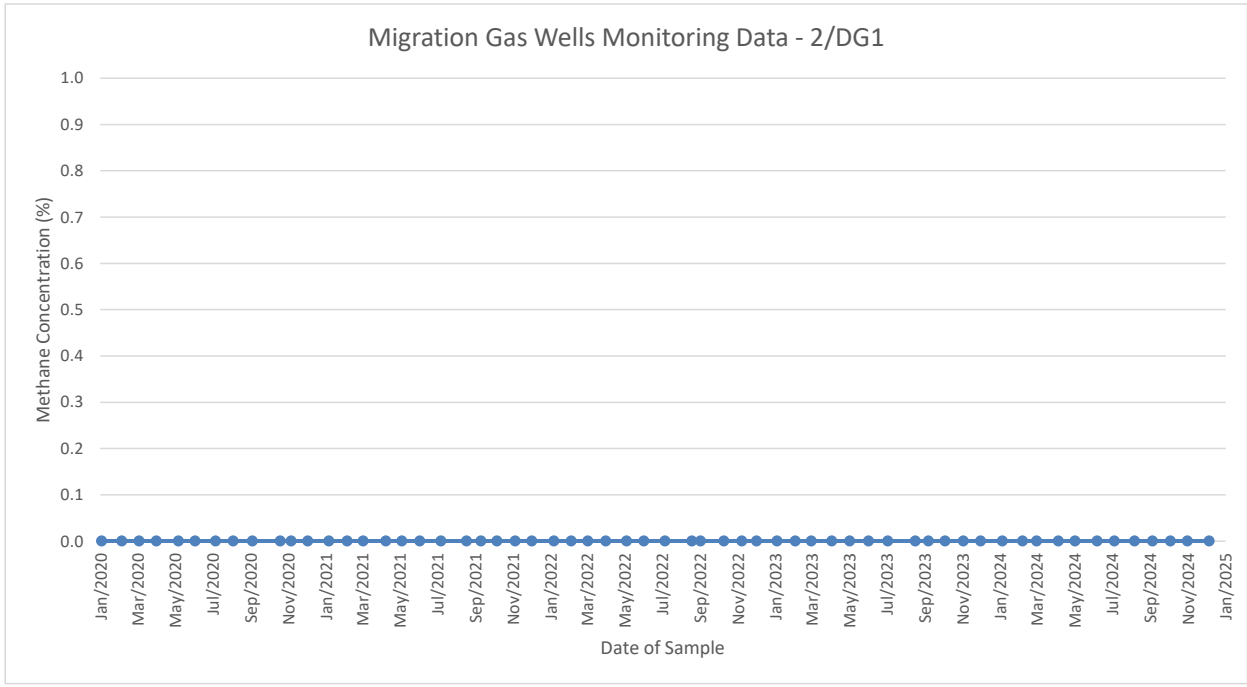
25-Feb-22	0.0	0.0	20.6
11-Mar-22	0.1	0.0	16.5
23-Mar-22	0.0	0.0	17.6
25-Apr-22	0.0	0.0	16.5
25-May-22	0.1	0.0	16.7
22-Jun-22	0.0	0.0	13.2
22-Jul-22	0.0	0.0	21.1
19-Aug-22	0.0	0.0	20.0
21-Sep-22	0.0	0.0	20.5
21-Oct-22	0.0	0.0	17.9
17-Nov-22	0.0	0.0	21.9
20-Dec-22	0.0	0.0	21.5
13-Jan-23	0.0	0.0	19.5
16-Feb-23	0.0	0.0	21.1
24-Mar-23	0.0	0.0	18.2
21-Apr-23	0.1	0.0	18.8
30-May-23	0.0	0.0	17.7
21-Jun-23	0.3	0.0	16.8
5-Jul-23	0.0	0.0	17.1
17-Aug-23	0.0	0.0	17.3
21-Sep-23	0.1	0.0	20.4
20-Oct-23	0.2	0.0	20.9
16-Nov-23	0.0	0.0	23.6
8-Dec-23	0.0	0.0	22.6
22-Jan-24	0.0	0.0	23.1
23-Feb-24	0.1	0.0	21.7
21-Mar-24	0.1	0.0	21.1
17-Apr-24	0.0	0.0	19.4
24-May-24	0.0	0.0	20.1
24-Jun-24	3.7	0.0	12.8
26-Jul-24	0.0	0.0	19.7
7-Aug-24	0.0	0.0	21.2
24-Sep-24	0.0	0.0	20.4
28-Oct-24	0.1	0.0	20.7
13-Nov-24	0.0	0.0	22.6
18-Dec-24	0.1	0.0	21.0



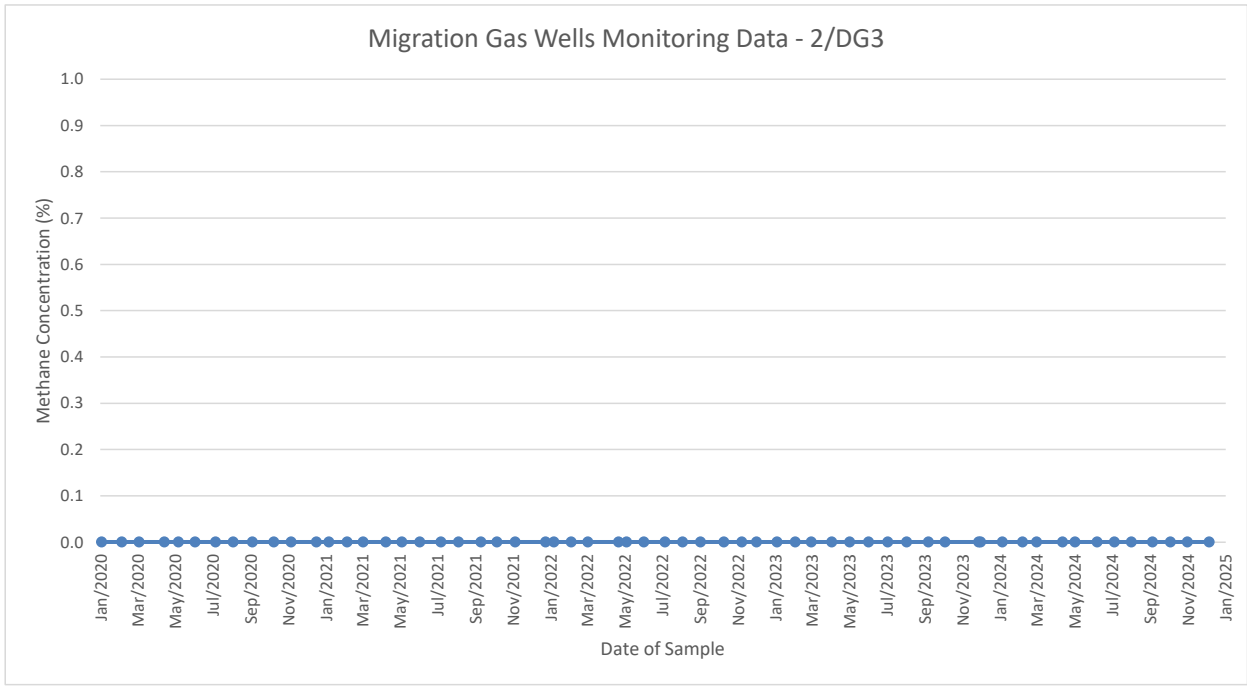
Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/DG2

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
3-Jan-20	2.7	0.0	18.2
5-Feb-20	0.0	0.0	20.7
4-Mar-20	2.6	0.0	17.7
1-Apr-20	2.8	0.0	16.3
7-May-20	0.0	0.0	19.0
3-Jun-20	0.0	0.0	20.3
6-Jul-20	0.0	0.0	19.7
4-Aug-20	2.6	0.0	16.7
4-Sep-20	1.9	0.0	16.5
19-Oct-20	2.4	0.0	16.1
6-Nov-20	2.4	0.0	16.8
3-Dec-20	1.9	0.0	19.3
6-Jan-21	1.3	0.0	19.6
5-Feb-21	1.5	0.0	18.5
3-Mar-21	1.6	0.0	16.8
9-Apr-21	0.0	0.0	20.6
5-May-21	1.7	0.0	18.1
3-Jun-21	0.0	0.0	20.3
7-Jul-21	0.0	0.0	20.8
18-Aug-21	0.0	0.0	20.5
10-Sep-21	2.7	0.0	17.3
6-Oct-21	2.5	0.0	16.8
5-Nov-21	1.7	0.0	18.6
2-Dec-21	1.7	0.0	20.0
7-Jan-22	0.0	0.0	20.9
4-Feb-22	1.1	0.0	20.7
3-Mar-22	0.2	0.0	20.6
1-Apr-22	0.3	0.0	20.5
5-May-22	0.0	0.0	21.2
2-Jun-22	0.0	0.0	20.7
6-Jul-22	1.0	0.0	18.4
19-Aug-22	1.4	0.0	16.4
2-Sep-22	1.4	0.0	17.2
10-Oct-22	2.4	0.0	19.2
8-Nov-22	0.0	0.0	20.8
2-Dec-22	0.9	0.0	19.8
4-Jan-23	0.2	0.0	21.7
3-Feb-23	0.2	0.0	20.8
1-Mar-23	0.1	0.0	20.4
3-Apr-23	1.3	0.0	19.5
2-May-23	0.1	0.0	20.5
2-Jun-23	0.0	0.0	20.9
3-Jul-23	0.2	0.0	21.9
17-Aug-23	0.1	0.0	21.3
7-Sep-23	0.7	0.0	20.8
4-Oct-23	0.2	0.0	19.2
3-Nov-23	0.0	0.0	23.5
1-Dec-23	2.3	0.0	20.0
5-Jan-24	1.7	0.0	18.6
7-Feb-24	0.0	0.0	22.7
1-Mar-24	0.0	0.0	22.8
5-Apr-24	0.0	0.0	21.9
2-May-24	0.3	0.0	20.0
7-Jun-24	0.0	0.0	20.9
5-Jul-24	1.0	0.0	19.0
7-Aug-24	0.0	0.0	22.2
5-Sep-24	0.0	0.0	20.8
4-Oct-24	0.2	0.0	20.1
1-Nov-24	0.1	0.0	19.2
6-Dec-24	1.5	0.0	19.7



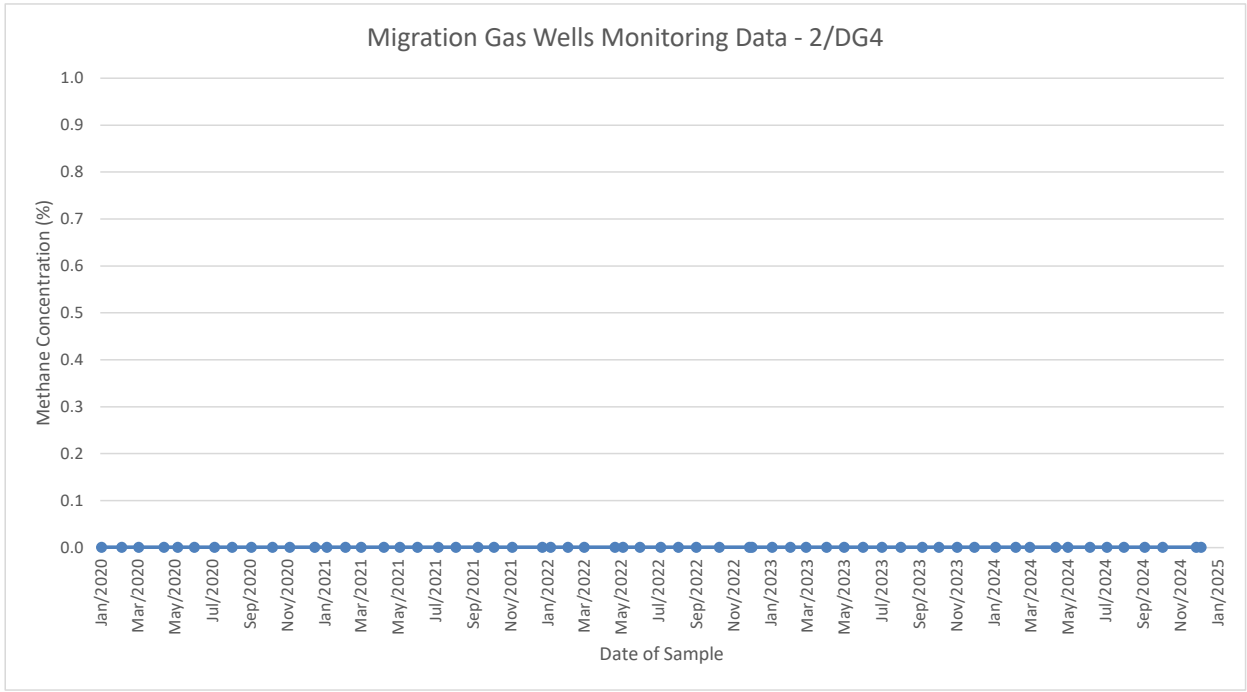
Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/DG3

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
3-Jan-20	8.5	0.0	12.2
5-Feb-20	6.7	0.0	13.6
4-Mar-20	6.4	0.0	13.0
14-Apr-20	9.2	0.0	8.0
7-May-20	6.9	0.0	12.7
3-Jun-20	5.8	0.0	1.4
6-Jul-20	8.8	0.0	9.2
4-Aug-20	2.4	0.0	10.0
4-Sep-20	7.4	0.0	4.1
9-Oct-20	10.7	0.0	3.6
6-Nov-20	8.4	0.0	6.7
17-Dec-20	11.2	0.0	9.0
6-Jan-21	10.8	0.0	10.7
5-Feb-21	6.6	0.0	13.2
3-Mar-21	4.1	0.0	15.8
9-Apr-21	4.8	0.0	16.1
5-May-21	7.5	0.0	12.0
3-Jun-21	7.2	0.0	10.0
7-Jul-21	6.1	0.0	0.0
5-Aug-21	4.2	0.0	7.8
10-Sep-21	11.8	0.0	0.3
6-Oct-21	2.6	0.0	0.4
5-Nov-21	12.2	0.0	2.3
24-Dec-21	12.0	0.0	9.3
7-Jan-22	13.3	0.0	8.3
4-Feb-22	12.2	0.0	10.5
3-Mar-22	6.3	0.0	6.9
22-Apr-22	11.0	0.0	7.3
5-May-22	5.5	0.0	2.9
2-Jun-22	5.7	0.0	0.5
6-Jul-22	5.2	0.0	1.7
4-Aug-22	5.5	0.0	0.2
2-Sep-22	10.4	0.0	0.9
10-Oct-22	0.4	0.0	20.7
8-Nov-22	0.0	0.0	20.5
2-Dec-22	6.9	0.0	21.4
4-Jan-23	8.0	0.0	9.7
3-Feb-23	2.7	0.0	17.4
1-Mar-23	0.1	0.0	20.4
3-Apr-23	4.1	0.0	15.8
2-May-23	0.1	0.0	20.1
2-Jun-23	1.5	0.0	18.3
3-Jul-23	7.9	0.0	1.4
3-Aug-23	9.4	0.0	1.4
7-Sep-23	0.5	0.0	20.8
4-Oct-23	0.6	0.0	20.8
28-Nov-23	12.9	0.0	3.1
1-Dec-23	0.2	0.0	21.2
5-Jan-24	0.1	0.0	21.3
7-Feb-24	0.0	0.0	22.6
1-Mar-24	0.0	0.0	22.7
12-Apr-24	7.8	0.0	10.5
2-May-24	0.0	0.0	20.5
7-Jun-24	0.0	0.0	20.8
5-Jul-24	0.0	0.0	25.0
2-Aug-24	0.0	0.0	20.7
5-Sep-24	1.7	0.0	17.2
4-Oct-24	5.1	0.0	4.5
1-Nov-24	1.1	0.0	16.6
6-Dec-24	6.7	0.0	1.7



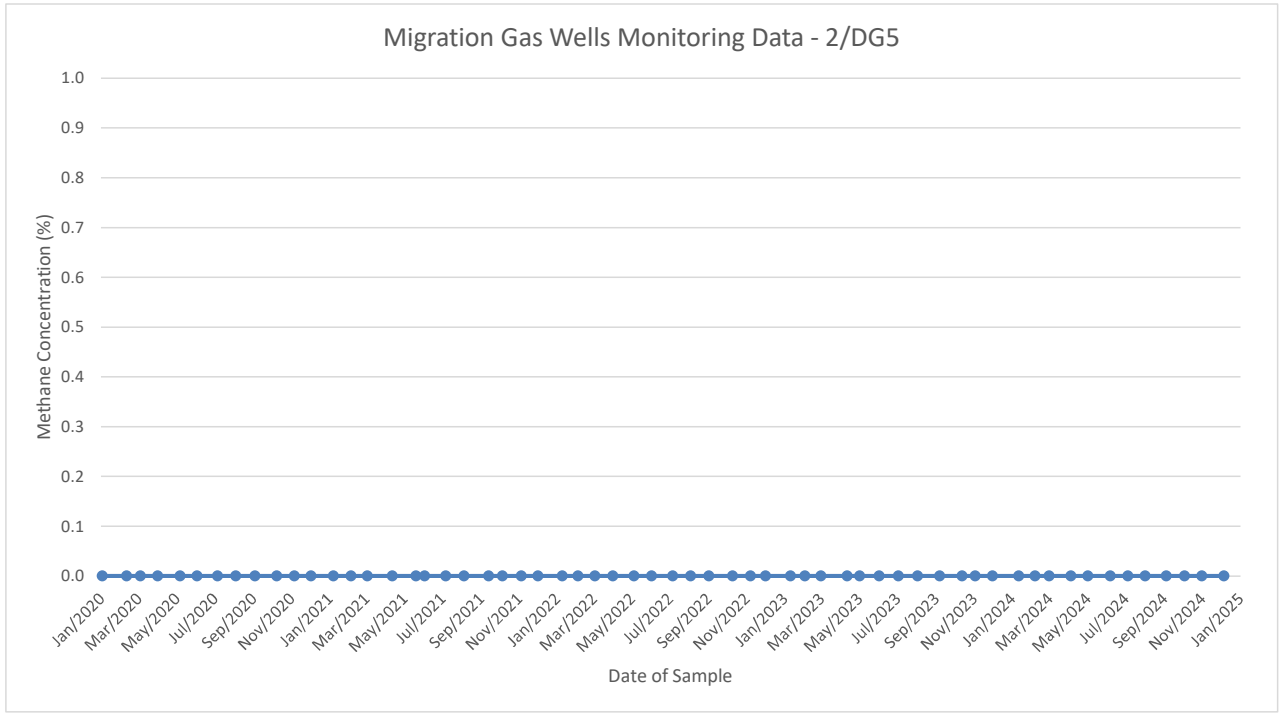
Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/DG4

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
3-Jan-20	2.4	0.0	18.0
5-Feb-20	0.0	0.0	20.7
4-Mar-20	0.8	0.0	19.9
14-Apr-20	1.3	0.0	18.0
7-May-20	0.0	0.0	19.7
3-Jun-20	0.0	0.0	19.3
6-Jul-20	0.0	0.0	19.7
4-Aug-20	2.3	0.0	16.0
4-Sep-20	6.0	0.0	11.8
9-Oct-20	4.9	0.0	14.5
6-Nov-20	2.9	0.0	16.3
17-Dec-20	4.0	0.0	16.6
6-Jan-21	3.2	0.0	16.8
5-Feb-21	0.6	0.0	19.4
3-Mar-21	1.4	0.0	18.0
9-Apr-21	0.1	0.0	20.3
5-May-21	0.9	0.0	19.0
3-Jun-21	0.0	0.0	19.6
7-Jul-21	2.0	0.0	15.3
5-Aug-21	4.9	0.0	13.8
10-Sep-21	4.8	0.0	13.7
6-Oct-21	0.4	0.0	19.5
5-Nov-21	4.3	0.0	15.3
24-Dec-21	6.1	0.0	13.6
7-Jan-22	1.9	0.0	18.6
4-Feb-22	4.9	0.0	15.9
3-Mar-22	1.6	0.0	18.6
22-Apr-22	0.7	0.0	19.7
5-May-22	1.2	0.0	18.0
2-Jun-22	0.0	0.0	21.1
6-Jul-22	0.0	0.0	20.5
4-Aug-22	1.9	0.0	5.1
2-Sep-22	7.4	0.0	7.3
10-Oct-22	4.0	0.0	15.8
28-Nov-22	2.8	0.0	17.9
2-Dec-22	3.5	0.0	15.5
4-Jan-23	3.6	0.0	15.3
3-Feb-23	1.0	0.0	19.0
1-Mar-23	1.1	0.0	19.7
3-Apr-23	2.3	0.0	17.5
2-May-23	0.2	0.0	20.1
2-Jun-23	1.7	0.0	17.9
3-Jul-23	0.6	0.0	19.9
3-Aug-23	4.2	0.0	14.6
7-Sep-23	0.1	0.0	21.8
4-Oct-23	2.2	0.0	18.2
3-Nov-23	0.1	0.0	22.9
1-Dec-23	3.3	0.0	17.7
5-Jan-24	1.1	0.0	19.9
7-Feb-24	3.1	0.0	18.5
1-Mar-24	3.4	0.0	17.8
12-Apr-24	0.5	0.0	19.4
2-May-24	0.1	0.0	20.3
7-Jun-24	0.0	0.0	20.6
5-Jul-24	2.1	0.0	15.8
2-Aug-24	1.8	0.0	15.7
5-Sep-24	3.1	0.0	16.2
4-Oct-24	6.3	0.0	13.5
28-Nov-24	4.8	0.0	15.2
6-Dec-24	3.8	0.0	15.5



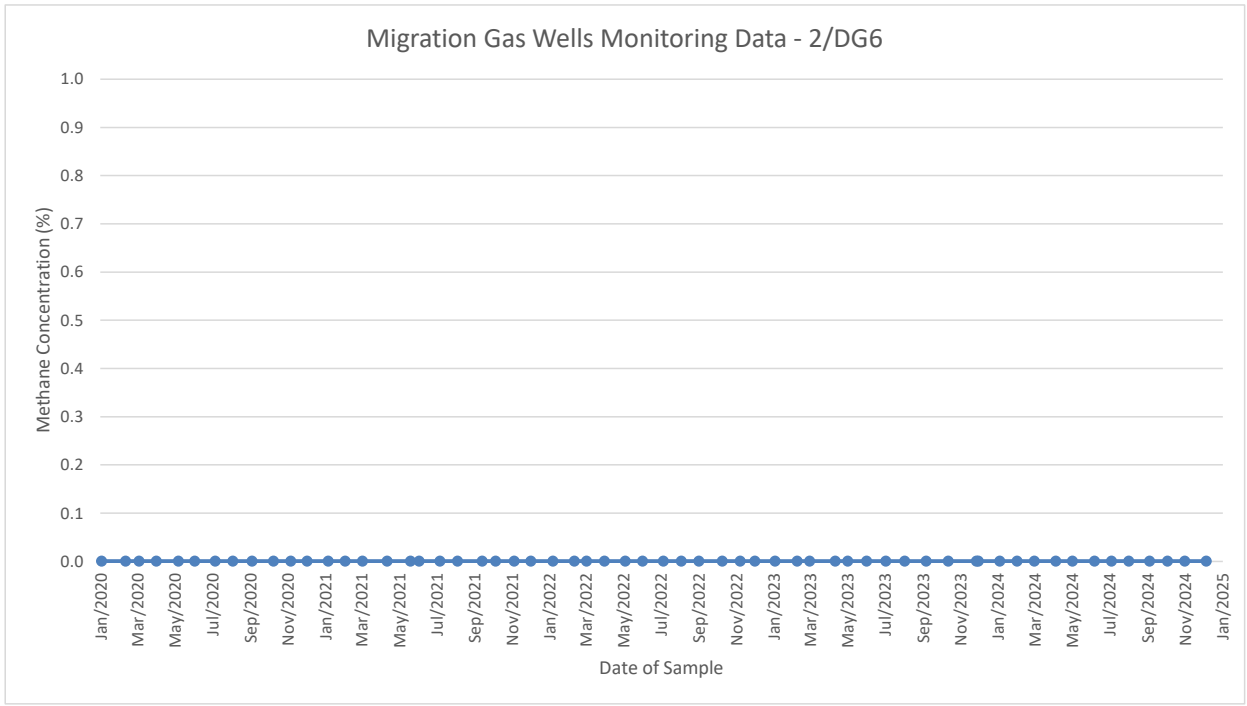
Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/DG5

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
3-Jan-20	0.0	0.0	20.4
11-Feb-20	0.1	0.0	20.7
4-Mar-20	0.0	0.0	21.1
1-Apr-20	0.0	0.0	20.7
7-May-20	0.0	0.0	19.5
3-Jun-20	0.0	0.0	19.1
6-Jul-20	0.2	0.0	18.0
4-Aug-20	0.0	0.0	20.6
4-Sep-20	0.0	0.0	19.9
9-Oct-20	0.0	0.0	19.8
6-Nov-20	0.0	0.0	19.5
3-Dec-20	0.0	0.0	20.3
8-Jan-21	0.0	0.0	20.8
5-Feb-21	0.0	0.0	20.0
3-Mar-21	0.0	0.0	19.9
12-Apr-21	0.0	0.0	19.1
20-May-21	0.0	0.0	21.6
3-Jun-21	0.0	0.0	19.4
7-Jul-21	0.0	0.0	18.2
5-Aug-21	0.1	0.0	20.4
14-Sep-21	0.0	0.0	21.0
6-Oct-21	0.0	0.0	20.4
5-Nov-21	0.0	0.0	20.4
2-Dec-21	0.0	0.0	20.3
10-Jan-22	0.0	0.0	20.6
4-Feb-22	0.0	0.0	21.0
3-Mar-22	0.0	0.0	20.7
1-Apr-22	0.0	0.0	20.7
5-May-22	0.0	0.0	20.1
2-Jun-22	0.1	0.0	20.3
6-Jul-22	0.0	0.0	20.3
4-Aug-22	0.0	0.0	21.4
2-Sep-22	0.0	0.0	21.0
10-Oct-22	0.1	0.0	20.8
8-Nov-22	0.0	0.0	20.7
2-Dec-22	0.0	0.0	21.3
11-Jan-23	0.0	0.0	21.0
3-Feb-23	0.0	0.0	21.0
1-Mar-23	0.1	0.0	20.7
12-Apr-23	0.1	0.0	20.4
2-May-23	0.0	0.0	20.1
2-Jun-23	0.0	0.0	20.3
3-Jul-23	0.0	0.0	21.1
3-Aug-23	0.2	0.0	19.3
7-Sep-23	0.0	0.0	21.7
13-Oct-23	0.1	0.0	21.4
3-Nov-23	0.4	0.0	22.1
1-Dec-23	0.3	0.0	21.5
12-Jan-24	0.1	0.0	21.5
7-Feb-24	2.7	0.0	18.9
1-Mar-24	1.2	0.0	18.4
5-Apr-24	0.0	0.0	22.3
2-May-24	0.0	0.0	20.8
7-Jun-24	0.0	0.0	20.7
5-Jul-24	0.0	0.0	26.2
2-Aug-24	0.2	0.0	19.7
5-Sep-24	0.8	0.0	18.3
4-Oct-24	0.0	0.0	20.2
1-Nov-24	0.1	0.0	20.0
6-Dec-24	0.1	0.0	20.4



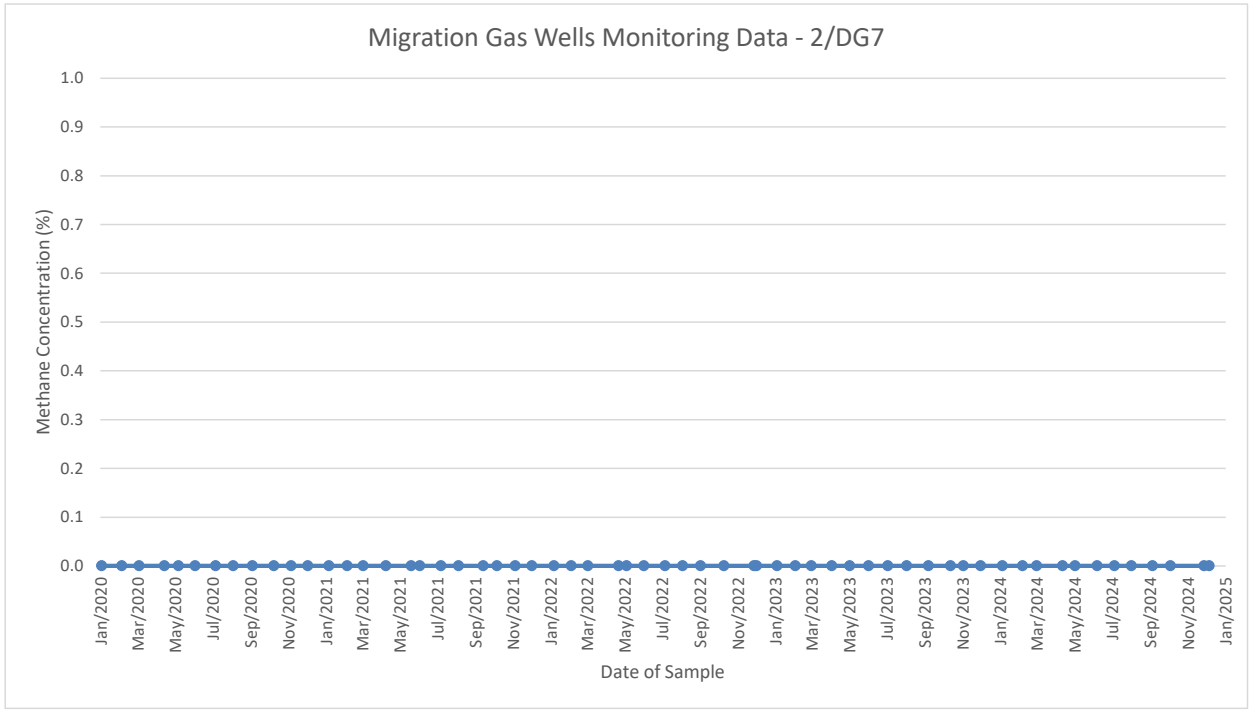
Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/DG6

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
3-Jan-20	0.8	0.0	19.7
11-Feb-20	0.6	0.0	20.1
4-Mar-20	0.6	0.0	20.3
1-Apr-20	0.6	0.0	19.9
7-May-20	0.5	0.0	19.1
3-Jun-20	0.0	0.0	19.2
6-Jul-20	0.0	0.0	19.5
4-Aug-20	0.8	0.0	18.9
4-Sep-20	1.2	0.0	17.5
9-Oct-20	1.0	0.0	18.9
6-Nov-20	0.8	0.0	17.7
3-Dec-20	0.8	0.0	19.5
6-Jan-21	0.6	0.0	20.2
3-Feb-21	0.7	0.0	20.1
3-Mar-21	6.5	0.0	19.2
12-Apr-21	0.8	0.0	18.7
20-May-21	0.0	0.0	21.1
3-Jun-21	0.5	0.0	18.8
7-Jul-21	0.7	0.0	16.9
5-Aug-21	1.1	0.0	19.1
14-Sep-21	2.0	0.0	19.5
6-Oct-21	0.7	0.0	19.3
5-Nov-21	0.9	0.0	19.2
2-Dec-21	0.7	0.0	19.7
7-Jan-22	0.8	0.0	19.3
11-Feb-22	0.8	0.0	19.6
3-Mar-22	0.5	0.0	19.9
1-Apr-22	0.5	0.0	19.9
5-May-22	0.6	0.0	19.0
2-Jun-22	0.0	0.0	20.8
6-Jul-22	0.1	0.0	20.2
4-Aug-22	0.4	0.0	20.4
2-Sep-22	0.0	0.0	21.0
10-Oct-22	1.1	0.0	19.6
8-Nov-22	0.8	0.0	20.8
2-Dec-22	0.0	0.0	21.2
4-Jan-23	0.2	0.0	21.8
9-Feb-23	0.3	0.0	20.2
1-Mar-23	0.1	0.0	20.8
12-Apr-23	0.8	0.0	20.0
2-May-23	0.1	0.0	20.1
2-Jun-23	1.0	0.0	19.1
3-Jul-23	1.6	0.0	18.7
3-Aug-23	1.6	0.0	17.8
7-Sep-23	0.3	0.0	21.7
13-Oct-23	1.1	0.0	20.2
28-Nov-23	0.6	0.0	20.0
1-Dec-23	0.6	0.0	21.3
5-Jan-24	0.8	0.0	19.9
2-Feb-24	0.0	0.0	22.2
1-Mar-24	0.7	0.0	19.7
5-Apr-24	0.3	0.0	21.9
2-May-24	0.5	0.0	19.4
7-Jun-24	0.1	0.0	20.3
5-Jul-24	0.4	0.0	19.5
2-Aug-24	0.6	0.0	18.1
5-Sep-24	1.2	0.0	17.9
4-Oct-24	2.2	0.0	18.1
1-Nov-24	1.2	0.0	19.3
6-Dec-24	1.2	0.0	18.7



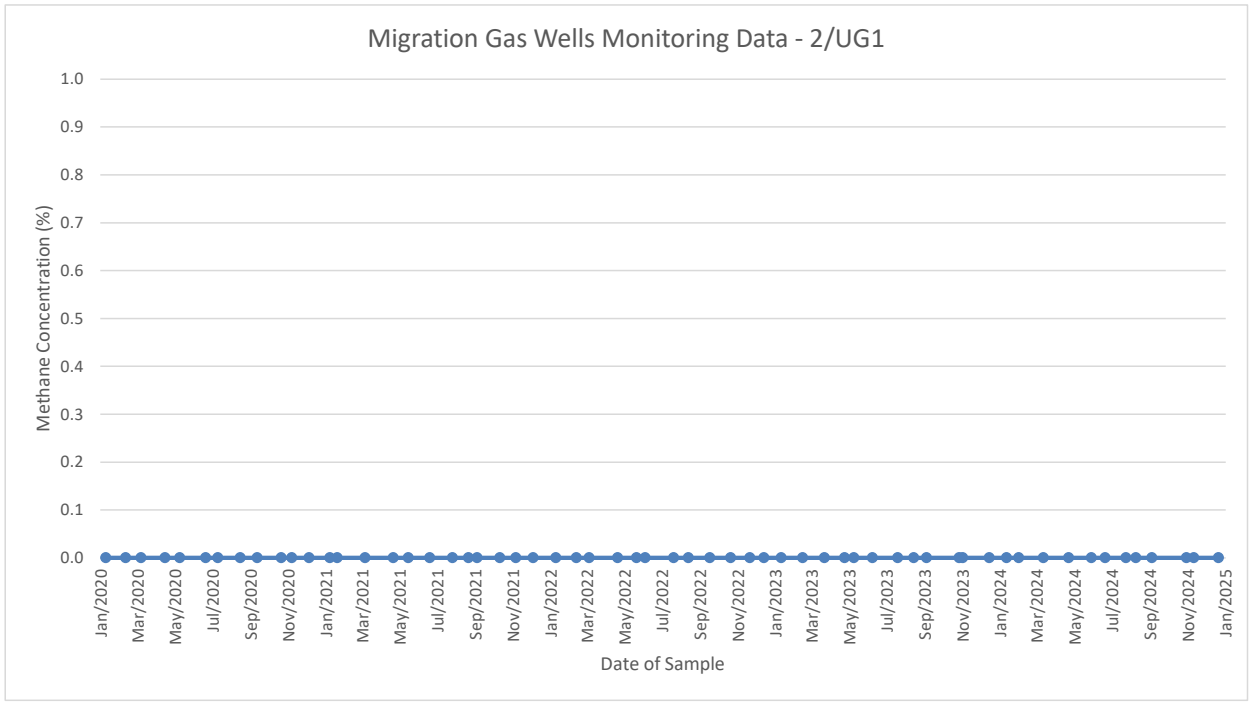
Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/DG7

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
3-Jan-20	1.7	0.0	19.2
5-Feb-20	0.2	0.0	20.8
4-Mar-20	1.1	0.0	20.1
14-Apr-20	1.1	0.0	19.3
7-May-20	2.8	0.0	11.3
3-Jun-20	0.7	0.0	18.4
6-Jul-20	0.8	0.0	18.2
4-Aug-20	1.0	0.0	19.3
4-Sep-20	2.4	0.0	15.6
9-Oct-20	3.0	0.0	17.3
6-Nov-20	2.1	0.0	16.5
3-Dec-20	0.3	0.0	19.8
6-Jan-21	0.2	0.0	20.7
5-Feb-21	1.6	0.0	16.5
3-Mar-21	1.5	0.0	16.2
9-Apr-21	0.9	0.0	18.8
20-May-21	0.6	0.0	20.4
3-Jun-21	3.1	0.0	10.8
7-Jul-21	0.2	0.0	18.1
5-Aug-21	5.5	0.0	5.0
14-Sep-21	2.2	0.0	18.5
6-Oct-21	0.2	0.0	20.4
5-Nov-21	0.0	0.0	20.0
2-Dec-21	1.6	0.0	19.0
7-Jan-22	1.4	0.0	17.5
4-Feb-22	1.0	0.0	19.2
3-Mar-22	0.1	0.0	20.6
22-Apr-22	0.0	0.0	20.4
5-May-22	0.2	0.0	19.6
2-Jun-22	0.4	0.0	19.7
6-Jul-22	0.2	0.0	20.0
4-Aug-22	2.2	0.0	16.4
2-Sep-22	4.8	0.0	5.0
10-Oct-22	2.0	0.0	19.7
28-Nov-22	2.2	0.0	18.6
2-Dec-22	0.3	0.0	20.0
4-Jan-23	0.4	0.0	20.9
3-Feb-23	0.1	0.0	20.1
1-Mar-23	0.2	0.0	20.5
3-Apr-23	0.1	0.0	21.0
2-May-23	0.0	0.0	20.1
2-Jun-23	1.1	0.0	18.0
3-Jul-23	1.3	0.0	18.0
3-Aug-23	1.5	0.0	17.8
7-Sep-23	0.4	0.0	21.3
13-Oct-23	0.2	0.0	20.9
3-Nov-23	0.3	0.0	22.6
1-Dec-23	0.1	0.0	21.7
5-Jan-24	0.2	0.0	20.4
7-Feb-24	0.4	0.0	19.7
1-Mar-24	0.0	0.0	22.6
12-Apr-24	0.6	0.0	19.5
2-May-24	0.0	0.0	20.4
7-Jun-24	0.0	0.0	20.5
5-Jul-24	0.8	0.0	17.4
2-Aug-24	1.0	0.0	16.9
5-Sep-24	2.5	0.0	17.1
4-Oct-24	4.4	0.0	15.1
28-Nov-24	2.2	0.0	15.0
6-Dec-24	3.6	0.0	12.6



Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/UG1

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
10-Jan-20	2.1	0.0	18.7
11-Feb-20	0.2	0.0	20.7
7-Mar-20	0.5	0.0	19.9
15-Apr-20	1.2	0.0	19.4
9-May-20	1.9	0.0	18.4
20-Jun-20	2.2	0.0	18.0
10-Jul-20	0.4	0.0	19.8
15-Aug-20	0.6	0.0	19.5
12-Sep-20	1.6	0.0	17.8
21-Oct-20	0.2	0.0	19.8
7-Nov-20	0.3	0.0	19.5
5-Dec-20	0.3	0.0	20.0
8-Jan-21	0.2	0.0	20.5
20-Jan-21	0.2	0.0	20.2
6-Mar-21	0.4	0.0	19.9
21-Apr-21	0.6	0.0	19.6
15-May-21	1.0	0.0	20.2
19-Jun-21	0.4	0.0	19.9
26-Jul-21	0.3	0.0	19.7
21-Aug-21	0.4	0.0	18.8
4-Sep-21	1.1	0.0	18.6
11-Oct-21	0.1	0.0	20.2
6-Nov-21	0.3	0.0	20.4
4-Dec-21	0.1	0.0	20.7
10-Jan-22	0.9	0.0	20.0
12-Feb-22	1.2	0.0	19.1
5-Mar-22	1.9	0.0	18.3
20-Apr-22	0.3	0.0	20.7
21-May-22	0.4	0.0	20.0
4-Jun-22	0.2	0.0	20.1
20-Jul-22	0.5	0.0	20.5
13-Aug-22	0.4	0.0	20.5
17-Sep-22	0.3	0.0	20.0
21-Oct-22	0.0	0.0	19.8
21-Nov-22	0.2	0.0	20.3
14-Dec-22	0.1	0.0	22.3
11-Jan-23	0.2	0.0	21.7
15-Feb-23	0.4	0.0	19.7
22-Mar-23	0.6	0.0	19.7
24-Apr-23	1.3	0.0	19.3
9-May-23	0.9	0.0	19.0
8-Jun-23	1.4	0.0	18.2
19-Jul-23	1.2	0.0	18.9
14-Aug-23	0.7	0.0	19.1
4-Sep-23	0.5	0.0	20.3
27-Oct-23	0.4	0.0	21.9
2-Nov-23	0.2	0.0	22.9
15-Dec-23	0.0	0.0	21.7
12-Jan-24	0.1	0.0	21.3
1-Feb-24	0.3	0.0	19.9
12-Mar-24	0.4	0.0	19.6
22-Apr-24	0.2	0.0	20.4
29-May-24	0.5	0.0	18.4
20-Jun-24	0.8	0.0	17.2
24-Jul-24	1.1	0.0	16.9
9-Aug-24	0.9	0.0	17.1
4-Sep-24	1.1	0.0	17.7
30-Oct-24	0.1	0.0	20.3
11-Nov-24	0.1	0.0	20.2
21-Dec-24	0.2	0.0	19.7



Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/UG2

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
10-Jan-20	0.4	0.0	20.1
11-Feb-20	0.1	0.0	20.1
7-Mar-20	0.2	0.0	20.5
15-Apr-20	1.4	0.0	19.0
9-May-20	0.8	0.0	19.2
20-Jun-20	1.5	0.0	18.3
10-Jul-20	0.5	0.0	19.4
15-Aug-20	0.2	0.0	20.2
12-Sep-20	0.4	0.0	20.0
21-Oct-20	0.7	0.0	19.3
7-Nov-20	1.4	0.0	19.1
5-Dec-20	0.8	0.0	19.8
25-Jan-21	0.5	0.0	19.8
3-Feb-21	0.8	0.0	20.1
6-Mar-21	0.8	0.0	19.5
21-Apr-21	0.0	0.0	19.8
15-May-21	0.0	0.0	21.1
19-Jun-21	0.1	0.0	20.6
26-Jul-21	0.5	0.0	18.9
21-Aug-21	0.5	0.0	19.1
4-Sep-21	1.2	0.0	19.0
11-Oct-21	0.2	0.0	20.6
6-Nov-21	0.7	0.0	20.1
4-Dec-21	0.0	0.0	21.0
19-Jan-22	0.9	0.0	20.3
11-Feb-22	0.6	0.0	20.0
5-Mar-22	0.4	0.0	20.1
20-Apr-22	0.8	0.0	19.9
21-May-22	1.9	0.0	17.7
4-Jun-22	2.2	0.0	17.3
20-Jul-22	1.2	0.0	19.1
13-Aug-22	1.7	0.0	18.4
17-Sep-22	0.9	0.0	19.8
21-Oct-22	0.6	0.0	19.0
21-Nov-22	0.5	0.0	19.7
14-Dec-22	0.3	0.0	22.1
27-Jan-23	0.1	0.0	20.9
9-Feb-23	0.1	0.0	20.5
22-Mar-23	0.2	0.0	20.0
24-Apr-23	0.9	0.0	19.9
9-May-23	0.7	0.0	19.3
8-Jun-23	0.8	0.0	19.6
19-Jul-23	0.0	0.0	21.4
14-Aug-23	1.1	0.0	17.7
4-Sep-23	1.3	0.0	18.4
27-Oct-23	0.4	0.0	22.2
2-Nov-23	0.3	0.0	22.7
15-Dec-23	0.1	0.0	21.4
10-Jan-24	0.1	0.0	21.9
2-Feb-24	0.0	0.0	22.2
12-Mar-24	0.3	0.0	20.1
22-Apr-24	0.4	0.0	20.0
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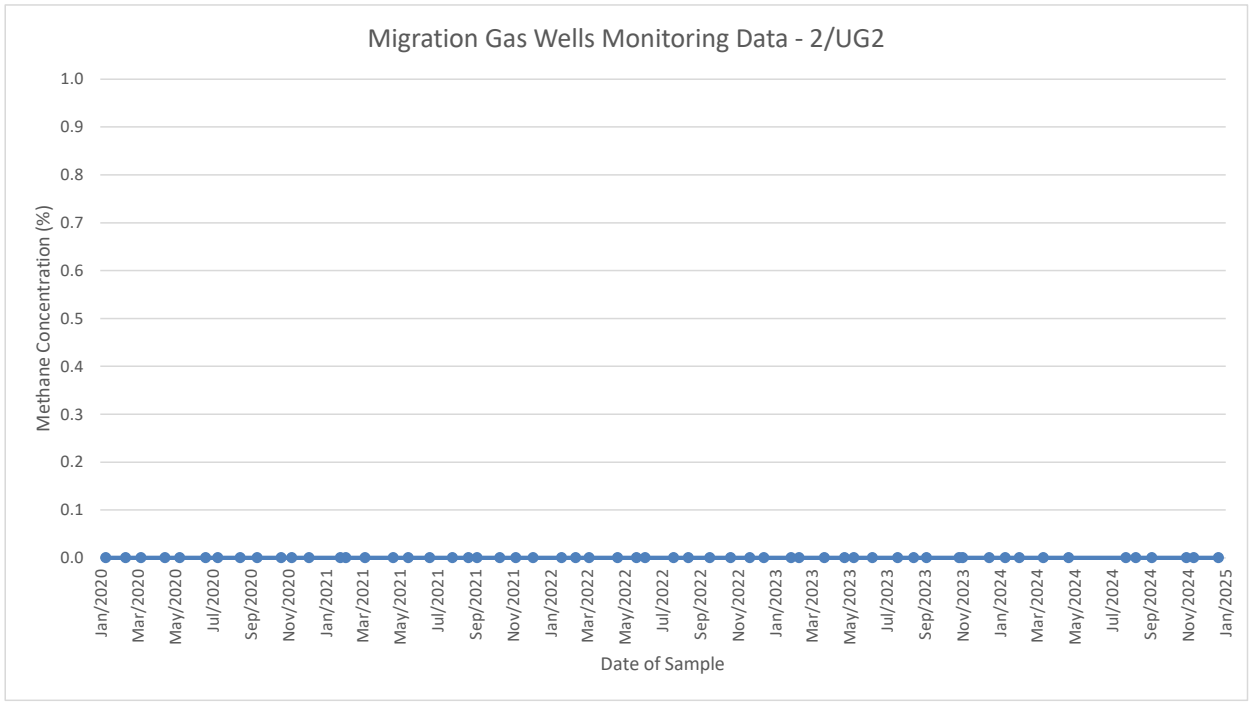
24-Jul-24	0.0	0.0	23.7
9-Aug-24	1.2	0.0	16.2
4-Sep-24	1.3	0.0	17.4
30-Oct-24	0.1	0.0	20.4
11-Nov-24	0.0	0.0	20.6
21-Dec-24	0.1	0.0	21.0



The steel stairs under maintenance.

The steel stairs under maintenance.

Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/UG3

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
6-Jan-20	0.3	0.0	20.0
1-Feb-20	0.4	0.0	20.2
14-Mar-20	0.2	0.0	20.4
3-Apr-20	0.4	0.0	20.2
16-May-20	0.5	0.0	20.0
13-Jun-20	0.3	0.0	20.2
17-Jul-20	0.5	0.0	19.2
22-Aug-20	0.8	0.0	19.5
19-Sep-20	0.2	0.0	20.1
12-Oct-20	0.2	0.0	20.1
14-Nov-20	0.1	0.0	20.0
15-Dec-20	0.3	0.0	21.1
15-Jan-21	0.2	0.0	20.2
27-Jan-21	0.4	0.0	20.0
13-Mar-21	0.2	0.0	20.0
7-Apr-21	0.2	0.0	20.0
22-May-21	0.5	0.0	20.8
17-Jun-21	0.8	0.0	19.9
7-Jul-21	0.3	0.0	18.5
14-Aug-21	0.8	0.0	18.3
11-Sep-21	0.8	0.0	19.1
27-Oct-21	0.4	0.0	20.3
20-Nov-21	0.2	0.0	20.8
24-Dec-21	0.2	0.0	20.9
12-Jan-22	0.4	0.0	20.9
16-Feb-22	0.2	0.0	20.0
12-Mar-22	0.2	0.0	20.6
13-Apr-22	0.3	0.0	20.2
28-May-22	0.2	0.0	20.3
18-Jun-22	0.3	0.0	20.4
20-Jul-22	0.4	0.0	20.1
26-Aug-22	0.2	0.0	20.7
10-Sep-22	0.2	0.0	20.7
19-Oct-22	0.3	0.0	20.1
21-Nov-22	0.1	0.0	21.3
15-Dec-22	0.7	0.0	21.5
11-Jan-23	0.0	0.0	20.8
15-Feb-23	0.1	0.0	20.3
21-Mar-23	0.1	0.0	20.1
17-Apr-23	0.7	0.0	20.1
10-May-23	0.8	0.0	19.3
7-Jun-23	1.1	0.0	18.4
24-Jul-23	0.8	0.0	18.8
3-Aug-23	0.4	0.0	20.6
5-Sep-23	0.3	0.0	20.5
25-Oct-23	1.1	0.0	20.9
3-Nov-23	0.3	0.0	22.9
6-Dec-23	0.2	0.0	21.6
10-Jan-24	0.0	0.0	22.6
1-Feb-24	0.0	0.0	20.5
12-Mar-24	0.0	0.0	21.2
10-Apr-24	0.3	0.0	21.7
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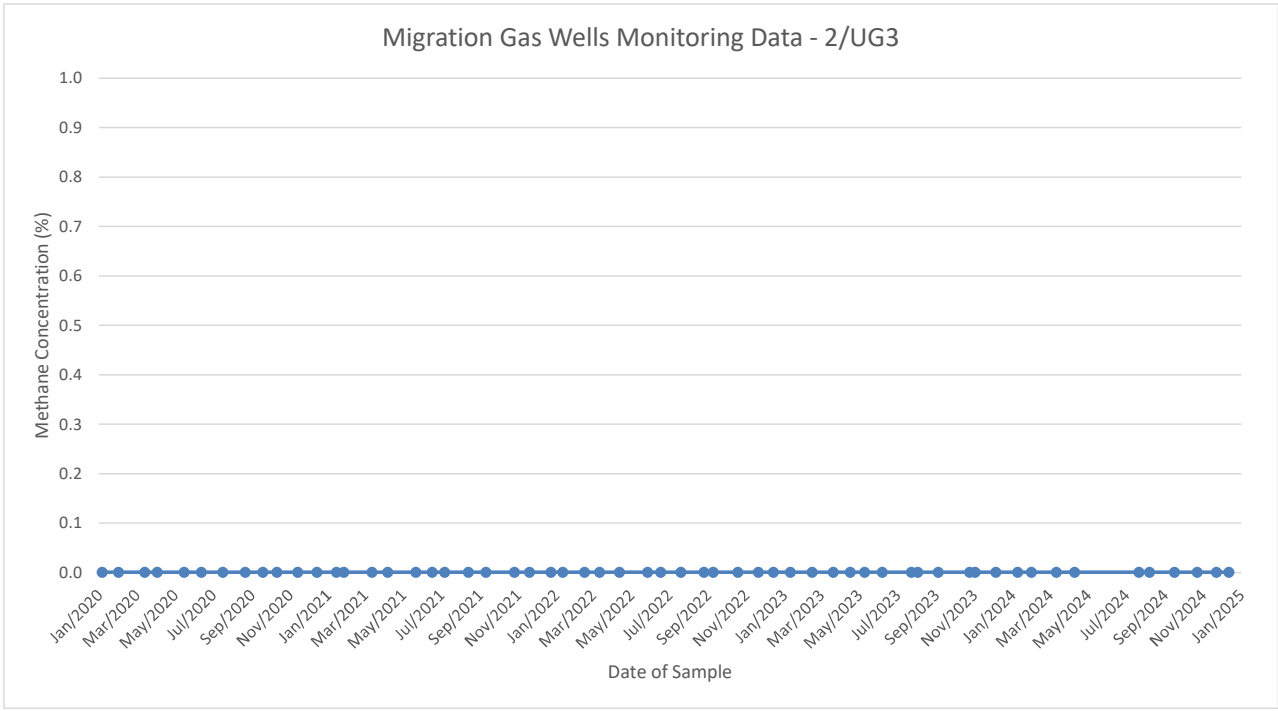
22-Jul-24	0.7	0.0	18.9
8-Aug-24	0.2	0.0	19.7
17-Sep-24	0.5	0.0	18.7
23-Oct-24	1.1	0.0	14.2
23-Nov-24	0.9	0.0	19.3
13-Dec-24	0.3	0.0	22.2



The steel stairs under maintenance.

The steel stairs under maintenance.

Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/UG4

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
6-Jan-20	0.0	0.0	20.3
1-Feb-20	0.5	0.0	20.0
14-Mar-20	0.0	0.0	20.3
3-Apr-20	0.3	0.0	20.2
16-May-20	0.4	0.0	19.9
13-Jun-20	0.8	0.0	19.4
17-Jul-20	0.2	0.0	19.5
22-Aug-20	0.3	0.0	20.0
19-Sep-20	1.3	0.0	18.7
12-Oct-20	0.2	0.0	19.7
14-Nov-20	0.4	0.0	19.7
15-Dec-20	0.3	0.0	21.0
15-Jan-21	0.0	0.0	20.4
27-Jan-21	0.0	0.0	20.5
13-Mar-21	0.3	0.0	19.7
7-Apr-21	0.2	0.0	19.6
22-May-21	0.4	0.0	20.7
17-Jun-21	0.4	0.0	20.0
7-Jul-21	0.0	0.0	19.4
14-Aug-21	0.2	0.0	20.0
11-Sep-21	0.5	0.0	18.9
27-Oct-21	0.0	0.0	20.4
20-Nov-21	0.0	0.0	20.7
24-Dec-21	0.6	0.0	20.3
12-Jan-22	0.6	0.0	20.8
16-Feb-22	0.8	0.0	20.3
12-Mar-22	1.1	0.0	19.0
13-Apr-22	0.2	0.0	19.8
28-May-22	0.2	0.0	20.0
18-Jun-22	0.4	0.0	19.6
20-Jul-22	0.0	0.0	20.8
26-Aug-22	0.2	0.0	20.5
10-Sep-22	0.0	0.0	20.7
19-Oct-22	0.0	0.0	20.7
21-Nov-22	0.2	0.0	21.5
15-Dec-22	0.2	0.0	22.2
11-Jan-23	0.1	0.0	20.5
15-Feb-23	0.2	0.0	20.0
21-Mar-23	0.3	0.0	19.8
17-Apr-23	0.6	0.0	19.9
10-May-23	0.5	0.0	19.5
7-Jun-23	0.7	0.0	19.6
24-Jul-23	0.1	0.0	20.5
3-Aug-23	0.5	0.0	20.4
5-Sep-23	0.0	0.0	21.6
25-Oct-23	0.0	0.0	22.2
3-Nov-23	0.0	0.0	23.4
6-Dec-23	0.0	0.0	21.8
10-Jan-24	0.0	0.0	22.9
1-Feb-24	0.1	0.0	20.1
12-Mar-24	0.2	0.0	20.0
10-Apr-24	0.1	0.0	21.8
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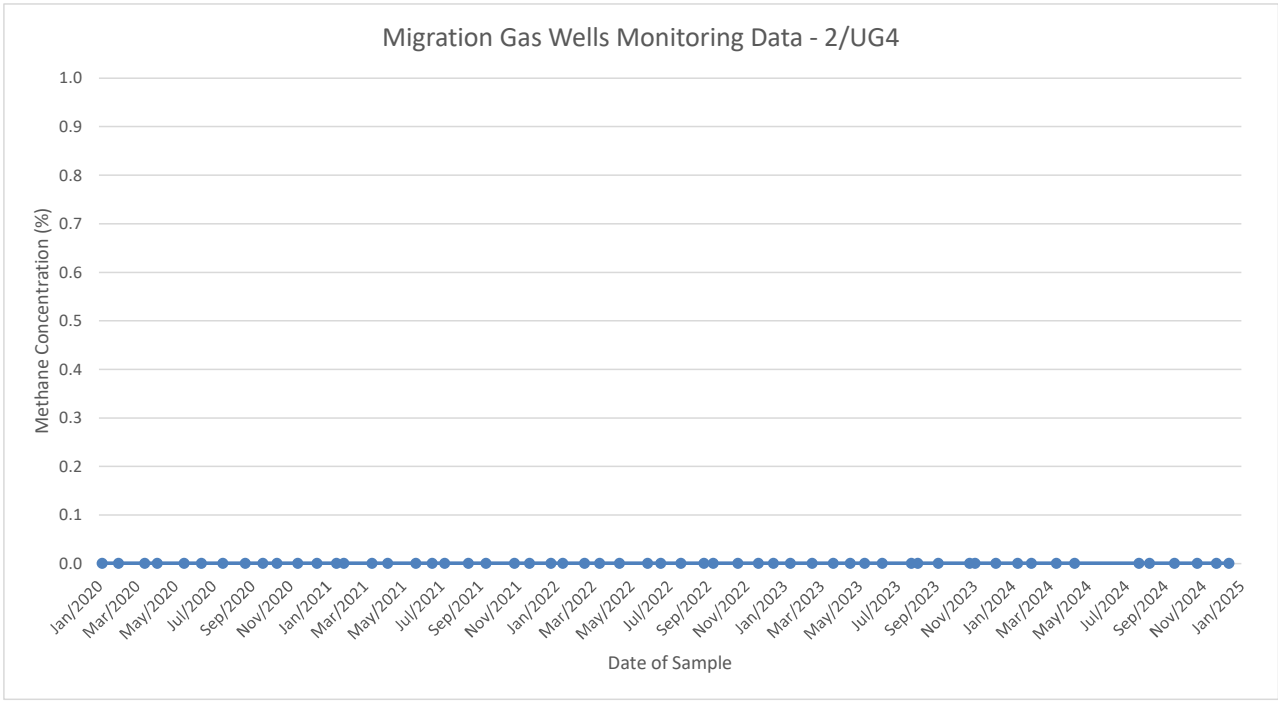
22-Jul-24	0.3	0.0	20.7
8-Aug-24	0.4	0.0	19.2
17-Sep-24	0.3	0.0	19.1
23-Oct-24	0.7	0.0	13.8
23-Nov-24	0.6	0.0	14.8
13-Dec-24	0.1	0.0	22.8



The steel stairs under maintenance.

The steel stairs under maintenance.

Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/UG5

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
17-Jan-20	0.3	0.0	20.3
15-Feb-20	0.3	0.0	20.2
24-Mar-20	0.7	0.0	20.0
20-Apr-20	0.2	0.0	19.6
23-May-20	0.3	0.0	20.0
11-Jun-20	0.1	0.0	19.4
8-Jul-20	0.2	0.0	20.0
22-Aug-20	0.3	0.0	20.2
19-Sep-20	0.6	0.0	20.2
19-Oct-20	0.1	0.0	19.9
21-Nov-20	0.0	0.0	19.8
16-Dec-20	0.0	0.0	20.5
18-Jan-21	1.0	0.0	19.7
20-Jan-21	1.3	0.0	19.0
27-Mar-21	1.8	0.0	18.0
16-Apr-21	0.0	0.0	19.9
22-May-21	0.0	0.0	21.5
18-Jun-21	0.1	0.0	20.3
23-Jul-21	0.1	0.0	19.5
14-Aug-21	0.4	0.0	20.0
4-Sep-21	0.2	0.0	20.4
20-Oct-21	0.2	0.0	20.2
13-Nov-21	0.1	0.0	20.7
11-Dec-21	0.1	0.0	20.8
14-Jan-22	0.6	0.0	20.9
26-Feb-22	0.4	0.0	20.3
12-Mar-22	0.3	0.0	20.2
8-Apr-22	0.2	0.0	19.7
28-May-22	0.5	0.0	20.2
23-Jun-22	0.0	0.0	19.7
11-Jul-22	0.0	0.0	20.8
27-Aug-22	0.0	0.0	20.8
10-Sep-22	0.1	0.0	20.9
3-Oct-22	0.2	0.0	20.7
14-Nov-22	0.3	0.0	20.5
22-Dec-22	0.1	0.0	21.7
27-Jan-23	0.1	0.0	20.9
15-Feb-23	0.2	0.0	20.1
20-Mar-23	0.2	0.0	20.0
12-Apr-23	0.5	0.0	20.1
3-May-23	0.4	0.0	19.9
9-Jun-23	0.8	0.0	19.8
21-Jul-23	0.7	0.0	19.9
3-Aug-23	0.2	0.0	20.8
5-Sep-23	0.4	0.0	20.2
18-Oct-23	0.3	0.0	22.2
2-Nov-23	0.0	0.0	23.1
18-Dec-23	0.2	0.0	22.0
8-Jan-24	0.2	0.0	21.3
1-Feb-24	0.1	0.0	20.2
14-Mar-24	0.1	0.0	20.0
19-Apr-24	0.0	0.0	20.5
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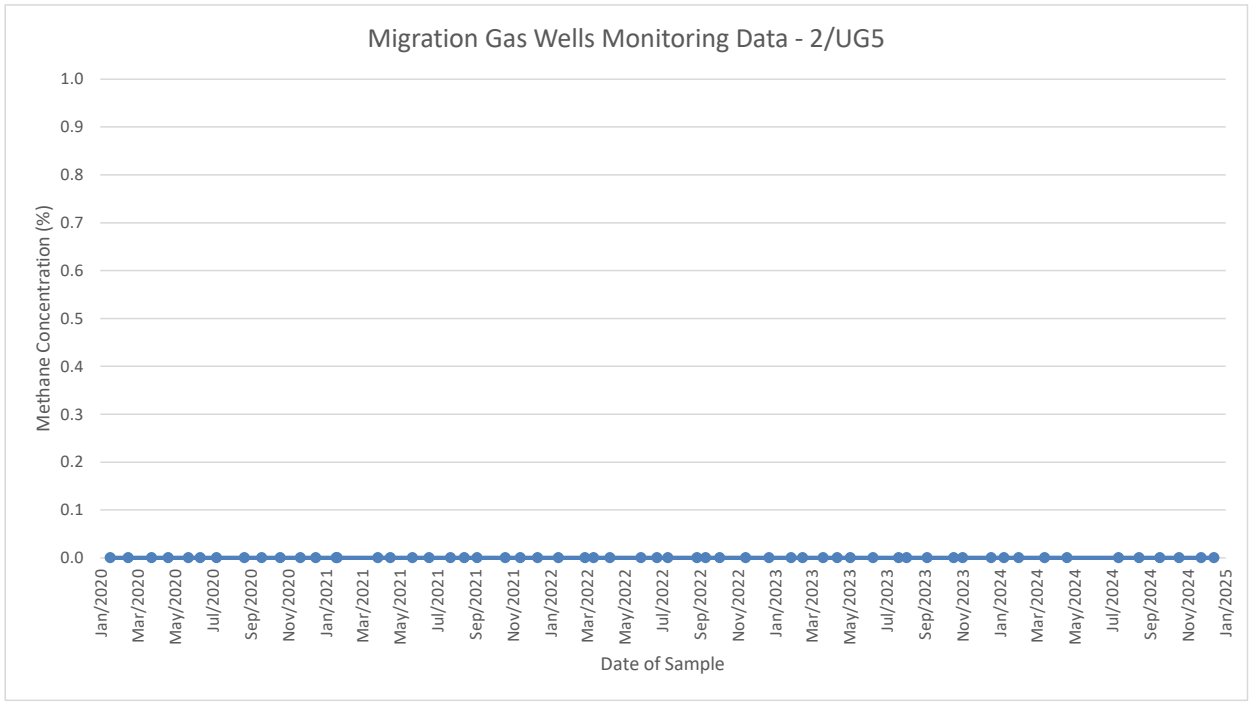
12-Jul-24	0.1	0.0	20.7
14-Aug-24	0.0	0.0	20.1
17-Sep-24	0.2	0.0	19.6
18-Oct-24	0.4	0.0	20.2
23-Nov-24	0.2	0.0	20.1
14-Dec-24	0.1	0.0	20.8



The steel stairs under maintenance.

The steel stairs under maintenance.

Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/UG6

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
17-Jan-20	0.3	0.0	20.3
15-Feb-20	0.2	0.0	20.4
24-Mar-20	0.4	0.0	20.4
20-Apr-20	0.1	0.0	20.6
23-May-20	1.7	0.0	19.2
11-Jun-20	0.4	0.0	19.5
8-Jul-20	0.1	0.0	20.7
15-Aug-20	0.1	0.0	20.6
12-Sep-20	0.4	0.0	20.2
19-Oct-20	0.2	0.0	20.0
14-Nov-20	0.2	0.0	20.3
16-Dec-20	0.4	0.0	20.3
18-Jan-21	0.1	0.0	20.5
20-Jan-21	0.0	0.0	20.6
27-Mar-21	0.0	0.0	20.6
16-Apr-21	0.1	0.0	20.3
15-May-21	0.2	0.0	21.2
18-Jun-21	0.2	0.0	20.4
23-Jul-21	0.2	0.0	19.7
21-Aug-21	0.0	0.0	20.8
11-Sep-21	0.0	0.0	21.0
20-Oct-21	0.4	0.0	20.3
20-Nov-21	0.2	0.0	21.0
11-Dec-21	0.6	0.0	20.3
14-Jan-22	0.6	0.0	20.8
26-Feb-22	0.2	0.0	20.8
26-Mar-22	0.0	0.0	20.4
8-Apr-22	0.3	0.0	20.6
21-May-22	0.2	0.0	20.4
23-Jun-22	0.1	0.0	19.8
11-Jul-22	0.2	0.0	20.7
27-Aug-22	0.5	0.0	20.5
17-Sep-22	0.4	0.0	20.8
3-Oct-22	0.2	0.0	20.8
14-Nov-22	0.3	0.0	20.7
22-Dec-22	0.0	0.0	21.9
9-Jan-23	0.0	0.0	22.5
15-Feb-23	0.1	0.0	20.4
20-Mar-23	0.3	0.0	19.8
12-Apr-23	0.2	0.0	20.4
3-May-23	0.3	0.0	19.9
9-Jun-23	0.2	0.0	20.8
21-Jul-23	0.3	0.0	20.6
4-Aug-23	0.4	0.0	20.5
5-Sep-23	0.6	0.0	19.9
18-Oct-23	0.3	0.0	22.6
2-Nov-23	0.1	0.0	22.7
18-Dec-23	0.0	0.0	22.3
8-Jan-24	0.2	0.0	21.3
1-Feb-24	0.1	0.0	20.2
14-Mar-24	0.2	0.0	19.8
19-Apr-24	0.0	0.0	21.1
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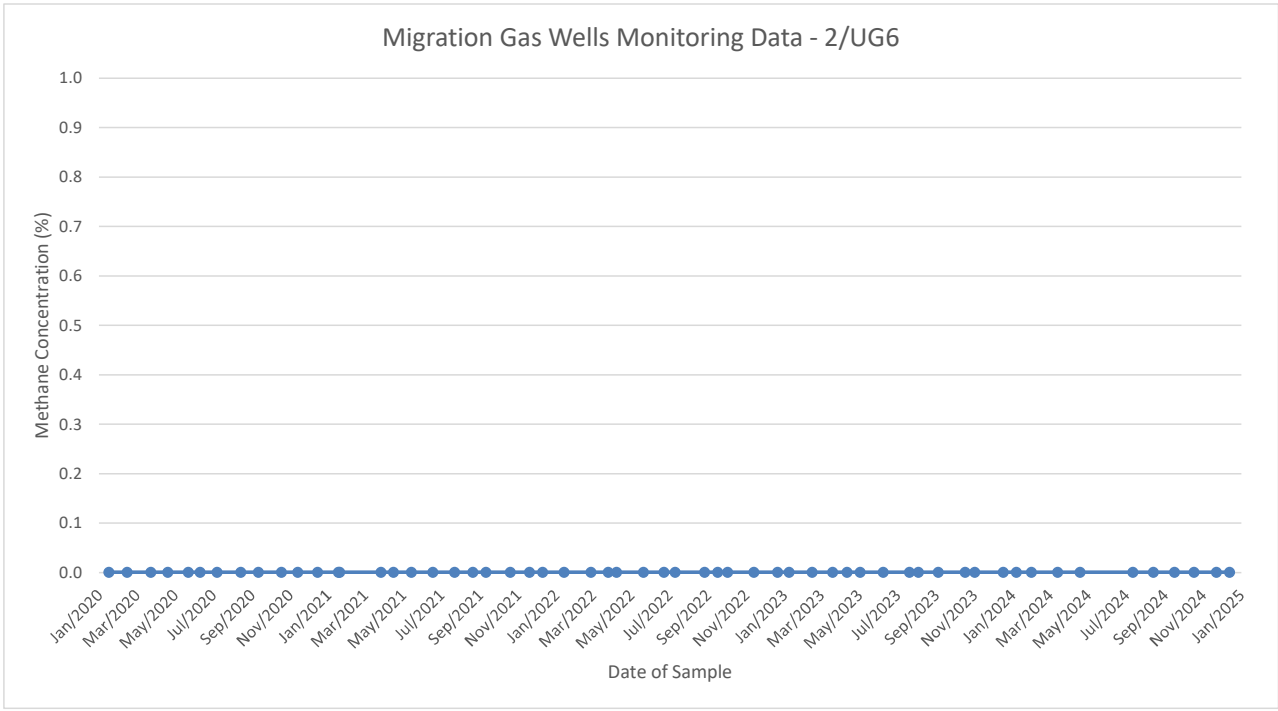
12-Jul-24	0.3	0.0	19.5
14-Aug-24	0.0	0.0	20.6
17-Sep-24	0.1	0.0	19.8
18-Oct-24	0.6	0.0	20.0
23-Nov-24	0.3	0.0	20.1
14-Dec-24	0.3	0.0	19.7



The steel stairs under maintenance.

The steel stairs under maintenance.

Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/UG7

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
20-Jan-20	0.2	0.0	21.1
8-Feb-20	0.2	0.0	20.3
20-Mar-20	0.6	0.0	19.7
3-Apr-20	0.1	0.0	20.4
2-May-20	0.4	0.0	19.8
11-Jun-20	0.6	0.0	19.8
8-Jul-20	0.2	0.0	19.7
8-Aug-20	0.2	0.0	19.8
26-Sep-20	0.1	0.0	19.9
12-Oct-20	0.2	0.0	19.6
21-Nov-20	0.2	0.0	19.9
12-Dec-20	0.2	0.0	20.0
4-Jan-21	0.0	0.0	21.2
6-Feb-21	0.0	0.0	20.3
20-Mar-21	0.0	0.0	20.4
7-Apr-21	0.1	0.0	20.6
8-May-21	0.1	0.0	20.7
18-Jun-21	0.1	0.0	20.8
23-Jul-21	0.2	0.0	20.1
7-Aug-21	0.0	0.0	20.0
18-Sep-21	0.0	0.0	19.8
6-Oct-21	0.0	0.0	20.8
13-Nov-21	2.7	0.0	17.9
18-Dec-21	0.0	0.0	20.5
5-Jan-22	0.3	0.0	20.1
5-Feb-22	0.4	0.0	19.7
26-Mar-22	0.6	0.0	19.6
6-Apr-22	0.0	0.0	20.6
7-May-22	0.0	0.0	20.1
23-Jun-22	0.0	0.0	20.8
11-Jul-22	0.1	0.0	20.5
20-Aug-22	0.0	0.0	20.8
3-Sep-22	0.1	0.0	20.5
12-Oct-22	0.0	0.0	21.9
15-Nov-22	0.1	0.0	21.7
12-Dec-22	1.1	0.0	20.6
9-Jan-23	0.0	0.0	22.7
14-Feb-23	0.0	0.0	21.1
14-Mar-23	0.0	0.0	20.3
17-Apr-23	0.2	0.0	20.5
19-May-23	0.1	0.0	20.2
9-Jun-23	0.2	0.0	21.2
21-Jul-23	0.2	0.0	20.7
4-Aug-23	0.1	0.0	20.9
4-Sep-23	0.2	0.0	20.7
13-Oct-23	0.3	0.0	21.9
1-Nov-23	0.1	0.0	22.9
18-Dec-23	0.3	0.0	21.1
8-Jan-24	0.3	0.0	21.5
14-Feb-24	0.5	0.0	19.4
14-Mar-24	0.3	0.0	19.6
8-Apr-24	0.0	0.0	21.7
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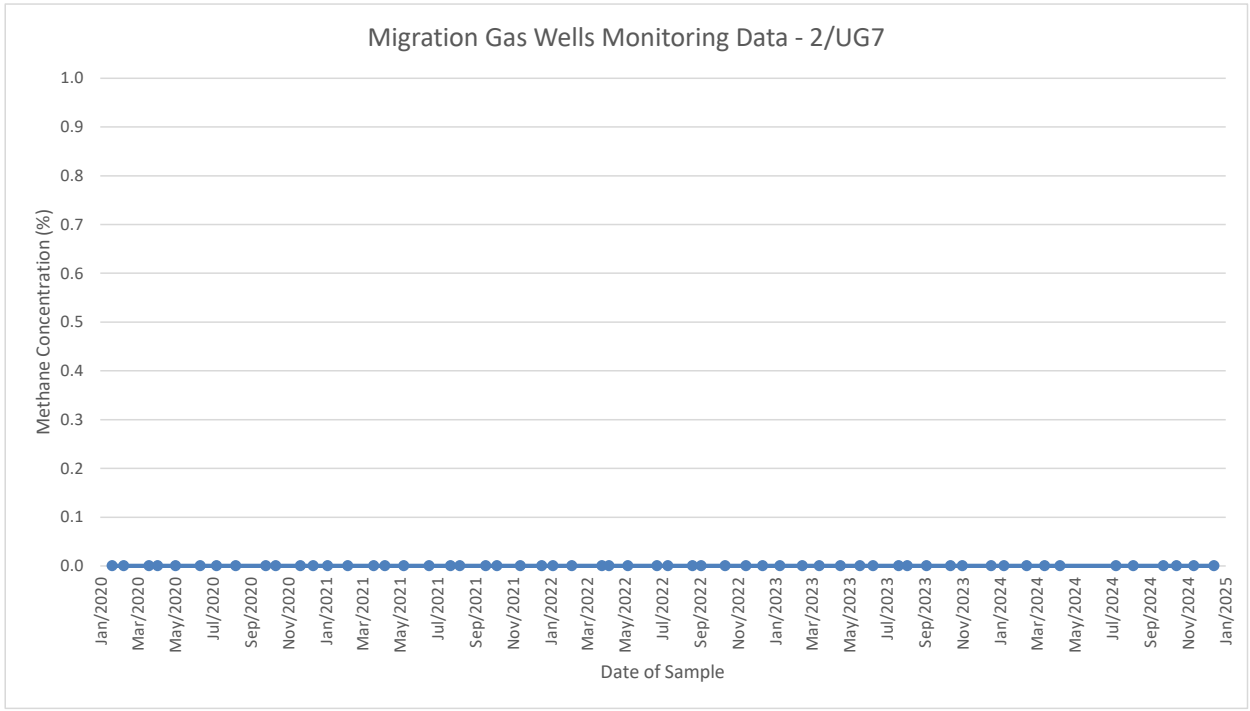
8-Jul-24	0.1	0.0	20.7
5-Aug-24	0.4	0.0	19.7
23-Sep-24	0.7	0.0	18.3
14-Oct-24	0.5	0.0	20.4
11-Nov-24	0.4	0.0	19.3
14-Dec-24	0.5	0.0	19.7



Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/UG8

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
20-Jan-20	0.7	0.0	20.5
8-Feb-20	0.5	0.0	20.1
9-Mar-20	0.4	0.0	20.2
3-Apr-20	0.6	0.0	19.9
2-May-20	0.4	0.0	20.0
26-Jun-20	0.5	0.0	19.7
8-Jul-20	0.4	0.0	19.4
8-Aug-20	0.5	0.0	20.0
26-Sep-20	1.2	0.0	18.0
12-Oct-20	0.6	0.0	19.3
21-Nov-20	0.4	0.0	20.0
12-Dec-20	0.2	0.0	20.2
4-Jan-21	0.2	0.0	21.0
6-Feb-21	0.4	0.0	19.4
15-Mar-21	0.3	0.0	20.1
7-Apr-21	0.2	0.0	20.4
8-May-21	0.4	0.0	20.6
5-Jun-21	0.6	0.0	19.8
9-Jul-21	0.5	0.0	19.4
7-Aug-21	0.6	0.0	19.4
18-Sep-21	1.4	0.0	18.6
6-Oct-21	0.1	0.0	20.7
13-Nov-21	0.4	0.0	20.8
18-Dec-21	0.3	0.0	20.4
5-Jan-22	0.5	0.0	19.8
5-Feb-22	0.4	0.0	19.8
23-Mar-22	0.3	0.0	20.6
6-Apr-22	0.3	0.0	20.0
7-May-22	0.8	0.0	19.7
21-Jun-22	0.5	0.0	20.0
11-Jul-22	0.0	0.0	20.4
20-Aug-22	0.1	0.0	20.8
3-Sep-22	0.4	0.0	20.4
12-Oct-22	0.2	0.0	21.3
15-Nov-22	0.4	0.0	20.4
12-Dec-22	1.4	0.0	20.3
9-Jan-23	0.0	0.0	22.4
14-Feb-23	0.0	0.0	20.9
16-Mar-23	0.4	0.0	20.4
17-Apr-23	0.9	0.0	19.8
19-May-23	0.6	0.0	19.2
19-Jun-23	0.9	0.0	19.7
12-Jul-23	0.7	0.0	20.0
11-Aug-23	0.4	0.0	20.4
4-Sep-23	0.5	0.0	20.4
13-Oct-23	0.6	0.0	21.7
1-Nov-23	0.2	0.0	22.7
18-Dec-23	0.7	0.0	20.8
8-Jan-24	0.3	0.0	20.8
14-Feb-24	0.7	0.0	19.1
15-Mar-24	0.2	0.0	22.2
8-Apr-24	0.2	0.0	21.2
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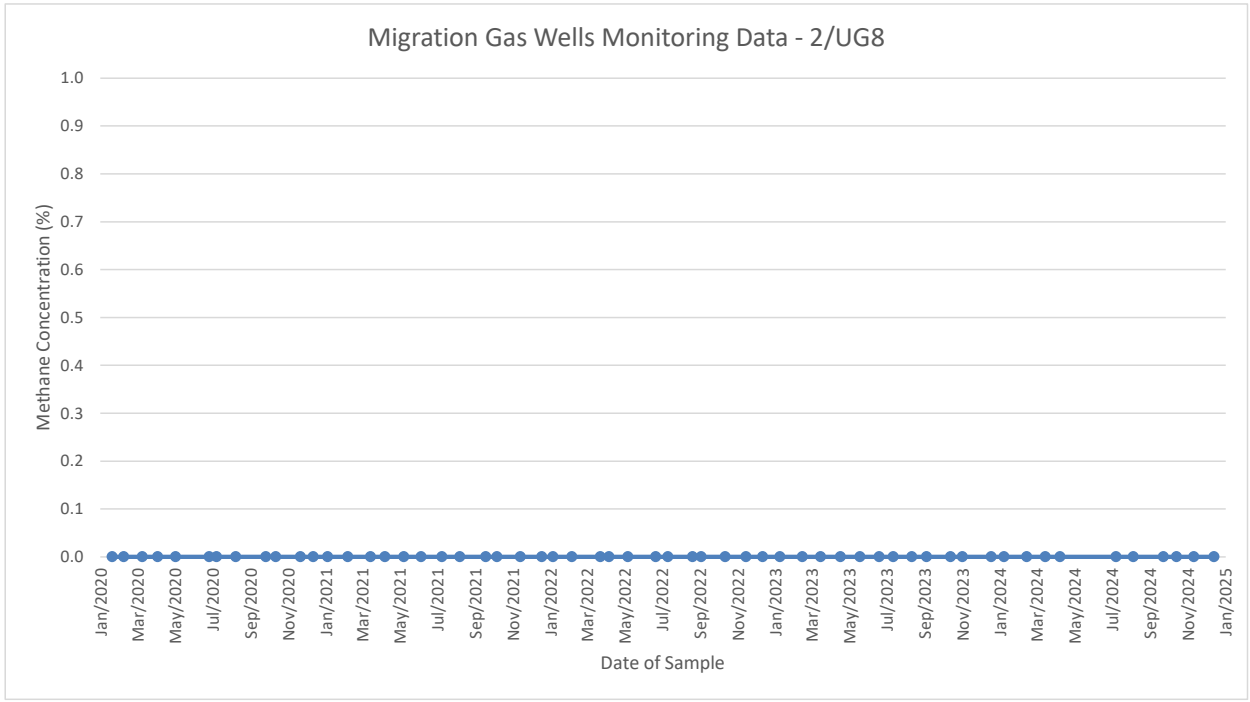
8-Jul-24	2.0	0.0	17.6
5-Aug-24	0.7	0.0	19.4
23-Sep-24	1.1	0.0	17.6
14-Oct-24	0.3	0.0	20.6
11-Nov-24	0.1	0.0	22.4
14-Dec-24	0.0	0.0	21.1



Restoration of TKO Stage II/III Landfill
Migration Gas Wells Monitoring Data - 2/UG9

Date of Sample	CO_2 (%)	Methane (%)	O_2 (%)
20-Jan-20	0.7	0.0	20.8
8-Feb-20	1.2	0.0	19.0
20-Mar-20	1.2	0.0	19.3
3-Apr-20	1.6	0.0	18.9
2-May-20	2.1	0.0	17.6
26-Jun-20	1.6	0.0	18.4
8-Jul-20	0.1	0.0	20.7
8-Aug-20	0.4	0.0	20.2
26-Sep-20	0.3	0.0	20.3
12-Oct-20	0.4	0.0	19.8
9-Nov-20	6.9	0.0	13.7
12-Dec-20	2.7	0.0	15.2
4-Jan-21	5.7	0.0	15.8
6-Feb-21	4.8	0.0	15.7
20-Mar-21	4.2	0.0	15.7
7-Apr-21	0.1	0.0	20.4
8-May-21	1.2	0.0	20.0
5-Jun-21	0.8	0.0	19.6
9-Jul-21	0.0	0.0	20.4
7-Aug-21	1.0	0.0	18.7
18-Sep-21	0.9	0.0	19.2
6-Oct-21	5.6	0.0	11.4
15-Nov-21	0.0	0.0	20.7
18-Dec-21	4.2	0.0	13.6
5-Jan-22	6.1	0.0	11.4
5-Feb-22	5.3	0.0	12.6
26-Mar-22	0.4	0.0	20.1
6-Apr-22	0.0	0.0	20.6
7-May-22	1.1	0.0	18.5
21-Jun-22	2.7	0.0	16.7
11-Jul-22	1.0	0.0	19.2
20-Aug-22	2.1	0.0	17.3
3-Sep-22	3.3	0.0	16.9
12-Oct-22	0.0	0.0	22.3
7-Nov-22	0.7	0.0	19.4
12-Dec-22	1.9	0.0	19.7
9-Jan-23	6.8	0.0	8.3
14-Feb-23	4.5	0.0	16.7
14-Mar-23	3.9	0.0	17.1
17-Apr-23	0.1	0.0	20.7
19-May-23	0.9	0.0	19.9
19-Jun-23	1.3	0.0	18.1
12-Jul-23	0.1	0.0	21.1
11-Aug-23	1.1	0.0	18.9
4-Sep-23	2.7	0.0	18.1
13-Oct-23	0.1	0.0	22.5
6-Nov-23	0.0	0.0	23.6
18-Dec-23	1.1	0.0	20.2
8-Jan-24	0.3	0.0	21.3
14-Feb-24	1.3	0.0	18.2
14-Mar-24	0.9	0.0	18.4
8-Apr-24	6.6	0.0	13.1
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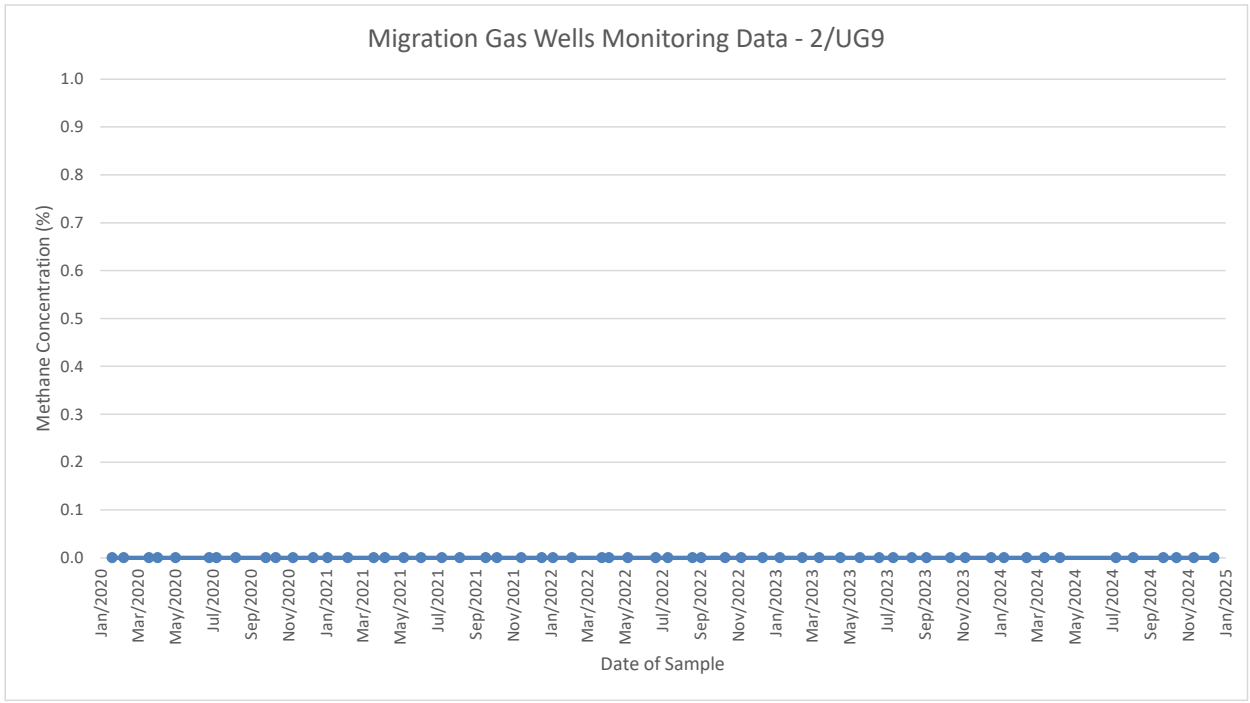
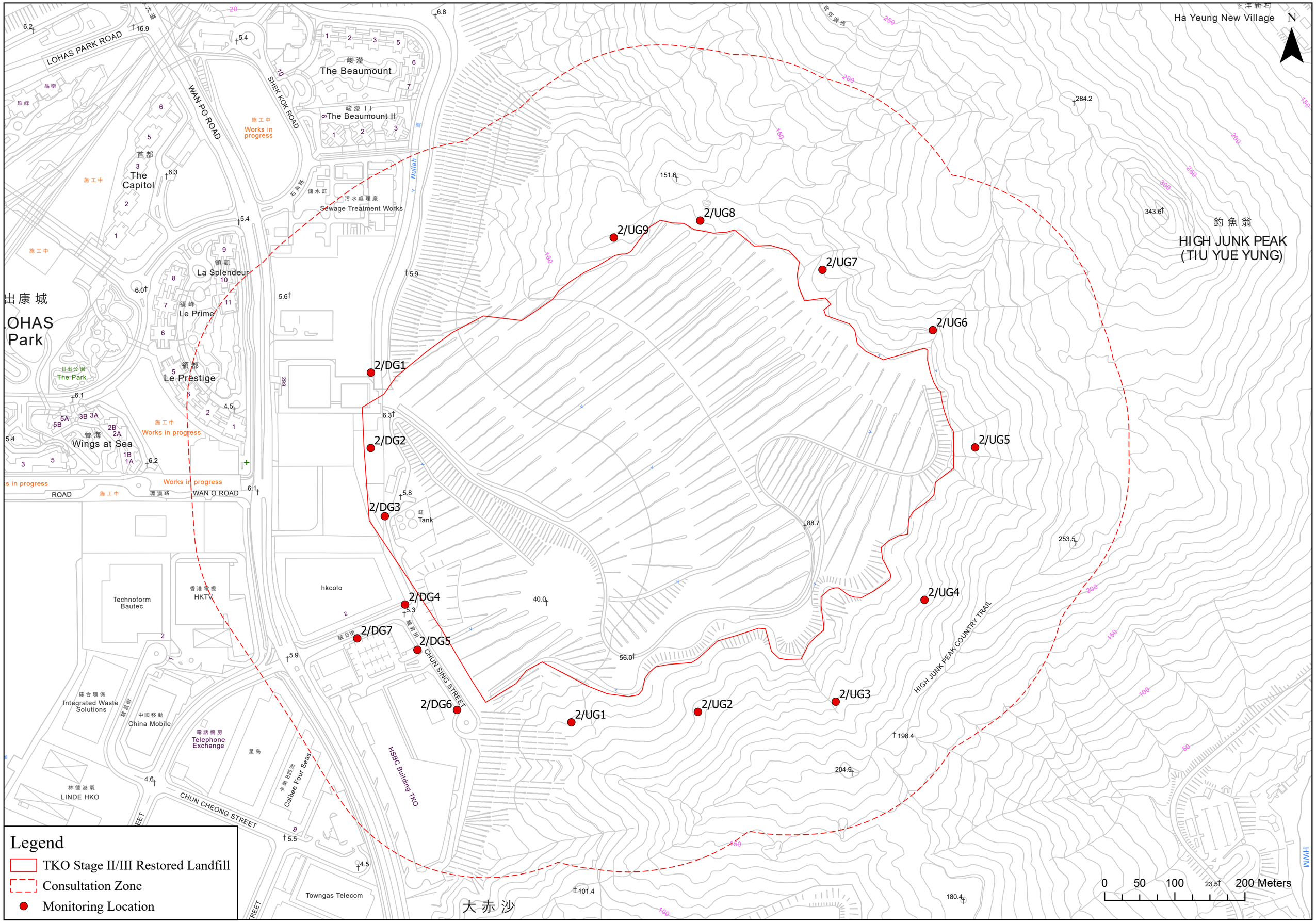
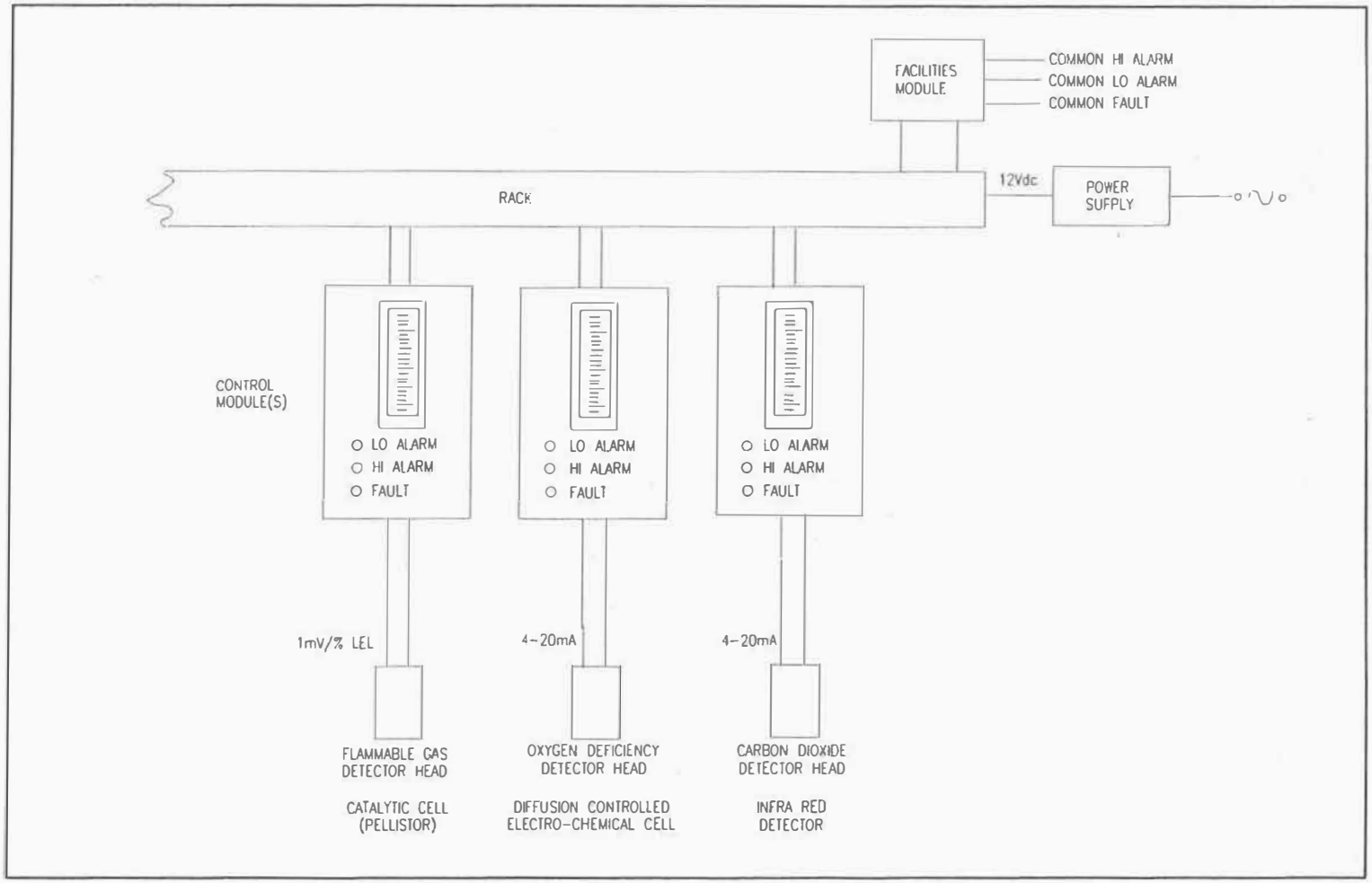
8-Jul-24	0.2	0.0	19.3
5-Aug-24	1.3	0.0	18.5
23-Sep-24	1.9	0.0	16.9
14-Oct-24	0.8	0.0	17.4
11-Nov-24	0.0	0.0	23.5
14-Dec-24	1.4	0.0	19.3




Ha Yeung New Village
N
LOHAS PARK ROAD
WAN PO ROAD
SHEK KOK ROAD
The Beaumount
The Beaumount II
Works in progress
The Capitol
Sewage Treatment Works
La Splendeur
Le Prime
Le Prestige
The Park
Wings at Sea
HIGH JUNK PEAK
(TIU YUE YUNG)
2/UG8
2/UG9
2/UG7
2/UG6
2/UG5
2/UG4
2/UG3
2/UG2
2/UG1
2/DG1
2/DG2
2/DG3
2/DG4
2/DG5
2/DG6
2/DG7
Tank
Technoform Bautec
HKTV
hkcolo
CHUN SING STREET
HIGH JUNK PEAK COUNTRY TRAIL
Integrated Waste Solutions
China Mobile
Telephone Exchange
HSBC Building TKO
Calbee Four Seas
LINDE HKO
CHUN CHEONG STREET
WAN O ROAD
Towngas Telecom
大赤沙
Legend
TKO Stage II/III Restored Landfill
Consultation Zone
Monitoring Location
0 50 100 200 Meters

Appendix 10.2

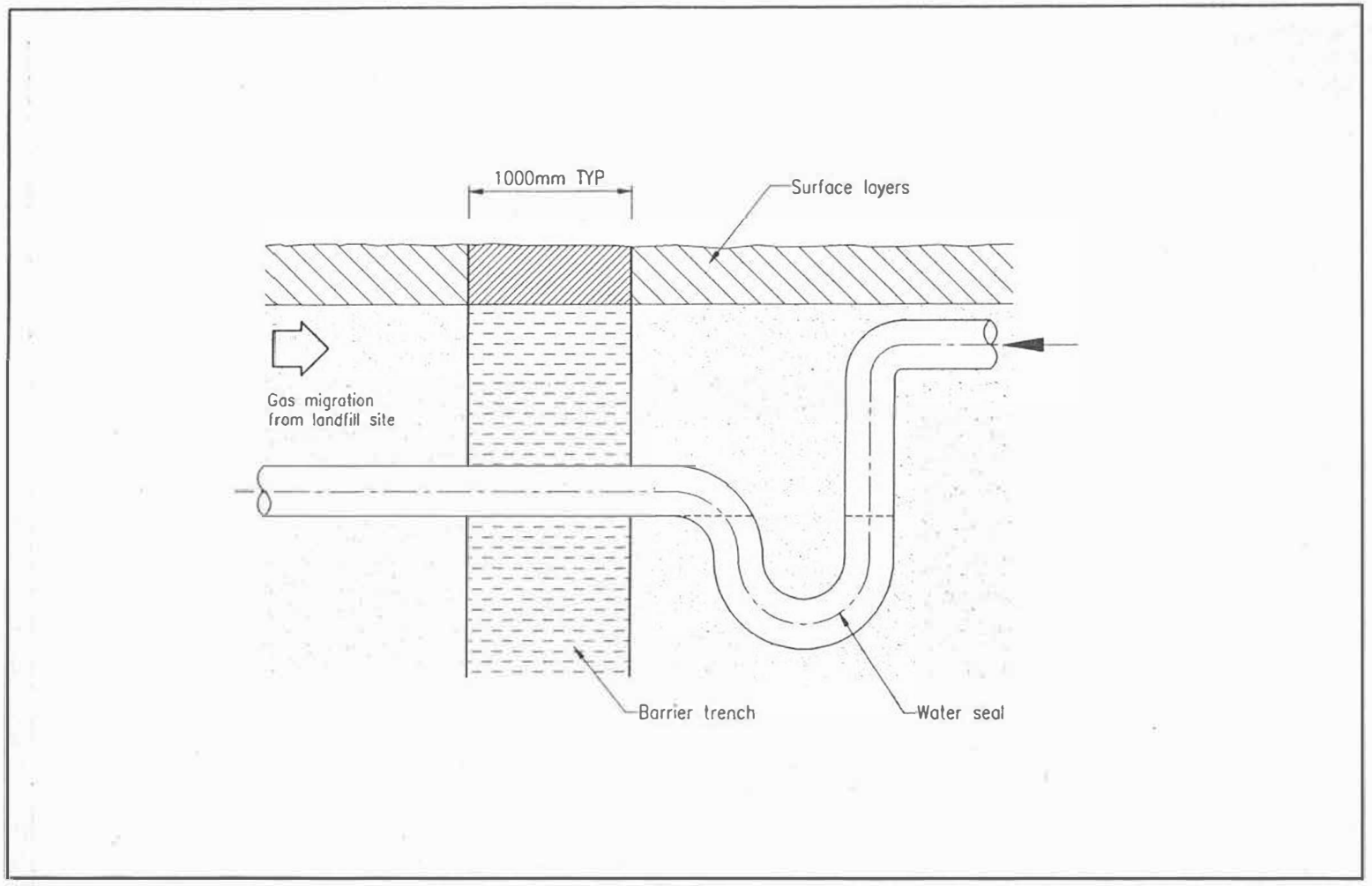
Automatic Gas Detection System



APPENDIX : SCHEMATIC OF AUTOMATIC GAS DETECTION SYSTEM

Appendix 10.3

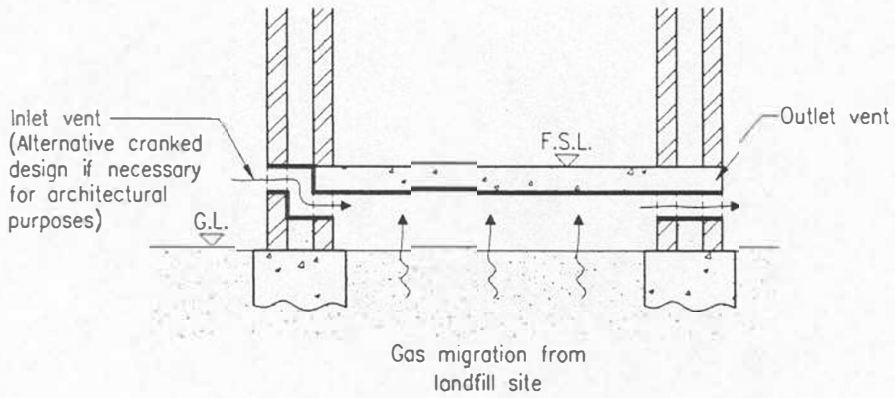
Open Conduit Protection by Water Seal



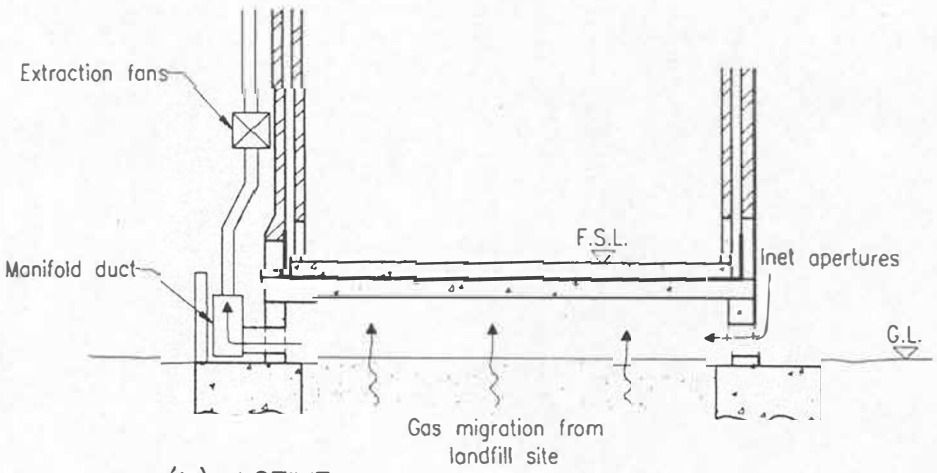
APPENDIX : OPEN CONDUIT PROTECTION BY WATER SEAL (LONGITUDINAL SECTION)

Appendix 10.4

Subfloor Venting



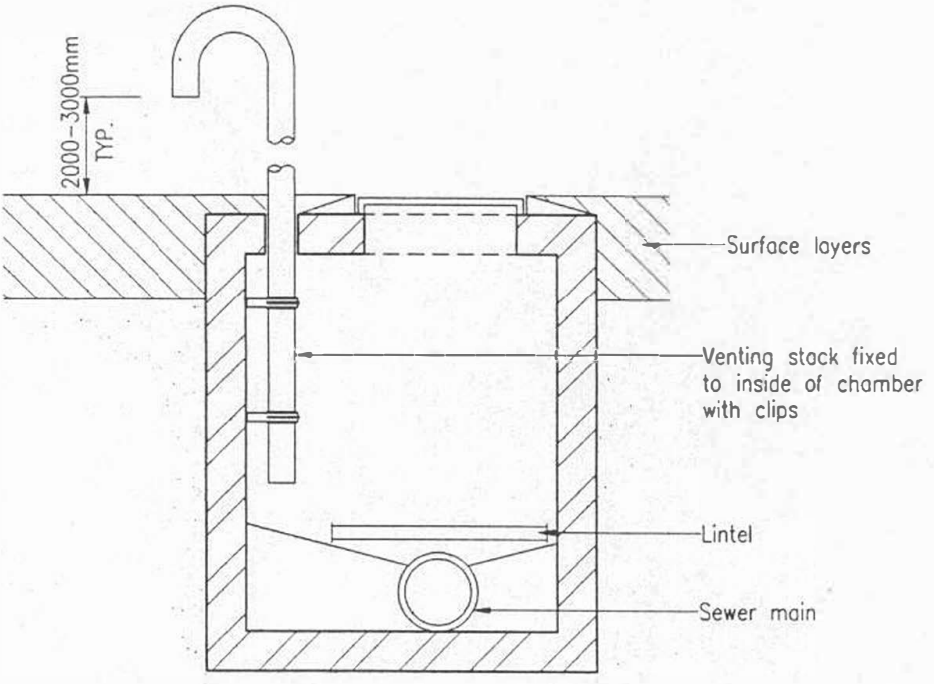
(a) PASSIVE



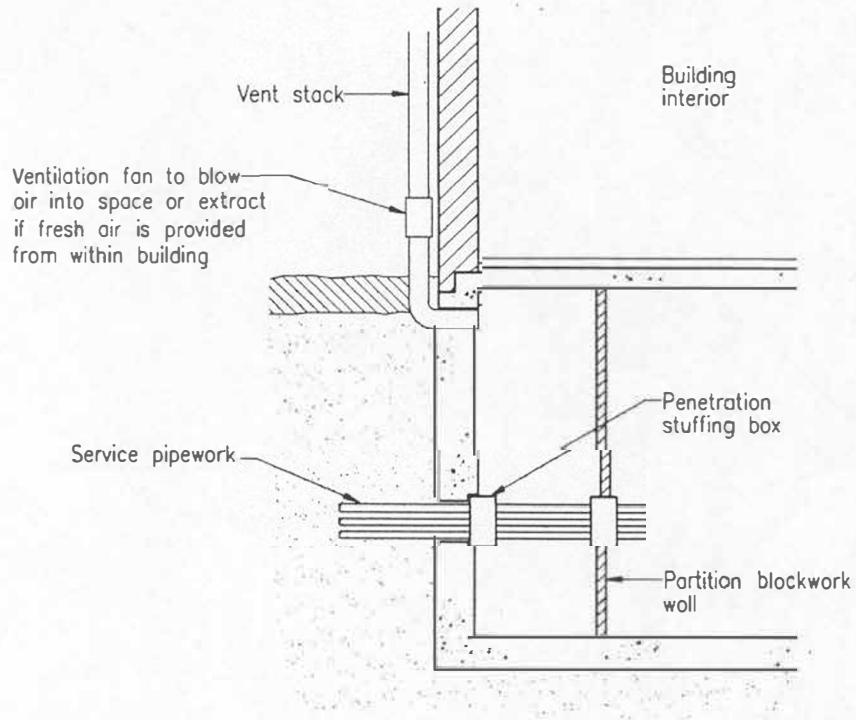
(b) ACTIVE

Appendix 10.5

Vented Manhole or Gas Interceptor Cavity



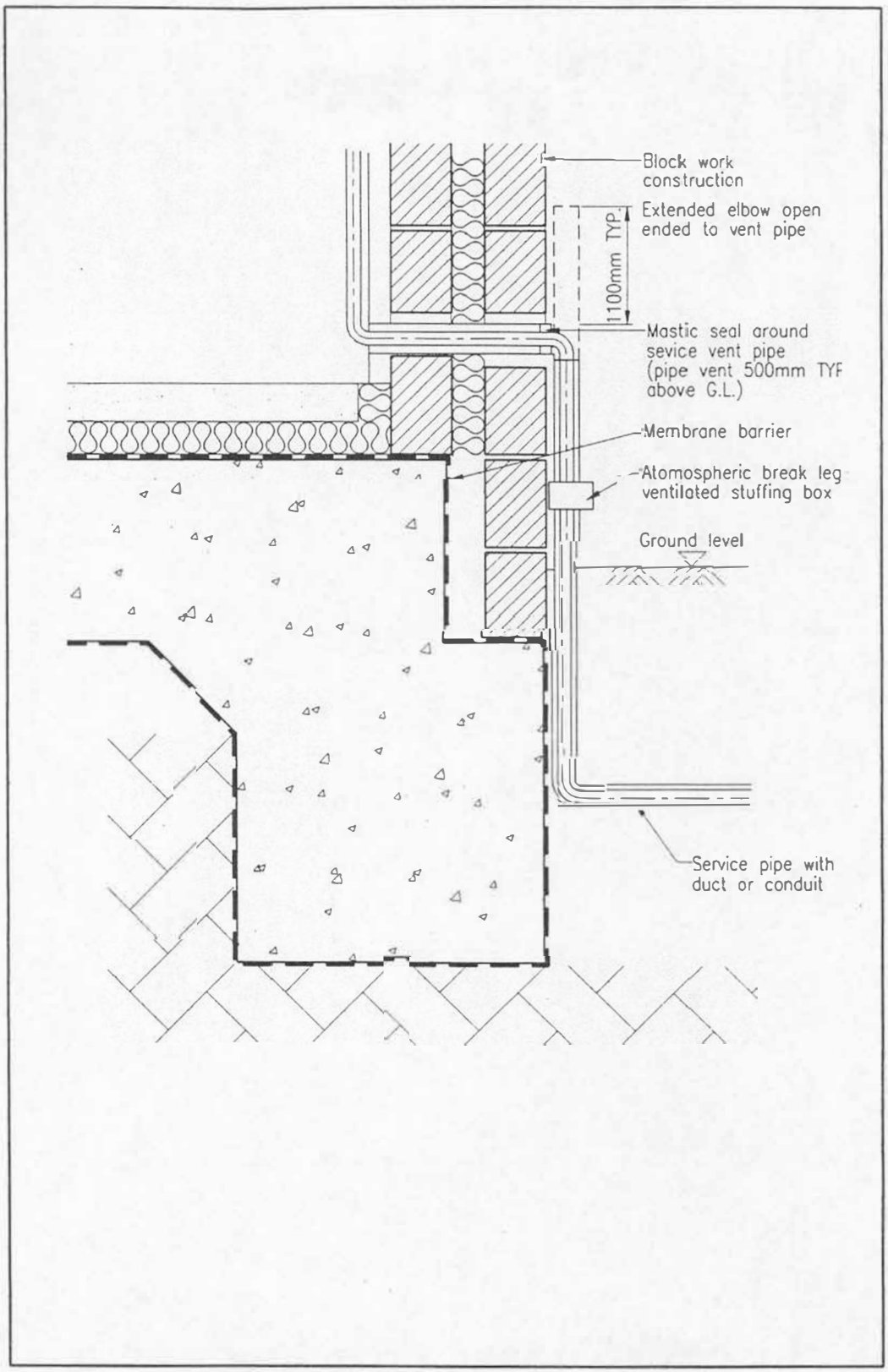
APPENDIX : VENTED MANHOLE (CROSS-SECTION)



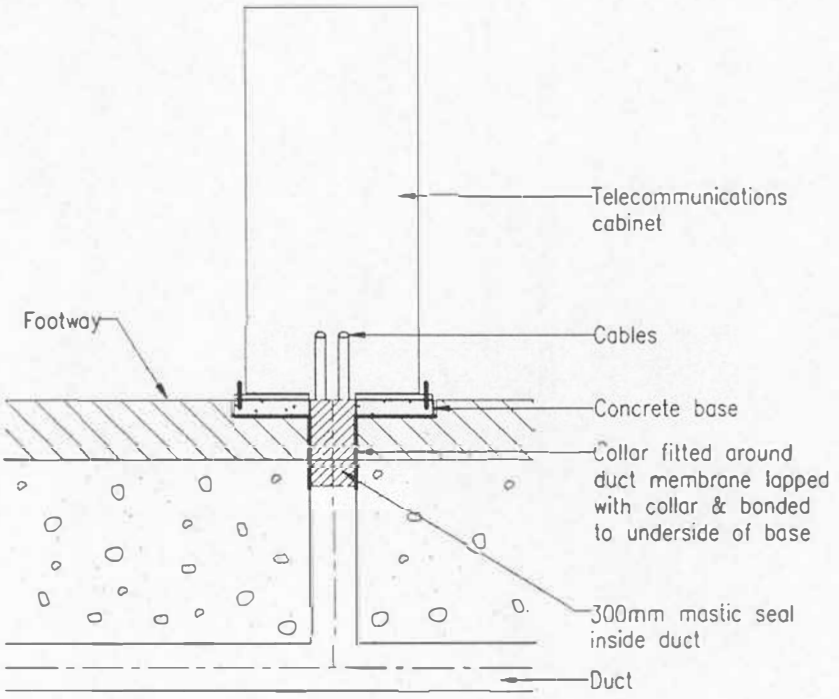
APPENDIX : VENTED GAS INTERCEPTOR CAVITY (CROSS-SECTION)

Appendix 10.6

Above Ground Service Entry and Above Ground Termination of Services



APPENDIX : ABOVE GROUND SERVICE ENTRY



APPENDIX : TYPICAL SURFACE DETAIL FOR ABOVE GROUND TERMINATION OF SERVICES WITHIN THE CONSULTATION ZONE (CROSS-SECTION)