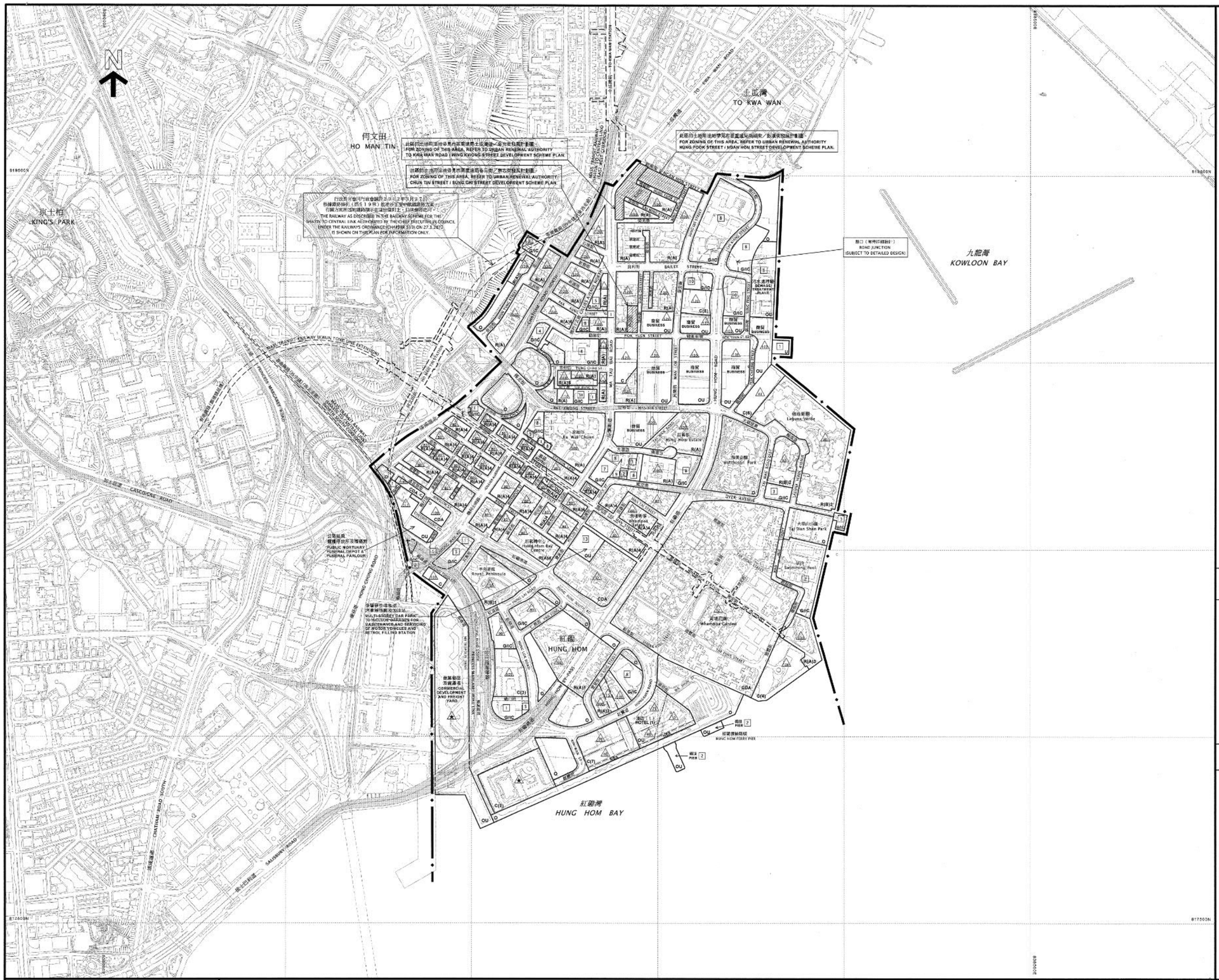


圖例
NOTATION

ZONES — 地帶

COMMERCIAL	C	商業
COMPREHENSIVE DEVELOPMENT AREA	CDA	綜合發展區
RESIDENTIAL (GROUP A)	R(A)	住宅（甲類）
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC	政府、機構或社區
OPEN SPACE	O	休閒用地
OTHER SPECIFIED USES	OU	其他指定用途
UNDETERMINED	U	未決定用途

COMMUNICATIONS — 交通

RAILWAY AND STATION (UNDERGROUND)	鐵路及車站（地下）
MAJOR ROAD AND JUNCTION	主要道路及路口
ELEVATED ROAD	高架道路

MISCELLANEOUS — 其他

BOUNDARY OF PLANNING SCHEME	規劃範圍界線
URBAN RENEWAL AUTHORITY DEVELOPMENT SCHEME PLAN AREA	市區重建局發展計劃圖範圍
BUILDING HEIGHT CONTROL ZONE BOUNDARY	建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM) — 80	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT RESTRICTION AS STIPULATED ON THE NOTES	（註釋）內訂明最高建築物高度限制
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS) — 8	最高建築物高度（樓層數目）
NON-BUILDING AREA — NBA	非建築用地

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & % 公頃 HECTARES	% 百分率	用途
COMMERCIAL	7.78	5.35	商業
COMPREHENSIVE DEVELOPMENT AREA	19.08	13.13	綜合發展區
RESIDENTIAL (GROUP A)	26.32	18.11	住宅（甲類）
RESIDENTIAL (GROUP B)	6.63	4.56	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	12.58	8.65	政府、機構或社區
OPEN SPACE	13.40	9.22	休閒用地
OTHER SPECIFIED USES	16.83	11.58	其他指定用途
UNDETERMINED	0.17	0.12	未決定用途
MAJOR ROAD ETC.	41.26	28.38	主要道路等
URBAN RENEWAL AUTHORITY DEVELOPMENT SCHEME PLAN AREA	1.31	0.90	市區重建局發展計劃圖範圍
TOTAL PLANNING SCHEME AREA	145.36	100.00	規劃範圍總面積

夾附的《註釋》屬這份圖則的一部分
THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN

行政長官會同行政會議於２０２２年５月３１日 根據城市規劃條例第９（１）（ａ）條核准的圖則
APPROVED BY THE CHIEF EXECUTIVE IN COUNCIL UNDER SECTION 9(1)(a) OF THE TOWN PLANNING ORDINANCE ON 31 MAY 2022

Ms Wendy LEUNG 梁蘊儀女士
CLERK TO THE EXECUTIVE COUNCIL 行政會議秘書

香港城市規劃委員會依據城市規劃條例擬備的紅磡（九龍規劃區第９區）分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
KOWLOON PLANNING AREA No. 9 - HUNG HOM - OUTLINE ZONING PLAN

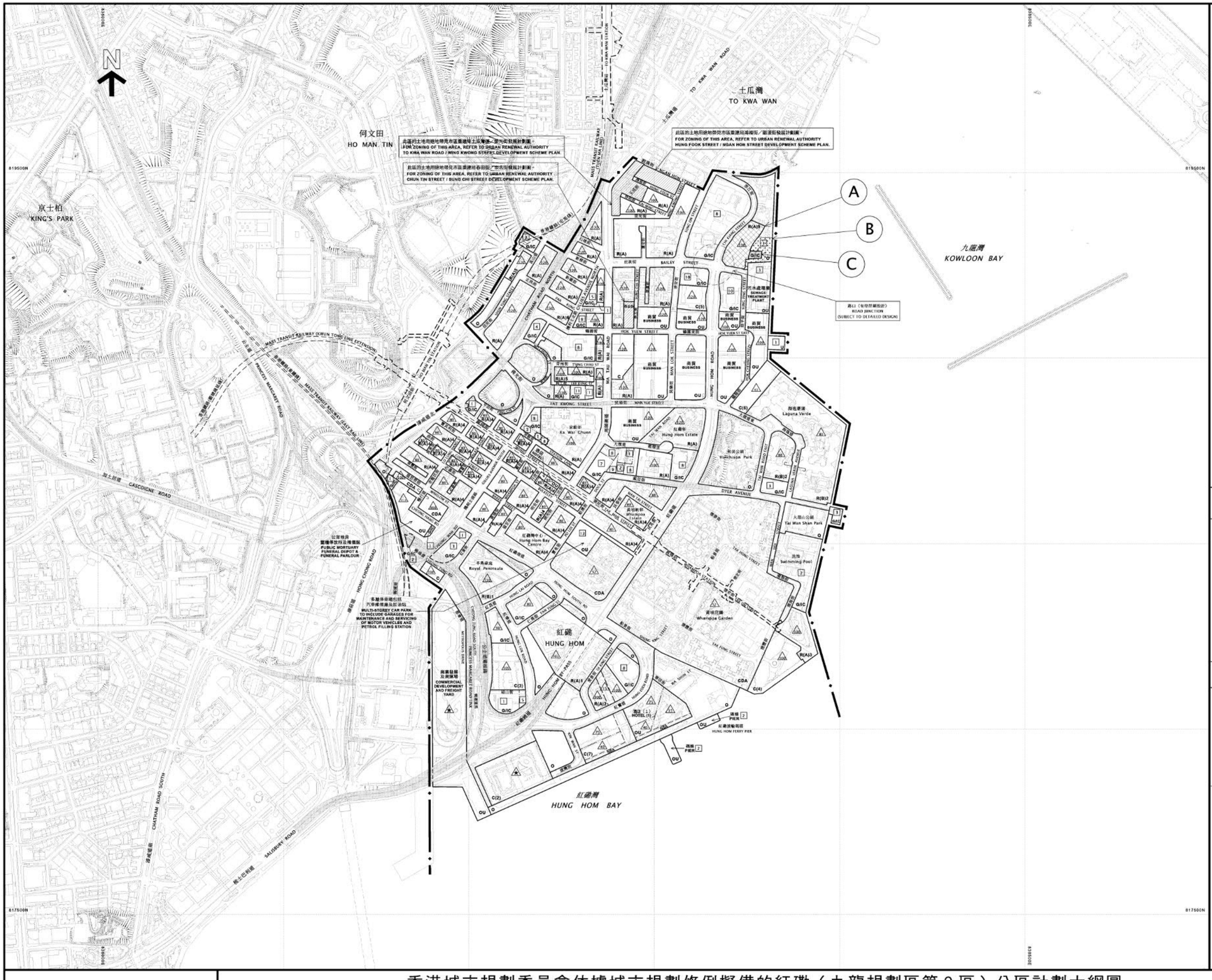
SCALE 1:5000 比例尺
0 200 400 600 800 METRES 米

規劃署遵照城市規劃委員會指示擬備
PREPARED BY THE PLANNING DEPARTMENT UNDER THE DIRECTION OF THE TOWN PLANNING BOARD

圖則編號 PLAN No. **S/K9/28**

本摘要圖於2025年8月8日擬備
EXTRACT PLAN PREPARED ON 8.8.2025

參考編號 REFERENCE No. M/K9/25/28



圖例 NOTATION

ZONES		地帶
COMMERCIAL	C	商業
COMPREHENSIVE DEVELOPMENT AREA	CDA	綜合發展區
RESIDENTIAL (GROUP A)	R(A)	住宅（甲類）
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC	政府、機構或社區
OPEN SPACE	O	休憩用地
OTHER SPECIFIED USES	OU	其他指定用途
UNDETERMINED	U	未決定用途

COMMUNICATIONS		交通
RAILWAY AND STATION (UNDERGROUND)	MTR SUNG WONG TOI	鐵路及車站（地下）
MAJOR ROAD AND JUNCTION		主要道路及路口
ELEVATED ROAD		高架道路

MISCELLANEOUS		其他
BOUNDARY OF PLANNING SCHEME		規劃範圍界線
URBAN RENEWAL AUTHORITY DEVELOPMENT SCHEME PLAN AREA		市區重建局發展計劃圖範圍
BUILDING HEIGHT CONTROL ZONE BOUNDARY		建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	80	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT RESTRICTION AS STIPULATED ON THE NOTES		《註釋》內訂明最高建築物高度限制
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	1	最高建築物高度（樓層數目）
NON-BUILDING AREA	NBA	非建築用地

土地用途及面積一覽表 SCHEDULE OF USES AND AREAS

USES	APPROXIMATE AREA & % 大約面積及百分率 公頃 HECTARES	% 百分率	用途
COMMERCIAL	7.78	5.35	商業
COMPREHENSIVE DEVELOPMENT AREA	19.08	13.13	綜合發展區
RESIDENTIAL (GROUP A)	27.08	18.63	住宅（甲類）
RESIDENTIAL (GROUP B)	6.63	4.56	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	11.88	8.17	政府、機構或社區
OPEN SPACE	13.72	9.44	休憩用地
OTHER SPECIFIED USES	16.45	11.32	其他指定用途
UNDETERMINED	0.17	0.12	未決定用途
MAJOR ROAD ETC.	41.26	28.38	主要道路等
URBAN RENEWAL AUTHORITY DEVELOPMENT SCHEME PLAN AREA	1.31	0.90	市區重建局發展計劃圖範圍
TOTAL PLANNING SCHEME AREA	145.36	100.00	規劃範圍總面積

夾附的《註釋》屬這份圖則的一部分，
現經修訂並按照城市規劃條例第 5 條展示。
THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN AND HAVE BEEN AMENDED FOR EXHIBITION UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE

核准圖編號 S/K9/28 的修訂
AMENDMENTS TO APPROVED PLAN No. S/K9/28

AMENDMENTS EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE	按照城市規劃條例第 5 條展示的修訂
AMENDMENT ITEM A	修訂項目 A 項
AMENDMENT ITEM B	修訂項目 B 項
AMENDMENT ITEM C	修訂項目 C 項

（參看附表）
(SEE ATTACHED SCHEDULE)

香港城市規劃委員會依據城市規劃條例擬備的紅磡（九龍規劃區第 9 區）分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
KOWLOON PLANNING AREA No. 9 - HUNG HOM - OUTLINE ZONING PLAN

SCALE 1:5 000 比例尺
METRES 100 0 200 400 600 800 METRES 米

規劃署遵照城市規劃委員會指示擬備
PREPARED BY THE PLANNING DEPARTMENT UNDER THE DIRECTION OF THE TOWN PLANNING BOARD

圖則編號 PLAN No. **S/K9/28A**

本摘要圖於2025年8月8日擬備
EXTRACT PLAN PREPARED ON 8.8.2025

參考編號 REFERENCE No. M/K9/25/28

Attachment III of
MPC paper no. 7/25

KOWLOON PLANNING AREA NO. 9

~~APPROVED~~ *DRAFT* HUNG HOM OUTLINE ZONING PLAN NO. S/K9/28*A*

(Being a~~n Approved~~ ***Draft*** Plan for the Purposes of the Town Planning Ordinance)

NOTES

(N.B. These form part of the Plan)

(1) These Notes show the uses or developments on land falling within the boundaries of the Plan which are always permitted and which may be permitted by the Town Planning Board, with or without conditions, on application. Where permission from the Town Planning Board for a use or development is required, the application for such permission should be made in a prescribed form. The application shall be addressed to the Secretary of the Town Planning Board, from whom the prescribed application form may be obtained.

(2) Any use or development which is always permitted or may be permitted in accordance with these Notes must also conform to any other relevant legislation, the conditions of the Government lease concerned, and any other Government requirements, as may be applicable.

(3) (a) No action is required to make the existing use of any land or building conform to this Plan until there is a material change of use or the building is redeveloped.

(b) Any material change of use or any other development (except minor alteration and/or modification to the development of the land or building in respect of the existing use which is always permitted) or redevelopment must be always permitted in terms of the Plan or, if permission is required, in accordance with the permission granted by the Town Planning Board.

(c) For the purposes of subparagraph (a) above, "existing use of any land or building" means -

(i) before the publication in the Gazette of the notice of the first statutory plan covering the land or building (hereafter referred as 'the first plan'),

- a use in existence before the publication of the first plan which has continued since it came into existence; or

- a use or a change of use approved under the Buildings Ordinance which relates to an existing building; and

(ii) after the publication of the first plan,

- a use permitted under a plan which was effected during the effective period of that plan and has continued since it was effected; or

- a use or a change of use approved under the Buildings Ordinance which relates to an existing building and permitted under a plan prevailing at the time when the use or change of use was approved.

(4) Except as otherwise specified by the Town Planning Board, when a use or material change of use is effected or a development or redevelopment is undertaken**,** as always permitted in terms of the Plan or in accordance with a permission granted by the Town Planning Board, all permissions granted by the Town Planning Board in respect of the site of the use or material change of use or development or redevelopment shall lapse.

(5) Road junctions, alignments of roads and railway tracks**,** and boundaries between zones may be subject to minor adjustments as detailed planning proceeds.

(6) Temporary uses (expected to be 5 years or less) of any land or buildings are always permitted as long as they comply with any other relevant legislation, the conditions of the Government lease concerned, and any other Government requirements, and there is no need for these to conform to the zoned use or these Notes. For temporary uses expected to be over 5 years, the uses must conform to the zoned use or these Notes.

(7) The following uses or developments are always permitted on land falling within the boundaries of the Plan except where the uses or developments are specified in Column 2 of the Notes of individual zones:

(a) provision, maintenance or repair of plant nursery, amenity planting, open space, rain shelter, refreshment kiosk, road, bus/public light bus stop or lay-by, cycle track, Mass Transit Railway station entrance, Mass Transit Railway structure below ground level, taxi rank, nullah, public utility pipeline, electricity mast, lamp pole, telephone booth, telecommunications radio base station, automatic teller machine and shrine;

(b) geotechnical works, local public works, road works, sewerage works, drainage works, environmental improvement works, marine related facilities, waterworks (excluding works on service reservoir) and such other public works co-ordinated or implemented by Government; and

(c) maintenance or repair of watercourse and grave.

(8) In any area shown as 'Road', all uses or developments except those specified in paragraph (7) above and those specified below require permission from the Town Planning Board:

on-street vehicle park and railway track.

(9) In the "Undetermined" zone, all uses or developments except those specified in paragraph (7) above require permission from the Town Planning Board. All new development, or addition, alteration and/or modification to or redevelopment of an existing building shall not exceed a maximum building height in terms of number of storeys as stipulated on the Plan or the height of the existing building, whichever is the greater.

(10) Unless otherwise specified, all building, engineering and other operations incidental to and all uses directly related and ancillary to the permitted use*s* and developments within the same zone are always permitted and no separate permission is required.

(11) In these Notes, "existing building" means a building, including a structure, which is physically existing and is in compliance with any relevant legislation and the conditions of the Government lease concerned.

KOWLOON PLANNING AREA NO. 9

~~APPROVED~~ *DRAFT* HUNG HOM OUTLINE ZONING PLAN NO. S/K9/28*A*

Schedule of Uses

	Page
COMMERCIAL	1
COMPREHENSIVE DEVELOPMENT AREA	4
RESIDENTIAL (GROUP A)	7
RESIDENTIAL (GROUP B)	~~11~~*13*
GOVERNMENT, INSTITUTION OR COMMUNITY	~~13~~*15*
OPEN SPACE	~~15~~*17*
OTHER SPECIFIED USES	~~16~~*18*

COMMERCIAL

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Commercial Bathhouse/ Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Government Refuse Collection Point (on land designated "C(5)" only) Government Use (not elsewhere specified) Hotel Information Technology and Telecommunications Industries Institutional Use (not elsewhere specified) Library Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Car/Lorry Park (on land designated "C(3)" and "C(5)" only) Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle and lorry) Recyclable Collection Centre Religious Institution School Shop and Services Social Welfare Facility Training Centre Utility Installation for Private Project Wholesale Trade	Broadcasting, Television and/or Film Studio Flat Government Refuse Collection Point (not elsewhere specified) Hospital Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Residential Institution

Planning Intention

This zone is intended primarily for commercial developments, which may include uses such as office, shop, services, place of entertainment, eating place and hotel, functioning as territorial business/financial centres and regional or district commercial/shopping centres. These areas are usually major employment nodes.

(Please see next page)

COMMERCIAL (Cont'd)

Remarks

(1) On land designated "Commercial" ("C"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 12.0 or the plot ratio of the existing building, whichever is the greater.

(2) On land designated "Commercial (2)" ("C(2)"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area (GFA) of 107,444m^2; and a maximum building height ranging from a maximum of 30 metres above Principal Datum (mPD) at the southern part of the site to a maximum of 55mPD at the northern part of the site, or the height of the existing building, whichever is the greater. A "stepped height" building profile is required.

(3) On land designated "Commercial (3)" ("C(3)"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 119,280m^2 of which a GFA of not less than 16,300m^2 shall be provided for a public car/lorry park.

(4) On land designated "Commercial (4)" ("C(4)"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 146,025m^2. Public open space, including a 13-metre wide waterfront promenade, shall be provided.

(5) On land designated "Commercial (5)" ("C(5)") , no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 54,681m^2, of which a Government refuse collection point of a GFA of not less than 442m^2 and a public car/lorry park of not less than 450 spaces shall be provided.

(6) On land designated "Commercial (6)" ("C(6)"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 25,338m^2.

(7) On land designated "Commercial (7)" ("C(7)"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 54,812m^2, of which a GFA of not less than 6,200m^2 shall be provided for eating place and shop and services uses; and a maximum site coverage of 60% (excluding basement(s)), or the site coverage of the existing building, whichever is the greater. A 30m-wide non-building area (NBA) along the eastern boundary and a 10m-wide NBA along the southern boundary as stipulated on the Plan shall be provided. Ancillary car parking should be provided in the basement.

(Please see next page)

COMMERCIAL (Cont'd)

Remarks (Cont'd)

(8) On land designated "C", "C(3)", "C(5)" ,"C(6)" and "C(7)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of mPD as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(9) On land designated "C(4)", no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of mPD as stipulated on the Plan.

(10) In determining the maximum plot ratio/GFA for the purposes of paragraphs (1) to (6) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(11) Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio/GFA for the building on land to which paragraph (1), (2), (3), (4), (5) or (6) applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio/GFA specified in paragraphs (1) to (6) above may thereby be exceeded.

(12) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/GFA/building height/site coverage restrictions stated in paragraphs (1) to (9) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(13) Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the NBA restrictions as shown on the Plan and stated in paragraph (7) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

COMPREHENSIVE DEVELOPMENT AREA

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
	Commercial Bathhouse Eating Place Educational Institution Exhibition or Convention Hall Flat Government Refuse Collection Point Government Use (not elsewhere specified) Hotel Information Technology and Telecommunications Industries Institutional Use (not elsewhere specified) Library Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Office Petrol Filling Station Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution Research, Design and Development Centre Residential Institution School Shop and Services Social Welfare Facility Training Centre Utility Installation for Private Project

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (Cont'd)

Planning Intention

This zone is intended for comprehensive development/redevelopment of the area for residential and/or commercial uses with the provision of open space and other supporting facilities. The zoning is to facilitate appropriate planning control over the development mix, scale, design and layout of development, taking account of various environmental, traffic, infrastructure and other constraints.

Remarks

(1) Pursuant to section 4A(2) of the Town Planning Ordinance, and except as otherwise expressly provided that it is not required by the Town Planning Board, an applicant for permission for development on land designated "Comprehensive Development Area" shall prepare a Master Layout Plan for the approval of the Town Planning Board and include therein the following information :

(i) the area of the proposed land uses, the nature, position, dimensions, and heights of all buildings to be erected in the area;

(ii) the proposed total site area and gross floor area (GFA) for various uses, total number of flats and flat sizes, where applicable;

(iii) the details and extent of Government, institution or community (GIC) and recreational facilities, public transport and parking facilities, and open space to be provided within the area;

(iv) the alignment, widths and levels of any roads proposed to be constructed within the area;

(v) the landscape and urban design proposals within the area;

(vi) programmes of development in detail;

(vii) an environmental assessment report to examine any possible environmental problems that may be caused to or by the proposed development during and after construction and the proposed mitigation measures to tackle them;

(viii) a drainage and sewerage impact assessment report to examine any possible drainage and sewerage problems that may be caused by the proposed development and the proposed mitigation measures to tackle them;

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (Cont'd)

Remarks (Cont'd)

(ix) a traffic impact assessment report to examine any possible traffic problems that may be caused by the proposed development and the proposed mitigation measures to tackle them; and

(x) such other information as may be required by the Town Planning Board.

(2) The Master Layout Plan mentioned in paragraph (1) above should be supported by an explanatory statement which contains an adequate explanation of the development proposal, including such information as land tenure, relevant lease conditions, existing conditions of the site, the character of the site in relation to the surrounding areas, principles of layout design, major development parameters, design population, types of GIC facilities, and recreational and open space facilities.

(3) On land designated "Comprehensive Development Area" at the junction of Cheong Hang Road and Winslow Street, residential development will not be permitted. No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 57,000m^2.

(4) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of metres above Principal Datum as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(5) In determining the maximum GFA for the purposes of paragraph (3) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(6) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the GFA/building height restrictions mentioned in paragraphs (3) and (4) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

RESIDENTIAL (GROUP A)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Flat Government Use (not elsewhere specified) House Library Market Place of Recreation, Sports or Culture Public Clinic Public Transport Terminus or Station (excluding open-air terminus or station) ***Public Vehicle Park (excluding container vehicle) (on land designated "R(A)9" only)*** Residential Institution School (in free-standing purpose-designed building only) Social Welfare Facility Utility Installation for Private Project	Commercial Bathhouse/ Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Government Refuse Collection Point Hospital Hotel Institutional Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Office Petrol Filling Station Place of Entertainment Private Club Public Convenience Public Transport Terminus or Station (not elsewhere specified) Public Utility Installation Public Vehicle Park (excluding container vehicle) ***(not elsewhere specified)*** Religious Institution School (not elsewhere specified) Shop and Services (not elsewhere specified) Training Centre

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

In addition, the following uses are always permitted (a) on the lowest three floors of a building, taken to include basements; or (b) in the purpose-designed non-residential portion of an existing building, both excluding floors containing wholly or mainly car parking, loading/unloading bays and/or plant room :	

Eating Place
Educational Institution
Institutional Use (not elsewhere specified)
Off-course Betting Centre
Office
Place of Entertainment
Private Club
Public Convenience
Recyclable Collection Centre
School
Shop and Services
Training Centre

Planning Intention

This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building. For the "Residential (Group A)5" ("R(A)5") zone, the planning intention is purely for residential development.

Remarks

(1) On land designated "Residential (Group A)" ("R(A)"), "Residential (Group A)3" ("R(A)3") and "Residential (Group A)4" ("R(A)4"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in the plot ratio for the building upon development and/or redevelopment in excess of 7.5 for a domestic building or 9.0 for a building that is partly domestic and partly non-domestic, or the plot ratio of the existing building, whichever is the greater. Except where the plot ratio is permitted to be exceeded under paragraphs ~~(13)~~ ***(15)*** and/or ~~(14)~~ ***(16)*** hereof, under no circumstances shall the plot ratio for the domestic part of any building, to which this paragraph applies, exceed 7.5.

(2) For a non-domestic building to be erected on the site, the maximum plot ratio shall not exceed 9.0 except where the plot ratio is permitted to be exceeded under paragraphs ~~(13)~~ ***(15)*** and/or ~~(14)~~ ***(16)*** hereof.

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

(3) For the purposes of paragraph (1) above, on land designated "R(A)", "R(A)3" and "R(A)4", no addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the relevant maximum domestic and/or non-domestic plot ratio(s), or the domestic and/or non-domestic plot ratio(s) of the existing building, whichever is the greater, subject to, as applicable-

(i) the plot ratio(s) of the existing building shall apply only if any addition, alteration and/or modification to or redevelopment of an existing building is for the same type of building as the existing building, i.e. domestic, non-domestic, or partly domestic and partly non-domestic building; or

(ii) the maximum domestic and/or non-domestic plot ratio(s) stated in paragraph (1) above shall apply if any addition, alteration and/or modification to or redevelopment of an existing building is not for the same type of building as the existing building, i.e. domestic, non-domestic, or partly domestic and partly non-domestic building.

(4) On land designated "Residential (Group A)1" ("R(A)1"), no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum domestic gross floor area (GFA) of 144,300m^2 and a maximum non-domestic GFA of 4,500m^2.

(5) On land designated "Residential (Group A)2" ("R(A)2"), no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 4.5 (including a maximum non-domestic plot ratio of 0.5), a maximum domestic site coverage of 30% and a maximum non-domestic site coverage of 60% (both excluding basement(s)). Ancillary car parking should be provided in the basement.

(6) On land designated "R(A)5", no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum domestic plot ratio of 7.5, or the plot ratio of the existing building, whichever is the greater.

(7) On land designated "Residential (Group A)6" ("R(A)6"), no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum domestic GFA of 28,396.05m^2 and a maximum non-domestic GFA of 5,679.21m^2.

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

(8) On land designated "Residential (Group A)9" ("R(A)9"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in the GFA for the building upon development and/or redevelopment in excess of 60,880m² for a domestic building or 68,490m² for a building that is partly domestic and partly non-domestic, or the GFA of the existing building, whichever is the greater.

~~(8)~~***(9)*** On land designated "R(A)", "R(A)1", "R(A)2", "R(A)4", "R(A)5", ~~and~~ "R(A)6" ***and "R(A)9"***, no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of meters above Principal Datum (mPD) as stipulated on the Plan, or the height of the existing building, whichever is the greater.

~~(9)~~***(10)*** On land designated "R(A)3", no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of mPD as stipulated on the Plan.

~~(10)~~***(11)***On land designated "R(A)4", a maximum building height restriction of 100mPD would be permitted for sites with an area of 400m² or more.

~~(11)~~***(12)***In determining the relevant maximum plot ratio/GFA for the purposes of paragraphs (1), (2) and (4) to (7) above, area of any part of the site that is occupied or intended to be occupied by free-standing purpose-designed buildings (including both developed on ground and on podium level) solely for accommodating Government, institution or community facilities including school(s) as may be required by Government shall be deducted in calculating the relevant site area.

(13) In determining the maximum GFA for the purpose of paragraph (8) above, any floor space that is constructed or intended for use solely as public vehicle park or Government, institution or community facilities, as required by the Government, may be disregarded.

~~(12)~~***(14)***In determining the relevant maximum plot ratio/GFA for the purposes of paragraphs (1), (2) and (4) to (~~7~~)***(8)*** above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

~~(13)~~***(15)***Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio/GFA for the building on land to which paragraphs (1), (2), (4), (5), (6)~~, or~~ (7) ***or (8)*** applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with

the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio/GFA specified in the paragraphs (1), (2) and (4) to (~~7~~) **(*8*)** above may thereby be exceeded.

(~~14~~)***(16)*** Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/GFA/building height restrictions mentioned in paragraphs (1), (2) and (4) to (~~9~~) ***(10)*** above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance, except on land designated "R(A)6".

(~~15~~)***(17)*** Based on the individual merits of a development or redevelopment proposal, minor relaxation of the site coverage restriction mentioned in paragraph (5) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

RESIDENTIAL (GROUP B)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Flat Government Use (Police Reporting Centre, Post Office only) House Library Residential Institution School (in free-standing purpose-designed building only) Utility Installation for Private Project	Ambulance Depot Eating Place Educational Institution Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Hotel Institutional Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Office Petrol Filling Station Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution School (not elsewhere specified) Shop and Services Social Welfare Facility Training Centre

Planning Intention

This zone is intended primarily for medium-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Town Planning Board.

(Please see next page)

RESIDENTIAL (GROUP B) (Cont'd)

Remarks

(1) On land designated "Residential (Group B)1", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area (GFA) of 139,797m^2, of which a GFA of not less than 2,435m^2 shall be provided for Government, institution or community facilities; and the maximum building height in terms of metres above Principal Datum (mPD) as stipulated on the Plan, or the height of the existing building, whichever is the greater. Public open space of not less than 2,700m^2 shall be provided.

(2) On land designated "Residential (Group B)2" ("R(B)2"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 394,600m^2, of which a GFA of not less than 1,299m^2 shall be provided for Government, institution or community facilities. Public open space of not less than 13,000m^2 including a 6-metre wide waterfront promenade and a public transport terminus shall be provided.

(3) On land designated "R(B)2", no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of mPD as stipulated on the Plan.

(4) In determining the relevant maximum GFA for the purpose of paragraphs (1) and (2) above, any floor space that is constructed or intended for use solely as carpark, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(5) In determining the relevant maximum GFA for the purpose of paragraph (2) above, any floor space that is constructed or intended for use solely as public transport terminus, as required by Government, may also be disregarded.

(6) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the GFA/building height restrictions mentioned in paragraphs (1) to (3) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

GOVERNMENT, INSTITUTION OR COMMUNITY

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot	Animal Boarding Establishment
Animal Quarantine Centre (in Government building only)	Animal Quarantine Centre (not elsewhere specified)
Broadcasting, Television and/or Film Studio	Columbarium
Cable Car Route and Terminal Building	Correctional Institution
Eating Place (Canteen, Cooked Food Centre only)	Crematorium
Educational Institution	Driving School
Exhibition or Convention Hall	Eating Place (not elsewhere specified)
Field Study/Education/Visitor Centre	Flat
Government Refuse Collection Point	Funeral Facility
Government Use (not elsewhere specified)	Holiday Camp
Hospital	Hotel
Institutional Use (not elsewhere specified)	House
Library	Marine Fuelling Station
Market	Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Pier	
Place of Recreation, Sports or Culture	Off-course Betting Centre
Public Clinic	Office
Public Convenience	Petrol Filling Station
Public Transport Terminus or Station	Place of Entertainment
Public Utility Installation	Private Club
Public Vehicle Park (excluding container vehicle)	Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Recyclable Collection Centre	
Religious Institution	Refuse Disposal Installation (Refuse Transfer Station only)
Research, Design and Development Centre	Residential Institution
School	Sewage Treatment/Screening Plant
Service Reservoir	Shop and Services (not elsewhere specified)
Social Welfare Facility	Utility Installation for Private Project
Training Centre	Zoo
Wholesale Trade	

Planning Intention

This zone is intended primarily for the provision of Government, institution or community facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments.

(Please see next page)

GOVERNMENT, INSTITUTION OR COMMUNITY (Cont'd)

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of number of storeys or metres above Principal Datum, as stipulated on the Plan or the height of the existing building, whichever is the greater.

(2) In determining the relevant maximum number of storeys for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.

(3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction mentioned in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

OPEN SPACE

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Aviary Barbecue Spot Field Study/Education/Visitor Centre Park and Garden Pavilion Pedestrian Area Picnic Area Playground/Playing Field Promenade Public Convenience Sitting Out Area Zoo	Cable Car Route and Terminal Building Eating Place Government Refuse Collection Point Government Use (not elsewhere specified) Holiday Camp Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Pier Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Religious Institution Service Reservoir Shop and Services Tent Camping Ground Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.

OTHER SPECIFIED USES

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Multi-storey Carpark to Include Garages for Maintenance and Servicing of Motor Vehicles and Petrol Filling Station" only

Petrol Filling Station
Public Vehicle Park
(excluding container vehicle)
Vehicle Repair Workshop

Government Use
Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Office
Shop and Services
Utility Installation not Ancillary to the Specified Use

Planning Intention

This zone is intended to provide/reserve land for the development of a multi-storey carpark to include garages for maintenance and servicing of motor vehicles and petrol filling station serving the needs of local residents as well as the general public.

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excessive of a maximum plot ratio of 12.0 or the plot ratio of the existing building, whichever is the greater.

(2) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of number of storeys, as stipulated on the Plan or the height of the existing building, whichever is the greater.

(3) In determining the relevant maximum number of storeys for the purposes of paragraph (2) above, any basement floor(s) may be disregarded.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Remarks (Cont'd)

(4) Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio for the building on land to which paragraph (1) applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio specified in paragraph (1) above may thereby be exceeded.

(5) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/building height restriction mentioned in paragraphs (1) and (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Public Mortuary, Funeral Depot & Funeral Parlour" only	
Funeral Facility	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Private Club Utility Installation not Ancillary to the Specified Use

Planning Intention

This zone is intended to provide/reserve land for the provision of funeral facilities serving the needs of the general public.

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in the total development and/or redevelopment in excess of a maximum plot ratio of 6.6, or the plot ratio of the existing building, whichever is the greater.

(2) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of metres above Principal Datum, as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(3) Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio for the building on land to which paragraph (1) applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio specified in paragraph (1) above may thereby be exceeded.

(4) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/building height restrictions mentioned in paragraphs (1) and (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Pier" only	
Eating Place Government Use Pier ***Shop and Services***	~~Eating Place~~ Exhibition or Convention Hall Marine Fuelling Station Office Public Vehicle Park (excluding container vehicle) ~~Shop and Services~~

Planning Intention

This zone is primarily to provide/reserve land intended for pier(s).

Remarks

~~(1) Kiosks not greater than 10m^2 each in area and not more than 10 in number for uses as retail shop and service trades are considered as ancillary to ferry pier use serving the needs of local residents as well as the general public.~~

~~(2)~~***(1)*** No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of number of storeys, as stipulated on the Plan or the height of the existing building, whichever is the greater.

~~(3)~~***(2)*** In determining the relevant maximum number of storeys for the purposes of paragraph ~~(2)~~ ***(1)*** above, any basement floor(s) may be disregarded.

~~(4)~~***(3)*** Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction mentioned in paragraph ~~(2)~~ ***(1)*** above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Business" only

Schedule I: for open-air development or for building other than industrial or industrial-office building[@]

Ambulance Depot
Commercial Bathhouse/ Massage Establishment
Eating Place
Educational Institution
Exhibition or Convention Hall
~~Government Use (Police Reporting Centre, Post Office only)~~
Government Use (not elsewhere specified)
Information Technology and Telecommunications Industries
Institutional Use (not elsewhere specified)
Library
Non-polluting Industrial Use (excluding industrial undertakings involving the use/storage of Dangerous Goods[△])
Off-course Betting Centre
Office
Place of Entertainment
Place of Recreation, Sports or Culture
Private Club
Public Clinic
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park (excluding container vehicle)
Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Recyclable Collection Centre
Religious Institution
Research, Design and Development Centre
School (excluding free-standing purpose-designed building and kindergarten)
Shop and Services
Training Centre
Utility Installation for Private Project
Broadcasting, Television and/or Film Studio
Cargo Handling and Forwarding Facility
Government Refuse Collection Point
~~Government Use (not elsewhere specified)~~
Hotel
Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Non-polluting Industrial Use (not elsewhere specified)
Petrol Filling Station
School (not elsewhere specified)
Social Welfare Facility (excluding those involving residential care)
Warehouse (excluding Dangerous Goods Godown)
Wholesale Trade

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Schedule II: for industrial or industrial-office building [@]	
Ambulance Depot Art Studio (excluding those involving direct provision of services or goods) Eating Place (Canteen only) Government Refuse Collection Point Government Use (not elsewhere specified) Information Technology and Telecommunications Industries Non-polluting Industrial Use (excluding industrial undertakings involving the use/storage of Dangerous Goods[△]) Office (excluding those involving direct provision of customer services or goods) Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Recyclable Collection Centre Research, Design and Development Centre Shop and Services (Motor-vehicle Showroom on ground floor, Service Trades only) Utility Installation for Private Project Warehouse (excluding Dangerous Goods Godown)	Broadcasting, Television and/or Film Studio Cargo Handling and Forwarding Facility Industrial Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Office (not elsewhere specified) Petrol Filling Station Place of Recreation, Sports or Culture (not elsewhere specified) Private Club Shop and Services (not elsewhere specified) (ground floor only except Ancillary Showroom[#] which may be permitted on any floor) Vehicle Repair Workshop Wholesale Trade
In addition, for building without industrial undertakings involving offensive trades or the use/storage of Dangerous Goods[△], the following use is always permitted :	
Office	

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

In addition, the following uses are always permitted in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/ unloading bays and/or plant room) of an existing building, provided that the uses are separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion:	In addition, the following uses may be permitted with or without conditions on application to the Town Planning Board in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/unloading bays and/or plant room) of an existing building, provided that the use is separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion:
Commercial Bathhouse/Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Institutional Use (not elsewhere specified) Library Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Religious Institution School (excluding kindergarten) Shop and Services Training Centre	Social Welfare Facility (excluding those involving residential care)

@ An industrial or industrial-office building means a building which is constructed for or intended to be used by industrial or industrial-office purpose respectively as approved by the Building Authority.

△ Dangerous Goods refer to substances classified as Dangerous Goods and requiring a licence for their use/storage under the Dangerous Goods Ordinance (Cap. 295).

Ancillary Showroom requiring planning permission refers to showroom use of greater than 20% of the total usable floor area of an industrial firm in the same premises or building.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Planning Intention

This zone is intended primarily for general business uses. A mix of information technology and telecommunications industries, non-polluting industrial, office and other commercial uses are always permitted in new "business" buildings. Less fire hazard-prone office use that would not involve direct provision of customer services or goods to the general public is always permitted in existing industrial or industrial-office buildings.

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 12.0 or the plot ratio of the existing building, whichever is the greater.

(2) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of metres above Principal Datum, as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(3) In determining the maximum plot ratio for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(4) Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio for the building on land to which paragraph (1) applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio specified in paragraph (1) above may thereby be exceeded.

(5) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/building height restrictions mentioned in paragraphs (1) and (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Sewage Treatment Plant" only	
Sewage Treatment/Screening Plant	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Utility Installation not Ancillary to the Specified Use

Planning Intention

This zone is intended to provide/reserve land for the provision of sewage treatment plant serving the needs of the general public.

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of number of storeys, as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(2) In determining the relevant maximum number of storeys for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.

(3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction mentioned in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Commercial Development and Freight Yard" only	
As Specified on the Plan Educational Institution Government Use (not elsewhere specified) Library Place of Entertainment Private Club Public Vehicle Park (excluding container vehicle) School Shop and Services Social Welfare Facility Utility Installation for Private Project	Broadcasting, Television and/or Film Studio Flat Government Refuse Collection Point Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Place of Recreation, Sports or Culture Public Transport Terminus or Station Religious Institution Residential Institution Utility Installation not Ancillary to the Specified Use

Planning Intention

This zone is intended primarily for freight yard use with mixed office/hotel/retail development on a commercial podium above the northern part of the freight yard.

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area (GFA) of 132,218m^2 within, on and above an elevated podium structure over the existing freight yard at ground level; the maximum GFA of 43,933m^2 below the podium structure for the existing freight yard and facilities ancillary and directly related to the freight yard operation. A public coach park of not less than 38 spaces shall be provided.

(2) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height ranging from a maximum of 62 metres above Principal Datum (mPD) at the part of the site to the north of Princess Margaret Road Link to a maximum of 97mPD at the northern part of the site and a maximum of 15mPD at the remaining part of the zone, or the height of the existing building, whichever is the greater. A "stepped height" building profile descending towards the waterfront is required.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Remarks (Cont'd)

(3) In determining the maximum GFA for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as a public coach park, as required by the Government, may be disregarded.

(4) For any new development (except minor alteration) or redevelopment on the part of the site to the south of Princess Margaret Road Link, planning permission from the Town Planning Board under section 16 of the Town Planning Ordinance is required.

(5) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the GFA/building height/minimum number of coach park restrictions mentioned in paragraphs (1) and (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Hotel" only

Hotel Eating Place (on land designated "OU(Hotel)(1)" only) Public Transport Terminus or Station (excluding open-air terminus or station) (on land designated "OU(Hotel)(1)" only) Shop and Services (on land designated "OU(Hotel)(1)" only)	Commercial Bathhouse/Massage Establishment Flat Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Public Vehicle Park (excluding container vehicle) Religious Institution Residential Institution

Planning Intention

This zone is intended primarily for hotel development.

Remarks

(1) On land designated "Other Specified Uses" annotated "Hotel" ("OU(Hotel)"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 12.0, and a maximum building height, in terms of metres above Principal Datum (mPD), as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(2) On land designated "Other Specified Uses" annotated "Hotel(1)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area (GFA) of 62,492m^2, of which a GFA of not less than 5,708m^2 shall be provided for eating place and shop and services uses; a maximum site coverage of 80% (excluding basement(s)), or the site coverage of the existing building, whichever is the greater; and a maximum building height, in terms of mPD, as stipulated on the Plan, or the height of the existing building, whichever is the greater. A 10m-wide non-building area (NBA) along the southern boundary as stipulated on the Plan shall be provided. A public transport interchange as required by the Government shall be provided. Ancillary car parking should be provided in the basement.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Remarks (Cont'd)

(3) In determining the maximum plot ratio/GFA for the purposes of paragraphs (1) and (2) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(4) In determining the maximum plot ratio for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as back-of-house facilities as set out in Regulation 23A(3)(b) of the Building (Planning) Regulations shall be included for calculation.

(5) On land designated "OU(Hotel)", no addition, alteration, modification and/or extension to the external walls and basement of the existing building shall be made for provision of any floor space.

(6) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/GFA/building height/site coverage restrictions stated in paragraphs (1) and (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(7) Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the NBA restriction as shown on the Plan and stated in paragraph (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

Attachment IV of
MPC paper no. 7/25

KOWLOON PLANNING AREA NO. 9

~~APPROVED~~ *DRAFT* HUNG HOM OUTLINE ZONING PLAN NO. S/K9/28

EXPLANATORY STATEMENT

KOWLOON PLANNING AREA NO. 9

~~APPROVED~~ *DRAFT* HUNG HOM OUTLINE ZONING PLAN NO. S/K9/28*A*

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KOWLOON PLANNING AREA NO. 9

~~APPROVED~~ *DRAFT* HUNG HOM OUTLINE ZONING PLAN NO. S/K9/28*A*

(Being a~~n Approved~~ *Draft* Plan for the Purposes of the Town Planning Ordinance)

EXPLANATORY STATEMENT

Note : For the purposes of the Town Planning Ordinance, this statement shall not be deemed to constitute a part of the Plan.

1. INTRODUCTION

This explanatory statement is intended to assist an understanding of the ~~approved~~ ***draft*** Hung Hom Outline Zoning Plan (OZP) No. S/K9/28***A***. It reflects the planning intention and objectives of the Town Planning Board (the Board) for the various land use zonings of the Plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURES

2.1 The first statutory plan No. LK9/8/2 covering the Hung Hom area was gazetted on 29 June 1956 under section 5 of the Town Planning Ordinance (the Ordinance). On 31 May 1957, the then Governor in Council (G in C) under the then section 8(1) of the Ordinance, approved the draft OZP. On 6 September 1960, the then G in C, under the then section 8(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as LK9/8/2C.

2.2 On 27 October 1964, the then G in C, under the then section 11 of the Ordinance, ordered the preparation of a new plan to replace the approved OZP, which was subsequently renumbered as LK9/16 and exhibited for public inspection under section 5 of the Ordinance.

2.3 On 12 August 1969, the then G in C considered the draft OZP No. LK9/17 and agreed to refer the draft OZP to the Board for further consideration and amendment under section 9(1)(c) of the Ordinance. Since then, the OZP was amended once and exhibited for public inspection under section 5 of the Ordinance.

2.4 On 18 January 1972, the then G in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as LK9/24. On 23 September 1975, the then G in C referred the approved OZP to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP was amended six times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.5 On 14 March 1989, the then G in C considered the draft OZP No. S/K9/4 and agreed to refer the draft OZP to the Board for further consideration and amendment under section 9(1)(c) of the Ordinance. Since then, the OZP was amended three times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.6 On 6 May 1997, the then G in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/8. On 10 March 1998, the Chief Executive in Council (CE in C) referred the approved OZP to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP was amended six times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.7 On 12 March 2002, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/15. On 30 April 2002, the CE in C referred the approved OZP No. S/K9/15 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP was amended twice and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.8 On 17 February 2004, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/18. On 13 September 2005, the CE in C referred the approved Hung Hom OZP No. S/K9/18 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP was amended once and exhibited for public inspection under section 5 of the Ordinance.

2.9 On 6 November 2007, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/20. On 15 January 2008, the CE in C referred the approved Hung Hom OZP No. S/K9/20 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. On 29 February 2008, the draft Hung Hom OZP No. S/K9/21, incorporating amendments to impose new or revised building height restrictions for various zones, was exhibited for public inspection under section 5 of the Ordinance. On 23 August 2008, after giving consideration to the representations and comments under section 6B(1) of the Ordinance, the Board decided not to uphold the representations under section 6B(8) of the Ordinance.

2.10 On 5 May 2009, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/22. On 30 June 2009, the CE in C referred the approved Hung Hom OZP No. S/K9/22 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP was amended once and exhibited for public inspection under section 5 of the Ordinance.

2.11 On 5 October 2010, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/24. On 6 October 2015, the CE in C referred the approved Hung Hom OZP No. S/K9/24 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. ~~The reference back of the OZP was notified in the Gazette on 16 October 2015 under section 12(2) of the Ordinance.~~

2.12 On 28 October 2016, the draft Hung Hom OZP No. S/K9/25, incorporating amendments including the rezoning of a site at Lee Kung Street from "Government, Institution or Community" ("G/IC") to "Residential (Group A)" ("R(A)"); and indicating that two areas were excised from the OZP boundary and replaced by the Urban Renewal Authority (URA) Chun Tin Street/Sung Chi Street Development Scheme Plan (DSP) No. S/K9/URA1/1 and URA Hung Fook Street/Ngan Hon Street DSP No. S/K9/URA2/1 as well as technical

amendments to the Notes for various zones, was exhibited for public inspection under section 5 of the Ordinance. ~~In addition, the alignments of the Mass Transit Railway (MTR) Kwun Tong Line (KTL) Extension and Shatin to Central Link (SCL) authorised by the CE in C under the Railways Ordinance (Chapter 519) on 30 November 2010 and 27 March 2012 respectively are shown on the OZP for information.~~

2.13 On 31 October 2017, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/26. On 4 May 2021, the CE in C referred the approved Hung Hom OZP No. S/K9/26 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. ~~The reference back of the approved OZP was notified in the Gazette on 14 May 2021 under section 12(2) of the Ordinance.~~

2.14 ***On 9 July 2021, the draft Hung Hom OZP No. S/K9/27, incorporating amendments mainly to (i) indicate an area of the OZP replaced by the draft URA To Kwa Wan Road/Wing Kwong Street DSP No. S/K9/URA3/1; and (ii) rezone two sites south of Hung Luen Road from "Comprehensive Development Area (1)" ("CDA(1)") and "Comprehensive Development Area (2)" to "Other Specified Uses" annotated "Hotel(1)" ("OU(Hotel)(1)") and "Commercial (7)" ("C(7)") respectively, was exhibited for public inspection under section 5 of the Ordinance.*** ~~During the two-month exhibition period, a total of two representations were received. On 8 October 2021, the representations were published for three weeks for public comments and one comment was received. After giving consideration to the representations and comment on 7 January 2022, the Board decided not to uphold the representations and that no amendment should be made to the draft OZP to meet the representations.~~

2.15 On 31 May 2022, the CE in C, under Section 9(1)(a) of the Ordinance, approved the draft Hung Hom OZP, which was subsequently renumbered as S/K9/28. ~~On 10 June 2022, the approved Hung Hom OZP No. S/K9/28 (the Plan) was exhibited for public inspection under section 9(5) of the Ordinance.~~ ***On 16 April 2025, the Secretary for Development referred the approved Hung Hom OZP No. S/K9/28 to the Board for amendment under section 12(1A)(a)(ii) of the Ordinance. The reference back of the OZP was notified in the Gazette on 25 April 2025 under section 12(2) of the Ordinance.***

2.16 On [DATE] XX.XX.2025, the draft Hung Hom OZP No. S/K9/29 (the Plan) was exhibited for public inspection under section 5 of the Ordinance. The amendments on the Plan mainly include (i) rezoning of a site at Bailey Street from "G/IC" and "Other Specified Uses" annotated "Sewage Treatment Plant" ("OU(STP)") to "Residential (Group A)9" ("R(A)9"); (ii) rezoning of a site at Hung Hom Waterfront from "OU(STP)" and "G/IC" to "Open Space"; and (iii) rezoning of another site at Hung Hom Waterfront from "OU(STP)" to "G/IC".

3. OBJECT OF THE PLAN

3.1 The object of the Plan is to indicate the broad land use zonings and major transport networks so that development and redevelopment within the Planning Scheme Area (the Area) can be put under statutory planning control.

3.2 The Plan is to illustrate the broad principles of development ***and to provide guidance for more detailed planning within the Area***. It is a small-scale plan and the transport alignments and boundaries between the land use zones may be subject to minor alterations as detailed planning proceeds.

3.3 Since the Plan is to show broad land use zonings, there would be ***situations in which*** ~~cases that~~ small strips of land not intended for building development purposes and carry no development right under the lease, such as the areas restricted for garden, slope maintenance and access road purposes, are included in the residential zones. The general principle is that such areas should not be taken into account in plot ratio and site coverage calculation. Development within residential zones should be restricted to building lots carrying development right in order to maintain the character and amenity of the Hung Hom area and not to overload the road network in this area.

4. NOTES OF THE PLAN

4.1 Attached to the Plan is a set of Notes ~~indicating the~~ ***which shows the types of*** uses ***or developments*** which are always permitted ***within the Area and in other particular zones and which may be permitted by the Board, with or without conditions, on application.*** ~~and other uses for which the permission of the Board must be sought.~~ The provision for application for planning permission under section 16 of the Ordinance allows greater flexibility in land use planning and ~~better~~ control of development to meet changing needs.

4.2 For the guidance of the general public, a set of definitions that explains some of the terms used in the Notes may be obtained from the Technical Services Division of the Planning Department and can be downloaded from the Board's website at ~~http://www.info.gov.hk/tpb~~ ***http://www.tpb.gov.hk***.

5. THE PLANNING SCHEME AREA

5.1 The Area is located in the south-eastern part of Kowloon Peninsula. It is bounded by Ngan Hon Street to the north; Chatham Road North and the MTR East Rail Line and its Hung Hom Station to the west; and Kowloon Bay to the east. To the south, it fronts onto Victoria Harbour. The boundary of the Area is shown in a heavy broken line on the Plan ***and includes three areas designated as "URA Chun Tin Street / Sung Chi Street DSP Area", "URA Hung Fook Street / Ngan Hon Street DSP Area" and "URA To Kwa Wan Road / Wing Kwong Street DSP Area"***. It covers about 145 hectares of land.

5.2 The Area consists of the existing built-up area of Hung Hom and Hung Hom Bay Reclamation Area (the Reclamation Area). The existing built-up area in Hung Hom has been developed for a variety of uses including private residential, commercial, public housing and industrial. There are two large private comprehensive residential developments in the Area, known as Whampoa Garden and Laguna Verde. The Reclamation Area provides land for the extension of the hotel/office developments from Tsim Sha Tsui East, residential developments, open space and Government, institution and community (GIC) facilities to help redress the current shortfall in the provision of such facilities in Hung Hom.

5.3 The environmental problems of the Area include dilapidated housing stock, traffic congestion, overcrowded living conditions and a generally poor urban built form. The problem areas are located in the existing built-up area in Hung Hom mainly along Baker Street and Bulkeley Street in the west and Bailey Street in the north. The Plan is intended to alleviate some of these environmental problems.

5.4 The Area covers land on the waterfront of Victoria Harbour. For any development proposal affecting such land, due regard shall be given to the Vision Statement for Victoria Harbour published by the Board and the requirements under the Protection of the Harbour Ordinance (Cap. 531).

6. POPULATION

Based on the ~~2016~~ ***2021*** Population census, the population of the Area was estimated by the Planning Department as about ~~133,500~~ ***119,950***. It is estimated that the planned population of the Area would be about ~~146,100~~ ***145,645***.

7. BUILDING HEIGHT RESTRCTIONS IN THE AREA

7.1 In order to provide better planning control on the development intensity and building height upon development/redevelopment and to meet public aspirations for greater certainty and transparency in the statutory planning system, the Kowloon OZPs are subject to revisions to incorporate building height restrictions to guide future development/redevelopment. Some of the high-rise redevelopments erected in the Area in the recent years following the relocation of the airport in Kai Tak and the removal of the airport height restrictions are considered undesirable from the visual point of view, and are also incompatible and out-of-context with the local built environment. In order to prevent excessive tall or out-of-context buildings, and to instigate control on the overall building height profile of the Area, a review has been undertaken to ascertain the appropriate building height restrictions for the "Commercial" ("C"), ~~"Comprehensive Development Area" (~~"CDA"~~)~~, "R(A)", "Residential (Group B)" ("R(B)"), "G/IC", ~~"Other Specified Uses" (~~"OU"~~)~~ and "Undetermined" ("U") zones on the Plan.

7.2 The building height restrictions are to preserve the views to the ridgelines from public view points and to maintain a stepped building height concept recommended in the Urban Design Guidelines Study with lower buildings along the waterfront, taking account of the local area context, the local wind environment, and the need to maintain visually compatible building masses in the wider setting. There are in general four main building height bands – 52 metres above Principal Datum (mPD), 80mPD, 100mPD and 120mPD in the Area for the "C", "CDA", "R(A)", "R(B)" and "OU" annotated "Business" ("OU(B)") zones – increasing progressively from the waterfront to the inland and foothill areas. The proposed building height bands help preserve views to the ridgelines, achieve a stepped height profile for visual permeability and wind penetration and circulation, and maintain a more intertwined relationship with the Victoria Harbour edge.

7.3 Moreover, specific building height restrictions for the "G/IC", "OU" (except "OU(B)") and "U" zones in terms of mPD or number of storeys, which mainly reflect the existing and planned building heights of developments, have been incorporated into the Plan mainly to provide visual and spatial relief to the Area. The building height restrictions are specified in terms of mPD to provide certainty and clarity of the planning intention. On the other hand, building height control for low-rise developments, normally with a height of not more than 13 storeys, will be subject to restrictions on the number of storeys so as to allow more design flexibility, in particular for GIC facilities with specific functional requirements, unless such developments fall within visually more prominent locations and major breathing spaces.

7.4 An air ventilation assessment (AVA) by expert evaluation has been undertaken to assess the likely impact of the proposed building heights of the development sites within the Area on the pedestrian wind environment. The building height bands shown on the Plan have taken into account the findings of the AVA.

7.5 A minor relaxation clause in respect of building height restrictions is incorporated into the Notes of the Plan in order to provide incentive for development/redevelopments with design merits/planning gains. Each application for minor relaxation of building height restriction will be considered on its own merits and the relevant criteria for consideration of such relaxation are as follows:

(a) amalgamating smaller sites for achieving better urban design and local area improvements;

(b) accommodating the bonus plot ratio granted under the Buildings Ordinance in relation to surrender/dedication of land/area for use as public passage/street widening;

(c) providing better streetscape/good quality street level public urban space;

(d) providing separation between buildings to enhance air ventilation and visual permeability;

(e) accommodating building design to address specific site constraints in achieving the permissible plot ratio under the Plan; and

(f) other factors, such as the need for tree preservation, innovative building design and planning merits that would bring about improvements to townscape and amenity of the locality and would not cause adverse landscape and visual impacts.

~~7.6 However, for existing buildings where the building height already exceeded the maximum building height restrictions in terms of mPD or number of storeys as stipulated on the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.~~

8. LAND USE ZONINGS

8.1 "Commercial" ("C") – Total Area 7.78 ha

8.1.1 This zone is intended primarily for commercial developments, which may include uses such as office, shop, services, place of entertainment, eating place and hotel, functioning as territorial business/financial centres and regional or district commercial/shopping centres. These areas are usually major employment nodes.

8.1.2 The site located at the junction of Ma Tau Wai Road and Hok Yuen Street ***designated "C"*** has been developed into a retail/office complex, known as Hung Hom Commercial Centre. ***Developments within this zone are subject to a maximum plot ratio of 12.0 to restrain traffic growth which will otherwise overload the existing and planned road network.***

~~8.1.3 Developments in this zone are subject to a maximum plot ratio of 12.0 to restrain traffic growth which will otherwise overload the existing and planned road network. In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratio may be increased by what is permitted to be exceeded under Regulation 22. This is to maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.~~

8.1.***3***~~4~~ The planning intention for the two commercial sites designated "Commercial (2)" ("C(2)") and "Commercial (3)" ("C(3)") in the Reclamation Area is to serve as hotel nodes extended from Tsim Sha Tsui East. They are subject to maximum gross floor area (GFA) and maximum building height restrictions. The hotel development at the "C(2)" site known as Harbourfront Horizon is subject to a maximum building height ranging from a maximum of 30mPD at the southern part of the site to a maximum of 55mPD at the northern part of the site. A "stepped height" building profile is required. A maximum building height restriction of 105mPD for the "C(3)" site is imposed. The hotel development known as Harbourview Horizon in the "C(3)" site to the east of Princess Margaret Road Link on the Reclamation Area, with the incorporation of a multi-storey public car/lorry park, would act as a noise shield for the residential, educational and open space developments in the east from noise impacts of Princess Margaret Road Link.

8.1.***4***~~5~~ The site designated "Commercial (4)" ("C(4)") is located at Tak Fung Street and known as Harbourfront and Harbour Plaza. It is a comprehensive office and hotel development consisting a public waterfront promenade and public open space. Developments within this zone will be subject to a maximum GFA of 146,025m^2. A maximum building height restriction of 100mPD is imposed in view of its prominent location at the waterfront and main wind entrance to the inland area, as well as the overall building height concept of the Area as specified in paragraph 7 above. Development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building exceeding the building height restriction (except with the permission granted by the Board for minor relaxation of the building height restriction) or up to the existing building heights is not permitted in the waterfront site.

8.1.~~5~~*6* The site bounded by Sung On Street and Hung Hom Road, namely the Peninsula Square, has been developed into an office building with multi-storey public carpark and is designated "Commercial (5)" ("C(5)"). This zone is subject to a maximum GFA of 54,681m^2 and a maximum building height of 120mPD. A Government refuse collection point and a public car/lorry park shall be provided within the site.

8.1.~~6~~*7* The site designated "Commercial (6)" ("C(6)"), namely the Laguna Mall, is located at the junction of Tai Wan Road and Hok Cheung Street next to Laguna Verde. It has been developed into an independent commercial block separated from the main residential development of Laguna Verde which also serves as a buffer between the existing industrial and residential developments. Development within this zone is subject to a maximum GFA of 25,338m^2 and a maximum building height of 41mPD.

8.1.7 ***In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratio/GFAs may be increased by what is permitted to be exceeded under Regulation 22. This is to maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.***

8.1.8 The site designated "C(7)", namely the One HarbourGate, is located at the junction of Hung Luen Road and Kin Wan Street. It has been developed into a retail and office development. This site together with the adjoining "OU(Hotel)(1)" site to the east and the site to the west of Princess Margaret Road Link and other commercial sites within the Reclamation Area are to serve as an office and hotel node extended from Tsim Sha Tsui East. Developments within this sub-zone are subject to a maximum GFA of 54,812m^2, of which not less than 6,200m^2 shall be provided for eating place and shop and services uses; a maximum site coverage of 60% (excluding basement(s)); and maximum building heights of 75mPD and 40mPD as stipulated on the Plan to reflect a "stepped height" building profile descending towards the waterfront. Ancillary car-parking provision should be accommodated in the basement. To enhance air ventilation and visual porosity of the development, a single podium for the whole development is not permitted. In addition, a 30m-wide non-building area (NBA) at the eastern boundary as stipulated on the Plan shall be provided to enhance air ventilation, visual permeability and connectivity to/from the harbour. Also, a 10m-wide NBA at the southern boundary along the waterfront promenade as stipulated on the Plan shall be provided to enhance streetscape and integrate with the waterfront promenade to its south. To enhance the vibrancy of the waterfront promenade, the NBA at the southern boundary may be used for alfresco dining and other outdoor activities without building structure. The developer should provide, manage and maintain a covered footbridge linking to the "Residential (Group A)2" ("R(A)2") site across Hung Luen Road for public access 24 hours each day at his own cost. A pedestrian walkway connecting the aforementioned covered footbridge, the adjoining "OU(Hotel)(1)" site, the waterfront

promenade and the NBAs should be provided at-grade and for public access 24 hours daily to maintain pedestrian accessibility to the surrounding uses including the open space to its west.

8.1.9 A site at Cheong Tung Road is proposed for commercial development and subject to a maximum plot ratio of 12.0 and a maximum building height of 100mPD.

~~8.1.10 For development with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.~~

~~8.1.11 To provide design/architectural flexibility, minor relaxation of the plot ratio/GFA/site coverage restrictions may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits.~~

~~8.1.12 Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the NBA restrictions may be considered by the Board on application under section 16 of the Ordinance.~~

8.2 "Comprehensive Development Area" ("CDA") – Total Area 19.08 ha

8.2.1 This zone is intended for comprehensive development/redevelopment of the area for residential and/or commercial uses with the provision of open space and other supporting facilities. The zoning is to facilitate appropriate planning control over the development mix, scale, design and layout of development, taking account of various environmental, traffic, infrastructure and other constraints.

8.2.2 The Whampoa Garden development, zoned "CDA", on both sides of Hung Hom Road provides residential accommodation for about 32,400 persons with self-contained commercial and community facilities and open space. The development is governed by the Master Layout Plan (MLP) which was first approved by the Board on 19.10.1983 with a major revision on 22.4.1988. Since then, there were a number of partial amendments for various development sites. This site is subject to a maximum building height restriction of 52mPD. The development comprises a total of 88 residential towers which are located mainly on the landscaped roofs of non-domestic podiums with commercial uses at ground floor and/or basement floor(s), two free-standing commercial complexes (i.e. the Whampoa Plaza and the Whampoa) and four free-standing purpose-designed primary schools. The internal roads of the Whampoa Garden are private streets. Any amendment to the approved MLP requires permission from the Board under section 16 of the Ordinance.

8.2.3 The two sites at the junction of Cheong Hang Road and Winslow Street are linked to form a single "CDA" so as to achieve greater flexibility in building design. As the sites are subject to severe noise impact

generated from Princess Margaret Road Link and it is intended to provide screening from the existing funeral facilities, development within the "CDA" site is restricted to non-residential use. As specified in the Notes, residential development will not be permitted and the development restriction in terms of maximum GFA for the "CDA" is also stipulated. The sites are also subject to a maximum building height of 100mPD. ~~A planning brief setting out the planning parameters and the special design requirements will be prepared to guide the future development of the site.~~

8.2.4 Pursuant to section 4A(1) of the Ordinance, any development within the "CDA" zone would require approval of the Board by way of a planning application under section 16 of the Ordinance. A MLP should be submitted in accordance with the requirements as specified in the Notes of the Plan for the approval of the Board pursuant to section 4A(2) of the Ordinance. A copy of the approved MLP would be made available for public inspection in the Land Registry pursuant to section 4A(3) of the Ordinance.

~~8.2.5 For development with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.~~

~~8.2.6 To provide design/architectural flexibility, minor relaxation of the GFA restriction may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits.~~

8.3 "Residential (Group A)" ("R(A)") – Total Area ~~26.32~~ ***27.08***ha

8.3.1 This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building. Considering the traffic impact of office development, there is a general presumption against office use in "R(A)" zone. Thus, office development other than those along major transport route would not be supported.

8.3.2 Developments within this zone include private residential developments at Shun Yung Street and Ko Shan Road; on both sides of Ma Tau Wai Road and Gillies Avenue; and to the south of Fat Kwong Street/Man Yue Street; Ka Wai Chuen, a large public housing estate at Ma Tau Wai Road; and Hung Hom Estate at Man Yue Street.

8.3.3 In the consideration of the overall transport, environmental and infrastructural constraints, as well as the adequacy in the provision of community facilities envisioned in the Kowloon Density Study Review, completed in early 2002, developments or redevelopments within the "R(A)" zone and its sub-zones are subject to specific control on plot ratios except otherwise specified in the Notes, i.e. a maximum plot ratio of 7.5 for a domestic building or a maximum plot ratio of 9.0 for a partly domestic and partly non-domestic building. In calculating the GFA for

these developments/redevelopments, the lands for free-standing purpose-designed buildings that are solely used for accommodating school or other GIC facilities, including those located on ground and on building podium, are not to be taken as parts of the site.

8.3.4 Development and redevelopment within the "R(A)", "Residential (Group A)3" ("R(A)3"), "Residential (Group A)4" ("R(A)4"), ~~and~~ "Residential (Group A)5" ("R(A)5") and ***"R(A)9"*** zones are covered by the building height bands of 80mPD, 100mPD, ***110mPD*** and 120mPD as stipulated on the Plan ~~according to the overall building height concept of the Area as specified in paragraph 7 above~~.

8.3.5 A site zoned "Residential (Group A)1" ~~("R(A)1")~~ near the junction of Hung Hom South Road and Hung Hom By-pass (HHBP) on the Reclamation Area has been developed for residential development, the Harbour Place, providing about 2,470 flats. The development includes a deck over the HHBP to mitigate the potential noise pollution problems arising from the HHBP. Taking into account the traffic capacity constraints identified by the Central Kowloon Traffic Study, the residential development on this site is restricted to a maximum domestic GFA of 144,300m^2 and a maximum non-domestic GFA of 4,500m^2. This site is also subject to a maximum building height of 105mPD to reflect the major building heights of the development.

8.3.6 A site zoned "R(A)2" at the junction of Oi King Street and Hung Luen Road on the Reclamation Area has been developed into a residential development, namely the Stars by the Harbour. On this site, no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in the total development and/or redevelopment in excess of a maximum overall plot ratio of 4.5 (including a maximum non-domestic plot ratio of 0.5), a maximum domestic site coverage of 30% and a maximum non-domestic site coverage of 60% (both excluding basement(s)); and a maximum building height of 15mPD for a strip of land traversing the site in north-south direction as demarcated on the Plan and a maximum building height of 100mPD for the other parts of the site. Ancillary car-parking should be accommodated in the basement to minimize the size and height of podium. The design of the non-domestic podium (if to be provided) should take into account the need to provide connection to the footbridges to its north, east and south. To allow more space for greening, visual porosity to the waterfront and enhance air circulation, a 20m wide view corridor, i.e. the strip of land subject to a maximum building height of 15mPD, along a north-south axis perpendicular to the harbour-front has been designated. To take care of the possible visual impact of the future "R(A)2" development against the adjacent existing primary school to its east zoned "G/IC", a 5m-wide NBA along the north-eastern boundary of the "R(A)2" site is also designated. Minor structure for footbridge connection to the east above the NBA may be allowed. This NBA control help ensure that the building development in the "R(A)2" site will not be in juxtaposition to the school building.

8.3.7 A site zoned "R(A)3" abutting the waterfront at Wan Hoi Street has been developed into a residential development up to about 228mPD.

Such building height is considered incongruous with the waterfront setting in the Hung Hom area. Thus, a maximum building height restriction of 100mPD is imposed in view of its prominent location at the waterfront and main wind entrance to the inland area, as well as the overall building height concept of the Area as specified in paragraph 7 above. Development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building exceeding the building height restriction (except with the permission granted by the Board for minor relaxation of the building height restriction) or up to the existing building heights is not permitted in the waterfront site.

8.3.8 For sites zoned "R(A)4", a maximum building height restriction of 80mPD is proposed to enable a smooth transition of height profile from the Whampoa Garden with building height of mainly 52mPD as well as to allow better air penetration from the waterfront through Whampoa Garden. ~~For development with special design merits, minor relaxation of the building height restriction may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above. Nonetheless,~~ ***To*** avoid pencil-like buildings to be developed on small lots and to encourage amalgamation of sites for more comprehensive development, including the provision of parking and loading/unloading and other supporting facilities, a maximum building height restriction of 100mPD would be permitted for sites with an area of 400m^2 or more. Application for minor relaxation of the building height restriction of 100mPD is not allowed.

8.3.9 Two sites zoned "R(A)5" at Lee Kung Street and a site at Ko Shan Road are located on the periphery of the existing high-density residential developments and there are ample commercial and retail uses at Ka Wai Chuen and along both sides of Fat Kwong Street and Ma Ta Wai Road which can readily serve the needs of the future residents. A better living environment can be achieved by allowing only domestic uses at the subject site. Against this intention, the total plot ratio permissible is set to a maximum domestic plot ratio of 7.5 only.

8.3.10 The site zoned "Residential (Group A)6" ~~("R(A)6")~~ at the junction of Chatham Road North and Hok Yuen Street is subject to a maximum building height restriction of 150mPD and maximum domestic and non-domestic GFAs of 28,396.05m^2 and 5,679.21m^2 respectively taking account of the previous planning approval, and application for minor relaxation of GFA/building height restriction is not allowed.

8.3.11 ***The site zoned "R(A)9" at the junction of Bailey Street and Chi Kiang Street is subject to a maximum building height restriction of 110mPD and maximum domestic and total GFA of 60,880m^2 and 68,490m^2 respectively to optimise development potential for residential development and provide opportunity for the design of smaller podia and more street-front shops to enliven the nearby waterfront. An at-grade outdoor communal space of not less than 760m^2, GIC uses of about 3,100m^2 and a public vehicle park shall be provided. The intended GIC uses would be subject to further liaison with relevant Government departments. In determining the maximum GFA for land designated "R(A)9", any floor space that is constructed or intended for***

use solely as GIC facilities or public vehicle park, as required by the Government, may be disregarded. The GFA control of "R(A)9" zone is regarded as being stipulated in a "new or amended statutory plan" according to the Joint Practice Note No.4 "Development Control Parameters Plot Ratio/Gross Floor Area", and shall be subject to the streamlining arrangements stated therein.

~~8.3.11~~

8.3.12 The "R(A)" site at Lee Kung Street ~~will~~ accommodate***s*** a ~~proposed~~ Senior Citizen Residences Scheme project by the Hong Kong Housing Society (HKHS). The proposed development ~~will~~ comprise***s*** ~~28~~ ***24*** domestic storeys ~~with 305 flats for the elderly~~ and a 4***5***-storey podium to accommodate elderly facilities including rehabilitation centre, medical centre and a residential care home for the elderly. According to HKHS, mitigation measures in terms of stepping podium; setting back of the residential block from Fat Kwong Street; provision of ~~4.5~~ ***6***m high open landscaped area ~~between the first residential floor and the podium~~ ***at 1/F***; alignment of building block in East-West direction; and provision of a ~~5~~***4.5***m high opening at the driveway and car park areas on G/F are ~~proposed~~ ***adopted*** to minimize the potential impact for the wind from southwest and southeast direction during summer.

~~8.3.12~~

8.3.13 In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratios ***/ GFAs*** may be increased by what is permitted to be exceeded under Regulation 22. This is to maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.

~~8.3.13 For development within the "R(A)" zone and its sub-zones (except "R(A)6") with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.~~

~~8.3.14 To provide design/architectural flexibility, minor relaxation of the plot ratio/GFA/site coverage restrictions may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits.~~

8.4 "Residential (Group B)" ("R(B)") - Total Area 6.63 ha

8.4.1 This zone is intended primarily for medium-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Board.

8.4.2 Royal Peninsula and Laguna Verde are designated "Residential (Group B)1" ("R(B)1") and "Residential (Group B)2" ("R(B)2") respectively. The current restrictions/requirements stipulated under "R(B)1" and "R(B)2" zones are to reflect the existing developments. The "R(B)1" site is subject to a maximum GFA of 139,797m^2, of which a GFA of not less than 2,435m^2 shall be provided for GIC facilities, and a maximum

building height of 150mPD. A public open space of not less than 2,700m^2 shall be provided.

8.4.3 As for the "R(B)2" site, developments are subject to a maximum GFA of 394,600m^2, of which a GFA of not less than 1,299m^2 shall be provided for GIC facilities, and a maximum building height of 80mPD. Public open space of not less than 13,000m^2 including a 6m wide waterfront promenade and a public transport terminus shall be provided. The maximum building height restriction is imposed in view of its prominent location at the waterfront and main wind entrance to the inland area, as well as the overall building height concept of the Area as specified in paragraph 7 above. Development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building exceeding the building height restriction (except with the permission granted by the Board for minor relaxation of the building height restriction) or up to the existing building heights is not permitted in the waterfront site.

~~8.4.4 For development with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.~~

~~8.4.5 To provide design/architectural flexibility, minor relaxation of the GFA restriction may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits.~~

8.5 "Government, Institution or Community" ("G/IC") - Total Area ~~12.58~~***11.88***ha

8.5.1 This zone is intended primarily for the provision of GIC facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments.

8.5.2 Major existing GIC facilities include the Kowloon City Government Offices ***and a gas pigging station*** at Bailey Street, a fire station at Fat Kwong Street, a clinic at Station Lane, the Tai Wan Shan swimming pool complex and a salt water pumping station at Wan Hoi Street, the Tai Wan electricity substation, a sewage pumping station at Hung Lok Road, the Hong Kong Polytechnic University Student Hostel at the junction of Hung Lai Road and Hung Lok Road, an electricity substation at Hung Ling Street, a market complex at the junction of Ma Tau Wai Road and Dyer Avenue, Tai Wan Shan Reporting Centre and Traffic Kowloon West Operation Base at Wai Wan Lane, a Government pier used as Marine Police Operational Facility off Dyer Avenue, the Hong Kong Community College of the Hong Kong Polytechnic University at Hung Lok Road and a number of schools.

8.5.3 Major proposed developments include the Government buildings at Chatham Road North. ~~and two secondary schools at a proposed road to the north of Bailey Street~~.

8.5.4 GIC facilities are also provided within large residential developments, e.g. Whampoa Garden, Laguna Verde and Royal Peninsula.

8.5.5 Developments and redevelopments in the "G/IC" sites are subject to maximum building heights in terms of mPD or number of storeys (excluding basement floor(s)) as stipulated on the Plan. Building height restriction for most of the "G/IC" sites is stipulated in terms of number of storeys while the Hong Kong Polytechnic University Student Hostel and the Hong Kong Community College - Hong Kong Polytechnic University at the junction of Hung Lai Road and Hung Lok Road are subject to a maximum building height of 80mPD and 90mPD ***respectively*** to reflect the existing building heights and to provide a varying building height profile in the Reclamation Area. This variation of building height profile is also in line with the Urban Design Guidelines in the Hong Kong Planning Standards and Guidelines.

~~8.5.6 For development with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.~~

8.6 "Open Space" ("O") – Total Area ~~13.40~~ ***13.72*** ha

8.6.1 This zone is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.

8.6.2 Existing open spaces within the Area include the Tai Wan Shan Park at Wan Hoi Street, the Fat Kwong Street Playground, the Fat Kwong Street Garden, the Hutchison Park at Tai Wan Road***,*** ~~and~~ the Winslow Street Rest Garden, ***the Hung Hom Urban Park and the Hoi Sham Park Extension to the north of the sewage treatment plant at Sung Ping Street***.

~~8.6.3 Proposed open spaces for the Hoi Sham Park Extension are reserved at the waterfront sites to the north of the existing sewage treatment plant at Sung Ping Street.~~

8.6.***3***~~4~~ In addition, local open spaces are also provided within Whampoa Garden, Laguna Verde and on the Reclamation Area along Hung Hom South Road which also serves as a view corridor and a visual relief for the adjacent densely populated residential area.

8.6.***4***~~5~~ The waterfront open space on the Reclamation Area would be developed as a promenade connecting to the promenade at Tsim Sha Tsui East via a pedestrian link across the Metropolis and to the Kai Tak Planning Scheme Area.

8.7 "Other Specified Uses" ("OU") – Total Area ~~16.83~~***16.45*** ha

8.7.1 This zone is intended to provide/reserve land for developments of specific uses serving the needs of local residents as well as the general public**.**

8.7.2 Sites falling within this zone include the existing multi-storey car park at the junction of Po Loi Street and Bulkeley Street, the funeral parlours, the funeral depot, the public mortuary, the MTR freight yard and the commercial developments above, two public ferry piers at the waterfront of the Reclamation Area, ~~and an~~ ***the*** existing sewage treatment plant at Sung Ping Street ~~to its north with an adjoining site to its north reserved for future extension;~~**,** and a site at Wuhu Street for hotel development.

8.7.3 About 7.38 ha of land near the junctions of Hok Yuen Street/Man Lok Street, Hok Yuen Street East/Hung Hom Road, Man Yue Street/Man Lok Street and Hung Hom Road/Hok Cheung Street is zoned "OU(B)". Land zoned for this purpose is intended for general employment uses. Under this zoning, a mix of non-polluting industrial, office and other commercial uses will be permitted as of right. However, in order to ensure that the concerns on fire safety and environmental impacts are properly addressed, only less fire hazard-prone office use that would not involve direct provision of customer services or goods to the general public will be permitted as of right in existing industrial and industrial-office (I-O) buildings within this zone. As it is not possible to phase out existing polluting and hazardous industrial uses all at once, it is necessary to ensure compatibility of the uses within the same industrial or I-O building and in the Hung Hom area until the whole area is transformed to cater for the new non-polluting business uses. The setting back of buildings to cater for the future increase in traffic demand may also be required. Development within this zone should make reference to the relevant Town Planning Board Guidelines.

8.7.4 ~~The site to the west of Princess Margaret Road Link, namely the Metropolis, is designated~~ ***The*** "OU" annotated "Commercial Development and Freight Yard" ***is traversed by the Princess Margaret Road Link flyover. The northern part has been developed into a mixed office/hotel/retail development on a commercial podium, namely the Metropolis. A public coach park of 38 spaces is also provided within the podium. The former freight yard at the southern part is vacant now***. ~~It is separated into the northern and the southern parts by the Princess Margaret Road Link flyover traversing it. The ground level and the southern part of the site serve as an extension of the existing freight yard accommodating cargo handling activities with container stacking adjacent to waterfront cargo berths. In view of the prominent harbour front location of the southern part of the site, the use, form, design and height of any new building(s) erected thereon may have significant visual impact to the Victoria Harbour. As such, planning permission from the Board is required for any new development/redevelopment in the southern part of the site. Mixed office/hotel/retail development is located on a commercial podium above the northern part of the freight yard extension. A public coach~~

~~park of 38 spaces is also provided within the podium.~~ This "OU" site is subject to a maximum non-domestic GFA of 132,218m^2 within, on and above the podium and 43,933m^2 for the ~~existing~~ freight yard and facilities ancillary and directly related to the freight yard operation under the podium. It is also subject to ***maximum*** ~~a~~ building height restriction***s*** of ~~a maximum of~~ 62mPD at the part of the site to the immediate north of Princess Margaret Road Link***,*** stepping up to ~~a maximum of~~ 97mPD at the northern most part of the site, and ~~a maximum of~~ 15mPD at the remaining part of the site***,*** based on the ***recommendations of*** the previous Hung Hom District Study ~~is recommended~~ to achieve a stepped profile upon development. The restrictions are imposed to reflect the existing development scale and intensities as well as to be in line with the overall building height concept of the Reclamation Area. ***The land uses and development intensity of the southern part are being reviewed under the re-planning exercise for sites around Hung Hom Station and its waterfront areas.***

8.7.5 Traffic congestion within the Area is already at a serious level. A more intensive development within the Area consequent to the removal of the Airport Height Restrictions related to the ex-Kai Tak Airport will aggravate the problem as the resultant building density will generate much more traffic than what the existing and planned transport networks and infrastructure could cope with. The building height is also another concern. Hence, a maximum plot ratio of 12.0 and a maximum building height of 13 storeys are imposed on the site zoned "OU" annotated "Multi-storey Carpark to Include Garages for Maintenance and Servicing of Motor Vehicles and Petrol Filling Station"; a maximum plot ratio of 12.0 and maximum building heights of 100mPD and 120mPD as stipulated on the Plan are imposed on the sites zoned "OU(B)"; and a maximum plot ratio of 6.6 and a maximum building height of 51.5mPD are imposed on the site zoned "OU" annotated "Public Mortuary, Funeral Depot & Funeral Parlour". The above specified restrictions are imposed to reflect the development intensities of the above specified existing developments.

8.7.6 A site at Wuhu Street, which is zoned "OU" annotated "Hotel", has been developed into a hotel. A maximum plot ratio of 12.0 (including back-of-house facilities) and a maximum building height of 80mPD as stipulated on the Plan as well as a restriction on any extension to the external walls and basement of the existing building for provision of floor space are imposed among others.

8.7.7 The "OU(Hotel)(1)" site south of Hung Luen Road has been developed into a hotel development with retail and public transport interchange (PTI) uses, namely the Kerry Hotel Hong Kong. This site together with the adjoining "C(7)" site to the west and the site to the further west of Princess Margaret Road Link and other commercial sites within the Reclamation Area are to serve as an office and hotel node extended from Tsim Sha Tsui East. Developments within this sub-zone are also subject to a maximum GFA of 62,492m^2, of which a GFA of not less than 5,708m^2 shall be provided for eating place and shop and services uses. A PTI as required by the Government shall be provided and is

included in GFA calculation. Taking account of the need to re-provide the PTI at ground level, the site is subject to a maximum site coverage of 80% (excluding basement(s)). Developments within this sub-zone are also subject to maximum building heights of 75mPD, 40mPD and 15mPD as stipulated on the Plan to reflect a "stepped height" building profile descending towards the waterfront and the ~~planned~~ urban park zoned "O" to its immediate east and to maintain visual permeability from "The Whampoa" at Shung King Street to the harbour and to integrate with the park. In addition, a 10m wide NBA at the southern boundary along the waterfront promenade as stipulated on the Plan shall be provided to enhance streetscape and integrate with the promenade to its south, as well as the "O" zone to its immediate east. To enhance the vibrancy of the waterfront promenade, the NBA may be used for alfresco dining without building structure. A building setback of 3.5m-wide along the eastern boundary shall be provided for landscaping purpose to better integrate with the future development of the adjoining "O" zone. An at-grade pedestrian walkway connecting the adjoining "C(7)" site to the west, the waterfront promenade and the PTI should be provided for public access 24 hours daily. The landscape decks on 1/F and 2/F should be open to the public at reasonable hours for public enjoyment. Ancillary car-parking should be accommodated in the basement.

8.7.8 In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratios may be increased by what is permitted to be exceeded under Regulation 22. This is to maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.

~~8.7.9 For development with special design merits, minor relaxation of the building height restrictions as stipulated on the Plan may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above.~~

~~8.7.10 To provide design/architectural flexibility, minor relaxation of the plot ratio/GFA/site coverage restrictions may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits.~~

~~8.7.11 Under exceptional circumstances, for developments and/or redevelopments, minor relaxation of the NBA restriction may be considered by the Board on application under section 16 of the Ordinance.~~

8.8 "Undetermined" ("U") – Total Area 0.17 ha

8.8.1 This zoning is intended to denote areas where further detailed planning study is required to identify the future uses of the land.

8.8.2 The site falling within this zone is the Kowloon Permanent Pier No. 90 to the east of Harbour Centre Tower 2 at Hok Cheung Street. The original function of the pier to serve the industrial area has diminished

as the adjacent area has been rezoned to "OU(B)" and undergoing transformation. As such, a review of the zoning of the pier is required. It is a long term planning intention to incorporate the pier into a promenade development from Tsim Sha Tsui to Kai Tak. However, the pier is currently under private ownership and access to the site is limited, a study is required to examine issues involved for developing the pier to form part of the promenade. In the meantime, the "U" zoning, under which all proposed development including 'Cargo Handling and Forwarding Facility' would require planning permission from the Board, will ensure that any interim development will not generate adverse impacts nor jeopardise the future planning and development of the site. A maximum building height restriction of 1 storey is also imposed to reflect the existing condition and forms a basis for maximum building height for redevelopment of the site for open space or any other uses to be considered by the Board under section 16 application. The application for permission for development on land designated "U" should include various technical assessments such as an environmental impact assessment report, a visual impact assessment report and a traffic impact assessment report to examine any possible environmental, visual and traffic impacts that may be caused to or by the proposed development during and after construction and the proposed mitigation measures to tackle them, for approval of the Board. Proposed development on the pier should be restricted to uses that will not have adverse environmental, visual and traffic impact.

8.9 Minor Relaxation Clause

8.9.1 For the zone(s) where minor relaxation of relevant restriction(s) is applicable, based on individual merits of a development or redevelopment proposal, minor relaxation of the development restrictions (except the NBA as specified in paragraph 8.9.3) as stipulated in the Notes of the Plan or as shown on the Plan may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph 7.5 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

8.9.2 However, for any existing building with building height already exceeding the relevant restrictions as stipulated on the Plan or in the Notes of the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

8.9.3 As for the development restriction(s) on NBA, for developments and/or redevelopments, minor relaxation of such restriction(s) as stated in the Notes of the Plan or as shown on the Plan may be considered by the Board on application under section 16 of the Ordinance under exceptional circumstances.

9. COMMUNICATIONS

9.1 Roads

9.1.1 Chatham Road North, which passes through the north-western part of the Area, is a primary distributor connecting the Area with Tsim Sha Tsui. The district distributor road network in the Area consists of Ma Tau Wai Road, Wuhu Street and Fat Kwong Street. Fat Kwong Street runs in a north-west direction and provides a link to the Ho Man Tin area.

9.1.2 The Hung Hom By-pass runs in a northeast-southwest direction through the Reclamation Area to connect Hung Hom Road with Salisbury Road in Tsim Sha Tsui. The Princess Margaret Road Link consists of elevated roads connecting the Hung Hom By-pass with Princess Margaret Road and Chatham Road. The Hung Hom Road extends northwards to connect with a proposed road joining Bailey Street and Sung On Street.

9.2 Railway

9.2.1 The MTR KTL Extension, comprising the Whampoa Station and Ho Man Tin Station, ~~was commissioned in October 2016. It~~ provides convenient and reliable means of public transport between Yau Ma Tei and Whampoa, and enables residents in Ho Man Tin, Hung Hom and Whampoa to have direct access to MTR service, saving time for interchange from road transport to the railway network.

~~9.2.2 The CE in C on 27 March 2012 authorised the MTR SCL under the Railways Ordinance (Cap. 519). Pursuant to section 13A of the Ordinance, the authorised railway scheme shall be deemed to be approved under the Ordinance. The SCL with 10 stations including Ho Man Tin Station and Hung Hom Station, consists of two sections, namely the Tai Wai to Hung Hom section and Hung Hom to Admiralty section. Construction started in 2012. The "Tuen Ma Line (TML) Phase 1" (railway from Wu Kai Sha Station to Kai Tak Station) was put into service on 14 February 2020, and the remaining "Kai Tak to Hung Hom Section" was put into service on 27 June 2021.~~

9.2.*2*~~3~~ The Ho Man Tin Station is an interchange station between the KTL and the TML. KTL passengers heading towards the New Territories can interchange at this station for the TML, whilst passengers heading towards Hong Kong Island may choose to interchange at Hung Hom Station for the Hung Hom to Admiralty section of SCL~~, when it is put into service~~. This ~~will~~ provide*s* an alternative option for passengers travelling between Central Kowloon and Hong Kong Island, thus relieving the bottleneck of the cross harbour section of the Tsuen Wan Line and the road traffic of the Cross Harbour Tunnel in Hung Hom. The Ho Man Tin Station and Hung Hom Station ~~will~~ significantly improve*s* the accessibility of the Area.

9.3 Ferries

Ferry piers are located at the waterfront to provide passenger ferry services to North Point and Central.

9.4 Other Public Transport Facilities

The Area is well served by buses and green minibuses. A public transport interchange for bus, green minibus and taxi is incorporated into the hotel development in the "OU(Hotel)(1)" zone south of Hung Luen Road to replace the existing temporary bus/coach terminus adjacent to the Hung Hom Ferry Pier.

9.5 Pedestrian Circulation

The Reclamation Area will be served by a comprehensive network of footbridges. Pedestrian links across the Princess Margaret Road Link are mainly through footbridges connecting from the "G/IC" site to the south of the "C(3)" site to the podium of the Metropolis. Pedestrian links across the Hung Hom By-pass are provided by the podium deck as part of the residential development above it. A grade separated walkway to the north of Royal Peninsula along Hung Ling Street links the MTR Hung Hom Station and bus terminus to the residential development in the existing built-up area in Hung Hom. Continuous public pedestrian access is provided along the waterfront promenade from Laguna Verde via the planned promenade at the Reclamation Area to Tsim Sha Tsui East.

10. URBAN RENEWAL AUTHORITY DEVELOPMENT SCHEME PLAN AREAS

10.1 Three areas have been designated as "URA DSP Areas". The land use zonings of the areas are depicted on the relevant URA DSPs and they will be implemented by the URA.

10.2 The DSP for Chun Tin Street/Sung Chi Street covers an area of about 0.25ha. The site is intended for accommodating one residential tower over a commercial podium with basement car park. The DSP for Hung Fook Street/Ngan Hon Street Site covers an area of about 0.49ha. The site is intended for accommodating three residential towers over two 4-storey commercial podia with a basement car park. The DSP for To Kwa Wan Road/Wing Kwong Street covers an area of about 0.66ha. The site is intended for accommodating two residential towers over a 6-storey podium, a low-rise retail/commercial block with an all-weathered communal space and a basement car park.

11. UTILITY SERVICES

The Area is well served with piped water supply, drainage and sewerage systems, as well as gas, electricity and telephone services. No difficulties are anticipated in meeting the future requirements.

12. CULTURAL HERITAGE

~~The Kwun Yam Temple at Station Lane (Grade 1) is located within the Area. On 19 March 2009, the Antiquities Advisory Board (AAB) released the list of 1,444 historic buildings, in which some buildings/structures within the Area have been accorded~~

~~gradings. The AAB also released a number of new items in addition to the list of 1,444 historic buildings which are subject to grading assessment by AAB. Details of the list of 1,444 historic buildings and its new items have been uploaded onto the official website of the AAB at http://www.aab.gov.hk. Prior consultation with the Antiquities and Monuments Office should be made if any development, redevelopment or rezoning proposals might affect the above graded historic buildings, new items pending grading assessment and their immediate environs.~~

12.1 Within the boundary of the Area, there are the Kwun Yam Temple at Station Lane (Grade 1) and Hung Hom (Three Districts) Kaifong Association (Grade 3).

12.2 The lists of declared monuments and proposed monuments, historic buildings and sites graded by the Antiquities Advisory Board (AAB), new items for grading assessment, Government historic sites identified by the Antiquities and Monuments Office of the Development Bureau (AMO) and sites of archaeological interest (SAIs) are published on AMO's website https://www.amo.gov.hk/en/historic-buildings/heritage-sites-lists/index.html. The lists will be updated from time to time.

12.3 Prior consultation with AMO should be made for any works, development, redevelopment or rezoning proposals that may affect the declared monuments, proposed monuments, historic buildings and sites graded by AAB, new items for grading assessment, Government historic sites identified by AMO, SAIs, or any other buildings/structures identified with heritage value, both at grade and underground, and the immediate environs of the aforementioned items.

13. IMPLEMENTATION

13.1 Although existing uses non-conforming to the statutory zonings are tolerated, any material change of use and any other development/redevelopment must be always permitted in terms of the Plan or, if permission is required, in accordance with the permission granted by the Board. The Board has published a set of guidelines for the interpretation of existing use in the urban and new town areas. Any person who intends to claim an "existing use right" should refer to the guidelines and will need to provide sufficient evidence to support his claim. The enforcement of zonings mainly rests with the Buildings Department, the Lands Department and the various licensing authorities.

13.2 The Plan provides a broad land use framework within which more detailed non-statutory plans for the Area are prepared by the Planning Department. These detailed plans are used as the basis for public works planning and site reservation within the Government ***departments***. Disposal of sites is undertaken by the Lands Department. Public works projects are co-ordinated by the Civil Engineering and Development Department in conjunction with the client departments and the works departments, such as the Highways Department and the Architectural Services Department. In the course of implementation of the Plan, the Kowloon City and Yau Tsim Mong District Councils would also be consulted as appropriate.

13.3 Planning applications to the Board will be assessed on individual merits. In general, the Board, in ~~considering~~ ***consideration of*** the planning applications, will take into account all relevant planning considerations which may include the departmental outline development plan***/layout plans*** and ~~the~~ guidelines published by the Board. The outline development plan***/layout plans*** ~~is~~ ***are*** available for public inspection at the Planning Department. Guidelines published by the Board are available from the Board's website, the Secretariat of the Board and the Technical Services Division of the Planning Department. Application forms and guidance notes for planning applications can be downloaded from the Board's website and are available from the Secretariat of the Board, the Technical Services Division and the relevant District Planning Office of the Planning Department. Applications should be supported by such materials as the Board thinks appropriate to enable it to consider the applications.

TOWN PLANNING BOARD
~~JUNE 2022~~ ***AUGUST 2025***

市區重建局
URBAN RENEWAL AUTHORITY

Our Ref. No.: URA250611687

4 July 2025

By Hand

Planning Department
Kowloon District Planning Office
14/F, North Point Government Offices,
333 Java Road
Hong Kong

Attn: Ms. Vivian Lai

Dear Vivian,

Proposed Zoning Amendment to the Approved Hung Hom Outline Zoning Plan No. S/K9/28 for URA Bailey Street/ Chi Kiang Street Project under Section 5 of the Town Planning Ordinance
Formal Planning Submission

We refer to the proposed zoning amendment to the captioned Outline Zoning Plan. We are pleased to formally submit a consolidated planning report with related technical assessments. An electronic copy of the report will also be provided via email to facilitate your onward departmental circulation.

Should you have any queries, please feel free to contact our Ms. Y.T. Li at 2588 2492 or Mr. Peter Wu at 2588 2757. Thank you for your kind attention.

Yours sincerely,
For and on behalf of
URBAN RENEWAL AUTHORITY

Mike Kwan
General Manager
Planning & Design

Encl.

PROPOSED ZONING AMENDMENTS

Prepared under Section 5
of the Town Planning Ordinance

市區重建局
URBAN RENEWAL AUTHORITY

PLANNING REPORT



URA Bailey Street/ Chi Kiang Street Project

July 2025

PART 1

PLANNING REPORT

Urban Renewal Authority

Bailey Street / Chi Kiang Street Project

Proposed Zoning Amendments from
"Government, Institution or Community" and
"Other Specified Uses" annotated "Sewage Treatment Plant"
to "Residential (Group A)9"
for a Proposed Residential Development
at Bailey Street, Kowloon City District

PLANNING REPORT

July 2025

市區重建局
URBAN RENEWAL AUTHORITY

EXECUTIVE SUMMARY

1. The Urban Renewal Authority, in collaboration with the Planning Department, proposes to rezone a site located at the junction of Bailey Street and Chi Kiang Street in Kowloon City District (the Site) mainly from a "Government, Institution or Community" ("G/IC") zone and a small strip of land in "Other Specified Uses" annotated "Sewage Treatment Plant" ("OU(STP)") zone to "Residential (Group A)9" ("R(A)9") on the Approved Hung Hom Outline Zoning Plan (Approved OZP) No. A/K9/28 (the Proposed Rezoning). This planning report is prepared for the Proposed Rezoning under Section 5 of the Town Planning Ordinance for consideration by the Town Planning Board.

2. On 6 June 2025, the Government announced that, in order to provide additional financial support to the URA to enhance its cashflow, enabling the URA to continue to take forward its commenced redevelopment projects in an orderly manner, the Chief Executive in Council approved granting a site at Bailey Street to the URA by private treaty at a nominal premium. This aims to support URA in fulfilling its urban renewal efforts, with the understanding that the site would be rezoned for residential uses in due course.

3. The Site, with a gross site area of about 7,610 sq.m., is a piece of Government land located next to Hoi Sham Park Extension. Currently, the majority of the Site is being occupied for a temporary car park with a small portion designated as part of the right-of-way for the adjacent To Kwa Wan Pigging Station under Kowloon Inland Lot No. 11214. According to the Approved OZP, over 99% of the Site (about 7,571 sq.m.) is zoned "G/IC", while a narrow small strip of land (about 39 sq.m.) zoned "OU(STP)". The "G/IC" zone was originally planned for school development, however, with the structural decline in the school-age population, it is considered that the need to establish new school at the site is no longer required. The Lands Department has confirmed that the above right-of-way is no longer required. Additionally, the small strip of land that zoned "OU(STP)", has also been confirmed as no longer needed.

4. To optimize the scarce land resource in the urban area, it is proposed to rezone the Site to "R(A)9" for residential development (hereafter refer to as the "Bailey Street / Chi Kiang Street Project"). The Bailey Street / Chi Kiang Street Project aims to rationalize land use for holistic planning of the area to enable more efficient land use and to bring planning gains for the community. A total of about 3,100 sq.m Gross Floor Area (GFA) will be reserved for GIC uses to meet community needs. The proposed GIC provision will be handed over to the Government for ownership, management and maintenance upon completion.

5. The Site is distinguished by its unique location, setting it apart from typical residential zones in the area, which tend to be extensive and monotonous, with its proximity to leisure and recreational amenities in Hoi Sham Park and the waterfront. While keeping a tranquil waterfront, it should also allow for the opportunity to promote a leisure lifestyle with a wider range of retail and commercial spaces, such as alfresco dinning, cafes, grocers and specialty stores, aimed at visitors while meeting the future resident's needs. In contrast, the residential zones in the inland require more retail spaces for essential services and everyday convenience for wider population, indicating that less retail space is necessary for the Site. To allow

flexibility and facilitate potential site partitioning, a maximum domestic GFA of 60,880 sq.m is proposed, while keeping with the overall maximum GFA of 68,490 sq.m. This corresponds to a maximum total plot ratio (PR) of 9.0, consistent with the "R(A)" zoning in the same OZP. This arrangement allows greater flexibility for future development in response to market needs, and provides opportunity in the design of smaller podia to accommodate the proposed GIC uses and commercial spaces while reducing the need for extensive retail areas, and enabling more street-front shops to enliven the nearby waterfront.

6. Under the Proposed Rezoning, the Building Height Restriction (BHR) of the Site has taken into account the surrounding environment and building height profile, and is optimized to 110mPD. This generally respects the surrounding built environment and building height profiles of adjacent development and those along the waterfront within a district-wide context. The proposed BHR will allow the flexibility for creation of an harbourfront at-grade communal space of about 760 sq.m. at the southern portion of the Site, as well as providing sensible tower separations within the Proposed Development. The proposed harbourfront at-grade communal space and tower separations will facilitate visual openness and wind penetration between the waterfront and the hinterland. Supporting technical assessments such as Visual Impact Assessment, Traffic Impact Assessment, Environmental Assessment, Air Ventilation Assessment, Drainage and Sewerage Impact Assessment, Water Supply Impact Assessment, etc., have been carried out, and results of these assessments indicate that there will be no insurmountable problem or adverse impact in implementing the Proposed Development.

行政摘要

1. 市區重建局（市建局）與規劃署協作 ，建議修訂紅磡分區計劃大綱核准圖 (大綱圖) 編號 S/K9/28，將位於九龍城區庇利街及浙江街交界的一塊土地，由現時主要規劃爲「政府、機構或社區」地帶以及小部分規劃爲「其他指定用途 (污水處理廠) 」地帶改劃為「住宅（甲類）9 」地帶（擬議修訂）。此規劃報告是根據《城市規劃條例》第 5 條為擬議修訂所擬備予城市規劃委員會（城規會）考慮。

2. 於 2025 年 6 月 6 日，政府公布為向市重局提供額外財政支援以改善其現金流，從而讓市建局有序繼續推展已開展重建項目，行政長官會同行政會議批准以私人協約方式，並以象徵式地價向市建局批出一幅位於紅磡庇利街用地以助市建局履行舊區重建任務，而該幅用地須通過法定城規程序改劃作住宅用途。

3. 擬議發展的地盤總面積約 7,610 平方米，涉及一幅位於海心公園(擴建部分)旁的政府土地。現時，該地盤主要被用作臨時停車場，並有一小部分位置屬被毗鄰土瓜灣檢管站 (九龍內地段 11214 號) 的專用車輛通道的一部分。根據大綱圖，超過 99%的地盤面積 (約 7,571 平方米) 劃為「政府、機構或社區」地帶，而餘下一幅細小狹長土地(約 39 平方米) 則劃為「其他指定用途」註明「污水處理廠」地帶。該「政府、機構或社區」地帶原計劃作學校發展，然而，鑑於學齡人口出現結構性下降，認為在該地盤沒有增設學校的需要。地政總署亦已確認沒有保留上述專用車輛通道的需要。至於一小部分劃作「其他指定用途」註明「污水處理廠」的地帶，亦已確認沒有此需要。

4. 市建局建議將該土地重新規劃高密度住宅發展 (下統稱為「庇利街/浙江街項目」)，以充分善用市區有限的土地資源。 透過整體規劃，庇利街/浙江街項目旨在重整現有土地用途，並為社區帶來規劃裨益。約 3,100 平方米的樓面面積將被預留作政府、機構或社區設施，以滿足社區需求。這些設施將於項目完成後由政府負責擁有、管理和維護。

5. 該地盤的獨特位置，使其與同區廣泛且統一的典型住宅地帶不同。由於位置靠近海心公園和海濱的休閒娛樂設施，一方面保持海濱的寧靜，但另一方面又為該地盤提供推動休閒發展的機遇，例如可引入露天餐飲、咖啡館、雜貨店以及特色小店等各種小型零售及商業設施，以應付訪客需求及滿足將來居民的需要。相比位於與內陸地區較為密集的住宅區之下，該位置需要提供較多的商業空間作服務、零售及民生配套設施，以解決更廣泛地區的人口需要，這亦表明該地盤所需的商業/零售空間較少。為提升靈活性並促進未來可能的地盤分割，擬議修訂建議把住用樓面面積提高至 60,880 平方米，同時保持總樓面面積為 68,490 平方米。這對應總地積比率為 9.0，與同一規劃大綱圖中的「住宅（甲類）」地帶的總地積比率一致。這樣的安排為未來發展提供更大的靈活性，以應付市場需求，並提供機遇，在樓宇設計中建造較小的平台，以容納擬議的政府、機構和社區用途以及商業樓面，同時提供更多的臨街店鋪，為毗連海濱增添活力。

6. 擬議修訂的建築物高度限制已充分考慮周邊環境及建築高度輪廓，擬放寬至主水平基準以上 110 米，使整體建築群高度大致與內陸及沿岸發展的高度互相呼應。擬議的建築物高度可提供地面空間，於地盤南面部分設有一個約 760 平方米的海濱地面共享空間，同時亦提供適切的建築物間距。這擬議的海濱地面共享空間及建築物間距使促進海濱與內陸地區之間的視覺開揚度及建築物通透性。市建局已就擬議發展進行了技術評估，其中包括視覺影響評估、交通影響評估、環境評估、空氣流通評估、

排水及污水影響評估、食水供應影響評估等。所有技術評估均證明了擬議發展的實施不會帶來不可克服的問題或負面影響。

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1. INTRODUCTION

1.1 The Urban Renewal Authority (URA), in collaboration with the Planning Department (PlanD) has proposed to rezone a site located at the junction of Bailey Street and Chi Kiang Street in Kowloon City District (the Site) under Section 5 of the Town Planning Ordinance for consideration by the Town Planning Board (TPB).

1.2 On 6 June 2025, the Government announced that, in order to provide additional financial support to the URA to enhance its cashflow, enabling the URA to continue to take forward its commenced redevelopment projects in an orderly manner, the Chief Executive in Council approved granting a site at Bailey Street to URA by private treaty at a nominal premium. This aims to support URA in fulfilling its urban renewal efforts, with the understanding that the site would be rezoned for residential uses in due course.

1.3 The Site, with a gross site area of about 7,610 sq.m., is a piece of Government land located at the junction of Bailey Street and Chi Kiang Street in the Kowloon City (KC) District. As announced in The Chief Executive's 2023 Policy Address, the Government will "*provide suitable land for the URA at nominal land premium to enhance the viability of the concerned redevelopment projects and increase the usable resources available to URA*" (2023 Policy Address, para 102 (ii)).

1.4 Currently, the majority of the Site is being occupied for a temporary car park with a small portion designated as part of the right-of-way for the adjacent To Kwa Wan Pigging Station under Kowloon Inland Lot No. 11214. According to the Approved Hung Hom Outline Zoning Plan (Approved OZP) No. A/K9/28, over 99% of the Site (about 7,571 sq.m.) is zoned "Government, Institution or Community" ("G/IC"), while a narrow small strip of land (about 39 sq.m.) is zoned "Other Specified Uses" annotated "Sewage Treatment Plant" ("OU(STP)"). The "G/IC" zone was originally planned for school development, however, having reviewed the latest school demand, the Education Bureau has confirmed that the Site is no longer required for such purposes. The Lands Department has confirmed that the above right-of-way is no longer required. Additionally, the small strip of land that zoned "OU(STP)", has also been confirmed as no longer needed. The opportunity is being seized to convert the Site for comprehensive high-density residential developments in order to optimize land utilization particularly in the urban area (hereafter refer to as the "Bailey Street / Chi Kiang Street Development"). To take forward of the proposal, it is proposed to rezone the Site from "G/IC" and "OU(STP)" to "Residential (Group A)9" ("R(A)9") on the Approved OZP under Section 5 of the Town Planning Ordinance (the Proposed Rezoning).

1.5 This Planning Report (**Part 1** of the report) has been prepared with comprehensive background information and the planning proposal to facilitate the TPB's consideration of the Proposed Rezoning under Section 5 of the Town Planning Ordinance (**Part 2** of the report). Supplementary information, including the preliminary design of the Proposed Development and key technical assessments, is also included in **Part 3** for reference.

2. AREA APPRAISAL

Site Location

2.1 The Site, with a total gross site area of about 7,610 sq.m., is located at the interface of Hung Hom and To Kwa Wan areas in KC District. It is broadly bounded by Chi Kiang Street to the west, Bailey Street to the south, and the Hoi Sham Park Extension to the east and north. A strip of pavement along Chi Kiang Street currently zoned as "G/IC" will be remain as public pavement and is excluded from the Site boundary. A small strip of land zoned "OU(STP)" at the southeastern corner of the Site is also included for the Proposed Rezoning. **Figure 2.1** indicates the location of the Proposed Development.

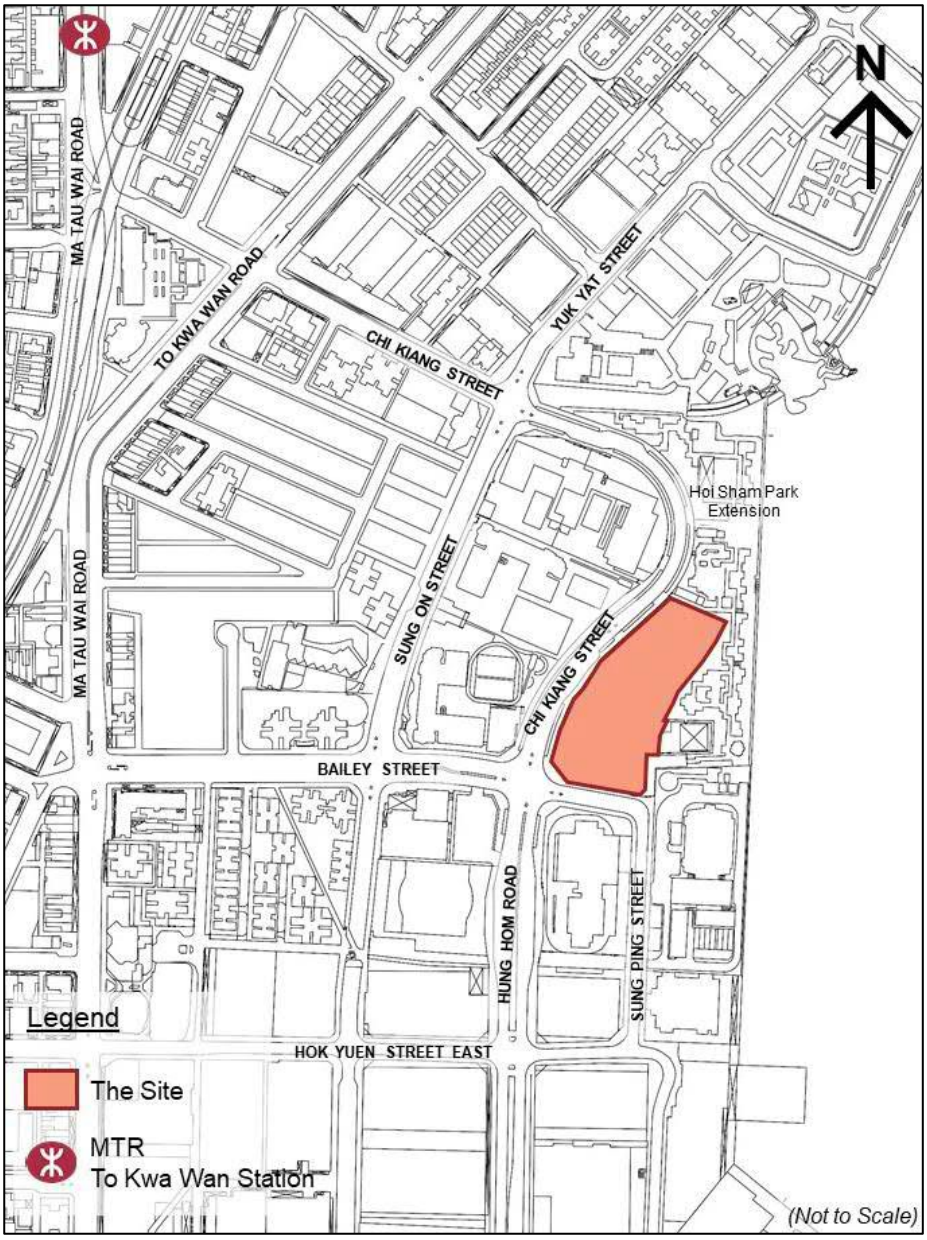


Figure 2.1 Location Plan

2.2 The following sections will provide a comprehensive area appraisal of the Site and its surrounding area. It will examine the historical background, statutory planning context, surrounding land uses, existing and planned development, as well as the uniqueness of the Site. **Figure 2.2** below provides an overview of the appraisal area, including major land uses and pedestrian network, and the concept of the Victoria Cove Area and its proposed linkages, which will be further elaborated in **Paras. 2.3 to 2.25** below.

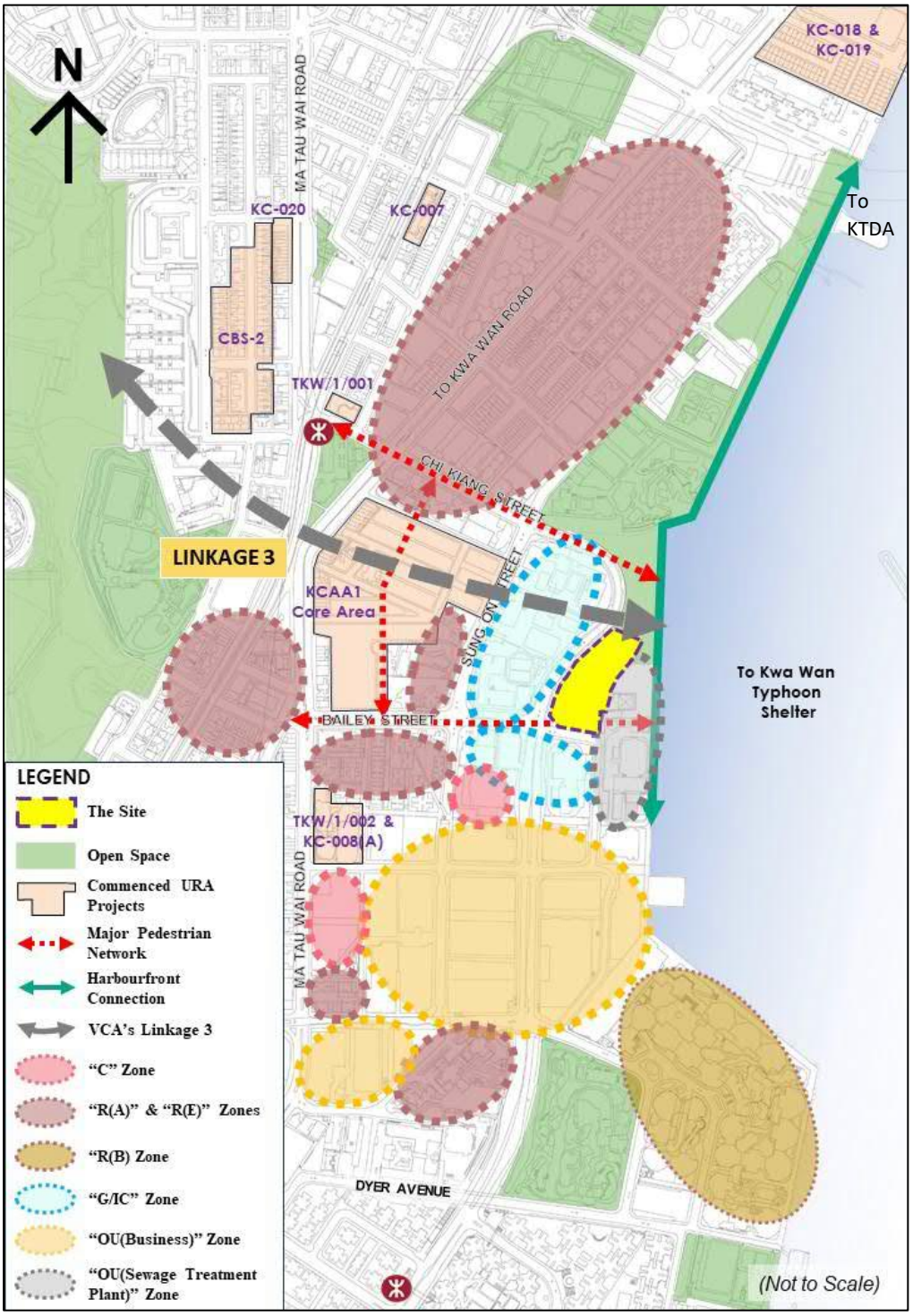


Figure 2.2 Area Appraisal

Historical Background

2.3 The KC District has a rich historical background. Major historical and cultural assets are concentrated near the former Kowloon Walled City, while various historical buildings and heritage can also be found in To Kwa Wan, including the Fishtail Rock inside Hoi Sham Park and Pak Tai Temple.

2.4 According to historical maps, the Site is situated in a reclaimed area. Since the 1900s, several rounds of reclamation have been undertaken in To Kwan Wan and Hung Hom to increase the area of developable land along the coastline, accommodating the growing population and economics activities. The second large-scale reclamation of To Kwa Wan started in the 1950s when industrial activities in Kowloon became more prosperous. These newly reclaimed lands were designated for residential developments and industrial uses, including manufacturing, weaving, bleaching, and dyeing, printing, and electroplating and car-repairing activities.

2.5 The former Bailey's Shipyard was located to the west of the Site. Following the decline of the shipbuilding industry, the shipyard ceased operation and the coastal near its ship cradle was gradually reclaimed after the war, resulting in the formation of Bailey Street, which stretches from Ma Tau Wai Road to Sung Ping Street. Bailey Street was named after the founder of the shipyard. In the 1980s, further reclamation took place in the area between Chi Kiang Street, Sung On Street and Bailey Street, extending southward to Hung Hom Road. Additionally, a section of the coastline between the existing Laguna Verde and Hoi Sham Park was also further extended and expanded.

Statutory Planning Context

2.6 Over 99% of the Site (about 7,571 sq.m.) is zoned "G/IC", while a narrow small strip of land (about 39 sq.m.) is zoned "OU(STP)" on the Approved OZP. An extract of the OZP is shown in **Appendix 1**. It should be noted that a small strip of pavement area along Chi Kiang Street, in the same "G/IC" zone will be remain as public pavement and is excluded from the Site boundary.

2.7 According to the Statutory Notes of the Approved OZP for "G/IC" zone, the zone is intended "*primarily for the provision of Government, institution or community facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments*". The "G/IC" zone is subject to a building height restriction (BHR) of 8 storeys, as stipulated on the Plan of the Approved OZP. The Explanatory Statement of the Approved OZP indicates that the subject "G/IC" zone was planned for a secondary school. For the small strip of land zoned "OU(STP)" within the Site, the Lands Department has advised that it was initially reserved for LCSD's open space development, but it was no longer required. In light of this information from Lands Department, the strip of land is also included in the project boundary to optimize land use in the area.

Existing Use and Site Condition

2.8 The Site is a piece of paved Government land with some scattered trees. The majority of the area is currently used for temporary car parking under Government Short Term Tenancy No. KX3105 granted by the Lands Department since 2020, with the main entrance located on Bailey Street at the Site's southern boundary. A Site Plan is shown in **Figure 2.3**.

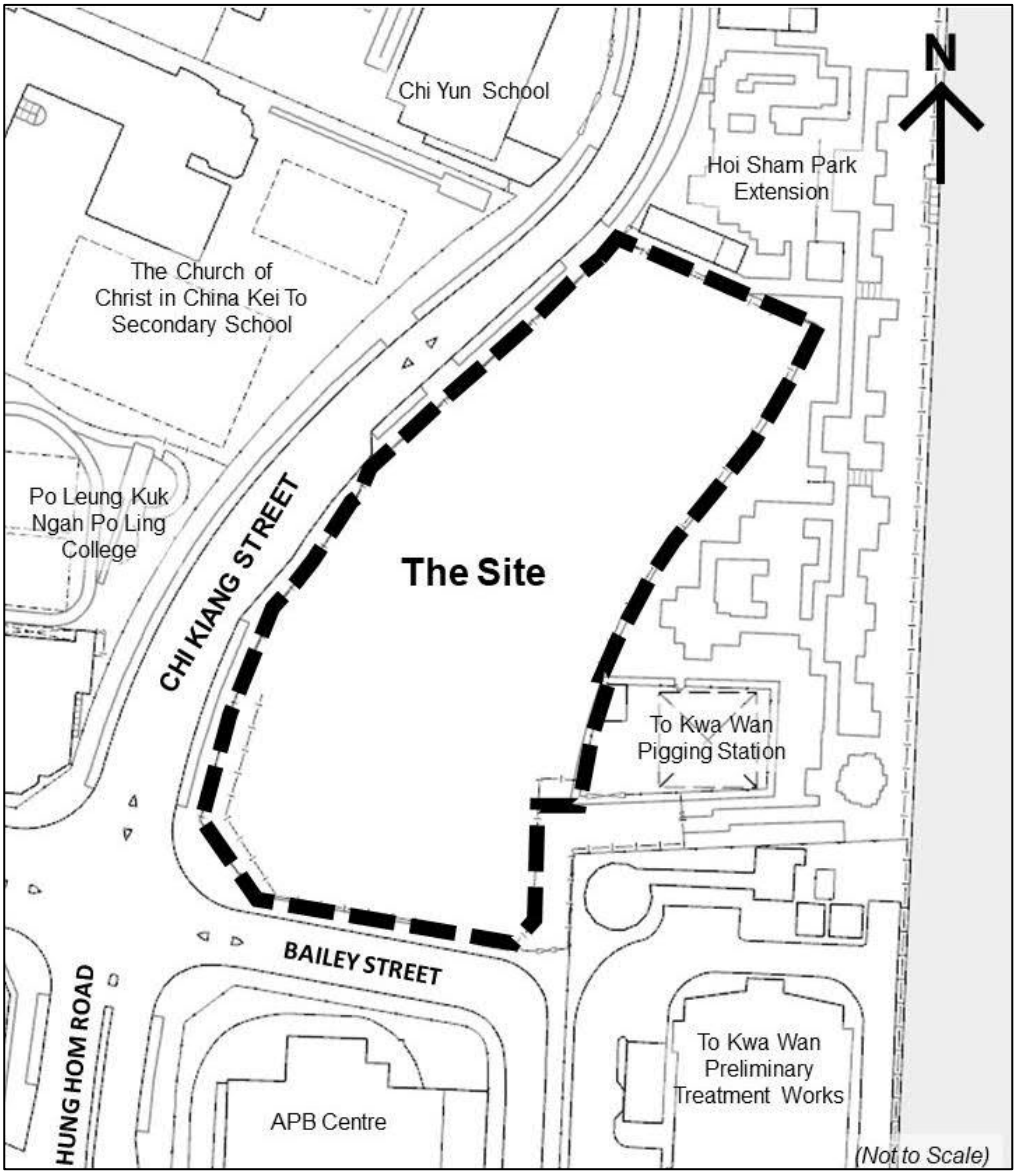


Figure 2.3 Site Plan

Surrounding Land Uses and Planned Developments

2.9 The Site is immediately surrounded by recreational, institutional and infrastructural uses. Further to the west and south lie a cluster of existing and planned residential and commercial/office developments. The Site also falls within the To Kwa Wan Central Area as defined by Kowloon City District Urban Renewal Forum (KC DURF). Although the Site itself is not located within the "Proposed Redevelopment, Rehabilitation and Revitalization Priority Area" recommended under the Urban Renewal Plan of KC DURF, the Proposed

Rezoning builds upon and respects these proposals and recommendations. One of the key planning objectives of the Proposed Development is to enhance the connectivity between the waterfront and surrounding areas, especially by improving east-west pedestrian connectivity along the key distributors.

2.10 Currently, the area is undergoing active redevelopment, which provides opportunities for re-evaluating and re-planning suitable land uses for the Site. The surroundings of the Site offer a dynamic and multifaceted environment that enhances its appeal and potential for future development.

2.11 To the immediate east and north of the Site are Hoi Sham Park Extension and Hoi Sham Park, both designated as recreational areas with a zoning of "Open Space" ("O") in the Approved OZP. Hoi Sham Park is one of the larger parks in To Kwa Wan, featuring local landmarks such as Hoi Sham Rock and Fishtail Rock. The Hoi Sham Park Extension, which was opened in 2023, provides a peaceful environment and an extended waterfront promenade for public enjoyment. These parks offer a wide range of recreational facilities suitable for people of all ages, including a children's play area, a children's cycling ground, fitness corners, pavilion, a lawn and a promenade.

2.12 To the immediate south of the Site across Bailey Street is the APB Centre, a 10-storey building zoned "G/IC" and currently occupied by the Architectural Services Department for office use. Moving further south from the Site, there is a cluster of industrial buildings zoned as "Other Specific Uses" annotated "Business" ("OU(B)") on the Approved OZP. These areas are designated for general business uses and are part of the ongoing efforts to phase out polluting and hazardous uses in the Hung Hom industrial area, expediting its transformation.

2.13 Existing infrastructural facilities such as the To Kwa Wan Pigging Station and To Kwa Wan Preliminary Treatment Works are located to the immediate east and southeast of the Site, respectively. In 2022, the Drainage Services Department has converted the emergency vehicular and maintenance access of the To Kwa Wan Preliminary Treatment Works into public space. This promenade, named Drainy Garden, was opened to the public in December 2023. It serves as a connection point to Hoi Sham Park Extension, providing a pleasant area for public enjoyment.

2.14 To the immediate west of the Site across Chi Kiang Street are mainly school developments, including the Po Leung Kuk Ngan Po Ling College, The Church of Christ in China Kei To Secondary School, Po Leung Kuk Anita L. L. Chan (Centenary) School, and Chi Yun School.

2.15 Further to the west, along Ma Tau Wai Road and about 200m from the Site, lies the URA's Kowloon City Action Area 1 (KCAA1) Core Area, also its first "District-based Redevelopment New Community" in To Kwa Wan. Under a district-based and planning-led approach, the URA has commenced eight redevelopment projects within the KCAA1 Core Area. These projects form a cluster of URA initiated aimed at redeveloping the existing tenement buildings concentrated in the area, allowing for broader restructuring and replanning of the neighbourhood. Through the restructuring and replanning of existing traffic routes, pedestrian network patterns, and greening facilities in the KCAA1 Core

Area, a livable, self-sustaining community could be realized. These projects are tentatively scheduled for completion between 2026 and 2032. A table summarizing the URA's projects within the KCAA1 Core Area is shown in **Table 2.1** and their location are illustrated in **Figure 2.4** below.

Table 2.1 Summary of URA Projects within the KCAA1 Core Area

No.	URA Projects	No. of Units	Building Height (mPD)
1	KC-009 (Bailey Street/ Wing Kwong Street Development Project)	1,296	100
2	KC-010 (Hung Fook Street/ Ngan Hon Street Development Scheme)	750	100
3	KC-011 and DL-8:KC (Hung Fook Street/ Kai Ming Street Development Project and Kai Ming Street Demand-Led Redevelopment Project)	564	100
4	KC-012 and KC-013 (Wing Kwong Street Development Project and Kai Ming Street/ Wing Kwong Street Development Project)	414	100
5	KC-014 (Wing Kwong Street/ Sung On Street Project)	560	100
6	KC-016 (To Kwa Wan Road/ Wing Kwong Street Development Scheme)	900	140
	Total:	4,484	100 to 140mPD

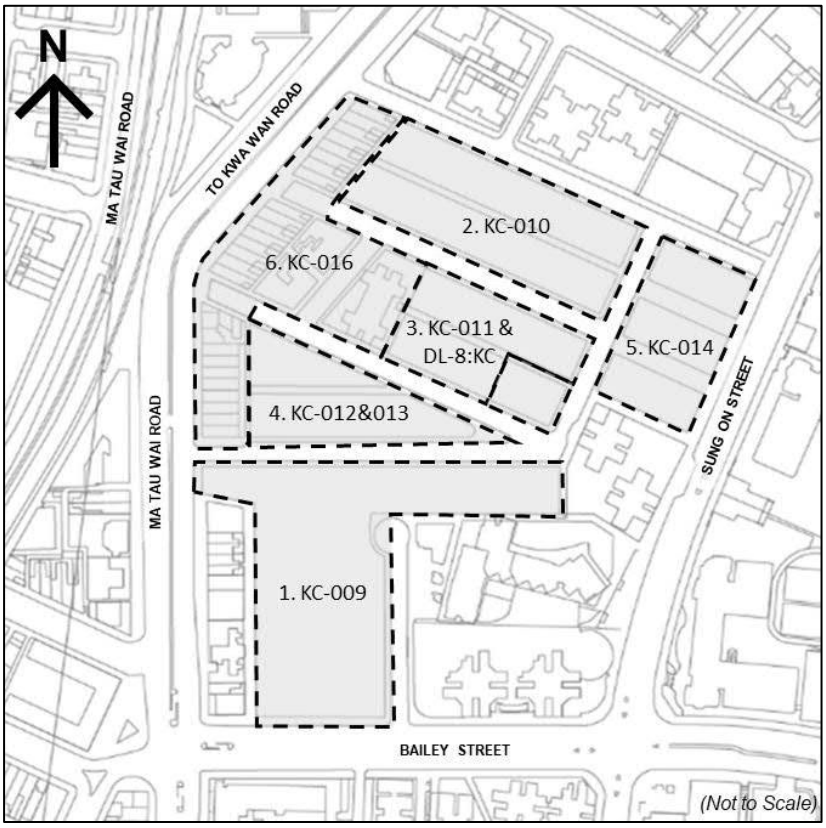


Figure 2.4 Planned Development within the URA's KCAA1 Core Area

2.16 To the south of the URA's KCAA1 Core Area, along Bailey Street, there is a cluster of existing residential development with commercial/retail development on the lower levels. The average building age ranges from about 30 to 51 years. Notable developments in this area include Sunshine Plaza, Bailey Garden, Wing Fai Mansion and Shung Tze Houses. There are also relatively newer residential developments nearby, including Upper East, The Vantage, e-Residence in the south, Sunrise Villa, L.Harbour 18 and Bayview in the north. These newer developments have building heights ranging from 100 to 146mPD, with average building age of less than 10 years. Moving further northeast from URA's KCAA1 Core Area, about 200m away from the Site, there is another residential cluster in I-Feng Mansion and Mei King Mansion, which have ground floor shops with an average building age over 45 years. **Figure 2.5** below illustrates the locations of the developments discussed in **Paras**. **2.11** to **2.15.**

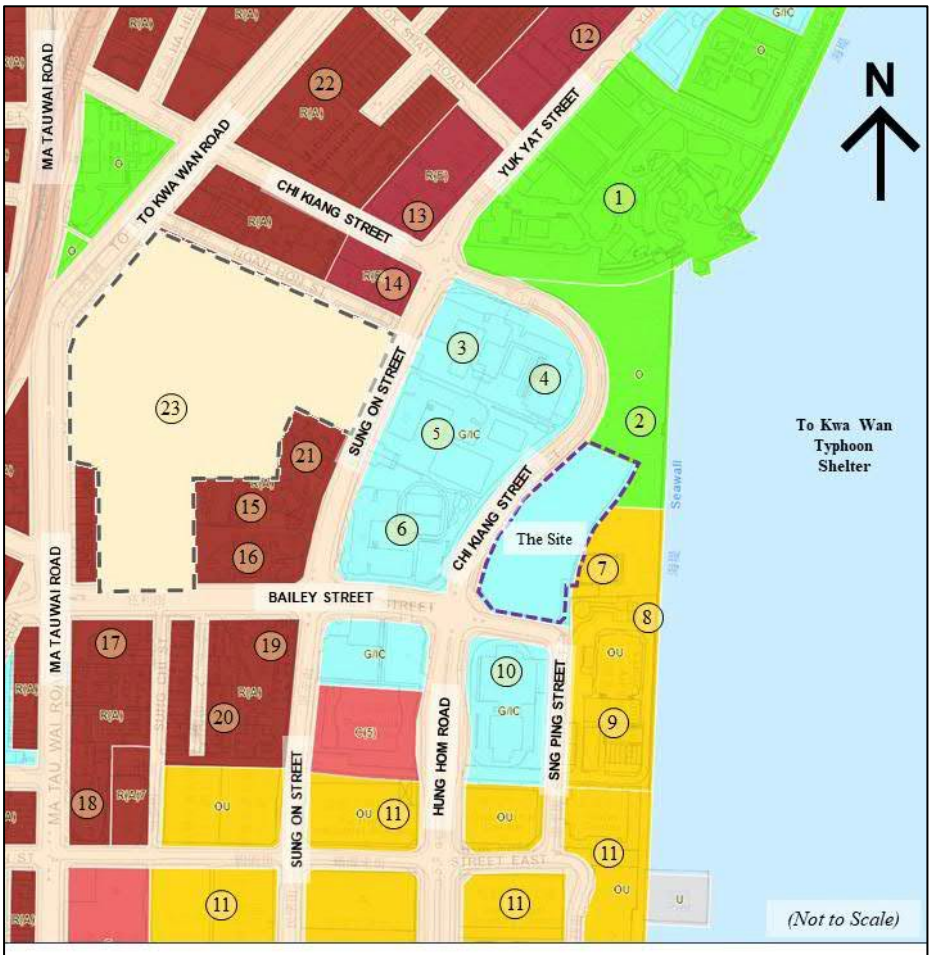


Figure 2.5 Surrounding Land Uses and Developments

Existing Pedestrian Network

2.17 The Site is conveniently located between the MTR To Kwa Wan Station and MTR Whampoa Station, with several station exits situated within a 10-minute walking distance. It is also well-served by various public transport services, including franchised bus and public light bus that operate along Bailey Street and Hung Hom Road, both of which can be reached within a 4 to 6-minute walk. Bailey Street serves as the major pedestrian route, connecting the To Kwa Wan hinterland with Hoi Sham Park and Promenade in an east-west direction. Furthermore, the existing promenade at Hoi Sham Park offers direct pedestrian connectivity to the north, leading to the Kowloon City Ferry Pier. **Figure 2.2** provides an overview of pedestrian network and the connectivity to the major transport nodes.

Existing Traffic Network and Conditions

2.18 The Site is located at a corner lot bounded by Chi Kiang Street at the west and Bailey Street at the south. The section of Chi Kiang Street adjacent to the Site is a single two local distributor running in a north-south direction while the section of Bailey Street abutting the proposed development site is a single two carriageway running east-west.

2.19 In addition to the vehicular access proposed at Chi Kiang Street, the development can accommodate traffic traveling in all directions via the immediate linked Hung Hom Road, Bailey Street or Yuk Yat Street.

2.20 In recent years, the Hung Hom and To Kwa Wan areas have emerged as tourist hotspots. These districts have attracted a large number of Mainland inbound tour groups for dining and shopping, which has had certain impacts on the local environment. The influx of tourists has led to the establishment of numerous restaurants, jewelry stores, and souvenir shops in the vicinity of the Site, including Chi Kiang Street, Sung On Street, Man Lok Street, and Hung Hom Road have experienced a significant increase in double parking by coaches. The illegal pick-up/drop-off of passengers and the parking of tourist coaches have caused obstructions in the traffic network.

2.21 To address this issue, the Government has implemented interim policy measures, including banning Mainland tour groups from engaging in same-day shopping and dining activities within the same area such as To Kwa Wan. These measures aim to alleviate traffic congestion and mitigate the negative impacts on the local community.

Uniqueness of the Site

2.22 The Site is distinguished by its unique characteristics, setting it apart from the typical residential zonings in the vicinity, especially those at the inland area that tends to be extensive and monotonous. Located next to the leisure and recreational amenities in Hoi Sham Park and the waterfront, the Site offers a tranquil oasis for those seeking respite from the hustle and bustle of the city centre. In contrast to other “R(A)” zones within the same OZP, which are located in a more traditional and mature residential areas with immediate access to a wide range of local amenities and daily essentials, including

schools, clinics, restaurants and shops, serving the wider population in the area. The Site provides a distinctive opportunity for flexible interchangeability of domestic and non-domestic floor area, enabling the future development to leverage the site's unique attributes while adapting to market change. With its optimal positioning, the Proposed Development has the potential to provide more housing supply and introduce small scale retail spaces that promote a slow-paced, leisurely living style.

2.23 In contrast to the "Residential (Group E)" ("R(E)") zones in the hinterland on Yuk Yat Street within the adjoining Approved Ma Tau Kok OZP No. S/K10/30 (Approved MTK OZP), these areas, despite sharing a similar waterfront setting, are currently occupied by industrial buildings along with a few new residential developments. These areas, according to the Approved MTK OZP, are planned for transformation into larger-scale residential developments, which will occur through the gradual phasing out of existing industrial uses through redevelopment. The maximum domestic Plot Ratio (PR) of 7.5 and a maximum overall PR of 9.0 in these "R(E)" zones are deemed suitable to meet this planning intention and accommodate future population needs.

2.24 Given this context, a higher maximum domestic Gross Floor Area (GFA) of 60,880 sq.m and a lower maximum non-domestic GFA of 7,610 sq.m is proposed for the Site, while keeping the overall maximum GFA at 68,490 sq.m. This corresponds to a maximum total PR of 9.0, consistent with the "R(A)" zoning in the same OZP. This adjustment aligns and preserve the tranquil nature of the waterfront and facilitates more efficient utilization of non-domestic floor spaces, allowing for smaller podia, particularly in such a prominent location, facilitating air ventilation and visual permeability from the waterfront to the hinterland. While preserving a tranquil waterfront, the proposed development also creates opportunities for small-scale commercial activities such as alfresco dinning, cafes and specialty stores. Furthermore, the reduction in commercial GFA will be minimal, as the area is well-served by various existing and planned shops (in URA's KCAA1 Core Area), all within a short walking distance.

2.25 In addition to the above, the URA has initiated the "To Kwa Wan Harbourfront Study" in 2025, also referred to as the Victoria Cove Area (VCA) study. The Study adopts a macroscopic and holistic planning approach that integrates the "Cove-Waterfront-Inland" concept. The initial proposals aim to enhance the functionality and vibrancy of the cove and coastline, while improving connectivity and accessibility between inland areas and the bay in three directions. The Site, an underutilized piece of government land facing the harbour, offers a significant opportunity to strengthen pedestrian connections between inland To Kwa Wan and the harbourfront. The Proposed Development aims to enrich the district with diverse activities and making the waterside more accessible, thereby contributing to the creation of a node to contribute southern portion of TKW waterfront. It also aligns with the key directions of the VCA Study, specifically to strengthen connections between inland areas and waterfront space, particularly around the recreational and waterfront spaces centered around KCAA1 Core Area, a district-based redevelopment new community in To Kwa Wan. **Figure 2.6** illustrates the relationship between the

Site, developments in KCAA1 Core Area, and the waterfront spaces within the VCA.

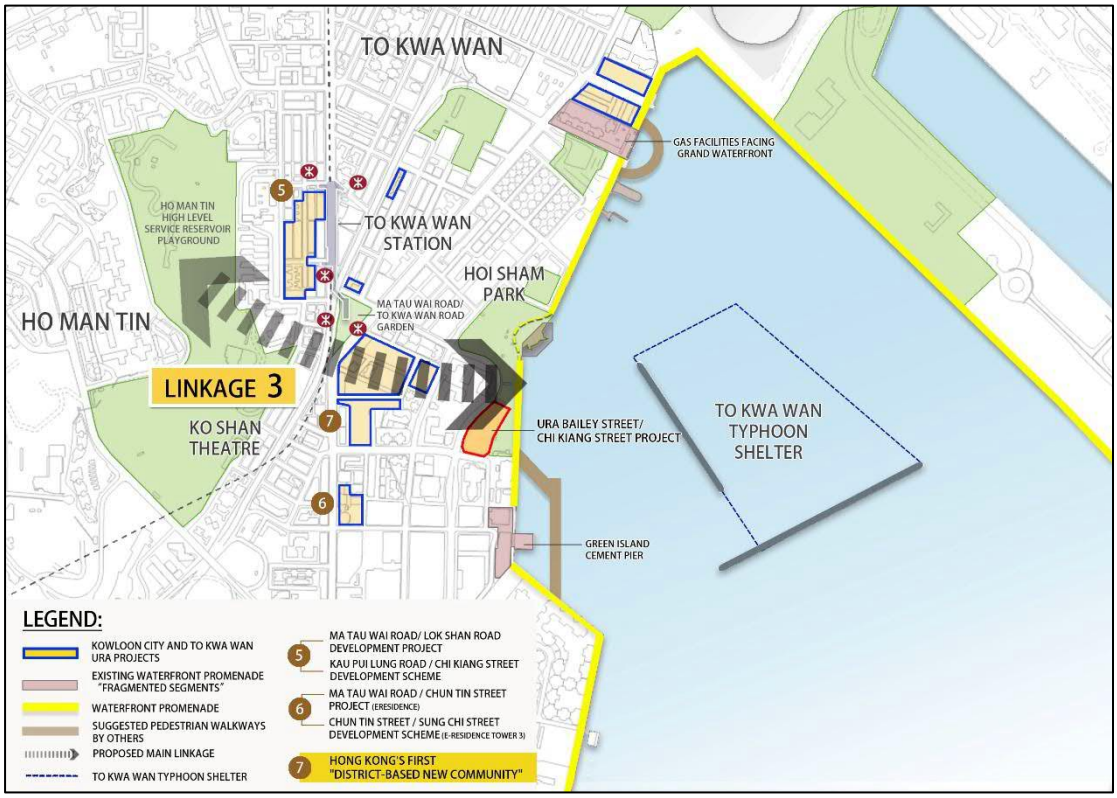


Figure 2.6 The Site and Proposed Linkage 3 of the Victoria Cove Area Study

3. THE PROPOSED REZONING

Development Intensity

3.1 The Site is proposed to be rezoned from "G/IC" and "OU(STP)" to "R(A)9" zone for high-density residential development, with the lowest three floors or in the purpose-designed non-residential portion of a building for commercial uses as stipulated in the proposed Notes of the "R(A)9" zone.

3.2 In the proposed Notes of "R(A)9" zone, the overall maximum GFA is 68,490sq.m, which corresponds to a maximum PR of 9.0 aligning with the development intensity of "R(A)" zone under the prevailing Hung Hom OZP. As discussed in **Paras.** 2.22 to 2.24 a maximum domestic GFA of 60,880sq.m (which is equivalent to PR of 8.0) is proposed to allow greater flexibility in the interchange between domestic and non-domestic GFA within the overall maximum GFA of 68,490sq.m, accommodating future development based on market needs. The lower non-domestic GFA arrangement provides an opportunity to design smaller podia to accommodate proposed GIC uses and commercial spaces. About 3,100 sq.m of non-domestic GFA is proposed for GIC uses within the Proposed Development. It is proposed to include a clause in the "Remarks" section of the proposed Notes of "R(A)9" zone, stating that any floor space constructed solely for GIC facilities, as required by the Government, may be disregarded from GFA calculation. Thus, the overall maximum GFA of the Proposed Development is 68,490sq.m under the OZP, with domestic GFA of 60,880sq.m and non-domestic GFA of 7,610sq.m. In addition, about 3,100 sq.m. of non-domestic GFA will be allocated for GIC uses and exempted from the GFA calculation under the OZP.

3.3 The Site and its surroundings are predominantly characterized by residential and infrastructural uses, rather than functioning as a conventional shopping district. There are ample existing and planned retail and commercial developments are located within a 5 to 10-minute walk from the Site, effectively meeting the everyday convenience needs of residents in the Proposed Development. The Site is situated in a prime location adjacent to Hoi Sham Park and the waterfront promenade, and its unique setting allows for the opportunity to promote a slow-paced leisurely lifestyle. It also enhances the waterfront vibrancy with the inclusion of small-scale retail and commercial spaces, such as alfresco dinning, cafes, grocers and specialty stores, designed to attract visitors while catering the future resident's needs. In contrast, inland residential zones require more retail spaces for essential services for a larger population, indicating that less retail space is necessary for the Site. To enhance development potential, a higher maximum domestic GFA 60,880sq.m is proposed, while keeping with the overall maximum GFA 68,490sq.m. This adjustment allows for greater flexibility in future development in response to market needs on flat supply, and provides opportunity in the design of smaller podia to accommodate proposed GIC uses and commercial spaces while reducing the need for extensive retail areas, and enabling more street-front shops to enliven the nearby waterfront. Moreover, this adjustment aligns with the prevailing Government's initiatives to increase housing supply and promote more efficient and optimal use of the Site.

Provision of Harboufront At-grade Communal Space

3.4 A publicly accessible harbourfront at-grade communal space of about 760sq.m will be provided at the southern portion of the Proposed Development. This multifunctional area will serve as a gathering space for future residents and visitors while facilitating movement and maintain a visual corridor between the hinterland and the waterfront. It is proposed to provide a footpath of about 2.5m within this communal space, which will open to public 24 hours as pedestrian access. This harbourfront at-grade communal space aims to integrate with the adjacent Hoi Sham Park and establishing a welcoming setting at the corner of Bailey Street and Chi Kiang Street, potentially serving as a focal point for social gatherings for both future residents and locals. Please refer to **Figure 2.2** for the proximity of the Proposed Development and the adjacent Hoi Sham Park. This notional design aligns with URA's vision of creating vibrant public spaces that connect to the waterfront, promoting a smoother transition between land, leisure and water. This harbourfront at-grade communal space will be owned, managed and maintained by URA or its assignee or its joint venture partner(s) upon completion and it will be open for public use during reasonable hours.

Proposed Building Height

3.5 A maximum building height of 110mPD is proposed under the "R(A)9" zone. This aims to facilitate a carefully planned building layout and possibility for breaking up the podium bulk, allowing design flexibility for the building blocks of the Proposed Development while addressing site constraints. The proposed building height generally respects the surrounding built environment and the building height profile of adjacent developments, including URA's KCAA1 Core Area and developments along the waterfront in a district-wide context.

3.6 The Proposed Development parameters for the Project are presented in **Table 3.1**. These parameters are subject to changes during the detailed design stage after the rezoning is approved by the Chief Executive in Council (CE-in-C).

Table 3.1 Proposed Development Parameters for the Project

Development Parameter	Proposed Rezoning
Gross Site Area	About 7,610sq.m
Site Area for PR Calculation (Subject to survey and detailed design)	About 7,610sq.m
Proposed Zoning	"R(A)9"
Proposed Maximum Building Height (At main roof level)	Not more than 110mPD
Proposed Maximum Domestic GFA^	About 60,880sq.m
Proposed Maximum Non-domestic GFA (excluding GIC provision)^	About 7,610sq.m
Total GFA	About 68,490sq.m
Proposed Non-domestic GFA for GIC Provision^	About 3,100sq.m

Development Parameter	Proposed Rezoning
(Proposed to be exempted from GFA calculation under OZP)	
No. of Flats@	1,218
Average Flat Size@ (GFA)	About 50sq.m
Maximum Site Coverage (Excluding basement)	85%
Green Coverage	Minimum 20%
Harbourfront At-grade Communal Space	About 760sq.m
Internal Transport Facilities for the Proposed Development*	Ancillary car park: - 343 nos. private car parking spaces - 14 nos. motor-cycle parking spaces - 11 nos. L/UL bays Public Vehicle Park to accommodate: - 15 nos. Coach parking space
Assumed Persons-Per-Flat	2.4
Private Open Space	About 2,924sq.m (i.e. 1 sq.m per person)
Planned Population (Based on the assumed PPF of 2.4)	2,924
Anticipated Completion Year	2032
Notes: ^ *The exact GFA are subject to TPB approval, detailed design and prevailing First Schedule of Building (Planning) Regulations.* *@ Indicative only, subject to detailed design at implementation stage.* ** Subject to liaison and agreement with Transport Department.*	

Notional Layout and Development Positioning

3.7 To visualize the proposed planning parameters and support technical assessment considerations, an indicative notional design has been prepared (**Appendix 2** refers). This notional design is for illustrative purposes to demonstrate the design concept and subject to change during detailed design stage.

Flexible Development Strategies

3.8 In light of the evolving market dynamics, the URA is exploring phased implementation strategies and/or partitioned development scenarios to allow flexibility for implementation of the Project. The indicative block plan and the section plans show a possible layout arrangement of the distribution of use, which depicts a two-phases development scenario comprising Site A and Site B. In the indicative layout, both sites feature a maximum building height of 110mPD with residential towers atop of a four-storeys podium and two levels

of basement, each with separate ingress/egress points and vehicular access via Chi Kiang Street.

Thoughtful Design Consideration

3.9 The current notional design has adopted careful consideration of the layout, block size and disposition, taking into account the surrounding urban form, proximity to the waterfront, and site constraints. One such constraints is the presence of an existing box culvert at the southern portion of the Site, which restricts aboveground uses. To address this, the Proposed Development is set back from the Bailey Street, avoiding encroachment on the box culvert. The disposition of residential towers is strategically positioned to minimize direct window views toward the To Kwa Wan Pigging Station, thereby reducing the potential risk impacts.

A Diverse Retail Belt to Connect and Energize the Nearby Waterfront

3.10 Subject to detailed design, the podium for each site will accommodate GIC/ retail/ clubhouse/ carpark facilities, with the floor spaces at the first two floors fronting Hoi Sham Park and the Harbourfront At-Grade Communal Space proposed as retail belt, featuring retail and dining options. This retail belt is intended to enhance the vibrancy of the adjacent public open space.

3.11 Ancillary parking facilities will be provided across two basement levels and part of the ground floor for each site. In response to the concerns from Transport Department (TD) and Hong Kong Police Force, Site A will include a Public Vehicle Park (PVP) with 15 coach parking spaces designated for shared use with commercial vehicles. These shared spaces are intended for shared use for coaches/buses and medium/heavy goods vehicles, align with the recommendation as outlined in TD's Departmental Circular No. 4/2022, aimed at minimizing idling of parking spaces owning to the mismatch between parking demand and supply at different times of the day. Given the residential nature of the Proposed Development, the PVP is intended to contribute to the temporary parking demand for coach and commercial vehicles in the area.

4. PLANNING JUSTIFICATION AND MERITS

Replanning for Suitable Long-Term Use

4.1 As shown in the historical aerial photos in **Appendix 3**, the Site has mainly been used for temporary car parking since the early 1980s. Although originally reserved for school development, declining school-age population means a new school is no longer needed. Furthermore, the adjacent small strip of land which zoned "G/IC" and "OU(STP)" has also been included for development, as it no longer required for its original designated use. Given its waterfront location near Hoi Sham Park, the Site should be reassessed for suitable alternative land uses to maximize land potential.

4.2 The Proposed Rezoning provides an opportunity to re-plan the area for long-term use. The proposed residential use does not only address the demand for housing but also allows for opportunity to accommodate other elements including retail space, community facilities and open space, creating a vibrant community and enhancing the overall livability of the area. Located approximately 200m away from URA's KCAA1 Core Area, the Site can complement ongoing renewal efforts. The Proposed Development can leverage its strategic location to create and strengthen synergies between the two areas. Together with nearby projects, this will foster a lively, high-quality living environment and community hub. Please refer to **Figure 2.2** for the location of the Proposed Development along with the adjacent development.

Provision of New GIC facilities for the Community

4.3 To create more planning gains and align with the Government's "Single Site, Multiple Use" initiative, it is proposed to reserve about 3,100 sq.m of non-domestic GFA for GIC use to meet the keen demand for elderly service in the community. Early communication with relevant Government department has been made to identify potential GIC needs in the Proposed Development. Initially, the Social Welfare Department (SWD) has expressed interest to provide 100-place Residential Care Home for Elderly (RCHE) cum 30-place Day Care Unit (DCU) at the Proposed Development. The actual provision and schedule of accommodation of the GIC facilities will be subject to liaison with relevant Government departments upon approval of this rezoning by CE-in-C. It is proposed that any floor space constructed or intended solely for GIC facilities, as required by the Government, may be excluded from GFA calculation. Upon completion, the GIC facilities will be handed over to the Government for ownership, maintenance and management.

Enhance Pedestrian Connectivity to the Waterfront

4.4 The Site is situated next to an extensive public open space that includes the Hoi Sham Park, Hoi Sham Park Extension and the Drainy Garden. Currently, it is a fenced temporary car park. Access to Hoi Sham Park is available through various entrances at Chi Kiang Street, and a narrow poorly visible pedestrian footpath near Bailey Street. Leveraging its strategic location, the Proposed Development aims to enhance district-wide pedestrian connectivity by linking older urban areas and KCAA1 to the waterfront and extending north along Hoi Sham Park's waterfront. The Proposed Development aims to contribute to

facilitate a seamless network of pedestrian routes, encouraging greater movement and interaction within the community while promoting a vibrant waterfront experience.

4.5 Subject to the detailed design, the harbourfront at-grade communal space will incorporate appropriate hard and soft landscaping design, to create a cohesive and continuous design with the nearby waterfront promenade and the Hoi Sham Park Extension for public use. Owned, managed and maintained by URA or its assignee or its joint venture partner(s) upon completion, this communal space will be opened for public use during reasonable hours. Private open space will also be provided to meet the needs of the future residents based on the planned population.

A Building Height for Responsive Urban Design

4.6 The proposed maximum building height of 110mPD does not only aligns with the surrounding building profile of the existing and planned developments, it also allows flexibility for a slimmer building footprint and greater building separation between the two residential towers. This approach accommodates the Proposed Development intensity while improving building permeability and facilitate wind penetration in the local area. It aligns with the recommendations of the Sustainable Building Design (SBD) Guidelines, contributing to the creation of a more desirable building form and ensuring sufficient separation between towers.

4.7 The Proposed Development, with a maximum building height of 110mPD, is designed with reference to the existing and planned building height profile under the Approved OZP and the adjoining Approved MTK OZP. Specifically, the URA's KCAA1 Core Area to the west of the Site has a BHR ranging from 100mPD to 140mPD, while "R(E)" zones along Yuk Yat Street in the Approved MTK OZP has a building height up to 143mPD at Bayview. Buildings to the south of Bailey Street, including Peninsula Square and a cluster of "OU(B)" zones, have BHRs between from 100mPD to 120mPD. The proposed building height of 110mPD, although not the lowest in the area, it generally aligns with the surrounding built environment. This proposed building height promoting visual permeability, wind penetration and circulation in the wider district-based planning context. Furthermore, subject to detail design, appropriate landscaping at the podium levels will be introduced to soften the building's mass and ensuring visual coherence and adding visual interest at the pedestrian level.

A Node to Contribute to a Vibrant Waterfront in the Victoria Cove Area

4.8 The Site's proximity to Hoi Sham Park and the waterfront promenade offers a unique opportunity to enhance the southern portion of the To Kwa Wan waterfront environment. The Proposed Development aims to connect seamlessly with the waterfront and the adjacent planned developments in the inland area, fostering community interaction and a lively waterfront atmosphere. This approach aligns with the URA's vision to create a high-quality, integrated cove area in To Kwa Wan that optimizes harbourfront and inland spaces for a vibrant urban landscape.

4.9 Hoi Sham Park, a popular local recreational hub, has been recently expanded with the Hoi Sham Park Extension and Drainy Garden, enriching the open space along the promenade. The proposed Harbourfront at-grade communal space at the corner of Bailey Street and Chi Kiang Street, will serve as an entry plaza to provide a sense of arrival and provide a more direct, convenient, visually appealing access toward the waterfront for public enjoyment. The Proposed Development will introduce retail and alfresco dining options designed to energize the waterfront promenade, featuring landscaped green areas and amenities that enhance pedestrian connectivity and encourage exploration. This initiative aims to facilitate a seamless network of pedestrian route, create a dynamic, interconnected waterfront destination blending leisure and entertainment, commerce and residential spaces, establishing a signature project within the VCA. An Artist's impression showing the Proposed Development and its interface with the adjoining Hoi Sham Park are provided in **Figure 3.1**.



Figure 3.1 - Artist's impression showing the Proposed Development and its interface with the adjoining Hoi Sham Park

5. TECHNICAL ASSESSMENTS

5.1 Various technical assessments have been conducted using a conservative approach under two-phased development mentioned in **sections 3.7 to 3.10** for scenario testing to confirm the feasibility of the Proposed Development. The tentative completion year adopted in the technical assessments is 2032. Key findings are summarized below and details, with detailed information provided in **Appendices 4** to **10**.

Visual Aspect

5.2 A Visual Impact Assessment (VIA) has been conducted as referenced in **Appendix 4**, to evaluate the potential visual impact of the Proposed Development. The assessment has made reference to the TPB Guidelines-No. 41 and was conducted from local viewpoints. Based on the assessment, it was determined that both at the local and strategic level, the Proposed Development would align well with the existing and planned visual context of the building skyline in the nearby residential area in the long term. While the Proposed Development may introduce some changes to the visual experience at the street level, waterfront and hinterland, measures such as responsive building disposition with the proposed 15m wide building separation which aligns with the SBD Guidelines and building setback, for visual permeability between the inland and waterfront, and habourfront at-grade communal space have been incorporated to alleviate the impacts on public viewers.

5.3 In conclusion, the visual impact of the Proposed Development with a maximum building height of 110mPD respects is expected to be negligible to moderately adverse. The VIA has demonstrated that the Proposed Development is visually not incompatible with the surrounding built environment and planned developments, and would not create adverse significant visual impact in general.

Traffic Aspect

5.4 A Traffic Impact Assessment (TIA) was conducted, as referenced in **Appendix 5**, to evaluate the traffic impact and the assess the provision of internal transport facilities for the Proposed Development. The assessment includes the evaluation of junction capacity and pedestrian footpaths. The results demonstrated that all but one junction and all footpaths will operate within their capacity and provide a satisfactory level of service under both the Reference and Design Scenarios. A potential junction improvement scheme for J8 (i.e. Hung Hom Road/ Tai Wan Road East) has been proposed to reserve capacity. The necessity of the potential junction improvement should be further reviewed with the final development parameters and the latest traffic conditions upon development. The proposed development will include a public vehicle park with 15 coach/commercial parking space which is designed for shared use with commercial vehicles. This flexible arrangement allows for adaptable use of parking spaces to accommodate the needs of future users. However, due to the limited floor space and the required dimensions for coach manoeurving and parking available within the development, prioritizing these coach parking

/commercial vehicle spaces will lead to a reduction in the number of private car parking spaces.

5.5 Based on the findings of the TIA, it can be concluded that the Proposed Development will not generate adverse impact on the surrounding road traffic and pedestrian network. Therefore, the traffic engineering perspective deems the development acceptable.

Environmental Aspect

5.6 An Environmental Assessment was conducted as referenced in **Appendix 6**, to evaluate the potential environmental impact of the Proposed Development. The assessment concluded that the impact on air quality, hazard to life, noise, water quality, waste management and potential land contamination were not insurmountable with mitigation measures adopted if necessary.

Air Quality Aspect

5.7 The Air Quality Impact Assessment demonstrates that the predicted air quality at all Air Sensitive Receivers of the Proposed Development complies with the relevant Hong Kong Air Quality Objectives, with and no adverse air quality impacts anticipated during operation. Desktop studies and on-site observations were conducted to identify potential odour impacts from the To Kwa Wan Preliminary Treatment Works (TKWPTW). Calculation indicates no adverse odour impact is expect from the TKWPTW, provided the deodorization units function properly. Therefore, there are no restrictions on the locations of openable windows for residential flats and fresh air intake locations for non-residential areas.

5.8 With the implementation of dust suppression measures stipulated under the Air Pollution Control (Construction Dust) Regulation and the adoption of good site practices, no adverse air quality impact associated with the construction works are expected.

Hazard Aspect

5.9 In accordance with the Hong Kong Planning and Standard Guidelines (HKPSG), the To Kwa Wan Pigging Station (TKWPS) is not classified as a Potentially Hazardous Installation (PHI). In addition, reference was also made to the Feasibility Study and Detail Design report (the Reference Report) prepared by The Hong Kong and China Gas Company Limited (HKCG). The Reference Report was submitted to the TPB by HKCG in support of planning application No. A/K9/240 for the development of TKWPS, and the application was subsequently approved by the TPB in 2010. According to the Reference Report, the TKWPS does not store any town gas and is not classified as a PHI under HKPSG. The TKWPS is mainly served for the launching and receiving of inspection tools for carrying out the pigging operation, which normally be carried out about once in every ten years it is also used to monitor gas pressure of the submarine gas pipelines There is no record of incidents involving gas pigging stations in Hong Kong since their operation in the early 1970s by the HKCG.

5.10 The Reference Report also included a Hazard to Life assessment (qualitative assessment) for the TKWPS development. Findings of the qualitative risk assessment of the pigging station failure indicates a low risk based on various failure causes such as natural event, internal causes and Pig Launcher/ Receiver. Apart from qualitative assessment, a Quantitative Risk Assessment (QRA) was also included in the Reference Report in support of HKCG's Environmental Impact Assessment study. As concluded in the said QRA study, the offsite individual risk of the TKWPS is estimated to be $1x10^{-7}$ per year, which is significantly lower than the maximum offsite individual risk criteria of $1x10^{-5}$ per year as stipulated in the Hong Kong risk guidelines. The societal risk falls within the "ACCEPTABLE" region of the risk guidelines, considering all the existing and planned population groups near the TKWPS, including the planned school development in the Site.

5.11 Notwithstanding the above, in view of the Proposed Rezoning, a Hazard to Life review has been conducted for the Proposed Development (see **Appendix 6**). The findings revealed that the societal risk level for the Proposed Development is not expected to be worse than the planned school development, the conclusions drawn in the QRA study under the Reference Report remain valid for the Proposed Development. Therefore, it can be concluded that the Proposed Rezoning would not result in any unacceptable risk due to the TKWPS.

Noise Aspect

5.12 The Noise Impact Assessment was conducted to assess the potential noise impact on the Proposed Development, ensuring that all sensitive receivers comply with the criteria stipulated under the HKPSG.

Road Traffic Noise

5.13 A road traffic noise impact assessment was conducted to assess the potential road traffic noise impacts on the noise-sensitive uses of the Proposed Development. The assessment results indicate that under the Base Scenario (without any direct noise mitigation measures), 100% of the units in Tower 1 in Site A and 89.6% of the units in Tower 2 in Site B comply with the traffic noise assessment criterion, resulting in an overall compliance rate of about 94.3%.

5.14 With the provision of practical and effective direct noise mitigation measures under the Mitigated Scenario, such as the use of Acoustic Balconies and Baffle Type Acoustic windows, the compliance rate significantly improves to an overall rate of about 99.7%.

Fixed Noise

5.15 A fixed noise impact assessment was conducted to evaluate potential noise impacts arising from both nearby fixed and planned noise sources within 300m of the Proposed Development. These sources include school developments, commercial buildings, industrial buildings and residential developments, and the planned fixed noise sources of the Proposed Development itself. The assessment indicates that no adverse fixed noise impacts are anticipated from the existing fixed noise sources on the Proposed Development, nor from its planned fixed noise sources to the surroundings.

Water Quality Aspect

5.16 The Water Quality Impact Assessment was conducted to assess the potential water quality impact from the Proposed Development. The Site has no direct connection to the natural water body in Kowloon Bay. However, both construction site runoff and the nearby water drainage system could carry pollutants to receiving waters. With proper implementation of mitigation measures to control and mitigate the potential pollution sources, water quality impacts are anticipated to be insignificant.

Waste Management Aspect

5.17 Regarding waste management, appropriate sustainable measures are proposed to minimize waste generation and promote waste reuse or recovery. It is anticipated that no adverse environmental impacts will arise from the handling, storage, transportation or disposal of the waste generated during the construction and operation stages of the Proposed Development.

Land Contamination Aspect

5.18 A Land Contamination site appraisal was carried out for the Site, which is currently being used for temporary car parking and is surrounded by various land uses including institutional, residential, commercial, commercial and public utilities. Based on the preliminary assessment, which include a site visit, inquiries to relevant government departments, and a review of historical and recent aerial photos, no records of on-site contamination are anticipated. However, further site appraisal shall be conducted upon the approval of the proposed zoning amendments to ascertain any land contamination issues.

Drainage and Sewerage Aspect

5.19 A Drainage Impact and Sewerage Impact Assessment (DSIA) was conducted as referenced in **Appendix 7**, to evaluate the impact of the Proposed Development on the existing drainage and sewerage system. The DSIA report concluded that the increase in population resulting from the Proposed Development will have no adverse impact on the capacities of the existing drainage and sewerage system. The provision of new drainage and sewerage pipes connecting the Proposed Development ensures that the discharge generated by the Proposed Development will remain within the capacities of the systems. Therefore, no adverse drainage and sewerage impact is anticipated from the Proposed Development.

Water Supply Aspect

5.20 A Water Supply Impact Assessment (WSIA) was conducted, as referenced in **Appendix 8**, to evaluate the potential impact on the existing water supply system resulting from the Proposed Development. The assessment considered a worst-case scenario of a 15% additional demand. The findings of the WSIA indicate that the Proposed Development will result in additional demands for both the fresh and salt water. However, these increases can be accommodated by the existing main supply facilities and the proposed new pipes. As a result, there will be no adverse impact on the water supply infrastructure, thus no upgrading works on the water supply infrastructure will be required due to the Proposed Development.

Air Ventilation Aspect

5.21 An Air Ventilation Assessment assessed by Computational Fluid Dynamics (AVA-CFD), detailed in **Appendix 9 – Part I,** evaluated the ventilation performance of the area surrounding the Project Development. The AVA compared the Baseline Scheme (i.e., OZP-compliance scheme of 8 storeys equivalent to 30mPD) with the Testing Scheme (100mPD scheme). The results revealed that the Testing Scheme generally improves wind performance in all areas compared to the Baseline Scheme except for following: Hung Hom Road (under annual and summer conditions), Sung On Street Sitting-out Area (under annual and summer conditions) and Waterfront area of Hoi Sham Park (under annual and summer conditions). Based on the assessments results, the building disposition and separation were designed to avoid negative impacts on these location under the Testing Scheme. Furthermore, the podium setback from the southern boundary not only preserves the existing air pathway but also facilitates smoother airflow to the inland in the west.

5.22 Furthermore, an Air Ventilation Assessment – Expert Evaluation (AVA-EE) was conducted as referenced in **Appendix 9 – Part II**. The findings from the AVA-CFD for the 100mPD Scheme of the Proposed Development were used as the Testing Scheme, while the maximum building height of 110mPD was adopted as the Proposed Scheme in the AVA-EE. The AVA-EE confirmed that the Proposed Scheme provides comparable ventilation benefits, with no significant adverse impacts compared to the Testing Scheme. The proposed good design features, including a notional building separation of about 15m wide above the podium and a minimum building setback of about 10m from Bailey Street are maintained under the Proposed Scheme. The Proposed Development adheres to the setback requirements outlined in the SBD Guidelines. Overall, the AVA-EE demonstrate that the Proposed Scheme of 110mPD will slightly better from an air ventilation standpoint, with no adverse impacts anticipated.

Landscape Aspect

5.23 The tree survey has been conducted on site as referenced in **Appendix 10**, identifying a total of 20 nos. of trees. It has been confirmed that there is no important tree, rare or endangered trees species, and none of these trees are listed in the Register of Old and Valuable Trees. All the identified tree species are common landscape species found in Hong Kong.

5.24 Based on the tree preservation proposal, 19 out of the 20 nos. identified trees are recommended for removal due to low suitability for transplant with average to poor form or structural condition, of which 6 nos. of trees are classified as undesirable species, specifically *Leucaena leucocephala*. The remaining one existing tree, which conflicts with the Proposed Development, is proposed to be transplanted within the Site. To compensate for the affect trees, a compensatory tree planting proposal has been devised. As part of this proposal, one no. of transplant tree and 13 nos. of compensatory trees will be planted within the site, which fulfil the requirement of 1:1 ratio for compensatory trees to trees to be removed in terms of number (excluding trees of undesirable species). This ratio is in accordance with LAO PN No. 6/2023 Compliance with Tree Preservation Clause under Lease.

5.25 A Conceptual Landscape Design Proposal was also prepared to outline the location of the landscaping and pedestrian linkage of the Proposed Development. Greenery will be provided where appropriate to create a visual relief, soften the building edge and enhancement of the built environment.

6. CONCLUSION AND WAY FORWARD

6.1 With Government's strong support to enhance the URA's financial capability for sustainable urban renewal, the URA, in collaboration with PlanD, is taking forward the Government's land support by proposing to rezone the Site from "G/IC" and "OU(STP)" to "R(A)9" for a comprehensive residential development. Upon approval of the Proposed Rezoning, the URA will continue its coordination efforts with relevant Government Departments/Bureaus to take forward of the Proposed Development.

6.2 The Proposed Rezoning will bring forth the following planning and design merits:

- Replanning for a suitable alternative long-term use to maximize its potential and optimize land utilization;
- Provide an opportunity for comprehensive transformation alongside URA's renewal efforts in the nearby KCAA1 Core Area, fostering a vibrant and cohesive community and align with the vision of the Victoria Cove Area;
- Provision of GIC facilities including 100-place RCHE cum 30-place DCU to meet the keen demand for elderly service in the community;
- Providing a harbourfront at-grade communal space for public enjoyment, acting as a breathing space, maintaining visual openness and improving connectivity between the Hinterland and the waterfront promenade;
- Promoting responsive urban design, building layout and design in proximity to the waterfront;
- Reinforce with the vibrant waterfront ambience; and
- Enhancing the townscape, urban design and streetscape environment through a sensible building layout and design.

6.3 Technical assessment also demonstrated that the Proposed Development is technically feasible and has does not have any insurmountable impact to the environment.

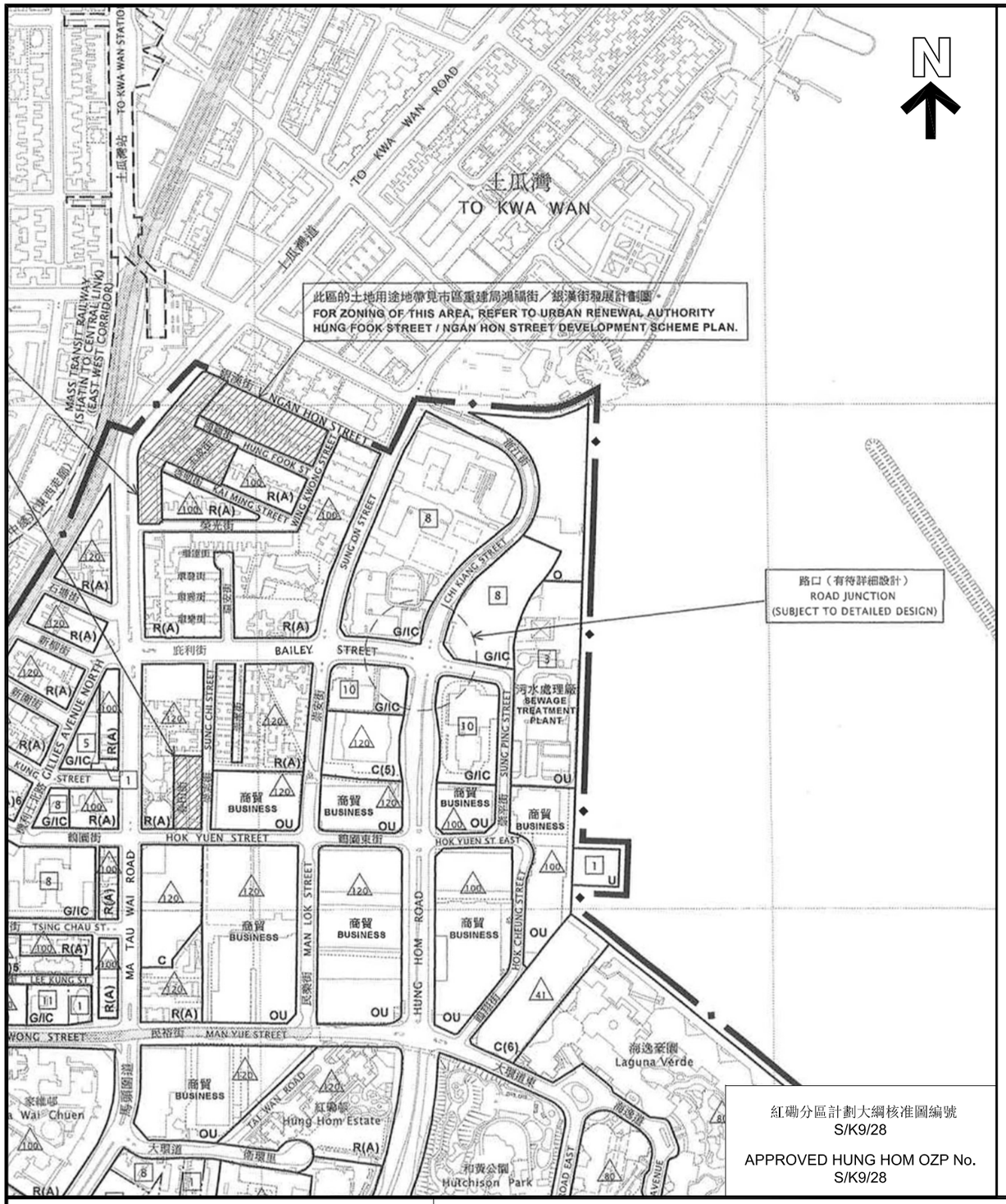
URBAN RENEWAL AUTHORITY
JULY 2025

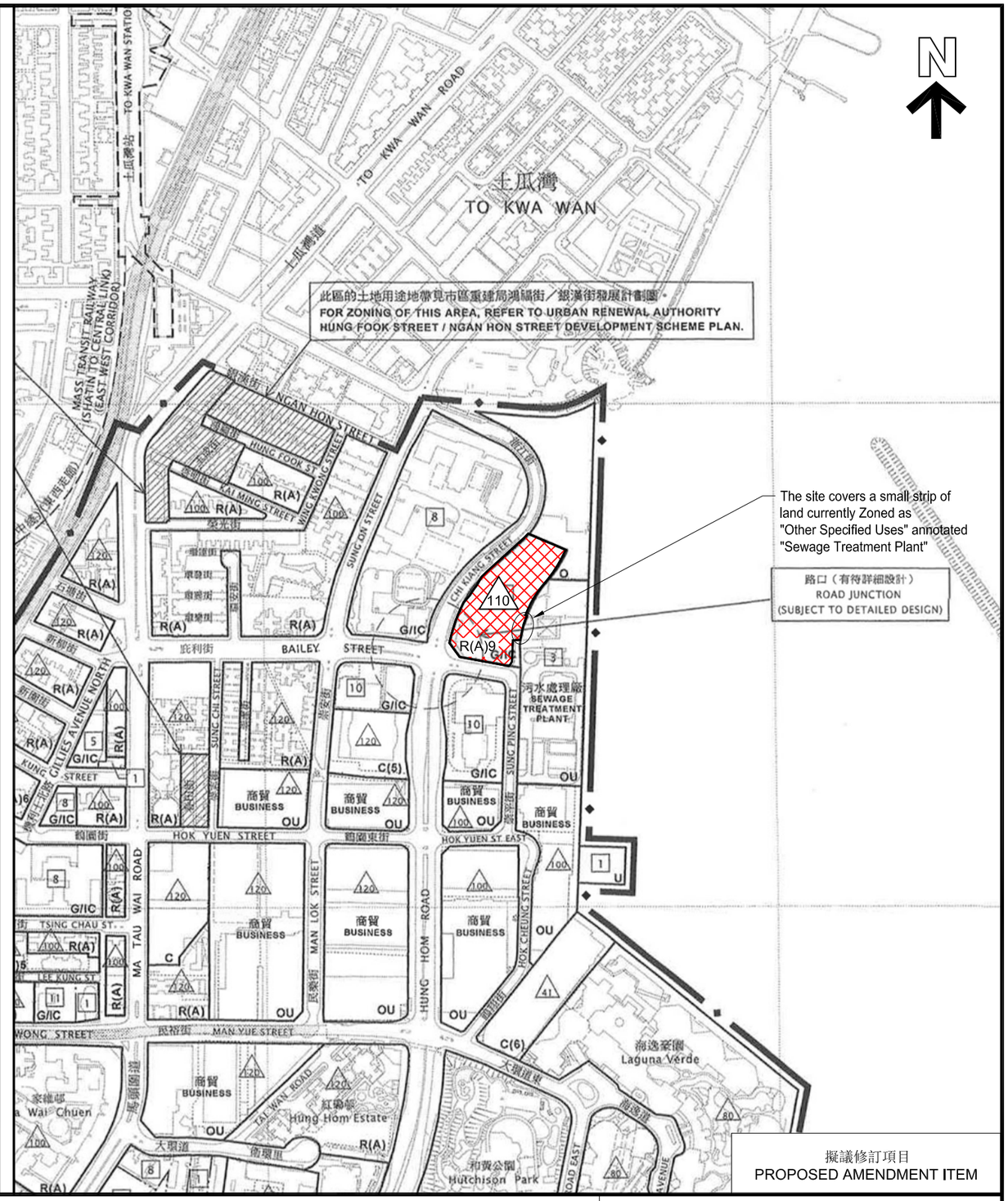
PART 2

PROPOSED AMENDENTS TO THE APPROVED OZP

PROPOSED AMENDMENTS TO THE APPROVED OZP

1. Plan





紅磡分區計劃大綱核准圖編號
S/K9/28

APPROVED HUNG HOM OZP No. S/K9/28

擬議修訂項目
PROPOSED AMENDMENT ITEM

本摘要圖於2025年6月11日擬備，所根據的資料為於2022年5月31日核准的分區計劃大綱圖編號 S/K9/28

EXTRACT PLAN PREPARED ON 11/06/2025 BASED ON OUTLINE ZONING PLAN No. S/K9/28 APPROVED ON 31/05/2022

位置圖 LOCATION PLAN

對紅磡分區計劃大綱核准圖編號 S/K9/28 作出的擬議修訂項目

PROPOSED AMENDMENT TO THE APPROVED HUNG HOM OZP No. S/K9/28

SCALE 1 : 5000 比例尺

米 METRES 5 0 5 10 15 20 25 METRES米

圖則編號
PLAN No. 1

PROPOSED AMENDMENTS TO THE APPROVED OZP

2. OZP Notes

RESIDENTIAL (GROUP A)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Flat Government Use (not elsewhere specified) House Library Market Place of Recreation, Sports or Culture Public Clinic Public Transport Terminus or Station (excluding open-air terminus or station) ***Public Vehicle Park (excluding container vehicle) (on land designated "R(A)9" only)*** Residential Institution School (in free-standing purpose-designed building only) Social Welfare Facility Utility Installation for Private Project	Commercial Bathhouse/ Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Government Refuse Collection Point Hospital Hotel Institutional Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Office Petrol Filling Station Place of Entertainment Private Club Public Convenience Public Transport Terminus or Station (not elsewhere specified) Public Utility Installation Public Vehicle Park (excluding container vehicle) **(not elsewhere specified)** Religious Institution School (not elsewhere specified) Shop and Services (not elsewhere specified) Training Centre

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

In addition, the following uses are always permitted (a) on the lowest three floors of a building, taken to include basements; or (b) in the purpose-designed non-residential portion of an existing building, both excluding floors containing wholly or mainly car parking, loading/unloading bays and/or plant room:	

Eating Place
Educational Institution
Institutional Use (not elsewhere specified)
Off-course Betting Centre
Office
Place of Entertainment
Private Club
Public Convenience
Recyclable Collection Centre
School
Shop and Services
Training Centre

Planning Intention

This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of **an existing** building. For the "Residential (Group A)5" ("R(A)5") zone, the planning intention is purely for residential development.

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks

(1) On land designated "Residential (Group A)" ("R(A)"), "Residential (Group A)3" ("R(A)3") and "Residential (Group A)4" ("R(A)4"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in the plot ratio for the building upon development and/or redevelopment in excess of 7.5 for a domestic building or 9.0 for a building that is partly domestic and partly non-domestic, or the plot ratio of the existing building, whichever is the greater. Except where the plot ratio is permitted to be exceeded under paragraphs (**15**) and/or (**16**) hereof, under no circumstances shall the plot ratio for the domestic part of any building, to which this paragraph applies, exceed 7.5.

(2) For a non-domestic building to be erected on the site, the maximum plot ratio shall not exceed 9.0 except where the plot ratio is permitted to be exceeded under paragraphs (**15**) and/or (**16**) hereof.

(3) For the purposes of paragraph (1) above, on land designated "R(A)", "R(A)3" "R(A)4" **and "R(A)9"**, no addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the relevant maximum domestic and/or non-domestic plot ratio(s), or the domestic and/or non-domestic plot ratio(s) of the existing building, whichever is the greater, subject to, as applicable-

(i) the plot ratio(s) of the existing building shall apply only if any addition, alteration and/or modification to or redevelopment of an existing building is for the same type of building as the existing building, i.e. domestic, non-domestic, or partly domestic and partly non-domestic building; or

(ii) the maximum domestic and/or non-domestic plot ratio(s) stated in paragraph (1) above shall apply if any addition, alteration and/or modification to or redevelopment of an existing building is not for the same type of building as the existing building, i.e. domestic, non-domestic, or partly domestic and partly non-domestic building.

(4) On land designated "Residential (Group A)1" ("R(A)1"), no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum domestic gross floor area (GFA) of 144,300m^2 and a maximum non-domestic GFA of 4,500m^2.

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

(5) On land designated "Residential (Group A)2" ("R(A)2"), no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 4.5 (including a maximum non-domestic plot ratio of 0.5), a maximum domestic site coverage of 30% and a maximum non-domestic site coverage of 60% (both excluding basement(s)). Ancillary car parking should be provided in the basement.

(6) On land designated "R(A)5", no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum domestic plot ratio of 7.5, or the plot ratio of the existing building, whichever is the greater.

(7) On land designated "Residential (Group A)6" ("R(A)6"), no new development or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum domestic GFA of 28,396.05m^2 and a maximum non-domestic GFA of 5,679.21m^2.

(8) ***On land designated "Residential (Group A)9" ("R(A)9"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in the GFA for the building upon development and/or redevelopment in excess of 60,880m^2 for a domestic building or 68,490m^2 with maximum domestic site coverage of 37.5%, for a building that is partly domestic and partly non-domestic, or the GFA of the existing building, whichever is the greater. Except where the GFA is permitted to be exceeded under paragraphs (15) and/or (16) hereof, under no circumstances shall the GFA for the domestic part of any building, to which this paragraph applies, exceed 60,880m^2.***

(9) On land designated "R(A)", "R(A)1", "R(A)2", "R(A)4", "R(A)5", "R(A)6" **and *"R(A)9"***, no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of meters above Principal Datum (mPD) as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(10) On land designated "R(A)3", no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of mPD as stipulated on the Plan.

(11) On land designated "R(A)4", a maximum building height restriction of 100mPD would be permitted for sites with an area of 400m^2 or more.

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

(12) In determining the relevant maximum plot ratio/GFA for the purposes of paragraphs (1) (2) and (4) to (7) above, area of any part of the site that is occupied or intended to be occupied by free-standing purpose-designed buildings (including both developed on ground and on podium level) solely for accommodating Government, institution or community facilities including school(s) as may be required by Government shall be deducted in calculating the relevant site area.

(13) ***In determining the maximum GFA for the purposes of paragraph (8) above, any floor space that is constructed or intended for use solely as Government, institution or community facilities, as required by the Government, may be disregarded.***

(14) In determining the relevant maximum plot ratio/GFA for the purposes of paragraphs (1) to (2) and (4) to ***(8)*** above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(15) Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio/GFA for the building on land to which paragraphs (1), (2), (4), (5), (6), (7) or ***(8)*** applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio/GFA specified in the paragraphs (1), (2) and (4) to ***(8)*** above may thereby be exceeded.

(16) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/GFA/building height restrictions mentioned in paragraphs (1) , (2) and (4) to **(10)** above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance, except on land designated "R(A)6".

(17) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the site coverage restriction mentioned in paragraph***s*** (5) ***and (8)*** above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

PROPOSED AMENDMENTS TO THE APPROVED OZP

3. Explanatory Statement

8.2.4 Pursuant to section 4A(1) of the Ordinance, any development within the "CDA" zone would require approval of the Board by way of a planning application under section 16 of the Ordinance. A MLP should be submitted in accordance with the requirements as specified in the Notes of the Plan for the approval of the Board pursuant to section 4A(2) of the Ordinance. A copy of the approved MLP would be made available for public inspection in the Land Registry pursuant to section 4A(3) of the Ordinance.

8.3 "Residential (Group A)" ("R(A)") - Total Area **27.08** ha

8.3.1 This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building. Considering the traffic impact of office development, there is a general presumption against office use in "R(A)" zone. Thus, office development other than those along major transport route would not be supported.

8.3.2 Developments within this zone include private residential developments at Shun Yung Street and Ko Shan Road; on both sides of Ma Tau Wai Road and Gillies Avenue; and to the south of Fat Kwong Street/Man Yue Street; Ka Wai Chuen, a large public housing estate at Ma Tau Wai Road; and Hung Hom Estate at Man Yue Street.

8.3.3 In the consideration of the overall transport, environmental and infrastructural constraints, as well as the adequacy in the provision of community facilities envisioned in the Kowloon Density Study Review, completed in early 2002, developments or redevelopments within the "R(A)" zone and its sub-zones are subject to specific control on plot ratios except otherwise specified in the Notes, i.e. a maximum plot ratio of 7.5 for a domestic building or a maximum plot ratio of 9.0 for a partly domestic and partly non-domestic building. In calculating the GFA for these developments/redevelopments, the lands for free-standing purpose-designed buildings that are solely used for accommodating school or other GIC facilities, including those located on ground and on building podium, are not to be taken as parts of the site.

8.3.4 Development and redevelopment within the "R(A)", "Residential (Group A)3" ("R(A)3"), "Residential (Group A)4" ("R(A)4"), "Residential (Group A)5" ("R(A)5") **and "Residential (Group A)9" ("R(A)9")** zones are covered by the building height bands of 80mPD, 100mPD, 110mPD and 120mPD as stipulated on the Plan according to the overall building height concept of the Area as specified in paragraph 7 above.

8.3.5 A site zoned "Residential (Group A)1" ("R(A)") near the junction of Hung Hom South Road and Hung Hom By-pass (HHBP) on the Reclamation Area has been developed for residential development, the Harbour Place, providing about 2,470 flats. The development includes a deck over the HHBP to mitigate the potential noise pollution problems arising from the HHBP. Taking into account the traffic capacity constraints identified by the Central Kowloon

may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits and relevant criteria set out in paragraphs 7.5 and 7.6 above. Nonetheless, to avoid pencil-like buildings to be developed on small lots and to encourage amalgamation of sites for more comprehensive development, including the provision of parking and loading/unloading and other supporting facilities, a maximum building height restriction of 100mPD would be permitted for sites with an area of 400m^2 or more. Application for minor relaxation of the building height restriction of 100mPD is not allowed.

8.3.9 Two sites zoned "R(A)5" at Lee Kung Street and a site at Ko Shan Road are located on the periphery of the existing high-density residential developments and there are ample commercial and retail uses at Ka Wai Chuen and along both sides of Fat Kwong Street and Ma Ta Wai Road which can readily serve the needs of the residents. A better living environment can be achieved by allowing only domestic uses at the subject site. Against this intention, the total plot ratio permissible is set to a maximum domestic plot ratio of 7.5 only.

8.3.10 The site zoned "Residential (Group A)6" ("R(A)6") at the junction of Chatham Road North and Hok Yuen Street is subject to a maximum building height restriction of 150mPD and maximum domestic and non-domestic GFAs of 28,396.05m^2 and 5,679.21m^2 respectively taking account of the previous planning approval, and application for minor relaxation of GFA/building height restriction is not allowed.

8.3.11 The site zoned "R(A)9" at the junction of Bailey Street and Chi Kiang Street is subject to a maximum building height restriction of 110mPD, a maximum domestic and total GFA of 60,880m^2 and 68,490m^2 and maximum domestic site coverage of 37.5%, to optimise development potential for residential development and provide opportunity in the design of smaller podia and enabling more street-front shops to enliven the nearby waterfront. A Harbourfront at-grade communal space of not less than 760m^2 will be provided. Subject to the timely confirmation of usage, funding, operational needs and design requirements, about 3,100m^2 GFA for GIC uses shall be provided. The intended GIC uses and total GFA of GIC facilities would be subject to further liaison with relevant Government departments as well as views from local stakeholders. In determining the relevant maximum GFA for land designated "R(A)9", any floor space that is constructed or intended for use solely as GIC facilities, as required by the Government, may be disregarded.

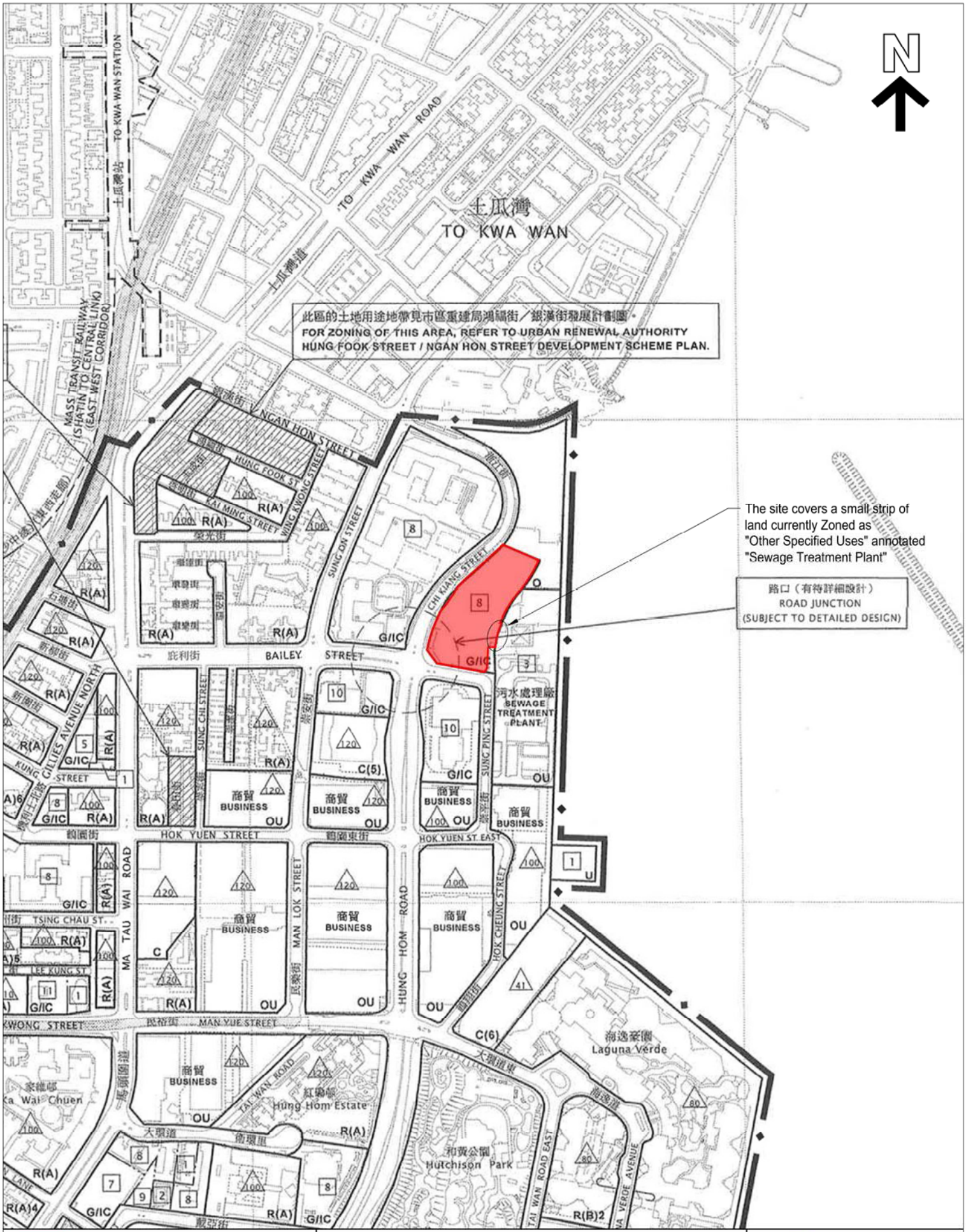
8.3.12 The "R(A)" site at Lee Kung Street accommodate**s** a Senior Citizen Residences Scheme project by the Hong Kong Housing Society (HKHS). The proposed development comprise**s 24** domestic storeys and a **5**-storey podium to accommodate elderly facilities including rehabilitation centre, medical centre and a residential care home for the elderly. According to HKHS, mitigation measures in terms of stepping podium; setting back of the residential block from Fat Kwong Street; provision of **6**m-high open

PART 3

SUPPLEMENTARY INFORMATION

Appendix 1

Extract of the Approved Hung Hom OZP No. S/K9/28



THE SITE

EXTRACT PLAN BASED ON APPROVED HUNG HOM OUTLINE ZONING PLAN No. S/K9/28

EXISTING ZONING OF THE SITE

APPROVED HUNG HOM OZP No. S/K9/28

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市區重建局
URBAN RENEWAL AUTHORITY

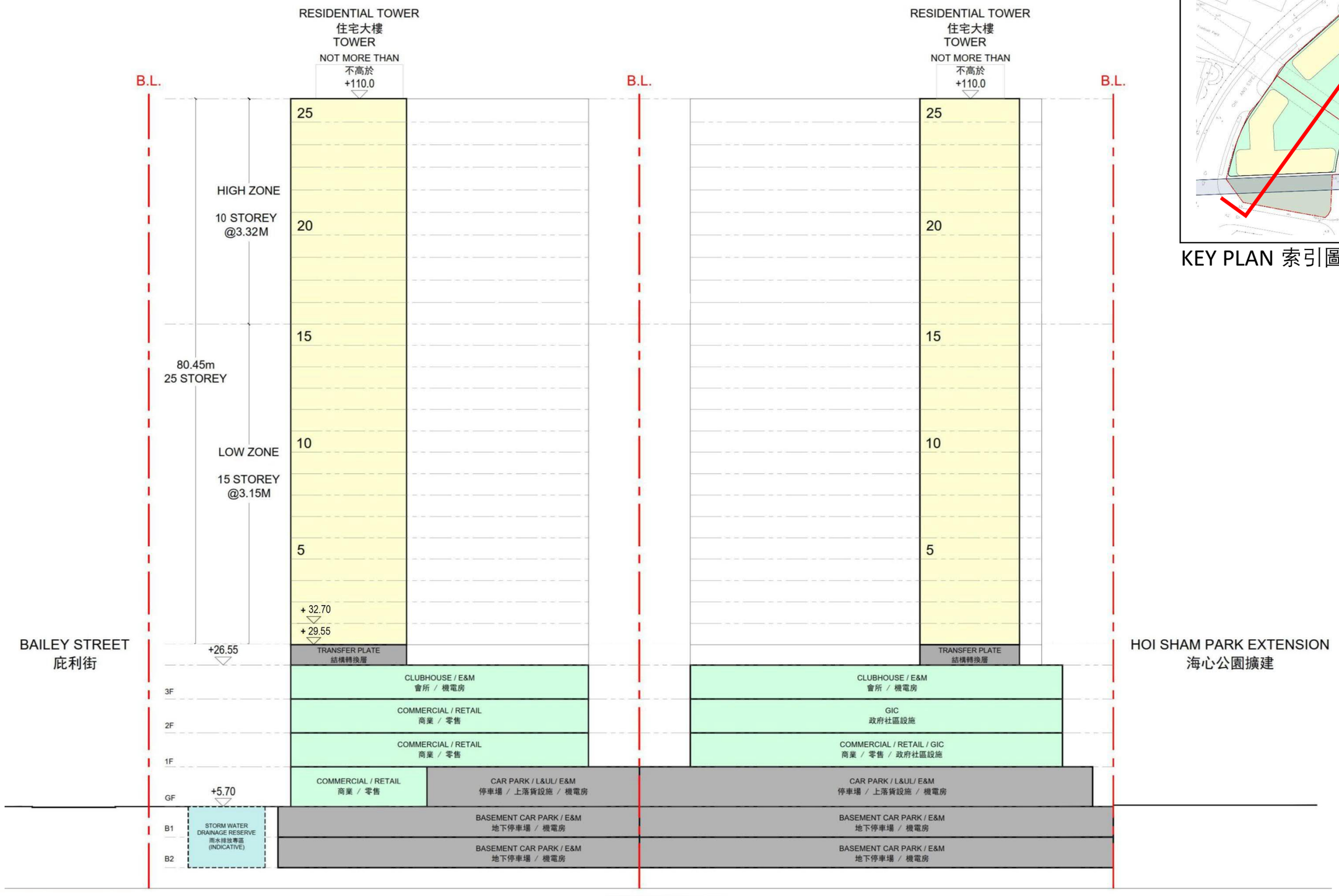
Appendix 2

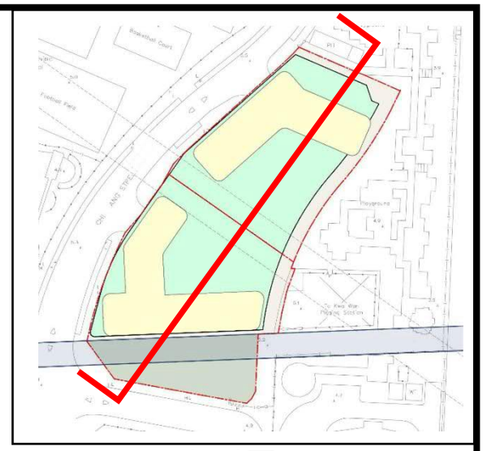
Notional Design



(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 1**	**Block Plan**	Not to scale June 2025





KEY PLAN 索引圖

(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 2**	**Notional Design – Indicative Section**	Not to scale June 2025

Appendix 3

Historical Aerial Photos



The Site

Former site of the Bailey's Shipyard

(Source: Survey & Mapping Office, Lands Department)

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 1**	**Aerial Photo (1945)**	Not to scale June 2025



N

The Site

Former site of the Bailey's Shipyard

(Source: Survey & Mapping Office, Lands Department)

市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project	Figure 2	Aerial Photo (1980)	Not to scale June 2025



The Site

Former site of the Bailey's Shipyard

(Source: Survey & Mapping Office, Lands Department)

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 3**	**Aerial Photo (2023)**	Not to scale June 2025

Appendix 4

Visual Impact Assessment Report

Urban Renewal Authority

Proposed Zoning Amendments for
a Proposed Residential Development
at Bailey Street, Kowloon City District

(The Bailey Street / Chi Kiang Street Project)

Visual Impact Assessment

June 2025

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Figure 4.9 Waterfront Building Height Profile

1. Introduction

1.1. Purpose of this Visual Impact Assessment

1.1.1. The Bailey Street / Chi Kiang Street Project undertaken by the Urban Renewal Authority (**URA**) has a gross site area of about 7,610m^2. It is located at the junction of Bailey Street and Chi Kiang Street, in Kowloon City District (**the Site**) and falls within an area currently zoned "Government, Institution and Community" ("**G/IC"**) and a small strip of land zoned "Other Specified Uses" annotated "Sewage Treatment Plant" ("**OU(STP)**") on the Approved Hung Hom Outline Zoning Plan No. S/K9/28 (**the Approved OZP**). It is proposed to rezone the Site from "G/IC" and "OU(STP)" to "Residential (Group A) 9" (**"R(A)9"**) for high-density residential development (**the Proposed Amendment**).

1.1.2. The Site is situated along Chi Kiang Street in the To Kwa Wan (TKW) Waterfront area. It is currently occupied by a fee-paying public car park. The existing buildings in the vicinity, along Chi Kiang Street and Bailey Street are a mixture of schools, public utility stations and government office buildings. The Site is broadly bounded by Chi Yun School and Hoi Sham Park to the north, and Hoi Sham Park Extension to the northeast, the TKW pigging station and the TKW preliminary treatment works plant to the east and southeast, APB Center (Architectural Service Department's office) and Kowloon City Government Offices to the south and southwest across the Bailey Street, Po Leung Kuk Ngan Po Ling College to the west and The Church of Christ In China Kei To Secondary School to the northwest.

1.1.3. To the further west of the Site along Ma Tau Wai Road lies the URA's Kowloon City Action Area 1 (**KCAA1**) core area. Under district-based and planning-led approach, URA has commenced six redevelopment projects in the KCAA1 core area, forming a cluster of URA projects for redevelopment existing tenement buildings concentrated in the area and allowing broader restructuring and replanning of the neighborhood. While the KCAA1 core Area is an urban connector that will create wider planning gains to TKW area in terms of connectivity and walkability, the proposed Bailey Street / Chi Kiang Street Project will act as the destination of the TKW waterfront to improve vibrancy of the park and promenade.

1.1.4. This Visual Impact Assessment (**VIA**) report is prepared in support of the proposed amendment. This VIA is prepared in the context of present and foreseeable future developments with reference to the Town Planning Board (**TPB**) Planning Guideline No. 41 on Submission of Visual Impact Assessment for Planning Applications to the TPB (**TPB PG No. 41**). Reference will also be made to Chapters 4, 10 and 11 of the Hong Kong Planning Standards and Guidelines (**HKPSG**).

2. The Proposed Amendment

2.1. The Proposed Rezoning

2.1.1. The Site is proposed to be rezoned from "G/IC" and "OU(STP)" to "R(A)9" zone. This zone is primarily for high-density residential development, with the lowest four floors or in the purpose-designed non-residential portion of a building for commercial use as stipulated in the proposed Notes of the "R(A)9" zone.

2.1.2. In the proposed Notes of "R(A)9" zone, the overall maximum Gross Floor Area (GFA) is 68,490m^2. A maximum domestic GFA of 60,880m^2 and non-domestic GFA of 7,610m^2 are proposed to allow greater flexibility of an interchange between domestic and non-domestic GFA within the total GFA of 68,490m^2 for future development in response to market needs. A maximum building height of 110mPD is also proposed under the "R(A)9" zone.

2.1.3. To visualize the above planning parameters and urban design considerations, indicative blocking plan and indicative section plans of the Proposed Amendment have been prepared at **Figures 2.1** and **2.2**. As shown in the indicative layouts, the proposed development comprises two residential towers on top of a GIC/commercial/ retail/ clubhouse/ carpark podia of four storeys and ancillary car parking and E&M facilities at basement levels. A harbourfront at-grade communal space of 760m^2 is proposed at the southern portion of the Site to allow visual openness and enhance the connection between inland and waterfront. A 15m separation between the residential towers will be upheld to facilitate visual permeability and wind penetration.

2.1.4. The indicative layouts are intended solely for the purpose of relevant technical assessment in support of the Proposed Amendment, which is for indicative purposes only and subject to change during detailed design stage.

Table 2.1 Indicative Development Parameters of Proposed Amendment

Parameters		Details
Proposed Zoning		"R(A)9"
Gross & Net Site Area		About 7,610 m^2
Proposed GFA^	Overall	About 68,490 m^2
	Domestic	About 60,880 m^2
	Non-Domestic (excluding GIC provision)	About 7,610 m^2
Proposed GIC GFA^ (proposed to be exempted from GFA calculation under OZP)		About 3,100 m^2
No. of Building Block		2
Proposed number of flats @		1,218
Average Flat Size @		about 50 m^2
Maximum Site Coverage (Excluding basement)		85%
Planned Population		(PPoF = 2.4)
Harbourfront At-grade Communal Space		760 m^2
Maximum Building Height (mPD)		110 mPD

Parameters	Details
^ *The exact GFA will be subject to TPB approval, detailed design and prevailing First Schedule of Building (Planning) Regulations.* *@ Indicative only, subject to detailed design at implementation stage.*	

2.2. Baseline Scheme for Visual Assessment

2.2.1. According to the Approved OZP, majority of the site is zoned "G/IC" and planned for school development, with a Building Height Restriction (BHR) of 8 storeys. To comprehensively compare the visual impact of the proposed development, an OZP-compliant scheme has been formulated as the "Baseline Scheme" for evaluation purposes (**Figures 2.3** and **2.4** refer). The Baseline Scheme for school development was prepared based on the development parameters as permitted under OZP, as well as the secondary school layout requirement as stipulated under the HKPSG while also respecting the existing box culvert at the site. The assumed building height of the Baseline Scheme is about 30mPD.

2.2.2. It is worth mentioning that there is an existing box culvert at the southern portion of the Site which restricted the aboveground uses. As such, disposition of school structure is orientated in a slight southwest-northeast direction. The southern portion of the Site is designated for at-grade car parking spaces without underground structures. Similar to the proposed development, this arrangement serves to allow a visual linkage on Bailey Street between the inland and waterfront area.

2.2.3. The Baseline Scheme is used as a basis for comparison for this VIA as it generally reflects the possible layout arrangement of the planned school development, and in compliance with the development restrictions as stipulated under the Approved OZP and requirements under the Building Ordinance. A thorough comparison test is conducted to evaluate the significance of the view of each Viewing Point (**VP**) and its susceptibility to visual changes caused by the Baseline Scheme and Proposed Amendment. Factors considered in this test include the importance of the location, public usage, and the overall sensitivity of the viewers. The comparison test is for reference only and intend to demonstrate the possible visual changes of the surroundings with the assumption that the proposed orientation and composition of the building being adjusted. This VIA will compare the visual changes between the Baseline Scheme and the Proposed Amendment.

2.2.4. Compared to the Baseline Scheme, the proposed development will provide the following planning and environmental benefits:

<u>Tower disposition to promote visual permeability to waterfront</u>

2.2.5. Despite the Baseline Scheme has a smaller building bulk, the school development has larger façade frontage facing the To Kwa Wan Typhoon Shelter. The disposition of the school building will block visual permeability of the inland area. In response to the surrounding urban form, its proximity location to the waterfront and site constraints, careful design consideration has been given to the disposition of residential towers in the Proposed Amendment. To promote visual permeability to the harbour, the residential towers will adopt a L-shaped design, with 15m wide

separation between the residential towers. The harbourfront at-grade communal space at the southern portion of the Site will also serve as a visual linkage between inland and waterfront on Bailey Street.

Enhance connectivity to Hoi Sham Park and Hung Hom inland areas

2.2.6. Compared with the Baseline Scheme, the Proposed Amendment includes a harbourfront at-grade communal space at the southern portion of the Site that will be opened for public use during reasonable hours. In contrast, the ball court of the planned school development in the Baseline Scheme is fenced off for exclusive school use. Under the Baseline Scheme, pedestrian connection between Hoi Sham Park and inland areas will remain unchanged, access to Hoi Sham Park is only available through via various entrances at Chi Kiang Street, as well as via narrow pedestrian route next to the To Kwa Wan Sewage Treatment Plan connecting to Bailey Street. The proposed harbourfront at-grade communal space under the Proposed Amendment aims to integrate with existing open spaces and establish a welcoming entry plaza at the corner of Bailey Street and Chi Kiang Street. This enhancement will improve accessibility and enable direct pedestrian linkage from the inner part of To Kwa Wan and KCAA1 core area to the waterfront promenade.

2.2.7. With reference to the existing condition, the VIA will compare the visual changes of Baseline Scheme with the Proposed Amendment, and thus appraise the visual impact.

3. Area of Assessment

3.1. Area of Visual Influence (AVI)

3.1.1. In accordance with TPB PG-No.41, the assessment area (i.e., the visual envelope (**VE**)) covers the AVI within which the proposed development is pronouncedly visual from key sensitive public viewers. The assessment area is determined with regard to the size of the proposed development, the distance of the proposed development and its potential visibility from the selected VPs. The VE forms the Assessment Area for the purposes of VIA.

3.1.2. In this VIA, the identified VE is demarcated based on three times of the maximum building height of Proposed Amendment (i.e., 104.3mPD x 3 = 312.9m) as an assumption. As indicated in **Figure 3.1**, the assessment area extends to Bayview to the north, Harbour Centre Block 1 to the south and the junction of Ma Tau Wai Road and Bailey Street to the west.

3.2. Viewing Points Identification

3.2.1. In this VIA, the visual impact of the proposed development is assessed from both the district and local views. According to Chapter 11 on Urban Design Guidelines in the HKPSG, local viewing points should be determined with reference to the project's setting and views that hold local significance. For this assessment, 7 locals VPs have been selected in relation to the Assessment Area, covering different key pedestrian nodes and popular areas used by the public for leisure and sitting-out. Apart from the coverage of the assessment area, a strategic VP at the district level was also identified, namely the Hong Kong Convention & Exhibition Centre.

3.2.2. In gist, the following VPs are identified for assessment:

Local Viewing Points (**Figures 3.2** and **3.3** refer)
VP1: Ho Man Tin High Level Fresh Water Service Reservoir
VP2: Bailey Street / Sung On Street
VP3: Footpath along Sung On Street
VP4: Hoi Sham Pavilion
VP5: Laguna Verde Promenade
VP6: Fat Kwong Street Flyover / Hung Hom Road
VP7: Fat Kwong Street Playground

Strategic Viewing Point (**Figure 3.4** refers)
VP8: Hong Kong Convention & Exhibition Centre

3.3. Visual Context of the Assessment Area

3.3.1. There are no significant changes in the visual context of the Assessment Area between the Baseline Scheme and Proposed Amendment. The visual context is shaped by the combined composition of all the visual elements which come into sight of the viewers. The Assessment Area is predominantly built-up areas at a prominent waterfront location in Ma Tau Kok dominated by following visual element:

- The Site covers a total land area of 7,610m^2, and is located at the junction of Bailey Street and Chi Kiang Street in Kowloon City District. It is currently occupied by a fee-paying public carpark for private vehicles, mini-buses and coaches, with low connectivity between inland and the waterfront area.

- To the immediate north of the Site is Hoi Sham Park Extension. To the further north is Chi Yun School (20mPD), Po Leung Kuk Anita L.L. Chan (Centenary) School (26.6mPD) and the TKW Waterfront area.

- To the immediate east and southeast of the Site is the TKW pigging station (about 9.1mPD) and the TKW preliminary treatment works plants (from 6.6mPD to 15.8mPD). To the further east is the waterbody of TKW Typhoon Shelter.

- To the south and southwest across Bailey Street are APB Centre (Architectural Service Department's office) (45.4mPD) and the Kowloon City Government Offices (47.9mPD). To the further south is Hung Hom Business Area, a local centre for industrial and office buildings including Peninsula Square, Guardforce Centre, Fu Hang Industrial Building, Hang Fung Industrial Building, Focal Industrial Centre, Heng Ngai Jewellery Centre, Harbour Centre, Gemstar Tower, Kaiser Estate with building heights ranging from 50mPD to 97.9mPD.

- To the west across Chi Kiang Street are Po Leung Kuk Ngan Po Ling College and The Church of Christ In China Kei To Secondary School at 32.4mPD and 22.4mPD respectively. To the further west are Bailey Garden at 88.4mPD, the Upper East at 100mPD and planned developments of KCAA1 core area with building heights of 100mPD and 140mPD.

3.3.2. Open spaces, including parks, sitting-out area, promenade, recreation ground and areas for passive recreation activities have been identified within the Assessment Area. The most sizable open spaces in the VE are Hoi Sham Park, Ko Shan Road Park, Laguna Verde Promenade, Hutchison Park and Fat Kwong Street Playground and Garden.

3.3.3. Overall, the Site is situated at the waterfront area and surrounded by open spaces and medium to high-rise industrial and residential buildings. The heights of building blocks are increasing progressively from the waterfront to the inland and foothill area. The building height of the Proposed Scheme is generally in-line with building height profile of the development in the vicinity.

3.4. Visual Quality of Proposed Scheme

3.4.1. To create a quality harbourfront, the Proposed Scheme adopted significant changes on layout, disposition and built form as compared to the Baseline Scheme. Under the notional design of the Proposed Amendment, the proposed development comprises of two residential towers on top of a GIC/ retail/ commercial/ clubhouse/carpark podium. The 15m tower separation between the proposed residential towers effectively reduces the bulkiness of the structure and promotes visual permeability from the inner area to the waterfront.

3.4.2. Under the Proposed Amendment, the maximum building height of the residential towers is 110mPD, which is generally compatible with developments in the vicinity to maintain a harmonious visual profile along the waterfront and preserve views to the ridgelines. The Site is situated next to the waterfront. The proposed building height will generate an undulating height profile towards the inner area in the district (including the Upper East with a building height of 100mPD, Sunrise Villa (115mPD) and the committed KCAA1 core area (ranging from 100mPD to 140mPD)).

3.4.3. While building setback from Bailey Street is not a statutory requirement under the Approved OZP, the proposed development will follow the setback requirements under the SBD guidelines. Under notional design, a minimum building setback of 10m from Bailey Street will be provided for creation of a harbourfront at-grade communal space. The indicative block and section plan of the submission is for use of relevant technical assessment in support of the Proposed Rezoning, which is for indicative purpose only and subject to change at detailed design stage. Nonetheless, a harbourfront at-grade communal space is proposed under the Proposed Amendment. This arrangement not only allow a visual access, but also enhance circulation to the waterfront by allowing a continuous pedestrian linkage from the urban core areas. The introduction of green element will soften the monotonous façade of the TKW Pigging Station and TKW Preliminary Treatment Works. The harbourfront at-grade communal space will integrate with adjacent existing open spaces in Hoi Sham Park Extension and establish a welcoming entry plaza at the corner of Bailey Street and Chi Kiang Street, adding visual interest and enhancing the scenic views of the harbour.

4. Key Visually Sensitive Receivers at Viewing Points

4.1.1. According to the requirements of TPG PG-No.41, key visually sensitive receivers (VSRs) are individuals who have views of the proposed development from the most affected VPs in the AVI. These VSRs are likely to be most affected by the proposed visual changes. The identified VSRs in the VIA include the public at popular areas for outdoor activities, recreation, rest, leisure and prominent travel routes, where their visual attention may be drawn towards the proposed development.

4.1.2. VSRs are categorized based on their characters and their engagement in the public VPs. The sensitivity of receivers to visual changes will be influenced by:

- The activities they are engaged in;
- The duration for which the portion of the proposed development remains visible;
- View towards the change is full or partial; and
- The public perception towards the portion of the proposed development.

4.1.3. With consideration to the nature of the people who are mostly affected by the proposed visual changes at the key VPs, the selected VSRs of the subject VIA are categorized into two groups, namely:

Recreation – General public have sights on the proposed development while engaging in recreational facilities. Their visual sensitivity varies depending on the type of recreational activity they are engaging in.

Traveller – General public have sights on the proposed development in public passageways. Their visual experience depends on the speed of travel and whether their views will be continuous or occasional.

4.1.4. Based on the above criteria, the visual sensitivity of the public viewers from the viewing points are categorized into three grades (i.e., “High”, “Medium” and “Low”), depending of their duration of stay at the VPs. For example, the visual sensitivity of the viewers from public open space will be classified as “High”, while travelers who are in transient in nature would be classified as “Low”.

4.1.5. **Table 4.1** lists out the visual sensitivity of the selected VSRs at the selected VPs.

Table 4.1 Brief Analysis of Visual Sensitive Receivers at Selected VPs (Existing Condition)

Visually Sensitive Receiver and Type of User (Recreation and/or Traveller)	Approx. Viewing Distance	Quality of Existing View (Good / Fair / Poor)	Degree of Visibility on the Proposed Development (Full / Partial / Glimpsed) Frequency of View towards the Proposed Development (Frequent / Occasional /Rare)	Sensitivity
VP1: Ho Man Tin High Level Fresh Water Service Reservoir **VSR:** Local residents/ general public engaging in recreational activities **Type of User:** Recreation	675m	**Good** – Atop a 95-metre high elevation at Ho Man Tin High Level Fresh Water Service Reservoir, observers can have a long-distance expansive view of the To Kwa Wan cityscape, with Kowloon East development, small part of To Kwa Kwan Typhoon Shelter, top of Mount Parker and an open sky view serving as the background. This viewing point has been selected to assess the far-reaching visual impact of the proposed development from an elevated perspective.	**Partial View** – The view towards the Site is mostly screened off by the existing buildings in To Kwa Wan in the middle ground. While the Baseline Scheme is barely visible from this VP, a tiny portion of the Proposed Amendment will be visible. **Rare View** – Visitors to this viewing point are infrequent, with their primary focus is on the overall and cityscape of To Kwa Wan, skyline of Kowloon East and Shau Kei Wan, and the open sky view.	Medium to High
VP2: Bailey Street and Sung On Street **VSR:** Local residents, students and staffs of the nearby schools **Type of User:** Traveller	120m	**Fair** – Oblique view towards the southwestern corner of the Site reveals a current landscape characterized by road traffic and existing buildings along Bailey Street with open sky view in the background.	**Partial View** – In view of the close distance, the proposed development will form part of the view together with the existing developments on two sides of the Bailey Street despite part of the proposed development would be screened off by the Po Leung Kuk Ngan Po Ling College. **Occasional View** – Pedestrian activity is observed and views towards the proposed development are considered occasional.	Medium
VP3: Footpath along Sung On Street **VSR:** Local residents, students and staffs of the nearby	120m	**Fair** – Denotes a location positioned towards the western edge of the Site with existing view through the gap of the Church of Christ in China Kei To Secondary School and Po Leung Kuk Ngan Po Ling College, with electricity	**Partial View** – In view of the close distance, the proposed development will be partially visible from this VP while the northern portion of the proposed development would be largely screened off by the Church of Christ in China Kei To Secondary School	Medium

Visually Sensitive Receiver and Type of User (Recreation and/or Traveller)	**Approx. Viewing Distance**	**Quality of Existing View (Good / Fair / Poor)**	**Degree of Visibility on the Proposed Development (Full / Partial / Glimpsed)** **Frequency of View towards the Proposed Development (Frequent / Occasional /Rare)**	**Sensitivity**
schools **Type of User:** Traveller		substation in the rightmost of the foreground and open sky view as backdrop.	**Occasional View** – A low level of pedestrian activity is observed and the pedestrians along this segment of the Sung On Street are transient in nature.	
VP4: Hoi Sham Pavilion **VSR:** Local residents, and general public engaging leisure activities within the park **Type of User:** Recreation	185m	**Good** – Denotes a location positioned towards the north-eastern edge of the Scheme with existing view to the Hoi Sham Park Extension in the foreground. Open view to the waterfront of Ma Tau Kok and the proposed development, with medium to high-rise buildings in Hung Hom and open sky view as backdrop.	**Full View** – The view towards the Site is fully visible. **Occasional View** – Visitors at the Hoi Sham Pavilion mainly focus on the harbourview and cityscape of Kai Tak and Kowloon Bay with occasional view facing towards the Scheme area and the To Kwa Wan waterfront is anticipated.	High
VP5: Laguna Verde Promenade **VSR:** Local residents, and pedestrian travellers passing by **Type of User:** Traveller	200m	**Good** – Towards the south-eastern side of the Site with Laguna Verde Promenade and To Kwa Wan Typhoon Shelter in the foreground and Kowloon Permanent Pier No.90 in the middle ground. Open view to the waterfront of Ma Tau Kok and the proposed development, with medium to high-rise buildings in TKW and open sky view in the background.	**Partial View** – The view towards the lower level of the proposed development is partially blocked by existing Kowloon Permanent Pier No. 90 in the middle ground. The majority of the residential towers will be visible from this viewing point. **Occasional View** – Visitors on Laguna Verde Promenade mainly focus on the harbourview, the skyline of Kai Tak Runway and Kowloon Bay, and future Kai Tak Sports Park with limited view towards the Site is anticipated.	High
VP6: Hung Hom Road and Fat Kwong Street Flyover	450m	**Fair** – Oblique view towards the southwestern corner of the Site is framed by road traffic and the existing industrial and commercial buildings along Hung	**Glimpsed View** – The majority of the proposed development will be screened off by the Hang Ngai Jewellery Centre and Guardforce Centre, with open sky view as the backdrop.	Low

Visually Sensitive Receiver and Type of User (Recreation and/or Traveller)	**Approx. Viewing Distance**	**Quality of Existing View (Good / Fair / Poor)**	**Degree of Visibility on the Proposed Development (Full / Partial / Glimpsed)** **Frequency of View towards the Proposed Development (Frequent / Occasional /Rare)**	**Sensitivity**
VSR: Local residents, and pedestrian travellers passing by **Type of User:** Traveller		Hom Road.	**Occasional View** – A high level of pedestrian activity is observed but remains transient in nature. Views towards the proposed development are considered occasional.	
VP7: Fat Kwong Street Playground **VSR:** Recreational users and local residents **Type of User:** Recreation	710m	**Good** – Long distance viewing to the southwestern corner of the Site. Existing view is occupied by the active recreation use and landscape in the Fat Kwong Street Playground in the foreground. The open sky view and high-rise residential buildings in Hung Hom namely, Chatham Gate, eResidence, Tsing Chau Street Customs Staff Quarters and Blissful Place form the backdrop of the view.	**Glimpsed View** – The view towards the proposed development is almost completely screened off by the existing buildings in the foreground. **Rare View** – A high level of pedestrian activity is observed in this area, although pedestrians and vehicular commuters are transient in nature. However, only a tiny portion of the proposed development would be seen from this VP.	Low
VP8: Hong Kong Convention & Exhibition Centre (Strategic Viewing Point) **VSR:** Local residents, visitors and the general public engaging in recreational activities within the Harbourfront area **Type of User:** Traveller	3.6km	**Good** – Long distance panoramic views towards the Site largely characterized by the Victoria Harbour at the foreground and existing medium to high-rise urban developments in Hung Hom and Tsim Sha Tsui with continuous ridgelines of Tsz Wan Shan and Kowloon Peak and open sky view as backdrop.	**None** – The view towards the proposed development will be entirely screened off by the existing waterfront developments in Hung Hom. **Frequent View** – Visitors at the Harbourfront area outside the Hong Kong Convention & Exhibition Centre mainly focus on recreational activities and view of the Victoria Harbour.	Low

5. Assessment of Visual Impacts

5.1. Methodology for the Appraisal of Visual Impact

5.1.1. Adhere to the TPB PG-No.41, the assessment methodology employed for this VIA aims to comprehensively evaluate the visual changes of the proposed development on the assessment area and sensitive public viewers. The overall visual appraisal will take into account the following aspects:

- Visual Composition (i.e., to assess the visual effects resulted from changes in locations, massing, heights, disposition, scales, forms, proportions, etc. vis-à-vis the overall visual backdrop);
- Visual Obstruction (i.e., to assess the degree of visual obstruction and loss of views or visual openness due to the proposed development);
- Effect on Public Viewers (i.e., to assess the visual changes from the key public viewing points with a direct sightline to the proposed development); and
- Effect on Visual Resources (i.e., to assess the change in visual condition, quality, and character of the AVI).

5.1.2. The resultant overall visual impact will be categorized within the following range of threshold:

Table 5.1 Classification of Overall Visual Impact

Visual Impact	Description
Enhanced	If the proposed development in overall terms will improve the visual quality and complement the visual character of its setting from most of the identified key public VPs.
Partly Enhanced/ Partly Adverse	If the proposed development will exhibit enhanced visual effects at some of the identified key public viewing points and at the same time, with or without mitigation measures, exhibit adverse visual effects to some other key public VPs.
Negligible	If the proposed development will, with or without mitigation measures, in overall term have insignificant visual effects to most of the identified key public VPs, or the visual effects would be screened or filtered by other distracting visual elements in the assessment area.
Slightly Adverse	If the proposed development will, with or without mitigation measures, result in overall some negative visual effects to most of the identified key public VPs.
Moderately Adverse	If the proposed development will, with or without mitigation measures, result in overall term negative visual effects to most of the key identified key public VPs.

Substantially Adverse	If the proposed development will in overall term cause serious and detrimental visual effects to most of the identified key public VPs even with mitigation measures.

5.2. Appraisal of Visual Impacts of Selected Viewing Points

5.2.1. To Kwa Wan is an evolving urban area with anticipated development and redevelopment. Changes in visual composition, amenities and resources are also expected with the implementation of a number of projects in the vicinity of the proposed development.

5.2.2. For the visual assessment of each VPs, photomontages of the Proposed Scheme and Baseline Scheme are prepared for full appraisal and comparison of the visual changes before and after the proposed development with reference to the existing condition and the planned/committed developments within its vicinity:

- **Existing Condition** – Illustrating the existing development condition of the VPs.
- **Baseline Scheme** – The Baseline Scheme with a building height of 30mPD is prepared based on the compliance with the BHR of 8 storeys for the "G/IC" zone under the Approved OZP, reference to the secondary school layout requirement as stipulated under the HKPSG and typical architectural layouts.
- **Proposed Amendment** – Referring to the notional design of the proposed development with a proposed maximum building height of the residential tower at 110mPD.

5.2.3. For strategic VPs, photomontages of the Proposed Amendment will be prepared. The appraisal of visual impacts of each VP is detailed in **Table 5.2** below. The corresponding photomontages are attached in **Figures 4.1** to **4.8**. The visual impact is reviewed in accordance to TPB PG-No.41. The appraisal of visual impacts in **Table 5.2** is conducted by assessing the visual composition, visual obstruction, visual permeability, effect on visual elements and resources, and effect on VSRs of the Proposed Amendment.

Table 5.2 Appraisal of Visual Impacts of Selected VPs

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
VP1: Ho Man Tin High Level Fresh Water Service Reservoir	About 675m to the west of the Site	Recreation	**Compatible** – As shown in **Figure 4.1**, the visual composition of this VP is characterized by the vegetation in the foreground, existing buildings in To Kwa Wan in the mid-ground, and Kowloon East development, small part of To Kwa Wan Typhoon Shelter, top of Mount Parker and an open sky view in the background. While the entire proposed school development under Baseline Scheme would be screened off by the KCAA1 core development, a tiny part of the proposed development under the Proposed Amendment will be visible between the gaps of two KCAA1 buildings from this VP.	**Acceptable** – Since the KCAA1 core development will block the entire view to To Kwa Wan Typhoon Shelter, the Baseline Scheme would not lead to any further visual obstruction and the visual permeability remain generally intact. A tiny portion of the proposed scheme will not be screened off by the KCAA1 core development and create negligible visual blockage to the Kowloon East development. Nonetheless, the visual permeability to the To Kwa Wan cityscape, Kowloon East development, Mount Parker and open sky view remain generally unchanged.	**Negligible** – Compared to the Baseline Scheme, the proposed development will induce negligible visual changes to the existing visual elements as the majority part of the development will be screened by existing developments in the foreground. There will be no significant visual change to the existing resources including the open sky view as compared with the Baseline Scheme.	**Negligible** – This VP is situated at a significant distance from the proposed development, at an elevated level. Given only a tiny portion of the proposed development under the Proposed Amendment and this VP has a low level of visitors, the visual impact to the public viewers will be negligible.	**Negligible**
VP2: Bailey Street and Sung On Street	120m to the southwest of the Site	Traveller	**Compatible** – As shown in **Figure 4.2**, the existing visual composition of this VP comprises of road traffic on Bailey Street, Po Leung Kuk	**Acceptable** – Although the Proposed Amendment will obstruct portion of the open sky view as well as the residential	**Fair** – Oblique view towards the southwestern corner of the Site reveals a current landscape	**Slightly to Moderately Adverse** – Given the close proximity to the proposed development and reduced depth of	**Slightly to Moderately Adverse**

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
			Ngan Po Ling College and the Kowloon City Government Offices Building, and residential developments along the Kai Tak Runway in the background. While the visual composition under the Baseline Scheme remains unchanged, the Proposed Amendment will occupy a part of sky view and provides a smooth visual transition between the Po Leung Kuk Ngan Po Ling College and the Kowloon City Government Offices. The overall impact to the visual composition is considered visually compatible with the surrounding context.	development on Kai Tai Runway to a small extent, the visual permeability of Bailey Street towards the waterfront would be affected.	characterized by road traffic and existing buildings along Bailey Street. The proposed development will be visible from this VP, reducing partial sky view. Nonetheless, responsive building design would allow visual openness of the road corridor on Bailey Street.	view, visual impact to public viewers will be inevitable. Nonetheless, the proposed harbourfront at-grade communal space along the southern boundary, the landscape features in the proposed harbourfront at-grade communal space and retail frontage will enhance the pedestrian environment. Besides, viewers at this viewpoint are mainly pedestrians on their way to schools or offices, representing a transient and occasional view. Hence, the effect on VSRs is slight to moderate.	
VP3: Footpath along Sung On Street	120m to the northwest of the Site	Traveller	**Compatible** – As shown in **Figure 4.3**, the visual composition of the viewing point is characterized by the sky view through the gap of the Church of Christ In China Kei To Secondary School and Po Leung Kuk Ngan Po Ling	**Moderately Adverse** – When comparing the Proposed Amendment from the Baseline Scheme, the increase in building mass will create obstruction to the existing open sky view. With	**Moderately Adverse** – The proposed residential tower under the Proposed Amendment will inevitably introduce visual change to the VP with reduced depth of view.	Moderately **Adverse** – In view of the short distant from the proposed development, the effects on VSRs are considered moderate. Nonetheless, the pedestrians on this	**Moderately Adverse**

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
			College, with electricity substation in the rightmost of the foreground and trees in the leftmost of the foreground and background. Compared with the Baseline Scheme, the Proposed Amendment will inevitably form a larger building mass. Nevertheless, responsive design measures including tower separation are proposed in the Proposed Amendment to soften the building bulk.	sufficient building separation, the degree of visual obstruction to the open sky view is reduced and will not cause a significant wall effect. Additionally, a low level of pedestrian activity is observed along this segment of the Sung On Street.	Compare to the Baseline Scheme, the Proposed Amendment will incorporate responsive design measures including tower separation to promote the visual permeability.	segment on Sung On Street are transient in nature and the high level of pedestrian activity is not anticipated.	
VP4: Hoi Sham Pavilion	185m northeast of the Site	Recreation	**Moderately Adverse** - The visual composition of the viewing point is characterized by the cityscape of Hung Hom, including an open sky view and the existing buildings in Hung Hom in the background, the Proposed Amendment in the middle ground, and the Hoi Sham Park Extension and To Kwa Wan Typhoon Shelter serving as the foreground. The proposed development will be dominant in the view at	**Moderately Adverse** – When comparing the Proposed Amendment from the Baseline Scheme, the increase in building height will result in a considerable visual obstruction to the existing sky view. While the depth of view and visual permeability will be largely reduced, a majority of the open sky view will be retained. Therefore, the level of change in the	**Moderately Adverse** – The proposed residential tower under the Proposed Amendment will inevitably obstruct the open sky view to the VP. Compare to the Baseline Scheme, the Proposed Amendment will incorporate responsive design measures including building disposition and additional mitigation	**Moderately Adverse** – Given the close proximity to the proposed development, the change in view to open sky view and the overall visual change by the Proposed Amendment will be inevitable. However, noting that the visitors at the Hoi Sham Pavilion mainly focus on the harbourview and cityscape of Kai Tak and Kowloon Bay with	**Moderately Adverse**

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
			this VP. Nonetheless, responsive building disposition is proposed to minimise the building bulk to alleviate the visual impact.	overall visual character is considered acceptable. It is noted that a majority of the visitors at the Hoi Sham Pavilion mainly focus on the harbourview of the Victoria Harbour rather than facing backward to the cityscape of Hung Hom.	measures such as landscaping treatments on lower floors, stepped height podium to soften the building bulk to alleviate the visual impact.	occasional view facing towards the Scheme area and the To Kwa Wan waterfront, the effects on VSRs are considered acceptable.	
VP5: Laguna Verde Promenade	200m to the southeast of the Site	Traveller	**Compatible** - As shown in **Figure 4.5**, the visual composition of this VP is characterized by the open sky view and mountain backdrop at the background, the existing industrial and residential developments along To Kwa Wan Waterfront in the middle ground, To Kwa Wan Typhoon Shelter in the rightmost of the foreground and Laguna Verde in the leftmost of the foreground.	**Acceptable** – While portion of the proposed school development under the Baseline Scheme would block the existing developments in the background, the proposed residential development under the Proposed Scheme would block a portion of the open sky view, mountain backdrop and the existing developments in the background.	**Slightly Adverse** – The proposed school development and residential towers will be visible under both Baseline Scheme and Proposed Amendment. The Proposed Amendment would block some sky view, mountain backdrop and the inner area of To Kwa Wan. If compared with the Baseline Scheme, only slight visual change will be brought by the proposed development.	**Slightly Adverse** – The change in view to open sky and mountain backdrop and the overall visual change by the Proposed Amendment will be slightly changed with reduced depth of view. However, it is anticipated that the visitors at the Laguna Verde Promenade mainly focus on the cityscape of Kai Tak and Kowloon Bay with rare view facing towards the proposed development, the effects on VSRs are	**Slightly to Moderately Adverse**

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
						considered slightly adverse.	
VP6: Hung Hom Road and Fat Kwong Street Flyover	450m to the south of the Site	Traveller	**Compatible** - As shown in **Figure 4.6**, the visual composition of this VP comprises of open sky view in the background, Hung Hom Business Area in the middle ground and Hung Hom Road and refuse collection point in the foreground. The residential tower of the Proposed Amendment is largely screened off by the Hung Hom Business Area with a glimpse view of the upper floors of the proposed tower block.	**Negligible to Slightly Adverse** – The Baseline Scheme will be completely concealed by the existing developments. Although a small portion of open sky view will be obstructed, the proposed residential tower will visually align with the building profile of Hung Hom Business Area. Since the Proposed Amendment will be largely screened off by the existing commercial and industrial buildings in the foreground, the visual obstruction to the sky will be minimal.	**No Negative Effect** – The key visual resources from this VP are existing built-up areas and the sky view. Despite the proposed development will occupy a small portion of sky view, the residential towers under the Proposed Amendment will blend in well with the existing visual resources from this VP. The change in visual context induced by the proposed development from this VP is considered to be negligible to slight.	**Negligible** – Given the majority of the proposed development will be screened off by the existing buildings in the Hung Hom Business Area, the effect to VSRs is considered to be minimal.	**Negligible to Slightly Adverse**
VP7: Fat Kwong Street Playground	About 710m to the southwest of the Site	Recreation	**Unchanged** - As shown in **Figure 4.7**, the visual composition of this VP is characterized by the football pitch and landscape at the Fat Kwong Street Playground in the foreground, the existing high-rise residential developments in Hung Hom in	**No Blockage to View** – While the proposed school development under the baseline scheme will be completely shielded by the existing residential developments, a tiny portion of the proposed development would be	**No Negative Effect** – The proposed development will occupy a negligible portion of the open sky view. There will be no significant visual changes to the existing visual resources including the open sky view in the	**Negligible** – Only a very tiny portion of the proposed development would be visible from this VP. There is no negative effect on VSRs.	**Negligible**

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
			the middle ground and the open sky view in the background.	visible from this VP. Given that the proposed development under Proposed Amendment will be largely shielded by the existing high-rise residential developments in Hung Hom, the visual obstruction to the sky is considered negligible.	Baseline Scheme and Proposed Amendment.		
VP8: Hong Kong Convention & Exhibition Centre (Strategic Viewing Point 5)	3.6km to the southwest of the Site	Traveller	**Unchanged** - As shown in **Figure 4.8**, the visual composition of this VP is characterized by the Victoria Harbour in the foreground, medium to high-rise development along the waterfront of Hung Hom in the middle ground, and open sky view and ridgeline from Tsz Wan Shan to Kowloon Peak in the background.	**No Blockage to View** – The proposed development under both Baseline Scheme and Proposed Amendment will be concealed by the existing built-up area in Hung Hom from this VP. No visual obstruction to the open sky or the ridgeline is observed.	**No Negative Effect** – The key visual resources from this VP include the Victoria Harbour, the ridgeline from Tsz Wan Shan to Kowloon Peak, open sky view and the built-up area of Hung Hom. The Proposed Amendment will be screened off by the existing buildings in Hung Hom and will not generate any change to all visual resources.	**Unchanged** – The Proposed Amendment will not be visible at from this VP, there will be no effect on VSRs.	**Negligible**

6. Evaluation of Overall Visual Impact

6.1.1. This VIA is prepared to assess the visual impacts on VSRs from major public VPs due to the proposed development at the Site. **Table 6.1** below summarizes the visual sensitivity and overall visual impact of the selected VPs.

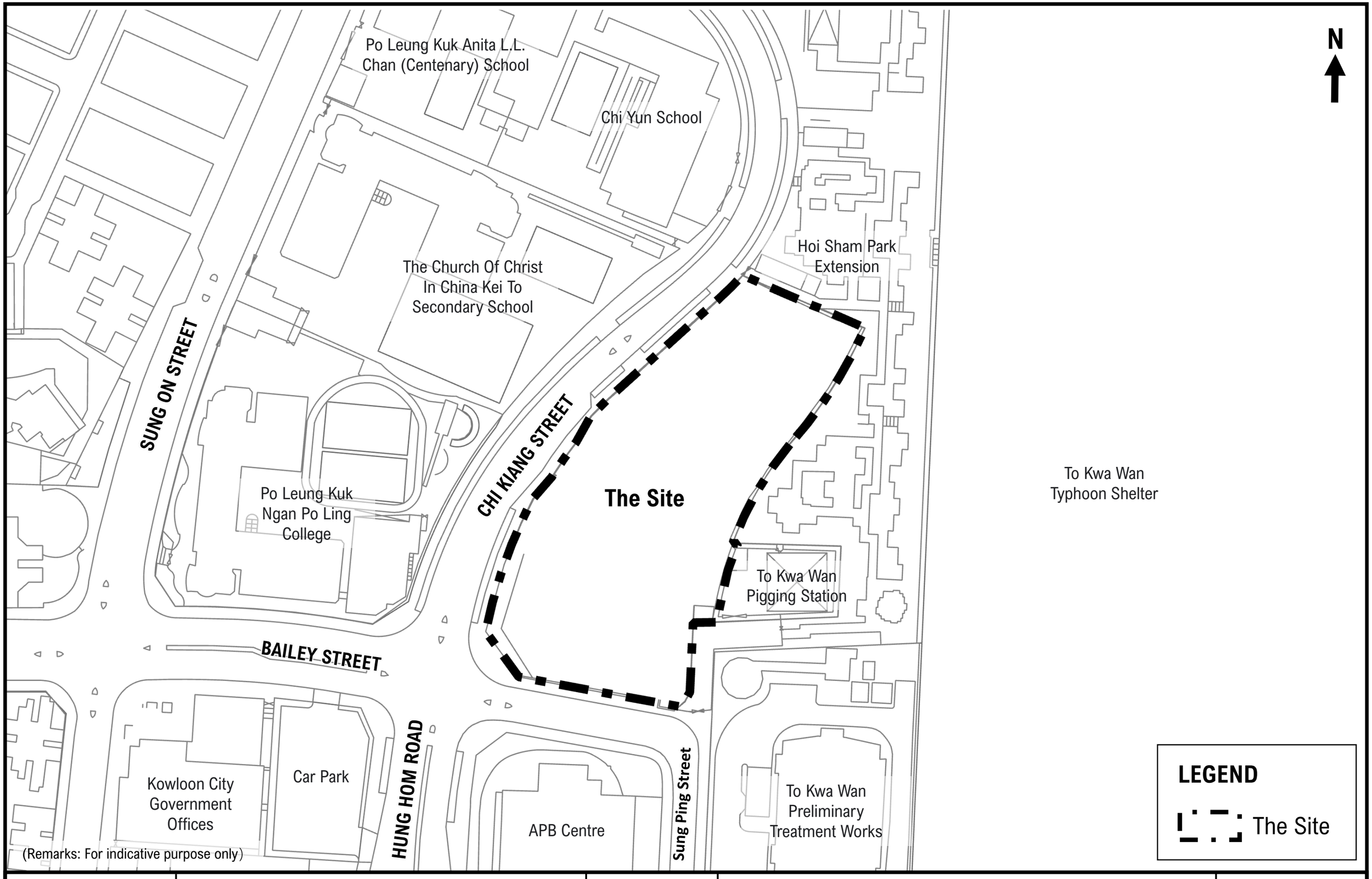
Table 6.1 Summary of Visual Impact

Viewing Points	Visual Sensitivity	Resultant Overall Visual Impact
VP1: Ho Man Tin High Level Fresh Water Service Reservoir	Medium to High	Negligible
VP2: Bailey Street / Sung On Street	Medium	Slightly to Moderately Adverse
VP3: Footpath along Sung On Street	Medium	Moderately Adverse
VP4: Hoi Sham Pavilion	High	Moderately Adverse
VP5: Laguna Verde Promenade	High	Slightly to Moderately Adverse
VP6: Fat Kwong Street Flyover / Hung Hom Road	Low	Negligible to Slightly Adverse
VP7: Fat Kwong Street Playground	Low	Negligible
VP8: Hong Kong Convention & Exhibition Centre	Low	Negligible

6.1.2. At local and strategic level, the proposed development has **negligible** to **moderately adverse** visual impacts on surrounding public viewers and visual resources when compared with Baseline Scheme. Nonetheless, the proposed development aligns with the planned building height of the nearby residential area in the long term, as stipulated in the OZP. It is anticipated that future developments surrounding the Application Site will adhere to the stipulated building height restriction, thus the long-term visual impact of the proposed development would gradually diminish over time.

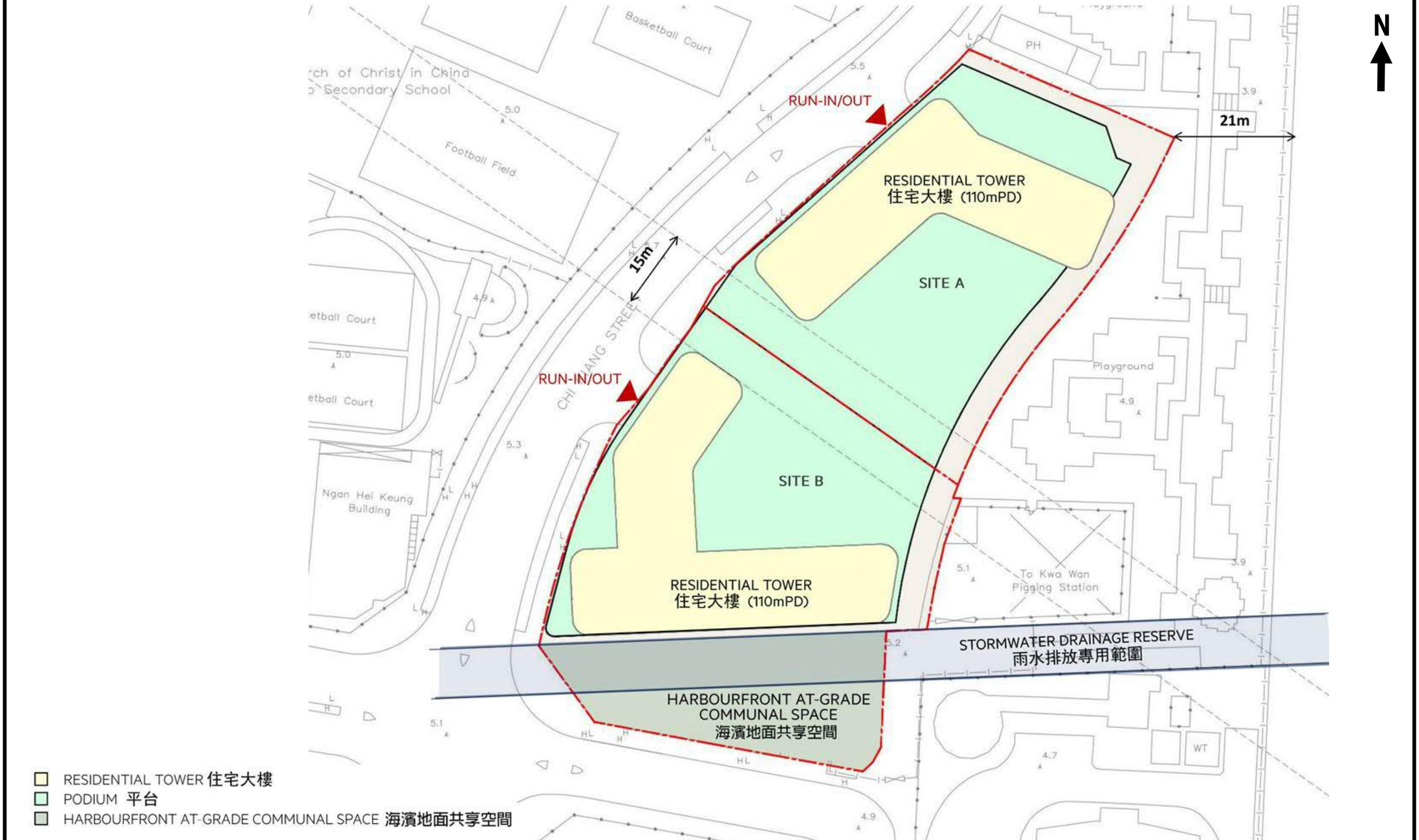
6.1.3. Mitigation measures have also been proposed into the design to address the anticipated visual impacts of the proposed development. A 15m wide building separation and harbourfront at-grade communal space are proposed to promote visual permeability between the inland and waterfront. Landscape treatments at stepped height podium are purposely designed on the building façade facing Hoi Shum Park Extension to act as visual coherence and create visual interest at the pedestrian level. These measures will create visual interest and enhance the current monotonous waterfront interface, which will then optimize the overall visual quality.

6.1.4. The proposed development generally respects the surrounding built environment and building height profiles of adjacent development and those along the waterfront within a district-wide context (**Figure 4.9** refers). With the incorporation of these mitigation measures and consideration of the long-term development of the Hung Hom and To Kwa Wan area, the overall visual impact of the proposed development is considered acceptable.



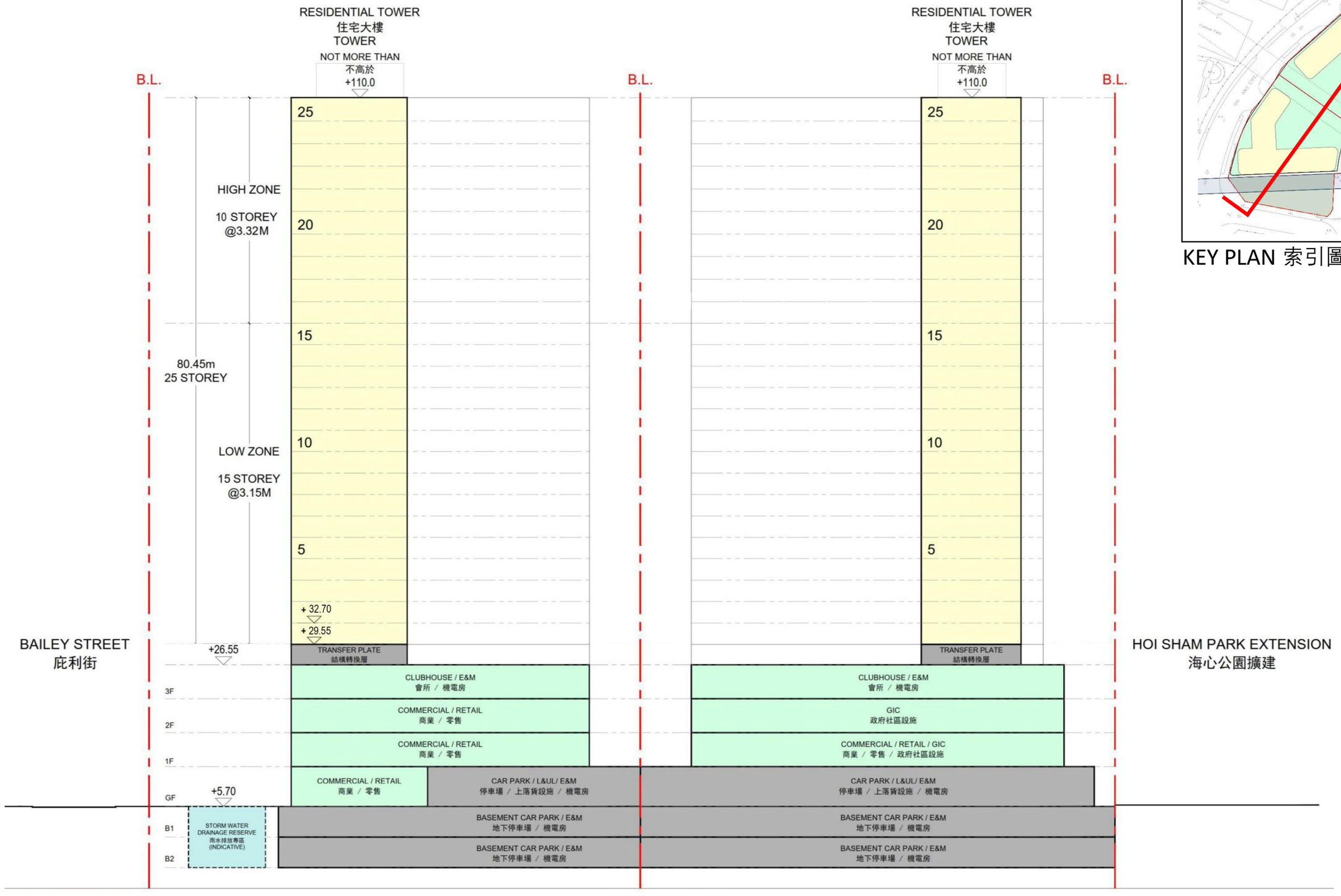
(Remarks: For indicative purpose only)

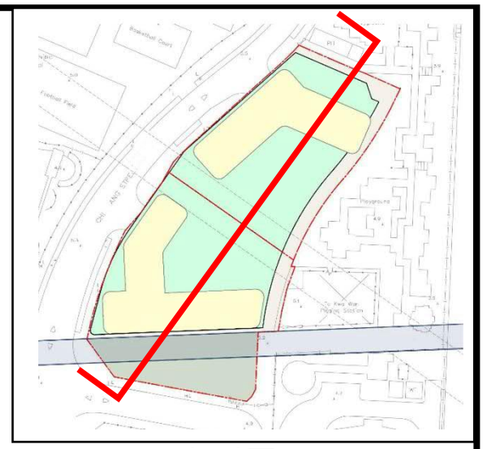
市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment**	**Figure 1.1**	**The Site**	Not to scale June 2025



(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project** **Visual Impact Assessment**	**Figure 2.1**	**The Proposed Amendment –** **Indicative Block Plan**	Not to scale June 2025

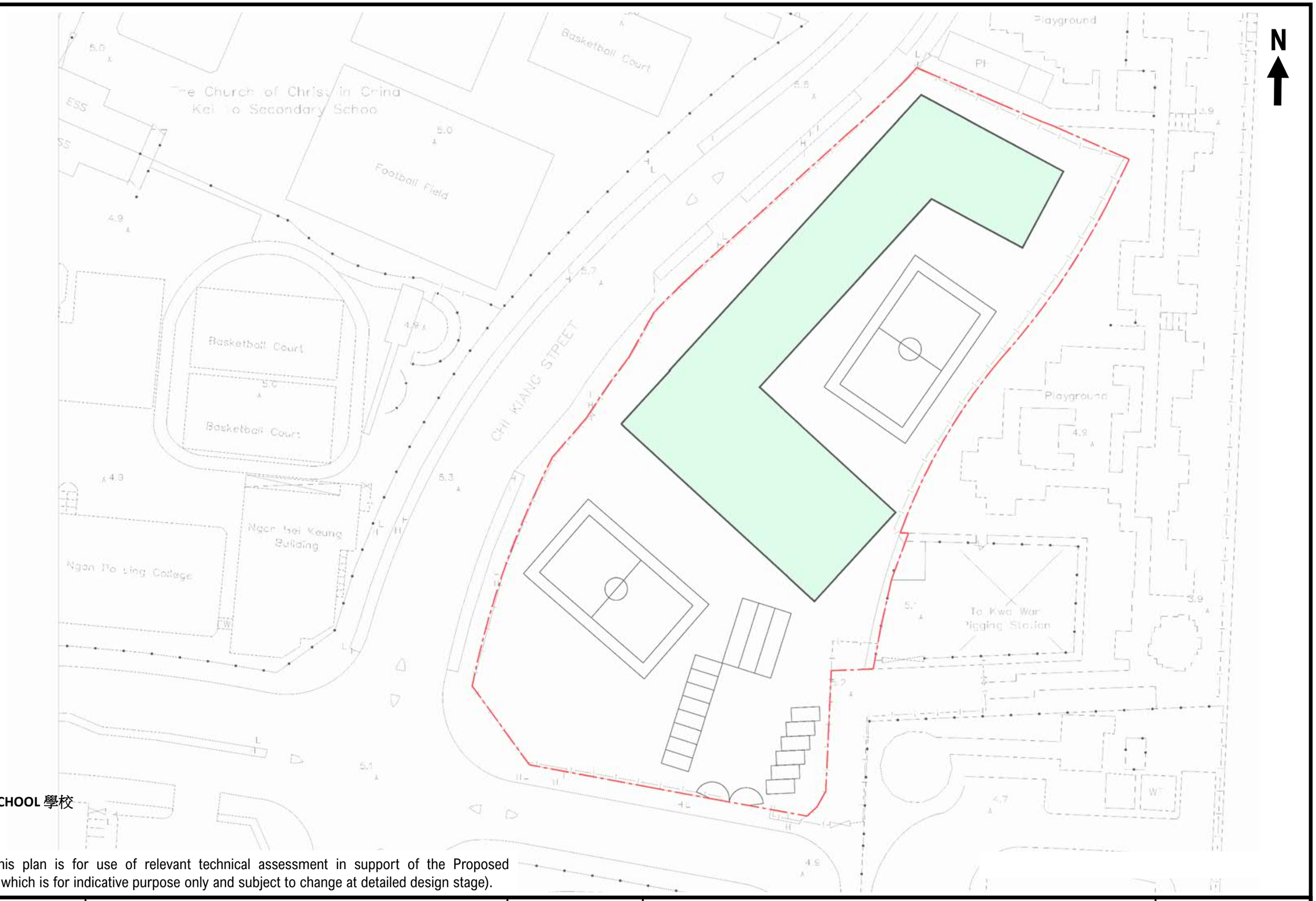




KEY PLAN 索引圖

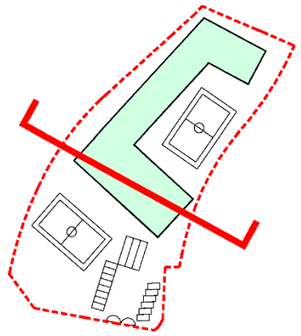
(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

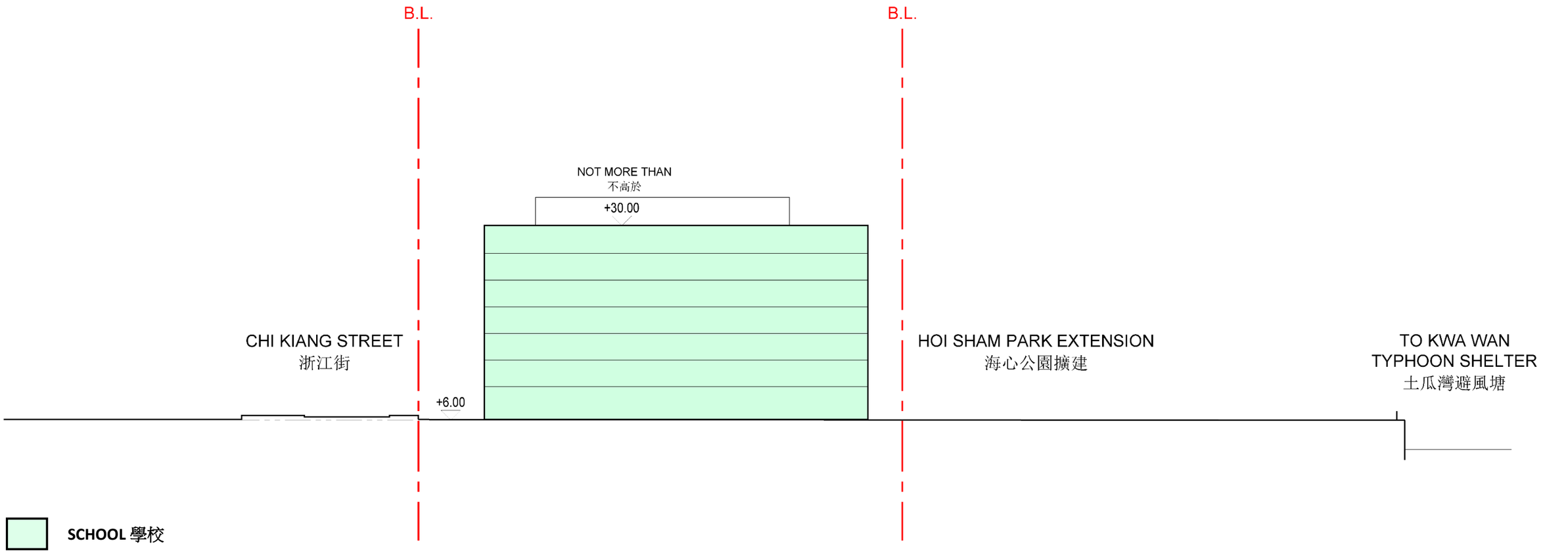
市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment**	**Figure 2.2**	**The Proposed Amendment – Indicative Section Plan**	Not to scale June 2025



(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment**	**Figure 2.3**	**The Baseline Scheme – Indicative Block Plan**	Not to scale June 2025





(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment**	**Figure 2.4**	**The Baseline Scheme – Indicative Section Plan**	Not to scale June 2025

LEGEND

- The Site
- Boundary of the Assessment Area (313m from the Scheme)
- Major Open Space
- Green Belt

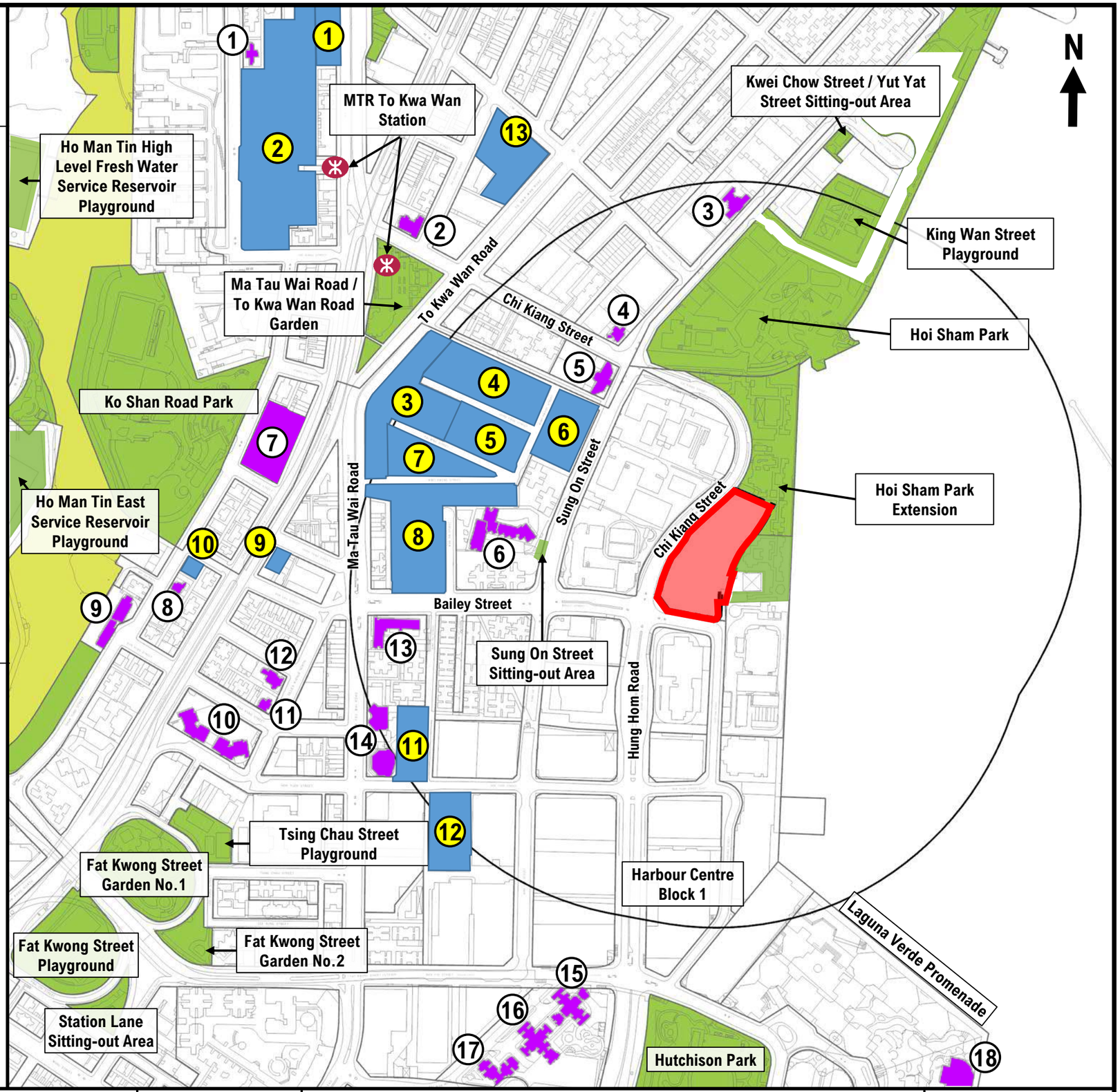
Existing Developments of 100mPD or above

1	City 151	~ 115mPD
2	City Hub	~ 118mPD
3	Bayview	~ 146mPD
4	L • HARBOUR 18	~ 100mPD
5	Sunrise Villa	~ 115mPD
6	Upper East	~ 100mPD
7	Kwun Shan Court	~ 130mPD
8	Alpine 18	~ 104mPD
9	Homantin Hillside	~ 120mPD
10	Chatham Gate	~ 147mPD
11	The Met. Focus	~ 102mPD
12	Star Ruby	~ 105mPD
13	The Vantage	~ 120mPD
14	eResidence	~ 120mPD
15	Hung Hom Estate Phase 2 - Hung Yiu House	~ 125mPD
16	Hung Hom Estate Phase 2 - Hung Yan House	~ 125mPD
17	Hung Hom Estate Phase 2 - Hung Yat House	~ 122mPD
18	Laguna Verde Tower 16	~ 104mPD

Future Developments of 100mPD or above

1	Ma Tau Wai Road / Lok Shan Road (KC-020)	~ 120mPD*
2	Kau Pui Lung Road / Chi Kiang Street (CBS-2:KC)	~ 140mPD
3	To Kwa Wan Road / Wing Kwong Street (KC-016)	~ 140mPD
4	Hung Fook Street / Ngan Hon Street (KC-010)	~ 100mPD
5	Hung Fook Street / Kai Ming Street (DL-8:KC+KC-011)	~ 100mPD
6	Wing Kwong Street / Sung On Street (KC-014)	~ 100mPD
7	Wing Kwong Street / Kai Ming Street (KC-012+KC-013)	~ 100mPD
8	Bailey Street / Wing Kwong Street (KC-009)	~ 100mPD
9	The Quad	~ 120mPD*
10	2A & 2B San Lau Street and No.26 Ko Shan Road	~ 120mPD*
11	Chun Tin Street / Sung Chi Street (KC-008(A))	~ 120mPD
12	13 Hok Yuen Street (A/K9/274)	~ 120mPD
13	1-7 Lai Wa Street	~ 120mPD*

** Based on the maximum building height stipulated in the respective OZP Plan*



URBAN RENEWAL AUTHORITY 市區重建局

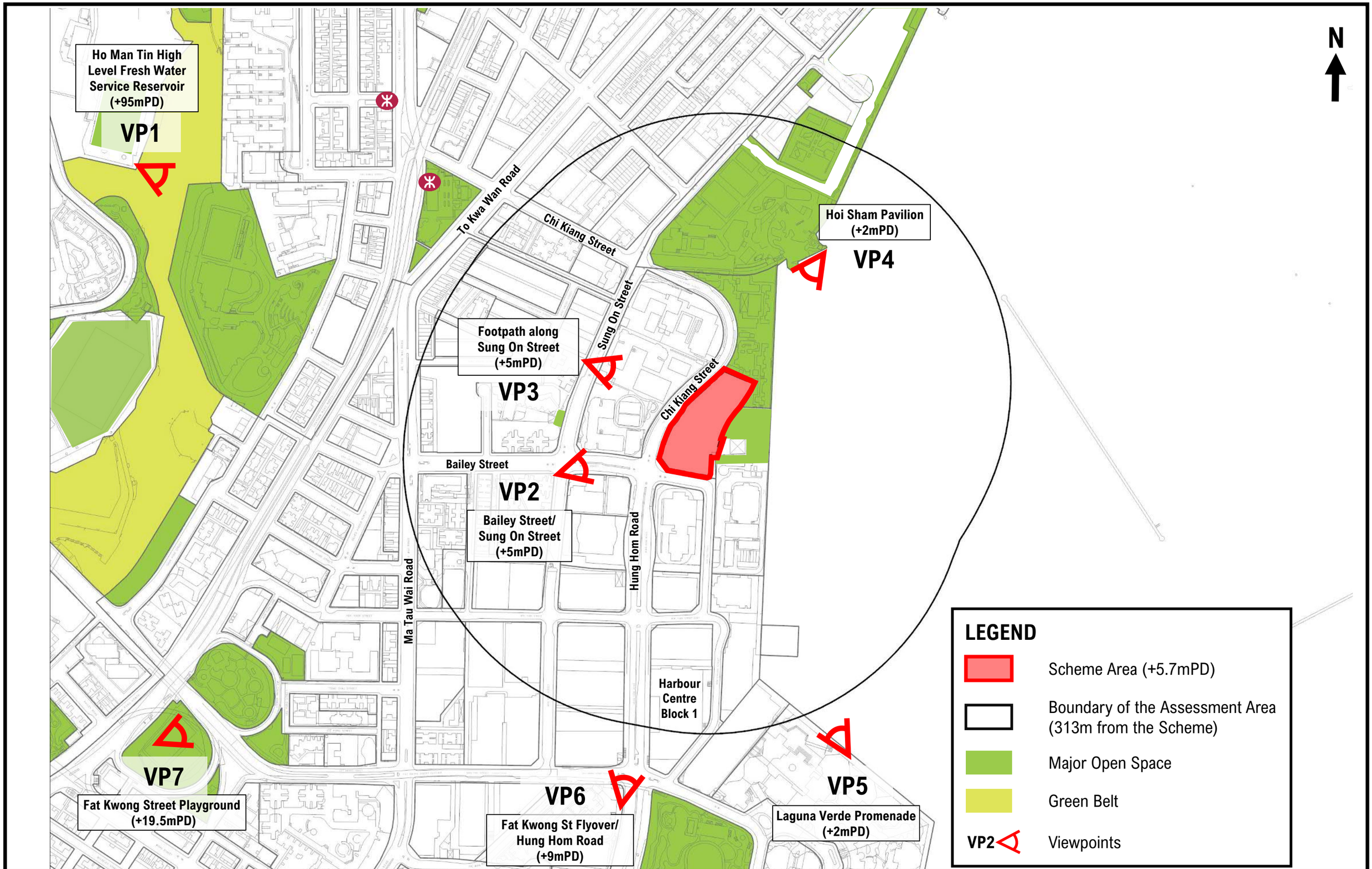
URA Bailey Street / Chi Kiang Street Project
Visual Impact Assessment

Figure 3.1

Assessment Area and Visual Elements

Not to scale

June 2025



市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 3.2	Locations of Viewing Points (VP1 to VP7)	Not to scale June 2025



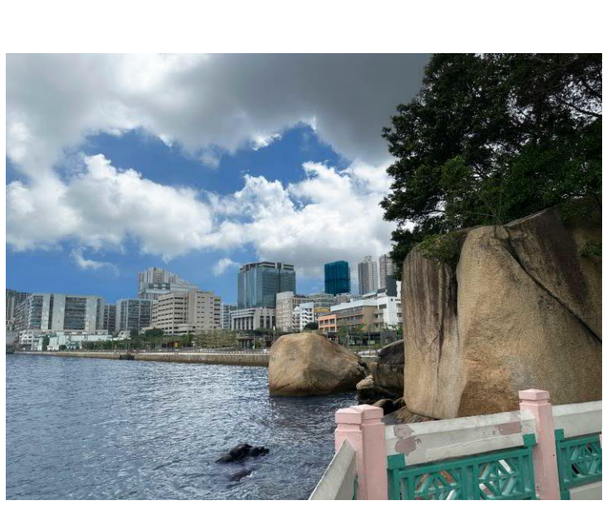
VP1
Ho Man Tin High Level Fresh Water Service Reservoir



VP2
Bailey Street / Sung On Street



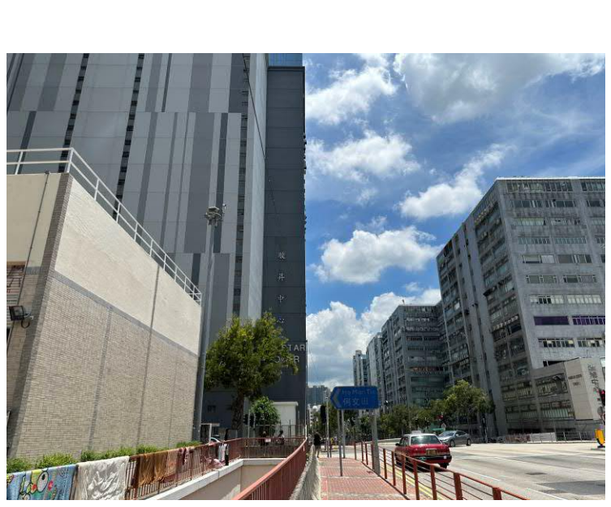
VP3
Footpath along Sung On Street



VP4
Hoi Sham Pavilion



VP5
Laguna Verde Promenade

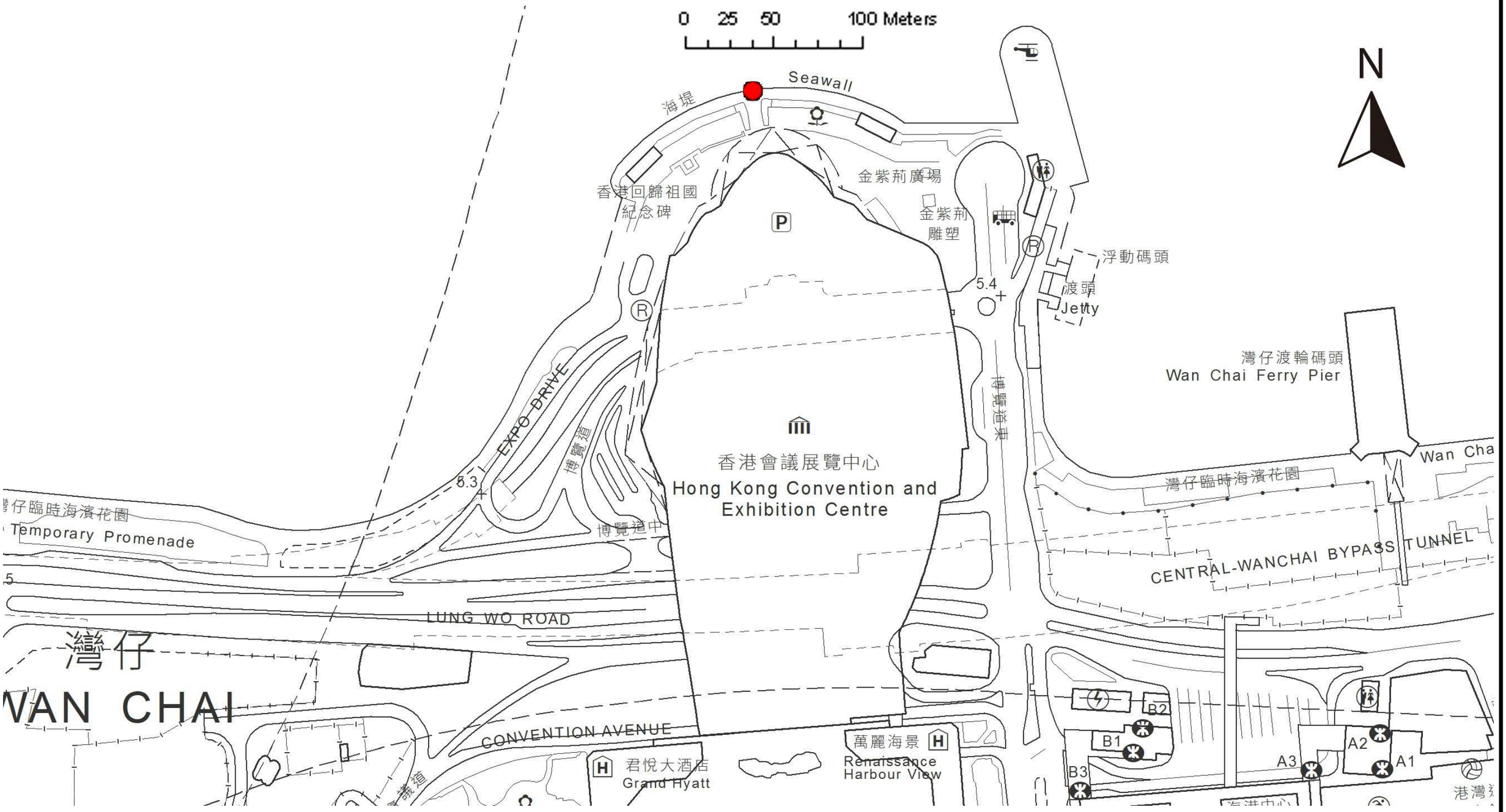


VP6
Fat Kwong St Flyover / Hung Hom Road



VP7
Fat Kwong Street Playground

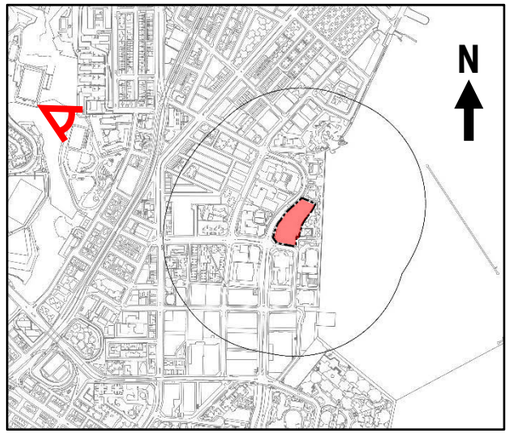
市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 3.3	Photos of Viewing Points (VP1 to VP7)	June 2025



Source:
Strategic Viewing Points Webpage of Planning Department for the Town Planning Board Guidelines for Submission of Visual Impact Assessment to the Town Planning Board (TPB PG-No. 41)
https://www.pland.gov.hk/pland_en/resources/strategic_vp/index.html

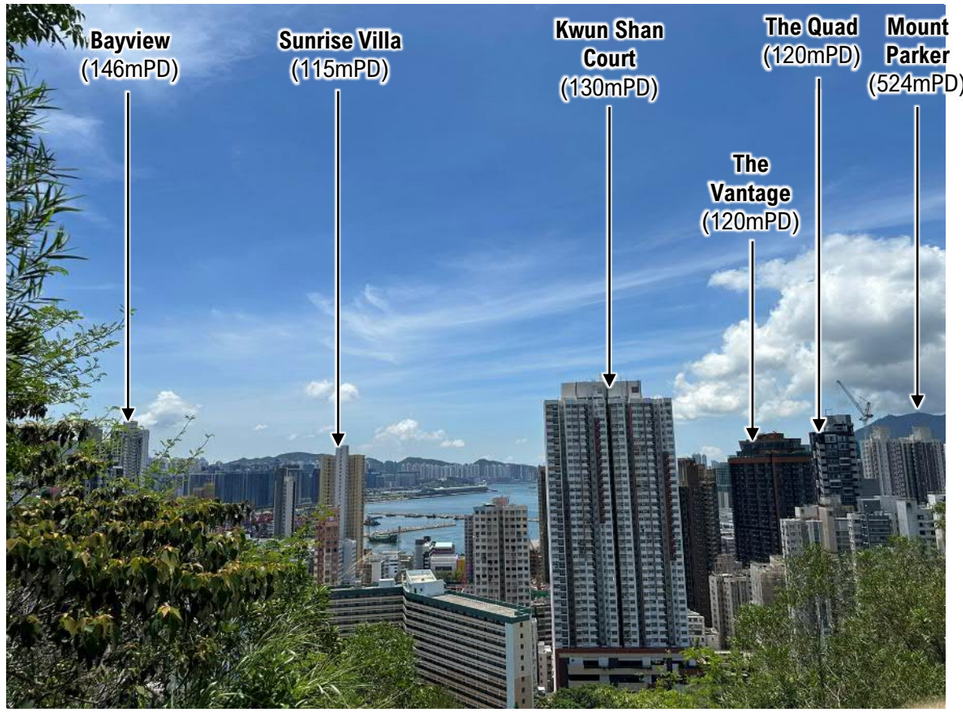
市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project** **Visual Impact Assessment**	**Figure 3.4**	**Location of VP8** **(Strategic Viewing Point 5 -** **Hong Kong Convention & Exhibition Centre)**	June 2025

Key Plan

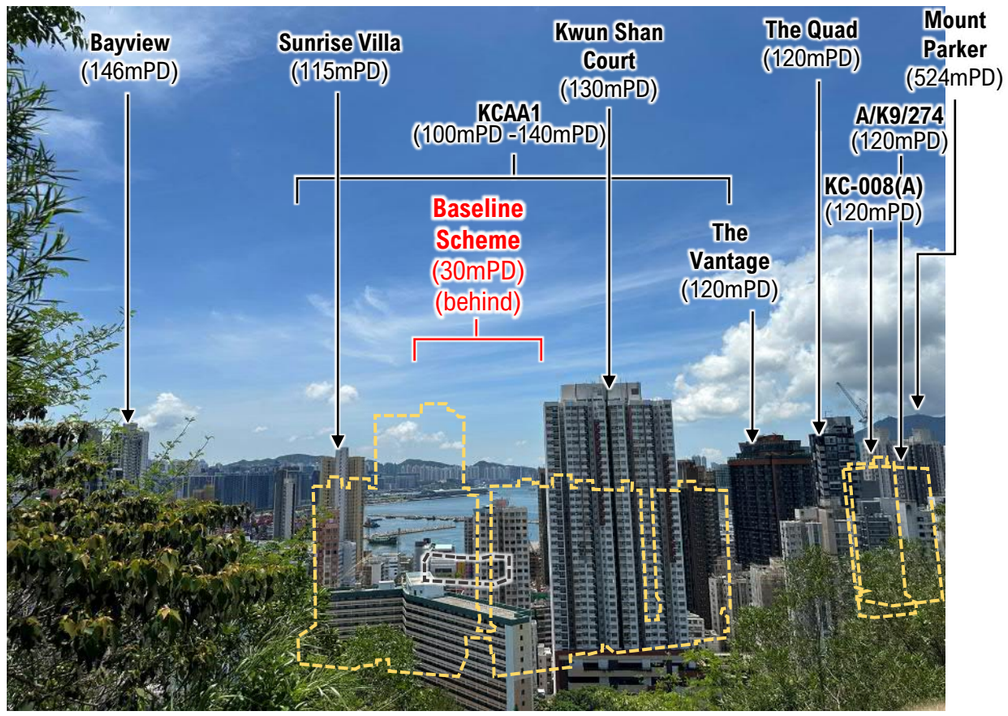


LEGEND

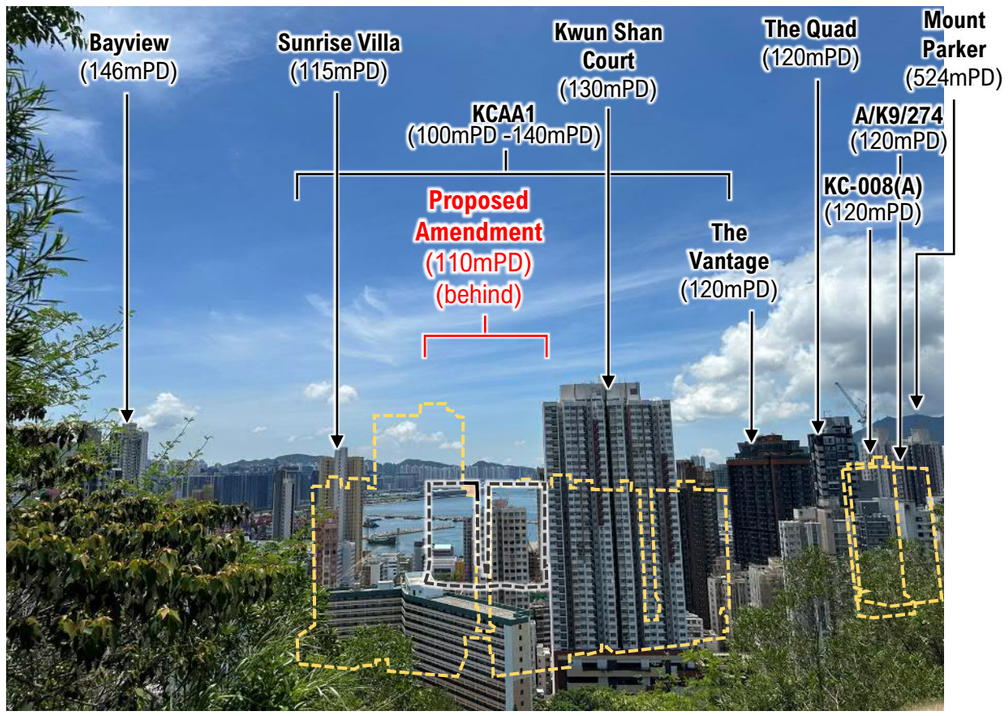
- Visible part of the Proposed Amendment
- Proposed Amendment hidden from view
- Planned development



Existing Condition



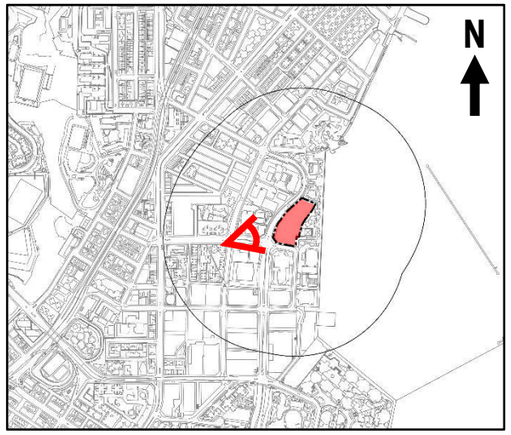
Baseline Scheme



Proposed Amendment

市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 4.1	Photomontage of VP1 (Ho Man Tin High Level Fresh Water Service Reservoir)	June 2025

Key Plan

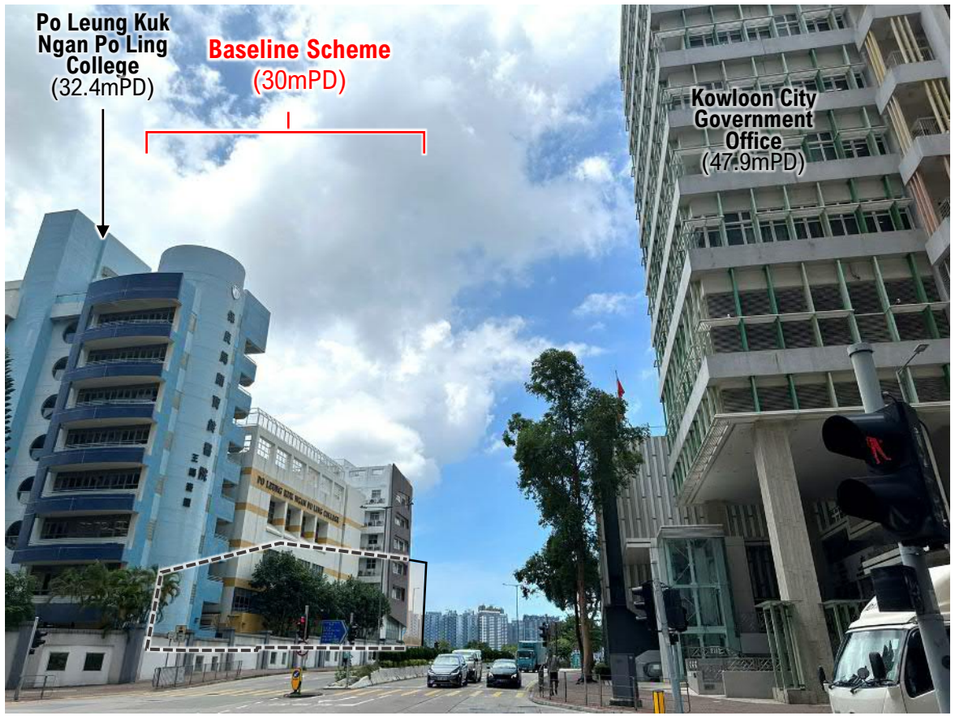


LEGEND

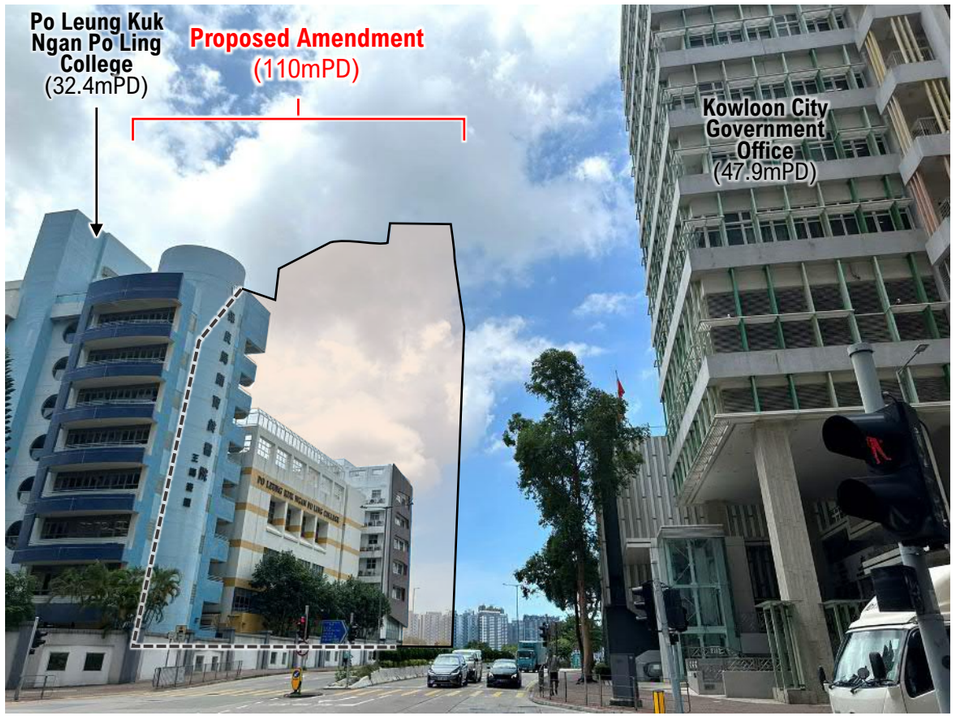
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Existing Condition



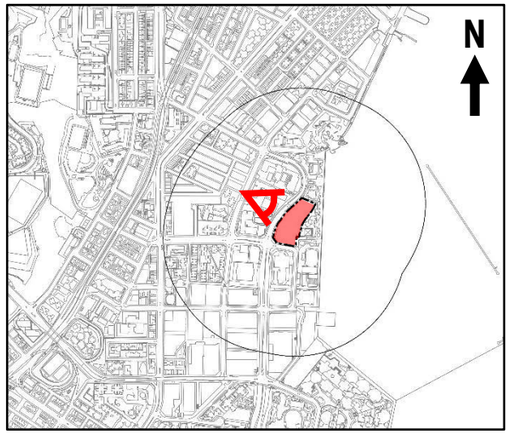
Baseline Scheme



Proposed Amendment

市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 4.2	Photomontage of VP2 (Bailey Street/ Sung On Street)	June 2025

Key Plan



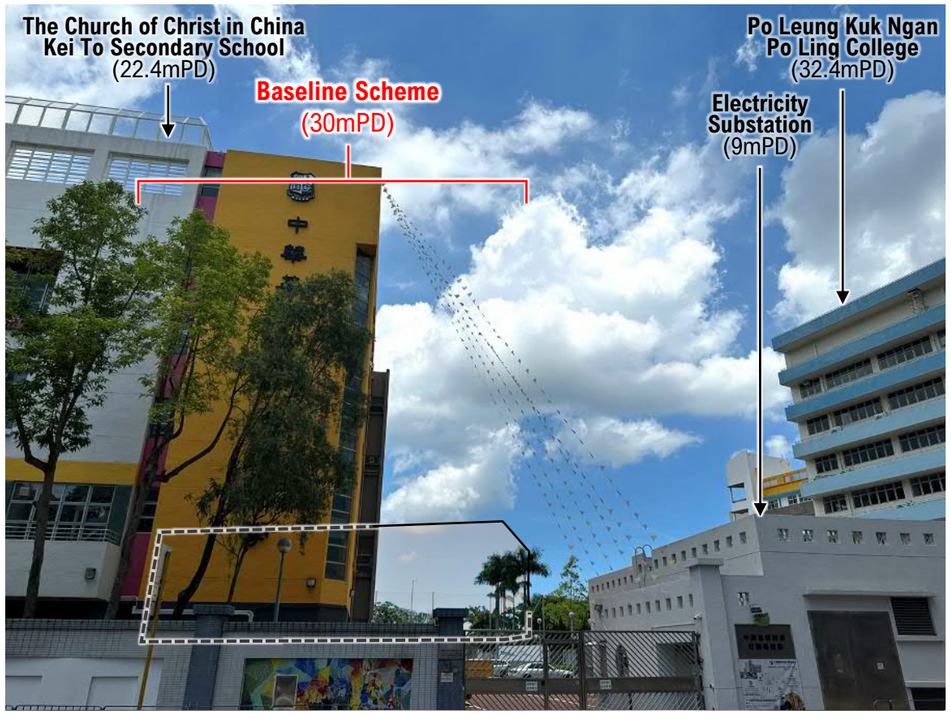
LEGEND

Visible part of the Proposed Amendment

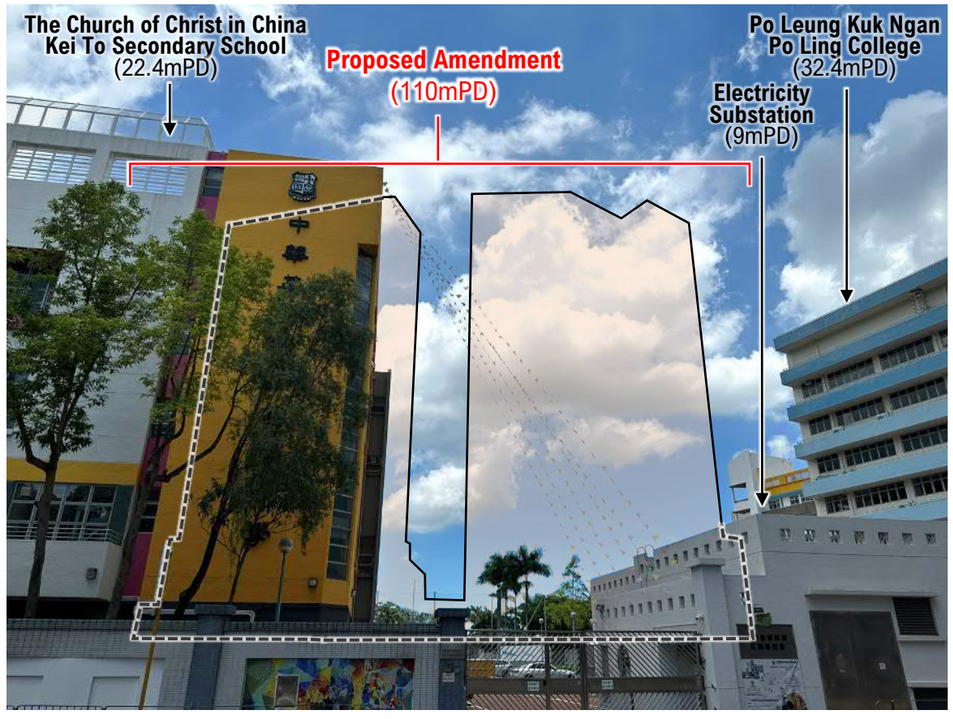
Proposed Amendment hidden from view



Existing Condition



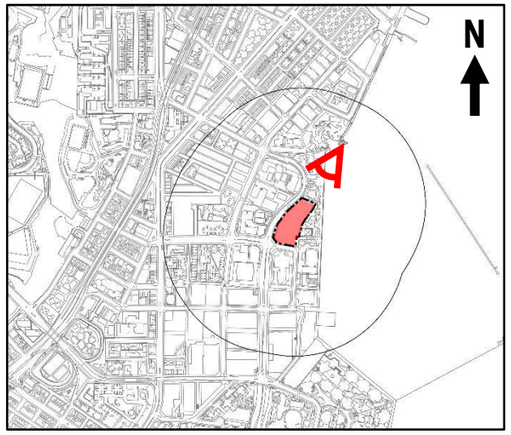
Baseline Scheme



Proposed Amendment

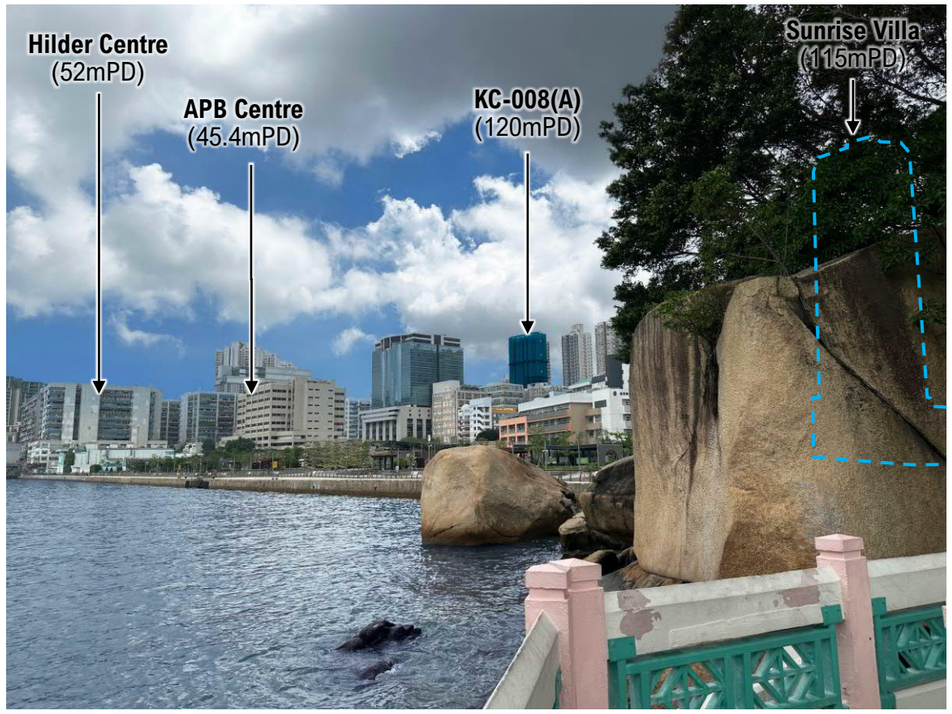
市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 4.3	Photomontage of VP3 (Footpath along Sung On Street)	June 2025

Key Plan

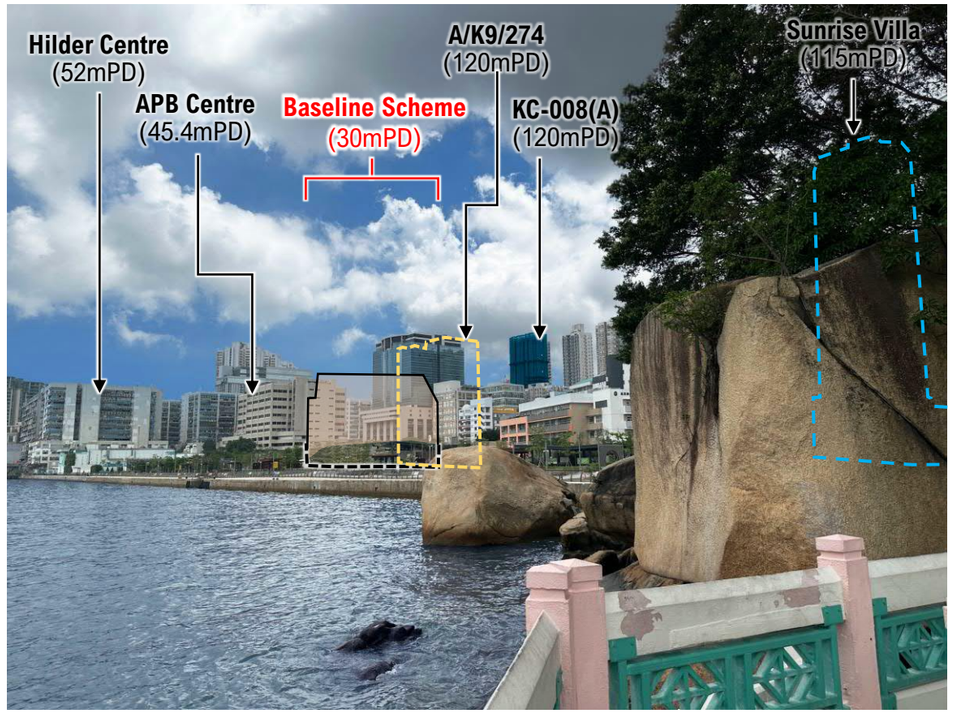


LEGEND

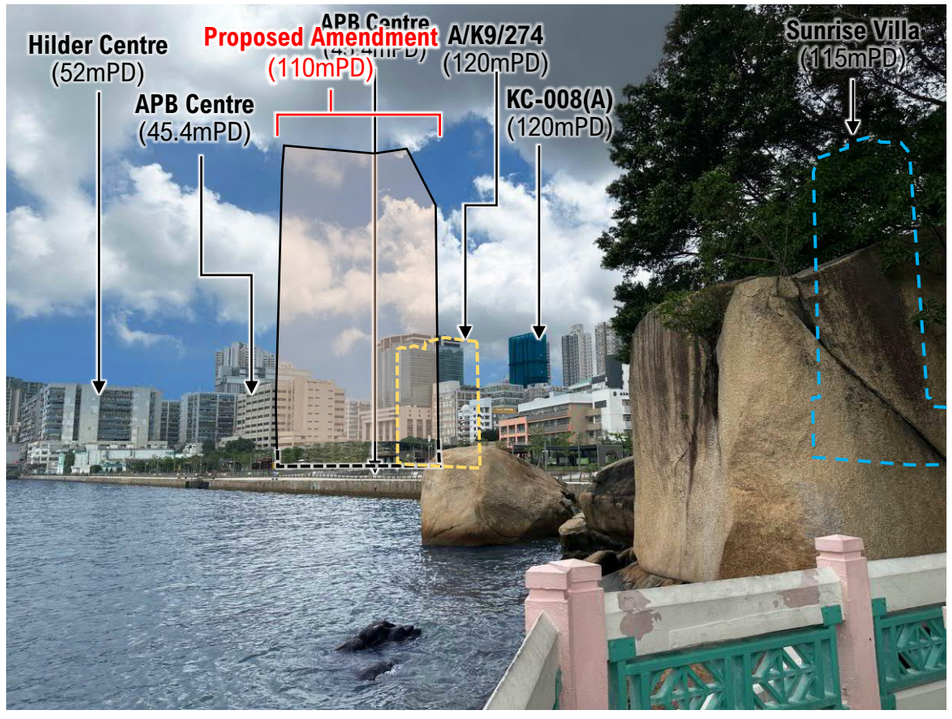
- Visible part of the Proposed Amendment
- Proposed Amendment hidden from view
- Planned development
- Existing development



Existing Condition



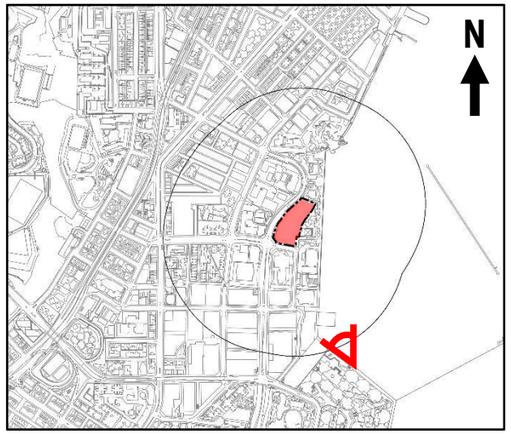
Baseline Scheme



Proposed Amendment

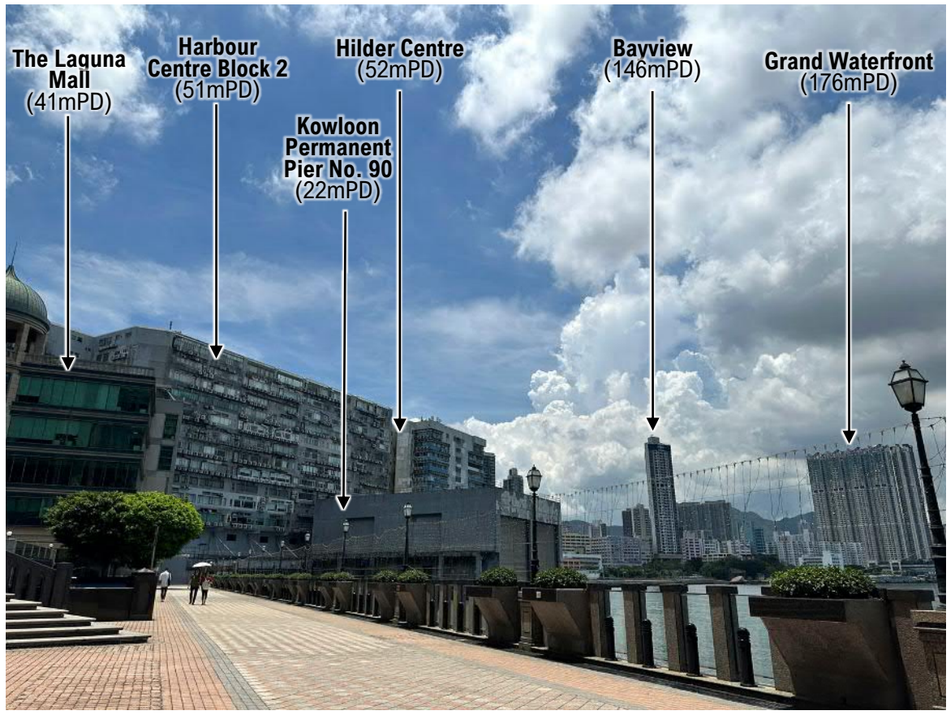
市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 4.4	Photomontage of VP4 (Hoi Sham Pavilion)	June 2025

Key Plan

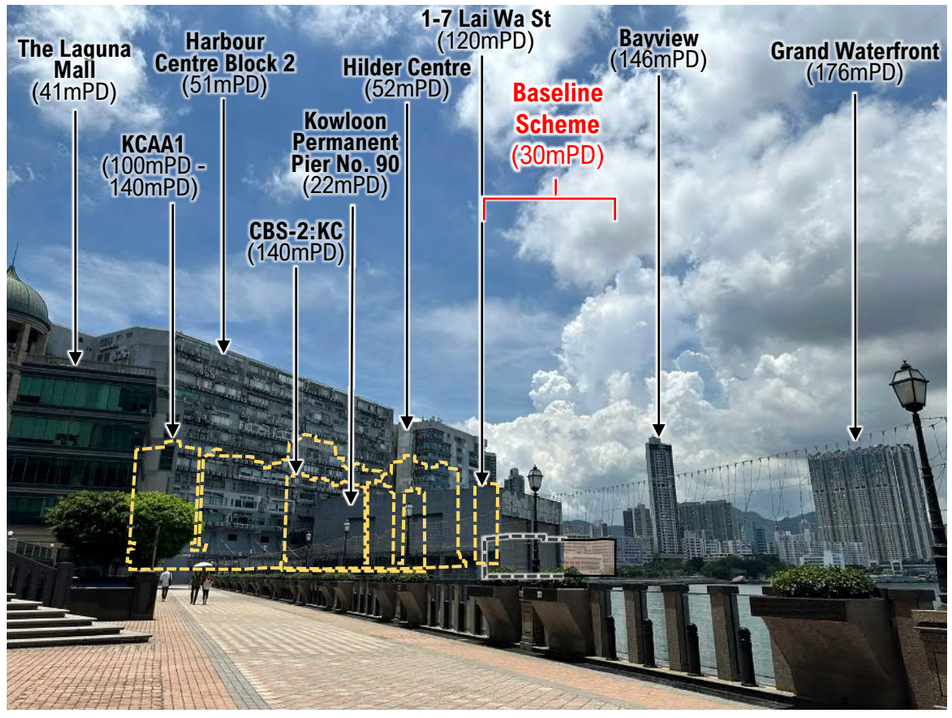


LEGEND

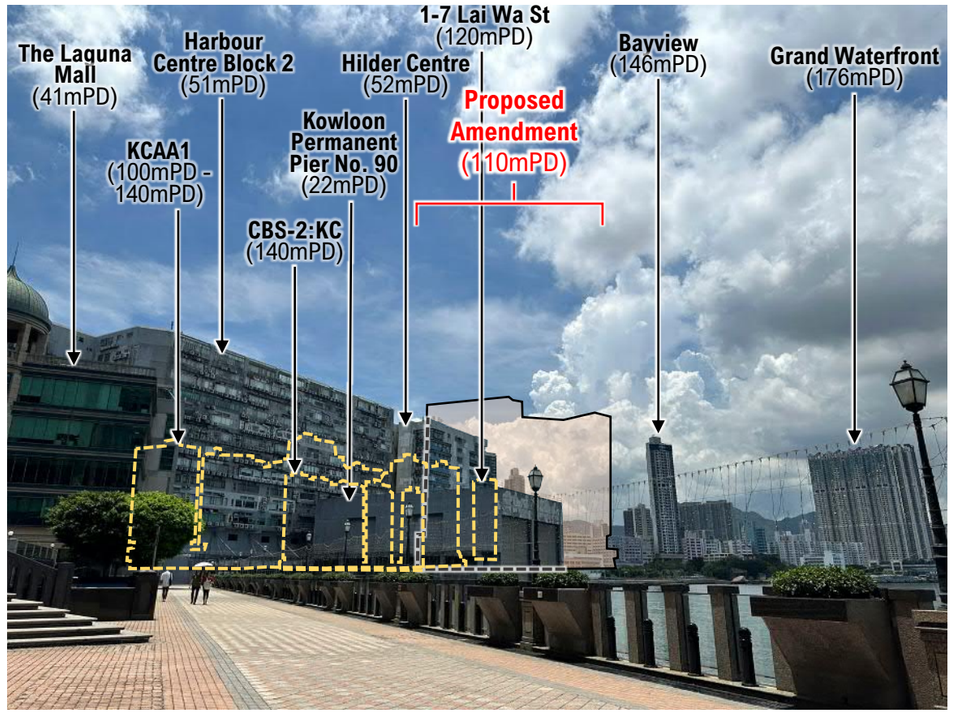
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- Proposed Amendment hidden from view
- Planned development



Existing Condition



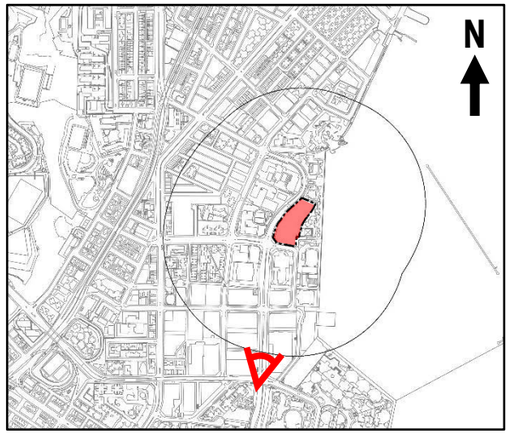
Baseline Scheme



Proposed Amendment

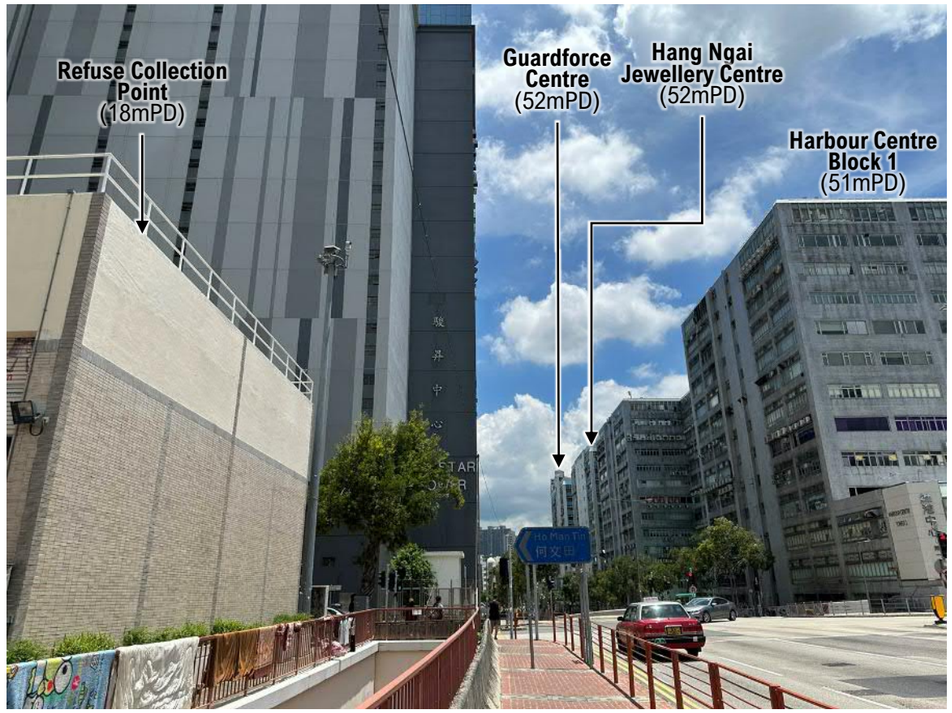
市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 4.5	Photomontage of VP5 (Laguna Verde Promenade)	June 2025

Key Plan

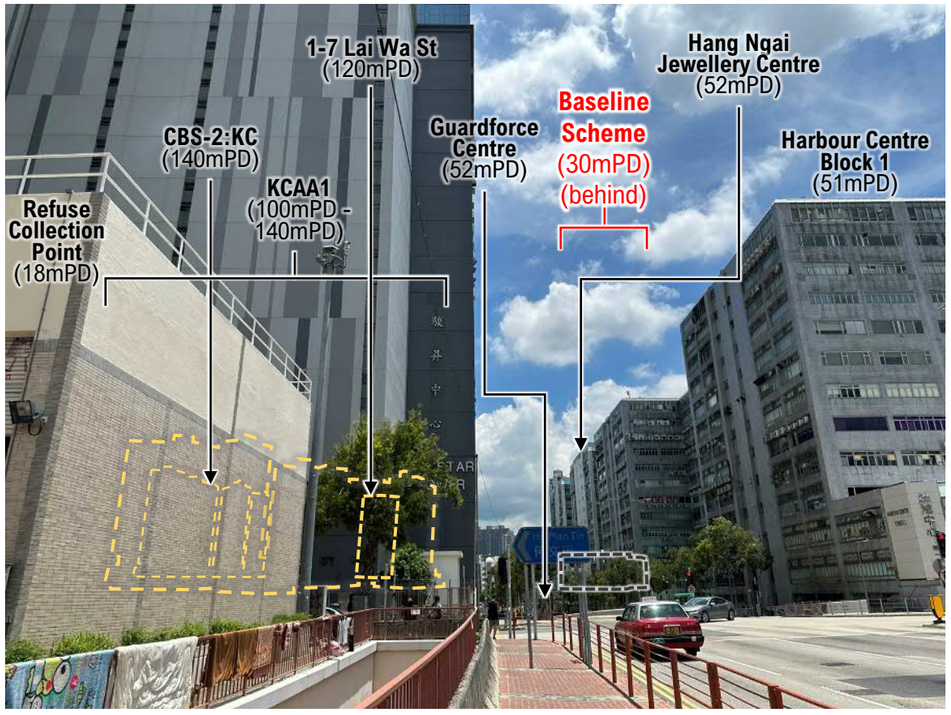


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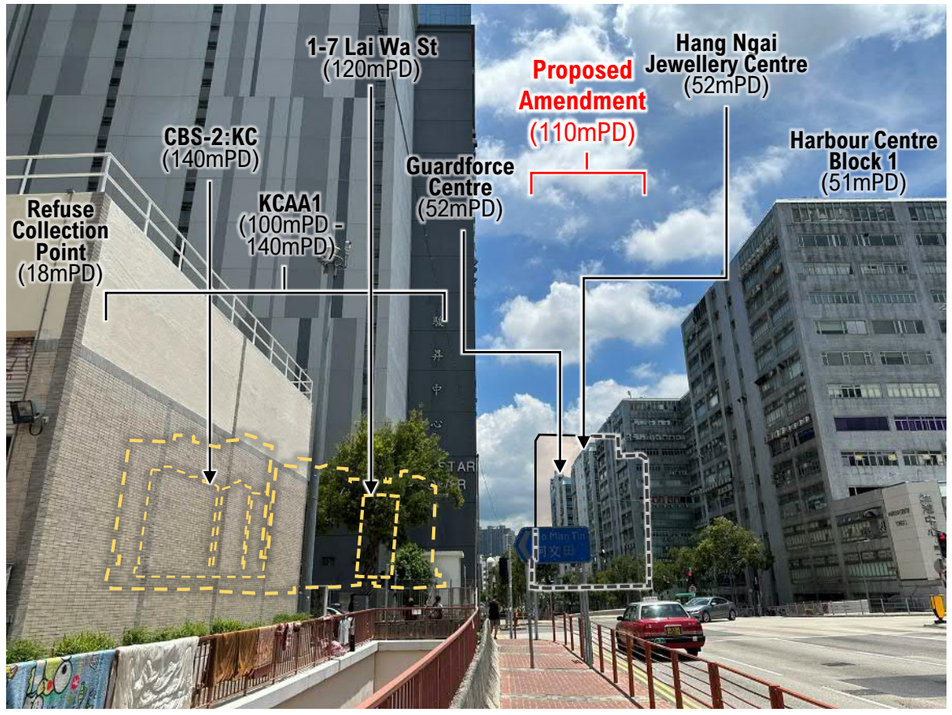
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- Planned development



Existing Condition



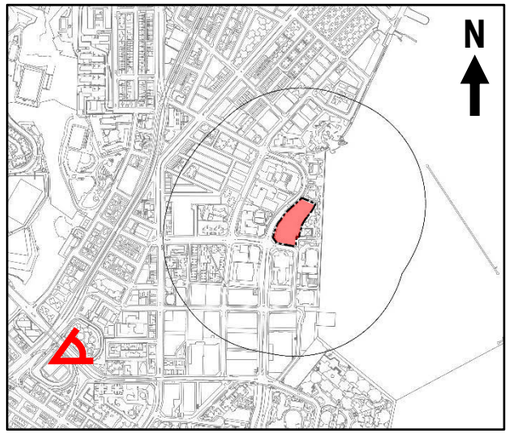
Baseline Scheme



Proposed Amendment

市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 4.6	Photomontage of VP6 (Fat Kwong Street Flyover/ Hung Hom Road)	June 2025

Key Plan

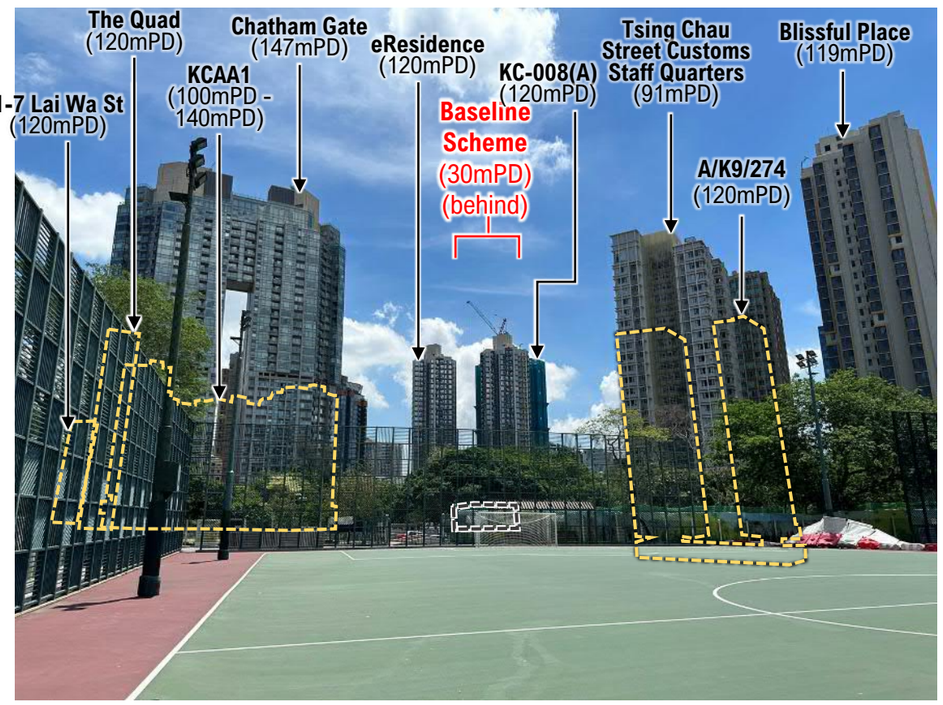


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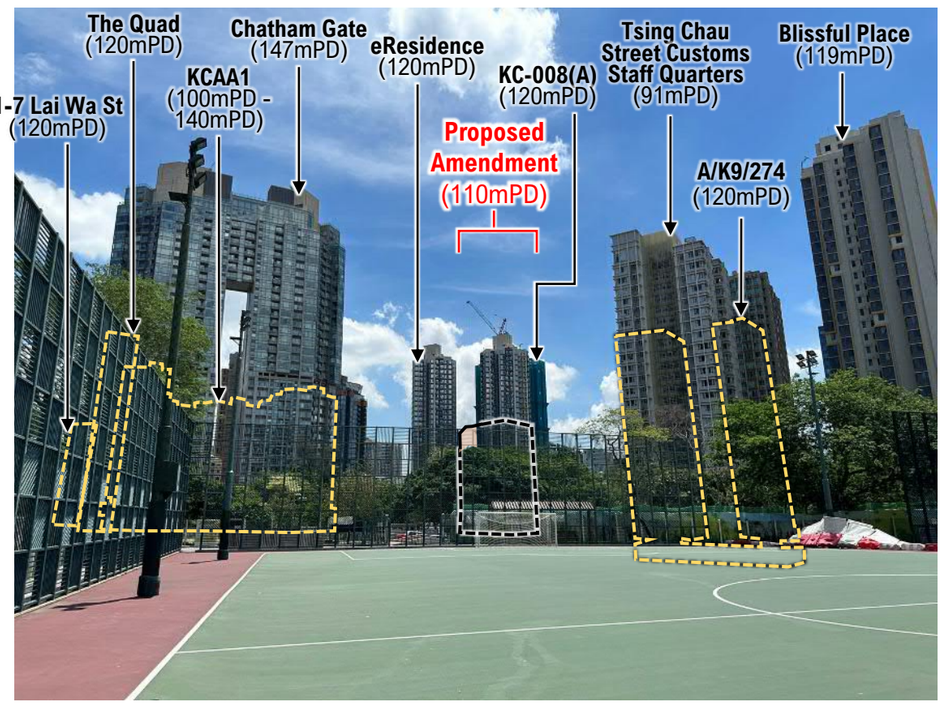
- Visible part of the Proposed Amendment
- Proposed Amendment hidden from view
- Planned development



Existing Condition



Baseline Scheme



Proposed Amendment

市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 4.7	Photomontage of VP7 (Fat Kwong Street Playground)	June 2025

LEGEND

Proposed Amendment hidden from view

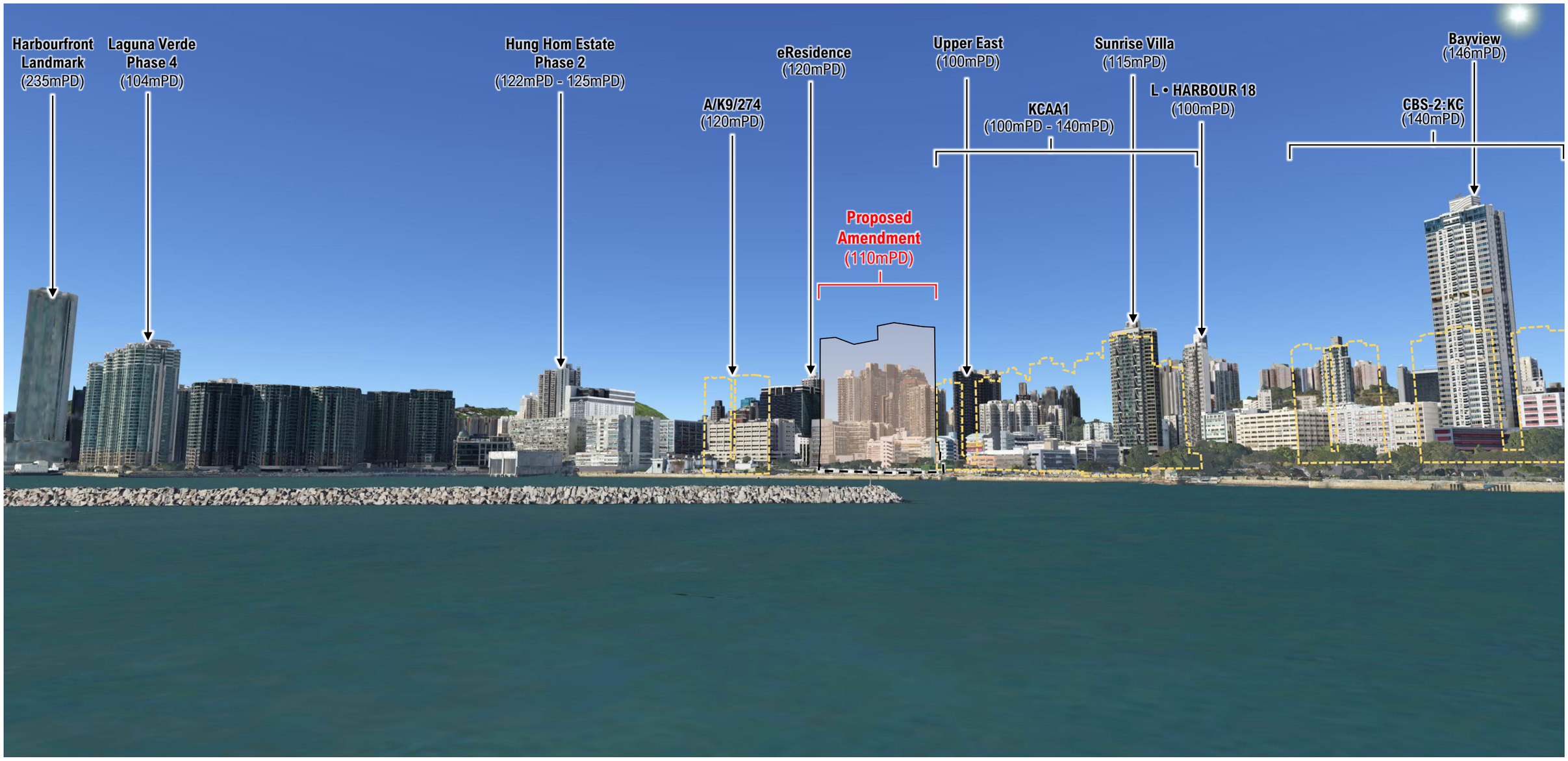


Source:
Strategic Viewing Points Webpage of Planning Department (https://www.pland.gov.hk/pland_en/resources/strategic_vp/index.html)

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project** **Visual Impact Assessment**	**Figure 4.8**	**Photomontage of VP8** **(Hong Kong Convention & Exhibition Centre)**	June 2025

LEGEND

- Visible part of the Proposed Amendment
- Planned development
- Proposed Amendment hidden from view



市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 4.9	Waterfront Building Height Profile	June 2025

Appendix 5

Traffic Impact Assessment Report

AtkinsRéalis

Traffic Impact Assessment

Urban Renewal Authority

24 June 2025
OR001-04

PROPOSED DEVELOPMENT AT BAILEY STREET / CHI KIANG STREET, KOWLOON CITY DISTRICT

Notice

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Client signoff

Client	Urban Renewal Authority
Project	PROPOSED DEVELOPMENT AT BAILEY STREET / CHI KIANG STREET, KOWLOON CITY DISTRICT
Job number	5219646

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1. Introduction

1.1. Background

1.1.1. Atkins China Limited (Atkins) was commissioned by the Urban Renewal Authority (URA) to conduct a Traffic Impact Assessment (TIA) in support to a site in Hung Hom, Kowloon City district (the Project). URA, in collaboration with the Planning Department, proposed to rezone the site from "Government, Institution and Community" zone and a strip of land zoned “Other Specified Uses” annotated “Sewage Treatment Plant” to "Residential (Group A)9" zone for comprehensive high-density residential developments. Planning submission with technical assessments will be prepared in support of the proposed rezoning under Section 5 of the Town Planning Ordinance.

1.1.2. This is conducted to assess the traffic impact and the proposal of traffic provisions for the project.

1.2. Scope

1.2.1. The scope of this TIA is outlined as follows:

- conduct surveys to collect the traffic data within the study area;
- estimate the vehicular and pedestrian traffic to be generated by the Proposed Development;
- forecast the future vehicular and pedestrian traffic demand in the vicinity of the assessment year;
- examine the traffic impact of the Proposed Development on the surrounding road and pedestrian network; and
- recommend improvement measures to the problematic roads / junctions, if considered necessary and practicable to the Proposed Development wherever applicable.

1.3. Report Structure

1.3.1. Following this introductory chapter, there are 5 chapters:

- Chapter 2—describes the existing traffic context in the vicinity of the Proposed Development.
- Chapter 3—presents the details of Proposed Development.
- Chapter 4—describes the methodology for traffic forecasting.
- Chapter 5—presents the results of the TIA and recommends improvement measures if necessary.
- Chapter 6—presents the construction traffic impact.
- Chapter 7—summarizes the findings of this TIA and presents the conclusion.

2. Traffic Context

2.1. Road Network

2.1.1. The Project site is located in To Kwa Wan area of the Kowloon City District. It is bounded by Chi Kiang Street at the west, Bailey Street at the south, Hoi Sham Park extension to the north and east, and To Kwa Wan Pigging Station and To Kwa Wan Preliminary Treatment Works to the east. It is served by primary distributors of Chatham Road North and Ma Tau Wai Road; district distributors of Hung Hom Road, To Kwa Wan Road, Chi Kiang Street, and Bailey Street; local distributors of Sung On Street, Yuk Yat Street, Lok Shan Road, etc. The location of the Project site and the existing road network in the vicinity are shown in **Figure 2.1**.

2.1.2. The section of Chi Kiang Street abutting the Project site is a single two-way two-lane carriageway providing linkage connecting the Project site and other district distributors like To Kwa Wan Road and Ma Tau Wai Road.

2.1.3. The section of Bailey Street abutting the site is a single two-way two-lane carriageway running in east-west direction. It provides linkage connecting the Project site and primary distributors like Chatham Road North and Ma Tau Wai Road.

2.1.4. Hung Hom Road is a dual two-way two-lane carriageway running in north-south direction. It provides strategic routes from the Project site to other areas like Hung Hom and Tsim Sha Tsui.

2.2. Traffic Surveys

2.2.1. Manual classified traffic count surveys were conducted to identify the existing traffic flows during morning and evening peak periods (07:00 to 10:00 and 16:30 to 19:30) on a typical weekday in January 2024, and during morning and afternoon peak periods (07:00 to 10:00 and 14:30 to 18:30) on a typical weekend in January 2024.

2.2.2. The locations of the surveyed junctions in the vicinity are listed in **Table 2-1** and as illustrated in **Figure 2.2**.

Table 2-1 - Location of Surveyed Junctions

Index (1)	Location	Junction Type
J1	To Kwa Wan Road / Lok Shan Road	Signalized
J2	To Kwa Wan Road / Chi Kiang Street	Signalized
J3	Sung On Street / Yuk Yat Street / Chi Kiang Street	Signalized
J4	Ma Tau Wai Road / Bailey Street	Signalized
J5	Bailey Street / Sung On Street	Signalized
J6	Hung Hom Road / Bailey Street	Signalized
J7	Hung Hom Road / Hok Yuen Street East	Signalized
J8	Hung Hom Road / Tai Wan Road East	Signalized

*Remarks: (1) Refer to **Figure 2.2**.*

2.2.3. The morning and evening peak hours during weekday were identified as 08:45 to 09:45 and 17:30 to 18:30, and the morning and afternoon peak hours during weekend were identified as 09:00 to 10:00 and 15:00 to 16:00 respectively. The observed traffic flows for weekday and weekend are presented in **Figure 2.3** and **Figure 2.4**.

2.2.4. Pedestrian head count surveys were conducted at the key section of walkways along the anticipated access routes of the Project site during the morning and evening peak periods (07:00 to 10:00 and 14:30 to 19:30) on a typical weekday, and the morning and afternoon peak periods (07:00 to 10:00 and 12:00 to 16:00) on a typical weekend in January 2024 to collect the existing pedestrian flow at the local area. The locations of the surveyed pedestrian walkways in the vicinity are illustrated in **Figure 2.5**.

2.2.5. The survey results indicated that the observed peak 15-minute pedestrian flow would be occurred between 08:40 to 08:55 and 18:00 to 18:15 in the morning and evening peak periods during weekday, and between 08:45 to 09:00 and 13:35 to 13:50 in the morning and afternoon peak periods during weekend respectively. The observed pedestrian flows for both weekday and weekend are presented in **Figure 2.6** and **Figure 2.7**.

2.3. Existing Junction Performance

2.3.1. The existing junctions' performance are assessed in accordance with the procedures outlined in the Transport Planning and Design Manual (TPDM) and based on the observed traffic flow and the assessment results are extracted in **Table 2-2** and the calculation sheets are attached in **Appendix A**.

Table 2-2 - Junction Performance for Observed Scenario

Index (1)	Location	Junction Type	Reserve Capacity (2)			
			Weekday		Weekend	
			AM	PM	AM	PM
J1	To Kwa Wan Road / Lok Shan Road	Signalized	>100%	>100%	>100%	>100%
J2	To Kwa Wan Road / Chi Kiang Street	Signalized	82%	78%	>100%	93%
J3	Sung On Street / Yuk Yat Street / Chi Kiang Street	Signalized	60%	63%	91%	52%
J4	Ma Tau Wai Road / Bailey Street	Signalized	>100%	>100%	>100%	>100%
J5	Bailey Street / Sung On Street	Signalized	>100%	>100%	>100%	>100%
J6	Hung Hom Road / Bailey Street	Signalized	>100%	>100%	>100%	>100%
J7	Hung Hom Road / Hok Yuen Street East	Signalized	91%	74%	>100%	>100%
J8	Hung Hom Road / Tai Wan Road East	Signalized	20%	26%	79%	81%

*Remarks: (1) Refer to **Figure 2.2**.*
(2) Reserve Capacity (RC) are presented in percentage for signal-controlled junctions.

2.3.2. As shown in **Table 2-2**, all of the assessed junctions are operating satisfactorily (RC ≥ 15%) and junction performance on weekdays is considered more critical than on weekend.

2.4. Existing Pedestrian Walkway Performance

2.4.1. Existing performance of the key footpaths near the Project site are assessed with the observed pedestrian flows.

2.4.2. Current performance of the key pedestrian links is summarized in **Table 2-3** in terms of Level-of-Service (LOS). For details of the LOS, please refer to **Para. 2.4.4** and **Table 2-4**.

Table 2-3 - Pedestrian Walkway Performance for Observed Scenario

Index [1]	Footpath Width (m)	Effective Width (m) [2]	Observed Pedestrian Demand (ped/15-min)				Flow Rate (ppm/m)				Level-of-Service (LOS)			
			Weekday		Weekend		Weekday		Weekend		Weekday		Weekend	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
PW1	3.5	1.5	270	200	300	230	12.0	8.9	13.3	10.2	A	A	A	A
PW2	3.6	2.1	90	80	320	330	2.9	2.5	10.2	10.5	A	A	A	A
PW3	3.5	2.5	70	30	220	80	1.9	0.8	5.9	2.1	A	A	A	A
PW4	4	2.5	120	70	100	90	3.2	1.9	2.7	2.4	A	A	A	A
PW5	3.5	2.5	40	40	30	30	1.1	1.1	0.8	0.8	A	A	A	A
PW6	2.4	1.4	10	20	10	20	0.5	1.0	0.5	1.0	A	A	A	A
PW7	3.1	2.1	40	50	20	20	1.3	1.6	0.6	0.6	A	A	A	A
PW8	3.0	2.0	100	150	230	370	3.3	5.0	7.7	12.3	A	A	A	A
PW9	3.1	1.6	250	200	170	200	10.4	8.3	7.1	8.3	A	A	A	A
PW10	3.1	1.1	120	150	100	110	7.3	9.1	6.1	6.7	A	A	A	A
PW11	2.9	0.9	120	160	110	110	8.9	11.9	8.1	8.1	A	A	A	A
PW12	3.0	1.5	70	100	60	70	3.1	4.4	2.7	3.1	A	A	A	A
PW13	3.0	1.5	170	130	150	80	7.6	5.8	6.7	3.6	A	A	A	A

*Remarks: (1) Refer to **Figure 2.5**.*
(2) Effective Width = Footpath Width – Dead Width (0.5m for dead areas, 1m for shopping frontages, planter boxes or tree pits).

2.4.3. As shown in **Table 2-3**, all of the assessed key pedestrian walkways are operating desirably (LOS ≥ C) in year 2024.

2.4.4. Performance of walkway is measured by LOS based on Highway Capacity Manual (HCM) 2000 (Exhibit 11-8). It illustrates the degree of congestion in pedestrian facilities. The definition of LOS is illustrated in **Table 2-4**.

Table 2-4 - Description of Level-of-Service (LOS) (Reference: HCM 2000)

LOS	Flow Rate (ped/min/m)	Description
A	≤ 16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
B	16-23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23-33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exist, minor conflicts will occur, and speed and volume will be somewhat lower.
D	33-49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.
E	49-75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	> 75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

2.5. Public Transport Services

2.5.1. Currently, the Project site is served by several types of public transport services including MTR, franchised bus, Green Mini-bus (GMB) and Public Light Bus (PLB). The MTR To Kwa Wan Station is located approximate 500m away from the Project site. Moreover, there are numerous franchised bus and GMB routes with servicing points in the vicinity of the Project site. Details of the services are tabulated in **Table 2-5** and the existing public transport service points and route to/from MTR To Kwa Wan Station are shown in **Figure 2.8**.

Table 2-5 - Existing Public Transport Services

Route No.	Origin	Destination	Remarks
MTR			
Tuen Ma Line – To Kwa Wan Station			
Franchised Bus			
2E	Pak Tin (North)	Kowloon City Ferry	Daily
3B	Tsz Wan Shan (Central)	Hung Hom (Hung Luen Road)	Daily
3B	Hung Hom (Hung Luen Road)	Tsz Wan Shan (Central) (Omit Ching Fai House)	AM Peak
5	Fu Shan Estate	Star Ferry	Daily
5A	Kai Tak (Kai Ching Estate)	Star Ferry	Daily
5C	Tsz Wan Shan (Central)	Star Ferry	Daily
5C	Yuk Wah Street	Star Ferry	AM Peak
5C	Star Ferry	Tsz Wan Shan (Central) (Omit Ching Fai House)	AM Peak
5D	Telford Gardens	Hung Hom (Circular)	Daily
5P	Tsz Wan Shan (Central)	Star Ferry	AM Peak
6C	Kowloon City Ferry	Mei Foo	Daily
6F	Kowloon City Ferry	Cheung Sha Wan (Lai Kok Estate)	Daily
6X	Mei Foo	Kowloon City Ferry	PM Peak
6X	Shing Tak Street	Mei Foo	PM Peak
11	Diamond Hill Station	Kowloon Station	Daily
11K	Chuk Yuen Estate	Hung Hom Station	Daily
11X	On Tai (North)	Hung Hom Station	Daily
12A	Whampoa Garden	Cheung Sha Wan (Hoi Tat Estate)	Daily
14	Lei Yue Mun Estate	China Ferry Terminal	Daily
15	Ping Tin	Hung Hom (Hung Luen Road)	Daily
15X	Lam Tin (Kwong Tin Estate) Bus Terminus	Hung Hom Station	AM Peak & PM Peak
21	Choi Wan	Hung Hom Station	Daily
22M	Kai Tak Cruise Terminal	To Kwa Wan (Circular)	Daily
26	Shun Tin	Tsim Sha Tsui East	Daily
28	Lok Wah	Star Ferry	Daily
45	Kowloon City Ferry	Kwai Chung (Lai Yiu Estate)	Daily
75X	Tai Po (Fu Shin)	Kowloon City Ferry	Daily
75X	Kowloon City Ferry	Tai Po (Fu Shin) (Via Tai Po Central Terminus)	Daily

Route No.	Origin	Destination	Remarks
85	Fo Tan (Shan Mei St)	Kowloon City Ferry	Daily
85B	Chun Shek	Kowloon City Ferry	AM Peak
85P	Nai Chung	Hung Hom (Hung Luen Road)	AM Peak
85P	Hung Hom (Hung Luen Road)	Nai Chung	PM Peak
85S	Yiu On	Hung Hom (Hung Luen Road)	AM Peak
85X	Ma On Shan Town Centre	Hung Hom (Hung Luen Road)	Daily
93K	Po Lam	Mong Kok East Station	Daily
101	Kwun Tong (Yue Man Square)	Kennedy Town	Daily
101	Kwun Tong (Yue Man Square)	Des Voeux Rd Central	PM Peak
101	Kwun Tong (Yue Man Square)	Belcher'S Street	AM Peak
101	Mok Cheong Street	Kennedy Town	AM Peak
106	Wong Tai Sin	Siu Sai Wan (Island Resort)	Daily
106A	Wong Tai Sin	Tai Koo (Kornhill Plaza)	AM Peak
106P	Siu Sai Wan (Island Resort)	Wong Tai Sin (Morning Peak)	AM Peak
106P	Siu Sai Wan (Island Resort)	Wong Tai Sin (Via Tai Koo and North Point)	PM Peak
107	Kowloon Bay	Wah Kwai	Daily
107	Kowloon Bay	Wah Kwai (Via Ocean Park)	AM Peak
108	Kai Yip	Braemar Hill	Daily
108	Kowloon City (Shing Tak Street)	Causeway Bay (Pennington Street)	AM Peak
111	Ping Shek / Choi Hung Station	Central (Macau Ferry)	Daily
111	Ma Tau Chung Road	Central (Macau Ferry)	AM Peak
111	Ning Yuen Street, San Po Kong	Central (Macau Ferry)	AM Peak
111P	Choi Fook	Central (Macau Ferry)	AM Peak
115	Kowloon City Ferry	Central (Macau Ferry)	Daily
116	Tsz Wan Shan (Central)	Quarry Bay	Daily
241X	Tsing Yi (Cheung Ching Estate)	Kowloon City Ferry	Daily
275X	Tai Po (Fu Shin)	Hung Hom (Hung Luen Road)	AM Peak
297	Po Lam	Hung Hom (Hung Luen Road)	Daily
297P	Hang Hau (North) (Tseung Kwan O Hospital)	Hung Hom (Hung Luen Road)	AM Peak
608	Kowloon City (Shing Tak Street)	Shau Kei Wan	Daily
608P	Siu Sai Wan (Island Resort)	Kowloon City (Shing Tak Street)	AM Peak
796X	Tseung Kwan O Station	Tsim Sha Tsui East	AM Peak

Route No.	Origin	Destination	Remarks
796X	Tseung Kwan O Industrial Estate	Tsim Sha Tsui East	Daily
A22	Lam Tin Station	Airport (Ground Transportation Centre)	Daily
A22	Lam Tin Station	Airport (Ground Transportation Centre) (Via Cathay City)	AM Peak
A25	Kai Tak	Airport (Via Tsim Sha Tsui and Hzmb Hong Kong Port)	AM Peak
E23	Tsz Wan Shan (South)	Airport (Ground Transportation Centre)	Daily
E23A	Tsz Wan Shan (South)	Airport (Ground Transportation Centre) (Via Tung Chung North)	Daily
N23	Tsz Wan Shan (North)	Tung Chung Station	Daily, Overnight
N121	Central (Macau Ferry)	Ngau Tau Kok	Daily, Overnight
Green Mini-Bus (GMB)			
KLN-2	Whampoa Garden Public Transport Interchange	Festival Walk Public Transport Interchange	Daily
KLN-2A	Whampoa Garden Public Transport Interchange	Festival Walk Public Transport Interchange	Daily
KLN-13	Kowloon Tong (Broadcast Drive)	Hung Hom (Hung Luen Road)	Daily
KLN-26	To Kwa Wan (Chi Kiang Street)	Kowloon Station	Daily
KLN-26W	Laguna Verde	Hung Hom Station	AM Peak, PM Peak
KLN-26X	Laguna Verde	Jordan (Ferry Street)	AM Peak, PM Peak, Circular
KLN-27M	Lok Man Sun Chuen (Maidstaone Road)	Mong Kok Station	Daily
KLN-28MS	Kowloon City (Wyler Gardens)	Ho Man Tin Station	Circular
NT-105	To Kwa Wan	Hong Sing Garden	Daily

2.5.2. As shown in **Table 2-5**, the Project site is well served by the existing public transport services provided in the vicinity.

3. Proposed Development

3.1. Existing Site

3.1.1. The Project site is a Short-Term Tenancy (STT) fee-paying public car park (KX3105), The details of road network in the vicinity of the Project site location can refer to **Section 2.1** and **Figure 2.1**.

3.2. Development Parameters

3.2.1. The proposed development is designed for a two-phase development scenario, with each phase (namely Site A and Site B) featuring on residential tower in each site atop of a four storeys podium and two levels of basement carpark. The ground floor will be reserved for commercial/retail and carpark for loading/unloading bays and some parking spaces, and two basement levels are proposed to be basement carpark for private car parking. It is worth noting that the indicative phasing, development parameters and phasing boundary for Site A and Site B are intended solely for use of relevant technical assessment in support of the Proposed Rezoning, which is for indicative purposes only and subject to change at detailed design stage.

3.2.2. To visualise the proposed planning parameters and support technical assessment. The overall development parameters for Site A and Site B for scenario testing purpose are presented in **Table 3-1** and **Table 3-2** below.

Table 3-1 - Proposed Development Parameters of Site A

Parameters		**Details**
Site Area (m^2)		About 3,417
Proposed Zoning		“R(A)9”
Proposed GFA (m^2)	Domestic	About 27,336
	Non-Domestic (Commercial/Retail)	About 2,045
	Total	About 29,381
Proposed GIC (GFA exemption) (m^2)		About 3,100
No. of Building Block		1
No. of Flats		About 547
Average Flat Size (m^2)		About 50
Maximum Building Height (mPD)		110
Completion Year		2032

Note: Subject to changes at detailed design stage.

Table 3-2 - Proposed Development Parameters of Site B

Parameters		Details
Site Area (m^2)		About 4,193
Proposed Zoning		"R(A)9"
Proposed GFA (m^2)	Domestic	About 33,544
	Non-Domestic (Commercial/Retail)	About 5,565
	Total	About 39,109
Proposed GIC (GFA exemption) (m^2)		0
No. of Building Block		1
No. of Flats		About 671
Average Flat Size (m^2)		About 50
Harbourfront At-Grade Communal Space (m^2)		About 760
Maximum Building Height (mPD)		110
Completion Year		2032

Note: Subject to changes at detailed design stage.

3.3. Internal Transport Facilities Provision

3.3.1. The internal transport facilities provision is determined in accordance with the Hong Kong Planning Standards and Guidelines (HKPSG). In additional, Public Vehicle Park (PVP) is proposed within Site A of the Proposed Development in form of coach/commercial vehicle parking spaces. The provision of Site A and Site B of the Proposed Development are summarized in **Table 3-3** and **Table 3-4**.

Table 3-3 - Required Transport Facilities at Site A According to HKPSG

Type	Parameter	HKPSG Parking Provision Requirement	Required Provision (nos.)	Proposed Provision (nos.)
Residential				
Private Car Parking Space	547 flats	Global Parking Standard (GPS): 1 car space per 4 - 7 flats Demand Adjustment Ratio (R1): 40 sqm < Flat Size ≤ 70sqm = 1.2 Accessibility Adjustment Ratio (R2): Outside 500m-radius of rail station = 1.00 Development Intensity Adjustment Ratio (R3): 5.00 < Plot Ratio ≤ 8.00 = 0.90 Parking Requirement = GPS x R1 x R2 x R3	85 – 148	119
Visitor Car Parking Space	1 block	5 spaces per residential block with more than 75 units	5	5
Motorcycle Parking Space	547 flats	1 space per 100 – 150 flats	4 – 6	4

Type	Parameter	HKPSG Parking Provision Requirement	Required Provision (nos.)	Proposed Provision (nos.)
Goods Vehicle Loading/Unloading Bay	1 block	1 bay per 800 flats or min. 1 bay for each block	1	1
Commercial/Retail				
Private Car Parking	2,045 m^2	1 space per 150 – 300 m^2 GFA	7 – 14	14
Motorcycle Parking Space	7 – 14	5 – 10% of private car parking spaces	1 – 2	2
Goods Vehicle Loading/Unloading Bay	2,045 m^2	1 bay per 800 – 1200 m^2 GFA	2 – 3	3
		35% HGV	1	1
		65% LGV	1 – 2	2
GIC Facility (3,100 m^2 GFA)				
Private Car Parking	-	-	-	5
Light Bus Parking	-	-	-	2
	Total	Private Car Parking	102-172	**143**
		Motorcycle Parking	5 – 8	**6**
		Light Bus Parking	-	**2**
		Goods Vehicle Loading/Unloading Bay (HGV)	2	**2**
		Goods Vehicle Loading/Unloading Bay (LGV)	1 – 2	**2**
Accessible Car Parking Space	107 – 177	2 spaces for 51-150 total car parking spaces 3 spaces for 151-250 total car parking spaces	2 – 3	**2**
Coach/Commercial Vehicle Parking Space (Public Vehicle Park)	-	-	-	**15**

Remarks: (1) No HKPSG recommendations for GIC facilities. The proposed provision is yet to be confirmed. Actual provision may be adjusted to the GIC operator need at detailed design stage.

Table 3-4 - Required Transport Facilities at Site B According to HKPSG

Type	Parameter	HKPSG Parking Provision Requirement	Required Provision (nos.)	Proposed Provision (nos.)
Residential				
Private Car Parking Space	671 flats	Global Parking Standard (GPS): 1 car space per 4 - 7 flats Demand Adjustment Ratio (R1): 40 sqm < Flat Size ≤ 70sqm = 1.2 Accessibility Adjustment Ratio (R2): Outside 500m-radius of rail station = 1.00 Development Intensity Adjustment Ratio (R3): 5.00 < Plot Ratio ≤ 8.00 = 0.90 Parking Requirement = GPS x R1 x R2 x R3	104 – 182	157

Type	Parameter	HKPSG Parking Provision Requirement	Required Provision (nos.)	Proposed Provision (nos.)
Visitor Car Parking Space	1 block	5 spaces per residential block with more than 75 units	5	5
Motorcycle Parking Space	671 flats	1 space per 100 – 150 flats	5 – 7	4
Goods Vehicle Loading/Unloading Bay	1 block	1 bay per 800 flats or min. 1 bay for each block	1	1
Commercial/Retail				
Private Car Parking	5,565 m^2	1 space per 150 – 300 m^2 GFA	19 – 38	38
Motorcycle Parking Space	19 – 38	5 – 10% of private car parking spaces	1 – 4	4
Goods Vehicle Loading/Unloading Bay	5,565 m^2	1 bay per 800 – 1200 m^2 GFA	5 – 7	6
		35% HGV	2	2
		65% LGV	3 – 5	4
	Total	Private Car Parking	128 – 225	**200**
		Motorcycle Parking	6 – 11	**8**
		Goods Vehicle Loading/Unloading Bay (HGV)	3	**3**
		Goods Vehicle Loading/Unloading Bay (LGV)	3 – 5	**4**
Accessible Car Parking Space	128 – 225	3 spaces for 151-250 total car parking spaces	3	**3**

3.3.2. As shown in **Table 3-3**, 143 nos. of private car parking space (including 2 nos. of assessable car parking space), 6 nos. of motorcycle parking space, 2 nos. of light bus parking space, 2 nos. of loading/unloading bay for heavy goods vehicle and 2 nos. of loading/unloading bay for light goods vehicle are proposed for the development to facilitate the operation of Site A of the Proposed Development. As shown in **Table 3-4**, 200 nos. of private car parking space (including 3 nos. of assessable car parking space), 8 nos. of motorcycle parking space, 3 nos. of loading/unloading bay for heavy goods vehicle and 4 nos. of loading/unloading bay for light goods vehicle are proposed for the development to facilitate the operation of Site B of the Proposed Development.

3.3.3. To contribute to the parking demand for coach and commercial vehicles in the area, Site A of the Proposed Development includes a PVP with 15 nos. of coach/commercial vehicle parking spaces which is designated for shared use with commercial vehicles. This flexible arrangement allows for adaptable use of parking spaces to accommodate the needs of future users. However, due to the limited floor space and the required dimension for coach manoeuvring and parking available within the development, prioritizing these coach/commercial vehicle parking spaces will lead to a reduction in the number of parking spaces.

3.3.4. Preliminary notional layout of the internal transport facilities and the corresponding swept path analysis are illustrated in **Appendix B**.

3.4. Vehicular Access Arrangement

3.4.1. The vehicular access of both Site A and Site B of the Project site are proposed to be located at Chi Kiang Street. A car ramp would be provided for vehicles to access the basement carpark for private cars of both sites. Location of the Project Site vehicular accesses are indicated in **Figure 3.1**.

3.5. Pedestrian Access Arrangement

3.5.1. There would be numerous pedestrian access points for the Project Site. They would be located at the surrounding footpaths along Chi Kiang Street and Bailey Street. A 2.5m wide 24-hour access points connecting the Project Site and Hoi Sham Park extension would also be provided at the southern side of the Project Site.

4. Traffic Forecast

4.1. Methodology

4.1.1. The completion year of the Proposed Development is tentatively set to be year 2032. Therefore, year 2035 (i.e., three years after completion year) would be adopted as the design years for assessment purpose.

4.1.2. According to the traffic survey results, vehicular traffic volume during weekday was observed to be more than weekend, while pedestrian traffic volume during weekend was found to be more than weekday. Therefore, weekday traffic flow would be selected as the baseline for the vehicular traffic forecast, while weekend pedestrian traffic flow would be selected as the baseline for the pedestrian traffic forecast. The background traffic forecasts for the design year were derived according to the traffic survey results and projected by applying an appropriate growth rate. Adjustment have been made to the forecasted base traffic flow with reference to the 2019 Based District Traffic Models (BDTM) K2 published by Transport Department (TD) to reflect the change in traffic pattern in the future.

4.1.3. The growth factor will be derived by making reference to the following information:

i. The Annual Traffic Census published by Transport Department (TD);
ii. Base District Traffic Model (BDTM) published by TD;
iii. The 2019-based Territorial Population and Employment Data (TPEDM) published by Planning Department; and
iv. Hong Kong Population Projection for 2022-2046 published by Census and Statistic Department.

4.1.4. Trip generations by other planned developments in the vicinity were estimated and assigned onto the surrounding road network to produce the reference traffic forecasts at design year.

4.1.5. Trip generations of the Proposed Development was estimated by using appropriate trip generation rates. Traffic generations were then assigned to the surrounding road network and superimposed onto the reference traffic forecasts to create the design year forecasts for assessment at design year.

4.2. Growth Rate Determination

4.2.1. The traffic growth rates were determined with reference to the ATC reports, BDTM published by TD, and the latest 2019-based TPEDM of Kowloon City area on the website of Planning Department. On the other hand, pedestrian annual growth rate was estimated with reference to Hong Kong Population Projection for 2022-2046 published by Census and Statistic Department.

Annual Traffic Census (ATC)

4.2.2. The historical traffic growth trend of the major roads in the vicinity of the subject site was reviewed with reference to the ATC reports. The Annual Average Daily Traffic (AADT) data from year 2015 to year 2023 were extracted and the estimated average annual growth rate is shown in **Table 4-1**.

Table 4-1 - Traffic Growth Rate Derived from ATC

Station No.	Road Name	AADT									Growth Rate (p.a.)
		2015	2016	2017	2018	2019	2020	2021	2022	2023	
3014	Ma Tau Wai Rd & To Kwa Wan Rd	23,980	24,170	23,660	23,940	23,670	22,500	23,130	21,890	23,700	
3103	Ko Shan Rd	8,250	8,140	8,030	7,670	7,410	6,980	6,650	5,760	3,770	
3245	To Kwa Wan Rd	21,230	21,350	21,250	22,400	17,620	16,980	17,450	16,620	20,210	
3290	Hung Hom Rd	13,680	13,750	13,690	14,200	15,200	14,650	15,050	14,340	14,700	
3654	Chi Kiang St	8,880	9,250	9,210	9,170	8,980	7,940	8,460	8,060	8,530	
3689	Kwei Chow St	5,940	5,730	5,700	5,680	5,560	4,940	5,750	5,480	5,800	
3698	Man Yue St	4,070	5,100	5,080	5,060	4,950	4,420	5,610	5,350	5,660	**-0.93%**
3887	Bailey St	13,790	13,690	14,790	14,720	14,420	13,900	11,510	12,400	13,120	
4040	Ma Tau Wai Rd	16,700	16,790	16,660	15,170	14,860	14,320	14,710	17,570	16,570	
4077	San Lau St	6,410	6,440	6,930	7,010	6,860	6,610	6,800	6,790	7,120	
4085	Hung Hom Rd	20,730	20,840	21,240	18,220	17,840	17,190	17,670	16,790	16,050	
4212	Chatham Rd N & Ma Tau Wai Rd	35,130	32,660	32,560	32,260	30,920	29,520	29,920	25,140	27,520	
	Total	**178,790**	**177,910**	**178,800**	**175,500**	**168,290**	**159,950**	**162,710**	**156,190**	**162,750**	

4.2.3. As shown in **Table 4-1**, the weighted average annual growth rate determined from ATC data is about – 0.93% per annum (p.a.) from year 2015 to year 2023.

Based District Traffic Models (BDTM)

4.2.4. The growth rate was determined with reference to the 2019-based BDTM. The AM and PM peak hours traffic flows of the key road links in To Kwa Wan area from year 2019 to year 2031 and the estimated traffic growth rate is shown in **Table 4-2**.

Table 4-2 - Traffic Growth Rate Derived from BDTM

Road Name	Direction	Traffic Demand (pcu/hr)						Growth Rate (p.a.)
		AM			PM			
		2019	2026	2031	2019	2026	2031	
To Kwa Wan Rd	NB	432	432	430	384	401	399	
	SB	1,229	1,268	1,292	1,021	971	975	
Lok Shan Rd	WB	379	401	415	425	433	484	
Chi Kong St	EB	731	661	746	740	642	732	
San Lau St	WB	369	334	329	373	357	366	
Gillies Avenue North	NB	40	46	41	85	88	85	
	SB	671	700	702	469	512	529	
Bailey St	EB	14	20	18	16	15	14	**+0.36%**
	WB	423	374	350	286	371	390	
Yuk Yat St	NB	206	284	328	233	257	299	
	SB	58	58	53	83	47	39	
Sung On St	NB	93	136	105	68	108	70	
	SB	51	48	30	54	47	43	
Hung Hom Rd	NB	537	535	509	279	281	266	
	SB	176	185	181	198	48	47	
	Total	**4,696**	**4,762**	**4,839**	**4,714**	**4,249**	**4,738**	

4.2.5. As shown in **Table 4-2**, the estimated annual growth rate determined from 2019-based BDTM data is about + 0.36% per annum (p.a.) from year 2019 to year 2031.

Territory Population and Employment Data Matrices (TPEDM)

4.2.6. Reference was made to the latest 2019-based TPEDM from year 2019 to year 2031 in Kowloon City area published on the Planning Department's website to derive the annual growth rate for design years. The population and employment planning data from year 2019 to 2031 and the estimated annual growth rates are illustrated in **Table 4-3**.

Table 4-3 - Annual Growth Rate Derived from TPEDM

District	Population			Employment			Growth Rate (p.a.)
	2019	2026	2031	2019	2026	2031	
Kowloon City	429,300	451,100	420,050	212,000	237,900	227,850	**-0.10%**

4.2.7. As shown in **Table 4-3**, the annual growth rate determined from TPEDM population and employment planning data was estimated as - 0.10% p.a. from year 2019 to year 2031.

Hong Kong Population Projection

4.2.8. The projected Hong Kong resident population data of the Hong Kong Population Projection 2022-2046 report was also referenced to derivate the annual growth. The projected Hong Kong population data from year 2024 to 2035 and the estimated annual growth rates for the design year is illustrated in **Table 4-4**.

Table 4-4 - Annual Growth Rate Derived from Hong Kong Population Projection

Year	Hong Kong Resident Population	Forecasting Years	Growth Rate (p.a.)
2024	7,526,800	2024 – 2035	**+0.54%**
2035	7,987,900		

4.2.9. As shown in **Table 4-4**, the annual growth rate determined from the projected Hong Kong resident population data was estimated as + 0.54% p.a. from year 2024 to year 2035.

Adopted Growth Rate

4.2.10. Based on the above, the highest traffic growth rate derived from the above sets of data (i.e., ATC, BDTM, TPEDM, Hong Kong Population Projection) is + 0.54% per annum (p.a). However, in order to maintain consistency with adjacent developments, a conservative approach would be adopted, and a growth rate of +0.6% would be used for assessment and projection purposes.

4.2.11. Besides, the annual growth rates of + 0.54% derived from Hong Kong Population Projection 2022-2046 report are adopted for the pedestrian forecast from base year 2024 to 2035 for assessment to produce the design years background pedestrian flows.

4.3. Other Planned Development Trip Generation

4.3.1. According to the available information, it is noted that there are numerous nos. of planned developments which are approved in planning application, with approved building plan or currently under construction in the vicinity of the Project site. These planned developments are expected to be completed before the design year 2035 in the study and have been considered in the reference traffic flows forecasting. The relevant development parameters are summarised in **Table 4-5**.

Table 4-5 - Design Parameters for Planned Development

Developments	Development Component	Parameters
URA Projects		
Kai Ming Street (DL-8:KC)	Residential (flats)	72
	Retail (GFA)	308
	GIC (GFA)	450
Ming Lun Street / Ma Tau Kok Road (KC-018)	Residential (flats)	1,276
	Retail (GFA)	10,496
	GIC (GFA)	1,000

Developments	Development Component	Parameters
To Kwa Wan Road / Ma Tau Kok Road (KC-019)	Residential (flats)	950
	Retail (GFA)	7,816
	GIC (GFA)	500
Chun Tin Street / Sung Chi Street (KC-008A)	Residential (flats)	260
	Retail (GFA)	1,447
Bailey Street / Wing Kwong Street (KC-009)	Residential (flats)	1,150
	Retail (GFA)	11,105
Hung Fook Street / Ngan Hon Street (KC-010)	Residential (flats)	750
	Retail (GFA)	6,843
Hung Fook Street / Kai Ming Street (KC-011)	Residential (flats)	400
	Retail (GFA)	3,660
Kai Ming Street / Wing Kwong Street (KC-012 and KC-013)	Residential (flats)	414
	Retail (GFA)	3,721
Wing Kwong Street / Sung On Street (KC-014)	Residential (flats)	560
	Retail (GFA)	4,286
To Kwa Wan Road / Wing Kwong Street (KC-016)	Residential (flats)	900
	Retail (GFA)	8,322
	GIC (GFA)	5,500
Shing Tak Street / Ma Tau Chung Road (CBS-1:KC)	Residential (flats)	640
	Retail (GFA)	6,449
Kau Pui Lung Road / Chi Kiang Street (CBS-2:KC)	Residential (flats)	2,500
	Retail (GFA)	12,232
	GIC (GFA)	2,500
Public Development Projects		
Dedicated Rehousing Estate at Ma Tau Kok	Residential (flats)	1,100
	Retail (GFA)	8,500
60 Ko Shan Road	Residential (flats)	495
Junction of Sung Wong Toi Road / To Kwa Wan Road	Residential (flats)	756
	Retail (GFA)	1,000
	GIC (GFA)	5,200
Private Development Projects		
5&7 Mok Cheong Street and 72-78 Sung Wong Toi Road (A/K10/259)	Residential (flats)	825
	Retail (GFA)	9,262

Developments	Development Component	Parameters
3-5 San Ma Tau Street	Retail (GFA)	5,972
	Office (GFA)	18,479
New Kowloon Inland Lot No 6607, Shing Kai Road	Retail (GFA)	1,550
	Hotel (rooms)	440
	Office (GFA)	14,450
9-17 Mok Cheong Street (A/K10/265)	Residential (flats)	746
	Retail (GFA)	7,599
21 Yuk Yat Street (A/K10/269)	Residential (flats)	110
	Retail (GFA)	810
17 Yuk Yat Street (A/K10/266)	Residential (flats)	208
	Retail (GFA)	700
21-31 Sheung Heung Road (A/K10/267)	Residential (flats)	191
	Retail (GFA)	1,268
13 Hok Yuen Street (A/K9/274)	Retail (GFA)	5,979
	Office (GFA)	18,479
60-66 Ma Tau Chung Road	Residential (flats)	940
	Retail (GFA)	270
41-45 Pau Chung Street	Residential (flats)	74
	Retail (GFA)	497

4.3.2. Development trips generated by the above planned developments were estimated with reference to the TPDM published by TD and the trip rate adopted in the BDTM. Mean value of the trip rate provided in TPDM have been adopted in the study to in line with the forecasting methodology of BDTM. The adopted trip rates and traffic generation of the planned/ committed developments are summarized in **Table 4-6**.

Table 4-6 - Traffic Generation by Planned Developments

Developments	Parameters	Adopted Trip Rates (pcu/hr/flats or pcu/hr/100m^2) [1]				Trip Generation (pcu/hr)			
		AM		PM		AM		PM	
		GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]
URA Projects									
Kai Ming Street (DL-8:KC)	72 flats	0.0718	0.0425	0.0286	0.0370	6	4	3	3
	308 m^2 Retail	0.2296	0.2434	0.3100	0.3563	1	1	1	2
	450 m^2 GIC	0.2350	0.2350	0.1150	0.1150	2	2	1	1

Developments	Parameters	Adopted Trip Rates (pcu/hr/flats or pcu/hr/100m^2) [1]				Trip Generation (pcu/hr)			
		AM		PM		AM		PM	
		GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]
Ming Lun Street / Ma Tau Kok Road (KC-018)	1,276 flats	0.0718	0.0425	0.0286	0.0370	92	55	37	48
	10,496 m^2 Retail	0.2296	0.2434	0.3100	0.3563	25	26	33	38
	1,000 m^2 GIC	0.2350	0.2350	0.1150	0.1150	3	3	2	2
To Kwa Wan Road / Ma Tau Kok Road (KC-019)	950 flats	0.0718	0.0425	0.0286	0.0370	69	41	28	36
	7,816 m^2 Retail	0.2296	0.2434	0.3100	0.3563	18	20	25	28
	500 m^2 GIC	0.2350	0.2350	0.1150	0.1150	2	2	1	1
Chun Tin Street / Sung Chi Street (KC-008A)	260 flats	0.0718	0.0425	0.0286	0.0370	19	12	8	10
	1,447 m^2 Retail	0.2296	0.2434	0.3100	0.3563	4	4	5	6
Bailey Street / Wing Kwong Street (KC-009)	1,150 flats	0.0718	0.0425	0.0286	0.0370	83	49	33	43
	11,105 m^2 Retail	0.2296	0.2434	0.3100	0.3563	26	28	35	40
Hung Fook Street / Ngan Hon Street (KC-010)	750 flats	0.0718	0.0425	0.0286	0.0370	54	32	22	28
	6,843 m^2 Retail	0.2296	0.2434	0.3100	0.3563	16	17	22	25
Hung Fook Street / Kai Ming Street (KC-011)	400 flats	0.0718	0.0425	0.0286	0.0370	29	17	12	15
	3,660 m^2 Retail	0.2296	0.2434	0.3100	0.3563	9	9	12	14
Kai Ming Street / Wing Kwong Street (KC-012 and KC-013)	414 flats	0.0718	0.0425	0.0286	0.0370	30	18	12	16
	3,721 m^2 Retail	0.2296	0.2434	0.3100	0.3563	9	10	12	14
Wing Kwong Street / Sung On Street (KC-014)	560 flats	0.0718	0.0425	0.0286	0.0370	41	24	17	21
	4,286 m^2 Retail	0.2296	0.2434	0.3100	0.3563	10	11	14	16
To Kwa Wan Road / Wing Kwong Street (KC-016)	900 flats	0.0718	0.0425	0.0286	0.0370	13	8	6	7
	8,322 m^2 Retail	0.2296	0.2434	0.3100	0.3563	20	21	26	30
	5,500 m^2 GIC	0.2350	0.2350	0.1150	0.1150	13	13	7	7

Developments	Parameters	Adopted Trip Rates (pcu/hr/flats or pcu/hr/100m^2) [1]				Trip Generation (pcu/hr)			
		AM		PM		AM		PM	
		GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]
Shing Tak Street / Ma Tau Chung Road (CBS-1:KC)	640 flats	0.0718	0.0425	0.0286	0.0370	46	28	19	24
	6,449 m^2 Retail	0.2296	0.2434	0.3100	0.3563	15	16	20	23
Kau Pui Lung Road / Chi Kiang Street (CBS-2:KC)	1,540 flats	0.0718	0.0425	0.0286	0.0370	111	66	45	57
	960 flats	0.0622	0.0426	0.0297	0.0401	60	41	29	39
	12,232 m^2 Retail	0.2296	0.2434	0.3100	0.3563	29	30	38	44
	2,500 m^2 GIC	0.2350	0.2350	0.1150	0.1150	6	6	3	3
Public Development Projects									
Dedicated Rehousing Estate at Ma Tau Kok	1,100 flats	0.0622	0.0426	0.0297	0.0401	69	47	33	45
	8,500 m^2 Retail	0.2296	0.2434	0.3100	0.3563	20	21	27	31
60 Ko Shan Road	495 flats	0.0622	0.0426	0.0297	0.0401	31	22	15	20
Junction of Sung Wong Toi Road / To Kwa Wan Road	756 flats	0.0432	0.0326	0.0237	0.0301	33	25	18	23
	1,000 m^2 Retail	0.2296	0.2434	0.3100	0.3563	3	3	4	4
	5,200 m^2 GIC	0.2350	0.2350	0.1150	0.1150	13	13	6	6
Private Development Projects									
5&7 Mok Cheong Street and 72-78 Sung Wong Toi Road (A/K10/259)	48 flats	0.3252	0.2609	0.2835	0.4074	16	13	14	20
	777 flats	0.0718	0.0425	0.0286	0.0370	56	34	23	29
	9,262 m^2 Retail	0.2296	0.2434	0.3100	0.3563	22	23	29	34
3-5 San Ma Tau Street	5,972 m^2 Retail	0.2296	0.2434	0.3100	0.3563	14	15	19	22
	18,479 m^2 Office	0.1703	0.2452	0.1573	0.1175	32	46	30	22

Developments	Parameters	Adopted Trip Rates (pcu/hr/flats or pcu/hr/100m^2) [1]				Trip Generation (pcu/hr)			
		AM		PM		AM		PM	
		GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]
New Kowloon Inland Lot No 6607, Shing Kai Road	1,550 m^2 Retail	0.2296	0.2434	0.3100	0.3563	4	4	5	6
	440 hotel rooms	0.1329	0.1457	0.1290	0.1546	59	65	57	69
	14,450 m^2 Office	0.1703	0.2452	0.1573	0.1175	25	36	23	17
9-17 Mok Cheong Street (A/K10/265)	746 flats	0.1058	0.0605	0.0426	0.059	79	46	32	45
	7,599 m^2 Retail	0.2296	0.2434	0.3100	0.3563	18	19	24	28
21 Yuk Yat Street (A/K10/269)	110 flats	0.0718	0.0425	0.0286	0.0370	8	5	4	5
	810 m^2 Retail	0.2296	0.2434	0.3100	0.3563	2	2	3	3
17 Yuk Yat Street (A/K10/266)	208 flats	0.0718	0.0425	0.0286	0.0370	15	9	6	8
	700 m^2 Retail	0.2296	0.2434	0.3100	0.3563	2	2	3	3
21-31 Sheung Heung Road (A/K10/267)	191 flats	0.0718	0.0425	0.0286	0.0370	14	9	6	8
	1,268 m^2 Retail	0.2296	0.2434	0.3100	0.3563	3	4	4	5
13 Hok Yuen Street (A/K9/274)	5,979 m^2 Retail	0.2296	0.2434	0.3100	0.3563	14	15	19	22
	18,479 m^2 Office	0.1703	0.2452	0.1573	0.1175	32	46	30	22
60-66 Ma Tau Chung Road	940 flats	0.0718	0.0425	0.0286	0.0370	68	40	27	35
	270 m^2 Retail	0.2296	0.2434	0.3100	0.3563	1	1	1	1
41-45 Pau Chung Street	74 flats	0.0718	0.0425	0.0286	0.0370	6	4	3	3
	497 m^2 Retail	0.2296	0.2434	0.3100	0.3563	2	2	2	2
					Total	**1,522**	**1,185**	**995**	**1,179**

Remarks: (1) Refer to TPDM Vol. 1, Ch. 3, Appendix, Table 1 and Table 2, BDTM Urban Final Report, Appendix Q or DR 439.
(2) "GEN" means "Generation" and "ATT" means Attraction.
Note: Trip Generation is rounded to the nearest digit.

4.3.3. As shown in **Table 4-6**, the planned developments will generate overall 2-way trips of 2,707 pcu/hr and 2,174 pcu/hr during the morning and evening peak hour respectively.

4.4. Reference Traffic Forecast

4.4.1. The traffic demand to be generated/attracted by the planned/committed developments will be assigned on the surrounding road network and superimposed onto the year 2035 background traffic flow to produce the reference traffic flow. The year 2035 reference traffic flow is shown in **Figure 4.1**.

4.4.2. Additional pedestrian demand in the vicinity would also be considered for the pedestrian forecast. Assessment for the key pedestrian walkway will be conducted for the design year 2035. The year 2035 reference pedestrian traffic flow is shown in **Figure 4.2**.

4.5. Development Traffic Generation

4.5.1. Trip generation of the Proposed Development is estimated using the appropriate trip rates given in TPDM and from the consultant's in-house survey data. The estimation of traffic trips to be generated by the Proposed Development is summarized in **Table 4-7**.

Table 4-7 - Traffic Generation by the Proposed Development

Component	Parameters	Adopted Trip Rates (pcu/hr/flats or pcu/hr/100m^2) (1)				Trip Generation (pcu/hr)			
		AM		PM		AM		PM	
		GEN (2)	ATT (2)	GEN (2)	ATT (2)	GEN (2)	ATT (2)	GEN (2)	ATT (2)
Site A									
Residential	547 flats	0.0718	0.0425	0.0286	0.0370	40	24	16	21
Retail	2,045 m^2	0.2296	0.2434	0.3100	0.3563	5	5	7	8
GIC	3,100 m^2	0.2350	0.2350	0.1150	0.1150	8	8	4	4
					Total	**53**	**37**	**27**	**33**
Site B									
Residential	671 flats	0.0718	0.0425	0.0286	0.0370	49	29	20	25
Retail	5,565 m^2	0.2296	0.2434	0.3100	0.3563	13	14	18	20
					Total	**62**	**43**	**38**	**45**

Remarks: (1) Refer to TPDM Vol. 1, Ch. 3, Appendix, Table 1 and Table 2, BDTM Urban Final Report, Appendix Q or DR 439.
(2) "GEN" means "Generation" and "ATT" means Attraction.
Note: Trip Generation is rounded to the nearest digit.
The traffic generation of the PVP is absorbed by the existing STT site traffic flow.

4.5.2. As shown in **Table 4-7**, the Proposed Development will produce 2-way trips of 195 pcu/hr and 143 pcu/hr during the morning and evening peak hours respectively.

4.5.3. The forecast of pedestrian trip generation for the Proposed Development was derived with reference to the development parameters and pedestrian trip generation rates derived from the consultant's in-house survey. The estimated pedestrian trips of the Proposed Development during the peak hour periods are tabulated in **Table 4-8**.

Table 4-8 - Pedestrian Trip Generation by the Proposed Development

Component	Parameters	Adopted Pedestrian Trip Rates (ped/15-min/flat or ped/15-min/100m² GFA) (1)				Trip Generation (ped/15-min)			
		AM		PM		AM		PM	
		GEN (2)	ATT (2)	GEN (2)	ATT (2)	GEN (2)	ATT (2)	GEN (2)	ATT (2)
Site A									
Residential	547 flats	0.1841	0.0293	0.0858	0.1318	101	17	47	73
Commercial/Retail	2,045 m²	0.3260	0.3531	0.7710	0.7104	7	8	16	15
GIC	3,100 m²	0.5000	0.5000	0.5000	0.5000	16	16	16	16
Site B									
Residential	671 flats	0.1841	0.0293	0.0858	0.1318	124	20	58	89
Commercial/Retail	5,565 m²	0.3260	0.3531	0.7710	0.7104	19	20	43	40
					Total	**267**	**81**	**180**	**233**

Remarks: (1) Derived from the consultant's in-house survey data.
(2) "GEN" means "Generation" and "ATT" means Attraction.
Note: Trip Generation is rounded to the nearest digit.

4.5.4. As shown in **Table 4-8**, the peak demand of 2-way pedestrian trips would be 348 ped/15-minute and 413 ped/15-minute during the morning and evening peak respectively.

4.5.5. The estimated pedestrian trip to be generated by the Proposed Development will be assigned onto the surrounding pedestrian walkway network based on the trip distribution to/from the major transport node with reference to the modal split of the 2021 population by-census results of Kowloon City district as shown in **Table 4-9**.

Table 4-9 - Population Modal Split Adopted for the Proposed Development

District Council District	Type of Population	Population Census Modal Split (1)					
		MTR	Bus	PLB	Walk	Others	Total
Kowloon City	Worker	36.4%	28.1%	6.9%	12.5%	16.1%	**100%**
	Student	19.9%	19.5%	6.2%	31.5%	22.8%	**100%**

Remarks: (1) Data extracted from 2021 population census results.

4.6. Design Traffic Flows

4.6.1. The estimated generated vehicular flows of the Proposed Development were assigned onto the surrounding road network according to the vehicle access route of the Project site and superimposed onto the year 2035 reference traffic flows to produce the design traffic flows (with the Proposed Development). The year 2035 design traffic flow is shown in **Figure 4.3**.

4.6.2. The estimated development pedestrian trips for each transport mode were then distributed onto the pedestrian network and superimposed onto year 2035 reference pedestrian flow to produce year 2035 design pedestrian flow (with the Proposed Development). The year 2035 design pedestrian forecast is shown in **Figure 4.4**.

5. Traffic Impact Assessment

5.1. Methodology

5.1.1. Junction capacity analysis and queue length analysis of critical junctions were conducted for the design year 2035 (three years after completion) for the junctions which are likely to be affected by the Proposed Development.

5.1.2. The analyses were based on the traffic forecasts at design year 2035 for Reference Scenario (without Proposed Development) and Design Scenario (with Proposed Development).

5.1.3. Mitigation measure with junction improvement scheme will be proposed to mitigate the traffic impact induced by the development if the junction performance below the desirable 15% under Design Scenario.

5.2. Junction Analysis

5.2.1. The results of the capacity analysis for design year 2035 Reference and Design Scenarios are summarized in **Table 5-1**. The calculation sheets are attached in **Appendix A**.

Table 5-1 - Junction Performance for Year 2035 Reference and Design Scenarios

Index (1)	Location	Junction Type	Reserve Capacity (2)			
			Reference		Design	
			AM	PM	AM	PM
J1	To Kwa Wan Road / Lok Shan Road	Signalized	>100%	>100%	>100%	>100%
J2	To Kwa Wan Road / Chi Kiang Street	Signalized	65%	62%	65%	58%
J3	Sung On Street / Yuk Yat Street / Chi Kiang Street	Signalized	31%	38%	19%	31%
J4	Ma Tau Wai Road / Bailey Street	Signalized	88%	92%	88%	87%
J5	Bailey Street / Sung On Street	Signalized	>100%	>100%	>100%	>100%
J6	Hung Hom Road / Bailey Street	Signalized	100%	>100%	75%	89%
J7	Hung Hom Road / Hok Yuen Street East	Signalized	75%	61%	68%	57%
J8	Hung Hom Road / Tai Wan Road East	Signalized	15%	21%	**11%**	19%

*Remarks: (1) Refer to **Figure 2.2**.*
(2) Reserve Capacity (RC) are presented in percentage for signal-controlled junctions.

5.2.2. As shown in **Table 5-1**, all of the assessed key junctions would operate satisfactorily (RC ≥ 15%) in both year 2035 Reference and Design Scenarios, except J8 – Hung Hom Road / Tai Wan Road East in the Design Scenario.

5.3. Queue Length Analysis

5.3.1. The results of the queue length analysis of critical junctions for design year 2035 Reference and Design Scenarios are summarized in **Table 5-2**. The calculation sheets are attached in **Appendix C**.

Table 5-2 - Average Queue Length for Year 2035 Reference and Design Scenarios

Index [(1)]	Location	Junction Arm	Average Queue Length (m)			
			Reference		Design	
			AM	PM	AM	PM
J3	Sung On Street / Yuk Yat Street / Chi Kiang Street	Sung On Street NB	24	20	24	21
		Chi Kiang Street EB	31	31	32	33
		Yuk Yat Street SB	32	27	33	28
		Chi Kiang Street WB	21	17	33	18
J8	Hung Hom Road / Tai Wan Road East	Hung Hom Road NB	33	32	35	33
		Fat Kwong Street Flyover EB	46	43	48	44
		Hung Hom Road SB	46	47	48	47
		Tai Wan Road East WB	34	31	35	31

*Remarks: (1) Refer to **Figure 2.2**.*

5.4. Traffic Mitigation Measure

5.4.1. As the junction performance of J8 – Hung Hom Road / Tai Wan Road East is below 15%. A potential junction improvement scheme for the junction is developed to restore its reserve capacity. The basic principle of the junction improvement scheme is providing additional lane at Hung Hom Road southbound with using existing remaining road space. The schematic design of the potential junction improvement scheme is illustrated in **Figure 5.1**.

5.4.2. With the potential junction improvement scheme, the capacity analysis, queue length analysis and refuge island assessment for year 2035 Design Scenario are summarised in **Table 5-3** to **Table 5-5** respectively. The calculation sheets are attached in **Appendix A, Appendix C** and **Appendix D**.

Table 5-3 – Junction Performance for Year 2035 Design Scenario

Index [(1)]	Location	Junction Type	Year 2035 Design Scenario Reserve Capacity [(2)]			
			Without Potential Junction Improvement Scheme		With Potential Junction Improvement Scheme	
			AM	PM	AM	PM
J8	Hung Hom Road / Tai Wan Road East	Signalized	**11%**	19%	17%	26%

*Remarks: (1) Refer to **Figure 2.2**.*
(2) Reserve Capacity (RC) are presented in percentage for signal-controlled junctions.

Table 5-4 – Average Queue Length for Year 2035 Design Scenario

Index [1]	Location	Junction Arm	Year 2035 Design Scenario Average Queue Length (m)			
			Without Potential Junction Improvement Scheme		With Potential Junction Improvement Scheme	
			AM	PM	AM	PM
J8	Hung Hom Road / Tai Wan Road East	Hung Hom Road NB	35	33	35	32
		Fat Kwong Street Flyover EB	48	44	47	43
		Hung Hom Road SB	48	47	30	30
		Tai Wan Road East WB	35	31	34	31

*Remarks: (1) Refer to **Figure 2.2**.*

Table 5-5 - Refuge Island Occupancy Assessment for Year 2035 Design Scenario

Index [1]	Location	Refuge Island Location	Average Pedestrian Area Occupancy [2]	
			AM	PM
J8	Hung Hom Road / Tai Wan Road East	Hung Mom Road Northern Arm	1.1	1.2

*Remarks: (1) Refer to **Figure 2.2**.*
(2) A minimum average pedestrian area occupancy of 0.2 sq.m./person should be provided wherever possible.

5.4.3. According to the capacity analysis, queue length analysis and refuge island assessment for the potential junction improvement scheme, it shows that it can restore the reserve capacity. However, the necessity of the potential junction improvement scheme should be review by the developer of the Project Site with the final development parameters and the latest traffic conditions. If junction improvement scheme is necessary after the traffic review, the improvement works should be complete before the population intake of the Project Site.

5.5. Pedestrian Walkway Assessment

5.5.1. Performance of the key footpaths likely to be affected by the Proposed Development are assessed with the pedestrian forecast results.

5.5.2. The performance of the key pedestrian links in the design year 2035 Reference Scenario (without Proposed Development) and Design Scenario (with Proposed Development) are summarized in **Table 5-6** and **Table 5-7** below in terms of LOS.

Table 5-6 - Pedestrian Walkway Performance for Year 2035 Reference Scenario

Index [1]	Footpath Width (m)	Effective Width (m) [2]	Estimated Pedestrian Demand (ped/15-min)		Flow Rate (ppm/m)		Level-of-Service (LOS)	
			AM	PM	AM	PM	AM	PM
PW1	3.5	1.5	420	370	18.7	16.4	B	B
PW2	3.6	2.1	430	470	13.7	14.9	A	A
PW3	3.5	2.5	330	200	8.8	5.3	A	A
PW4	4	2.5	210	210	5.6	5.6	A	A
PW5	3.5	2.5	130	150	3.5	4.0	A	A
PW6	2.4	1.4	110	140	5.2	6.7	A	A
PW7	3.1	2.1	120	140	3.8	4.4	A	A
PW8	3.0	2.0	350	510	11.7	17.0	A	B
PW9	3.1	1.6	280	330	11.7	13.8	A	A
PW10	3.1	1.1	200	230	12.1	13.9	A	A
PW11	2.9	0.9	210	240	15.6	17.8	A	B
PW12	3.0	1.5	160	200	7.1	8.9	A	A
PW13	3.0	1.5	260	200	11.6	8.9	A	A

*Remarks: (1) Refer to **Figure 2.5**.*
(2) Effective Width = Footpath Width – Dead Width (0.5m for dead areas, 1m for shopping frontages, planter boxes or tree pits).

Table 5-7 - Pedestrian Walkway Performance for Year 2035 Design Scenario

Index [1]	Footpath Width (m)	Effective Width (m) [2]	Estimated Pedestrian Demand (ped/15-min)		Flow Rate (ppm/m)		Level-of-Service (LOS)	
			AM	PM	AM	PM	AM	PM
PW1	3.5	1.5	510	480	22.7	21.3	B	B
PW2	3.6	2.1	530	580	16.8	18.4	B	B
PW3	3.5	2.5	450	350	12.0	9.3	A	A
PW4	4	2.5	310	340	8.3	9.1	A	A
PW5	3.5	2.5	300	350	8.0	9.3	A	A
PW6	2.4	1.4	170	210	8.1	10.0	A	A
PW7	3.1	2.1	310	360	9.8	11.4	A	A
PW8	3.0	2.0	470	660	15.7	22.0	A	B
PW9	3.1	1.6	400	480	16.7	20.0	B	B
PW10	3.1	1.1	260	310	15.8	18.8	A	B

Index [1]	Footpath Width (m)	Effective Width (m) [2]	Estimated Pedestrian Demand (ped/15-min)		Flow Rate (ppm/m)		Level-of-Service (LOS)	
			AM	PM	AM	PM	AM	PM
PW11	2.9	0.9	380	440	28.1	32.6	C	C
PW12	3.0	1.5	240	290	10.7	12.9	A	A
PW13	3.0	1.5	380	350	16.9	15.6	B	A

*Remarks: (1) Refer to **Figure 2.5**.*
(2) Effective Width = Footpath Width – Dead Width (0.5m for dead areas, 1m for shopping frontages, planter boxes or tree pits).

5.5.3. As shown in **Table 5-6** and **Table 5-7**, all of the key sections of footpath are still operating desirably during the morning and afternoon peak periods with the additional pedestrian trips generated by the Proposed Development.

6. Construction Traffic Impact Assessment

6.1. Methodology

6.1.1. Junction capacity analysis of critical junctions was conducted for the completion year 2032 for the junctions which are likely to be affected by the construction activities for the Proposed Development.

6.1.2. It is assumed that the trip generation of the construction traffic for the Proposed Development would be 2-way trips of 50 pcu/hr during the morning and evening peak hours.

6.1.3. The traffic forecast to year 2032 follows the methodology as presented in **Chapter 4** and the year 2032 reference and construction traffic flow are shown in **Figure 6.1** and **Figure 6.2**.

6.1.4. The analyses were based on the traffic forecasts at design year 2032 for Reference Scenario (without construction activities) and Construction Scenario (with construction activities).

6.2. Junction Analysis

6.2.1. The results of the capacity analysis for design year 2032 Reference and Construction Scenarios are summarized in **Table 6-1**. The calculation sheets are attached in **Appendix A**.

Table 6-1 - Junction Performance for Year 2032 Reference and Construction Scenarios

Index (1)	Location	Junction Type	Reserve Capacity (2)			
			Reference		Construction	
			AM	PM	AM	PM
J1	To Kwa Wan Road / Lok Shan Road	Signalized	>100%	>100%	>100%	>100%
J2	To Kwa Wan Road / Chi Kiang Street	Signalized	68%	64%	58%	54%
J3	Sung On Street / Yuk Yat Street / Chi Kiang Street	Signalized	33%	40%	22%	29%
J4	Ma Tau Wai Road / Bailey Street	Signalized	91%	95%	88%	92%
J5	Bailey Street / Sung On Street	Signalized	>100%	>100%	>100%	>100%
J6	Hung Hom Road / Bailey Street	Signalized	>100%	>100%	99%	>100%
J7	Hung Hom Road / Hok Yuen Street East	Signalized	79%	65%	79%	65%
J8	Hung Hom Road / Tai Wan Road East	Signalized	17%	23%	17%	23%

*Remarks: (1) Refer to **Figure 2.2**.*
(2) Reserve Capacity (RC) are presented in percentage for signal-controlled junctions.

6.2.2. As shown in **Table 6-1**, all of the assessed key junctions would operate satisfactorily (RC ≥ 15%) in both year 2032 Reference and Construction Scenarios.

6.2.3. In view that all the key junctions would operate satisfactorily, the mitigation measures discussed in **Section 5.4** is not necessary for construction stage.

6.3. Temporary Traffic Arrangement

6.3.1. The existing STT carpark will be closed during the construction stage, the possibility of providing partially public car park within the Project Site during construction stage review, subject to the final building layout and construction method. Additional on-street public parking spaces will explore if the Project Site is unable to provide partial public car park, if necessary.

6.3.2. Subject to the construction method, if road works or road closure is necessary outside the Project Site, a set of temporary traffic arrangement plans for the corresponding construction works will be furnished to Hong Kong Police Force and Transport Department for approval prior any works to be carry out.

7. Summary and Conclusion

7.1. Summary

7.1.1. A Traffic Impact Assessment Study was carried out to investigate the traffic impact induced by the Proposed Development. The Project development is designed for a two-phases development scenario, with each phase (namely Site A and Site B) featuring one residential tower in each site atop of a four storeys podium and two levels of basement carpark. The indicative phasing, development parameters and phasing boundary are intended solely for use of technical assessment in support of the proposed rezoning, and subject to change at detailed design stage.

7.1.2. The internal transport facilities for the Proposed Development will be within the range of the HKPSG parking requirements for the proposed residential blocks and retail developments. The actual provision for GIC uses will be subject to liaison with the relevant government departments and services providers in later detailed design stage.

7.1.3. To contribute to the parking demand for coach and commercial vehicles in the area, the Proposed Development includes a PVP with 15 nos. of coach/commercial vehicle parking spaces which is designated for shared use with commercial vehicles. This flexible arrangement allows for adaptable use of parking spaces to accommodate the needs of future users. However, due to the limited floor space and the required dimension for coach manoeurving and parking available within the development, prioritizing these coach/commercial vehicle parking spaces will lead to a reduction in the number of parking spaces.

7.1.4. Pedestrians can access the Project site via the surrounding footpaths to/from nearby franchised bus, GMB and PLB servicing points as well as to/from MTR To Kwa Wan Station.

7.1.5. The key junctions within the study area were assessed with respect to traffic generation of the Proposed Development in design year 2035 (three years after completion of the Project site), taking into account the traffic generation by the major planned/approved developments in the vicinity of the Project site.

7.1.6. Based on the assessment results, it was found that all of the assessed junctions would be operating within capacity (i.e., RC ≥ 15%) in design year, except J8 – Hung Hom Road / Tai Wan Road East in the Design Scenario. Also, all of the identified pedestrian walkways would be operating desirably (i.e., LOS C or above).

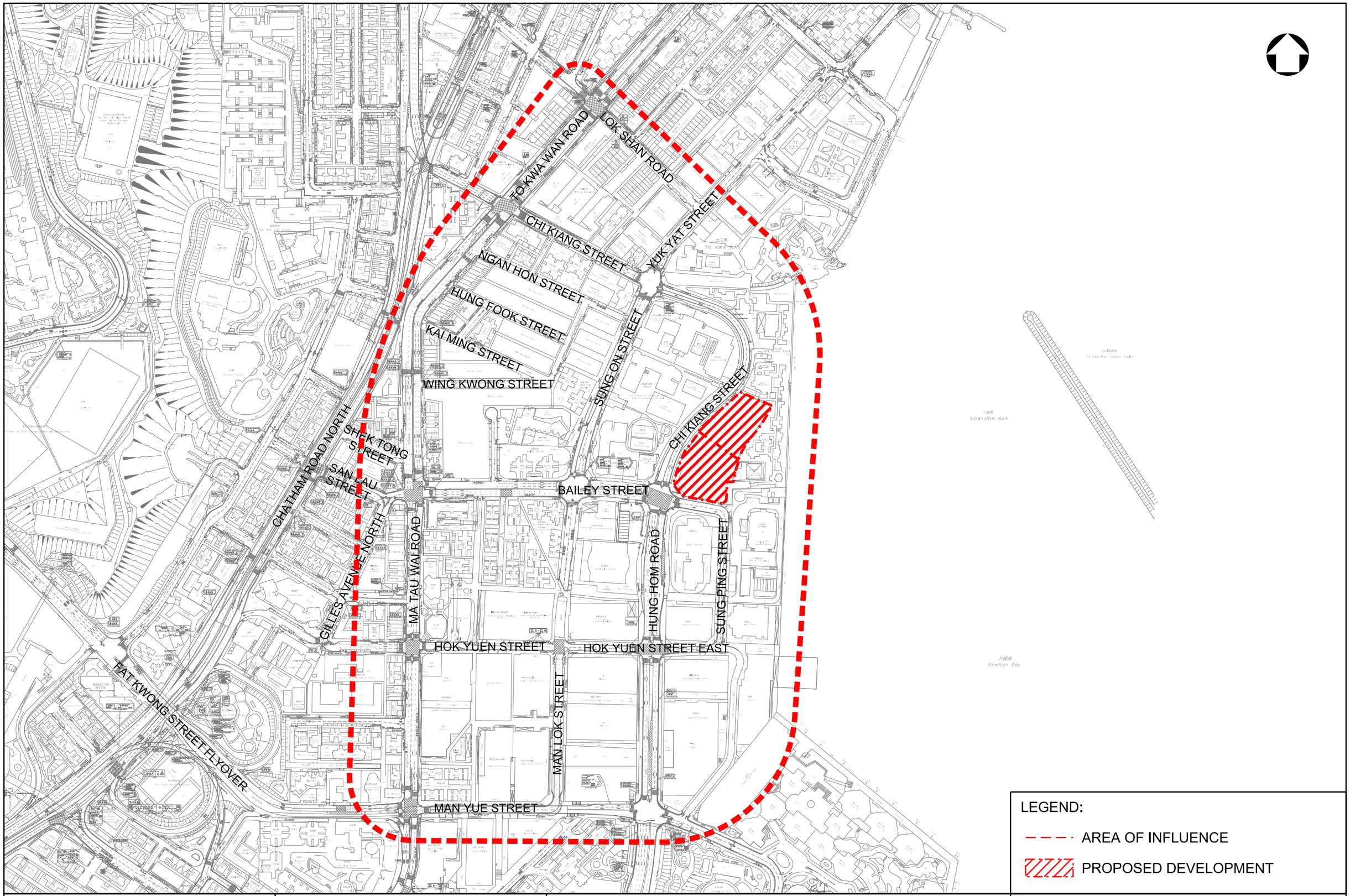
7.1.7. A potential junction improvement scheme for the junction is developed to restore J8 – Hung Hom Road / Tai Wan Road East reserve capacity. However, the necessity of the potential junction improvement scheme should be review by the developer of the Project Site with the final development parameters and the latest traffic conditions. If junction improvement scheme is necessary after the traffic review, the improvement works should be complete before the population intake of the Project Site.

7.1.8. Construction traffic impact assessment has been carried out based an estimated trips of construction traffic happened in the completion year (i.e., 2032). Based on the assessment results, it was found that all of the assessed junctions would be operating within capacity (i.e., RC ≥ 15%) in construction scenario.

7.2. Conclusion

7.2.1. It is concluded that the Proposed Development would not induce adverse traffic impact on the surrounding road and footpath network. In fact, it would enhance the pedestrian walking environment of the Proposed Development and the neighbouring areas.

FIGURES



LEGEND:

- AREA OF INFLUENCE
- PROPOSED DEVELOPMENT

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

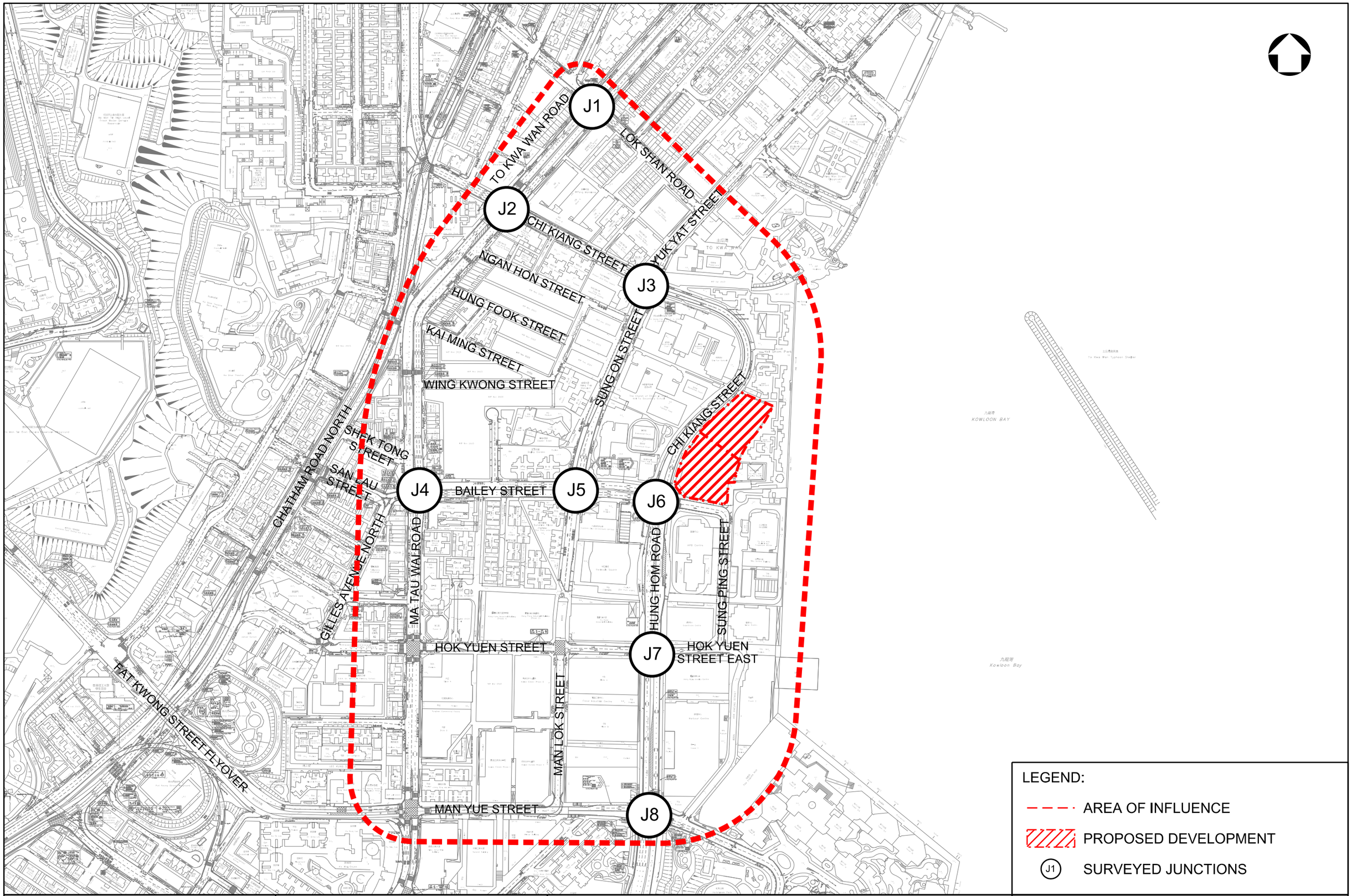
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

LOCATION PLAN AND AREA OF INFLUENCE

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	2.1

PRINTED BY: CHEU6310 13/6/2025 11:53:51 AM
FILENAME: \\wsatkins.com\Project\CN\CNHKA\Project\5219645_URA_tem2022\268.00 Working and Temporary\06 SO\06\Drawing\TTIA-04\Figure 2.1.dgn
MODEL NAME: Default



LEGEND:

- AREA OF INFLUENCE
- PROPOSED DEVELOPMENT
- (J1) SURVEYED JUNCTIONS

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

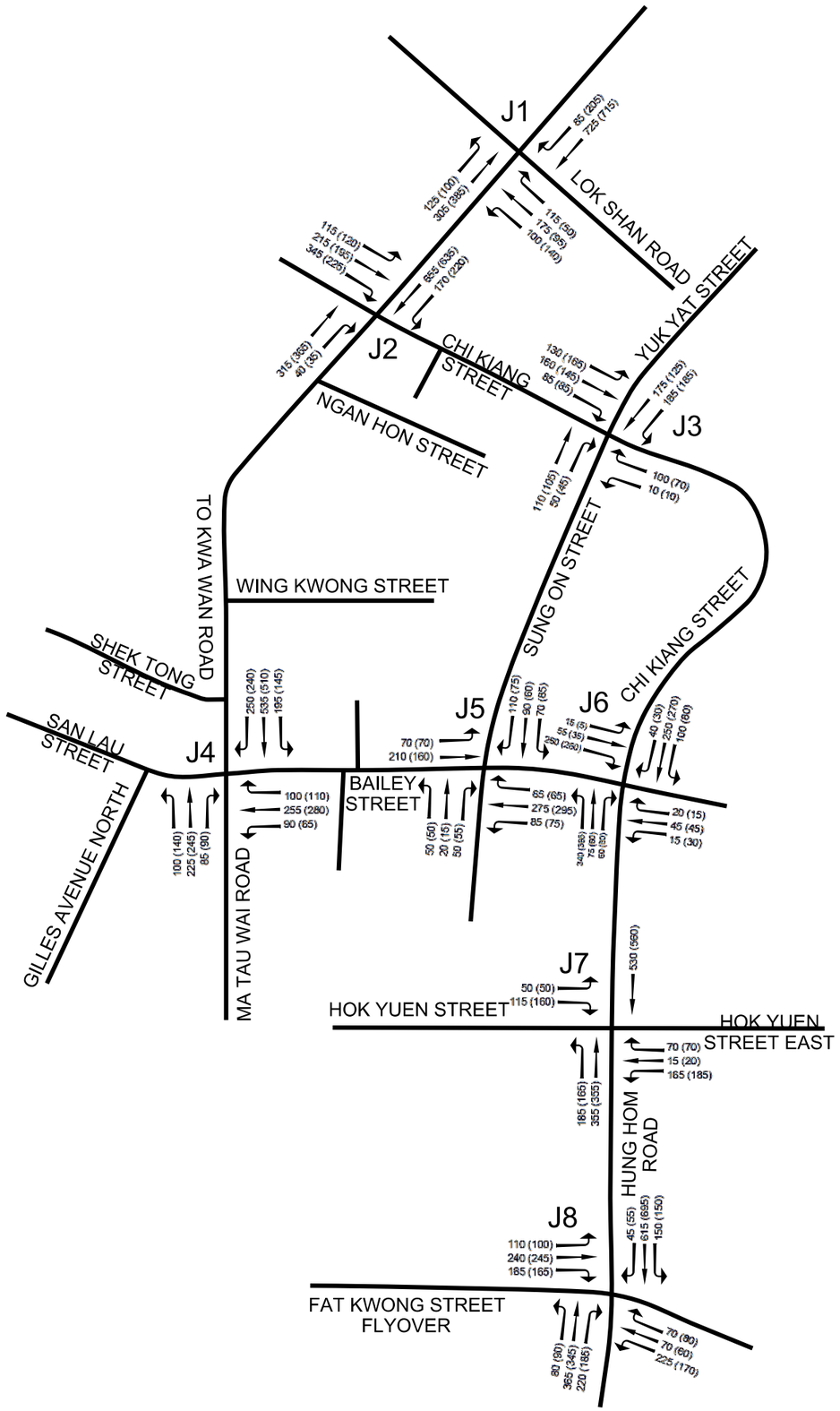
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

LOCATION OF SURVEYED JUNCTIONS

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	2.2

PRINTED BY: CHEU6310 13/6/2025 11:56:26 AM
FILENAME: \\wsatkins.com\Project\CN\CNHKA\Project\5219645_URA_tem2022\268.00 Working and Temporary\06 SO\06\Drawing\TTIA-04\Figure 2.2.dgn
MODEL NAME: Default



LEGEND:

100(100) → AM(PM) PEAK TRAFFIC FLOW (PCU/HR)

J1 JUNCTION INDEX

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

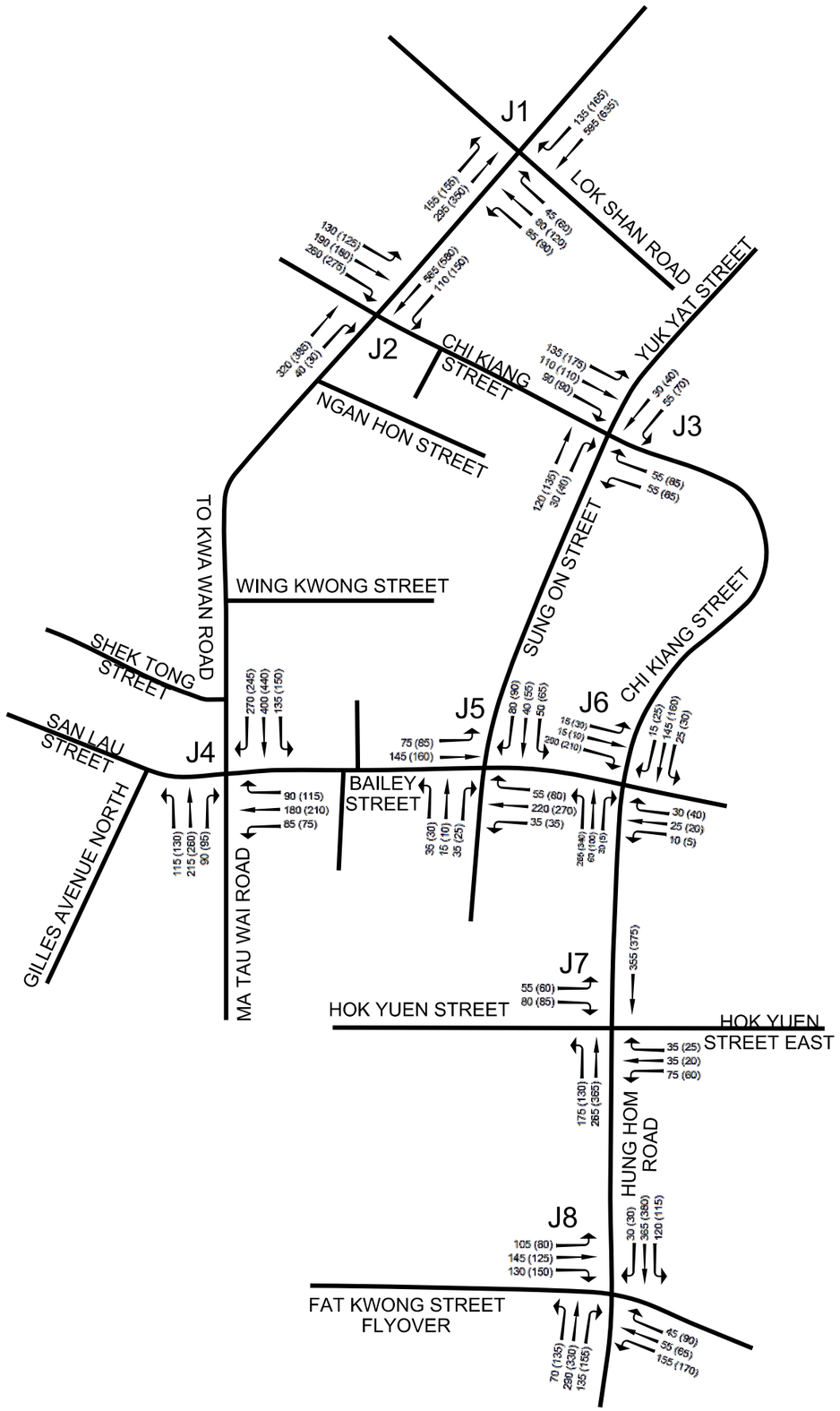
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2024 OBSERVED TRAFFIC FLOW (WEEKDAY)

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	2.3

PRINTED BY: CHEUI6310 13/6/2025 12:08:11 PM
FILENAME: \\watfile.com\Project\CN\CNHK4\Project\5219646_URA_term\2022\28.00 Working and Temporary\06 SOD6\Drawing\TTIA-04\Figure 2.3.dgn
MODEL NAME: Default



LEGEND:

100(100) → AM(PM) PEAK TRAFFIC FLOW (PCU/HR)

J1 JUNCTION INDEX

URBAN RENEWAL AUTHORITY

AtkinsRéalis

PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2024 OBSERVED TRAFFIC FLOW (WEEKEND)

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	2.4

PRINTED BY: CHEUI6310 13/6/2025 12:09:01 PM
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MODEL NAME: Default

PW12

PW13

PW10

PW11

CHI KIANG STREET

NGAN HON STREET

YUK YAT STREET

HUNG FOOK STREET

KAI MING STREET

PW1

PW2

PW6

PW7

WING KWONG STREET

SUNG ON STREET

CHI KIANG STREET

SHEK TONG STREET

SAN LAU STREET

PW8

PW3

BAILEY STREET

PW9

PW4

PW5

MA TAU WAI ROAD

HUNG HOM ROAD

SUNG PING STREET

LEGEND:

AREA OF INFLUENCE

PROPOSED DEVELOPMENT

SURVEYED PEDESTRIAN WALKWAYS

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

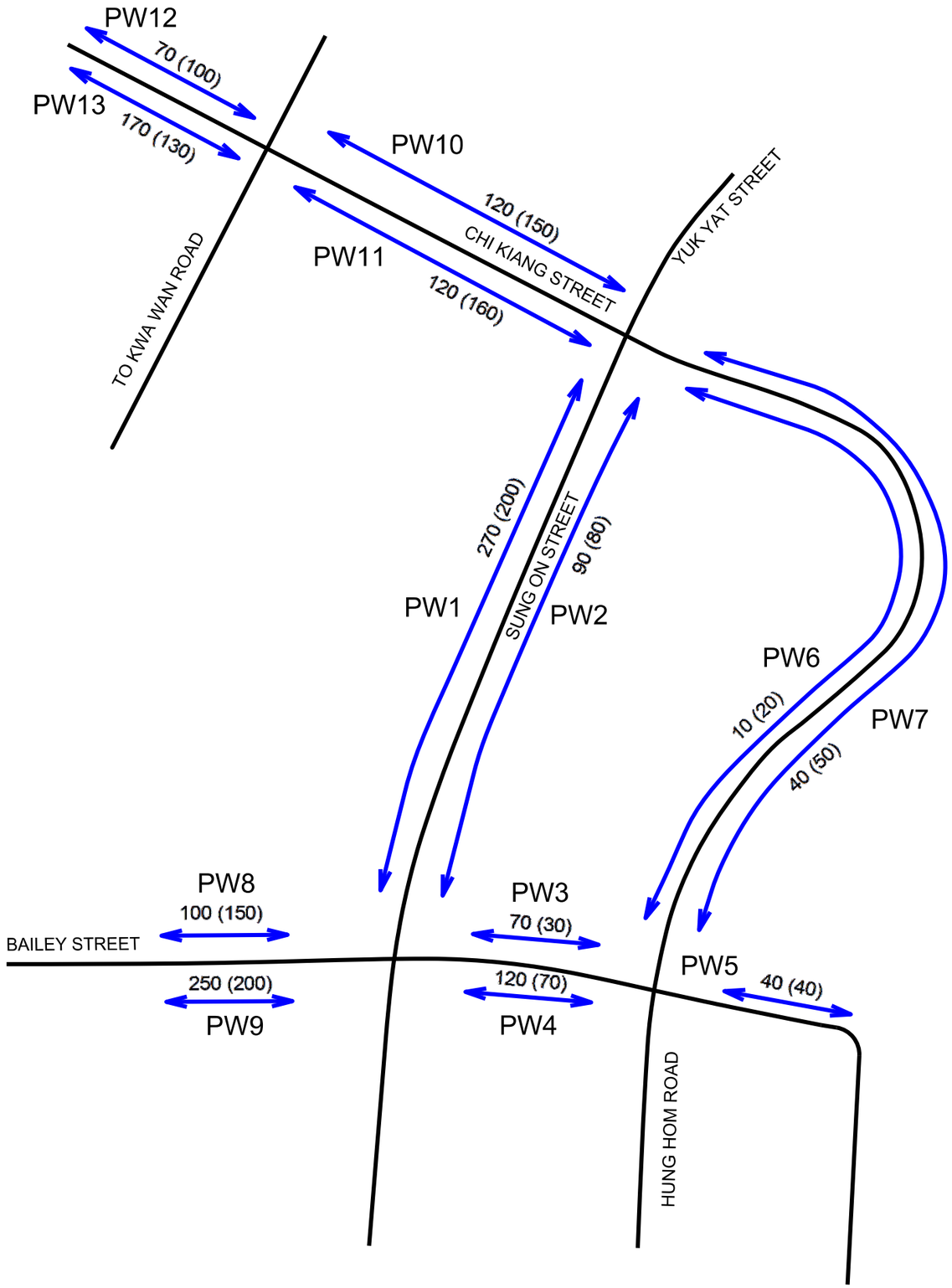
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

LOCATION OF SURVEYED
PEDESTRIAN WALKWAYS

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	2.5

PRINTED BY: CHEU6310 13/6/2025 12:11:01 PM
FILENAME: \\watlins.com\Project\CN\CNHK4\Project\5219646_URA_tem2022\28.00 Working and Temporary\00 SO0\6\Drawing\TTIA-041\Figure 2.5.dgn
MODEL NAME: Default



LEGEND:

100(100) AM(PM) PEAK PEDESTRIAN FLOW (PED/15-min)

PW1 PEDESTRIAN WALKWAY INDEX

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

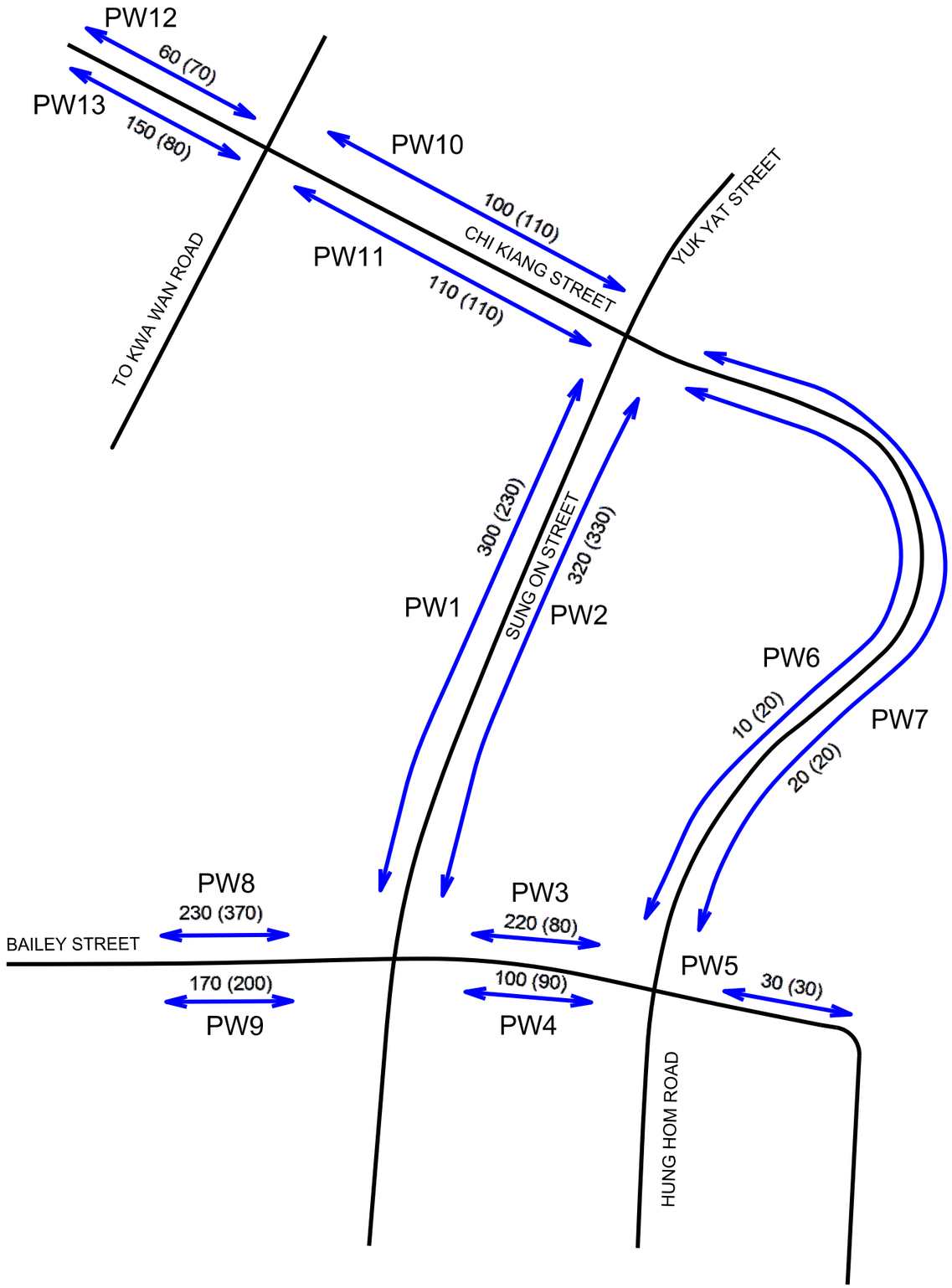
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2024 OBSERVED PEDESTRIAN FLOW (WEEKDAY)

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	2.6

PRINTED BY: CHEUB310 13/6/2025 12:11:54 PM
FILENAME: \\wsatkins.com\Project\CNC\NHK\Project\52199646_URA_term2022\28.00 Working and Temporary\06 SO06\Drawing\TTIA-04\Figure 2.6.dgn
MODEL NAME: Default



LEGEND:

100(100) AM(PM) PEAK PEDESTRIAN FLOW (PED/15-min)

PW1 PEDESTRIAN WALKWAY INDEX

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

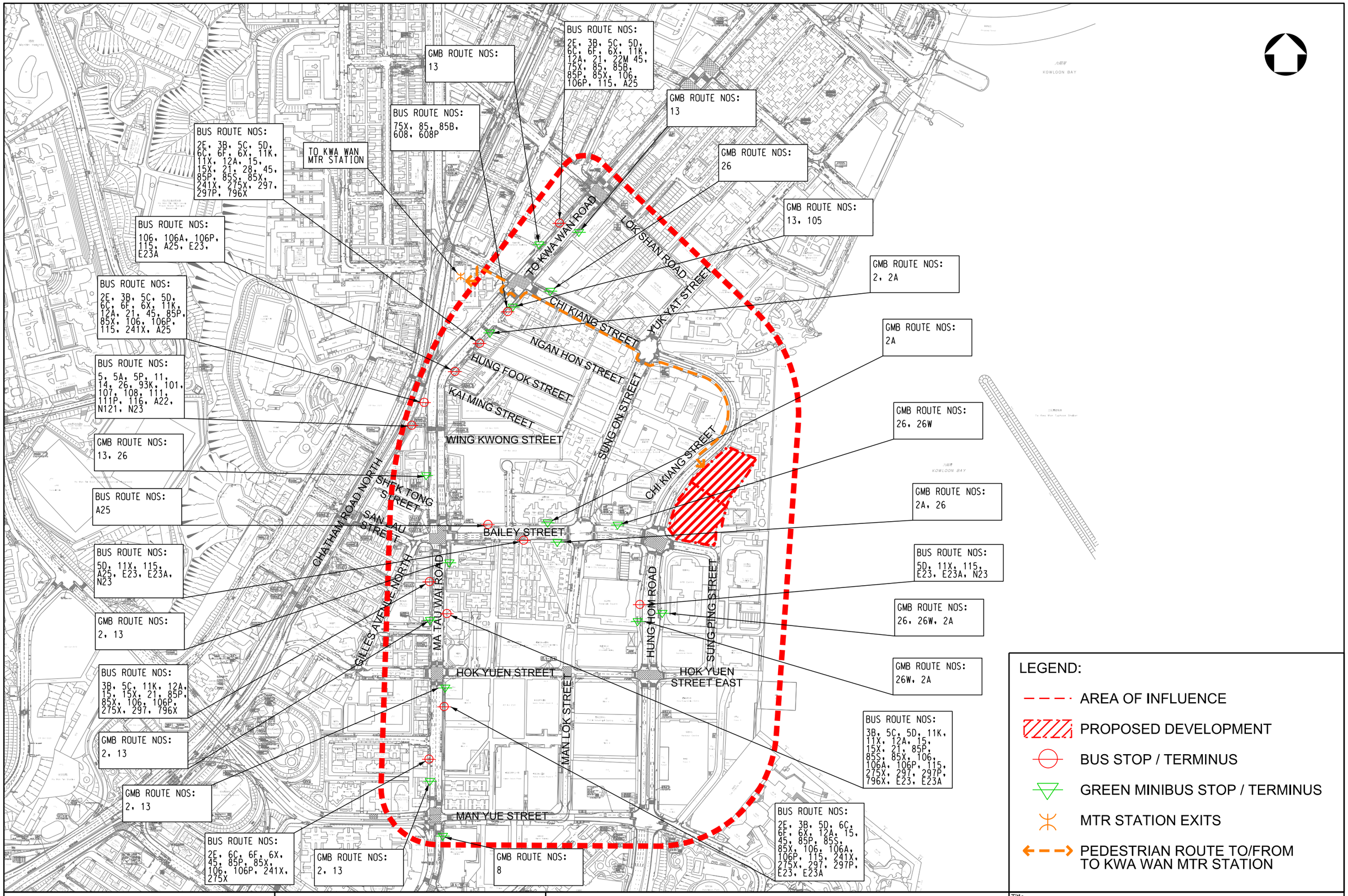
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2024 OBSERVED PEDESTRIAN FLOW (WEEKEND)

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	2.7

PRINTED BY: CHEU8310 13/6/2025 12:12:33 PM
FILENAME: \\wsatkins.com\Project\CNC\NHKA\Project\52199646_URA_term2022\28.00 Working and Temporary\06 SO06\Drawing\TTIA-04\Figure 2.7.dgn
MODEL NAME: Default



URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

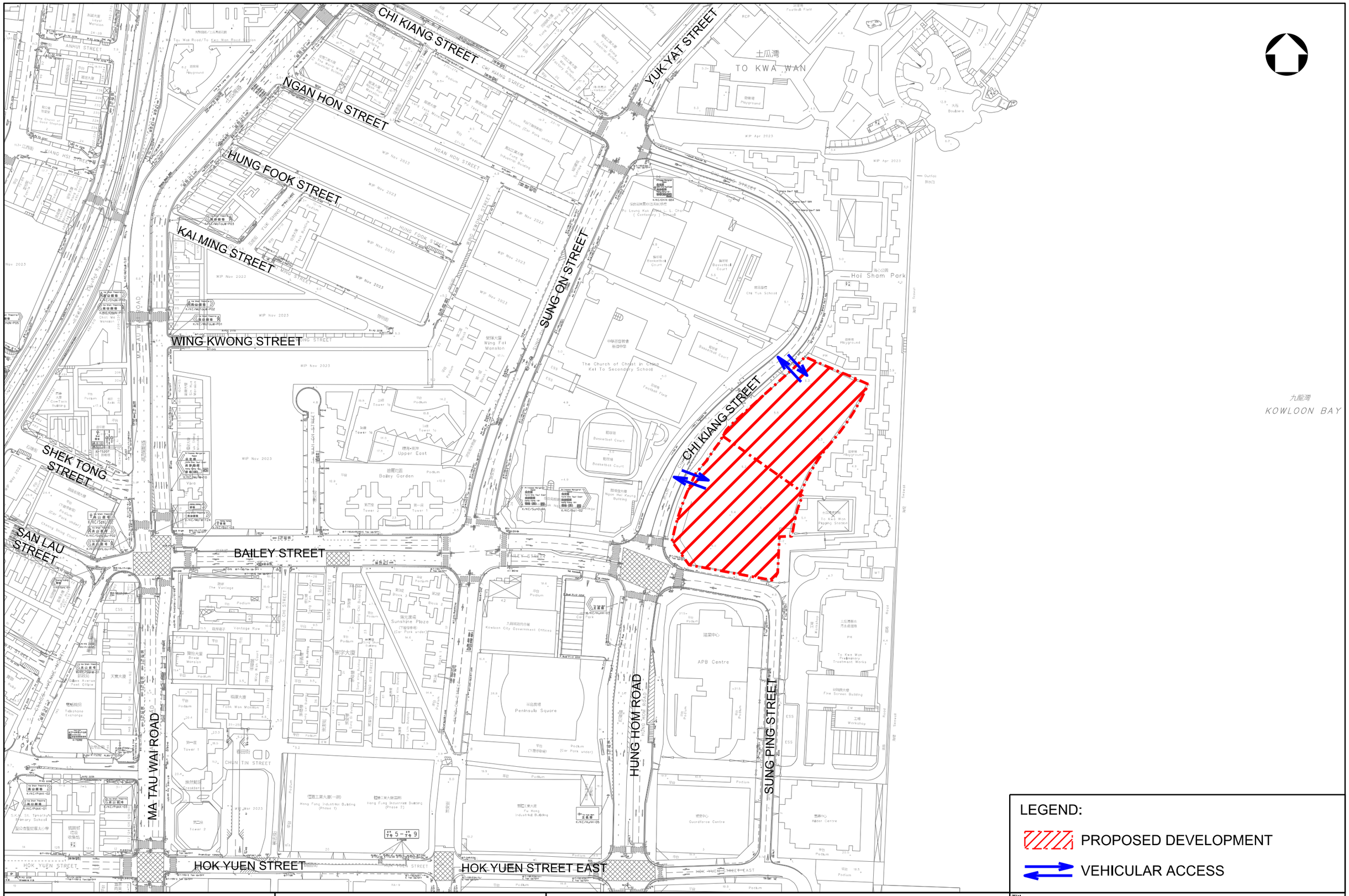
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

EXISTING PUBLIC TRANSPORT SERVICE POINTS

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	2.8

PRINTED BY: CHEUI0310 13/6/2025 12:15:24 PM
FILENAME: \\wsatkins.com\Project\CNCNHK\Project\5219646_URA_item2022\08.00 Working and Temporary\06 SO06\Drawing\TTIA-04\Figure 2.8.dgn
MODEL NAME: Default



LEGEND:

PROPOSED DEVELOPMENT

VEHICULAR ACCESS

URBAN RENEWAL AUTHORITY

市區重建局

AtkinsRéalis

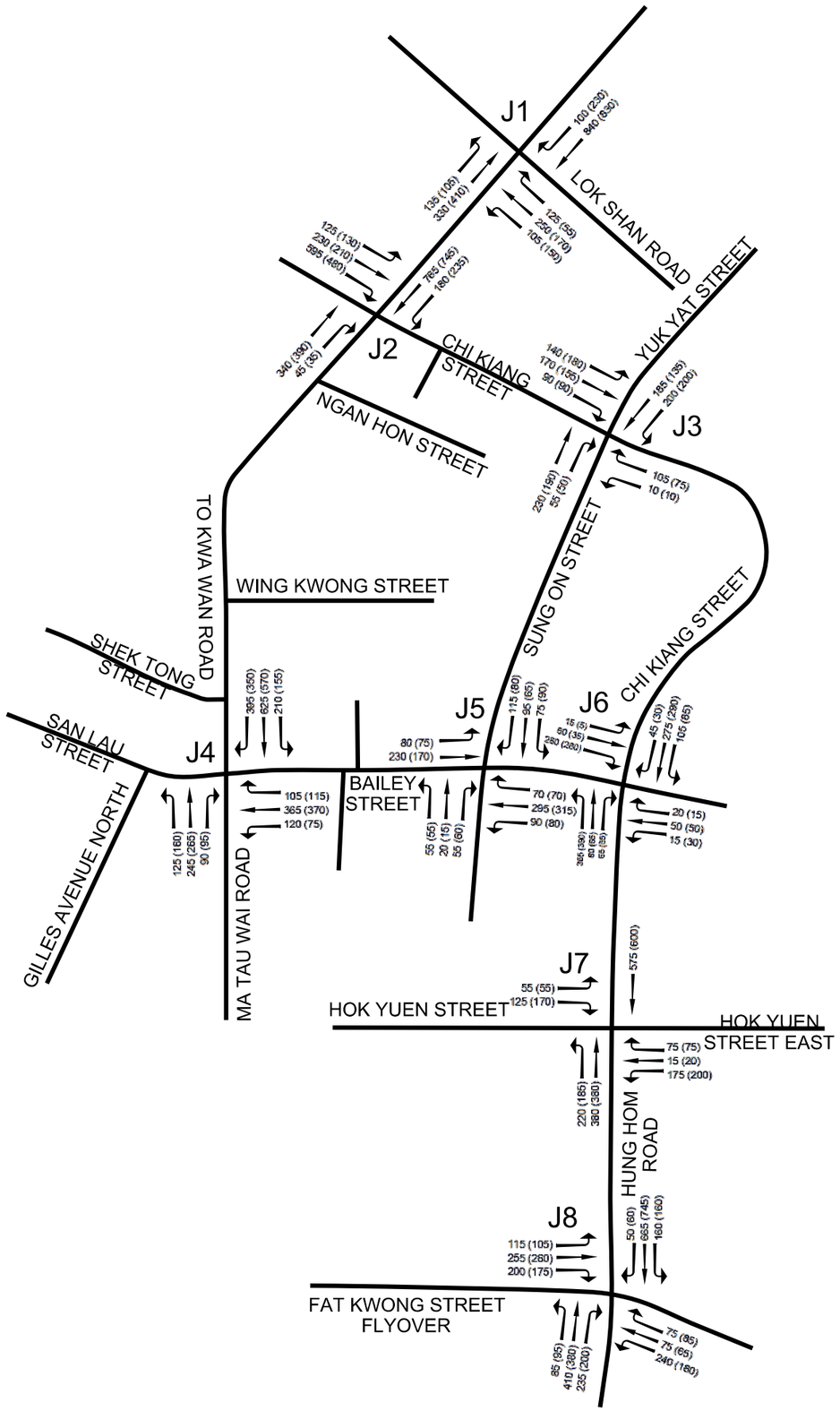
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

LOCATION OF DEVELOPMENT ACCESS

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	3.1

PRINTED BY: CHEUI6310 13/6/2025 12:26:16 PM
FILENAME: \\westdfs.com\Project\CNC\NHKA\Project\52\19\46_URA_tem2022\28.00 Working and Temporary\05 SO\05\Drawing\TTIA-A4\Figure 3.1.dgn
MODEL NAME: Default



LEGEND:

100(100) → AM(PM) PEAK TRAFFIC FLOW (PCU/HR)

J1 JUNCTION INDEX

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

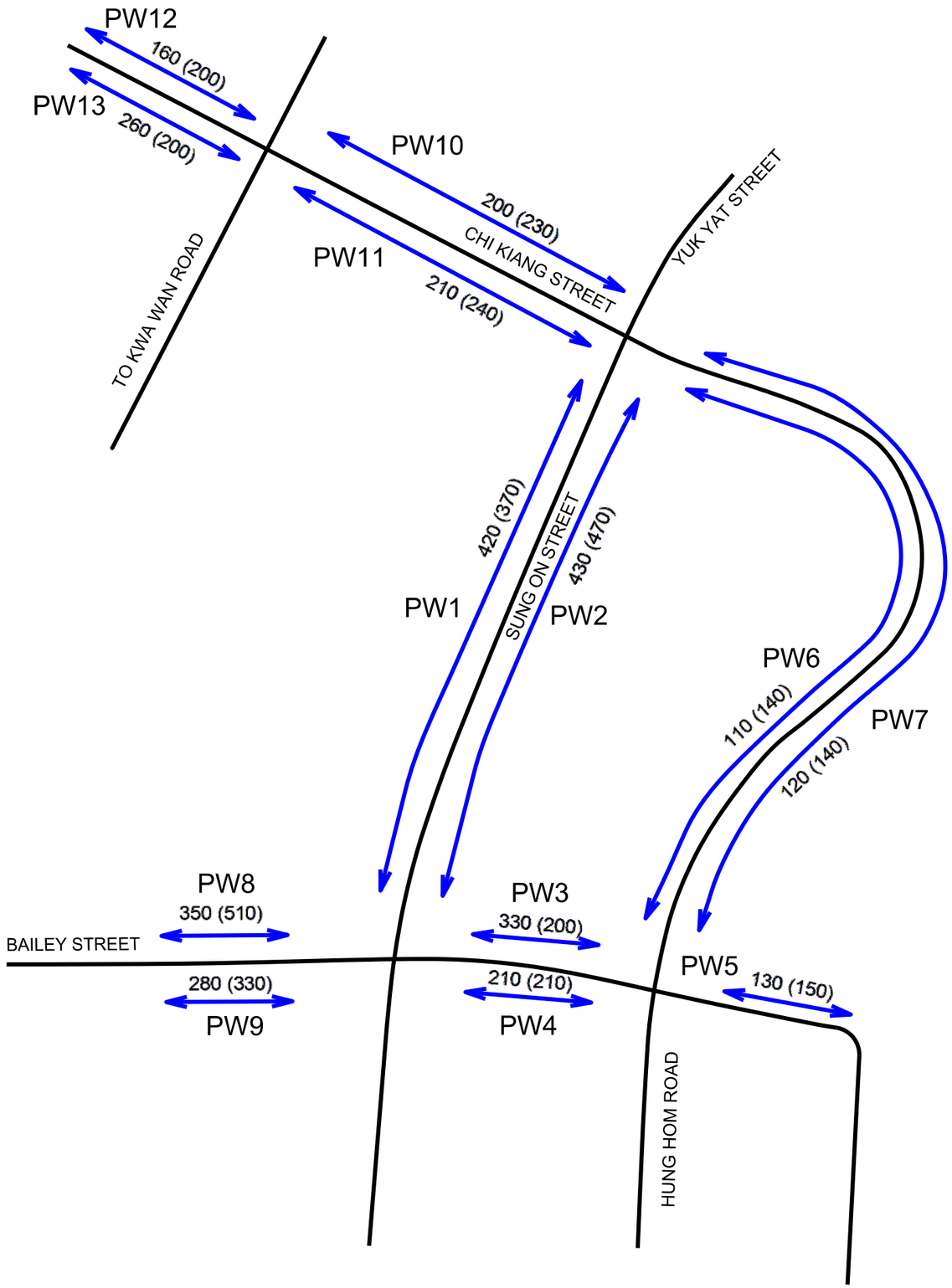
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2035 REFERENCE TRAFFIC FLOW

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	4.1

PRINTED BY: CHEUI6310 13/6/2025 15:30 PM
FILENAME: \\watfile.com\Project\CN\CNHK\Project\5219646_URA_term\2022\28.00 Working and Temporary\06 SOD6\Drawing\TTIA-04\Figure 4.1.dgn
MODEL NAME: Default



LEGEND:

100(100) AM(PM) PEAK PEDESTRIAN FLOW (PED/15-min)

PW1 PEDESTRIAN WALKWAY INDEX

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

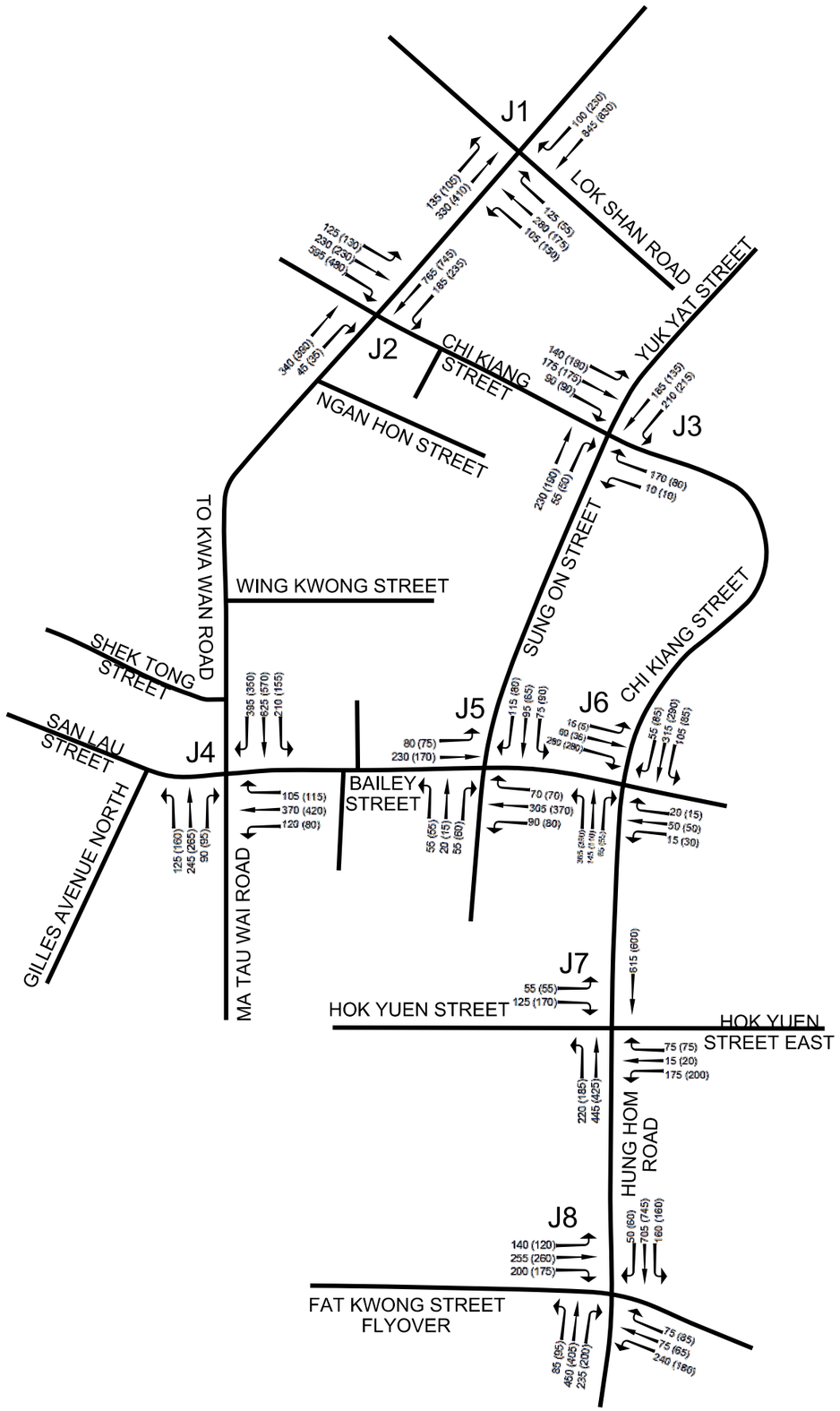
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2035 REFERENCE PEDESTRIAN FLOW

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	4.2

PRINTED BY: LEE.I7791 19/6/2025 11:58:25
FILENAME: P:\CNHKA\Project\52119646_URA_term\202238.00 Working and Temporary\06 SOD\Drawing\TTIA-A3\Figure 4.2.dgn
MODEL NAME: Default



LEGEND:

100(100) → AM(PM) PEAK TRAFFIC FLOW (PCU/HR)

J1 JUNCTION INDEX

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

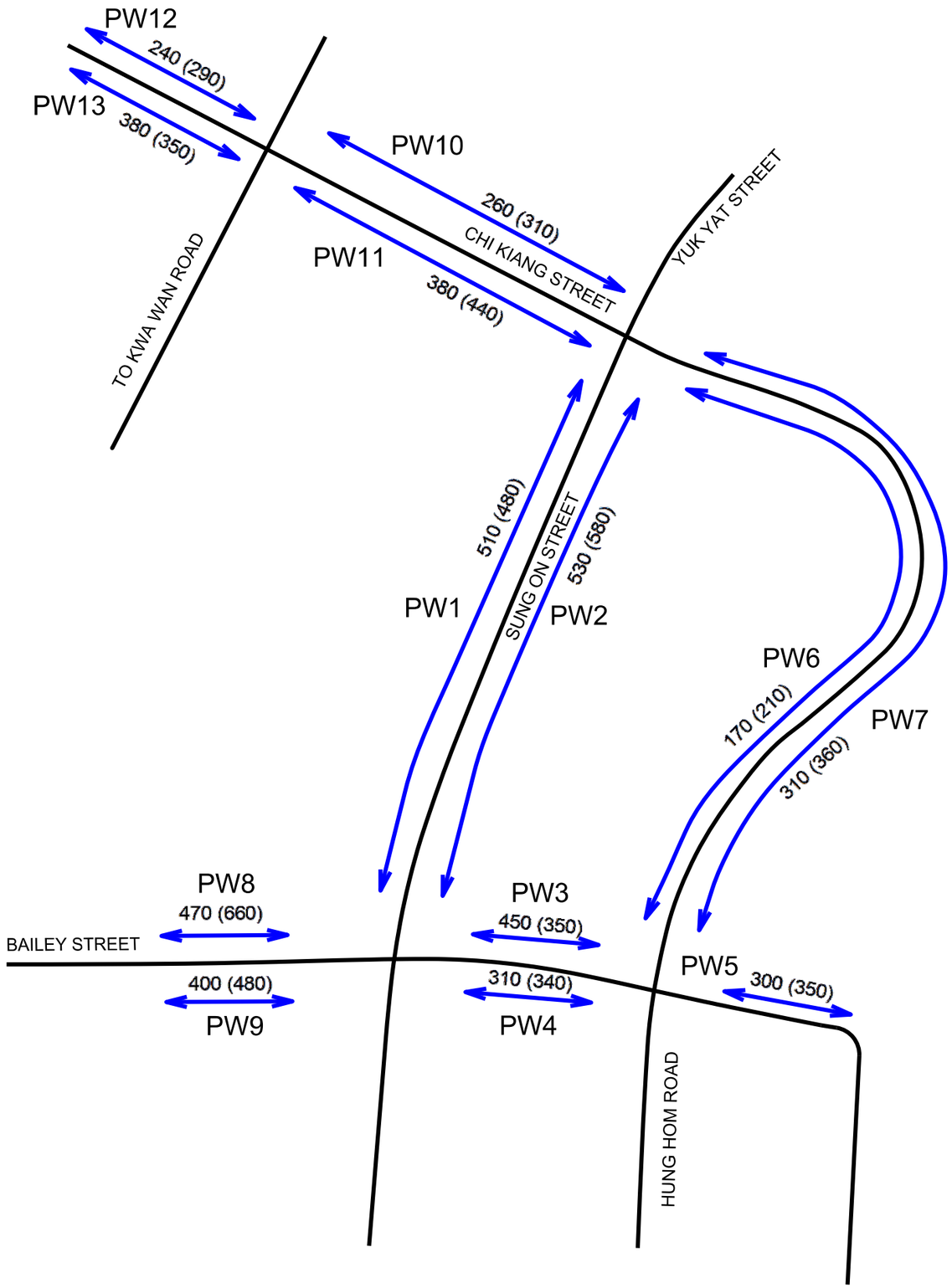
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2035 DESIGN TRAFFIC FLOW

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	4.3

PRINTED BY: CHEUI6310 13/6/2025 15:35:35 PM
FILENAME: \\watfile.com\Project\CN\CNHK\Project\5219646_URA_term2022\28.00 Working and Temporary\06 SOD6\Drawing\TTIA-04\Figure 4.3.dgn
MODEL NAME: Default



LEGEND:

100(100) AM(PM) PEAK PEDESTRIAN FLOW (PED/15-min)

PW1 PEDESTRIAN WALKWAY INDEX

URBAN RENEWAL AUTHORITY 市區重建局

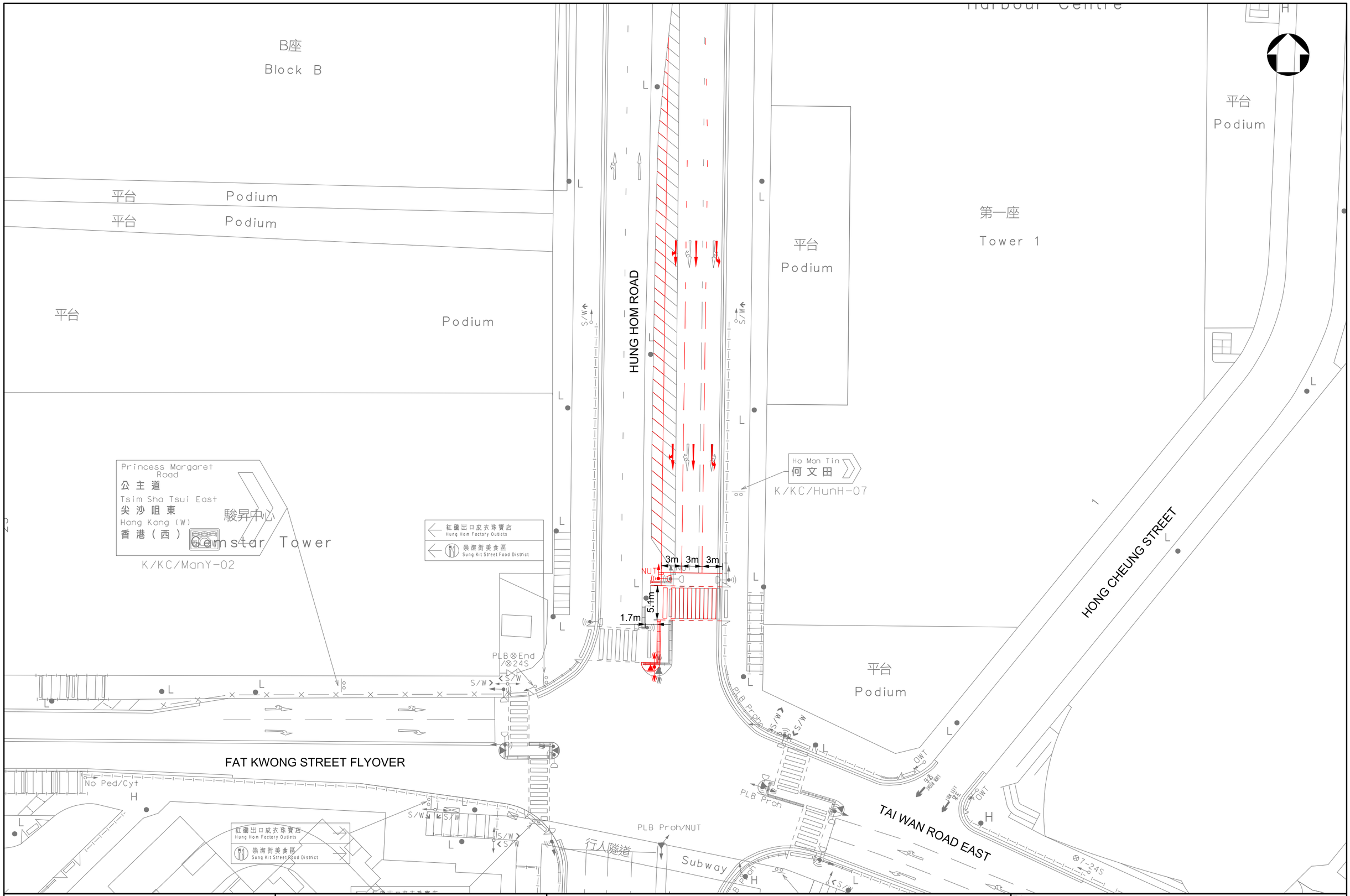
AtkinsRéalis

PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title: YEAR 2035 DESIGN PEDESTRIAN FLOW

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	4.4

PRINTED BY: LEE.I7791 19/6/2025 11:59:12
FILENAME: P:\CNHKA\Project\52119646_URA_term\202238.00 Working and Temporary\06 SOD\Drawing\TTIA-A3\Figure 4.4.dgn
MODEL NAME: Default



PRINTED BY: CHEU0310 13/8/2025 2:00:02 PM
FILENAME: \\wsatkhs.com\Project\CN\CNHKA\Project\52196\46_URA_tem2022\26.00 Working and Temporary\06 SO\06\Drawing\TTTA-04\Figure 5.1.dgn
MODEL NAME: Default

市區重建局
URBAN RENEWAL AUTHORITY

AtkinsRéalis

PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title
JUNCTION IMPROVEMENT SCHEME AT
J8 - HUNG HOM ROAD / TAI WAN ROAD EAST

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	5.1



LEGEND:

100(100) → AM(PM) PEAK TRAFFIC FLOW (PCU/HR)

J1 JUNCTION INDEX

市區重建局
URBAN RENEWAL AUTHORITY

AtkinsRéalis

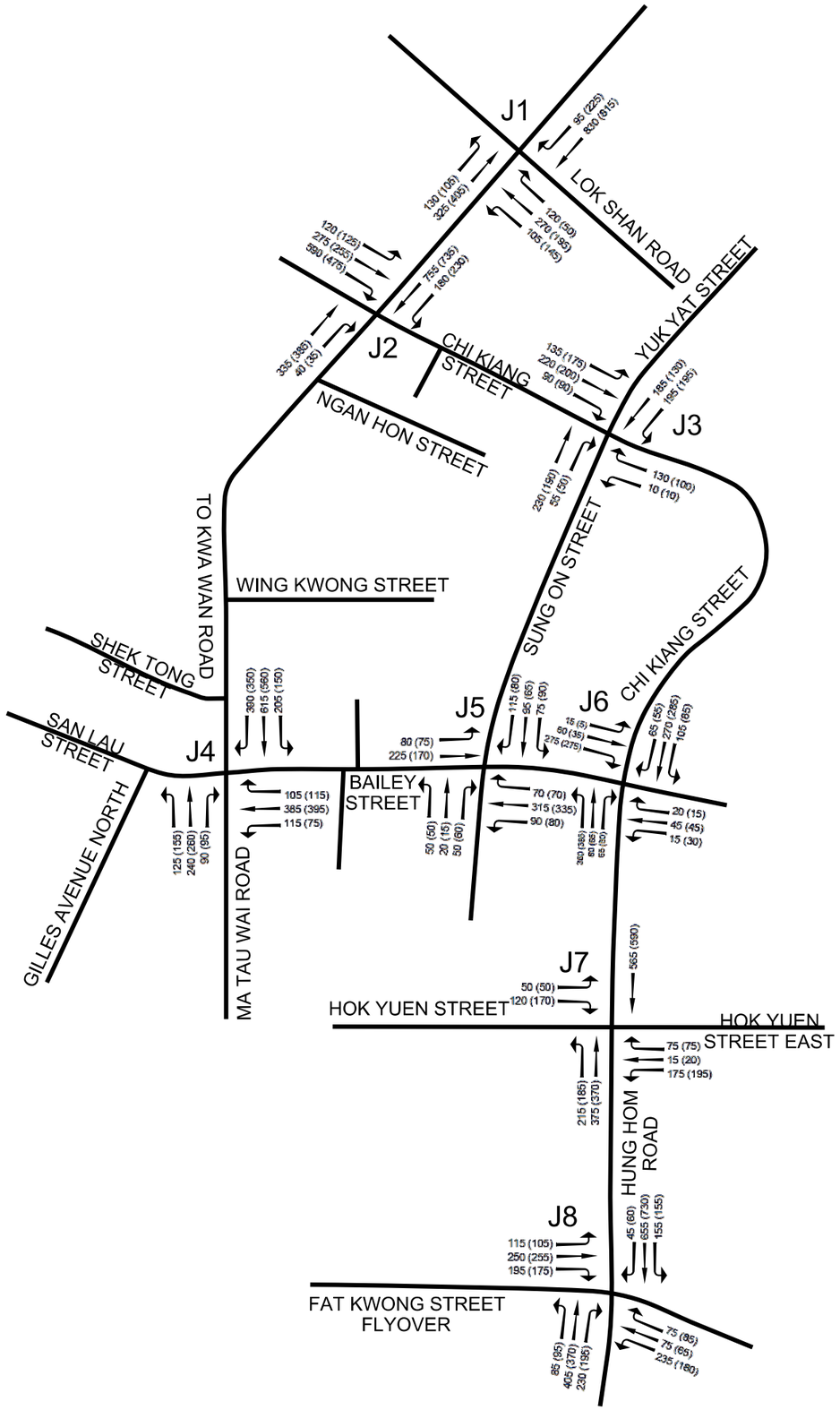
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2032 REFERENCE TRAFFIC FLOW

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	6.1

PRINTED BY: CHEUI6310 13/6/2025 2:01:47 PM
FILENAME: \\watfile.com\Project\CN\CNHK\Project\5219646_URA_term\202208.00 Working and Temporary\06 SOD\6\Drawing\TTIA-041\Figure 6.1.dgn
MODEL NAME: Default



LEGEND:

100(100) → AM(PM) PEAK TRAFFIC FLOW (PCU/HR)

J1 JUNCTION INDEX

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2032 CONSTRUCTION TRAFFIC FLOW

Scale at A3	Date	Figure No.
N.T.S	JUN 2025	6.2

PRINTED BY: CHEUI6310 13/6/2025 2:06:06 PM
FILENAME: \\watfile.com\Project\CN\CNHK\Project\5219646_URA_term2022\28.00 Working and Temporary\06 SOD\6\Drawing\TTIA-04\Figure 6.2.dgn
MODEL NAME: Default

APPENDICES

Appendix A. Junction Calculation Sheets

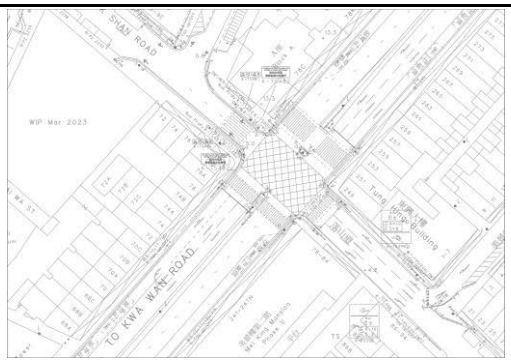
TRAFFIC SIGNAL CALCULATION SHEET

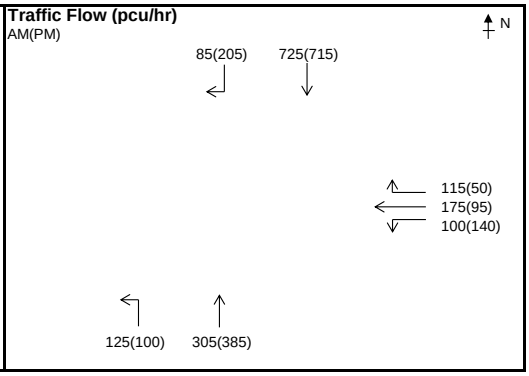
AtkinsRéalis

JOB NO. : 5219646

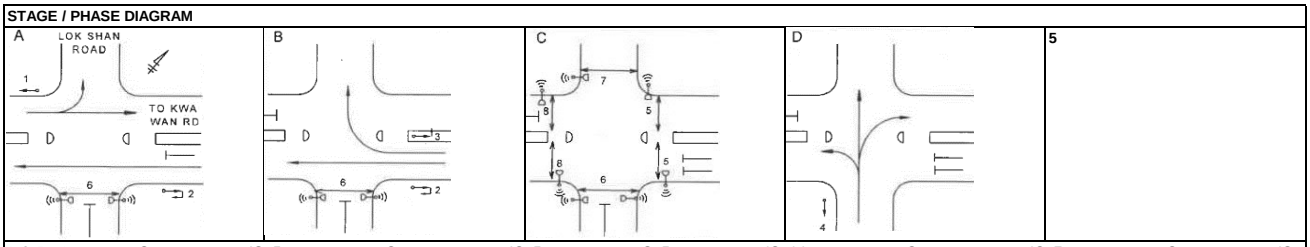
Junction : J1 - To Kwa Wan Road / Lok Shan Road Design Year: 2024

Scheme : 2024 Observed - Weekday Designed by: RC Checked by: EC





STAGE / PHASE DIAGRAM



1+3+5p+4	G=	IG=5	G=	IG=5	G=5	IG=14	G=	IG=7	G=	IG=
1+3+5p+4	G=	IG=5	G=	IG=5	G=5	IG=14	G=	IG=7	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
To Kwa Wan Road (NB)														
1A	A	3.30	Y	N	8		125	100%	1640	**0.076**	141	71%	1715	0.082
1B	A	3.30	N	N			153		2085	0.073	172		2085	**0.082**
1C	A	3.30	N	N			152		2085	0.073	172		2085	0.082
To Kwa Wan Road (SB)														
2A	A,B	3.00	Y	N			350		1915	0.183	345		1915	0.180
2B	A,B	3.00	N	N			375		2055	0.182	370		2055	0.180
3A	B	3.00	N	N	10		85	100%	1785	**0.048**	205	100%	1785	**0.115**
Lok Shan Road (WB)														
4A	D	3.30	Y	N	5		100	100%	1495	0.067	140	100%	1495	**0.094**
4B	D	3.30	N	N			154		2085	**0.074**	76		2085	0.036
4C	D	3.30	N	N	10		136	85%	1850	0.074	69	72%	1880	0.037
5p	C		5GM +	12FG =	17	sec								
6p	A,B,C		5GM +	9FG =	14	sec								
7p	C		5GM +	7FG =	12	sec								
8p	C		5GM +	12FG =	17	sec								

Notes:

AM Peak	1+3+5p+4	PM Peak	1+3+5p+4
Sum of Critical *y* ***Y***	**0.198**	Sum of Critical *y* ***Y***	**0.291**
Lost Time ***L*** (sec)	33	Lost Time ***L*** (sec)	33
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.672	Practical *Y* ***Ypr***	0.672
Reserve Capacity ***RC***	**240%**	Reserve Capacity ***RC***	**131%**

Date : 12/6/2025 Junction : J1 - To Kwa Wan Road / Lok Shan Road

ATKINS CHINA LIMITED

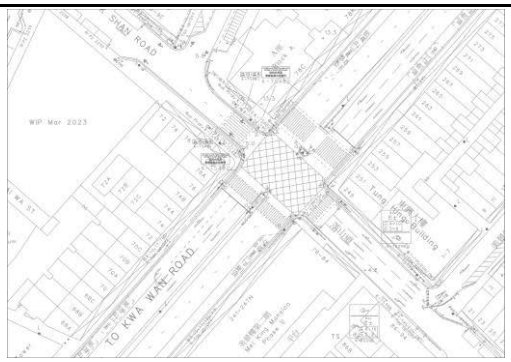
TRAFFIC SIGNAL CALCULATION SHEET

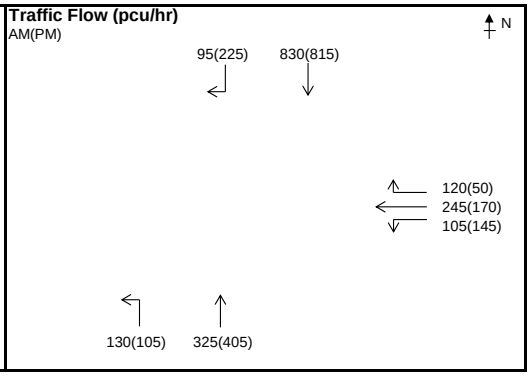
AtkinsRéalis

JOB NO. : 5219646

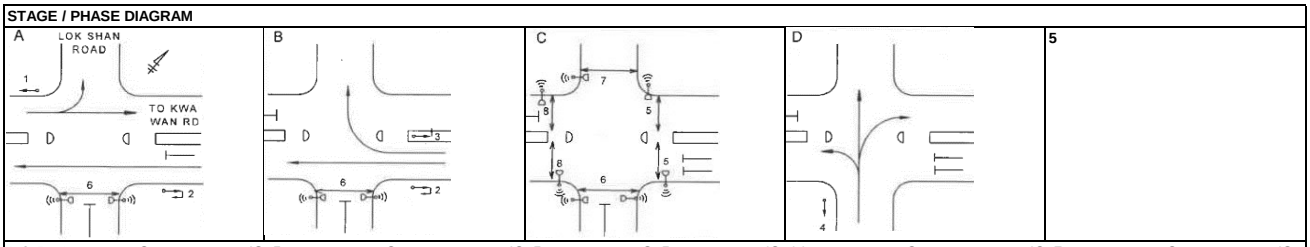
Junction : J1 - To Kwa Wan Road / Lok Shan Road Design Year: 2032

Scheme : 2032 Reference Designed by: JL Checked by: EC





STAGE / PHASE DIAGRAM



1+3+5p+4	G=	IG=5	G=	IG=5	G=5	IG=14	G=	IG=7	G=	IG=
1+3+5p+4	G=	IG=5	G=	IG=5	G=5	IG=14	G=	IG=7	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
To Kwa Wan Road (NB)														
1A	A	3.30	Y	N	8		130	100%	1640	**0.079**	149	70%	1720	0.087
1B	A	3.30	N	N			163		2085	0.078	181		2085	**0.087**
1C	A	3.30	N	N			162		2085	0.078	180		2085	0.086
To Kwa Wan Road (SB)														
2A	A,B	3.00	Y	N			400		1915	0.209	393		1915	0.205
2B	A,B	3.00	N	N			430		2055	0.209	422		2055	0.205
3A	B	3.00	N	N	10		95	100%	1785	**0.053**	225	100%	1785	**0.126**
Lok Shan Road (WB)														
4A	D	3.30	Y	N	5		105	100%	1495	0.070	145	100%	1495	**0.097**
4B	D	3.30	N	N			191		2085	0.092	114		2085	0.055
4C	D	3.30	N	N	10		174	69%	1890	**0.092**	106	47%	1945	0.054
5p	C		5GM +	12FG =	17	sec								
6p	A,B,C		5GM +	9FG =	14	sec								
7p	C		5GM +	7FG =	12	sec								
8p	C		5GM +	12FG =	17	sec								

Notes:

AM Peak	1+3+5p+4	PM Peak	1+3+5p+4
Sum of Critical *y* ***Y***	**0.225**	Sum of Critical *y* ***Y***	**0.310**
Lost Time ***L*** (sec)	33	Lost Time ***L*** (sec)	33
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.672	Practical *Y* ***Ypr***	0.672
Reserve Capacity ***RC***	**199%**	Reserve Capacity ***RC***	**117%**

Date : 12/6/2025 Junction : J1 - To Kwa Wan Road / Lok Shan Road

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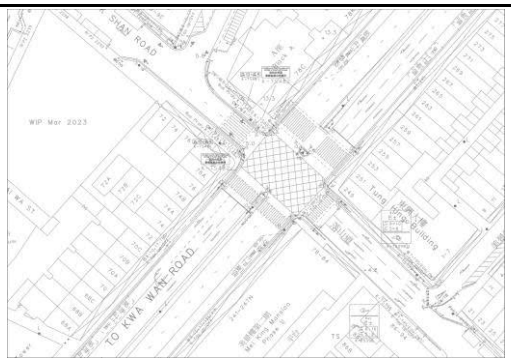
TRAFFIC SIGNAL CALCULATION SHEET

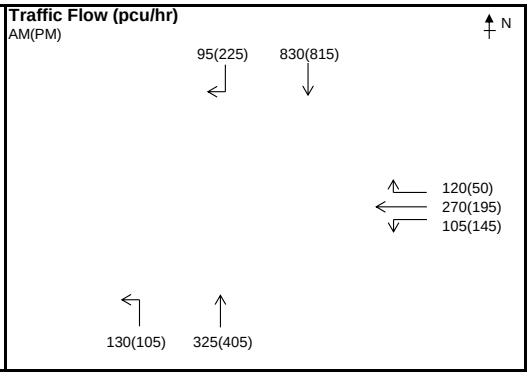
AtkinsRéalis

JOB NO. : 5219646

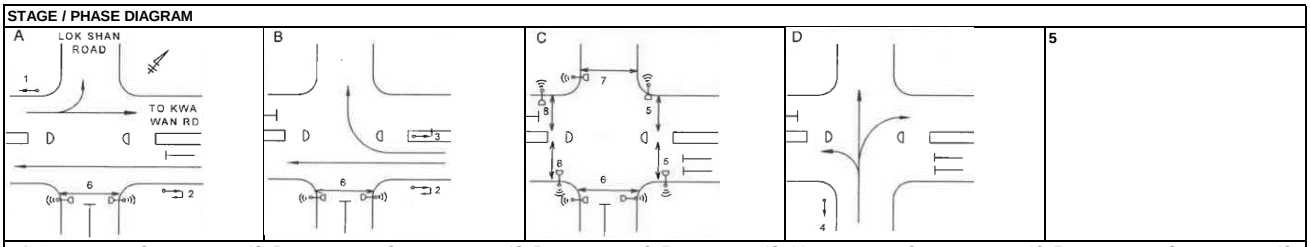
Junction : J1 - To Kwa Wan Road / Lok Shan Road Design Year: 2032

Scheme : 2032 Construction Designed by: JL Checked by: EC





STAGE / PHASE DIAGRAM



1+3+5p+4	G=	IG=5	G=	IG=5	G=5	IG=14	G=	IG=7	G=	IG=
1+3+5p+4	G=	IG=5	G=	IG=5	G=5	IG=14	G=	IG=7	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
To Kwa Wan Road (NB)														
1A	A	3.30	Y	N	8		130	100%	1640	**0.079**	149	70%	1720	0.087
1B	A	3.30	N	N			163		2085	0.078	181		2085	**0.087**
1C	A	3.30	N	N			162		2085	0.078	180		2085	0.086
To Kwa Wan Road (SB)														
2A	A,B	3.00	Y	N			400		1915	0.209	393		1915	0.205
2B	A,B	3.00	N	N			430		2055	0.209	422		2055	0.205
3A	B	3.00	N	N	10		95	100%	1785	**0.053**	225	100%	1785	**0.126**
Lok Shan Road (WB)														
4A	D	3.30	Y	N	5		105	100%	1495	0.070	145	100%	1495	**0.097**
4B	D	3.30	N	N			204		2085	0.098	126		2085	0.060
4C	D	3.30	N	N	10		186	65%	1900	**0.098**	119	42%	1960	0.061
5p	C		5GM +	12FG =	17	sec								
6p	A,B,C		5GM +	9FG =	14	sec								
7p	C		5GM +	7FG =	12	sec								
8p	C		5GM +	12FG =	17	sec								

Notes:

AM Peak	1+3+5p+4	PM Peak	1+3+5p+4
Sum of Critical *y* ***Y***	**0.230**	Sum of Critical *y* ***Y***	**0.310**
Lost Time ***L*** (sec)	33	Lost Time ***L*** (sec)	33
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.672	Practical *Y* ***Ypr***	0.672
Reserve Capacity ***RC***	**191%**	Reserve Capacity ***RC***	**117%**

Date : 12/6/2025 Junction : J1 - To Kwa Wan Road / Lok Shan Road

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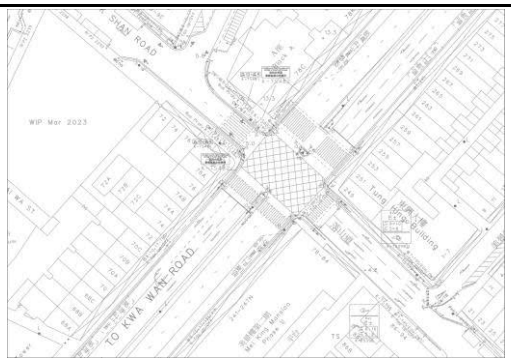
TRAFFIC SIGNAL CALCULATION SHEET

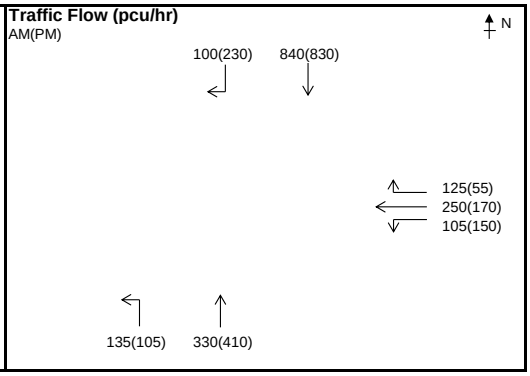
AtkinsRéalis

JOB NO. : 5219646

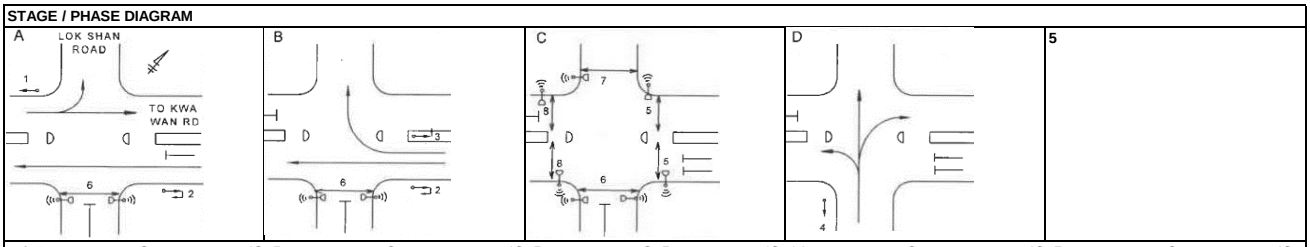
Junction : J1 - To Kwa Wan Road / Lok Shan Road Design Year: 2035

Scheme : 2035 Reference Designed by: RC Checked by: EC





STAGE / PHASE DIAGRAM



1+3+5p+4	G=	IG=5	G=	IG=5	G=5	IG=14	G=	IG=7	G=	IG=
1+3+5p+4	G=	IG=5	G=	IG=5	G=5	IG=14	G=	IG=7	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
To Kwa Wan Road (NB)														
1A	A	3.30	Y	N	8		135	100%	1640	**0.082**	150	70%	1720	0.087
1B	A	3.30	N	N			165		2085	0.079	183		2085	**0.088**
1C	A	3.30	N	N			165		2085	0.079	182		2085	0.087
To Kwa Wan Road (SB)														
2A	A,B	3.00	Y	N			405		1915	0.211	400		1915	0.209
2B	A,B	3.00	N	N			435		2055	0.212	430		2055	0.209
3A	B	3.00	N	N	10		100	100%	1785	**0.056**	230	100%	1785	**0.129**
Lok Shan Road (WB)														
4A	D	3.30	Y	N	5		105	100%	1495	0.070	150	100%	1495	**0.100**
4B	D	3.30	N	N			197		2085	**0.094**	117		2085	0.056
4C	D	3.30	N	N	10		178	70%	1885	0.094	108	51%	1935	0.056
5p	C		5GM +	12FG =	17	sec								
6p	A,B,C		5GM +	9FG =	14	sec								
7p	C		5GM +	7FG =	12	sec								
8p	C		5GM +	12FG =	17	sec								

Notes:

AM Peak	1+3+5p+4	PM Peak	1+3+5p+4
Sum of Critical *y* ***Y***	**0.233**	Sum of Critical *y* ***Y***	**0.317**
Lost Time ***L*** (sec)	33	Lost Time ***L*** (sec)	33
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.672	Practical *Y* ***Ypr***	0.672
Reserve Capacity ***RC***	**188%**	Reserve Capacity ***RC***	**112%**

Date : 12/6/2025 Junction : J1 - To Kwa Wan Road / Lok Shan Road

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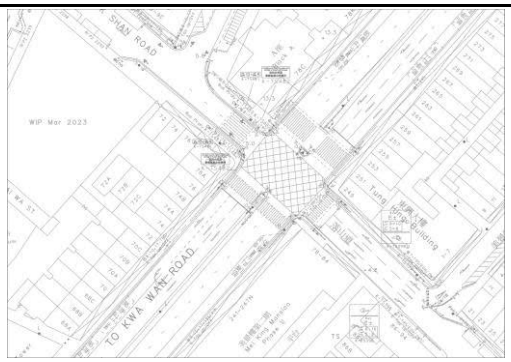
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

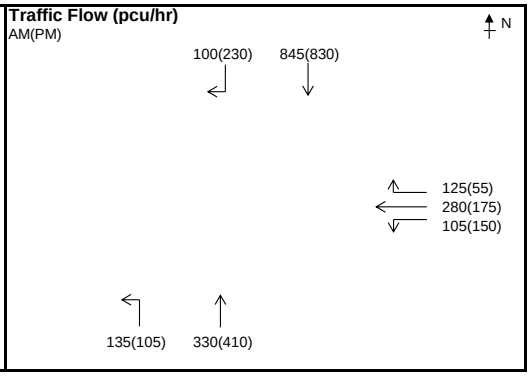
JOB NO. : 5219646

Junction : J1 - To Kwa Wan Road / Lok Shan Road Design Year: 2035

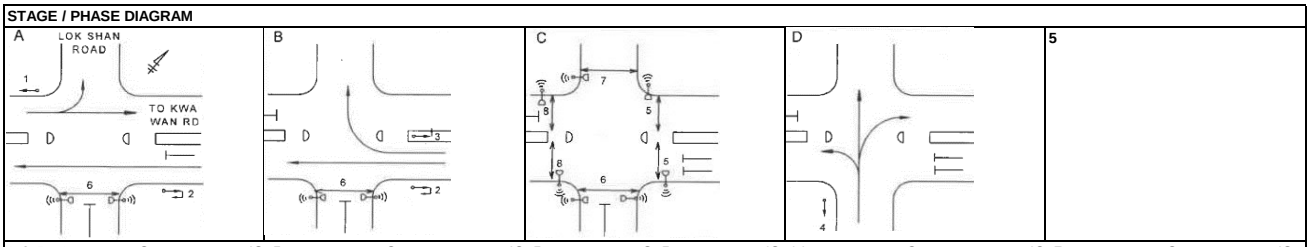
Scheme : 2035 Design Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+3+5p+4	G=	IG=5	G=	IG=5	G=5	IG=14	G=	IG=7	G=	IG=
1+3+5p+4	G=	IG=5	G=	IG=5	G=5	IG=14	G=	IG=7	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
To Kwa Wan Road (NB)														
1A	A	3.30	Y	N	8		135	100%	1640	**0.082**	150	70%	1720	0.087
1B	A	3.30	N	N			165		2085	0.079	183		2085	**0.088**
1C	A	3.30	N	N			165		2085	0.079	182		2085	0.087
To Kwa Wan Road (SB)														
2A	A,B	3.00	Y	N			408		1915	0.213	400		1915	0.209
2B	A,B	3.00	N	N			437		2055	0.213	430		2055	0.209
3A	B	3.00	N	N	10		100	100%	1785	**0.056**	230	100%	1785	**0.129**
Lok Shan Road (WB)														
4A	D	3.30	Y	N	5		105	100%	1495	0.070	150	100%	1495	**0.100**
4B	D	3.30	N	N			212		2085	**0.102**	119		2085	0.057
4C	D	3.30	N	N	10		193	65%	1900	0.102	111	50%	1940	0.057
5p	C		5GM +	12FG =	17	sec								
6p	A,B,C		5GM +	9FG =	14	sec								
7p	C		5GM +	7FG =	12	sec								
8p	C		5GM +	12FG =	17	sec								

Notes:

AM Peak	1+3+5p+4	PM Peak	1+3+5p+4
Sum of Critical *y* ***Y***	**0.240**	Sum of Critical *y* ***Y***	**0.317**
Lost Time ***L*** (sec)	33	Lost Time ***L*** (sec)	33
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.672	Practical *Y* ***Ypr***	0.672
Reserve Capacity ***RC***	**180%**	Reserve Capacity ***RC***	**112%**

Date : 12/6/2025 Junction : J1 - To Kwa Wan Road / Lok Shan Road

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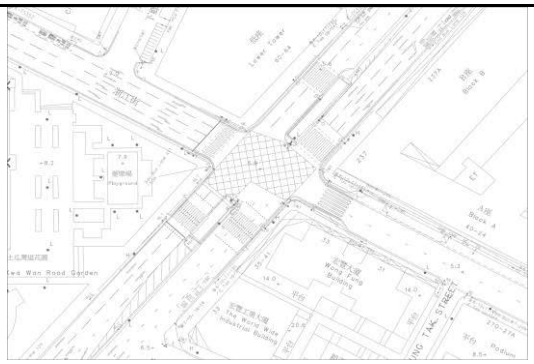
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

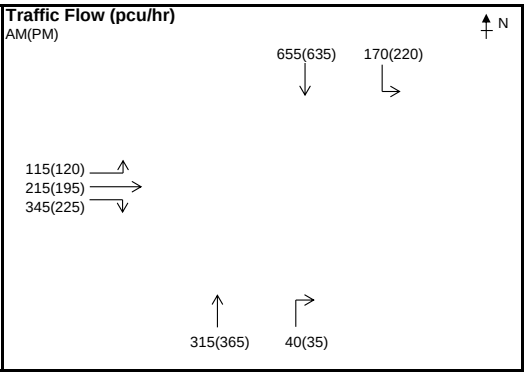
JOB NO. : 5219646

Junction : J2 - To Kwa Wan Road / Chi Kiang Street Design Year: 2024

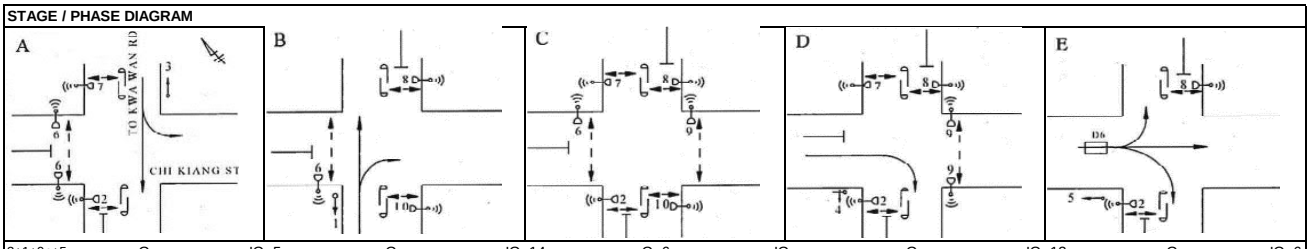
Scheme : 2024 Observed - Weekday Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



3+1+9p+5	G=	IG=5	G=	IG=14	G=6	IG=	G=	IG=13	G=	IG=6
3+1+9p+5	G=	IG=5	G=	IG=14	G=6	IG=	G=	IG=13	G=	IG=6

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
To Kwa Wan Road (NB)														
1A	B	3.65	Y	N			173		1980	0.087	195		1980	**0.098**
1B	B	3.65	N	N	15		182	22%	2075	**0.088**	205	17%	2085	0.098
To Kwa Wan Road (SB)														
3A	A	3.00	Y	N	5		227	75%	1565	0.145	227	97%	1485	**0.153**
3B	A	3.00	N	N			299		2055	**0.145**	314		2055	0.153
3C	A	3.00	N	N			299		2055	0.145	314		2055	0.153
Chi Kiang Street (EB)														
5A	E	3.00	Y	N	5		115	100%	1475	0.078	120	100%	1475	0.081
5B	E	3.00	N	N			215		2055	**0.105**	195		2055	**0.095**
4A	D,E	3.00	N	N	10		173	100%	1785	0.097	113	100%	1785	0.063
4B	D,E	3.00	N	N	10		172	100%	1785	0.096	112	100%	1785	0.063
2p	A,C,D,E		5GM +	7FG =	12	sec								
6p	A,B,C		6GM +	11FG =	17	sec								
7p	A,C,D		5GM +	8FG =	13	sec								
8p	B,C,D,E		5GM +	9FG =	14	sec								
9p	C,D		6GM +	11FG =	17	sec								
10p	B,C		5GM +	8FG =	13	sec								

Notes:

AM Peak	3+1+9p+5	PM Peak	3+1+9p+5
Sum of Critical *y* ***Y***	**0.338**	Sum of Critical *y* ***Y***	**0.346**
Lost Time ***L*** (sec)	41	Lost Time ***L*** (sec)	41
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.616	Practical *Y* ***Ypr***	0.616
Reserve Capacity ***RC***	**82%**	Reserve Capacity ***RC***	**78%**

Date : 12/6/2025 Junction : J2 - To Kwa Wan Road / Chi Kiang Street

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

JOB NO. : 5219646

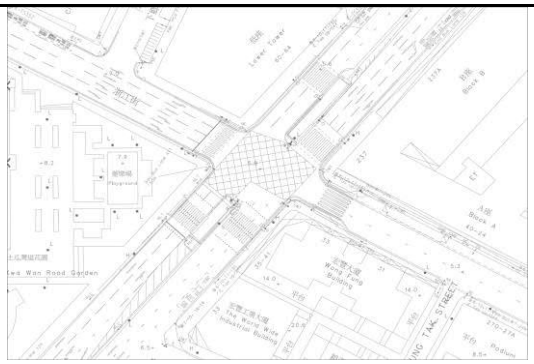
Junction : J2 - To Kwa Wan Road / Chi Kiang Street

Design Year: 2032

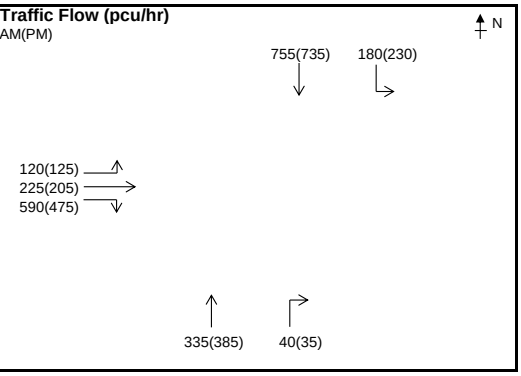
Scheme : 2032 Reference

Designed by: JL

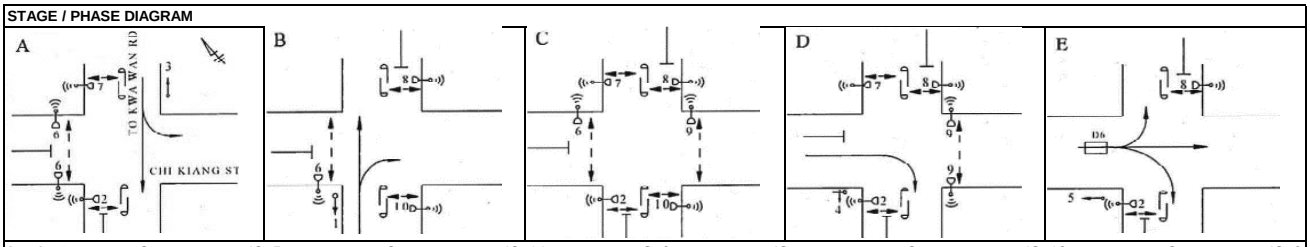
Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



3+1+9p+5	G=	IG=5	G=	IG=14	G=6	IG=	G=	IG=13	G=	IG=6
3+1+9p+5	G=	IG=5	G=	IG=14	G=6	IG=	G=	IG=13	G=	IG=6

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
To Kwa Wan Road (NB)														
1A	B	3.65	Y	N			183		1980	0.092	205		1980	**0.104**
1B	B	3.65	N	N	15		192	21%	2075	**0.093**	215	16%	2085	0.103
To Kwa Wan Road (SB)														
3A	A	3.00	Y	N	5		260	69%	1585	0.164	260	88%	1515	0.172
3B	A	3.00	N	N			338		2055	**0.164**	353		2055	**0.172**
3C	A	3.00	N	N			337		2055	0.164	352		2055	0.171
Chi Kiang Street (EB)														
5A	E	3.00	Y	N	5		120	100%	1475	0.081	125	100%	1475	0.085
5B	E	3.00	N	N			225		2055	**0.109**	205		2055	**0.100**
4A	D,E	3.00	N	N	10		295	100%	1785	0.165	238	100%	1785	0.133
4B	D,E	3.00	N	N	10		295	100%	1785	0.165	237	100%	1785	0.133
2p	A,C,D,E		5GM +	7FG =	12	sec								
6p	A,B,C		6GM +	11FG =	17	sec								
7p	A,C,D		5GM +	8FG =	13	sec								
8p	B,C,D,E		5GM +	9FG =	14	sec								
9p	C,D		6GM +	11FG =	17	sec								
10p	B,C		5GM +	8FG =	13	sec								

Notes:

AM Peak	3+1+9p+5	PM Peak	3+1+9p+5
Sum of Critical *y* ***Y***	**0.366**	Sum of Critical *y* ***Y***	**0.375**
Lost Time ***L*** (sec)	41	Lost Time ***L*** (sec)	41
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.616	Practical *Y* ***Ypr***	0.616
Reserve Capacity ***RC***	**68%**	Reserve Capacity ***RC***	**64%**

Date : 12/6/2025 Junction : J2 - To Kwa Wan Road / Chi Kiang Street

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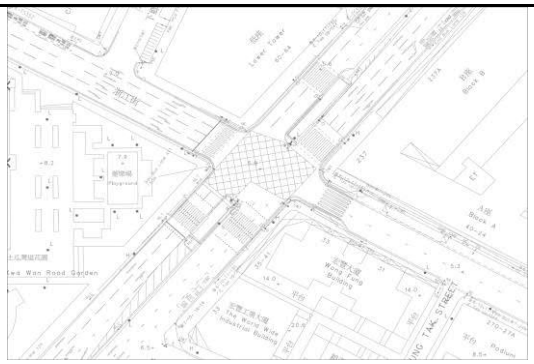
TRAFFIC SIGNAL CALCULATION SHEET

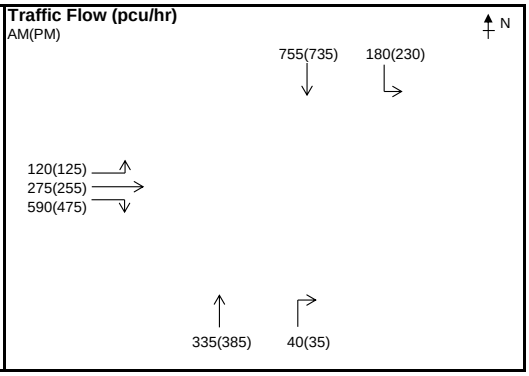
AtkinsRéalis

JOB NO. : 5219646

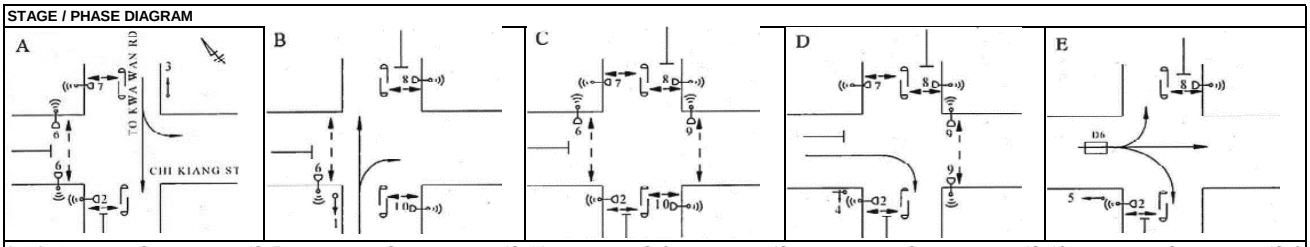
Junction : J2 - To Kwa Wan Road / Chi Kiang Street | Design Year: 2032

Scheme : 2032 Construction | Designed by: JL | Checked by: EC





STAGE / PHASE DIAGRAM



3+1+9p+5	G=	IG=5	G=	IG=14	G=6	IG=	G=	IG=13	G=	IG=6
3+1+9p+5	G=	IG=5	G=	IG=14	G=6	IG=	G=	IG=13	G=	IG=6

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
To Kwa Wan Road (NB)														
1A	B	3.65	Y	N			183		1980	0.092	205		1980	**0.104**
1B	B	3.65	N	N	15		192	21%	2075	**0.093**	215	16%	2085	0.103
To Kwa Wan Road (SB)														
3A	A	3.00	Y	N	5		260	69%	1585	0.164	260	88%	1515	0.172
3B	A	3.00	N	N			338		2055	**0.164**	353		2055	**0.172**
3C	A	3.00	N	N			337		2055	0.164	352		2055	0.171
Chi Kiang Street (EB)														
5A	E	3.00	Y	N	5		120	100%	1475	0.081	125	100%	1475	0.085
5B	E	3.00	N	N			275		2055	**0.134**	255		2055	**0.124**
4A	D,E	3.00	N	N	10		295	100%	1785	0.165	238	100%	1785	0.133
4B	D,E	3.00	N	N	10		295	100%	1785	0.165	237	100%	1785	0.133
2p	A,C,D,E		5GM +	7FG =	12	sec								
6p	A,B,C		6GM +	11FG =	17	sec								
7p	A,C,D		5GM +	8FG =	13	sec								
8p	B,C,D,E		5GM +	9FG =	14	sec								
9p	C,D		6GM +	11FG =	17	sec								
10p	B,C		5GM +	8FG =	13	sec								

Notes:

AM Peak	3+1+9p+5	PM Peak	3+1+9p+5
Sum of Critical *y* ***Y***	**0.391**	Sum of Critical *y* ***Y***	**0.399**
Lost Time ***L*** (sec)	41	Lost Time ***L*** (sec)	41
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.616	Practical *Y* ***Ypr***	0.616
Reserve Capacity ***RC***	**58%**	Reserve Capacity ***RC***	**54%**

Date : 12/6/2025 | Junction : J2 - To Kwa Wan Road / Chi Kiang Street

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

JOB NO. : 5219646

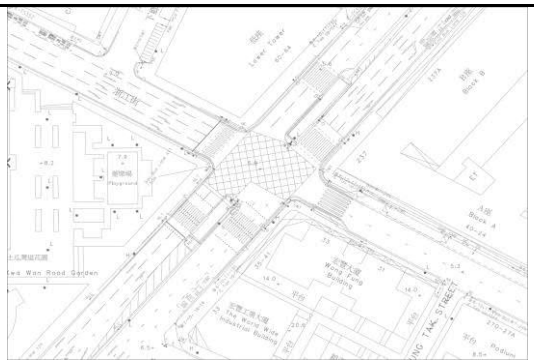
Junction : J2 - To Kwa Wan Road / Chi Kiang Street

Design Year: 2035

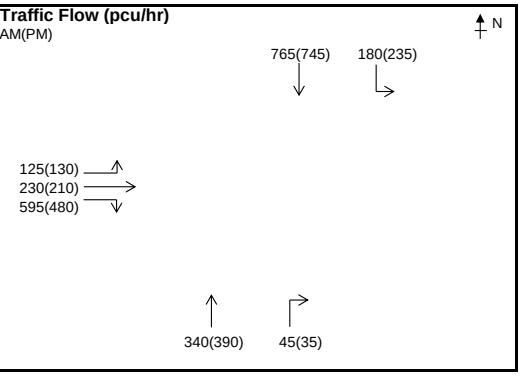
Scheme : 2035 Reference

Designed by: RC

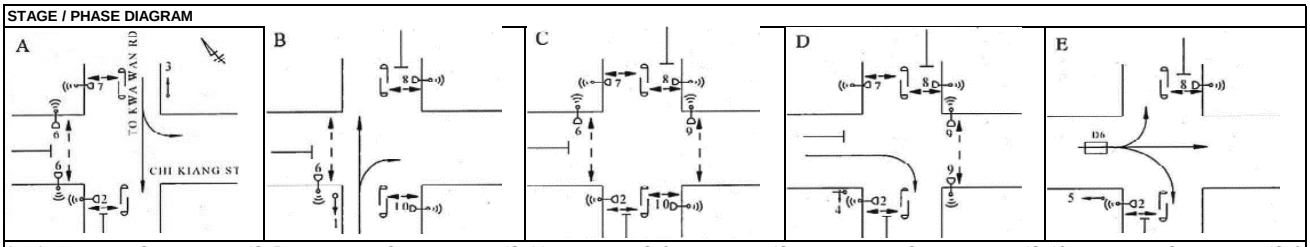
Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



3+1+9p+5	G=	IG=5	G=	IG=14	G=6	IG=	G=	IG=13	G=	IG=6
3+1+9p+5	G=	IG=5	G=	IG=14	G=6	IG=	G=	IG=13	G=	IG=6

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
To Kwa Wan Road (NB)														
1A	B	3.65	Y	N			188		1980	**0.095**	207		1980	0.105
1B	B	3.65	N	N	15		197	23%	2075	0.095	218	16%	2085	**0.105**
To Kwa Wan Road (SB)														
3A	A	3.00	Y	N	5		264	68%	1590	**0.166**	263	89%	1510	0.174
3B	A	3.00	N	N			341		2055	0.166	359		2055	**0.175**
3C	A	3.00	N	N			340		2055	0.165	358		2055	0.174
Chi Kiang Street (EB)														
5A	E	3.00	Y	N	5		125	100%	1475	0.085	130	100%	1475	0.088
5B	E	3.00	N	N			230		2055	**0.112**	210		2055	**0.102**
4A	D,E	3.00	N	N	10		298	100%	1785	0.167	240	100%	1785	0.134
4B	D,E	3.00	N	N	10		297	100%	1785	0.166	240	100%	1785	0.134
2p	A,C,D,E		5GM +	7FG =	12	sec								
6p	A,B,C		6GM +	11FG =	17	sec								
7p	A,C,D		5GM +	8FG =	13	sec								
8p	B,C,D,E		5GM +	9FG =	14	sec								
9p	C,D		6GM +	11FG =	17	sec								
10p	B,C		5GM +	8FG =	13	sec								

Notes:

AM Peak	3+1+9p+5	PM Peak	3+1+9p+5
Sum of Critical *y* ***Y***	**0.373**	Sum of Critical *y* ***Y***	**0.381**
Lost Time ***L*** (sec)	41	Lost Time ***L*** (sec)	41
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.616	Practical *Y* ***Ypr***	0.616
Reserve Capacity ***RC***	**65%**	Reserve Capacity ***RC***	**62%**

Date : 12/6/2025 Junction : J2 - To Kwa Wan Road / Chi Kiang Street

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

JOB NO. : 5219646

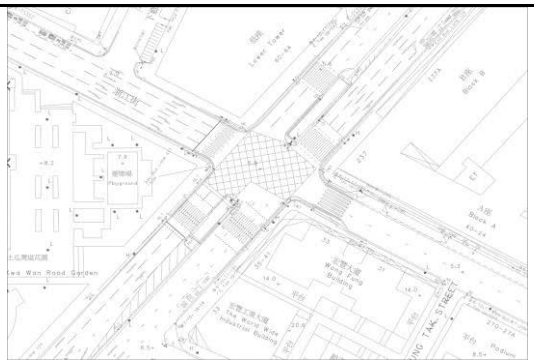
Junction : J2 - To Kwa Wan Road / Chi Kiang Street

Design Year: 2035

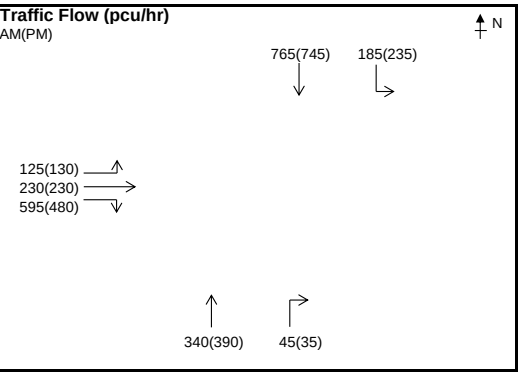
Scheme : 2035 Design

Designed by: RC

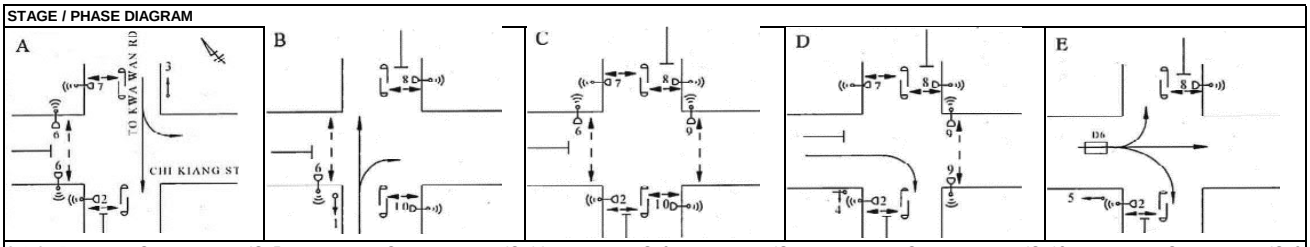
Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



3+1+9p+5	G=	IG=5	G=	IG=14	G=6	IG=	G=	IG=13	G=	IG=6
3+1+9p+5	G=	IG=5	G=	IG=14	G=6	IG=	G=	IG=13	G=	IG=6

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
To Kwa Wan Road (NB)														
1A	B	3.65	Y	N			188		1980	**0.095**	207		1980	0.105
1B	B	3.65	N	N	15		197	23%	2075	0.095	218	16%	2085	**0.105**
To Kwa Wan Road (SB)														
3A	A	3.00	Y	N	5		264	70%	1580	**0.167**	263	89%	1510	0.174
3B	A	3.00	N	N			343		2055	0.167	359		2055	**0.175**
3C	A	3.00	N	N			343		2055	0.167	358		2055	0.174
Chi Kiang Street (EB)														
5A	E	3.00	Y	N	5		125	100%	1475	0.085	130	100%	1475	0.088
5B	E	3.00	N	N			230		2055	**0.112**	230		2055	**0.112**
4A	D,E	3.00	N	N	10		298	100%	1785	0.167	240	100%	1785	0.134
4B	D,E	3.00	N	N	10		297	100%	1785	0.166	240	100%	1785	0.134
2p	A,C,D,E		5GM +	7FG =	12	sec								
6p	A,B,C		6GM +	11FG =	17	sec								
7p	A,C,D		5GM +	8FG =	13	sec								
8p	B,C,D,E		5GM +	9FG =	14	sec								
9p	C,D		6GM +	11FG =	17	sec								
10p	B,C		5GM +	8FG =	13	sec								

Notes:

AM Peak	3+1+9p+5	PM Peak	3+1+9p+5
Sum of Critical *y* ***Y***	**0.374**	Sum of Critical *y* ***Y***	**0.391**
Lost Time ***L*** (sec)	41	Lost Time ***L*** (sec)	41
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.616	Practical *Y* ***Ypr***	0.616
Reserve Capacity ***RC***	**65%**	Reserve Capacity ***RC***	**58%**

Date : 12/6/2025 Junction : J2 - To Kwa Wan Road / Chi Kiang Street

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

JOB NO. : 5219646

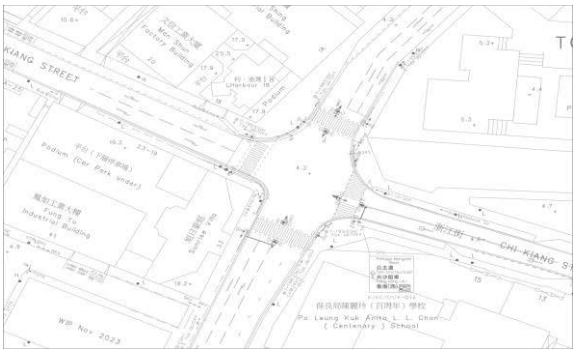
Junction : J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street

Design Year: 2024

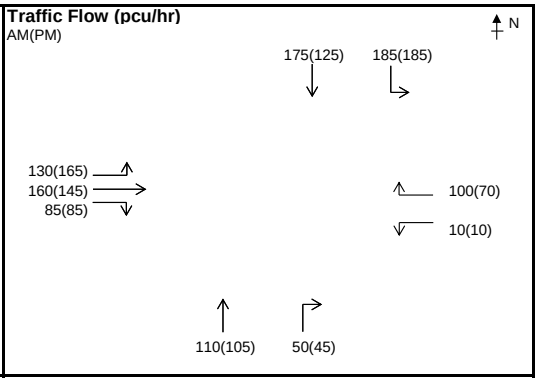
Scheme : 2024 Observed - Weekday

Designed by: RC

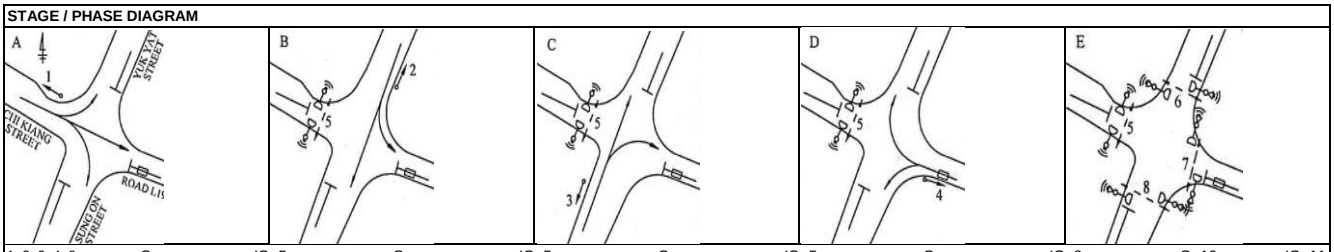
Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3+4+8p	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=8	G=10	IG=11	
1+2+3+4+8p	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=8	G=10	IG=11	

Capacity Calculations

Phase	Stage	Lane Width (m) ***w***	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) ***r***	Gradient in % ***g***	AM Peak Design Flow ***q*** (pcu/hr)	AM Peak Proportion turning (%) ***f***	AM Peak Saturation flow ***S*** (pcu/hr)	AM Peak Flow factor ***y***	PM Peak Design Flow ***q*** (pcu/hr)	PM Peak Proportion turning (%) ***f***	PM Peak Saturation flow ***S*** (pcu/hr)	PM Peak Flow factor ***y***
Chi Kiang Street (EB)														
1A	A	4.80	Y	N	10		290	45%	1965	**0.148**	310	53%	1940	**0.160**
1B	A	4.80	N	N	10		85	100%	1945	0.044	85	100%	1945	0.044
Yuk Yat Street (SB)														
2A	B	3.00	Y	N	10		185	100%	1665	**0.111**	185	100%	1665	**0.111**
2B	B	3.00	N	N			175		2055	0.085	125		2055	0.061
Sung On Street (NB)														
3A	C	3.50	Y	N			110		1965	**0.056**	105		1965	**0.053**
3B	C	3.50	N	N	10		50	100%	1830	0.027	45	100%	1830	0.025
Chi Kiang Street (WB)														
4A	D	4.00	Y	N	10/15		110	9% / 91%	1825	**0.060**	80	13% / 88%	1820	**0.044**
5p	B,C,D,E		5GM +	13FG =	18	sec								
6p	E		7GM +	7FG =	14	sec								
7p	E		10GM +	8FG =	18	sec								
8p	E		10GM +	9FG =	19	sec								

Notes:

AM Peak	1+2+3+4+8p	PM Peak	1+2+3+4+8p
Sum of Critical *y* ***Y***	**0.375**	Sum of Critical *y* ***Y***	**0.368**
Lost Time ***L*** (sec)	40	Lost Time ***L*** (sec)	40
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.600	Practical *Y* ***Ypr***	0.600
Reserve Capacity ***RC***	**60%**	Reserve Capacity ***RC***	**63%**

Date : 12/6/2025 Junction : J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

JOB NO. : 5219646

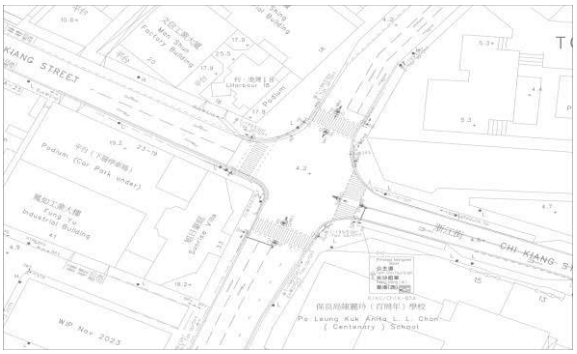
Junction : J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street

Design Year: 2032

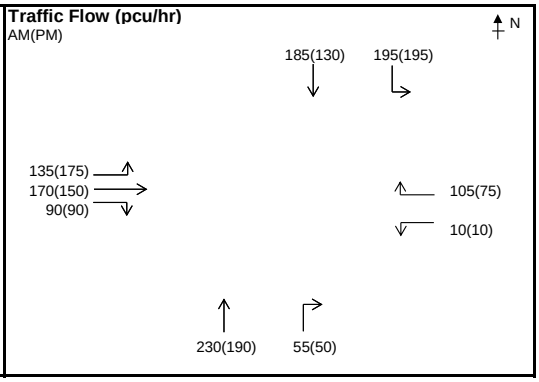
Scheme : 2032 Reference

Designed by: JL

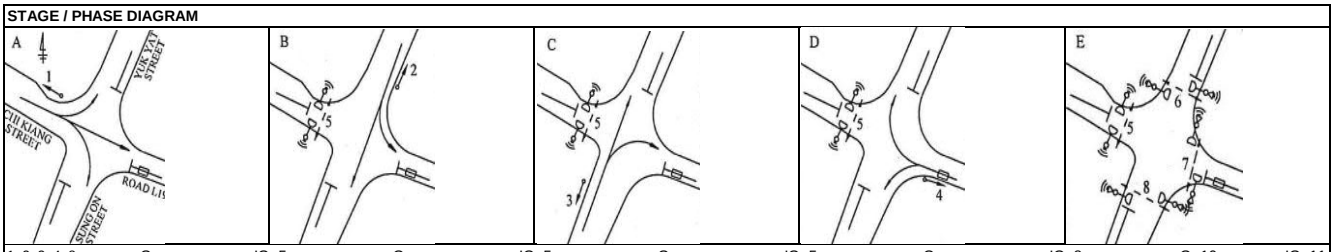
Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3+4+8p	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=8	G=10	IG=11	
1+2+3+4+8p	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=8	G=10	IG=11	

Capacity Calculations

Phase	Stage	Lane Width (m) ***w***	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) ***r***	Gradient in % ***g***	AM Peak Design Flow ***q*** (pcu/hr)	AM Peak Proportion turning (%) ***f***	AM Peak Saturation flow ***S*** (pcu/hr)	AM Peak Flow factor ***y***	PM Peak Design Flow ***q*** (pcu/hr)	PM Peak Proportion turning (%) ***f***	PM Peak Saturation flow ***S*** (pcu/hr)	PM Peak Flow factor ***y***
Chi Kiang Street (EB)														
1A	A	4.80	Y	N	10		305	44%	1965	**0.155**	325	54%	1940	**0.168**
1B	A	4.80	N	N	10		90	100%	1945	0.046	90	100%	1945	0.046
Yuk Yat Street (SB)														
2A	B	3.00	Y	N	10		195	100%	1665	**0.117**	195	100%	1665	**0.117**
2B	B	3.00	N	N			185		2055	0.090	130		2055	0.063
Sung On Street (NB)														
3A	C	3.50	Y	N			230		1965	**0.117**	190		1965	**0.097**
3B	C	3.50	N	N	10		55	100%	1830	0.030	50	100%	1830	0.027
Chi Kiang Street (WB)														
4A	D	4.00	Y	N	10/15		115	9% / 91%	1825	**0.063**	85	12% / 88%	1820	**0.047**
5p	B,C,D,E		5GM +	13FG =	18	sec								
6p	E		7GM +	7FG =	14	sec								
7p	E		10GM +	8FG =	18	sec								
8p	E		10GM +	9FG =	19	sec								

Notes:

AM Peak	1+2+3+4+8p	PM Peak	1+2+3+4+8p
Sum of Critical *y* ***Y***	**0.452**	Sum of Critical *y* ***Y***	**0.428**
Lost Time ***L*** (sec)	40	Lost Time ***L*** (sec)	40
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.600	Practical *Y* ***Ypr***	0.600
Reserve Capacity ***RC***	**33%**	Reserve Capacity ***RC***	**40%**

Date : 12/6/2025 Junction : J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

JOB NO. : 5219646

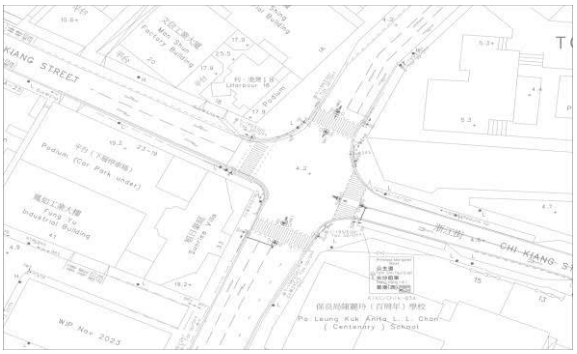
Junction : J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street

Design Year: 2032

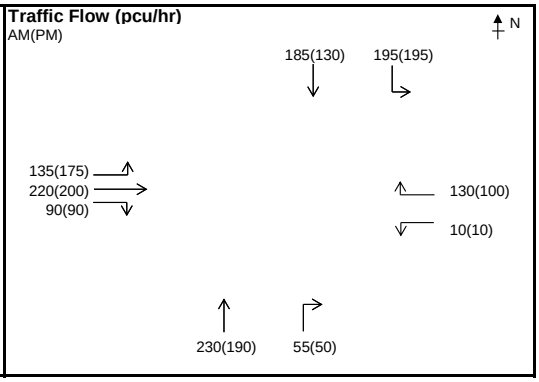
Scheme : 2032 Construction

Designed by: JL

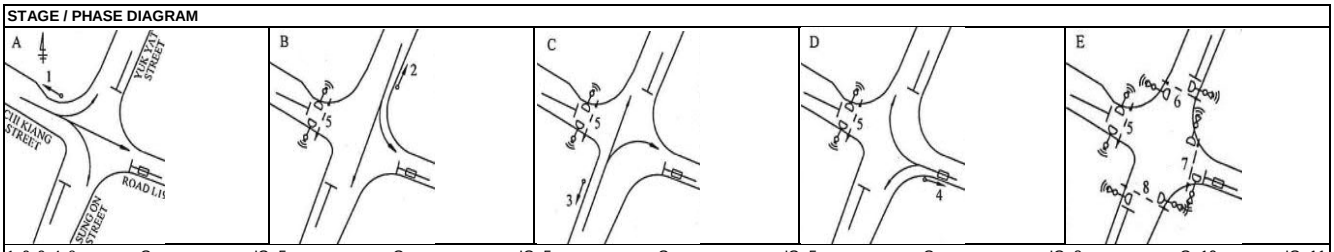
Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3+4+8p	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=8	G=10	IG=11
1+2+3+4+8p	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=8	G=10	IG=11

Capacity Calculations

Phase	Stage	Lane Width (m) ***w***	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) ***r***	Gradient in % ***g***	AM Peak Design Flow ***q*** (pcu/hr)	AM Peak Proportion turning (%) ***f***	AM Peak Saturation flow ***S*** (pcu/hr)	AM Peak Flow factor ***y***	PM Peak Design Flow ***q*** (pcu/hr)	PM Peak Proportion turning (%) ***f***	PM Peak Saturation flow ***S*** (pcu/hr)	PM Peak Flow factor ***y***
Chi Kiang Street (EB)														
1A	A	4.80	Y	N	10		355	38%	1980	**0.179**	375	47%	1960	**0.191**
1B	A	4.80	N	N	10		90	100%	1945	0.046	90	100%	1945	0.046
Yuk Yat Street (SB)														
2A	B	3.00	Y	N	10		195	100%	1665	**0.117**	195	100%	1665	**0.117**
2B	B	3.00	N	N			185		2055	0.090	130		2055	0.063
Sung On Street (NB)														
3A	C	3.50	Y	N			230		1965	**0.117**	190		1965	**0.097**
3B	C	3.50	N	N	10		55	100%	1830	0.030	50	100%	1830	0.027
Chi Kiang Street (WB)														
4A	D	4.00	Y	N	10/15		140	7% / 93%	1825	**0.077**	110	9% / 91%	1825	**0.060**
5p	B,C,D,E		5GM +	13FG =	18	sec								
6p	E		7GM +	7FG =	14	sec								
7p	E		10GM +	8FG =	18	sec								
8p	E		10GM +	9FG =	19	sec								

Notes:

AM Peak	1+2+3+4+8p	PM Peak	1+2+3+4+8p
Sum of Critical *y* ***Y***	**0.490**	Sum of Critical *y* ***Y***	**0.465**
Lost Time ***L*** (sec)	40	Lost Time ***L*** (sec)	40
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.600	Practical *Y* ***Ypr***	0.600
Reserve Capacity ***RC***	**22%**	Reserve Capacity ***RC***	**29%**

Date : 12/6/2025 Junction : J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

JOB NO. : 5219646

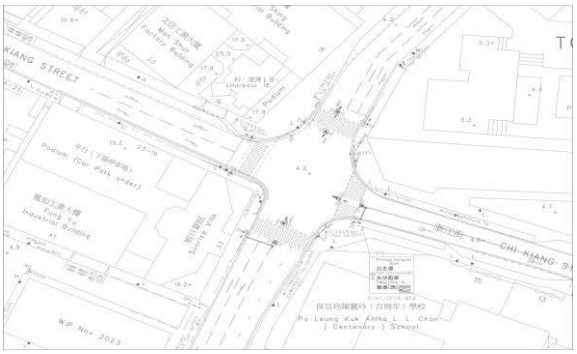
Junction : J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street

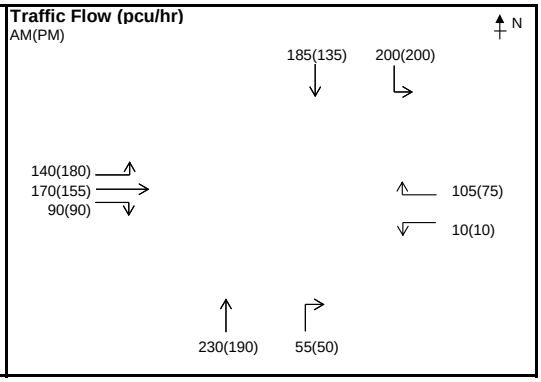
Design Year: 2035

Scheme : 2035 Reference

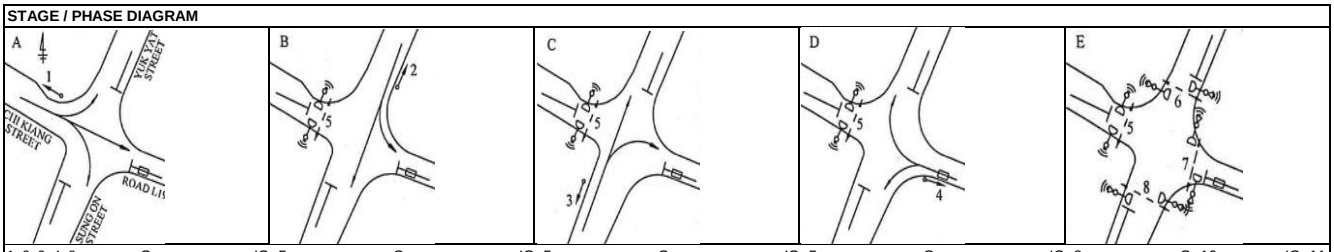
Designed by: RC

Checked by: EC





STAGE / PHASE DIAGRAM



1+2+3+4+8p	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=8	G=10	IG=11	
1+2+3+4+8p	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=8	G=10	IG=11	

Capacity Calculations

Phase	Stage	Lane Width (m) ***w***	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) ***r***	Gradient in % ***g***	AM Peak: Design Flow ***q*** (pcu/hr)	AM Peak: Proportion turning (%) ***f***	AM Peak: Saturation flow ***S*** (pcu/hr)	AM Peak: Flow factor ***y***	PM Peak: Design Flow ***q*** (pcu/hr)	PM Peak: Proportion turning (%) ***f***	PM Peak: Saturation flow ***S*** (pcu/hr)	PM Peak: Flow factor ***y***
Chi Kiang Street (EB)														
1A	A	4.80	Y	N	10		310	45%	1960	**0.158**	335	54%	1940	**0.173**
1B	A	4.80	N	N	10		90	100%	1945	0.046	90	100%	1945	0.046
Yuk Yat Street (SB)														
2A	B	3.00	Y	N	10		200	100%	1665	**0.120**	200	100%	1665	**0.120**
2B	B	3.00	N	N			185		2055	0.090	135		2055	0.066
Sung On Street (NB)														
3A	C	3.50	Y	N			230		1965	**0.117**	190		1965	**0.097**
3B	C	3.50	N	N	10		55	100%	1830	0.030	50	100%	1830	0.027
Chi Kiang Street (WB)														
4A	D	4.00	Y	N	10/15		115	9% / 91%	1825	**0.063**	85	12% / 88%	1820	**0.047**
5p	B,C,D,E		5GM +	13FG =	18	sec								
6p	E		7GM +	7FG =	14	sec								
7p	E		10GM +	8FG =	18	sec								
8p	E		10GM +	9FG =	19	sec								

Notes:

AM Peak	1+2+3+4+8p	PM Peak	1+2+3+4+8p
Sum of Critical *y* ***Y***	**0.458**	Sum of Critical *y* ***Y***	**0.436**
Lost Time ***L*** (sec)	40	Lost Time ***L*** (sec)	40
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.600	Practical *Y* ***Ypr***	0.600
Reserve Capacity ***RC***	**31%**	Reserve Capacity ***RC***	**38%**

Date : 12/6/2025 Junction : J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

JOB NO. : 5219646

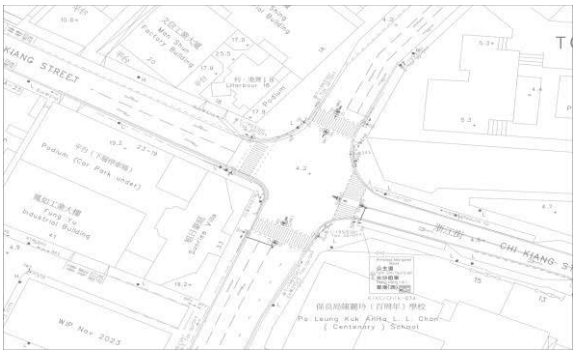
Junction : J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street

Design Year: 2035

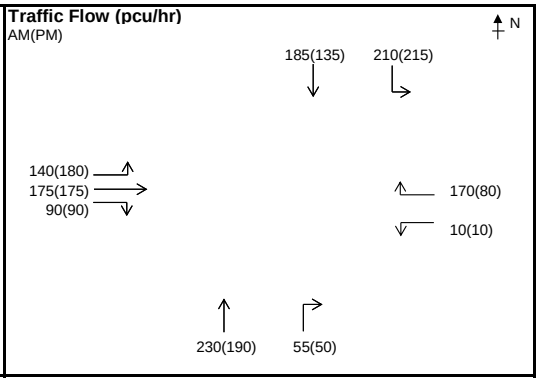
Scheme : 2035 Design

Designed by: RC

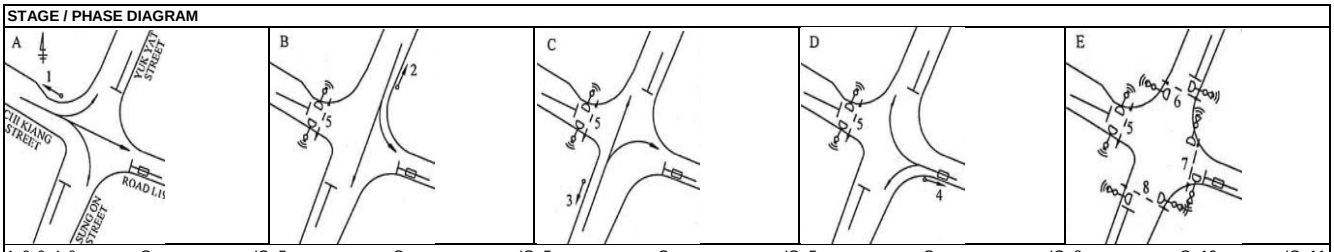
Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3+4+8p	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=8	G=10	IG=11
1+2+3+4+8p	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=8	G=10	IG=11

Capacity Calculations

Phase	Stage	Lane Width (m) ***w***	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) ***r***	Gradient in % ***g***	AM Peak Design Flow ***q*** (pcu/hr)	AM Peak Proportion turning (%) ***f***	AM Peak Saturation flow ***S*** (pcu/hr)	AM Peak Flow factor ***y***	PM Peak Design Flow ***q*** (pcu/hr)	PM Peak Proportion turning (%) ***f***	PM Peak Saturation flow ***S*** (pcu/hr)	PM Peak Flow factor ***y***
Chi Kiang Street (EB)														
1A	A	4.80	Y	N	10		315	44%	1965	**0.160**	355	51%	1945	**0.183**
1B	A	4.80	N	N	10		90	100%	1945	0.046	90	100%	1945	0.046
Yuk Yat Street (SB)														
2A	B	3.00	Y	N	10		210	100%	1665	**0.126**	215	100%	1665	**0.129**
2B	B	3.00	N	N			185		2055	0.090	135		2055	0.066
Sung On Street (NB)														
3A	C	3.50	Y	N			230		1965	**0.117**	190		1965	**0.097**
3B	C	3.50	N	N	10		55	100%	1830	0.030	50	100%	1830	0.027
Chi Kiang Street (WB)														
4A	D	4.00	Y	N	10/15		180	6% / 94%	1825	**0.099**	90	11% / 89%	1825	**0.049**
5p	B,C,D,E		5GM +	13FG =	18	sec								
6p	E		7GM +	7FG =	14	sec								
7p	E		10GM +	8FG =	18	sec								
8p	E		10GM +	9FG =	19	sec								

Notes:

AM Peak	1+2+3+4+8p	PM Peak	1+2+3+4+8p
Sum of Critical *y* ***Y***	**0.502**	Sum of Critical *y* ***Y***	**0.458**
Lost Time ***L*** (sec)	40	Lost Time ***L*** (sec)	40
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.600	Practical *Y* ***Ypr***	0.600
Reserve Capacity ***RC***	**19%**	Reserve Capacity ***RC***	**31%**

Date : 12/6/2025 Junction : J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street

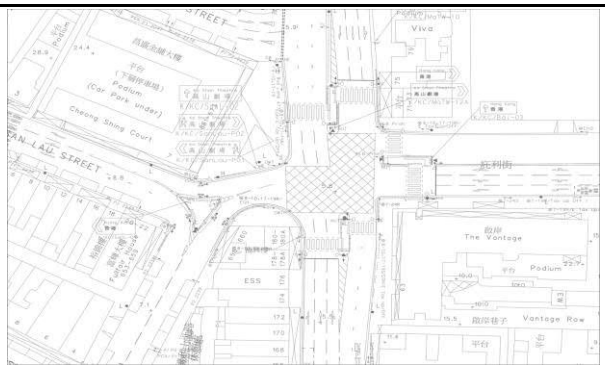
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

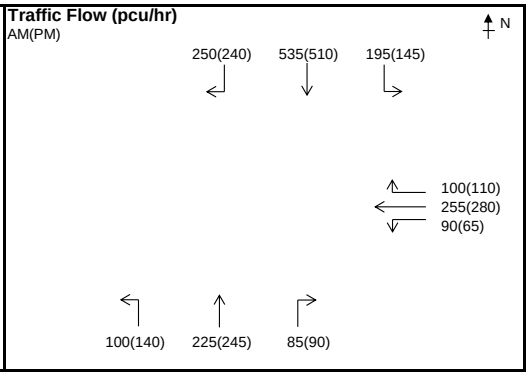
JOB NO. : 5219646

Junction : J4 - Ma Tau Wai Road / Bailey Street Design Year: 2024

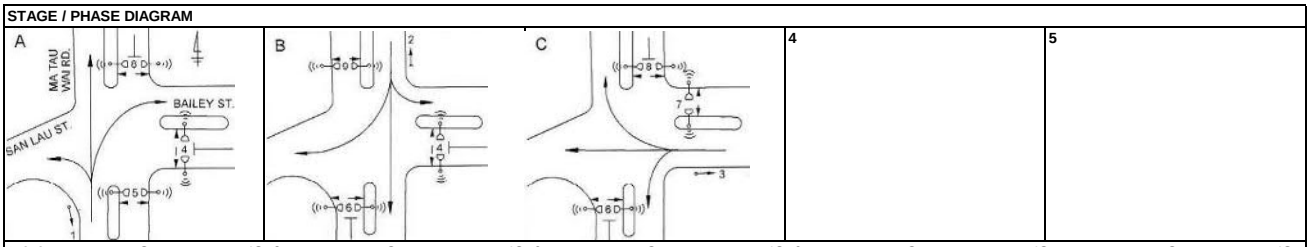
Scheme : 2024 Observed - Weekday Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3	G=	IG=8	G=	IG=6	G=	IG=6	G=	IG=	G=	IG=
1+2+3	G=	IG=8	G=	IG=6	G=	IG=6	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Ma Tau Wai Road (NB)														
1A	A	3.00	Y	N	8		120	83%	1655	0.073	140	100%	1615	**0.087**
1B	A	3.00	N	N			149		2055	0.073	172		2055	0.084
1C	A	3.00	N	N	15		141	60%	1940	**0.073**	163	55%	1945	0.084
Ma Tau Wai Road (SB)														
2A	B	3.30	Y	N	8		333	59%	1755	0.190	302	48%	1785	0.169
2B	B	3.30	N	N			397		2085	**0.190**	353		2085	**0.169**
2C	B	3.30	N	N	15		250	100%	1895	0.132	240	100%	1895	0.127
Bailey Street (WB)														
3A	C	3.00	Y	N	5		90	100%	1475	0.061	65	100%	1475	0.044
3B	C	3.00	N	N	10		182	0%	2055	0.089	200	0%	2055	0.097
3C	C	3.00	N	N	15		173	58%	1945	**0.089**	190	58%	1945	**0.098**
4p	A,B		5GM +	8FG =	13	sec								
5p	A,B		5GM +	8FG =	13	sec								
6p	B,C		5GM +	8FG =	13	sec								
7p	C		5GM +	9FG =	14	sec								
8p	A,C		5GM +	9FG =	14	sec								
9p	B		5GM +	12FG =	17	sec								

Notes:

AM Peak	1+2+3	PM Peak	1+2+3
Sum of Critical *y* ***Y***	**0.352**	Sum of Critical *y* ***Y***	**0.354**
Lost Time ***L*** (sec)	17	Lost Time ***L*** (sec)	17
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.782	Practical *Y* ***Ypr***	0.782
Reserve Capacity ***RC***	**122%**	Reserve Capacity ***RC***	**121%**

Date : 12/6/2025 Junction : J4 - Ma Tau Wai Road / Bailey Street

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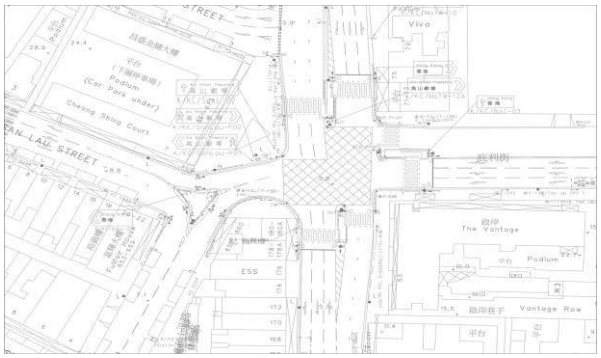
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

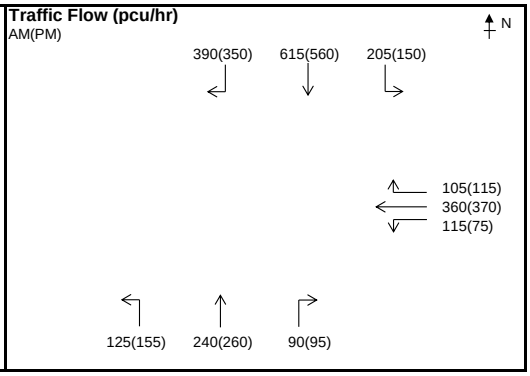
JOB NO. : 5219646

Junction : J4 - Ma Tau Wai Road / Bailey Street Design Year: 2032

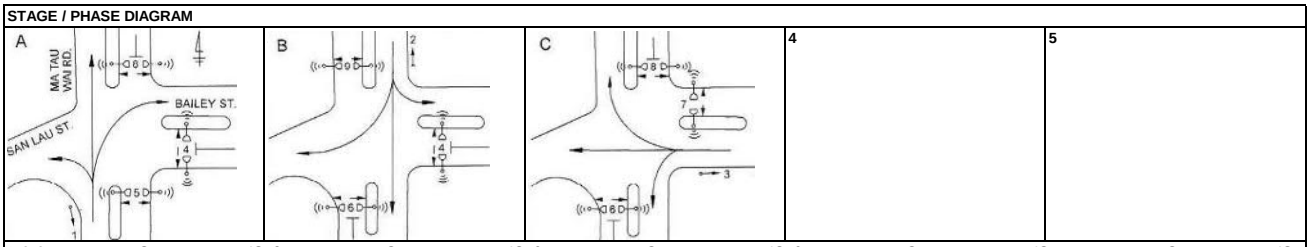
Scheme : 2032 Reference Designed by: JL Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3	G=	IG=8	G=	IG=6	G=	IG=6	G=	IG=	G=	IG=
1+2+3	G=	IG=8	G=	IG=6	G=	IG=6	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Ma Tau Wai Road (NB)														
1A	A	3.00	Y	N	8		131	95%	1625	0.081	155	100%	1615	**0.096**
1B	A	3.00	N	N			167		2055	**0.081**	182		2055	0.089
1C	A	3.00	N	N	15		157	57%	1945	0.081	173	55%	1950	0.089
Ma Tau Wai Road (SB)														
2A	B	3.30	Y	N	8		376	55%	1765	**0.213**	328	46%	1790	0.183
2B	B	3.30	N	N			444		2085	0.213	382		2085	0.183
2C	B	3.30	N	N	15		390	100%	1895	0.206	350	100%	1895	**0.185**
Bailey Street (WB)														
3A	C	3.00	Y	N	5		115	100%	1475	0.078	75	100%	1475	0.051
3B	C	3.00	N	N	10		238	0%	2055	**0.116**	248	0%	2055	0.121
3C	C	3.00	N	N	15		227	46%	1965	0.116	237	49%	1960	**0.121**
4p	A,B		5GM +	8FG =	13	sec								
5p	A,B		5GM +	8FG =	13	sec								
6p	B,C		5GM +	8FG =	13	sec								
7p	C		5GM +	9FG =	14	sec								
8p	A,C		5GM +	9FG =	14	sec								
9p	B		5GM +	12FG =	17	sec								

Notes:

AM Peak	1+2+3	PM Peak	1+2+3
Sum of Critical *y* ***Y***	**0.410**	Sum of Critical *y* ***Y***	**0.402**
Lost Time ***L*** (sec)	17	Lost Time ***L*** (sec)	17
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.782	Practical *Y* ***Ypr***	0.782
Reserve Capacity ***RC***	**91%**	Reserve Capacity ***RC***	**95%**

Date : 12/6/2025 Junction : J4 - Ma Tau Wai Road / Bailey Street

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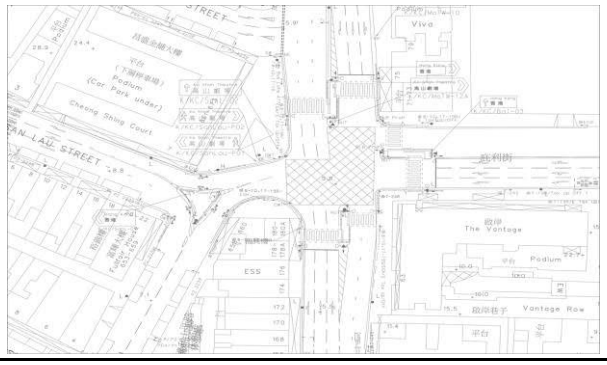
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

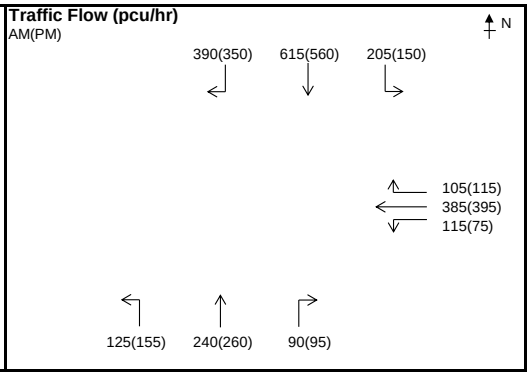
JOB NO. : 5219646

Junction : J4 - Ma Tau Wai Road / Bailey Street Design Year: 2032

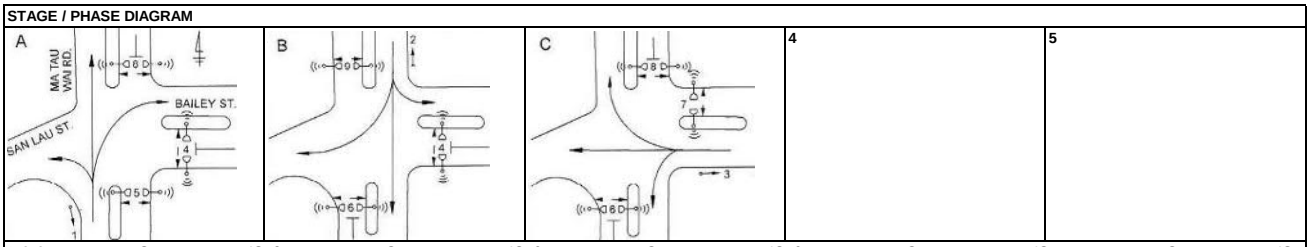
Scheme : 2032 Construction Designed by: JL Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3	G=	IG=8	G=	IG=6	G=	IG=6	G=	IG=	G=	IG=
1+2+3	G=	IG=8	G=	IG=6	G=	IG=6	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Ma Tau Wai Road (NB)														
1A	A	3.00	Y	N	8		131	95%	1625	0.081	155	100%	1615	**0.096**
1B	A	3.00	N	N			167		2055	**0.081**	182		2055	0.089
1C	A	3.00	N	N	15		157	57%	1945	0.081	173	55%	1950	0.089
Ma Tau Wai Road (SB)														
2A	B	3.30	Y	N	8		376	55%	1765	**0.213**	328	46%	1790	0.183
2B	B	3.30	N	N			444		2085	0.213	382		2085	0.183
2C	B	3.30	N	N	15		390	100%	1895	0.206	350	100%	1895	**0.185**
Bailey Street (WB)														
3A	C	3.00	Y	N	5		115	100%	1475	0.078	75	100%	1475	0.051
3B	C	3.00	N	N	10		250	0%	2055	0.122	261	0%	2055	**0.127**
3C	C	3.00	N	N	15		240	44%	1970	**0.122**	249	46%	1965	0.127
4p	A,B		5GM +	8FG =	13	sec								
5p	A,B		5GM +	8FG =	13	sec								
6p	B,C		5GM +	8FG =	13	sec								
7p	C		5GM +	9FG =	14	sec								
8p	A,C		5GM +	9FG =	14	sec								
9p	B		5GM +	12FG =	17	sec								

Notes:

AM Peak	1+2+3	PM Peak	1+2+3
Sum of Critical *y* ***Y***	**0.416**	Sum of Critical *y* ***Y***	**0.408**
Lost Time ***L*** (sec)	17	Lost Time ***L*** (sec)	17
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.782	Practical *Y* ***Ypr***	0.782
Reserve Capacity ***RC***	**88%**	Reserve Capacity ***RC***	**92%**

Date : 12/6/2025 Junction : J4 - Ma Tau Wai Road / Bailey Street

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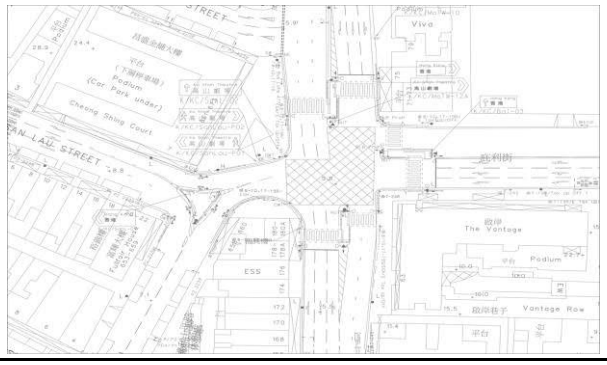
TRAFFIC SIGNAL CALCULATION SHEET

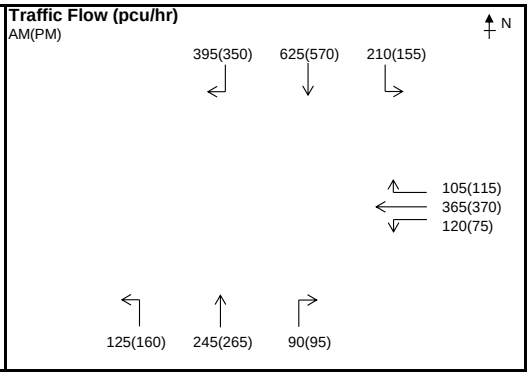
AtkinsRéalis

JOB NO. : 5219646

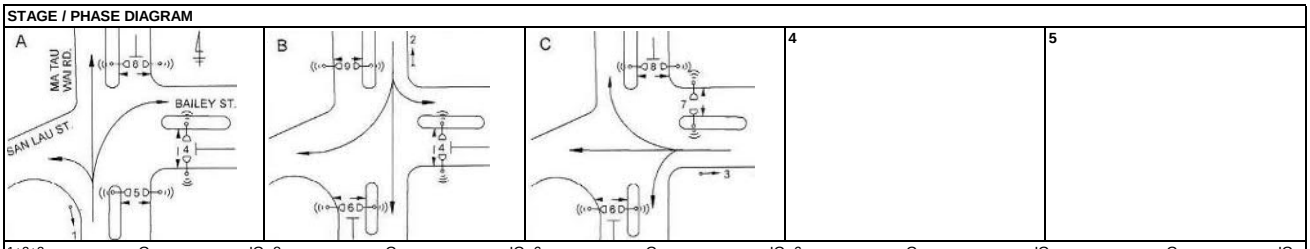
Junction : J4 - Ma Tau Wai Road / Bailey Street Design Year: 2035

Scheme : 2035 Reference Designed by: RC Checked by: EC





STAGE / PHASE DIAGRAM



1+2+3	G=	IG=8	G=	IG=6	G=	IG=6	G=	IG=	G=	IG=
1+2+3	G=	IG=8	G=	IG=6	G=	IG=6	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Ma Tau Wai Road (NB)														
1A	A	3.00	Y	N	8		133	94%	1630	0.082	160	100%	1615	**0.099**
1B	A	3.00	N	N			168		2055	**0.082**	185		2055	0.090
1C	A	3.00	N	N	15		159	57%	1945	0.082	175	54%	1950	0.090
Ma Tau Wai Road (SB)														
2A	B	3.30	Y	N	8		383	55%	1765	**0.217**	335	46%	1790	**0.187**
2B	B	3.30	N	N			452		2085	0.217	390		2085	0.187
2C	B	3.30	N	N	15		395	100%	1895	0.208	350	100%	1895	0.185
Bailey Street (WB)														
3A	C	3.00	Y	N	5		120	100%	1475	0.081	75	100%	1475	0.051
3B	C	3.00	N	N	10		240	0%	2055	0.117	248	0%	2055	0.121
3C	C	3.00	N	N	15		230	46%	1965	**0.117**	237	49%	1960	**0.121**
4p	A,B		5GM +	8FG =	13	sec								
5p	A,B		5GM +	8FG =	13	sec								
6p	B,C		5GM +	8FG =	13	sec								
7p	C		5GM +	9FG =	14	sec								
8p	A,C		5GM +	9FG =	14	sec								
9p	B		5GM +	12FG =	17	sec								

Notes:

AM Peak	1+2+3	PM Peak	1+2+3
Sum of Critical *y* ***Y***	**0.416**	Sum of Critical *y* ***Y***	**0.407**
Lost Time ***L*** (sec)	17	Lost Time ***L*** (sec)	17
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.782	Practical *Y* ***Ypr***	0.782
Reserve Capacity ***RC***	**88%**	Reserve Capacity ***RC***	**92%**

Date : 12/6/2025 Junction : J4 - Ma Tau Wai Road / Bailey Street

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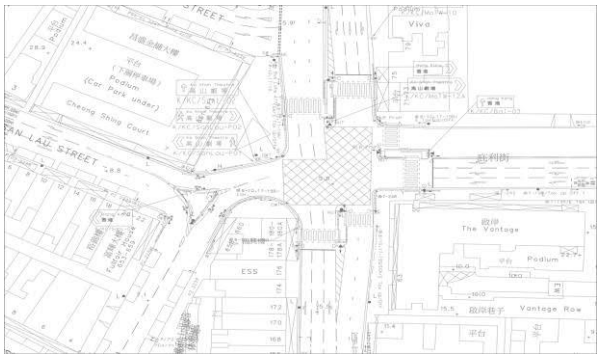
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

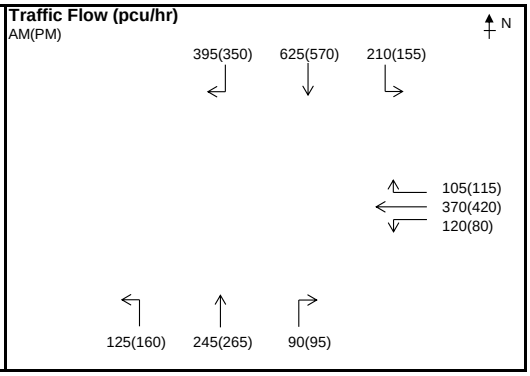
JOB NO. : 5219646

Junction : J4 - Ma Tau Wai Road / Bailey Street Design Year: 2035

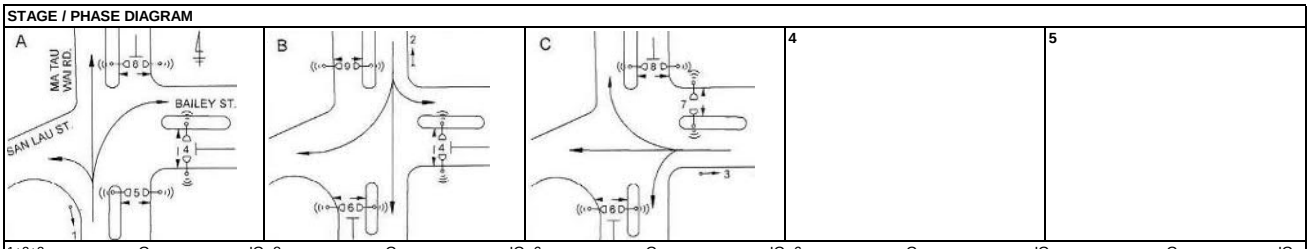
Scheme : 2035 Design Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3	G=	IG=8	G=	IG=6	G=	IG=6	G=	IG=	G=	IG=
1+2+3	G=	IG=8	G=	IG=6	G=	IG=6	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Ma Tau Wai Road (NB)														
1A	A	3.00	Y	N	8		133	94%	1630	0.082	160	100%	1615	**0.099**
1B	A	3.00	N	N			168		2055	**0.082**	185		2055	0.090
1C	A	3.00	N	N	15		159	57%	1945	0.082	175	54%	1950	0.090
Ma Tau Wai Road (SB)														
2A	B	3.30	Y	N	8		383	55%	1765	**0.217**	335	46%	1790	**0.187**
2B	B	3.30	N	N			452		2085	0.217	390		2085	0.187
2C	B	3.30	N	N	15		395	100%	1895	0.208	350	100%	1895	0.185
Bailey Street (WB)														
3A	C	3.00	Y	N	5		120	100%	1475	0.081	80	100%	1475	0.054
3B	C	3.00	N	N	10		243	0%	2055	**0.118**	273	0%	2055	0.133
3C	C	3.00	N	N	15		232	45%	1965	0.118	262	44%	1970	**0.133**
4p	A,B		5GM +	8FG =	13	sec								
5p	A,B		5GM +	8FG =	13	sec								
6p	B,C		5GM +	8FG =	13	sec								
7p	C		5GM +	9FG =	14	sec								
8p	A,C		5GM +	9FG =	14	sec								
9p	B		5GM +	12FG =	17	sec								

Notes:

AM Peak	1+2+3	PM Peak	1+2+3
Sum of Critical *y* ***Y***	**0.417**	Sum of Critical *y* ***Y***	**0.419**
Lost Time ***L*** (sec)	17	Lost Time ***L*** (sec)	17
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.782	Practical *Y* ***Ypr***	0.782
Reserve Capacity ***RC***	**88%**	Reserve Capacity ***RC***	**87%**

Date : 12/6/2025 Junction : J4 - Ma Tau Wai Road / Bailey Street

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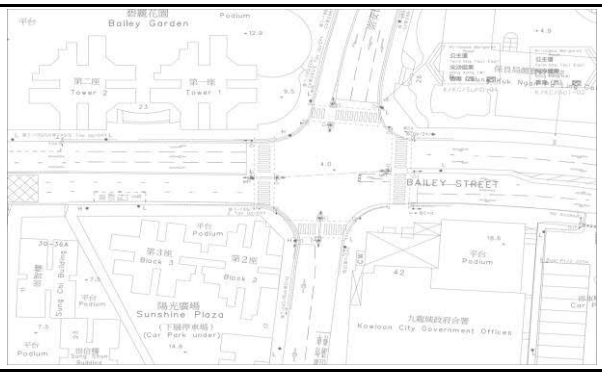
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

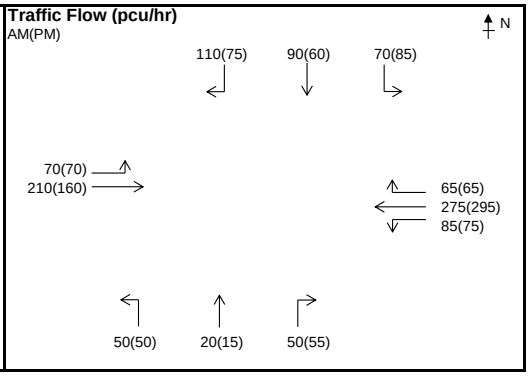
JOB NO. : 5219646

Junction : J5 - Bailey Street / Sung On Street Design Year: 2024

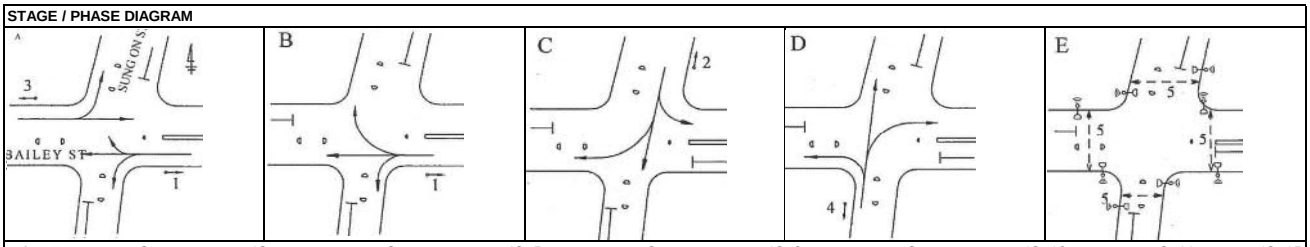
Scheme : 2024 Observed - Weekday Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+4+5p	G=	IG=	G=	IG=5	G=	IG=8	G=	IG=13	G=11	IG=15	
1+2+4+5p	G=	IG=	G=	IG=5	G=	IG=8	G=	IG=13	G=11	IG=15	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Bailey Street (WB)														
1A	A,B	3.20	Y	N	10		167	51%	1800	0.093	173	43%	1815	**0.095**
1B	A,B	3.20	N	N			193		2075	**0.093**	197		2075	0.095
1C	A,B	3.00	Y	Y	15		65	100%	1530	0.042	65	100%	1530	0.042
Sung On Street (SB)														
2A	C	3.50	Y	N	10		70	100%	1710	0.041	66	100%	1710	0.039
2B	C	3.50	N	N	10		90	0%	2105	0.043	79	24%	2030	0.039
2C	C	3.50	N	N	15		110	100%	1915	**0.057**	75	100%	1915	**0.039**
Bailey Street (EB)														
3A	A	3.10	Y	N	10		70	100%	1675	0.042	70	100%	1675	0.042
3B	A	3.10	N	N			105		2065	0.051	80		2065	0.039
3C	A	3.10	N	N			105		2065	0.051	80		2065	0.039
Sung On Street (NB)														
4A	D	5.00	Y	N	10/25		120	42% / 42%	1945	**0.062**	120	42% / 46%	1940	**0.062**
5p	E		11GM +	12FG =	23	sec								

Notes:

AM Peak	1+2+4+5p	PM Peak	1+2+4+5p
Sum of Critical *y* ***Y***	**0.212**	Sum of Critical *y* ***Y***	**0.196**
Lost Time ***L*** (sec)	49	Lost Time ***L*** (sec)	49
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.561	Practical *Y* ***Ypr***	0.561
Reserve Capacity ***RC***	**164%**	Reserve Capacity ***RC***	**186%**

Date : 12/6/2025 Junction : J5 - Bailey Street / Sung On Street

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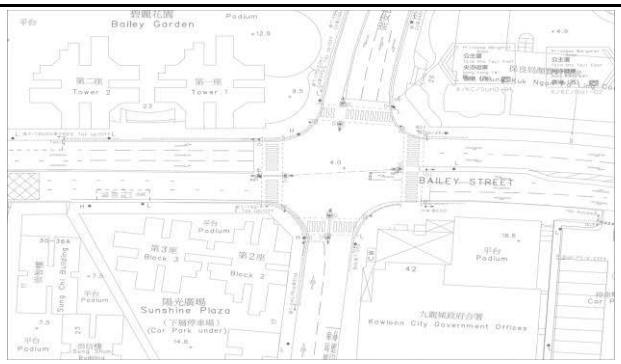
TRAFFIC SIGNAL CALCULATION SHEET

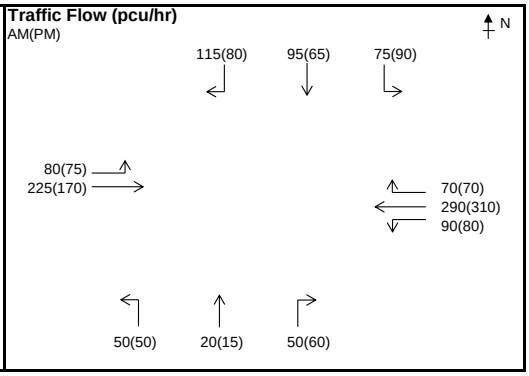
AtkinsRéalis

JOB NO. : 5219646

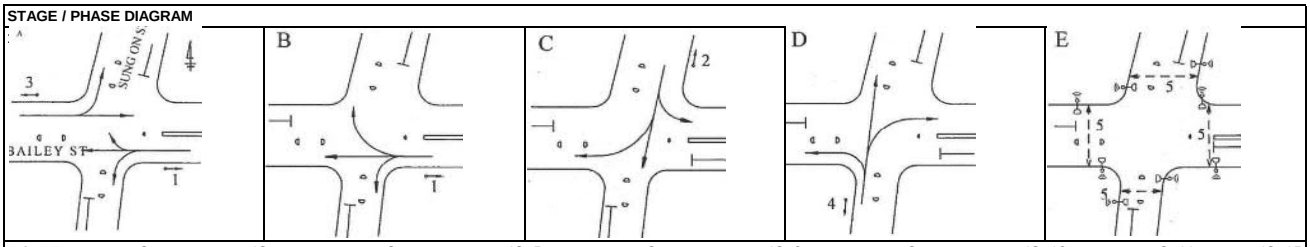
Junction : J5 - Bailey Street / Sung On Street Design Year: 2032

Scheme : 2032 Reference Designed by: JL Checked by: EC





STAGE / PHASE DIAGRAM



1+2+4+5p	G=	IG=	G=	IG=5	G=	IG=8	G=	IG=13	G=11	IG=15	
1+2+4+5p	G=	IG=	G=	IG=5	G=	IG=8	G=	IG=13	G=11	IG=15	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Bailey Street (WB)														
1A	A,B	3.20	Y	N	10		176	51%	1795	0.098	182	44%	1815	**0.100**
1B	A,B	3.20	N	N			204		2075	**0.098**	208		2075	0.100
1C	A,B	3.00	Y	Y	15		70	100%	1530	0.046	70	100%	1530	0.046
Sung On Street (SB)														
2A	C	3.50	Y	N	10		75	100%	1710	0.044	71	100%	1710	0.042
2B	C	3.50	N	N	10		95	0%	2105	0.045	84	23%	2035	0.041
2C	C	3.50	N	N	15		115	100%	1915	**0.060**	80	100%	1915	**0.042**
Bailey Street (EB)														
3A	A	3.10	Y	N	10		80	100%	1675	0.048	75	100%	1675	0.045
3B	A	3.10	N	N			113		2065	0.055	85		2065	0.041
3C	A	3.10	N	N			112		2065	0.054	85		2065	0.041
Sung On Street (NB)														
4A	D	5.00	Y	N	10/25		120	42% / 42%	1945	**0.062**	125	40% / 48%	1945	**0.064**
5p	E		11GM +	12FG =	23	sec								

Notes:	**AM Peak**	**1+2+4+5p**	**PM Peak**	**1+2+4+5p**
	Sum of Critical *y* ***Y***	**0.220**	Sum of Critical *y* ***Y***	**0.206**
	Lost Time ***L*** (sec)	49	Lost Time ***L*** (sec)	49
	Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
	Practical *Y* ***Ypr***	0.561	Practical *Y* ***Ypr***	0.561
	Reserve Capacity ***RC***	**155%**	Reserve Capacity ***RC***	**172%**

Date : 12/6/2025 Junction : J5 - Bailey Street / Sung On Street

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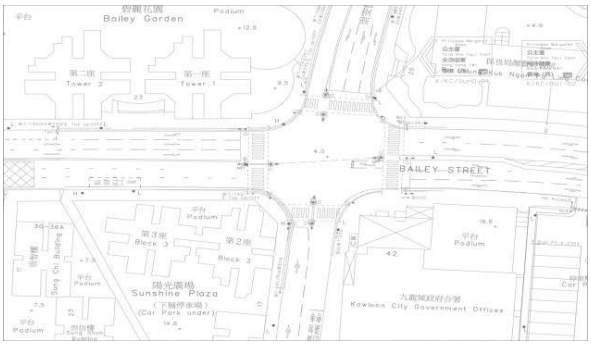
TRAFFIC SIGNAL CALCULATION SHEET

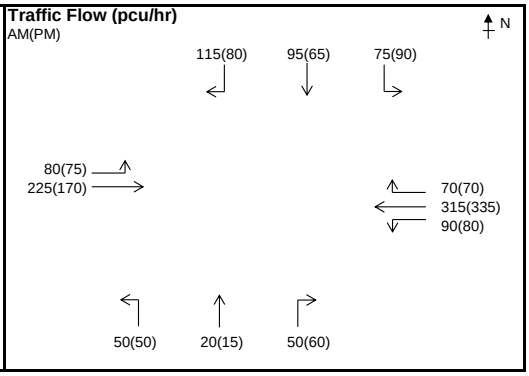
AtkinsRéalis

JOB NO. : 5219646

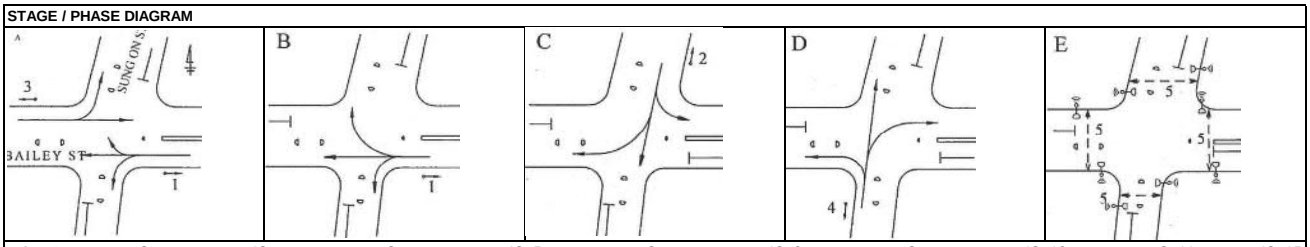
Junction : J5 - Bailey Street / Sung On Street Design Year: 2032

Scheme : 2032 Construction Designed by: JL Checked by: EC





STAGE / PHASE DIAGRAM



1+2+4+5p	G=	IG=	G=	IG=5	G=	IG=8	G=	IG=13	G=11	IG=15	
1+2+4+5p	G=	IG=	G=	IG=5	G=	IG=8	G=	IG=13	G=11	IG=15	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Bailey Street (WB)														
1A	A,B	3.20	Y	N	10		188	48%	1805	0.104	194	41%	1820	**0.107**
1B	A,B	3.20	N	N			217		2075	**0.105**	221		2075	0.107
1C	A,B	3.00	Y	Y	15		70	100%	1530	0.046	70	100%	1530	0.046
Sung On Street (SB)														
2A	C	3.50	Y	N	10		75	100%	1710	0.044	71	100%	1710	0.042
2B	C	3.50	N	N	10		95	0%	2105	0.045	84	23%	2035	0.041
2C	C	3.50	N	N	15		115	100%	1915	**0.060**	80	100%	1915	**0.042**
Bailey Street (EB)														
3A	A	3.10	Y	N	10		80	100%	1675	0.048	75	100%	1675	0.045
3B	A	3.10	N	N			113		2065	0.055	85		2065	0.041
3C	A	3.10	N	N			112		2065	0.054	85		2065	0.041
Sung On Street (NB)														
4A	D	5.00	Y	N	10/25		120	42% / 42%	1945	**0.062**	125	40% / 48%	1945	**0.064**
5p	E		11GM +	12FG =	23	sec								

Notes:	**AM Peak**	**1+2+4+5p**	**PM Peak**	**1+2+4+5p**
	Sum of Critical *y* ***Y***	**0.226**	Sum of Critical *y* ***Y***	**0.213**
	Lost Time ***L*** (sec)	49	Lost Time ***L*** (sec)	49
	Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
	Practical *Y* ***Ypr***	0.561	Practical *Y* ***Ypr***	0.561
	Reserve Capacity ***RC***	**148%**	Reserve Capacity ***RC***	**164%**

Date : 12/6/2025 Junction : J5 - Bailey Street / Sung On Street

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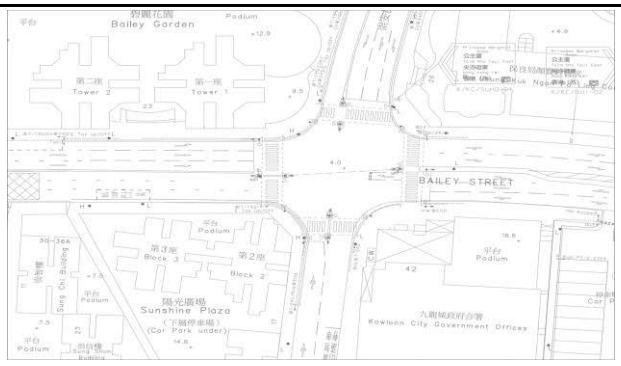
TRAFFIC SIGNAL CALCULATION SHEET

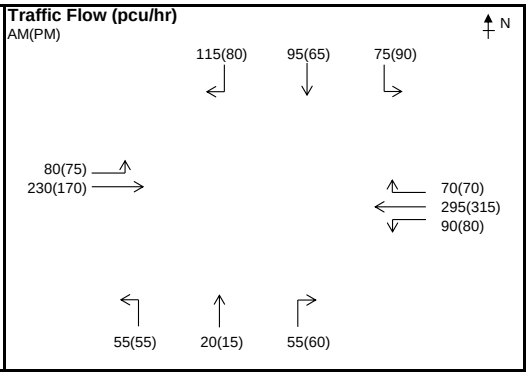
AtkinsRéalis

JOB NO. : 5219646

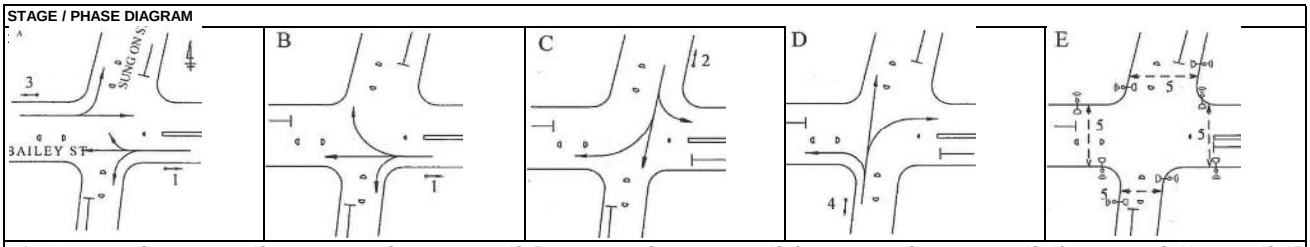
Junction : J5 - Bailey Street / Sung On Street Design Year: 2035

Scheme : 2035 Reference Designed by: RC Checked by: EC





STAGE / PHASE DIAGRAM



1+2+4+5p	G=	IG=	G=	IG=5	G=	IG=8	G=	IG=13	G=11	IG=15	
1+2+4+5p	G=	IG=	G=	IG=5	G=	IG=8	G=	IG=13	G=11	IG=15	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Bailey Street (WB)														
1A	A,B	3.20	Y	N	10		179	50%	1800	**0.099**	184	43%	1815	0.101
1B	A,B	3.20	N	N			206		2075	0.099	211		2075	**0.102**
1C	A,B	3.00	Y	Y	15		70	100%	1530	0.046	70	100%	1530	0.046
Sung On Street (SB)														
2A	C	3.50	Y	N	10		75	100%	1710	0.044	71	100%	1710	0.042
2B	C	3.50	N	N	10		95	0%	2105	0.045	84	23%	2035	0.041
2C	C	3.50	N	N	15		115	100%	1915	**0.060**	80	100%	1915	**0.042**
Bailey Street (EB)														
3A	A	3.10	Y	N	10		80	100%	1675	0.048	75	100%	1675	0.045
3B	A	3.10	N	N			115		2065	0.056	85		2065	0.041
3C	A	3.10	N	N			115		2065	0.056	85		2065	0.041
Sung On Street (NB)														
4A	D	5.00	Y	N	10/25		130	42% / 42%	1940	**0.067**	130	42% / 46%	1940	**0.067**
5p	E		11GM +	12FG =	23	sec								

Notes:	**AM Peak**	**1+2+4+5p**	**PM Peak**	**1+2+4+5p**
	Sum of Critical *y* ***Y***	**0.227**	Sum of Critical *y* ***Y***	**0.210**
	Lost Time ***L*** (sec)	49	Lost Time ***L*** (sec)	49
	Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
	Practical *Y* ***Ypr***	0.561	Practical *Y* ***Ypr***	0.561
	Reserve Capacity ***RC***	**148%**	Reserve Capacity ***RC***	**166%**

Date : 12/6/2025 Junction : J5 - Bailey Street / Sung On Street

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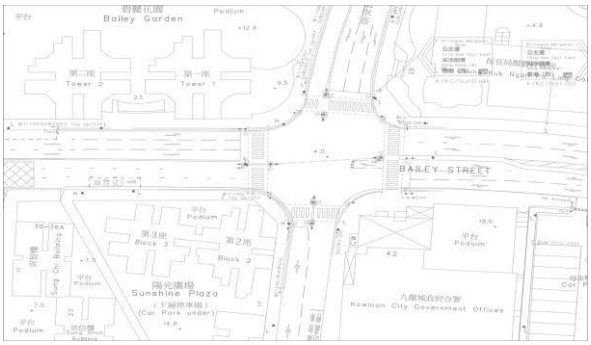
TRAFFIC SIGNAL CALCULATION SHEET

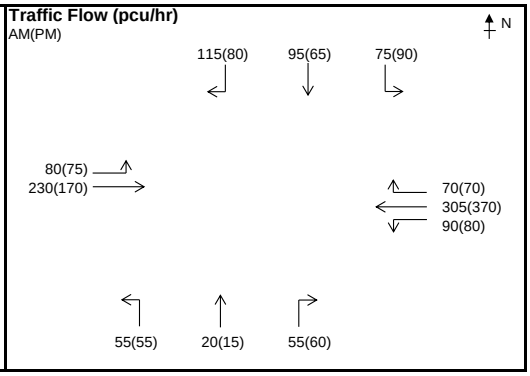
AtkinsRéalis

JOB NO. : 5219646

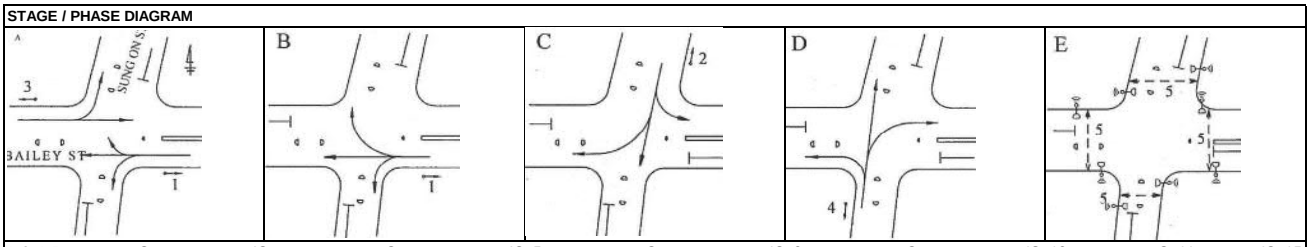
Junction : J5 - Bailey Street / Sung On Street Design Year: 2035

Scheme : 2035 Design Designed by: RC Checked by: EC





STAGE / PHASE DIAGRAM



1+2+4+5p	G=	IG=	G=	IG=5	G=	IG=8	G=	IG=13	G=11	IG=15	
1+2+4+5p	G=	IG=	G=	IG=5	G=	IG=8	G=	IG=13	G=11	IG=15	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Bailey Street (WB)														
1A	A,B	3.20	Y	N	10		184	49%	1805	**0.102**	211	38%	1830	**0.115**
1B	A,B	3.20	N	N			211		2075	0.102	239		2075	0.115
1C	A,B	3.00	Y	Y	15		70	100%	1530	0.046	70	100%	1530	0.046
Sung On Street (SB)														
2A	C	3.50	Y	N	10		75	100%	1710	0.044	71	100%	1710	0.042
2B	C	3.50	N	N	10		95	0%	2105	0.045	84	23%	2035	0.041
2C	C	3.50	N	N	15		115	100%	1915	**0.060**	80	100%	1915	**0.042**
Bailey Street (EB)														
3A	A	3.10	Y	N	10		80	100%	1675	0.048	75	100%	1675	0.045
3B	A	3.10	N	N			115		2065	0.056	85		2065	0.041
3C	A	3.10	N	N			115		2065	0.056	85		2065	0.041
Sung On Street (NB)														
4A	D	5.00	Y	N	10/25		130	42% / 42%	1940	**0.067**	130	42% / 46%	1940	**0.067**
5p	E		11GM +	12FG =	23	sec								

Notes:	**AM Peak**	**1+2+4+5p**	**PM Peak**	**1+2+4+5p**
	Sum of Critical *y* ***Y***	**0.229**	Sum of Critical *y* ***Y***	**0.224**
	Lost Time ***L*** (sec)	49	Lost Time ***L*** (sec)	49
	Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
	Practical *Y* ***Ypr***	0.561	Practical *Y* ***Ypr***	0.561
	Reserve Capacity ***RC***	**145%**	Reserve Capacity ***RC***	**150%**

Date : 12/6/2025 Junction : J5 - Bailey Street / Sung On Street

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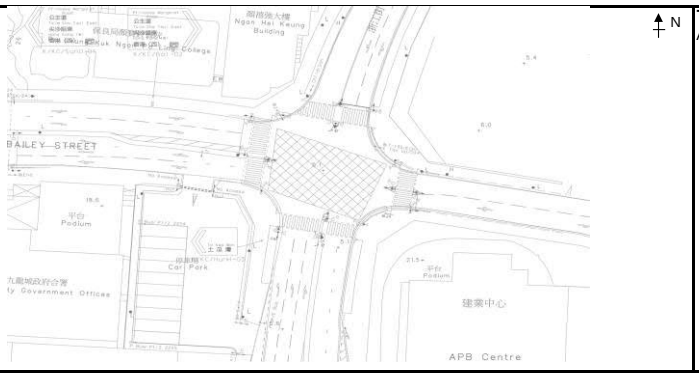
TRAFFIC SIGNAL CALCULATION SHEET

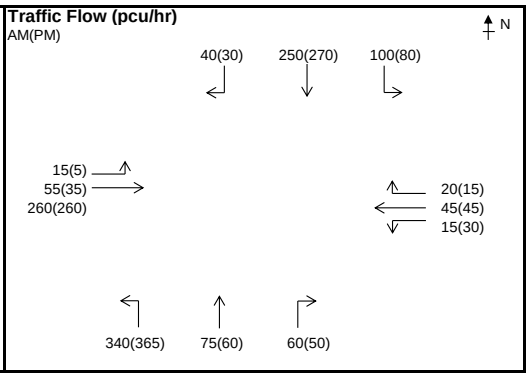
AtkinsRéalis

JOB NO. : 5219646

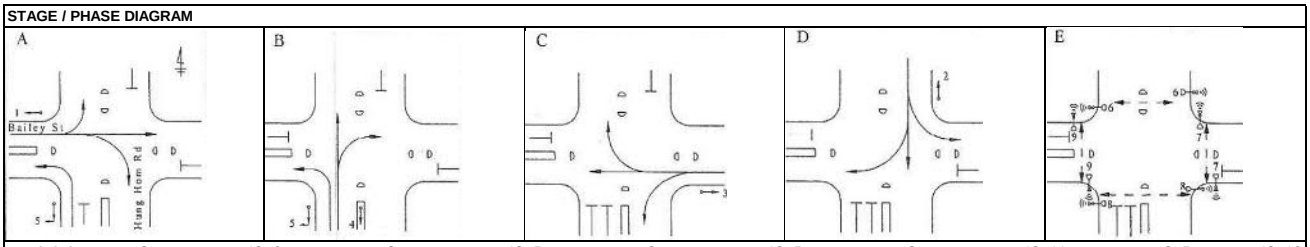
Junction : J6 - Hung Hom Road / Bailey Street Design Year: 2024

Scheme : 2024 Observed - Weekday Designed by: RC Checked by: EC





STAGE / PHASE DIAGRAM



1+4+3+2+8p	G=	IG=6	G=	IG=5	G=	IG=5	G=	IG=11	G=5	IG=13		
1+4+3+2+8p	G=	IG=6	G=	IG=5	G=	IG=5	G=	IG=11	G=5	IG=13		

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Bailey Street (EB)														
1A	A	4.20	Y	N	15		155	65%	1910	**0.081**	144	76%	1890	0.076
1B	A	4.20	N	N	15		160	100%	1975	0.081	151	100%	1975	**0.076**
Chi Kiang Street (SB)														
2A	D	3.80	Y	N	15		185	54%	1895	0.098	181	44%	1910	**0.095**
2B	D	3.80	N	N	15		205	20%	2095	**0.098**	199	15%	2105	0.095
Bailey Street (WB)														
3A	C	5.00	Y	N	10/20		80	19% / 25%	2020	**0.040**	90	33% / 17%	1990	**0.045**
Hung Hom Road (NB)														
5A	A,B	3.30	Y	N	10		164	100%	1690	0.097	176	100%	1690	0.104
5B	A,B	3.30	N	N	10		176	100%	1815	0.097	189	100%	1815	0.104
4A	B	3.30	N	N	15		135	44%	1995	**0.068**	110	45%	1995	**0.055**
6p	E		5GM +	10FG =	15	sec								
7p	E		5GM +	5FG =	10	sec								
8p	E		5GM +	10FG =	15	sec								
9p	E		5GM +	9FG =	14	sec								

Notes:

AM Peak	1+4+3+2+8p	PM Peak	1+4+3+2+8p
Sum of Critical *y* ***Y***	**0.286**	Sum of Critical *y* ***Y***	**0.272**
Lost Time ***L*** (sec)	41	Lost Time ***L*** (sec)	41
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.616	Practical *Y* ***Ypr***	0.616
Reserve Capacity ***RC***	**115%**	Reserve Capacity ***RC***	**127%**

Date : 12/6/2025 Junction : J6 - Hung Hom Road / Bailey Street

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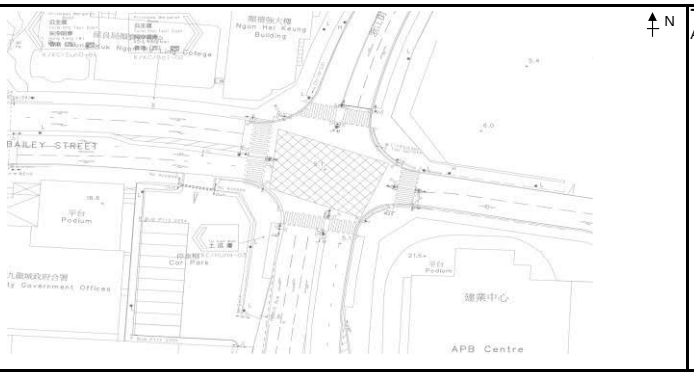
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

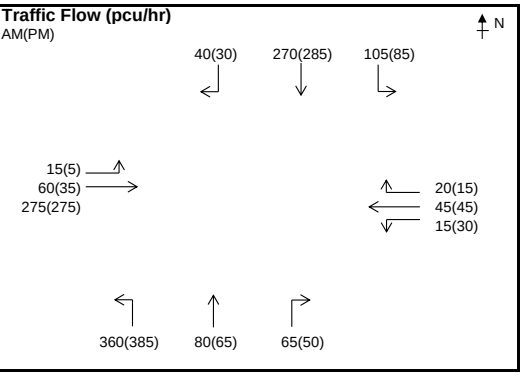
JOB NO. : 5219646

Junction : J6 - Hung Hom Road / Bailey Street Design Year: 2032

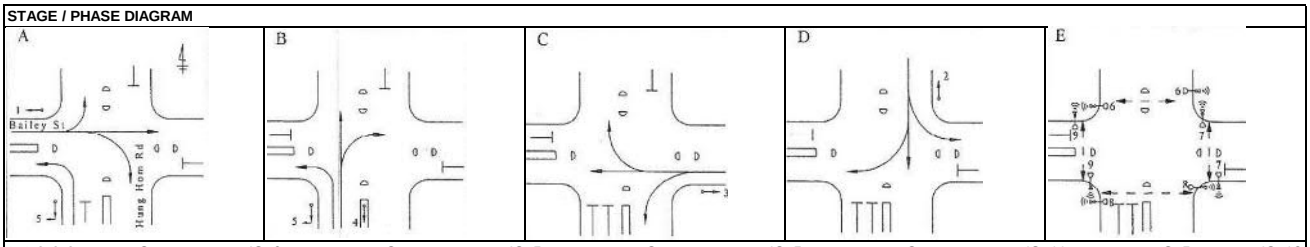
Scheme : 2032 Reference Designed by: JL Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+4+3+2+8p	G=	IG=6	G=	IG=5	G=	IG=5	G=	IG=11	G=5	IG=13	
1+4+3+2+8p	G=	IG=6	G=	IG=5	G=	IG=5	G=	IG=11	G=5	IG=13	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Bailey Street (EB)														
1A	A	4.20	Y	N	15		165	64%	1915	**0.086**	152	77%	1890	**0.080**
1B	A	4.20	N	N	15		170	100%	1975	0.086	158	100%	1975	0.080
Chi Kiang Street (SB)														
2A	D	3.80	Y	N	15		197	53%	1895	0.104	190	45%	1910	0.099
2B	D	3.80	N	N	15		218	18%	2095	**0.104**	210	14%	2105	**0.100**
Bailey Street (WB)														
3A	C	5.00	Y	N	10/20		80	19% / 25%	2020	**0.040**	90	33% / 17%	1990	**0.045**
Hung Hom Road (NB)														
5A	A,B	3.30	Y	N	10		174	100%	1690	0.103	186	100%	1690	0.110
5B	A,B	3.30	N	N	10		186	100%	1815	0.102	199	100%	1815	0.110
4A	B	3.30	N	N	15		145	45%	1995	**0.073**	115	43%	2000	**0.058**
6p	E		5GM +	10FG =	15	sec								
7p	E		5GM +	5FG =	10	sec								
8p	E		5GM +	10FG =	15	sec								
9p	E		5GM +	9FG =	14	sec								

Notes:

AM Peak	1+4+3+2+8p	PM Peak	1+4+3+2+8p
Sum of Critical *y* ***Y***	**0.303**	Sum of Critical *y* ***Y***	**0.283**
Lost Time ***L*** (sec)	41	Lost Time ***L*** (sec)	41
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.616	Practical *Y* ***Ypr***	0.616
Reserve Capacity ***RC***	**104%**	Reserve Capacity ***RC***	**118%**

Date : 12/6/2025 Junction : J6 - Hung Hom Road / Bailey Street

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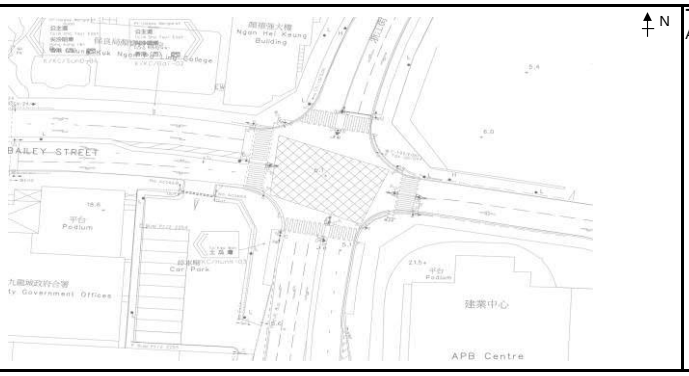
TRAFFIC SIGNAL CALCULATION SHEET

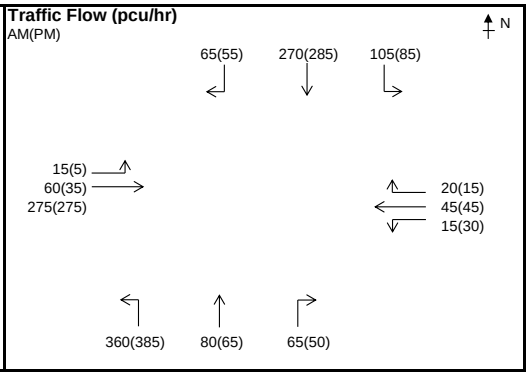
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JOB NO. : 5219646

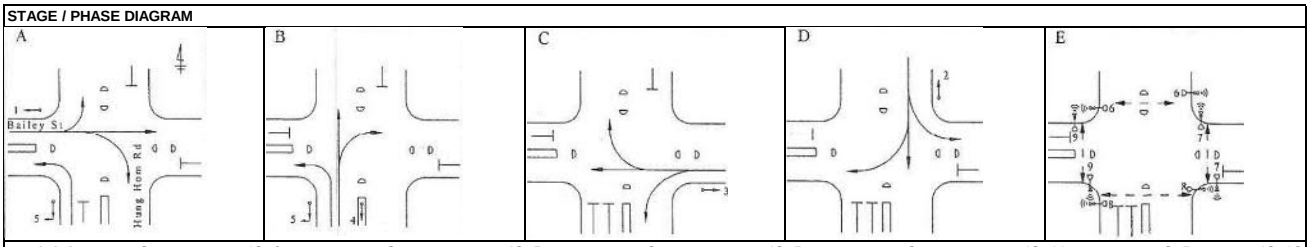
Junction : J6 - Hung Hom Road / Bailey Street Design Year: 2032

Scheme : 2032 Construction Designed by: JL Checked by: EC





STAGE / PHASE DIAGRAM



1+4+3+2+8p	G=	IG=6	G=	IG=5	G=	IG=5	G=	IG=11	G=5	IG=13		
1+4+3+2+8p	G=	IG=6	G=	IG=5	G=	IG=5	G=	IG=11	G=5	IG=13		

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Bailey Street (EB)														
1A	A	4.20	Y	N	15		165	64%	1915	**0.086**	152	77%	1890	**0.080**
1B	A	4.20	N	N	15		170	100%	1975	0.086	158	100%	1975	0.080
Chi Kiang Street (SB)														
2A	D	3.80	Y	N	15		210	50%	1900	0.111	204	42%	1915	**0.107**
2B	D	3.80	N	N	15		230	28%	2075	**0.111**	221	25%	2085	0.106
Bailey Street (WB)														
3A	C	5.00	Y	N	10/20		80	19% / 25%	2020	**0.040**	90	33% / 17%	1990	**0.045**
Hung Hom Road (NB)														
5A	A,B	3.30	Y	N	10		174	100%	1690	0.103	186	100%	1690	0.110
5B	A,B	3.30	N	N	10		186	100%	1815	0.102	199	100%	1815	0.110
4A	B	3.30	N	N	15		145	45%	1995	**0.073**	115	43%	2000	**0.058**
6p	E		5GM +	10FG =	15	sec								
7p	E		5GM +	5FG =	10	sec								
8p	E		5GM +	10FG =	15	sec								
9p	E		5GM +	9FG =	14	sec								

Notes:

AM Peak	1+4+3+2+8p	PM Peak	1+4+3+2+8p
Sum of Critical *y* ***Y***	**0.309**	Sum of Critical *y* ***Y***	**0.290**
Lost Time ***L*** (sec)	41	Lost Time ***L*** (sec)	41
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.616	Practical *Y* ***Ypr***	0.616
Reserve Capacity ***RC***	**99%**	Reserve Capacity ***RC***	**113%**

Date : 12/6/2025 Junction : J6 - Hung Hom Road / Bailey Street

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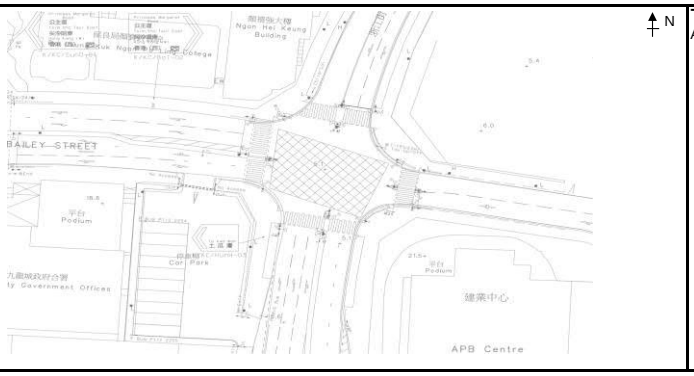
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

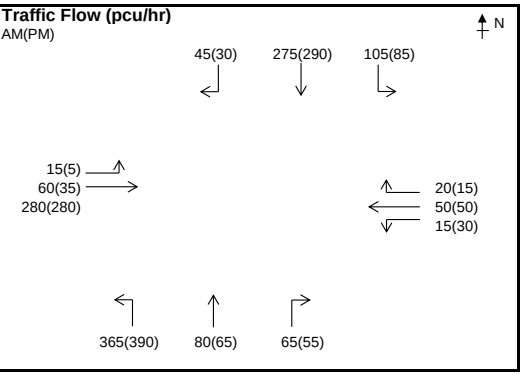
JOB NO. : 5219646

Junction : J6 - Hung Hom Road / Bailey Street Design Year: 2035

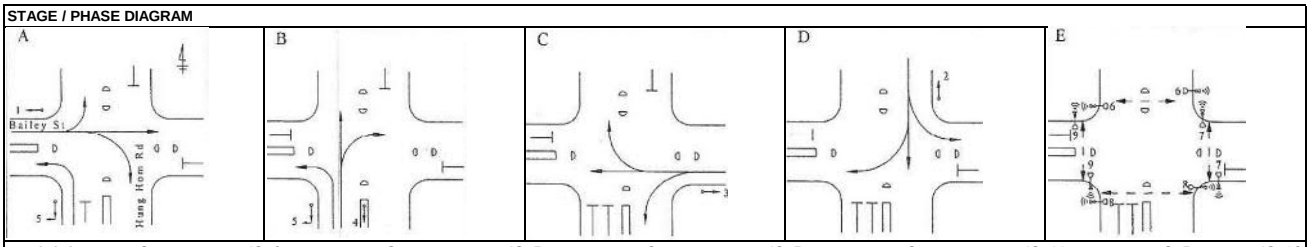
Scheme : 2035 Reference Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+4+3+2+8p	G=	IG=6	G=	IG=5	G=	IG=5	G=	IG=11	G=5	IG=13		
1+4+3+2+8p	G=	IG=6	G=	IG=5	G=	IG=5	G=	IG=11	G=5	IG=13		

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Bailey Street (EB)														
1A	A	4.20	Y	N	15		167	64%	1910	0.087	154	77%	1890	0.081
1B	A	4.20	N	N	15		173	100%	1975	**0.088**	161	100%	1975	**0.082**
Chi Kiang Street (SB)														
2A	D	3.80	Y	N	15		202	52%	1895	**0.107**	193	44%	1910	**0.101**
2B	D	3.80	N	N	15		223	20%	2095	0.106	212	14%	2105	0.101
Bailey Street (WB)														
3A	C	5.00	Y	N	10/20		85	18% / 24%	2025	**0.042**	95	32% / 16%	1995	**0.048**
Hung Hom Road (NB)														
5A	A,B	3.30	Y	N	10		176	100%	1690	0.104	188	100%	1690	0.111
5B	A,B	3.30	N	N	10		189	100%	1815	0.104	202	100%	1815	0.111
4A	B	3.30	N	N	15		145	45%	1995	**0.073**	120	46%	1995	**0.060**
6p	E		5GM +	10FG =	15	sec								
7p	E		5GM +	5FG =	10	sec								
8p	E		5GM +	10FG =	15	sec								
9p	E		5GM +	9FG =	14	sec								

Notes:	**AM Peak**	**1+4+3+2+8p**	**PM Peak**	**1+4+3+2+8p**
	Sum of Critical *y* ***Y***	**0.309**	Sum of Critical *y* ***Y***	**0.290**
	Lost Time ***L*** (sec)	41	Lost Time ***L*** (sec)	41
	Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
	Practical *Y* ***Ypr***	0.616	Practical *Y* ***Ypr***	0.616
	Reserve Capacity ***RC***	**100%**	Reserve Capacity ***RC***	**112%**

Date : 12/6/2025 Junction : J6 - Hung Hom Road / Bailey Street

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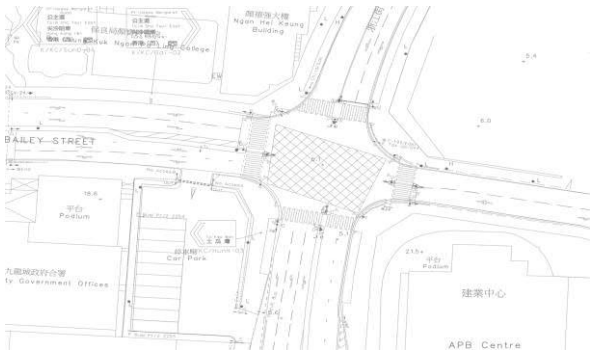
TRAFFIC SIGNAL CALCULATION SHEET

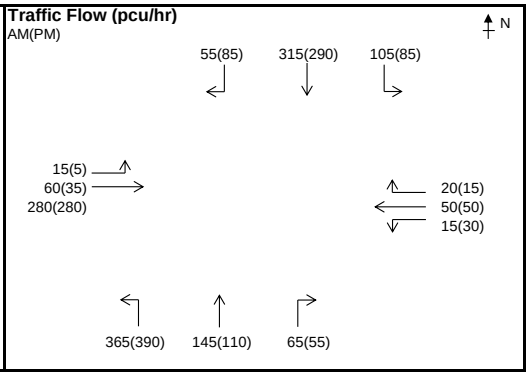
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JOB NO. : 5219646

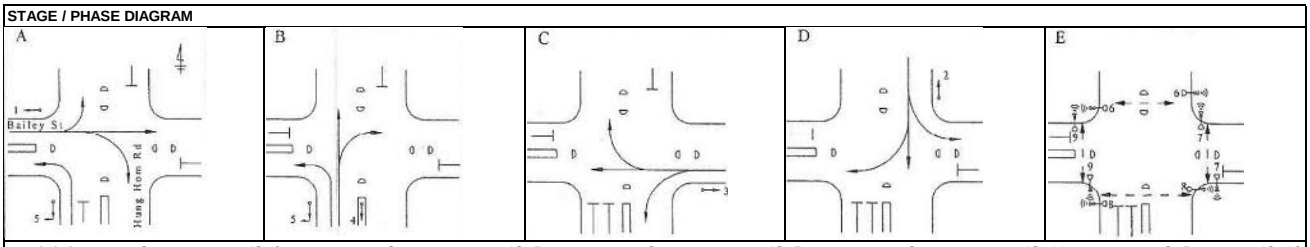
Junction : J6 - Hung Hom Road / Bailey Street Design Year: 2035

Scheme : 2035 Design Designed by: RC Checked by: EC





STAGE / PHASE DIAGRAM



1+4+3+2+8p	G=	IG=6	G=	IG=5	G=	IG=5	G=	IG=11	G=5	IG=13		
1+4+3+2+8p	G=	IG=6	G=	IG=5	G=	IG=5	G=	IG=11	G=5	IG=13		

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Bailey Street (EB)														
1A	A	4.20	Y	N	15		167	64%	1910	0.087	154	77%	1890	0.081
1B	A	4.20	N	N	15		173	100%	1975	**0.088**	161	100%	1975	**0.082**
Chi Kiang Street (SB)														
2A	D	3.80	Y	N	15		227	46%	1905	**0.119**	222	38%	1920	**0.116**
2B	D	3.80	N	N	15		248	22%	2090	0.119	238	36%	2060	0.116
Bailey Street (WB)														
3A	C	5.00	Y	N	10/20		85	18% / 24%	2025	**0.042**	95	32% / 16%	1995	**0.048**
Hung Hom Road (NB)														
5A	A,B	3.30	Y	N	10		176	100%	1690	0.104	188	100%	1690	0.111
5B	A,B	3.30	N	N	10		189	100%	1815	0.104	202	100%	1815	0.111
4A	B	3.30	N	N	15		210	31%	2020	**0.104**	165	33%	2020	**0.082**
6p	E		5GM +	10FG =	15	sec								
7p	E		5GM +	5FG =	10	sec								
8p	E		5GM +	10FG =	15	sec								
9p	E		5GM +	9FG =	14	sec								

Notes:

AM Peak	1+4+3+2+8p	PM Peak	1+4+3+2+8p
Sum of Critical *y* ***Y***	**0.353**	Sum of Critical *y* ***Y***	**0.326**
Lost Time ***L*** (sec)	41	Lost Time ***L*** (sec)	41
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.616	Practical *Y* ***Ypr***	0.616
Reserve Capacity ***RC***	**75%**	Reserve Capacity ***RC***	**89%**

Date : 12/6/2025 Junction : J6 - Hung Hom Road / Bailey Street

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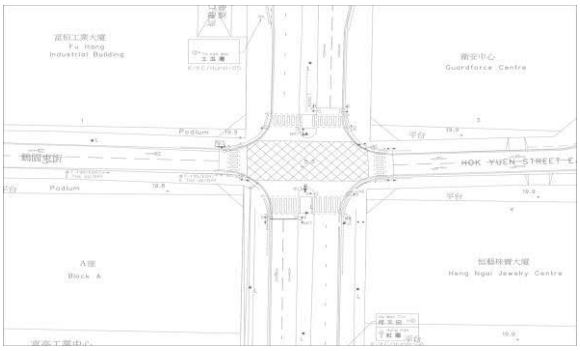
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

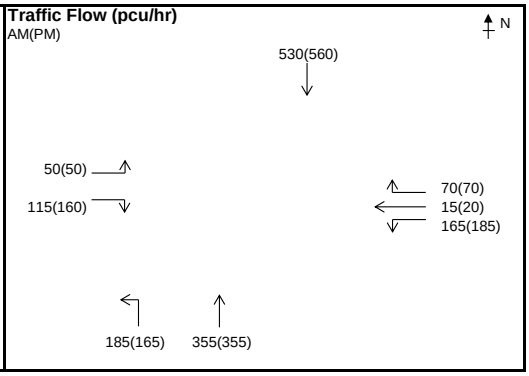
JOB NO. : 5219646

Junction : J7 - Hung Hom Road / Hok Yuen Street East Design Year: 2024

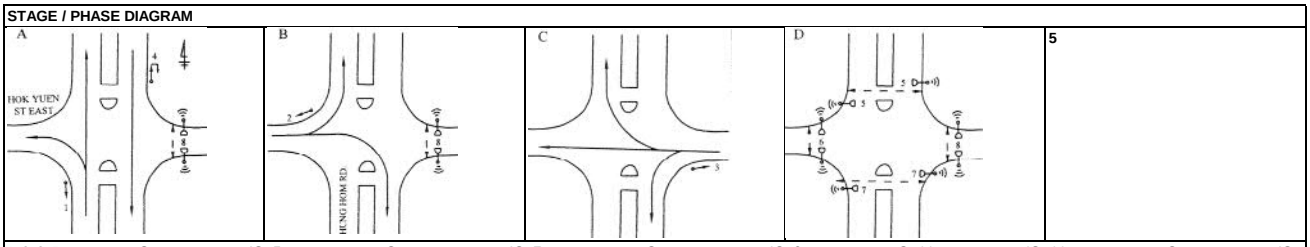
Scheme : 2024 Observed - Weekday Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3+5p	G=	IG=5	G=	IG=7	G=	IG=9	G=11	IG=11	G=	IG=
1+2+3+5p	G=	IG=5	G=	IG=7	G=	IG=9	G=11	IG=11	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Hung Hom Road (NB)														
1A	A	3.60	Y	N	15		251	74%	1840	0.136	243	68%	1850	**0.131**
1B	A	3.60	N	N			289		2115	**0.137**	277		2115	0.131
Hok Yuen Street East (EB)														
2A	B	3.60	Y	N	10/15		165	30% / 70%	1770	**0.093**	210	24% / 76%	1775	**0.118**
Hok Yuen Street East (WB)														
3A	C	3.60	Y	N	10		165	100%	1715	**0.096**	185	100%	1715	**0.108**
3B	C	3.60	N	N	15		85	82%	1955	0.043	90	78%	1960	0.046
Hung Hom Road (SB)														
4A	A	3.70	Y	N			256		1985	0.129	270		1985	0.136
4B	A	3.70	N	N			274		2125	0.129	290		2125	0.136
5p	D		11GM +	8FG =	19	sec								
6p	D		5GM +	8FG =	13	sec								
7p	D		11GM +	8FG =	19	sec								
8p	A,B,D		5GM +	8FG =	13	sec								

Notes:

AM Peak	1+2+3+5p	PM Peak	1+2+3+5p
Sum of Critical *y* ***Y***	**0.326**	Sum of Critical *y* ***Y***	**0.358**
Lost Time ***L*** (sec)	40	Lost Time ***L*** (sec)	40
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.623	Practical *Y* ***Ypr***	0.623
Reserve Capacity ***RC***	**91%**	Reserve Capacity ***RC***	**74%**

Date : 12/6/2025 Junction : J7 - Hung Hom Road / Hok Yuen Street East

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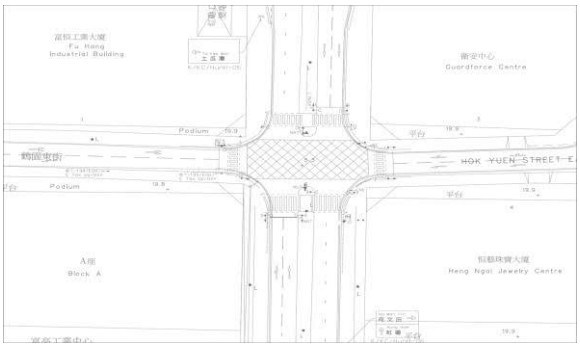
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

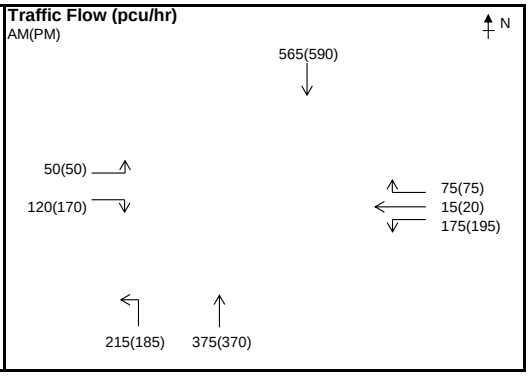
JOB NO. : 5219646

Junction : J7 - Hung Hom Road / Hok Yuen Street East Design Year: 2032

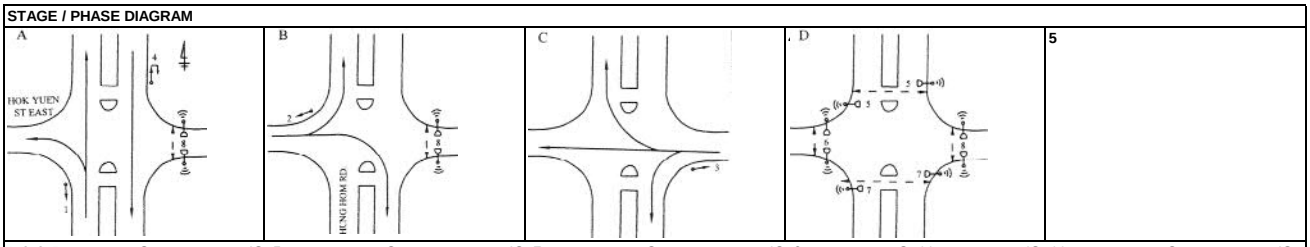
Scheme : 2032 Reference Designed by: JL Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3+5p	G=	IG=5	G=	IG=7	G=	IG=9	G=11	IG=11	G=	IG=
1+2+3+5p	G=	IG=5	G=	IG=7	G=	IG=9	G=11	IG=11	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Hung Hom Road (NB)														
1A	A	3.60	Y	N	15		274	78%	1830	**0.150**	258	72%	1845	0.140
1B	A	3.60	N	N			316		2115	0.149	297		2115	**0.140**
Hok Yuen Street East (EB)														
2A	B	3.60	Y	N	10/15		170	29% / 71%	1770	**0.096**	220	23% / 77%	1775	**0.124**
Hok Yuen Street East (WB)														
3A	C	3.60	Y	N	10		175	100%	1715	**0.102**	195	100%	1715	**0.114**
3B	C	3.60	N	N	15		90	83%	1950	0.046	95	79%	1960	0.048
Hung Hom Road (SB)														
4A	A	3.70	Y	N			273		1985	0.138	285		1985	0.144
4B	A	3.70	N	N			292		2125	0.137	305		2125	0.144
5p	D		11GM +	8FG =	19	sec								
6p	D		5GM +	8FG =	13	sec								
7p	D		11GM +	8FG =	19	sec								
8p	A,B,D		5GM +	8FG =	13	sec								

Notes:

AM Peak	1+2+3+5p	PM Peak	1+2+3+5p
Sum of Critical *y* ***Y***	**0.348**	Sum of Critical *y* ***Y***	**0.378**
Lost Time ***L*** (sec)	40	Lost Time ***L*** (sec)	40
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.623	Practical *Y* ***Ypr***	0.623
Reserve Capacity ***RC***	**79%**	Reserve Capacity ***RC***	**65%**

Date : 12/6/2025 Junction : J7 - Hung Hom Road / Hok Yuen Street East

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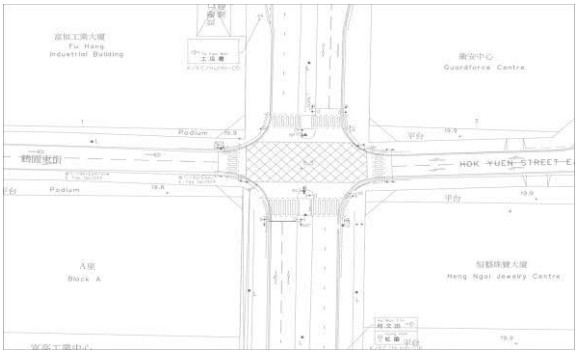
TRAFFIC SIGNAL CALCULATION SHEET

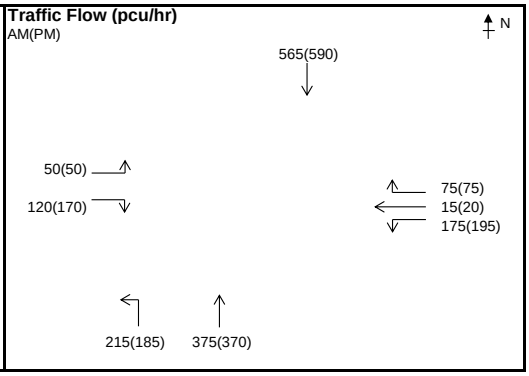
AtkinsRéalis

JOB NO. : 5219646

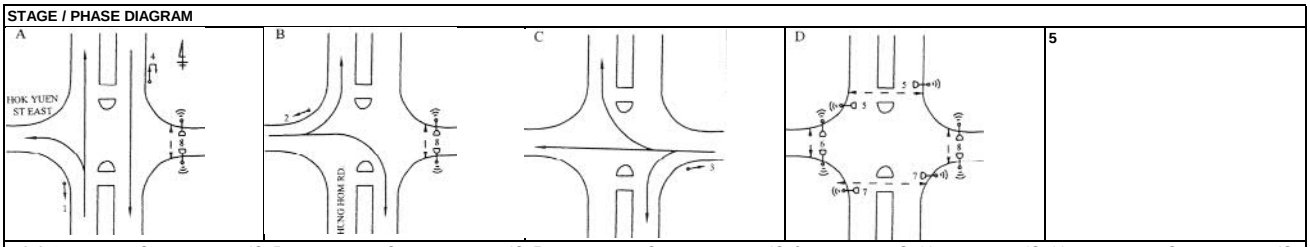
Junction : J7 - Hung Hom Road / Hok Yuen Street East Design Year: 2032

Scheme : 2032 Construction Designed by: JL Checked by: EC





STAGE / PHASE DIAGRAM



1+2+3+5p	G=	IG=5	G=	IG=7	G=	IG=9	G=11	IG=11	G=	IG=
1+2+3+5p	G=	IG=5	G=	IG=7	G=	IG=9	G=11	IG=11	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Hung Hom Road (NB)														
1A	A	3.60	Y	N	15		274	78%	1830	**0.150**	258	72%	1845	0.140
1B	A	3.60	N	N			316		2115	0.149	297		2115	**0.140**
Hok Yuen Street East (EB)														
2A	B	3.60	Y	N	10/15		170	29% / 71%	1770	**0.096**	220	23% / 77%	1775	**0.124**
Hok Yuen Street East (WB)														
3A	C	3.60	Y	N	10		175	100%	1715	**0.102**	195	100%	1715	**0.114**
3B	C	3.60	N	N	15		90	83%	1950	0.046	95	79%	1960	0.048
Hung Hom Road (SB)														
4A	A	3.70	Y	N			273		1985	0.138	285		1985	0.144
4B	A	3.70	N	N			292		2125	0.137	305		2125	0.144
5p	D		11GM +	8FG =	19	sec								
6p	D		5GM +	8FG =	13	sec								
7p	D		11GM +	8FG =	19	sec								
8p	A,B,D		5GM +	8FG =	13	sec								

Notes:

AM Peak	1+2+3+5p	PM Peak	1+2+3+5p
Sum of Critical *y* ***Y***	**0.348**	Sum of Critical *y* ***Y***	**0.378**
Lost Time ***L*** (sec)	40	Lost Time ***L*** (sec)	40
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.623	Practical *Y* ***Ypr***	0.623
Reserve Capacity ***RC***	**79%**	Reserve Capacity ***RC***	**65%**

Date : 12/6/2025 Junction : J7 - Hung Hom Road / Hok Yuen Street East

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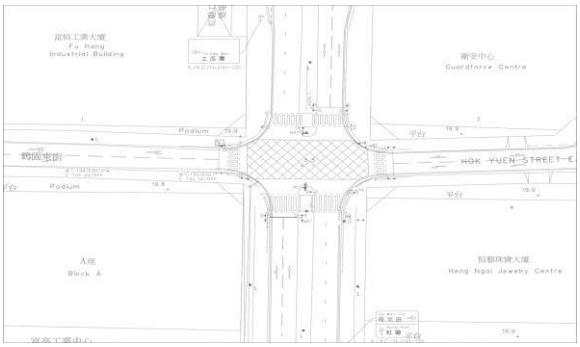
TRAFFIC SIGNAL CALCULATION SHEET

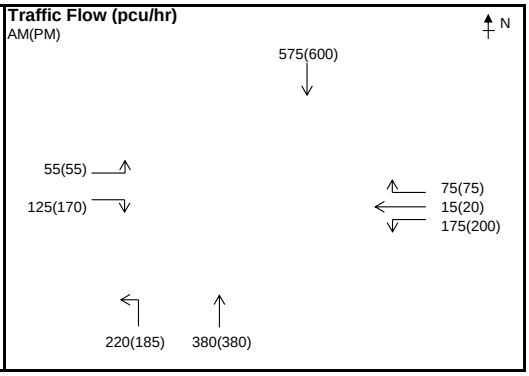
AtkinsRéalis

JOB NO. : 5219646

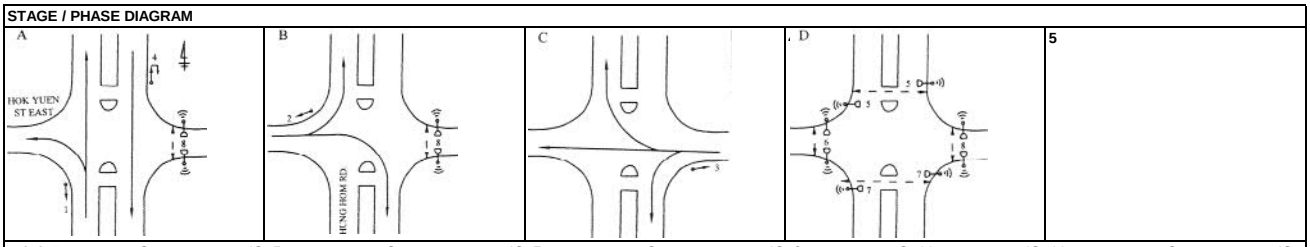
Junction : J7 - Hung Hom Road / Hok Yuen Street East Design Year: 2035

Scheme : 2035 Reference Designed by: RC Checked by: EC





STAGE / PHASE DIAGRAM



1+2+3+5p	G=	IG=5	G=	IG=7	G=	IG=9	G=11	IG=11	G=	IG=
1+2+3+5p	G=	IG=5	G=	IG=7	G=	IG=9	G=11	IG=11	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Hung Hom Road (NB)														
1A	A	3.60	Y	N	15		278	79%	1830	0.152	263	70%	1845	0.143
1B	A	3.60	N	N			322		2115	**0.152**	302		2115	**0.143**
Hok Yuen Street East (EB)														
2A	B	3.60	Y	N	10/15		180	31% / 69%	1770	**0.102**	225	24% / 76%	1775	**0.127**
Hok Yuen Street East (WB)														
3A	C	3.60	Y	N	10		175	100%	1715	**0.102**	200	100%	1715	**0.117**
3B	C	3.60	N	N	15		90	83%	1950	0.046	95	79%	1960	0.048
Hung Hom Road (SB)														
4A	A	3.70	Y	N			278		1985	0.140	290		1985	0.146
4B	A	3.70	N	N			297		2125	0.140	310		2125	0.146
5p	D		11GM +	8FG =	19	sec								
6p	D		5GM +	8FG =	13	sec								
7p	D		11GM +	8FG =	19	sec								
8p	A,B,D		5GM +	8FG =	13	sec								

Notes:	**AM Peak**	**1+2+3+5p**	**PM Peak**	**1+2+3+5p**
	Sum of Critical *y* ***Y***	**0.356**	Sum of Critical *y* ***Y***	**0.386**
	Lost Time ***L*** (sec)	40	Lost Time ***L*** (sec)	40
	Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
	Practical *Y* ***Ypr***	0.623	Practical *Y* ***Ypr***	0.623
	Reserve Capacity ***RC***	**75%**	Reserve Capacity ***RC***	**61%**

Date : 12/6/2025 Junction : J7 - Hung Hom Road / Hok Yuen Street East

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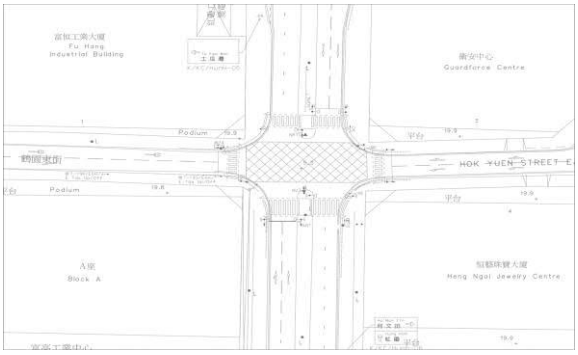
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

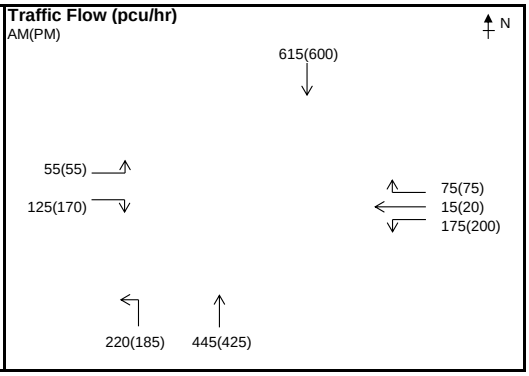
JOB NO. : 5219646

Junction : J7 - Hung Hom Road / Hok Yuen Street East Design Year: 2035

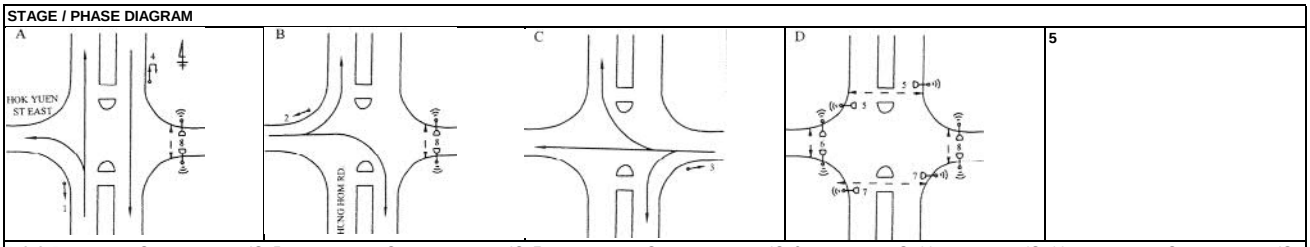
Scheme : 2035 Design Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



1+2+3+5p	G=	IG=5	G=	IG=7	G=	IG=9	G=11	IG=11	G=	IG=
1+2+3+5p	G=	IG=5	G=	IG=7	G=	IG=9	G=11	IG=11	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) ***w***	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) ***r***	Gradient in % ***g***	AM Peak: Design Flow ***q*** (pcu/hr)	AM Peak: Proportion turning (%) ***f***	AM Peak: Saturation flow ***S*** (pcu/hr)	AM Peak: Flow factor ***y***	PM Peak: Design Flow ***q*** (pcu/hr)	PM Peak: Proportion turning (%) ***f***	PM Peak: Saturation flow ***S*** (pcu/hr)	PM Peak: Flow factor ***y***
Hung Hom Road (NB)														
1A	A	3.60	Y	N	15		310	71%	1845	**0.168**	285	65%	1855	0.154
1B	A	3.60	N	N			355		2115	0.168	325		2115	**0.154**
Hok Yuen Street East (EB)														
2A	B	3.60	Y	N	10/15		180	31% / 69%	1770	**0.102**	225	24% / 76%	1775	**0.127**
Hok Yuen Street East (WB)														
3A	C	3.60	Y	N	10		175	100%	1715	**0.102**	200	100%	1715	**0.117**
3B	C	3.60	N	N	15		90	83%	1950	0.046	95	79%	1960	0.048
Hung Hom Road (SB)														
4A	A	3.70	Y	N			297		1985	0.150	290		1985	0.146
4B	A	3.70	N	N			318		2125	0.150	310		2125	0.146
5p	D		11GM +	8FG =	19	sec								
6p	D		5GM +	8FG =	13	sec								
7p	D		11GM +	8FG =	19	sec								
8p	A,B,D		5GM +	8FG =	13	sec								

Notes:

AM Peak	**1+2+3+5p**	**PM Peak**	**1+2+3+5p**
Sum of Critical *y* ***Y***	**0.372**	Sum of Critical *y* ***Y***	**0.397**
Lost Time ***L*** (sec)	40	Lost Time ***L*** (sec)	40
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.623	Practical *Y* ***Ypr***	0.623
Reserve Capacity ***RC***	**68%**	Reserve Capacity ***RC***	**57%**

Date : 12/6/2025 Junction : J7 - Hung Hom Road / Hok Yuen Street East

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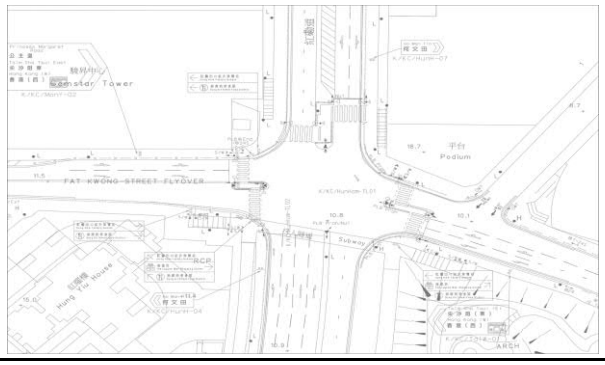
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

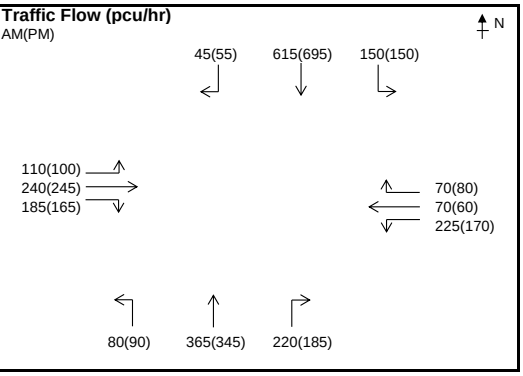
JOB NO. : 5219646

Junction : J8 - Hung Hom Road / Tai Wan Road East Design Year: 2024

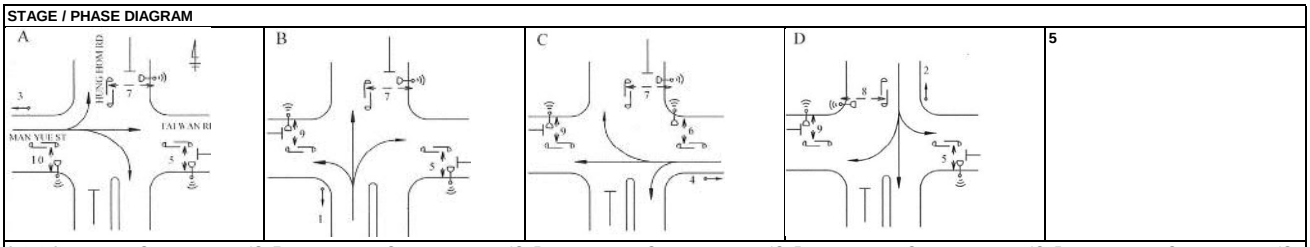
Scheme : 2024 Observed - Weekday Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



3+1+4+2	G=	IG=7	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=
3+1+4+2	G=	IG=7	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Hung Hom Road (NB)														
1A	B	3.40	Y	N	10		80	100%	1700	0.047	90	100%	1700	0.053
1B	B	3.40	N	N			183		2095	0.087	173		2095	0.083
1C	B	3.40	N	N			182		2095	0.087	172		2095	0.082
1D	B	3.40	N	N	15		220	100%	1905	**0.115**	185	100%	1905	**0.097**
Hung Hom Road (SB)														
2A	D	3.30	Y	N	10		381	39%	1835	0.208	425	35%	1845	0.230
2B	D	3.30	N	N	15		429	10%	2065	**0.208**	475	12%	2060	**0.231**
Fat Kwong Street Flyover (EB)														
3A	A	3.30	Y	N	10		350	31%	1855	**0.189**	345	29%	1865	**0.185**
3B	A	3.30	N	N	15		185	100%	1895	0.098	165	100%	1895	0.087
Tai Wan Road East (WB)														
4A	C	3.20	Y	N	10		225	100%	1685	**0.134**	170	100%	1685	**0.101**
4B	C	3.20	N	N	30		140	50%	2025	0.069	140	57%	2015	0.069
5p	A,B,D		5GM +	7FG =	12	sec								
6p	C		5GM +	6FG =	11	sec								
7p	A,B,C		5GM +	7FG =	12	sec								
8p	D		5GM +	9FG =	14	sec								
9p	B,C,D		5GM +	7FG =	12	sec								
10p	A		5GM +	9FG =	14	sec								

Notes:

AM Peak	3+1+4+2	PM Peak	3+1+4+2
Sum of Critical *y* ***Y***	**0.645**	Sum of Critical *y* ***Y***	**0.614**
Lost Time ***L*** (sec)	18	Lost Time ***L*** (sec)	18
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.775	Practical *Y* ***Ypr***	0.775
Reserve Capacity ***RC***	**20%**	Reserve Capacity ***RC***	**26%**

Date : 12/6/2025 Junction : J8 - Hung Hom Road / Tai Wan Road East

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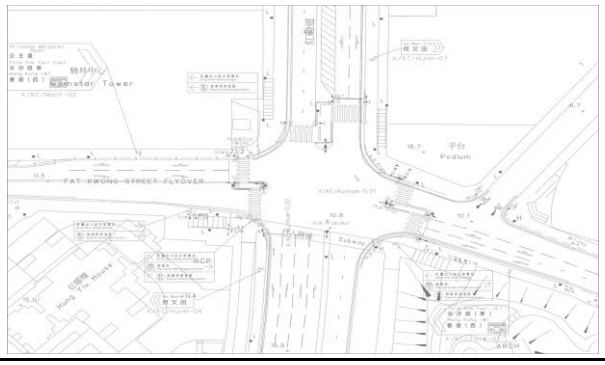
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

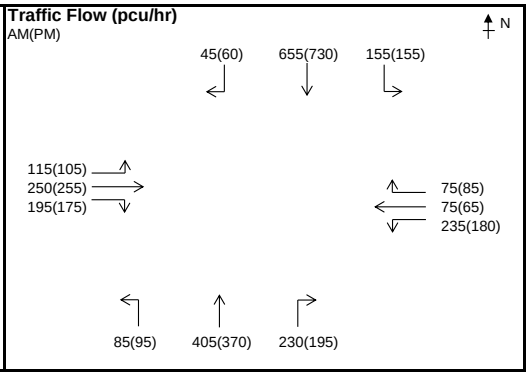
JOB NO. : 5219646

Junction : J8 - Hung Hom Road / Tai Wan Road East Design Year: 2032

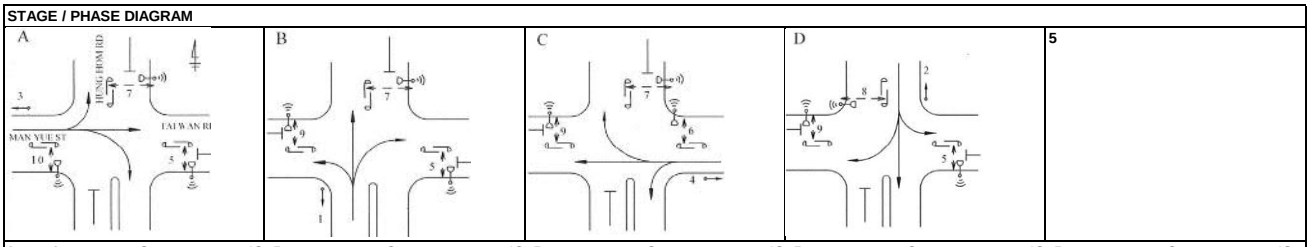
Scheme : 2032 Reference Designed by: JL Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



3+1+4+2	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=
3+1+4+2	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Hung Hom Road (NB)														
1A	B	3.40	Y	N	10		85	100%	1700	0.050	95	100%	1700	0.056
1B	B	3.40	N	N			203		2095	0.097	185		2095	0.088
1C	B	3.40	N	N			202		2095	0.096	185		2095	0.088
1D	B	3.40	N	N	15		230	100%	1905	**0.121**	195	100%	1905	**0.102**
Hung Hom Road (SB)														
2A	D	3.30	Y	N	10		403	38%	1840	**0.219**	447	35%	1850	0.242
2B	D	3.30	N	N	15		452	10%	2065	0.219	498	12%	2060	**0.242**
Fat Kwong Street Flyover (EB)														
3A	A	3.30	Y	N	10		365	32%	1855	**0.197**	360	29%	1865	**0.193**
3B	A	3.30	N	N	15		195	100%	1895	0.103	175	100%	1895	0.092
Tai Wan Road East (WB)														
4A	C	3.20	Y	N	10		235	100%	1685	**0.139**	180	100%	1685	**0.107**
4B	C	3.20	N	N	30		150	50%	2025	0.074	150	57%	2020	0.074
5p	A,B,D		5GM +	7FG =	12	sec								
6p	C		5GM +	6FG =	11	sec								
7p	A,B,C		5GM +	7FG =	12	sec								
8p	D		5GM +	9FG =	14	sec								
9p	B,C,D		5GM +	7FG =	12	sec								
10p	A		5GM +	9FG =	14	sec								

Notes:

AM Peak	3+1+4+2	PM Peak	3+1+4+2
Sum of Critical *y* ***Y***	**0.676**	Sum of Critical *y* ***Y***	**0.644**
Lost Time ***L*** (sec)	16	Lost Time ***L*** (sec)	16
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.789	Practical *Y* ***Ypr***	0.789
Reserve Capacity ***RC***	**17%**	Reserve Capacity ***RC***	**23%**

Date : 12/6/2025 Junction : J8 - Hung Hom Road / Tai Wan Road East

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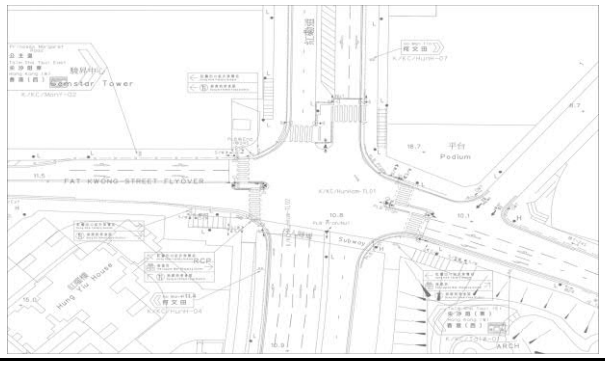
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

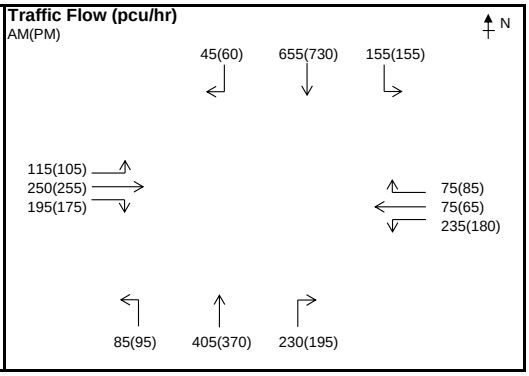
JOB NO. : 5219646

Junction : J8 - Hung Hom Road / Tai Wan Road East Design Year: 2032

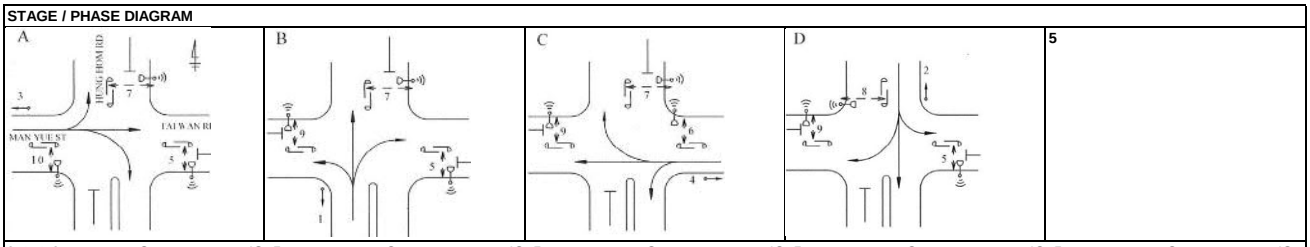
Scheme : 2032 Construction Designed by: JL Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



3+1+4+2	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G= IG=
3+1+4+2	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G= IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Hung Hom Road (NB)														
1A	B	3.40	Y	N	10		85	100%	1700	0.050	95	100%	1700	0.056
1B	B	3.40	N	N			203		2095	0.097	185		2095	0.088
1C	B	3.40	N	N			202		2095	0.096	185		2095	0.088
1D	B	3.40	N	N	15		230	100%	1905	**0.121**	195	100%	1905	**0.102**
Hung Hom Road (SB)														
2A	D	3.30	Y	N	10		403	38%	1840	**0.219**	447	35%	1850	0.242
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Fat Kwong Street Flyover (EB)														
3A	A	3.30	Y	N	10		365	32%	1855	**0.197**	360	29%	1865	**0.193**
3B	A	3.30	N	N	15		195	100%	1895	0.103	175	100%	1895	0.092
Tai Wan Road East (WB)														
4A	C	3.20	Y	N	10		235	100%	1685	**0.139**	180	100%	1685	**0.107**
4B	C	3.20	N	N	30		150	50%	2025	0.074	150	57%	2020	0.074
5p	A,B,D		5GM +	7FG =	12	sec								
6p	C		5GM +	6FG =	11	sec								
7p	A,B,C		5GM +	7FG =	12	sec								
8p	D		5GM +	9FG =	14	sec								
9p	B,C,D		5GM +	7FG =	12	sec								
10p	A		5GM +	9FG =	14	sec								

Notes:

AM Peak	3+1+4+2	PM Peak	3+1+4+2
Sum of Critical *y* ***Y***	**0.676**	Sum of Critical *y* ***Y***	**0.644**
Lost Time ***L*** (sec)	16	Lost Time ***L*** (sec)	16
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.789	Practical *Y* ***Ypr***	0.789
Reserve Capacity ***RC***	**17%**	Reserve Capacity ***RC***	**23%**

Date : 12/6/2025 Junction : J8 - Hung Hom Road / Tai Wan Road East

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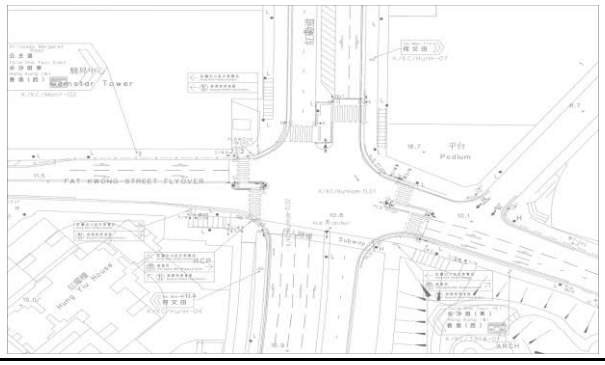
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

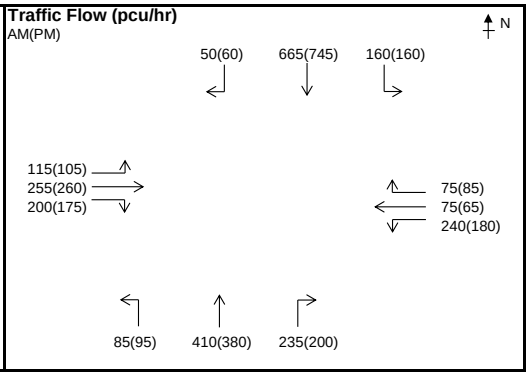
JOB NO. : 5219646

Junction : J8 - Hung Hom Road / Tai Wan Road East Design Year: 2035

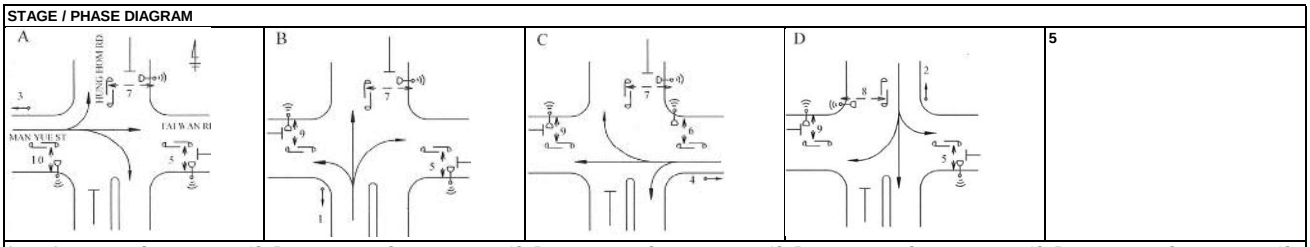
Scheme : 2035 Reference Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



3+1+4+2	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=
3+1+4+2	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Hung Hom Road (NB)														
1A	B	3.40	Y	N	10		85	100%	1700	0.050	95	100%	1700	0.056
1B	B	3.40	N	N			205		2095	0.098	190		2095	0.091
1C	B	3.40	N	N			205		2095	0.098	190		2095	0.091
1D	B	3.40	N	N	15		235	100%	1905	**0.123**	200	100%	1905	**0.105**
Hung Hom Road (SB)														
2A	D	3.30	Y	N	10		412	39%	1840	0.224	456	35%	1850	0.246
2B	D	3.30	N	N	15		463	11%	2065	**0.224**	509	12%	2060	**0.247**
Fat Kwong Street Flyover (EB)														
3A	A	3.30	Y	N	10		370	31%	1860	**0.199**	365	29%	1865	**0.196**
3B	A	3.30	N	N	15		200	100%	1895	0.106	175	100%	1895	0.092
Tai Wan Road East (WB)														
4A	C	3.20	Y	N	10		240	100%	1685	**0.142**	180	100%	1685	**0.107**
4B	C	3.20	N	N	30		150	50%	2025	0.074	150	57%	2020	0.074
5p	A,B,D		5GM +	7FG =	12	sec								
6p	C		5GM +	6FG =	11	sec								
7p	A,B,C		5GM +	7FG =	12	sec								
8p	D		5GM +	9FG =	14	sec								
9p	B,C,D		5GM +	7FG =	12	sec								
10p	A		5GM +	9FG =	14	sec								

Notes:

AM Peak	3+1+4+2	PM Peak	3+1+4+2
Sum of Critical *y* ***Y***	**0.689**	Sum of Critical *y* ***Y***	**0.655**
Lost Time ***L*** (sec)	16	Lost Time ***L*** (sec)	16
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.789	Practical *Y* ***Ypr***	0.789
Reserve Capacity ***RC***	**15%**	Reserve Capacity ***RC***	**21%**

Date : 12/6/2025 Junction : J8 - Hung Hom Road / Tai Wan Road East

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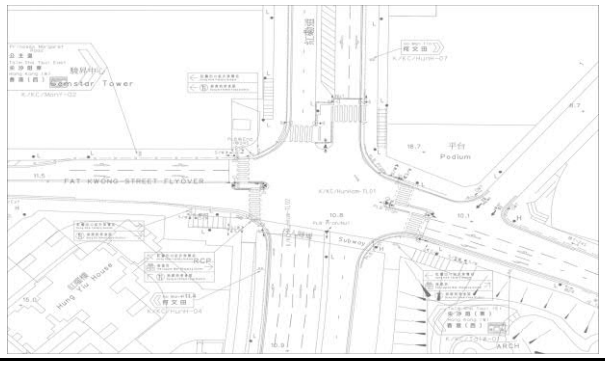
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

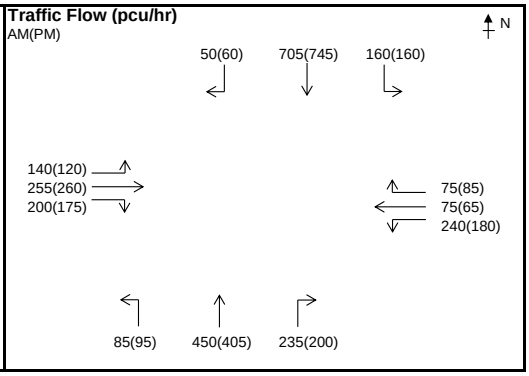
JOB NO. : 5219646

Junction : J8 - Hung Hom Road / Tai Wan Road East Design Year: 2035

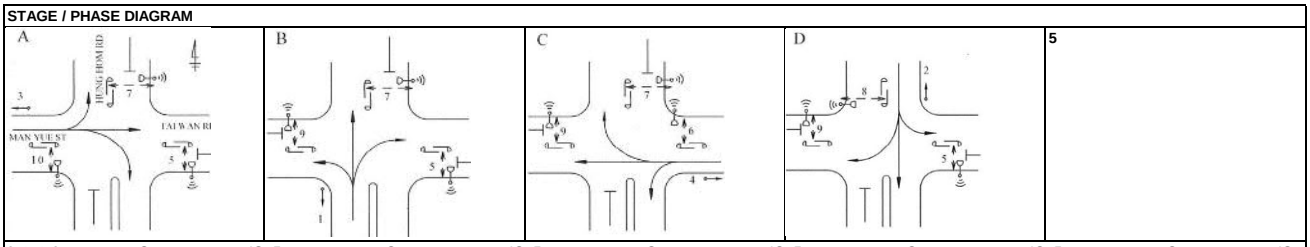
Scheme : 2035 Design Designed by: RC Checked by: EC



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



3+1+4+2	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=
3+1+4+2	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Hung Hom Road (NB)														
1A	B	3.40	Y	N	10		85	100%	1700	0.050	95	100%	1700	0.056
1B	B	3.40	N	N			225		2095	0.107	203		2095	0.097
1C	B	3.40	N	N			225		2095	0.107	202		2095	0.096
1D	B	3.40	N	N	15		235	100%	1905	**0.123**	200	100%	1905	**0.105**
Hung Hom Road (SB)														
2A	D	3.30	Y	N	10		432	37%	1845	**0.234**	456	35%	1850	0.246
2B	D	3.30	N	N	15		483	10%	2065	0.234	509	12%	2060	**0.247**
Fat Kwong Street Flyover (EB)														
3A	A	3.30	Y	N	10		395	35%	1845	**0.214**	380	32%	1855	**0.205**
3B	A	3.30	N	N	15		200	100%	1895	0.106	175	100%	1895	0.092
Tai Wan Road East (WB)														
4A	C	3.20	Y	N	10		240	100%	1685	**0.142**	180	100%	1685	**0.107**
4B	C	3.20	N	N	30		150	50%	2025	0.074	150	57%	2020	0.074
5p	A,B,D		5GM +	7FG =	12	sec								
6p	C		5GM +	6FG =	11	sec								
7p	A,B,C		5GM +	7FG =	12	sec								
8p	D		5GM +	9FG =	14	sec								
9p	B,C,D		5GM +	7FG =	12	sec								
10p	A		5GM +	9FG =	14	sec								

Notes:

AM Peak	3+1+4+2	PM Peak	3+1+4+2
Sum of Critical *y* ***Y***	**0.714**	Sum of Critical *y* ***Y***	**0.664**
Lost Time ***L*** (sec)	16	Lost Time ***L*** (sec)	16
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.789	Practical *Y* ***Ypr***	0.789
Reserve Capacity ***RC***	**11%**	Reserve Capacity ***RC***	**19%**

Date : 12/6/2025 Junction : J8 - Hung Hom Road / Tai Wan Road East

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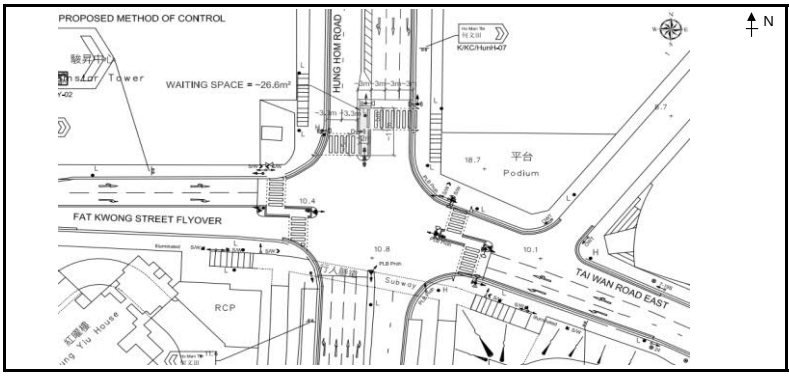
TRAFFIC SIGNAL CALCULATION SHEET

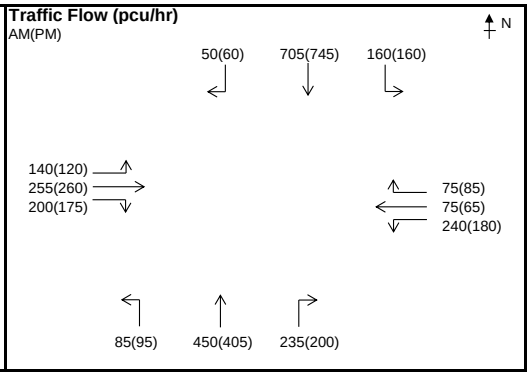
AtkinsRéalis

JOB NO. : 5219646

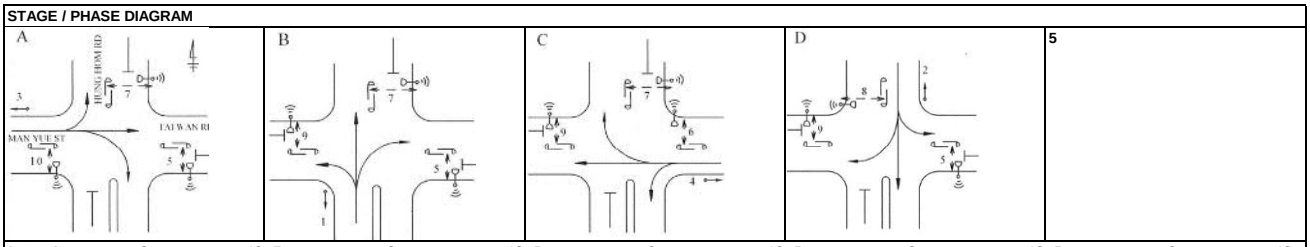
Junction : J8 - Hung Hom Road / Tai Wan Road Design Year: 2035

Scheme : 2035 Design - With Proposed Improvement Designed by: RC Checked by: EC





STAGE / PHASE DIAGRAM



3+1+4+2	G=	IG=7	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=
3+1+4+2	G=	IG=7	G=	IG=5	G=	IG=5	G=	IG=5	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Hung Hom Road (NB)														
1A	B	3.40	Y	N	10		85	100%	1700	0.050	95	100%	1700	0.056
1B	B	3.40	N	N			225		2095	0.107	203		2095	0.097
1C	B	3.40	N	N			225		2095	0.107	202		2095	0.096
1D	B	3.40	N	N	15		235	100%	1905	**0.123**	200	100%	1905	**0.105**
Hung Hom Road (SB)														
2A	D	3.00	Y	N	10		160	100%	1665	0.096	160	100%	1665	0.096
2B	D	3.00	N	N			380		2055	**0.185**	405		2055	0.197
2C	D	3.00	N	N	15		375	13%	2030	0.185	400	15%	2025	**0.198**
Fat Kwong Street Flyover (EB)														
3A	A	3.30	Y	N	10		395	35%	1845	**0.214**	380	32%	1855	**0.205**
3B	A	3.30	N	N	15		200	100%	1895	0.106	175	100%	1895	0.092
Tai Wan Road East (WB)														
4A	C	3.20	Y	N	10		240	100%	1685	**0.142**	180	100%	1685	**0.107**
4B	C	3.20	N	N	30		150	50%	2025	0.074	150	57%	2020	0.074
5p	A,B,D		5GM +	7FG =	12	sec								
6p	C		5GM +	6FG =	11	sec								
7p	A,B,C		5GM +	7FG =	12	sec								
8p	D		5GM +	9FG =	14	sec								
9p	B,C,D		5GM +	7FG =	12	sec								
10p	A		5GM +	9FG =	14	sec								

Notes:

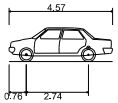
AM Peak	3+1+4+2	PM Peak	3+1+4+2
Sum of Critical *y* ***Y***	**0.665**	Sum of Critical *y* ***Y***	**0.614**
Lost Time ***L*** (sec)	18	Lost Time ***L*** (sec)	18
Cycle Time ***c*** (sec)	130	Cycle Time ***c*** (sec)	130
Practical *Y* ***Ypr***	0.775	Practical *Y* ***Ypr***	0.775
Reserve Capacity ***RC***	**17%**	Reserve Capacity ***RC***	**26%**

Date : 12/6/2025 Junction : J8 - Hung Hom Road / Tai Wan Road

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Appendix B. Preliminary Notional Layout and Swept Path Analysis

Swept Path of Private Car

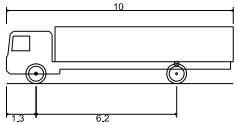


Private Car

Overall Length	4.570m
Overall Width	1.750m
Overall Body Height	1.495m
Curb to Curb Turning Radius	6.400m

G/F 1:1,000(A4)

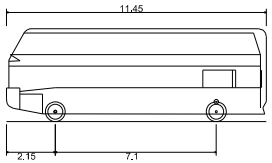
Swept Path of Heavy Goods Vehicle



Heavy Goods Vehicle	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	2.500m
Curb to Curb Turning Radius	12.000m

G/F 1:1,000(A4)

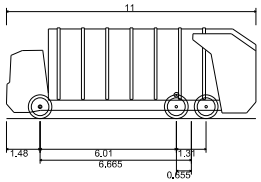
Swept Path of Coach



Coach	
Overall Length	11.450m
Overall Width	2.500m
Overall Body Height	4.095m
Curb to Curb Turning Radius	10.860m

G/F 1:1,000(A4)

Swept Path of Refuse Collection Vehicle

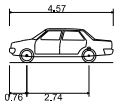


Refuse Collection Vehicle

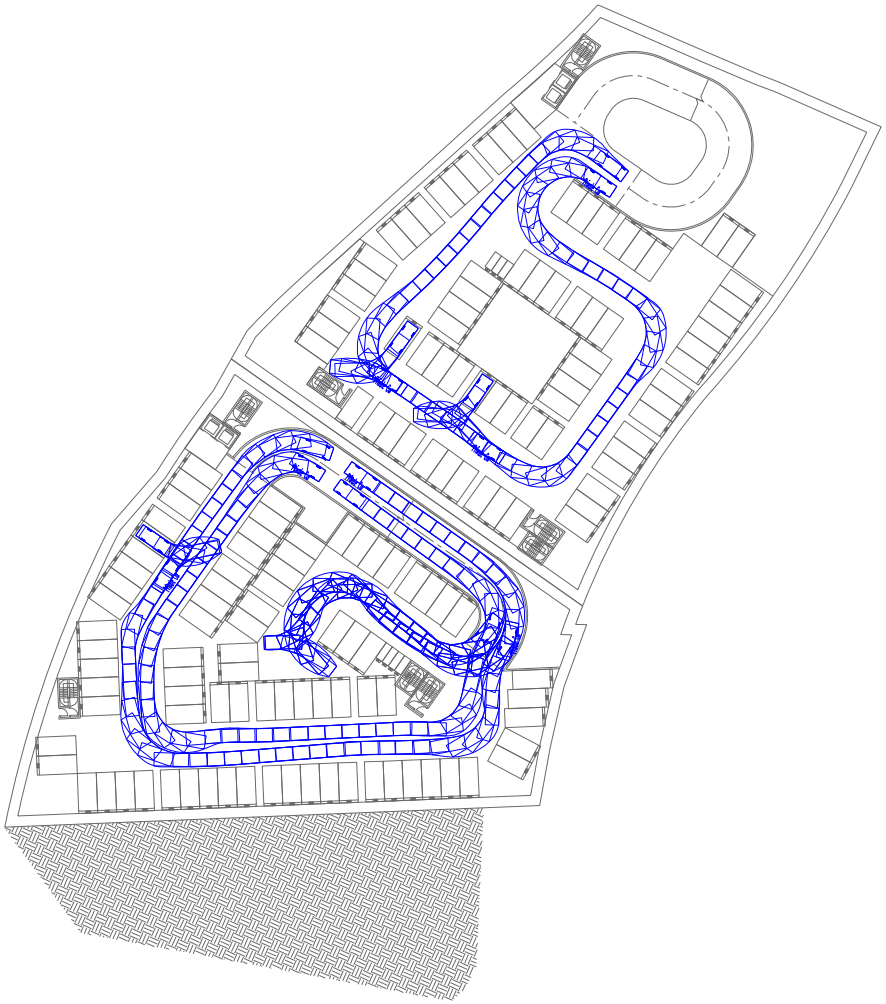
Overall Length	11.000m
Overall Width	2.490m
Overall Body Height	4.002m
Wall to Wall Turning Radius	10.000m

G/F 1:1,000(A4)

Swept Path of Private Car

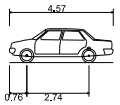


Private Car	
Overall Length	4.570m
Overall Width	1.750m
Overall Body Height	1.495m
Curb to Curb Turning Radius	6.400m

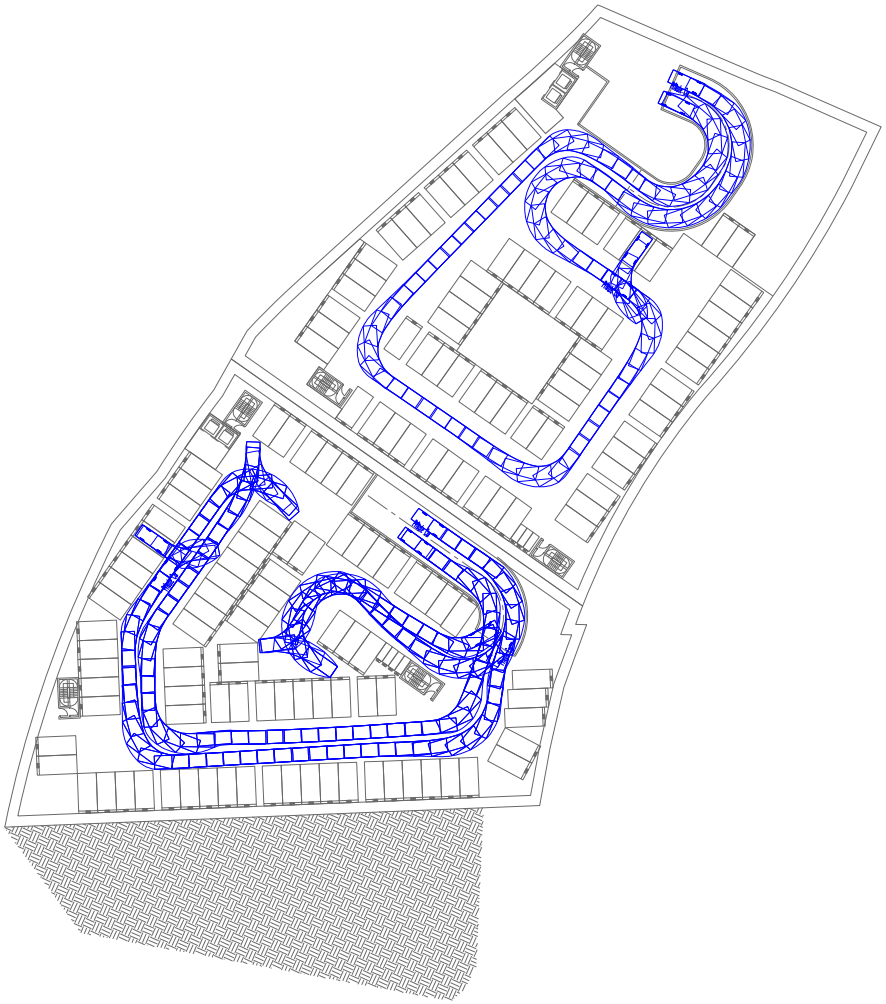


B1/F 1:1,000(A4)

Swept Path of Private Car



Private Car	
Overall Length	4.570m
Overall Width	1.750m
Overall Body Height	1.495m
Curb to Curb Turning Radius	6.400m



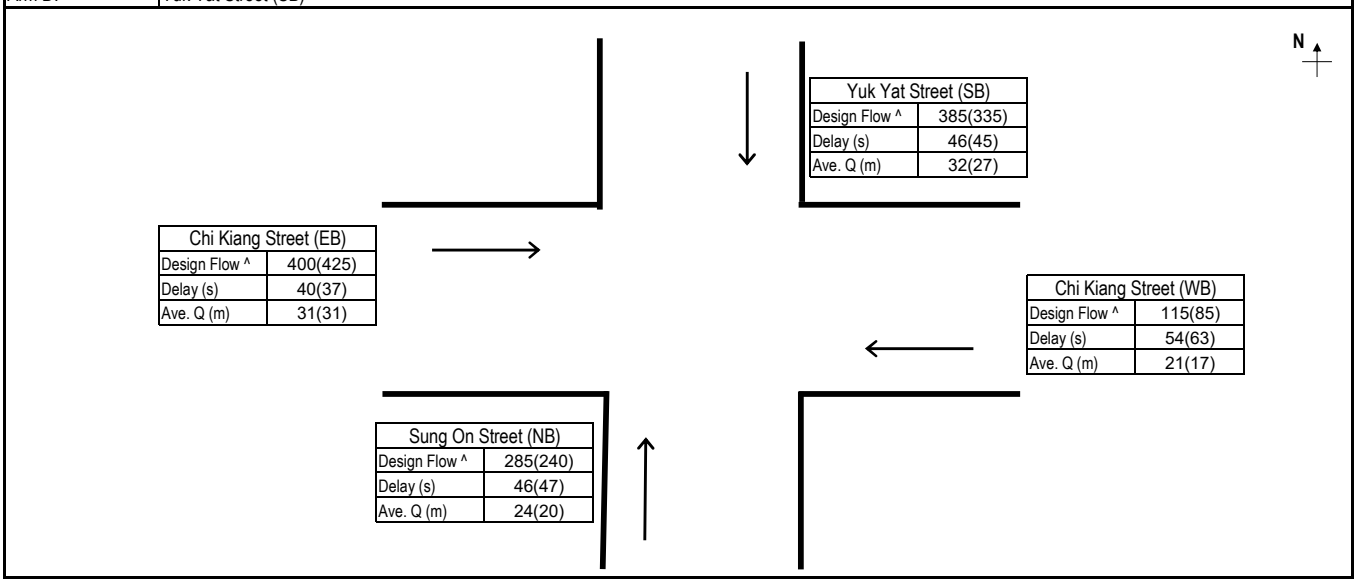
B2/F 1:1,000(A4)

Appendix C. Queue Length Analysis

QUEUE LENGTH CALCULATION - SIGNALIZED JUNCTION

AtkinsRéalis

Job Title:	Proposed Residential Development at Bailey Street	Job No.:	5219646		
Junction:	J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street	Ref. No.:	N/A		
Scheme:	2035 Reference				
Design Year:	2035	Designed by:	JL	Checked by:	EC
Arm A:	Chi Kiang Street (WB)				
Arm B:	Sung On Street (NB)				
Arm C:	Chi Kiang Street (EB)				
Arm D:	Yuk Yat Street (SB)				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM PEAK					PM PEAK				
	Number of Lanes, n	Eff. Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Sat Flow, S (pcu/hr)	PCU Factor, p	Eff. Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Sat Flow, S (pcu/hr)	PCU Factor, p
Chi Kiang Street (WB)	1	11	**120**	115	1825	1.0	9	120	85	1820	1.0
Sung On Street (NB)	2	20	120	285	3795	1.0	18	120	240	3795	1.0
Chi Kiang Street (EB)	2	28	120	400	3905	1.0	32	120	425	3885	1.0
Yuk Yat Street (SB)	2	21	120	385	3720	1.0	22	120	335	3720	1.0

AM PEAK QUEUE LENGTH CALCULATION

	Eff. Red, r (sec)	Eff. Green Ratio, L	Degree of Saturation, X	Avg. Arrival Rate, M (veh/cycle)	Estimated Delay, d(sec)	Avg. Queue Length, L1 (m)	Avg. Queue Length, L2 (m)	Avg. Queue Length, L3 (m)	Avg. Queue Length (m)
Chi Kiang Street (WB)	109	0.09	0.69	3.8	54		21	21	21
Sung On Street (NB)	100	0.17	0.45	9.5	46	23	24	24	24
Chi Kiang Street (EB)	92	0.23	0.44	13.3	40	29	31	31	31
Yuk Yat Street (SB)	99	0.18	0.59	12.8	46	31	32	32	32

PM PEAK QUEUE LENGTH CALCULATION

	Eff. Red, r (sec)	Eff. Green Ratio, L	Degree of Saturation, X	Avg. Arrival Rate, M (veh/cycle)	Estimated Delay, d(sec)	Avg. Queue Length, L1 (m)	Avg. Queue Length, L2 (m)	Avg. Queue Length, L3 (m)	Avg. Queue Length (m)
Chi Kiang Street (WB)	111	0.08	0.62	2.8	63	17	16	16	17
Sung On Street (NB)	102	0.15	0.42	8.0	47	20	20	20	20
Chi Kiang Street (EB)	88	0.27	0.41	14.2	37	29	31	31	31
Yuk Yat Street (SB)	98	0.18	0.49	11.2	45	26	27	27	27

RESULT SUMMARY

	AM Average Queue Length (m)	PM Average Queue Length (m)
Chi Kiang Street (WB)	**21**	**17**
Sung On Street (NB)	**24**	**20**
Chi Kiang Street (EB)	**31**	**31**
Yuk Yat Street (SB)	**32**	**27**

Effective Red,	r = c-g
Effective Green Ratio,	L = g/c
Degree of Saturation,	X = q/(SL)
Average Arrival Rate,	M = qc/3600p
Maximum Queue Length	Q = 6 * Maximum Queue /n
Estimated Delay,	d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length,	L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

** Note: In accordance with TPDM - Volume 4.2.5.2*

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

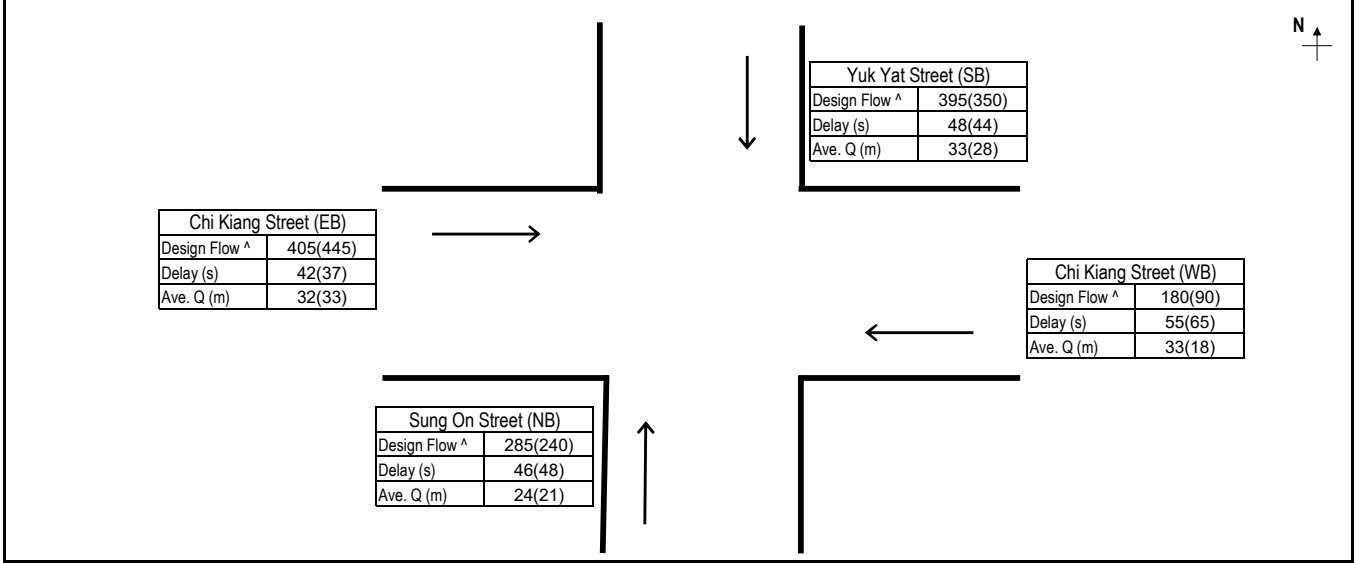
** Remarks ^ Flare lane effect has been considered*

Date: 12/6/2025

QUEUE LENGTH CALCULATION - SIGNALIZED JUNCTION

AtkinsRéalis

Job Title:	Proposed Residential Development at Bailey Street	Job No.:	5219646		
Junction:	J3 - Sung On Street / Yuk Yat Street / Chi Kiang Street	Ref. No.:	N/A		
Scheme:	2035 Design				
Design Year:	2035	Designed by:	JL	Checked by:	EC
Arm A:	Chi Kiang Street (WB)				
Arm B:	Sung On Street (NB)				
Arm C:	Chi Kiang Street (EB)				
Arm D:	Yuk Yat Street (SB)				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM PEAK					PM PEAK				
	Number of Lanes, n	Eff. Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Sat Flow, S (pcu/hr)	PCU Factor, p	Eff. Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Sat Flow, S (pcu/hr)	PCU Factor, p
Chi Kiang Street (WB)	1	16	**120**	180	1825	1.0	9	120	90	1825	1.0
Sung On Street (NB)	2	19	120	285	3795	1.0	17	120	240	3795	1.0
Chi Kiang Street (EB)	2	26	120	405	3910	1.0	32	120	445	3890	1.0
Yuk Yat Street (SB)	2	20	120	395	3720	1.0	23	120	350	3720	1.0

AM PEAK QUEUE LENGTH CALCULATION

	Eff. Red, r (sec)	Eff. Green Ratio, L	Degree of Saturation, X	Avg. Arrival Rate, M (veh/cycle)	Estimated Delay, d(sec)	Avg. Queue Length, L1 (m)	Avg. Queue Length, L2 (m)	Avg. Queue Length, L3 (m)	Avg. Queue Length (m)
Chi Kiang Street (WB)	104	0.13	0.74	6.0	55		31	33	33
Sung On Street (NB)	101	0.16	0.47	9.5	46	23	24	24	24
Chi Kiang Street (EB)	94	0.22	0.48	13.5	42	30	32	32	32
Yuk Yat Street (SB)	100	0.17	0.64	13.2	48	32	33	33	33

PM PEAK QUEUE LENGTH CALCULATION

	Eff. Red, r (sec)	Eff. Green Ratio, L	Degree of Saturation, X	Avg. Arrival Rate, M (veh/cycle)	Estimated Delay, d(sec)	Avg. Queue Length, L1 (m)	Avg. Queue Length, L2 (m)	Avg. Queue Length, L3 (m)	Avg. Queue Length (m)
Chi Kiang Street (WB)	111	0.08	0.66	3.0	65	18	17	17	18
Sung On Street (NB)	103	0.14	0.45	8.0	48	20	21	21	21
Chi Kiang Street (EB)	88	0.27	0.43	14.8	37	30	33	33	33
Yuk Yat Street (SB)	97	0.19	0.49	11.7	44	27	28	28	28

RESULT SUMMARY

	AM Average Queue Length (m)	PM Average Queue Length (m)
Chi Kiang Street (WB)	**33**	**18**
Sung On Street (NB)	**24**	**21**
Chi Kiang Street (EB)	**32**	**33**
Yuk Yat Street (SB)	**33**	**28**

Effective Red,	r = c-g
Effective Green Ratio,	L = g/c
Degree of Saturation,	X = q/(SL)
Average Arrival Rate,	M = qc/3600p
Maximum Queue Length	Q = 6 * Maximum Queue /n
Estimated Delay,	d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length,	L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

** Note: In accordance with TPDM - Volume 4.2.5.2*

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

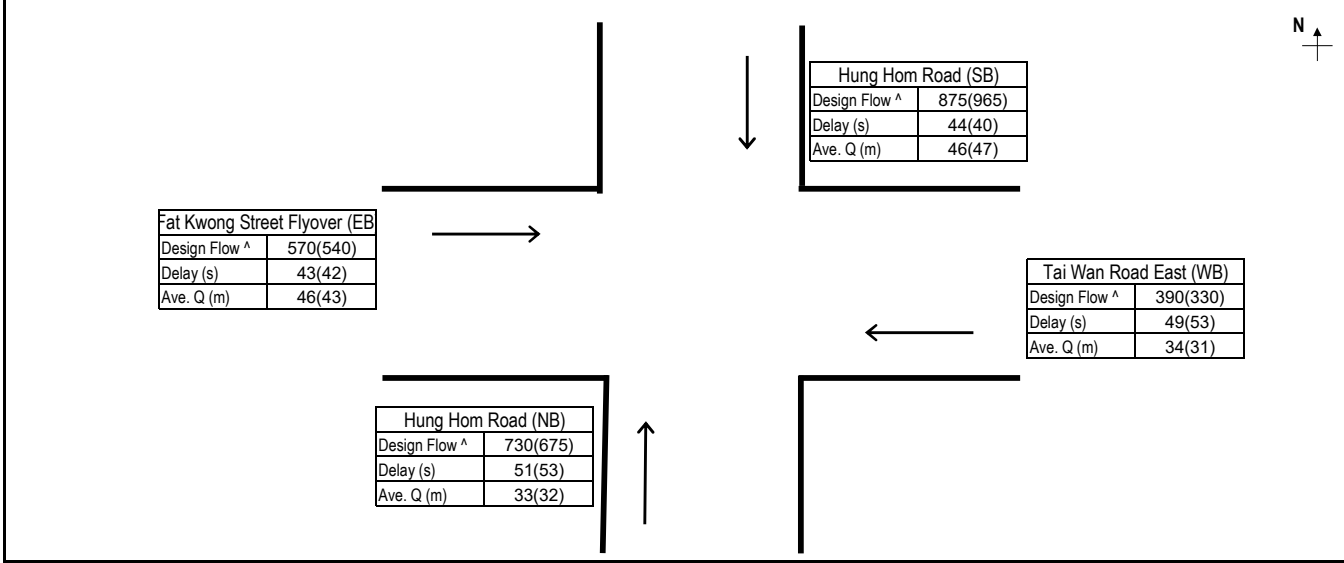
** Remarks ^ Flare lane effect has been considered*

Date: 12/6/2025

QUEUE LENGTH CALCULATION - SIGNALIZED JUNCTION

AtkinsRéalis

Job Title:	Proposed Residential Development at Bailey Street	Job No.:	5219646		
Junction:	J8 - Hung Hom Road / Tai Wan Road East	Ref. No.:	N/A		
Scheme:	2035 Reference				
Design Year:	2035	Designed by:	JL	Checked by:	EC
Arm A:	Tai Wan Road East (WB)				
Arm B:	Hung Hom Road (NB)				
Arm C:	Fat Kwong Street Flyover (EB)				
Arm D:	Hung Hom Road (SB)				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM PEAK					PM PEAK				
	Number of Lanes, n	Eff. Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Sat Flow, S (pcu/hr)	PCU Factor, p	Eff. Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Sat Flow, S (pcu/hr)	PCU Factor, p
Tai Wan Road East (WB	2	24	**130**	390	3710	1.0	19	**130**	330	3705	1.0
Hung Hom Road (NB)	4	20	130	730	7795	1.0	18	130	675	7795	1.0
Fat Kwong Street Flyove	2	33	130	570	3755	1.0	34	130	540	3760	1.0
Hung Hom Road (SB)	3	37	130	875	3905	1.0	43	130	965	3910	1.0

AM PEAK QUEUE LENGTH CALCULATION

	Eff. Red, r (sec)	Eff. Green Ratio, L	Degree of Saturation, X	Avg. Arrival Rate, M (veh/cycle)	Estimated Delay, d(sec)	Avg. Queue Length, L1 (m)	Avg. Queue Length, L2 (m)	Avg. Queue Length, L3 (m)	Avg. Queue Length (m)
Tai Wan Road East (WB	106	0.18	0.57	14.1	49	33	34	34	34
Hung Hom Road (NB)	110	0.15	0.61	26.4	51	32	33	33	33
Fat Kwong Street Flyove	97	0.25	0.60	20.6	43	44	46	46	46
Hung Hom Road (SB)	93	0.28	0.79	31.6	44		45	46	46

PM PEAK QUEUE LENGTH CALCULATION

	Eff. Red, r (sec)	Eff. Green Ratio, L	Degree of Saturation, X	Avg. Arrival Rate, M (veh/cycle)	Estimated Delay, d(sec)	Avg. Queue Length, L1 (m)	Avg. Queue Length, L2 (m)	Avg. Queue Length, L3 (m)	Avg. Queue Length (m)
Tai Wan Road East (WB	111	0.15	0.61	11.9	53	30	31	31	31
Hung Hom Road (NB)	112	0.14	0.63	24.4	53	31	32	32	32
Fat Kwong Street Flyove	96	0.26	0.55	19.5	42	41	43	43	43
Hung Hom Road (SB)	87	0.33	0.75	34.8	40	45	47	47	47

RESULT SUMMARY

	AM Average Queue Length (m)	PM Average Queue Length (m)
Tai Wan Road East (WB)	**34**	**31**
Hung Hom Road (NB)	**33**	**32**
Fat Kwong Street Flyover (EB)	**46**	**43**
Hung Hom Road (SB)	**46**	**47**

Effective Red,	r = c-g
Effective Green Ratio,	L = g/c
Degree of Saturation,	X = q/(SL)
Average Arrival Rate,	M = qc/3600p
Maximum Queue Length	Q = 6 * Maximum Queue /n
Estimated Delay,	d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length,	L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

** Note: In accordance with TPDM - Volume 4.2.5.2*

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

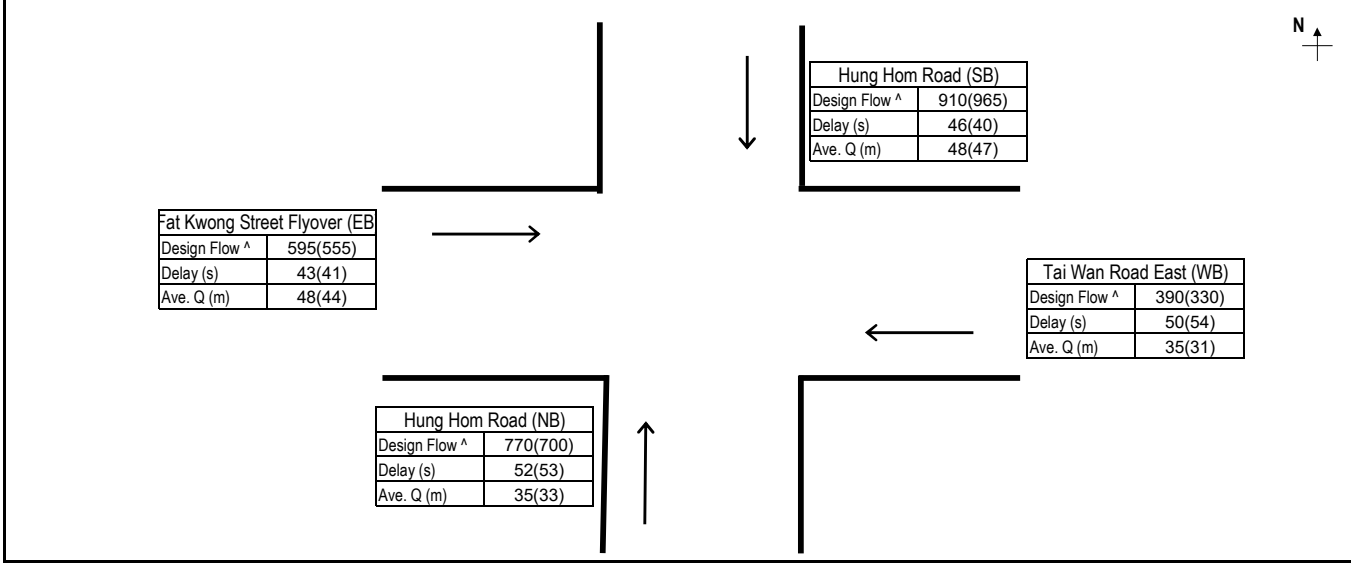
** Remarks ^ Flare lane effect has been considered*

Date: 12/6/2025

QUEUE LENGTH CALCULATION - SIGNALIZED JUNCTION

AtkinsRéalis

Job Title:	Proposed Residential Development at Bailey Street	Job No.:	5219646		
Junction:	J8 - Hung Hom Road / Tai Wan Road East	Ref. No.:	N/A		
Scheme:	2035 Design				
Design Year:	2035	Designed by:	JL	Checked by:	EC
Arm A:	Tai Wan Road East (WB)				
Arm B:	Hung Hom Road (NB)				
Arm C:	Fat Kwong Street Flyover (EB)				
Arm D:	Hung Hom Road (SB)				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM PEAK					PM PEAK				
	Number of Lanes, n	Eff. Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Sat Flow, S (pcu/hr)	PCU Factor, p	Eff. Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Sat Flow, S (pcu/hr)	PCU Factor, p
Tai Wan Road East (WE	2	23	**130**	390	3710	1.0	18	**130**	330	3705	1.0
Hung Hom Road (NB)	4	20	130	770	7795	1.0	18	130	700	7795	1.0
Fat Kwong Street Flyove	2	34	130	595	3740	1.0	35	130	555	3750	1.0
Hung Hom Road (SB)	3	37	130	910	3905	1.0	42	130	965	3910	1.0

AM PEAK QUEUE LENGTH CALCULATION

	Eff. Red, r (sec)	Eff. Green Ratio, L	Degree of Saturation, X	Avg. Arrival Rate, M (veh/cycle)	Estimated Delay, d(sec)	Avg. Queue Length, L1 (m)	Avg. Queue Length, L2 (m)	Avg. Queue Length, L3 (m)	Avg. Queue Length (m)
Tai Wan Road East (WE	107	0.18	0.59	14.1	50	34	35	35	35
Hung Hom Road (NB)	110	0.15	0.64	27.8	52	34	35	35	35
Fat Kwong Street Flyove	96	0.26	0.61	21.5	43	45	48	48	48
Hung Hom Road (SB)	93	0.28	0.82	32.9	46		47	48	48

PM PEAK QUEUE LENGTH CALCULATION

	Eff. Red, r (sec)	Eff. Green Ratio, L	Degree of Saturation, X	Avg. Arrival Rate, M (veh/cycle)	Estimated Delay, d(sec)	Avg. Queue Length, L1 (m)	Avg. Queue Length, L2 (m)	Avg. Queue Length, L3 (m)	Avg. Queue Length (m)
Tai Wan Road East (WE	112	0.14	0.64	11.9	54	30	31	31	31
Hung Hom Road (NB)	112	0.14	0.65	25.3	53	32	33	33	33
Fat Kwong Street Flyove	95	0.27	0.55	20.0	41	41	44	44	44
Hung Hom Road (SB)	88	0.32	0.76	34.8	40		47	47	47

RESULT SUMMARY

	AM Average Queue Length (m)	PM Average Queue Length (m)
Tai Wan Road East (WB)	**35**	**31**
Hung Hom Road (NB)	**35**	**33**
Fat Kwong Street Flyover (EB)	**48**	**44**
Hung Hom Road (SB)	**48**	**47**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL)
Average Arrival Rate, M = qc/3600p
Maximum Queue Length Q = 6 * Maximum Queue /n
Estimated Delay, $d = c(1-L)^2/2(1-LX) + 3600pX^2/2q(1-X) - 0.65(c/(q/3600p)^2)^{(1/3)}*X^{(2+5L)}$ OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

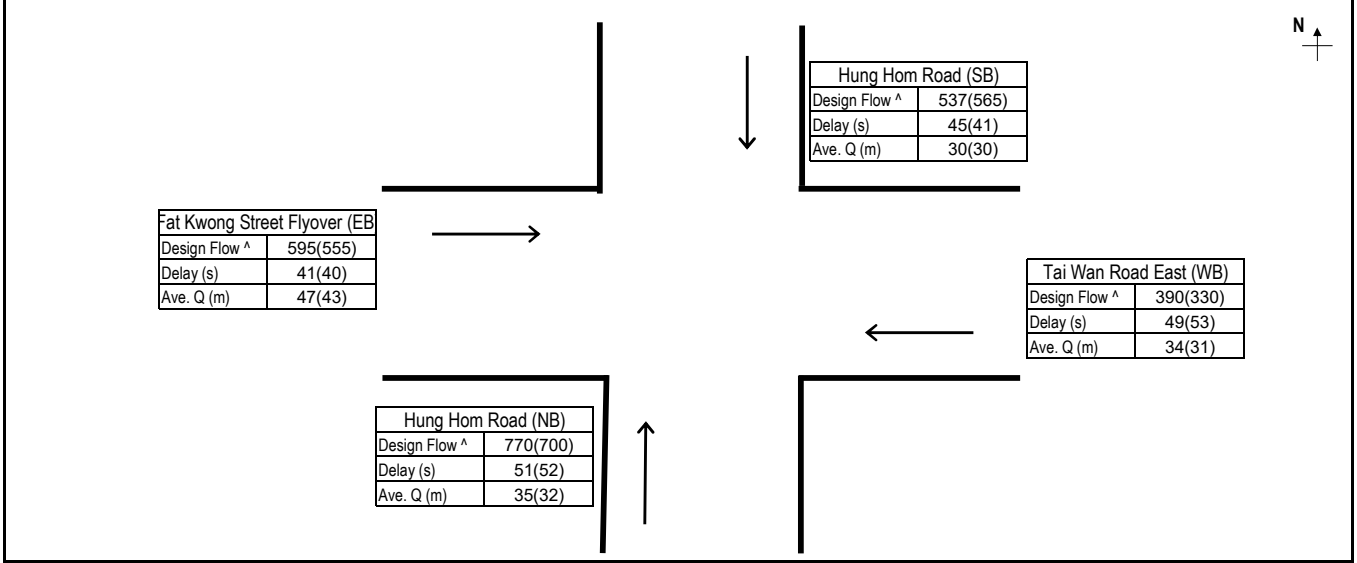
** Note: In accordance with TPDM - Volume 4.2.5.2*
** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*
** Remarks ^ Flare lane effect has been considered*

Date: 12/6/2025

QUEUE LENGTH CALCULATION - SIGNALIZED JUNCTION

AtkinsRéalis

Job Title:	Proposed Residential Development at Bailey Street	Job No.:	5219646		
Junction:	J8 - Hung Hom Road / Tai Wan Road	Ref. No.:	N/A		
Scheme:	2035 Design - With Proposed Improvement				
Design Year:	2035	Designed by:	JL	Checked by:	EC
Arm A:	Tai Wan Road East (WB)				
Arm B:	Hung Hom Road (NB)				
Arm C:	Fat Kwong Street Flyover (EB)				
Arm D:	Hung Hom Road (SB)				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM PEAK					PM PEAK				
	Number of Lanes, n	Eff. Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Sat Flow, S (pcu/hr)	PCU Factor, p	Eff. Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Sat Flow, S (pcu/hr)	PCU Factor, p
Tai Wan Road East (WB	2	24	**130**	390	3710	1.0	19	**130**	330	3705	1.0
Hung Hom Road (NB)	4	21	130	770	7795	1.0	19	130	700	7795	1.0
Fat Kwong Street Flyove	2	36	130	595	3740	1.0	37	130	555	3750	1.0
Hung Hom Road (SB)	3	31	130	537	3720	1.0	36	130	565	3720	1.0

AM PEAK QUEUE LENGTH CALCULATION

	Eff. Red, r (sec)	Eff. Green Ratio, L	Degree of Saturation, X	Avg. Arrival Rate, M (veh/cycle)	Estimated Delay, d(sec)	Avg. Queue Length, L1 (m)	Avg. Queue Length, L2 (m)	Avg. Queue Length, L3 (m)	Avg. Queue Length (m)
Tai Wan Road East (WB	106	0.18	0.57	14.1	49	33	34	34	34
Hung Hom Road (NB)	109	0.16	0.61	27.8	51	34	35	35	35
Fat Kwong Street Flyove	94	0.28	0.57	21.5	41	44	47	47	47
Hung Hom Road (SB)	99	0.24	0.61	19.4	45	28	30	30	30

PM PEAK QUEUE LENGTH CALCULATION

	Eff. Red, r (sec)	Eff. Green Ratio, L	Degree of Saturation, X	Avg. Arrival Rate, M (veh/cycle)	Estimated Delay, d(sec)	Avg. Queue Length, L1 (m)	Avg. Queue Length, L2 (m)	Avg. Queue Length, L3 (m)	Avg. Queue Length (m)
Tai Wan Road East (WB	111	0.15	0.61	11.9	53	30	31	31	31
Hung Hom Road (NB)	111	0.15	0.61	25.3	52	31	32	32	32
Fat Kwong Street Flyove	93	0.28	0.52	20.0	40	40	43	43	43
Hung Hom Road (SB)	94	0.28	0.55	20.4	41	28	30	30	30

RESULT SUMMARY

	AM Average Queue Length (m)	PM Average Queue Length (m)
Tai Wan Road East (WB)	**34**	**31**
Hung Hom Road (NB)	**35**	**32**
Fat Kwong Street Flyover (EB)	**47**	**43**
Hung Hom Road (SB)	**30**	**30**

Effective Red,	r = c-g
Effective Green Ratio,	L = g/c
Degree of Saturation,	X = q/(SL)
Average Arrival Rate,	M = qc/3600p
Maximum Queue Length	Q = 6 * Maximum Queue /n
Estimated Delay,	d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length,	L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

** Note: In accordance with TPDM - Volume 4.2.5.2*

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

** Remarks ^ Flare lane effect has been considered*

Date: 12/6/2025

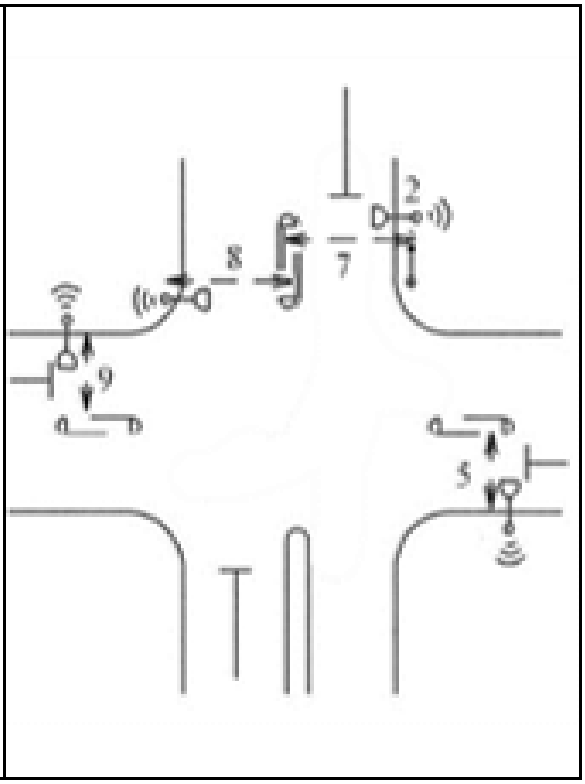
Appendix D. Refuge Island Assessment

Signalised Crossing Assessment

Junction Location: Hung Hom Road / Tai Wan Road

Junction Parameters

Refuge Island Area	17.8 sq.m.	
	AM	**PM**
Signal Junction Cycle Time	130 s	130 s
Green + Flashing Period		
Across Hung Hom Road SB Traffic (7p)	80 s	87 s
Across Hung Hom Road NB Traffic (8p)	35 s	28 s
Waiting Time for Padestrain		
Across Hung Hom Road SB Traffic (7p)	50 s	43 s
Across Hung Hom Road NB Traffic (8p)	95 s	102 s
Green Time Proportion (GTP)		
Across Hung Hom Road SB Traffic (7p)	0.6154	0.6692
Across Hung Hom Road NB Traffic (8p)	0.2692	0.2154
Crossing Width (W)		
Across Hung Hom Road SB Traffic (7p)	5.0 m	
Across Hung Hom Road NB Traffic (8p)	5.0 m	
Pedestrian Crossing Capacity (PC=KxGTPxW)*		
Across Hung Hom Road SB Traffic (7p)	5846 ppl/hr	6358 ppl/hr
Across Hung Hom Road NB Traffic (8p)	2558 ppl/hr	2046 ppl/hr
*K may be taken as 1900 ped/metre/hours		



Pedestrian Flow Rate

Movement	Year 2025 15-minute Pedestrian Flow (ppl/15-min)		Year 2035 15-minute Pedestrian Flow* (ppl/15-min)		Average Arrival Rate (ppl/s)	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**
From Eastern Side (WB Movement)	59	97	62	102	0.0689	0.1133
From Western Side (EB Movement)	103	33	109	35	0.1211	0.0389

*Adopt growth rate = 0.54%

No. of Pedestrian Waiting at Refuge Island in a Junction Cycle

Movement	**AM**	**PM**
From Eastern Side (WB Movement)	8.96	14.73
From Western Side (EB Movement)	15.74	5.06
Maximum	**15.74**	**14.73**

Average Pedestrian Area Occupancy at Refuge Island (m^2/ppl)

A minimum average pedestrian area occupancy of 0.2 sq.m./person should be provided wherever possible (TPDM Vol.4 Ch.3 Para. 3.2.6.2)	**AM**	**PM**
	1.1	1.2
	>0.2, OK	**>0.2, OK**

Volume to Capacity Ratio at Pedestrian Crossing

Crossing Location	**AM**	**PM**
Across Fat Kwong Street SB Traffic (7p)	0.12	0.09
Across Fat Kwong Street NB Traffic (8p)	0.27	0.27

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Appendix 6

Environmental Assessment Report

Urban Renewal Authority
Proposed Residential Development in
Bailey Street, Kowloon City District

Environmental Assessment Report

(V4.0)

June 2025

Approved By _____

(Project Manager: K.S. Lee)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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1 INTRODUCTION

1.1 Background

1.1.1 Cinotech Consultants Limited is commissioned by the Urban Renewal Authority (URA) to conduct an Environmental Assessment (EA) in support to a proposed comprehensive high-density residential development (the Proposed Development) at Bailey Street, Kowloon City District (the "Site"). URA, in collaboration with the Planning Department, proposed to rezone the site from "Government, Institution or Community" ("G/IC") zone and a small strip of land zoned "Other Specified Uses" annotated "Sewage Treatment Plant" ("OU(STP)") to "Residential (Group A)9" ("R(A)9") for comprehensive high-density residential development (the "Proposed Rezoning"). Planning submission with relevant technical assessments will be prepared in support of the proposed rezoning under Section 5 of the Town Planning Ordinance.

1.2 Purpose and Scope of Report

1.2.1 This EA is prepared to assess the potential environmental impact/benefit associated with the implementation of the Proposed Development. It has been undertaken with reference to the guidance for environmental considerations provided in Chapter 9 "Environment" of the Hong Kong Planning Standards and Guidelines (HKPSG).

1.2.2 This EA presents the study of the potential environmental impacts of the following aspects:

- Air Quality
- Hazard to Life
- Noise
- Water Quality
- Waste Management
- Land Contamination

1.2.3 Drainage Impact, Sewerage Impact, Water Supply Impact and Air Ventilation Impact will be assessed in separate reports.

2 DESCRIPTION OF THE ENVIRONMENT

2.1 Overview of Existing Environment

The Site

2.1.1 The Site, with a gross site area of about 7,610 m^2, is situated in the Kowloon City District, is in proximity to the waterfront. It is bounded by Chi Kiang Street to the west, Bailey Street to the south, Hoi Sham Park Extension to north and east and To Kwa Wan Pigging Station to the east and To Kwa Wan Preliminary Treatment Works (To Kwa Wan PTW) to the southeast. A location plan of the Site is shown on **Figure 2-1**.

2.1.2 The Site falls within the Approved Hung Hom Outline Zoning Plan ("OZP") No. S/K9/28, and currently zoned as ("G/IC") and a small strip of land zoned "OU(STP)" with building height restriction ("BHR") of 8 storeys and planned for school development. The current zoning of the Site and its surrounding is illustrated in **Figure 2-2**.

2.1.3 The majority of the Site is currently occupied by a temporary fee-paying public car park, with a small portion used as a planter area and hard-paved land serving as a passageway.

Existing Developments in the Vicinity

2.1.4 The existing developments in the vicinity consists a mixed of residential, commercial, recreational, institutional and infrastructural uses. In particular, To Kwa Wan Pigging Station and To Kwa Wan PTW are in close proximity of the Site, thus potential environmental impacts arising from those facilities shall be assessed.

Road and Marine Traffic

2.1.5 According to the Annual Traffic Census, the road traffic in the adjoining roads, i.e. Chi Kiang Street & Bailey Street are not considered heavy in comparison with the Primary Distributor of Chatham Road North, which is located at about 300m to the west of the Site. For example, in Year 2023, the annual average daily traffic (AADT) of Chi Kiang Street (Station 3654) was 8,530 and Bailey Street (Station 3887) was 13,120. Meanwhile, the AADT of Chatham Road North and Ma Tau Wai Road (Station 4212) was 27,520.

2.1.6 The Kowloon City Ferry Pier is located at around 600m to the north-east of the Site. There is a commercial ferry route between North Point Ferry Pier and Kowloon City Ferry Pier as shown in **Figure 2-3**. According to the latest schedule, the marine traffic is approximately 4 trips per hour between 07:00 & 20:00.

2.1.7 To Kwa Wan Typhoon Shelter is located at around 350m to the east of the Site as shown in **Figure 2-3**. The Typhoon Shelter is normally occupied by barges.

Identified Planned Development

2.1.8 The identified planned developments are shown in **Figure 2-4**.

2.1.9 To the further west of the Site across Sung On Street, it is the URA's Kowloon City Action Area 1 (KCAA1) Core Area, which consists of eight URA redevelopment projects that are currently in various stages of implementation. The objective of these projects is to improve walkability and connectivity by reorganizing and redeveloping the land uses in the area. As part of this initiative, certain existing roads will be closed and transformed into pedestrian-only areas, as indicated in **Appendix 2-2**. In order to reflect the operational conditions of the

Project, the road network considered in the assessments presented in this report is based on the scenario that incorporates the changes associated with the KCAA1 Core Area.

2.1.10 In addition to the URA's KCAA1 Core Area, there are two other developments in the vicinity that are under construction. One is URA Project KC-008(A), and the other is an approved planning application for office and commercial development (No. A/K9/274). Both developments are located to the south of the KCAA1 Core Area.

2.2 Overview of Potential Environmental Impact to the Sites

Potential Air Pollution Sources in the Surrounding

2.2.1 Site inspections were conducted starting in March 2024 and reviewed in June 2025. It was found that the residential, commercial, and recreational areas in the vicinity are not considered sources of air pollution. No active industrial chimneys were identified within the 500 m assessment area during the site inspection. However, the nearby To Kwa Wan PTW is considered a potential odour source.

2.2.2 The Site is surrounded by road traffic, the road traffic emissions are identified as the major air pollution source affecting the Proposed Development.

2.2.3 Marine traffic and typhoon Shelter are identified within the 500m assessment area. The marine traffic emission, especially the Sulphur Dioxide (SO_2) emission shall also be included in the assessment.

Potential Noise Sources

2.2.4 The road traffic noise is considered the major noise source in the surroundings.

2.2.5 In the vicinity of the Site, the surrounding residential developments are not considered significant fixed noise sources. However, the exposed fixed plants of schools and commercial developments have been identified as potential fixed noise sources. Despite the presence of these fixed noise sources, they are not expected to have an adverse impact on the sensitive receivers within the Proposed Development.

2.2.6 Since the Proposed Development comprises non-domestic portion areas and an underground car park, centralized ventilation system will be provided. The fixed noise sources within the Proposed Development, i.e. the HVAC system, have the potential to cause noise impacts on the proposed residential flats within the Proposed Development and the Noise Sensitive Receiver (NSR) in the surrounding area if the fixed noise sources are not appropriately designed and mitigated.

2.3 The Proposed Development

Zoning

2.3.1 The Site is proposed to be rezoned to "(R(A)9)" for comprehensive high-density residential development. The "R(A)9" zone is also subject to a maximum building height restriction of 110mPD, a maximum Gross Floor Area (GFA) of 68,490 sq.m., with domestic GFA not exceeding 60,880 sq.m..

Notional Design & Development Parameters

2.3.2 To visualise the proposed planning parameters and support technical assessment, an indicative layout is shown in **Figure 2-5**, a section plan illustrated in **Appendix 2-1**, and the overall development parameters of Site A and B are presented in **Table 2-1**.

2.3.3 As shown in the indicative layout, the Proposed Development is designed for a two-phases development scenario, with each phase (namely Site A and Site B) featuring one residential tower with a maximum building height of 110mPD atop of a four-storeys podium and two levels of basement carpark. Under a conservative approach, the EA will be conducted under this two-phased development scenario. It is worth noting that the indicative layout, development parameters and phasing boundary for Site A and B are intended solely for use of relevant technical assessments in support of the Proposed Rezoning, which is for indicative purposes only and subject to change at detailed design stage.

Table 2-1 Development Parameters of the Proposed Development

	Overall	**Site A [3]**	**Site B [3]**
Zoning	"R(A)9"	"R(A)9"	"R(A)9"
Site Area (Subject to survey)	About 7,610 m^2	About 3,417 m^2	About 4,193 m^2
Domestic GFA	About 60,880 m^2	About 27,336 m^2	About 33,544 m^2
Commercial GFA	About 7,610 m^2	About 2,045 m^2	About 5,565 m^2
GIC GFA (to be exempted from GFA calculation)	About 3,100 m^2	About 3,100 m^2	N/A
No. of building blocks [1]	2	1	1
Building Height	110 mPD	110 mPD	110 mPD
No. of Flats [1]	1,218	547	671
Average Flat Size [1]	About 50 m^2	About 50 m^2	About 50 m^2
Harbourfront At-Grade Communal Space	About 760 m^2	N/A	About 760 m^2
Car Parking Spaces [2]	Private Car: 343 Coach: 15	Private Car: 143 Coach: 15	Private Car: 200 Coach: 0
Tentative Project Completion Year	2032	2032	2032

Note
[1] Number of building blocks, number of flats and average flat size are indicative only and subject to detailed design.
[2] Subject to liaison with Transport Department.
[3] The development parameters of Site A and Site B are for technical assessment and indicative purposes only, subject to change in detailed design.

3 AIR QUALITY IMPACT ASSESSMENT

3.1 Introduction

3.1.1 This chapter assessed the potential air quality impact from the following aspects: (i) Construction Phase - the potential air quality impact generated from the construction activities of the Proposed Development to the surroundings; (ii) Operation Phase – nearby emissions affecting the Proposed Development. It also recommends appropriate mitigation measures to alleviate the potential impacts, if any.

3.2 Legislation, Standards & Guidelines

3.2.1 The air quality impact assessment criteria were made reference to the HKPSG and the Air Pollution Control Ordinance (Cap.311) (APCO).

Minimum Buffer Distances

3.2.2 HKPSG recommends minimum buffer distances from the various road emission sources and industrial chimneys for planning purposes, which are summarized in **Table 3-1**. For odour source and dusty uses, the recommended buffer distance is 200m & 100m respectively.

Table 3-1 Guidelines on Usage of Open Space Site

Pollution Source	Parameter	Buffer Distance [i]	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
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
	>40m	>10m	Active and passive recreational uses

Note:
(i) The buffer distance is the horizontal, shortest distance from the boundary of the industrial lot, the position of existing chimneys or the edge of road kerb, to the boundary of open space sites.

Air Quality Objectives (AQO)

3.2.3 The APCO provides the statutory authority for controlling air pollutants from a variety of sources. The Hong Kong's AQOs stipulate the maximum allowable concentrations over specific periods for the criteria pollutants (**Table 3-2**).

Table 3-2 Hong Kong's Air Quality Objectives (2025)

Pollutant	Averaging time	Concentration limit [1] ($\mu g/m^3$)	Number of exceedances allowed
Sulphur dioxide (SO_2)	10-minute	500	3
	24-hour	40[4]	3
Respirable suspended particulates (RSP) [ii]	24-hour	75 [4]	9
	Annual	30 [4]	Not applicable
Fine suspended particulates (FSP) [iii]	24-hour	37.5[4]	18[4]
	Annual	15[4]	Not applicable
Nitrogen dioxide (NO_2)	1-hour	200	18
	24-hours [4]	120 [4]	9 [4]
	Annual	40	Not applicable
Ozone (O_3)	8-hour	160	9
	Peak season [4]	100 [4]	Not applicable [4]
Carbon monoxide (CO)	1-hour	30,000	0
	8-hour	10,000	0
	24-hours [4]	4,000 [4]	0 [4]
Lead (Pb)	Annual	0.5	Not applicable

Note:
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 293Kelvin and a reference pressure of 101.325 kilopascal.
2. Respirable suspended particulates mean suspended particles in air with a nominal aerodynamic diameter of 10 μm or less.
3. Fine suspended particulates mean suspended particles in air with a nominal aerodynamic diameter of 2.5 μm or less.
4. Amended/New criteria in the new AQO (AQO-2025).

Air Pollution Control (Construction Dust) Regulation

3.2.4 The regulation defines notifiable and regulatory works activities that are subject to construction dust control.

Air Pollution Control (Smoke) Regulations

3.2.5 The regulations stipulate that dark smoke emission from any chimney or relevant plant must not exceed 6 minutes in any period of 4 hours; or 3 minutes continuously at any one time.

The Air Pollution Control (Fuel Restriction) Regulations

3.2.6 The regulation provides a statutory minimum requirement to restrict commercial and industrial processes to use ULSD (Ultra Low Sulphur Diesel) with a sulphur content of only 0.001%.

Air Pollution Control (Fuel for Vessels) Regulation

3.2.7 The regulation provides a statutory requirement for all marine vessels, except for specified vessel types as outlined in the regulation, are obligated to use compliant fuel within Hong Kong waters starting from 1 January 2019.

Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation

3.2.8 According to the regulation, Non-road Mobile Machinery (NRMMs) must adhere to the prescribed emission standards. Only NRMMs that have been approved or exempted and bear the appropriate label are permitted for use in specified activities and locations. These include construction sites, container terminals and backup facilities, restricted areas of the airport, designated waste disposal facilities, and specified processes.

Recommended Pollution Control Clauses for Construction Contracts

3.2.9 This guideline includes a list of relevant regulations/guidelines for contractors and general engineering practices aimed at minimizing inconvenience and environmental nuisance to nearby residents and other sensitive receivers.

ProPECC Practice Note PN 2/96 - Control of Air Pollution in Car Parks

3.2.10 The practice note provides guidance on the control of air pollution in car parks including air quality guidelines required for the protection of public health; and factors that should be considered in the design and operation of car parks in order to achieve the required air quality.

3.3 Background Air Quality and Key Criteria Pollutants

Background Air Quality

3.3.1 EPD has been closely monitoring the air quality in Hong Kong through their air quality monitoring stations (AQMS). The Mong Kok Roadside Station is the closest AQMS to the Proposed Development. It should be noted that the measurement results at the Roadside Station are generally higher than those at regular sensitive receivers, such as residential flats, due to its proximity to road traffic. Therefore, the measurements at the Roadside Station should only be considered as a worst-case scenario, and the measurements at the closest general AQMS, namely the Sham Shui Po Monitoring Station, should be taken into consideration.

3.3.2 The monitoring result of Mong Kok Roadside Station and Sham Shui Po Monitoring Station during year 2019-2023 are summarized in **Table 3-3 & Table 3-4**, respectively. For both stations, the measured concentrations of NO_2/RSP/FSP/SO_2 show a decreasing trend from 2019 to 2023.

3.3.3 The parameters of particular concern during the past few years have been the annual averaged and hourly NO_2 concentrations, which have consistently exceeded the AQO's criteria from 2019 to 2023 for the Mong Kok Roadside Station. The NO_2 concentrations at Sham Shui Po Monitoring Station is much lower than that of Mong Kok Roadside Station, however, the annual average still consistently exceeded the AQO's criteria from 2019 to 2023.

3.3.4 With the updated AQO in 2025, the annual averaged FSP concentrations at the Mong Kok Roadside Station have also consistently exceeded the AQO criteria from 2019 to 2023. Meanwhile, the annual averaged RSP concentrations exceeded the AQO criteria in 2019. The RSP and FSP concentrations at the Sham Shui Po Monitoring Station are significantly lower than those at Mong Kok. However, the annual average RSP and FSP concentration exceeded the AQO criteria in 2019.

3.3.5 Additionally, the O_3 concentrations at the Sham Shui Po Monitoring Station exceeded the AQO criteria in 2019 and 2022.

Table 3-3 Average Concentrations of Pollutants in the Recent Five Years (Year 2019 - 2023) at Mong Kok Air Quality Monitoring Station

Pollutant	Averaging Time	AQO [i]	Pollutant Concentration (µg/m^3) [ii]				
			2019	2020	2021	2022	2023
Respirable Suspended Particulates (RSP)	10th Highest 24-hour	75 (9)	74	63	69	56	58
	Annual	30	35	29	30	26	29
Fine Suspended Particulates (FSP)	19th Highest 24-hour	37.5 (18)	45	37	37	35	32
	Annual	15	24	18	18	16	18
Nitrogen Dioxide (NO_2)	19th Highest 1-hour	200 (18)	248	214	201	224	212
	10th Highest 24-hour	120 (9)	132	129	120	119	120
	Annual	40	78	74	70	64	68
Sulphur Dioxide (SO_2)	4th Highest 10-Min	500 (3)	39	45	30	28	39
	4th Highest 24-hour	40 (3)	10	10	10	7	9
Ozone (O_3)	10th Highest 8-hour	160 (9)	125	96	97	101	104
	Peak season	100	62	61	60	63	61
Carbon Monoxide (CO)	1st Highest 1-hour	30000 (0)	2280	1810	2130	1670	1340
	1st Highest 8-hour	10000 (0)	2103	1580	1719	1493	1138
	1st Highest 24-hour	4000 (0)	1610	1323	1479	1414	1014

Note:
[i] The numbers in brackets () refer to number of exceedance allowed per calendar year.
[ii] The pollution concentrations are obtained from the Smart Air Modelling Platform.
[iii] Exceedances has been highlighted in orange.

Table 3-4 Average Concentrations of Pollutants in the Recent Five Years (Year 2019 - 2023) at Sham Shui Po Air Quality Monitoring Station

Pollutant	Averaging Time	AQO [i]	Pollutant Concentration (µg/m^3) [ii]				
			2019	2020	2021	2022	2023
Respirable Suspended Particulates (RSP)	10th Highest 24-hour	75 (9)	65	59	67	49	50
	Annual	30	33	28	28	25	24
Fine Suspended Particulates (FSP)	19th Highest 24-hour	37.5 (18)	33	27	28	27	25
	Annual	15	18	14	14	12	13
Nitrogen Dioxide (NO_2)	19th Highest 1-hour	200 (18)	176	151	171	158	166
	10th Highest 24-hour	120 (9)	85	83	85	79	83
	Annual	40	48	45	47	43	43
Sulphur Dioxide (SO_2)	4th Highest 10-Min	500 (3)	41	40	38	48	48
	4th Highest 24-hour	40 (3)	14	12	12	13	10
Ozone (O_3)	10th Highest 8-hour	160 (9)	164	134	136	162	132
	Peak season	100	85	82	81	86	78
Carbon Monoxide (CO)	1st Highest 1-hour	30000 (0)	-	-	-	-	-
	1st Highest 8-hour	10000 (0)	-	-	-	-	-
	1st Highest 24-hour	4000 (0)	-	-	-	-	-

Note:
[i] The numbers in brackets () refer to number of exceedance allowed per calendar year.
[ii] The pollution concentrations are obtained from the Smart Air Modelling Platform.
[iii] Exceedances has been highlighted in orange.

PATH Background

3.3.6 PATH is a regional scale air quality model developed by EPD to predict future air quality over the whole Pearl River Delta region including Hong Kong. The PATH v3.0 grids corresponding to the Proposed Development is [42,32] & [42,33] as shown in **Figure 3-1**. **Table 3-5** gives the predicted background air quality covering the assessment area (Grids [41,32], [41,33], [42,32] & [42,33]) on Year 2030.

3.3.7 Generally, the PATH background in the assessment area on year 2030 meets the relevant Air Quality Objectives (AQOs) with a significant margin, except for Ozone concentration. For the purpose of this assessment, the predicted pollutant concentrations from PATH v3.0 on year 2030 are adopted as the background air quality.

Table 3-5 Background Ground Level Air Quality of PATH v3.0 on Year 2030

Pollutant	Averaging Time	AQOs [µg/m^3] [i]	PATH Model Concentration [µg/m^3] on Year 2030			
			Grid [41,32] L1 (0-17m)	Grid [41,33] L1 (0-17m)	Grid [42,32] L1 (0-17m)	Grid [42,33] L1 (0-17m)
Respirable Suspended Particulates (RSP)	**10th Highest 24-hour**	**75 (9)**	51.34	51.15	49.96	50.18
	Annual	**30**	20.28	20.13	19.26	19.46
Fine Suspended Particulates (FSP)	**19th Highest 24-hour**	**37.5 (18)**	30.24	29.72	28.32	28.5
	Annual	**15**	12.62	12.49	11.71	11.91
Nitrogen Dioxide (NO_2)	**19th Highest 1-hour**	**200 (18)**	97.87	97.51	93.81	94.64
	10th Highest 24-hour	**120 (9)**	44.55	41.62	42.37	39.92
	Annual	**40**	22.46	19.58	21.5	18.23
Sulphur Dioxide (SO_2)	**4th Highest 10-Min**	**500 (3)**	22.41	22.31	22.38	20.21
	4th Highest 24-hour	**40 (3)**	7.08	6.85	7.02	6.83
Ozone (O_3)	**10th Highest 8-hour**	**160 (9)**	168.71	169.29	171.57	171.56
	Peak season	**100**	115.01	116.56	116.46	118.25
Carbon Monoxide (CO)	**1st Highest 1-hour**	**30000 (0)**	548.69	554.59	525.92	529.68
	1st Highest 8-hour	**10000 (0)**	499.62	504.04	491.2	499.48
	1st Highest 24-hour	**4000 (0)**	481.86	479.8	459.46	466.66

Note:
[i] The numbers in brackets () refer to number of exceedances allowed per calendar year.
[ii] The pollution concentrations are obtained from the Smart Air Modelling Platform.
[iii] Exceedance has been highlighted in orange.

Identification of Key Criteria Pollutants - Construction Phase

Gaseous Pollutants

3.3.8 Operation of Powered Mechanical Equipment (PME) and/or Non-road Mobile Machinery (NRMMs) during construction work would emit dark smoke and gaseous air pollutants such as nitrogen dioxide (NO_2) via fuel burning.

3.3.9 Emission of dark smoke is regulated by Air Pollution Control (Smoke) Regulations. By providing routine maintenance and using of ULSD, the potential impact can be significantly suppressed.

3.3.10 According to Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, only approved or exempted Non-Road Mobile Machinery (NRMMs) with a proper label are allowed to be used in specified activities and locations including construction sites. Supportive information and documents (e.g. third-party emission certificates, model and serial numbers of machines and engines, etc.) for each NRMMs would be provided to EPD to prove that the concerned NRMMs is in line with the prescribed emission standards.

3.3.11 Although a number of PME and/or NRMMs are expected to be used on-site, the PME and/or NRMMs are required to fulfil the relevant emission standards. As a result, no significant impact is anticipated.

Particulates (RSP & FSP)

3.3.12 The air pollutants of concern during the construction phase are construction dust, which includes Respirable Suspended Particulates (RSP) and Fine Suspended Particulates (FSP) generated from the construction activities of the Proposed Development.

3.3.13 In accordance with the Air Pollution Control (Construction Dust) Regulation, contractors and site agents are obligated to inform the EPD and implement dust reduction measures to minimize dust emissions before commencing construction activities such as demolition, site formation, foundation construction, and superstructure construction.

Identification of Key Criteria Pollutants – Operation Phase

Sulphur Dioxide (SO_2)

3.3.14 In Hong Kong, Sulphur Dioxide (SO_2) is primarily from the combustion of Sulphur-containing fossil fuels in power stations and marine vessels.

3.3.15 The Air Pollution Control (Fuel Restriction) Regulations restrict commercial and industrial processes to use ULSD with a sulphur content of only 0.001%. In December 2007, the government offered a concessionary duty rate for Euro V diesel for motor vehicles which has a sulphur content of 0.001%. Since then, all petrol filling stations in Hong Kong provide only Euro V diesel, which has a sulphur content of 0.001%. Reference to the *2022 Hong Kong Emission Inventory Report*[1], SO_2 emission from the road traffic contribute less than 1% of the total SO_2 emissions, thus SO_2 from road traffic emissions is not considered as key air pollutant. On the other hand, although all marine vessels, except for specified vessel types as outlined in the Regulations, are obligated to use compliant fuel within Hong Kong waters under Air Pollution Control (Fuel for Vessels) Regulation, SO_2 emission from navigation (marine emissions) contribute ~30% of total SO_2 emissions. As a result, SO_2 emissions from the marine sources are identified as major air pollution source.

Particulates (RSP & FSP)

3.3.16 The emission source during the operational phase of the Project would be the vehicular emission on the roads, considering that there is no active industrial chimney within the 500m assessment area.

Nitrogen Dioxide (NO_2)

3.3.17 NO_2 is the major air pollutant in concern during operation phase of the Project. NO_2 could be emitted directly via combustion, or generated from the reaction between nitrogen oxide (NO_x) and ozone (O_3).

3.3.18 The major emission source of NO_x and NO_2 during the operational phase of the Project would be the vehicular emission on the roads.

[1] 2022 Hong Kong Emission Inventory Report
https://www.epd.gov.hk/epd/sites/default/files/epd/data/2022_Emission_Inventory_Report_Eng.pdf

Ozone

3.3.19 Ozone (O_3) is formed from dioxygen by the action of ultraviolet light and also atmospheric electrical discharges. It is not a primary pollutant emitted from vehicular emission thus is not considered as key criteria pollutants for the Project.

Carbon Monoxide

3.3.20 Road transportation is the dominant source of CO emissions. However, considering the low CO concentration measured in the nearby roadside air quality monitoring station (**Table 3-3**) as compared to the respective AQO criteria, the emission of CO from road transportation is unlikely to cause a significant air quality impact to the proposed development.

Lead

3.3.21 Leaded petrol has been banned in Hong Kong since 1999. It is not considered concerned pollutants for vehicular emission.

Summary

3.3.22 During the operation phase, the major pollutant source shall be the traffic emission (i.e.: RSP/FSP/NOx), and marine emission (i.e.: RSP/FSP/NOx/SO_2) in the vicinity, as there is no active industrial chimney within the 500m assessment area. Therefore, Nitrogen Dioxide (NO_2), Respirable Suspended Particulates (RSP), Fine Suspended Particulates (FSP) and Sulphur Dioxide (SO_2) from vehicular & marine emission have been selected as the key criteria pollutants during operation of the project.

3.3.23 Although ozone (O_3) is not considered a key criteria pollutant for the Project, as mentioned in **Section 3.3.19**, its concentration will be used as a parameter to estimate the conversion of nitrogen oxides (NO_x) to nitrogen dioxide (NO_2). The details regarding this conversion will be provided in a subsequent section.

3.4 Construction Phase Air Quality Impact Assessment

3.4.1 Major dust emitting construction activities will be the excavation for basement construction, foundation works and construction activities (e.g. the construction of superstructure). A summary of construction works is provided in **Table 3-6**.

3.4.2 Demolition of existing buildings will not be required for the Site as the Site is currently used as a temporary fee-paying open-air public carpark, thus there is only a small amount of small temporary structures in the Site.

3.4.3 Excavation works will be required for the Site. Under the current notional design, excavation will be performed on the whole Site except for the area at the southern portion including the Harbourfront At-Grade Communal Space in **Figure 2-5**. Approximately 64,700 m^3 of soil and sediment is expected to be excavated.

3.4.4 Superstructure works will be required for Site. The scale of the superstructure works is considered medium compared with other URA's project in the KCAA1 core area.

Table 3-6 Summary of the Construction Works

Site Area (subject to survey)	Structures to be demolished	Excavating for Basement	Construction of Superstructure	Number of Concurrent PME [1]
7,610 m^2	None	Yes	Yes	20 - 30

Note:
[1] Excluding small plant such as water pump and fan. Estimated numbers based on projects in similar scales.

Potential Concurrent Projects

3.4.5 Concurrent project in the vicinity is anticipated based on available information.

3.4.6 The URA's Project KC-016 in the KCAA1 core area, which is around 270m to the west of the Site (Please refer to **Figure 2-4**), is expected to be constructed concurrently with the current Proposed Development. On the other hand, the major construction works of other URA's Projects in the KCAA1 core area are expected to be completed before the start of construction works of this Project (year 2028). The potential concurrent projects are summarised in **Table 3-7**.

3.4.7 The construction works for URA Project KC-008(A), KC-009, KC-010, KC-011, KC-012, KC-013, KC-014, KC-016, and DL8:KC, along with the approved planning application No. A/K9/274, are expected to be completed before the construction phase of the Proposed Development.

Table 3-7 Summary of Potential Concurrent Projects

Project	Expected Completion Year	Distance from the Project Boundary	Concurrent with this Project
URA's Project KC-008(A)	2026 [1]	~270m (southwest)	No
URA's Project KC-009	2027 [2]	~170m (west)	No
URA's Project KC-010	2027 [3]	~200m (west)	No
URA's Project KC-011 & DL8:KC	2027 [4]	~190m (west)	No
URA's Project KC-012/013	2027 [5]	~200m (west)	No
URA's Project KC-014	2028 [6]	~140m (west)	No
URA's Project KC-016	2032 [7]	~270m (west)	Yes
A/K9/274	2025 [8]	~270m (southwest)	No

Notes:
[1] URA's KC-008(A) - https://www.ura.org.hk/en/project/redevelopment/chun-tin-street-sung-chi-street-development-scheme-kc-008-a
[2] URA's KC-009 - https://www.ura.org.hk/en/project/redevelopment/bailey-street-wing-kwong-street-development-project-kc-009
[3] URA's KC-010 - https://www.ura.org.hk/en/project/redevelopment/kc-010-hung-fook-street-ngan-hon-street
[4] URA's KC-011 - https://www.ura.org.hk/en/project/redevelopment/kc-011
URA's DL8:KC - https://www.ura.org.hk/en/project/redevelopment/kai-ming-street-project
[5] URA's KC-012 - https://www.ura.org.hk/en/project/redevelopment/wing-kwong-street-development-project-kc-012
URA's KC-013 - https://www.ura.org.hk/en/project/redevelopment/kc-013
[6] URA's KC-014 - https://www.ura.org.hk/en/project/redevelopment/wing-kwong-street-sung-on-street-project-kc-014
[7] URA's KC-016 - https://www.ura.org.hk/en/project/redevelopment/to-kwa-wan-road-wing-kwong-street-development-scheme-kc-016
[8] 13 Hok Yuen Street - https://www.leasinghub.com/zh/resources/market-news/article?id=837

Air Sensitive Receivers

3.4.8 The representative Air Sensitive Receiver (ASR) for construction phase of the Proposed Development are illustrated in **Figure 3-2** and listed in **Table 3-8**.

3.4.9 It should be noted that the Site is in proximity to existing developments for recreational, educational and commercial uses thus mitigation measures shall be necessary to minimise the potential air pollution impact to the nearby ASRs. On the other hand, other sensitive

receivers and the Site are separated by a road, thus potential air pollution impact shall be relatively low.

Table 3-8 Representative Air Sensitive Receivers (Construction Phase)

ID	Building/Location	Type	Building Height (mAG) [1]	Horizontal Distance from Site Boundary (m) [1]
ASR01	Chi Yun School	Educational	20	19
ASR02	The Church of Christ in China Kei To Secondary School	Educational	30	21
ASR03	Po Leung Kuk Ngan Po Ling College	Educational	32	26
ASR04	Kowloon City Government Offices	G/IC	54	71
ASR05	Peninsula Square	Commercial	80	85
ASR06	APB Centre	Commercial	45	22
ASR07	To Kwa Wan Preliminary Treatment Works (Workshop)	Industrial	11	29
ASR08	Hoi Sham Park	Recreation	N/A	0

Noted:
[1] Estimated values.

Identification of the Major Pollutant Sources and of Potential Impacts

3.4.10 Fugitive dust would be generated and the concerned air pollutants during the construction phase are the RSP and FSP arising from the construction work of the Project.

3.4.11 In addition, the operation of Powered Mechanical Equipment (PME) during demolition/construction work may emit gaseous air pollutants such as NO_2 through fuel burning.

Construction Dust

3.4.12 During the construction phase, the major source of dust will be the excavation for the basement. The current design includes three floors of underground car park, and the associated excavation is estimated to generate approximately 90,900 m^3 of construction and demolition (C&D) materials.

3.4.13 The movement of dump trucks is also identified as a potential source of dust if not properly mitigated. A rough estimation suggests that around 10 trips per day will be required during the excavation period. It is important to implement appropriate measures to mitigate dust generation and control its spread during the transportation of construction materials to minimize potential dust-related impacts on the surrounding environment.

Emissions from Powered Mechanical Equipment & Non-road Mobile Machinery

3.4.14 Operation of Powered Mechanical Equipment (PME) during construction work would emit gaseous air pollutants such as nitrogen dioxide (NO_2) via fuel burning. Although a number of PME is expected to be used on-site, the PME is required to fulfil the relevant emission standards. As a result, no significant impact is anticipated from the operation of PME.

3.4.15 According to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, only approved or exempted Non-Road Mobile Machinery (NRMMs) with proper labelling are allowed to be utilized in the construction sites. Supportive information and documents, such as third-party emission certificates, model and serial numbers of machines and engines, will be provided to the EPD to demonstrate that the concerned NRMMs complies with the

prescribed emission standards. As a result, no significant impact is anticipated from the operation of NRMMs.

Potential Impacts Arising from the Concurrent Projects

3.4.16 It is anticipated that the construction works for URA's Projects KC-016 may coincide with the construction timeline of the Proposed Development as summarised in **Table 3-7**.

3.4.17 The URA's Project KC-016 will be surrounded by high-rise developments (including the buildings in the KCAA1 Core area) during its construction. No direct line-of-sight from the Site to the site of KC-016 is anticipated. Therefore, the potential dust impact arising from URA's Project KC-016 on the vicinity of the Proposed Development during the construction phase shall be minimal if proper mitigation measures have been implemented on its site. Nevertheless, the presence of concurrent construction works in the KCAA1 Core Area should be taken into account when planning and coordinating construction activities to minimize potential impacts in the area.

Mitigation Measures

3.4.18 Dust control measures under the Air Pollution Control (Construction Dust) Regulation (Cap. 311R) and good site practice shall be implemented to mitigate dust impact arising from demolition work by preventing dust generation and/or by screening, suppressing and removing dust generated:

- Water or a dust suppression chemical shall be sprayed immediately prior to, during and immediately after demolition/excavation works
- Cover stockpile or dusty materials with tarpaulin to prevent wind erosion
- Any dusty materials remaining after a stockpile is removed shall be wetted with water and cleared from the surface of roads or streets
- Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the construction site
- Where a vehicle leaving a construction site is carrying a load of dusty materials, the load shall be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle
- Store cement bags in shelter with 3 sides and the top covered by impervious materials if the stack exceeds 20 bags
- Maintain a reasonable height when dropping excavated materials to limit dust generation
- Limit vehicle speed within site to 10 km/h and confine vehicle movement in haul road
- Minimize exposed earth after completion of work in a certain area by hydroseeding, vegetating or soil compacting
- Cover materials on trucks before leaving the site to prevent dropping or being blown away by wind
- Regular maintenance of plant equipment to prevent black smoke emission
- Throttle down or switch off unused machines or machine in intermittent use
- Plan the site layout so that machineries, dust causing activities and stockpiling are away from receptors as far as possible.

- Site hoarding higher than 2.4m should be implemented where there are receptors at close proximity to the construction site and dusty activities; and
- Haul road shall be away from the project boundary as much as possible

3.4.19 It should be noted that there are schools in the vicinity of the Sites, e.g.: Chi Yun School (ASR01), The Church of Christ in China Kei To Secondary School (ASR02) & Po Leung Kuk Ngan Po Ling College (ASR03). Subject to further arrangement to be determined during construction stage, dusty works near the schools are suggested being arranged in non-school hours as far as practicable. The project team is also recommended to communicate with the nearby schools, and keep school management informed of any possible impacts in advance.

3.4.20 No significant dust impact on the surrounding ASRs is expected with proper implementation of mitigation measures. An EM&A program shall be implemented during construction stage to monitor the dust impact arising from the construction activities associated with the proposed development. Regular site audits will be conducted to ensure the effective implementation of the mitigation measures as part of the EM&A program.

3.5 Operation Phase Air Quality Impact Assessment (Qualitative)

Buffer Distance recommend by HKPSG

3.5.1 The roads surrounding the Site, i.e. Chi Kiang Street and Bailey Street, are classified as district distributor according to TD's Annual Traffic Census. The suggested buffer distance of HKPSG (**Table 3-1**) cannot be fulfilled based on the current notional layout. Therefore, quantitative assessment approach has been adopted for this assessment.

3.5.2 Similarly, the 200m buffer distance for odour source recommend by HKPSG also cannot be fulfilled by the whole development Site.

Provision of Basement Carparks

3.5.3 It should be noted that there are basement carparks in the Proposed Development. However, the details of the carparks including the locations of the exhaust outlet are not available.

3.5.4 The project team is reminded to fulfill the requirements, including design, maintenance and operation of the ventilation systems, as stipulated in ProPECC PN 2/96 - Control of Air Pollution in Car Parks. In addition, the exhaust outlet for the basement carparks shall be located as far away as possible from nearby ASRs and/or fresh air intake to avoid causing any potential air pollutant nuisance.

Odour emission from To Kwa Wan Preliminary Treatment Works

3.5.5 The To Kwa Wan Preliminary Treatment Works (TKWPTW) is located near the Site, to the south-east.

3.5.6 As shown in **Figure 3-3**, the Site is 29m away from the main facilities of TKWPTW. Without considering the open space of the Proposed Development (**Figure 2-5**), the superstructure of the Proposed Development is approximately 39m away from the main facilities of TKWPTW. Therefore, there is no area within the Site that can fulfil the 200m buffer distance for odour sources recommended by HKPSG.

Desktop Study

3.5.7 According to the approved EIA for the Strategic Sewage Disposal Scheme Stage 1 - Principal Collection & Treatment System Environmental Impact Assessment (EIA-092BC), the odour concentration at the Site due to TKWPTW is expected to be in the range of 1.5-2.0 OU under a mitigated scenario (Figure 7.12 of EIA-092BC), with a criterion of 5 OU. However, since EIA-092BC was published in 1996, this information is likely outdated.

3.5.8 An inquiry was made to the Drainage Services Department (DSD) in March 2024 and again in August 2024 regarding potential odour issues arising from TKWPTW. According to the DSD's reply in September 2024, only primary treatment is conducted at TKWPTW, which has a design capacity of 288,000 m^3/day. The treatment facilities have 13 exhaust vents, each equipped with deodorization units that have a 99.5% removal efficiency for Hydrogen Sulfide (H_2S). TKWPTW operates continuously, 24 hours a day. Records from the Environmental Protection Department (EPD), checked in August 2024, indicate that two complaints regarding odour issues from TKWPTW have been received in the past five years (of 2024). An extract of the correspondences from the EPD and DSD is provided in **Appendix 3-7**.

3.5.9 In order to identify the potential odour impact arising from DSD's Preliminary Treatment Works, reference has been made to the approved EIA for Harbour Area Treatment Scheme (HATS) Stage 2A (AEIAR-121/2008). The North Point preliminary treatment works (NTPTW) has a treatment capacity of 99,000 m^3 per day [2] and odour removal efficiency of 90% [3]. The odour emission rate extracted from Appendix 3.3 of the EIA has been summarised in **Table 3-9**.

Table 3-9 Odour Emission Rate of North Point Preliminary Treatment Works

ID	Description	Flow rate (m^3/s)	Odour emission rate without mitigation (OU/s)	Removal efficiency	Odour emission rate with mitigation (OU/s)
F-NP-DO1 (F1)	DO for New Facilities	43,500	5001.5	90%	500.2
F-NP-DO2 (F2)	DO for Drop Shaft	1,300	351.6	90%	35.2
E-NP-DO1 (E1) E-NP-DO2 (E2) E-NP-DO3 (E3)	DO for Existing Facilities	54,965	2809.9	90%	281.0
Total			8163.0		816.3

3.5.10 According to Table 3.4 and Figure 3.10 of AEIAR-121/2008, the closest ASRs to the NTPTW are King's Road Playground & Skating Area (NP3) and Customs HQ Tower (NP4), located 17m and 3m from the boundary of NTPTW, respectively. The nearest odour source (F-NP-DO1) is situated 20m from this boundary. Therefore, the distances from NP3 and NP4 to the nearest odour source are 29m (17m + 12m) and 15 m (3m + 12m), respectively.

3.5.11 According to Table 3.19 and Appendix 3.7 of AEIAR-121/2008, the predicted odour levels at NP3 and NP4 are 0.17 OU and 3.07 OU, respectively, both of which comply with the

2 https://gia.info.gov.hk/general/201804/25/P2018042500397_282395_1_1524638630730.pdf
3 Appendix 3.3 of the approved EIA for Harbour Area Treatment Scheme (HATS) Stage 2A (AEIAR-121/2008).

criteria of 5.0 OU based on an averaging time of 5 seconds. Additionally, at the worst-affected elevation (30mPD), the contour plot (Figure 3.38 of AEIAR-121/2008) shows no exceedances at all.

3.5.12 Applying the odour emission rate per treatment capacity of NTPTW (without mitigation scenario) to the TKWPTW is considered reasonable due to their similarities. The estimated odour emission rate for TKWPTW is significantly lower than that of NTPTW, measuring 118.7 OU/s compared to 816.3 OU/s (see **Table 3-10**). This lower odour emission rate for TKWPTW is a result of its higher odour removal efficiency (99.5% vs. 90.0%).

Table 3-10 Estimated Odour Emission Rate of To Kwa Wan Preliminary Works

	Design Capacity (m^3/day)	Odour Emission Rate without Mitigation (OU/s)	Odour Emission Rate with Mitigation (OU/s)	Remark
Tai Po Sewage Treatment Works	99,000	8163.0	816.3	90% removal efficiency
To Kwa Wan Preliminary Treatment Works	288,000	23746.9	118.7	99.5% removal efficiency

Noted:
[1] Assume the odour emission per treatment capacity (without mitigation) are identical.

3.5.13 Given the significantly lower odour emissions from TKWPTW compared to NTPTW, it is reasonable to conclude that the potential odour impact from TKWPTW should be lower than that of NTPTW, which has shown no exceedances at the worst elevation of the nearby sensitive receiver. Therefore, no exceedance of odour arising from TKWPTW is anticipated.

On-site Observations

3.5.14 To identify the potential odour impact, a site visit was conducted on 15th March 2024, to assess the potential odour issues within the Site and in the vicinity of TKWPTW. The survey took place between 2:00 PM and 3:00 PM on that day. The weather during the survey was cloudy, with a temperature of approximately 29 degrees Celsius and a relative humidity of about 90%. There are occasionally SE breeze (from the direction of the sea) during site visit. There was an occasional southeast breeze (from the direction of the sea) during the visit. According to the DSD's reply (**Appendix 3-7**), TKWPTW was in normal operation during the site visit.

3.5.15 Various locations near TKWPTW were visited during the survey, including the Site, Sung Ping Street, Hung Hom Road, Bailey Street, Chi Kiang Road, the southern portion of Hoi Sham Park, Chi Yin School, and The Church of Christ in China Kei To Secondary School, as marked in **Figure 3-3**. It was noted that no noticeable odour was detected in the area, except for the waterfront area of Hoi Sham Park. From the observations, it appeared that the odour was likely coming from the sea directly and not from TKWPTW.

3.5.16 Therefore, based on the desktop study and on-site observations, it is concluded that there is no adverse odour impact anticipated from TKWPTW, provided that the deodorization units are functioning properly.

3.6 Operation Phase Air Quality Impact Assessment (Quantitative)

General Flow of the Quantitative Assessment

3.6.1 Firstly, the representative assessment points and assessment year will be determined.

3.6.2 Then, the pollutant concentration from the following sources will be calculated by AMS/EPA Regulatory Model (AERMOD):

- Vehicular Emission from open public road sections within 500 m assessment area
- Marine emission from the nearby ferry route and the barges in the To Kwa Wan Typhoon Shelter
- Other major emission sources within 4 km of the Site

3.6.3 Finally, the cumulative pollutant concentration will be computed. If any of the representative ASRs exceed the AQO criteria, feasible locations for openable windows and/or fresh air intake will be suggested.

Air Sensitive Receivers

3.6.4 During operation phase, no chimney emission is anticipated from the residential, G/IC and commercial components of the Proposed Development. On the other hand, the residential flats, shops, hotels, and G/IC areas of the Proposed Development are ASRs which should be assessed.

3.6.5 The residential flats in the Proposed Development rely on openable windows for ventilation, while the clubhouse, shops, and G/IC in the podium will depend on air conditioning with fresh air intake. Therefore, the façades of the residential towers, as well as the potential fresh air intake locations of the podiums, should be assessed. The locations of the assessment points are described in the following paragraphs, illustrated in **Figures 3-4a & 3-4b**, and listed in in **Table 3-11**.

3.6.6 For the podium, where centralized ventilation will be provided but details of the fresh air intake are not available at this stage, representative assessment points have been provided for each façade on each floor to estimate the air quality at each potential air intake location. As the footprint of the podium is subject to detailed design, the assessment points for the podium are provided along the site boundary (see **Figures 3-4a**).

3.6.7 For the Harbourfront At-Grade Communal Space, where outdoor facilities may be provided, representative assessment points have been provided along the edge of the area (see **Figures 3-4a**).

3.6.8 For the residential towers, representative assessment points have been provided on the first two floors, at a mid-level floor (13/F), and on the top floor (25/F) to demonstrate compliance (see **Figures 3-4b**).

3.6.9 Therefore, all facades with the potential fresh air intakes or openable windows for ventilation in the Proposed Development have been identified and assessment points have been provided.

Table 3-11 Summary of the Assessment Points (Air Quality)

Locations	ID	Ground (mPD)	Assessment Height (mPD)
Podium Facades	PP-01 to PP-13	5.7	G/F – 07.2 1/F – 13.05 2/F – 18.05 3/F – 23.05 Podium floor – 28.03
Harbourfront At-Grade Communal Space	CS-01 to CS-06	5.7	G/F – 07.2
Residential Towers [3]	T1-01 to T1-10 T2-01 to T2-11	5.7	1/F – 31.05 2/F – 34.20 13/F – 68.85 25/F – 108.35 (3.15m per floor for 1-15/F) (3.32m per floor for 16-25/F)

[1] The Assessment Height is 1.5m above slab level.
[2] The notional design including the elevation is subject to change.
[3] The residential towers have its own floor number.

Assessment Year

3.6.10 The Proposed Development is planned to be completed by Year 2032, the assessment year for traffic air quality impact shall be predicted based on the worst scenario in the next 15 years after the completion of the Proposed Development.

3.6.11 The traffic flow forecast for Years 2047 has been provided by traffic consultant. The predicted traffic flow has been submitted to the TD for agreement with the methodology. The Endorsement of Traffic Forecast from TD has been enclosed in **Appendix 3-1**.

3.6.12 The emission factor of Year 2032, which is the highest between 2032 to 2047, together with the predicted traffic data of Year 2047, have been adopted to generate the highest emission profiles for open road traffic emission.

Smart Air Modelling Platform

3.6.13 EPD has introduced the Smart Air Modeling Platform (SAMP) [4] to expedite the modeling process of the air quality model associated with PATH v3.0. This platform aims to streamline and enhance the efficiency of the modeling process. The latest version is SAMP v2.1, which has been released on February 2025 and adopted in the current assessment.

3.6.14 The SAMP v2.1 provides key information, including meteorological data obtained from AERMET and traffic emission sources in AERMOD format. With the introduction of the Smart Air Modeling Platform and its provision of meteorological data and traffic emission sources, the previous standalone use of AERMET for meteorological data generation and EMFAC for emission factor identification is no longer necessary. The platform consolidates these functionalities, making the use of AERMET and EMFAC obsolete for the purposes of air quality modeling associated with PATH 3.0.

4 Smart Air Modelling Platform - https://aqia.epd.gov.hk/

Start Emission Profile

3.6.15 Generally, the broad-brush start emissions approach should apply to local and rural roads where roadside parking spaces are available, while a precise approach should be applied to large-scale parking facilities that involve multiple heavy vehicles within the assessment area. It should be noted that the start emissions from heavy vehicles can spread up to 700 meters traveled.

3.6.16 Since there are parking sites for coaches and heavy goods vehicles (HGVs) identified within the assessment area, and the Kowloon City Ferry Bus Terminus is located approximately 550 meters to the northeast of the Site, it is possible for the start emissions to occur along major roads (i.e., urban trunk roads and primary distributors) of the assessment area.

3.6.17 For a conservative assessment, start emissions for all types of vehicles, estimated using the broad-brush approach, have been applied to all roads to account for start emissions in this assessment. The ratio of roads with start emissions, which governs the frequency of start emissions and directly affects the emission ratio under the broad-brush approach, has been user-input in SAMP v2.1.

3.6.18 The Transport Department (TD) has been consulted regarding the "Proportion of Road with Potential Start within Hong Kong" used for the broad-brush start emissions in this assessment. The correspondences are enclosed in **Appendix 3-8**. It is understood that roadside parking is generally provided along Local Distributors (LD) and Rural Roads (RR), while long-term parking is not anticipated along the roads of District Distributors (DD), Primary Distributors (PD), Trunk Roads (TR), and Expressways (Ex). Therefore, all LD and RR are considered roads with potential starts.

3.6.19 Based on the raw data of the Annual Traffic Census (ATC) 2023, it has been determined that the ratio of VKT for LD and RR is 12.10%, which is adopted as the "Proportion of Road with Potential Start within Hong Kong". The start emissions for nearby parking sites for coaches and heavy goods vehicles (HGVs) will be discussed in a later section.

Table 3-12 Average Daily Vehicle-kilometre on Roads in Hong Kong (2023)

Road Type	Ratio of Total VKT	Sum (AADT x Length) -- VKT
EX	87.90%	29252313.39
UT		
RT		
PD		
DD		
RR	12.10%	4028415.41
LD		

Note:
[1] Data provided by Transport Department.
[2] VKT for Hong Kong (including Hong Kong Island, Kowloon & New Territories) has been adopted for this Project

Adopted Diurnal Temperature and Relative Humidity Profile

3.6.20 The SAMP v2.1 provide the road traffic emission sources for three different diurnal temperature and relative humidity profile for NO & NO_2, including: (1) lowest hourly temperature and relative humidity for the whole year; (2) lowest hourly temperature and relative humidity in each month; (3) average hourly temperature and relative humidity in

each month. For RSP & FSP, only the road traffic emission sources with lowest hourly temperature and relative humidity for profile (1) are available.

3.6.21 The profile (1) provides the highest road traffic emission that will likely be over conservative. The profile (2) provides the highest road traffic emission for the corresponding month while month-to-month variation will be preserved. The profile (3) provides the road traffic emission that represent the long-term average condition, while the peaks of the short-term average (e.g. hourly and daily average) will likely be underestimated.

3.6.22 For assessment purpose, the road traffic emission with lowest hourly temperature and relative humidity in each month (profile 2) have been adopted for NO & NO_2 to produce a reasonable conservative assessment. The adopted emission rates from SAMP is provided in **Appendix 3-2**.

Traffic Flow Setting

3.6.23 The SAMP v2.1 allows the user to use different years for traffic flow profile and emission factor. In the current assessment, a Calendar Year of 2032 with a traffic year of 2047 has been adopted as the SAMP v2.1 input parameters.

3.6.24 In addition, Zero Emission Vehicle Scenario in SAMP v2.1 is also adopted. The base year of the Zero Emission Vehicle assumption is based on the latest available year, i.e., 2022, which matches with the PATH scenario assumption. Values of year 2045 are assumed for years beyond year 2045.

Parameters for Jenkin Method

3.6.25 Jenkin Method is one of the solutions used to estimate the annual averaged concentration of NO_2. In order to apply this method, certain environmental parameters are required, and these parameters can be obtained by curve fitting of measurement data. In this assessment, the necessary environmental parameters from the SAMP v2.1 have been adopted.

Industrial Chimney within 500m Assessment Area

3.6.26 As stated in **Section 2.2.1**, no active industrial chimneys have been identified within the 500m assessment area. Moreover, the chimneys listed in the old records from the late 1990s have also been checked, including the locations of the existing Loong King Mansion, Honour Building, and Sui Ying Industrial Building. It is verified that no active chimneys have been identified within the 500m assessment area.

3.6.27 The nearest active chimneys identified are located outside the 500m assessment boundary, on the south-east façade of the Eldex Industrial Building, serving a laundry company at Flat A on both 4/F & 5/F.

Road Traffic – Car Parks

3.6.28 There are parking sites for coaches and heavy goods vehicles (HGVs) identified within the assessment area. For the parking areas that are either relatively far and/or on a small scale, no direct impact to the Proposed Development is anticipated. Thus, the start emission by broad-burst approach (using SAMP v2.1) and the PATH background shall be sufficient to represent the potential impact from their start emissions.

3.6.29 On the other hand, due to the proximity, the emissions from the HGVs and coaches for the nearby car parks as shown in **Figure 3-5a** have been calculated separately and added to the

cumulative pollutant concentration in additional to the start emission from the broad-burst approach for a conservative assessment. This includes:

- Car Park A - Car Park of APB Centre
  - HGV parking spaces are available.
  - It is assumed that the traffic flow of heavy good vehicle (including HGV7, HGV8 & HGV9) on roads 44 & 45 (combined) are all from the Car Park A.
- Car Park B - Outdoor Car Park adjacent to Kowloon City Government Offices
  - Coaches parking spaces are available.
  - It is assumed that the traffic flow of Non-franchised Bus (including NFB6, NFB7, NFB8 & NFB9) on road 41 are all from the Car Park B.
- Car Park C – Car Park of Peninsula Square.
  - It is assumed that the traffic flow of heavy good vehicle (including HGV7, HGV8 & HGV9) and Non-franchised Bus (including NFB6, NFB7, NFB8 & NFB9) on road 38 are all from the Car Park C.

Locations of the Emission

3.6.30 For diesel vehicles equipped with selective catalytic reduction (SCR) devices, the start emissions are typically assumed to be spread evenly over the first 700 meters traveled. Since all three car parks are either open or semi-open, the running, idling, and start emissions of HGVs and coaches within the car parks are assumed to be distributed evenly at ground level. It should be noted that there is no fixed route for these coaches and HGVs. Although the majority of those HGVs and coaches are expected to exit the area via the closest major road to the west (Ma Tau Wai Road), for a conservative assessment, the closest routes (while reasonable) to the Site have been selected for the remaining start emissions, as illustrated in **Figures 3-5b to 3-5d**. For simplification, the dimensions of the larger vehicles (i.e., HGV9 and NFB9) have been used to determine the release height of the emissions above ground.

3.6.31 Although emissions within multi-storey car parks are generally emitted at a higher elevation on average, applying the emissions at ground level will overlap with the road traffic emissions and produce a worst-case scenario.

Methodology and Emission Factor

3.6.32 Since all three car parks and the adopted routes are located within Grids [42,32] and [42,33] of the PATH v3.0 grid, as shown in **Figure 3-1**, the lowest temperature (11°C) and relative humidity (RH; 18%) from these grids have been adopted for the determination of the start emissions for each event, ensuring a conservative assessment.

3.6.33 The emission factors for a single trip event and the running exhaust have been extracted from the result table of EMFAC v4.3. For a conservative assessment, the start emissions of HGV7, HGV8, and HGV9 for a soak time of 720 minutes have been adopted as the emission factor for HGVs. Similarly, the start emissions of NFB6, NFB7, NFB8, and NFB9 for a soak time of 720 minutes have been adopted as the emission factor for coaches. For consistency, only cold idling emissions have been considered, as a soak time of 720 minutes has been assumed.

3.6.34 The adopted start emission factors are summarized in **Table 3-13**.

Table 3-13 Adopted start emission per trip (g/trip)

	HGV7	HGV8	HGV9	NFB6	NFB7	NFB8	NFB9
NOx	3.9068	4.3179	4.4143	2.0827	4.0409	4.2868	3.9800
NO	2.6301	3.0716	3.1874	1.4995	2.7074	2.9995	2.6666
NO_2	1.2767	1.2463	1.2269	0.5832	1.3335	1.2873	1.3134
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

3.6.35 From site observations during April 2025, the average idling time after engine start is approximately 1 minute, and the average travel speed within the car parks is approximately 12 km/h.

3.6.36 The idling emission factors are referenced in "Calculation of Start Emissions in Air Quality Impact Assessment" by EPD and "Road Tunnels: Vehicle Emissions and Air Demand for Ventilation (2019R02EN)" (PIARC-VEADV) by the World Road Association.

3.6.37 The running exhaust emissions within the car parks have been calculated based on the maximum traffic distance within the car parks.

3.6.38 By adopting the traffic flow along the nearby roads as the traffic flow for the car parks, which is largely overestimated, along with the highest start emission factor across the soak time (i.e., 720 minutes), the maximum travel distance within the car park, and the start emissions from the broad-brush approach, the current method will not underestimate the potential impact arising from the car parks. The details of the emission source strength for the car parks are provided in **Appendix 3-3**.

Marine Emission

Commercial Ferry

3.6.39 As stated in **Section 2.1.6**, there is a commercial ferry route between North Point Ferry Pier and Kowloon City Ferry Pier to the east of the Site, as shown in **Figure 2-3**.

3.6.40 Based on on-site observations and fleet information from Sunferry[5], it has been identified that the marine vessels operating on this route are First Ferry series high-speed vessels (新輝系列高速船) [6]. Observations indicate that the exhaust is located at the tail of the vessel, close to sea level, emitting horizontally (i.e., with no initial vertical velocity). However, the exhaust diameter and emission temperature are not available.

3.6.41 Reference has been made to Appendix 3.15 of the Tung Chung New Town Extension Environmental Impact Assessment (AEIAR-196/2016), which adopts an exhaust diameter of 0.3 m and an emission temperature of 373 K for ferries. Considering the scale of the ferry, an exhaust diameter of 0.3 m is a reasonable assumption. Furthermore, since there is no initial vertical velocity, the choice of exhaust diameter has minimal impact on the results. Regarding the emission temperature, steam-like smoke observed emitting from the exhaust suggests that the emission temperature is at least 373 K (the boiling point of water). Given that road traffic emissions primarily affect low elevations, while higher temperature emissions can influence higher elevations, using the lowest bound of the emission

5 https://www.sunferry.com.hk/zh/sun-ferry/about-us/our-services
6 http://www.barcaferry.com/photo/photo_shipyards/marintekink/marintekink_cpv36_date.html

temperature (373 K) for the ferry should yield a conservative assessment for the worst-case elevation in conjunction with road traffic emissions.

3.6.42 Emissions from the ferry during sailing have been modeled as evenly distributed point sources representing the segments they traverse within the 500 m assessment area, as illustrated in **Figure 3-6**. The load factor and emission factors are derived from the "Study on Marine Vessels Emission Inventory – Final Report" (MVEIS).

3.6.43 Since the Air Pollution Control (Marine Light Diesel) Regulation was introduced on 1 April 2014, capping the Sulphur content of locally supplied marine light diesel at 0.05%, the SO_2 emission factors in MVEIS, which are based on a 0.5% Sulphur content, have been scaled accordingly. The emission source strength for a single trip is detailed in **Table 1a of Appendix 3-4**, following a similar methodology to the Environmental Assessment (EA) Report submitted under the Urban Renewal Authority's KC-018 and KC-019 development schemes (2022).

3.6.44 The adopted marine emissions for sailing ferry are summarized in **Table 3-14** and detailed in **Table 1b of Appendix 3-4**.

Table 3-14 Emission Inventory for a Sailing Ferry

Source	ID	Source Strength (g/s)				Emission Height mPD	Operation hour [2]
		NO_x	RSP	FSP	SO_2		
Commercial Ferry between North Point Ferry Pier and Kowloon City Ferry Pier	Ferry01 to Ferry11	1.48E-02	4.45E-04	4.31E-04	3.09E-04	3.73	20:00 - 07:00 : 0 trips/hour 07:00 - 19:00 : 4 trips/hour 19:00 - 20:00 : 3 trips/hour

Note:
[1] Emission source strength of a single trip.
Refer to Table 1a of this Appendix for details
[2] Time Table of the Ferry, last checked on 11 Apr 2025.
https://www.sunferry.com.hk/en/route-and-fare/timetable?route=north-point-to-kowloon-city

To Kwa Wan Typhoon Shelter

3.6.45 To Kwa Wan Typhoon Shelter is located at around 400m to the east of the Site as shown in **Figure 2-3**. The loading/unloading of the barges are identified as the major activities within typhoon shelters, and has been modelled as an area source (TKWTS) as shown in **Figure 3-6**. It should be noted that only the potion of TKWTS within the 500m assessment area has been included in the assessment to avoid over-estimation due to double counting with PATH v3.0 background.

3.6.46 Based on site observations conducted in November 2024, approximately 30 to 50 barges are parked within the To Kwa Wan Typhoon Shelter (TKWTS), with concurrent operations of up to 4 barges identified. TKWTS serves as a sheltered space for vessels rather than as a Public Cargo Working Area. This observation aligns with the findings in approved EIA reports for KTD[7], CKR[8], and KT MPSC[9]. Therefore, assuming that 20 barges with auxiliary engines are operating within the TKWTS is considered very conservative and has been adopted in the current assessment.

[7] Approved EIA report of Kai Tak Development (AEIAR-130/2009)
[8] Approved EIA report of Central Kowloon Route (AEIAR-171/2013)
[9] Approved EIA report of Kai Tak Multi-purpose Sports Complex (KT MPSC)

3.6.47 The auxiliary engine power of each barge is assumed to be 116 kW, as indicated in Table 4-6 of MVEIS. For this assessment, the elevation of the emissions is assumed to be 15 m above sea level (i.e., 15 m + 2.73 mPD = 17.73 mPD), based on site observations. Additionally, since the sulphur content of locally supplied marine light diesel is capped at 0.05%, the SO_2 emission factors in MVEIS have been scaled accordingly.

3.6.48 The adopted marine emissions are summarized in **Table 3-15** and detailed in **Appendix 3-4**.

Table 3-15 Emission Inventory for To Kwa Wan Typhoon Shelter

Pollutant	Total Emission Rate (g/s/m^2)
NO_x	1.188E-05
SO_2	2.472E-07
RSP	4.753E-07
FSP	4.634E-07

The Kowloon Permanent Pier No. 90

3.6.49 The Kowloon Permanent Pier No. 90 (KPP90), located approximately 200 meters southeast of the Site, is situated outside Harbour Centre Tower 2. KPP90 has been occupied by a private company since 1978 and was previously used as a concrete batching plant by Green Island Cement Co. Ltd. ("GIC") until 2003.

3.6.50 Currently, there is no regular marine traffic to and from KPP90. Since the pier is now zoned as "undetermined" on the Approved Hung Hom Outline Zoning Plan No. S/K9/28, most uses require planning permission from the Town Planning Board. It is expected that there will be very few, if any, marine traffic to and from KPP90 during the operation of the Proposed Development.

Major emission sources within 4 km

3.6.51 The locations of the major emission source within 4 km are illustrated in **Figure 3-7a**. The major emission sources within 4 km include: Ma Tau Kok Gas Production Plant ~0.7km to the north; hotelling marine vessels of Kai Tak Cruise Terminal ~2km to the east; hotelling marine vessels of Ocean Terminal ~3.1km to the south-west; and Diamond Hill Crematorium ~ 3.9km to the north.

3.6.52 The details of the adopted sources are descripted in the following paragraphs.

Ma Tau Kok Gas Production Plant

3.6.53 The emission inventory of Ma Tau Kok Gas Production Plant is reference to Appendix 3.5 from the Approached EIA Report - Kai Tak Multi-purpose Sports Complex (AEIAR-204/2017). The latest SP Licence of the plant (SP Licence No: L-8-004(6)) has been checked on 15th Feb 2024 and no updated of the emission limit has been identified.

3.6.54 Although the emission points of Ma Tau Kok Gas Production Plant are located at a relatively low position (34 - 44.5mAG) with relatively low emission strength, direct line-of-sight from

the ASR of the Proposed Development is expected due to the buildings in between are relatively low (mostly in the range of 45-50mPD). Together with its relatively close distance (~700m), the emission of Ma Tau Kok Gas Production Plant has been included in the assessment.

3.6.55 The adopted emission inventories of Ma Tau Kok Gas Production Plant are listed in **Table 3-16** and detailed in **Table 5 of Appendix 3-5**. The locations of the emission points are illustrated in **Figure 3-7b**.

Table 3-16 Emission Inventory for the Ma Tau Kok Gas Production Plant

ID	Source Strength (g/s)			Emission Height, mAG	Temp, K	Exhaust Velocity,m/s	Diameter, m	Operation hour
	NOx	RSP	FSP					
1049	0.17	0.00	0.00	44.5	450	20.4	0.5	24 hours / day
1054	0.35	0.00	0.00	34	473	5.5	1	
1055	0.35	0.00	0.00	34	473	5.5	1	
1056	0.35	0.00	0.00	34	473	5.5	1	
1057	0.35	0.00	0.00	34	473	5.5	1	

Noted:
The corresponding Emission Point in the of the SP Licence No: L-8-004(6) are:
- ID 1049 - Emission Point No. 16
- ID 1054 to 1057 - Emission Points No. 1 to 4

Kai Tak Cruise Terminal

3.6.56 The hoteling vessels at the Kai Tak Cruise Terminal is located at ~2km to the east of the Proposed Development. Since there are no obstacles in between the site and the vessels, direct impact is anticipated under easterly wind condition.

3.6.57 According to the Schedule for the Kai Tak Cruise Terminal for 2024, the largest cruise ship is the MSC Bellissima (tonnage: 171,598), followed by Spectrum of the Seas (tonnage: 168,666). However, the vessel with the highest engine power is Costa Serena (75,600 kW), followed by a group of vessels including MSC Bellissima (67,200 kW). An event involving two concurrent cruise ships hoteling at the terminal has also been identified in the schedule. Therefore, the worst-case scenario will occur when the two cruise ships with the highest engine power are hoteling concurrently at the terminal. A list of visiting vessels for the Kai Tak Cruise Terminal, according to the 2024 schedule, is provided in **Table 6 of Appendix 3-5**.

3.6.58 Since the chimney exhaust is located at the highest point of the vessel, the vessel heights have been adopted as the stack height. The remaining information about the chimneys of the hoteling ocean vessels (emission points H1 & H2), including emission temperature, exhaust velocity, and stack diameter, is not available. Therefore, a reference has been made to the Queen Elizabeth 2, as adopted in Appendix 3.6 of the approved EIA Report (AEIAR-204/2017), which has a similar engine power (88,000 kW). The load factor and emission factor of the reference OGV have been estimated based on MVEIS to reproduce a suitable emission inventory for OGV in Hong Kong.

3.6.59 The adopted emission inventories of Kai Tak Cruise Terminal are listed in **Table 3-17** and detailed in **Tables 1a, 1b & 3 in Appendix 3-5**. The locations of the emission points are illustrated in **Figure 3-7c**.

Table 3-17 Emission Inventory for Kai Tak Cruise Terminal

Source	ID	Source Strength (g/s)				Emission Height, m above water level	Temp, K	Exhaust Velocity, m/s	Diameter, m	Operation hour
		NO_x	RSP	FSP	SO_2					
Kai Tak Cruise Terminal	H1	34.31	0.830	0.743	5.93	69.4	537	24.6	1.9	24 hours / day
	H2	30.56	0.744	0.665	5.36	64.75				

Ocean Terminal

3.6.60 Ocean Terminal is located at ~3.1km to the south-west of the Proposed Development and unlikely visible from the ASRs of the Proposed Development. In general, no direct impact shall be arising from the emission of the hoteling vessels from Ocean Terminal to the Site. However, due to its relatively high emission strength, its emission has been included for conservative assessment.

3.6.61 There are two berths for the hotelling of ocean vessels at Ocean Terminal. According to the latest schedule of Ocean Terminal [10], Queen Victoria, which is a 90,000-ton cruise ship with an engine power of 63,360 kW, is the largest vessel using the berth. Since there are rare occasions for two vessels to berth overnight concurrently, an operation schedule of 24 hours per day has been applied to both berths. For a conservative assessment, the emission factor for the largest vessel (Queen Victoria) has been applied to both berths.

3.6.62 Similar to the Kai Tak Cruise Terminal, the vessel heights have been adopted as the stack height. The remaining information about the chimneys of the hoteling ocean vessels (emission points Ship1 & Ship2), including emission temperature, exhaust velocity, and stack diameter, is not available. Therefore, a reference has been made to the Queen Elizabeth 2, as adopted in Appendix 3.6 of the approved EIA Report (AEIAR-204/2017), which has a similar main engine power (88,000 kW).

3.6.63 The adopted emission inventories of Ocean Terminal are listed in **Table 3-18** and detailed in **Tables 2 & 4 of Appendix 3-5**. The locations of the emission points are illustrated in **Figure 3-7d**.

Table 3-18 Emission Inventory for Ocean Terminal

Source	ID	Source Strength (g/s)				Emission Height, m above water level	Temp, K	Exhaust Velocity,m /s	Diameter, m	Operation hour
		NOx	RSP	FSP	SO_2					
Ocean Terminal Berth 1	Ship1	28.85	0.70	0.63	5.10	54.5	537	24.6	1.9	24 hours / day
Ocean Terminal Berth 2	Ship2	28.85	0.70	0.63	5.10	64.75				

Diamond Hill Crematorium

3.6.64 The emission inventory of Diamond Hill Crematorium can be referred to Table 4.7 & Table 4.9 from the Approved EIA report - Reprovisioning of Diamond Hill Crematorium (AEIAR-076/2004). The emissions from the Diamond Hill Crematorium are far below the source strength of the major marine based sources. In addition, the emission points of Diamond Hill Crematorium are located far from the Site (~3.9 km) and emit at a very high elevation

10 Cruise schedule - http://www.oceanterminal.com.hk/en/schedule.php?f=t (Checked on 14 Apr 2025)

(101mPD). The air quality impact arising from the emission of Diamond Hill Crematorium to the Site should be minimal, if any. The PATH v3.0 background should already cover this type of far and relatively weak sources properly. Therefore, the emission from Diamond Hill Crematorium is not included in the assessment.

Cumulative Pollutant Concentration

3.6.65 The cumulative pollutant concentration at each of the assessment point has been calculated by summing the background concentration (from PATH v3.0), the road traffic emission (from AERMOD), and other emissions (from AERMOD).

3.6.66 It should be noted that emissions from AERMOD within the assessment area are double counted with the background concentration of PATH v3.0, resulting in conservative results.

Short-term Impact

3.6.67 The Ozone Limiting Method (OLM) has been adopted for the conversion of NO_x to NO_2 based on the hourly O_3 concentrations predicted by PATH in the corresponding grid. The NO_2/NO_x conversion has been calculated as follows:

Vehicular Source

$$[NO_2]_{pred} = [NO_2] + MIN \{[NO_x] - [NO_2], (46/48) \times [O_3]_{PATH} \}$$

where,

$[NO_2]_{pred}$	is the predicted cumulative NO_2 concentration after the NO_x to NO_2 conversion
$[NO_2]$	is the predicted vehicular NO_2 concentration based on vehicular tailpipe emission (i.e.: initial vehicular NO_2 emission) from CALINE4 and AERMOD
$[NO_x]$	is the predicted vehicular NO_x concentration from CALINE4 and AERMOD
$[O_3]_{PATH}$	is the O_3 concentration from PATH

Non-Vehicular Source

$$[NO_2]_{pred} = 0.1 \times [NO_x] + MIN \{0.9 \times [NO_x], (46/48) \times [O_3]_{PATH} \}$$

where,

$[NO_2]_{pred}$	is the predicted cumulative NO_2 concentration after the NO_x to NO_2 conversion
$[NO_x]$	is the predicted non-vehicular NO_x concentration from CALINE4 and AERMOD Inial
$[O_3]_{PATH}$	is the O_3 concentration from PATH

3.6.68 For all vehicle emissions, the calculated initial NO_2 concentration from AERMOD has been adopted. For all non-vehicular emissions, initial NO_2/NO_x ratios reported in the Heathrow Airport EIA report are adopted, which is 10%.

Long-term Impact

3.6.69 For long-term impact, i.e. annual averaged NO2 concentration, the method proposed by Jenkin (2004) has been adopted for the NO2/NOx conversion as recommended by Environment Agency (2007). The NO2/NOx conversion for long-term impact has been calculated as follows:

$$[NO_2] = \frac{1}{2}\left[Z - \sqrt{Z^2 - 4[NO_x][OX]}\right]$$

Where,

$[NO_2]$	Is the predicted cumulative (annual averaged) NO_2 concentration at the assessment point in µg/m^3
Z	$= \left([NO_x] + [OX] + {}^{J}/_{k}\right)$ (unit: µg/m^3)
$[NO_x]$	is the sum of predicted (annual averaged) NO_x concentration at the assessment point from PATH and AERMOD in µg/m^3
$[OX]$	is the sum of O_3 and NO_2 concentration over the region $[OX]$ is obtained from EPD's Smart Air Modelling Platform (unit: µg/m^3)
J/k	J: photolysis rate of NO_2 k: rate coefficient for reaction J/k is obtained from EPD's Smart Air Modelling Platform (unit: µg/m^3)

3.6.70 As the vehicular emission on conservative side due to the conservative temperatures/humidity/ soak time consideration (**Section 3.6.22**), thus the cumulative NO_2 concentration is also considered reasonably conservative for both long-term and short-term impact.

Results and Discussion

3.6.71 The results of quantitative assessments are presented and discussed in the following paragraphs. The detailed results are listed in **Appendix 3-6**.

Results of Assessment Point

3.6.72 Under current notional design, the assessment result shows that all assessment points fully comply with AQO's NO_2/RSP/FSP/SO_2 criteria. Apart from Annual Averaged NO_2 concentration and Annual averaged FSP concentration, the rest of the predicted pollution concentrations are well below the criteria (<80% of criteria). For Annual Averaged NO_2 concentration, the ground level concentration near the road junction (i.e.: Chi Kiang Street and Baily Street), the predicted concertation is up to ~34 µg/m^3 (Criteria = 40 µg/m^3) at the south-west corner of the Site 1.5mAG (assessment point CS-05; **Figure 3-4a**).

3.6.73 The concentrations of NO_2 peak at 1.5 mAG, corresponding with the at-grade emissions from traffic. While the concentrations of NO_2 tend to decrease with elevation, a rise in NO_2 levels has been identified at the top residential floor. This increase is likely contributed by the hoteling vessels at Kai Tak Cruise Terminal and Ocean Terminal.

3.6.74 The concentrations of RSP/FSP show a decreasing trend with elevation but are primarily influenced by the background concentration.

3.6.75 Unlike NO_2, RSP, and FSP, marine emissions are the sole source of SO_2 emissions in this assessment. A decreasing trend with elevation is observed in the podium, while peak concentrations have been identified at the top residential floor. The local peak at the ground floor is likely contributed by the nearby ferry, which emits at low elevation, whereas the peak at the top floor is likely influenced by the hoteling vessels at Kai Tak Cruise Terminal and Ocean Terminal.

3.6.76 Since the predicted air quality at all assessment points in residential flats and external facades of non-residential areas are complies with the AQOs, there are no restrictions on the locations

of openable windows for residential flats and fresh air intake locations for non-residential areas based on air quality considerations.

Table 3-19 Summary of the Predicted Pollutant Concentration

	Pollutant Concentration (μg/m^3)				
	Daily 10th Maximum RSP	**Annual RSP**	**Daily 36th Maximum FSP**	**Annual FSP**	
Criteria / **Locations**	75	30	37.5	15	
Podium Façade **(PP-01 to PP-13)**	50.2 - 50.9	19.5 - 20.0	28.6 - 29.2	11.9 - 12.4	
Harbourfront At-Grade Communal Space **(CS-01 to CS-06)**	50.3 - 50.4	19.6 - 19.7	28.8 - 28.8	12.0 - 12.1	
Residential Towers 1 **(T1-01 to T1-10)**	50.1 - 50.5	19.4 - 19.7	28.5 - 28.9	11.8 - 12.2	
Residential Towers 2 **(T2-01 to T2-11)**	50.1 - 50.2	19.4 - 19.5	28.5 - 28.6	11.8 - 11.9	
	Hourly 19th Maximum NO_2	**Daily 10th Maximum NO_2**	**Annual NO_2**	**10-minute 4th Maximum SO_2**	**Daily 4th Maximum SO_2**
Criteria / **Locations**	200	120	40	500	40
Podium Façade **(PP-01 to PP-13)**	110.4 - 128.1	51.2 - 67.4	26.2 - 33.8	23.7 - 26.5	8.0 - 8.4
Harbourfront At-Grade Communal Space **(CS-01 to CS-06)**	115.0 - 124.3	58.8 - 68.2	31.1 - 34.3	26.3 - 26.5	8.4 - 8.4
Residential Towers 1 **(T1-01 to T1-10)**	98.3 - 111.3	46.7 - 52.5	23.3 - 27.6	23.5 - 31.9	8.0 - 8.5
Residential Towers 2 **(T2-01 to T2-11)**	99.0 - 111.4	50.2 - 53.4	25.7 - 27.6	26.0 - 32.7	8.1 - 8.7

Contours plots

3.6.77 The contours of the assessed pollutant (NO_2/RSP/FSP/SO_2) around the Site at the 1.5mAG, which is the worst elevation in general, are illustrated in **Figures 3-8a to 3-8i**.

3.6.78 The contour plot shows no exceedance is identified at 1.5mAG within the Site.

3.7 Conclusion

3.7.1 The air quality impact arising from the Proposed Development to the surrounding area during construction phase and air quality impact from the surrounding area to the Proposed Development during operation phase have been assessed.

3.7.2 With the implementation of dust suppression measures stipulated under the Air Pollution Control (Construction Dust) Regulation and the adoption of good site practice, no adverse air quality impact associated with the construction works is expected.

3.7.3 Air emissions are not anticipated from the Proposed Development during the operational phase. A desktop study and on-site observations have been conducted to identify potential odour impacts arising from the TKWPTW. Given the high odour removal efficiency of the deodorization units, it is concluded that no adverse odour impact is expected from the TKWPTW, provided that the deodorization units are functioning properly.

3.7.4 An air quality model approach based on the current notional design has been adopted. The model results indicate that the predicted air quality at all proposed residential flats and the external facades of non-residential areas fully comply with the AQOs. Therefore, no adverse air quality impact during the operation of the Proposed Development is anticipated.

4 HAZARD TO LIFE

4.1 Introduction

4.1.1 The Proposed Development is located at Bailey Street, Kowloon City District (the "Site"), to the immediate west of the To Kwa Wan Pigging Station (TKWPS). According to the approved Hung Hom Outline Zoning Plan ("OZP") No. S/K9/28, major of the Site is currently zoned "G/IC", and a small strip of land zoned as "OU(STP)", which is planned for development of school development. It is proposed to be zoned "(R(A)9)" for comprehensive high-density residential development.

4.1.2 Reference is made to the Feasibility Study and Detailed Design report (the reference report) submitted under planning application No. A/K9/240 for the To Kwa Wan Pigging Station by the Hong Kong and China Gas Company Limited (HKCG). The said planning application was approved by the Town Planning Board in March 2010. According to HKCG, the Pigging Station does not contain any gas storage facility or gas holder for town gas storage. It is not classified as Potentially Hazardous Installation (PHI) in accordance with the HKPSG. The major purpose of the TKWPS is to facilitate the launching and receiving of inspection tools for carrying out the pigging operation which is normally be carried out about once in every ten years. The TKWPS is also used to monitor the gas pressure of the submarine gas pipelines.

4.1.3 This hazard to life section is prepared to address the concerns on the potential risks posed by the TKWPS on the Proposed Development, and to recommend effective and practicable mitigation measures if necessary.

4.2 The TKW Pigging Station

4.2.1 The TKWPS is located near waterfront of To Kwa Wan. Currently, there are school developments located at about 100m from the western boundary of the said Pigging Station. The Site, which is planned for school development under OZP, is located immediately to the western boundary of the TKWPS. The existing To Kwa Wan PTW is adjacent to the southern boundary of the TKWPS at a distance of about 10m. The closest commercial building, APB Centre, is over 50m from the south-west corner of the TKWPS boundary. The rest of the lands in the vicinity of TKWPS are for open area use.

4.2.2 The TKWPS consists of an instrument room and the associated above ground and underground pipes. The whole TKWPS is fenced off by a 3m high boundary concrete wall with an area about 662 m^2. The TKWPS is equipped with CCTV system which allows 24-hour monitoring of the activities within the station by competent control engineers. For works inside the TKWPS, a permit-to-work system is applied to ensure no unauthorized entry and to ensure all operations are carried out according to the controlled guideline or procedures.

4.2.3 As the purpose of the pigging station is to facilitate the launching and receiving of the Pipe Inspection Gauge (PIG) for pigging operation of the submarine gas pipeline from To Kwa Wan to North Point, the TKWPS consists of minimum length of aboveground pipework while that other pipework is built below ground. According to the international standards, minimum 3m setback to the boundary of TKWPS is allowed for the pipework. Sufficient separation between pipework is also allowed for the requirements of operation and maintenance of the TKWPS.

4.2.4 The majority of pipework has a diameter of 450mm. During normal operation, the pigging facilities is isolated from the pipelines in standby mode. There is no storage of any town gas

in the TKWPS. There is no record of incidence for all pigging stations in Hong Kong since they started operation in early 70's by HKCG.

4.3 Risk Evaluation

4.3.1 A risk assessment matrix, also known as a Likelihood and Impact risk matrix, is a visual tool depicting potential risks affecting public arising from the TKWPS. The risk matrix is based on two intersecting factors: the likelihood the risk event will occur and the potential impact the risk event will have. A 5x5 risk matrix as listed in **Table 4-1** is utilized to evaluate the risk. The risk evaluation criteria from consequence and likelihood are depicted in **Table 4-2** and **Table 4-3** respectively.

Table 4-1 5x5 Risk Assessment Matrix

		Consequences				
		Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Probability (Likelihood)	**Rare**	Low	Low	Low	Medium	Medium
	Unlikely	Low	Low	Medium	Medium	High
	Possible	Low	Medium	Medium	High	High
	Likely	Medium	Medium	High	High	Very High
	Frequent	Medium	High	High	Very High	Extreme

Table 4-2 Consequence Evaluation Criteria

Descriptor	**Description of Consequences**
Insignificant	No injury
Minor	Minor injury
Moderate	A number of injury / hospitalization
Major	Extensive injuries / long term treatment
Catastrophic	Fatality

Table 4-3 Likelihood Evaluation Criteria

Descriptor	**Description of Frequency**
Rare	Event may occur in exceptional circumstances (Can be assumed not to occur over the life time of the facility
Unlikely	Event is unlikely to occur, but it is possible during the life time of the facility
Possible	Event could occur during life time of the facility
Likely	Event likely to occur once or more during the life time of the facility
Frequent / Almost Certain	Event occurs many times during the life time of the facility

Risk Ranking for TKW Pigging Station

4.3.2 Refer to the hazard to life assessment for the To Kwa Wan Pigging Station prepared by HKCG, qualitative risk assessment of failure of the pigging station based on different failure causes is shown in **Table 4-4** according to the risk rating criteria in **Table 4-1**.

Table 4-4 Risk Assessment of Different Failure Causes of TKW Pigging Station

Scenario	Likelihood of Occurrence	Consequence to Public	Risk Level
External Causes			
Natural Event			
Earthquake	Rare	Moderate	Low
Subsidence / Landslides	Rare	Moderate	Low
Lightning	Rare	Moderate	Low
Severe Environmental Event	Rare	Moderate	Low
Aircraft Crash	Rare	Moderate	Low
Ship Collision at Seafront	Rare	Minor	Low
External Fire	Rare	Moderate	Low
Operational Error	Rare	Moderate	Low
Internal Causes			
Corrosion	Unlikely	Minor	Low
Material Defect	Rare	Moderate	Low
Pig Launcher / Receiver			
Pig Launcher / Receiver	Unlikely	Minor	Low

4.3.3 As shown in **Table 4-4**, the risk of the TKWPS found at low risk level. Apart from the qualitative assessment, HKCG was also undertaken a quantitatively risk assessment (QRA) for supporting the hazard to life section of EIA study "*Installation of Submarine Gas Pipelines and Associated Facilities from To Kwa Wan to North Point for Former Kai Tak Airport Development*".

4.3.4 In the QRA study, offsite individual risk of the TKWPS is estimated to be $1x10^{-7}$ per year (without taking into account of the 3m high solid concrete boundary wall) which is 2 order of magnitude lower than the maximum offsite individual risk criteria of $1x10^{-5}$ per year as stipulated in the Hong Kong risk guidelines. It is expected that the actual offsite individual risk is lower than $1x10^{-7}$ per year by the risk reduction effect of the 3m high solid concrete boundary wall of the station.

4.3.5 For the societal risk due to the TKWPS, the maximum number of fatalities is about 62 at $1x10^{-9}$ fatality rate per year. The societal risk falls within the "ACCEPTABLE" region of the risk guidelines. The social risk level is already taken into account all the existing and planned population groups near the TKWPS, including the planned school developments in the Project Site. Although the total number of populations for the Proposed Development would be higher than the population of the planned school, the overall outdoor population of the school is higher than the Proposed Development due to the nature of use (the indoor population for residential development is normally 90% to 95% but the indoor population for school is normally 80%). Since the fatality for indoor population is much lower than the

outdoor population, the societal risk level for the Proposed Development should not be worse than the planned school development. Considering the societal risk level with the planned school is well within the "ACCEPTABLE" region, the conclusion made in the QRA study would not be affected by the rezoning of the school development to residential development.

4.4 Mitigation Measures

4.4.1 Although the risk associated with the TKWPS is considered to be low, the very low offsite individual risk level, and the societal risk is well within the "ACCEPTABLE" region based on the QRA undertaken by HKCG, the following risk mitigation measures will be considered in the detailed design of the Proposed Development to further lower the potential risk.

- In order to avoid inducing additional transient population close to the pigging station due to the Proposed Development, no ingress / egress for vehicle or entrance for passage is designed at the development boundary facing to the pigging station;
- The standard security fence wall is recommended to be solid for the portion directly facing to the pigging station;
- To avoid ventilation opening for the Proposed Development facilities (e.g. Car Park, Club House, Plant Room, Lift Shaft, etc.) directly facing to the pigging station;
- The building units in close proximity to the pigging station have been designed in such a way that no window opening or no balcony will be facing directly to the pigging station;
- The Proposed Development have to be designed to avoid possible falling object hitting the pigging station;
- Prior to the commencement of site works, a method statement shall be provided to seek HKCG comment and advice on any specify safety / extra protective measures to the gas facilities and to be adopted throughout the whole construction period.

4.5 Conclusions

4.5.1 The TKWPS consists of an instrument room and the associated above ground and underground pipes. The whole TKWPS is fenced off by a 3m high boundary concrete wall with an area about 662 m^2. The TKWPS consists of minimum length of aboveground pipework while that other pipework is built below ground. According to the international standards, minimum 3m setback to the boundary of TKWPS is allowed for the pipework. During normal operation, the pigging facilities is isolated from the pipelines in standby mode. There is no storage of any town gas in the TKWPS. It is not classified as PHI in accordance with the HKPSG. There is no record of incidence for all pigging stations in Hong Kong since they started operation in early 70's by HKCG.

4.5.2 Qualitative risk assessment of failure of the pigging station is found to be low based on different failure causes. Based on the QRA for supporting the hazard to life section of EIA study undertaken by HKCG, the offsite individual risk of the TKWPS is estimated to be $1x10^{-7}$ per year which is much lower than the maximum offsite individual risk criteria of $1x10^{-5}$ per year as stipulated in the Hong Kong risk guidelines. The societal risk falls within

the "ACCEPTABLE" region of the risk guidelines that already taken into account all the existing and planned population groups near the TKWPS, including the planned school development in the Project Site. Since the societal risk level for the Proposed Development would not be worse than the planned school development, the conclusion made in the QRA study would valid for the Proposed Development.

4.5.3 To sum up, the rezoning of G/IC site from the planned school development to the proposed high-rise residential development would not leading to any unacceptable risk due to the TKW Pigging Station.

5 NOISE IMPACT ASSESSMENT

5.1 Introduction

5.1.1 The purpose of this chapter is to assess the potential noise impact on the Proposed Development, to ensure all noise sensitive receivers complied with the criteria stipulated the HKPSG.

5.1.2 The potential noise impact from the following aspects have been assessed: (i) Construction noise - the potential noise impact generated from the construction activities of the Proposed Development to the surroundings; (ii) Traffic noise - the potential noise impact generated from the nearby road networks to the Proposed Development during operation phase; (iii) Fixed noise - the potential noise impact generated from the surrounding fixed noise sources to the Proposed Development; (iv) Fixed noise - the potential noise impact generated from the planned fixed noise sources of Proposed Development to the surrounding.

5.1.3 Effective mitigation measures and recommendations are proposed to mitigate the excessive noise level to achieve an acceptable compliance level under the current notional design.

5.2 Standards and Guidelines

Construction Noise

5.2.1 ProPECC PN1/24 "Minimizing Noise from Construction Activities" provides construction noise requirements under Noise Control Ordinance (NCO) and recommendations on practicable measures.

Road Traffic Noise

5.2.2 HKPSG provides guidance on acceptable road traffic noise levels at the openable windows of various types of noise sensitive buildings. The relevant criteria are shown in **Table 5-1**.

Table 5-1 HKPSG Road Traffic Noise Planning Criteria

Uses	**Road Traffic Noise L_{10}, (1hr) dB(A)**
Domestic Premises	**70**
Hotel and Hostels	70
Offices	70
Educational institutions	65
Hospital & Clinics	55
Places of public worship and courts of law	65

Note: The above criteria apply to noise sensitive uses which rely on opened window for ventilation.

5.2.3 The following Practise Notes provide guideline to facilitate the project planning and design against road traffic noise impact.

- "ProPECC PN3/23 Application of Sound Insulation in Residential Buildings to Reduce Noise Transmission Between Units" provides technical information on the design and application of sound insulation on partition walls and floors between residential units for better privacy protection and indoor sound environment.

- "ProPECC PN4/23 Practice Note for the Planning of Residential Developments against Road Traffic Noise" recommends mitigation measures against road traffic noise in planning stage and promulgates self-assessment procedures to facilitate the planning approval.
- "ProPECC PN5/23 Application of Innovative Noise Mitigation Designs in Planning Private Residential Developments against Road Traffic Noise Impact" provides guidance on technical information for innovative mitigation measures (Acoustic Window and Enhanced Acoustic Balcony) against road traffic noise.

Fixed Noise

5.2.4 Acceptable Noise Levels (ANL) shown in Table 2 of the Technical Memorandum for the Assessment of Noise from Places Other than Domestic Premises, Public Places or Construction Sites (IND-TM). According to IND-TM, the ANLs for different Area Sensitivity Ratings (ASRs) are given in **Table 5-2**.

Table 5-2 Acceptable Noise Levels for Fixed Noise Impact (ANLs), dB(A), Leq, (30mins)

Time Period	ASR A	ASR B	ASR C
Day (0700 to 1900 hours)	60	65	70
Evening (1900 to 2300 hours)			
Night (2300 to 0700 hours)	50	55	60

5.2.5 The Site is located in the developed area of Kowloon City. According to TD's Annual Traffic Census (ATC2023), the road traffic in the vicinity is not considered heavy. Therefore, the Site and its surroundings are not affected by Influencing Factor (IF), and the ASR would be classified as "B".

5.2.6 The HKPSG states that all planned fixed noise sources should be located and designed so that when assessed in accordance with the IND-TM, the level of the intruding noise at the facade of the nearest sensitive use should be at least 5 dB(A) below the appropriate ANL shown in Table 2 of the IND-TM or the background noise level, whichever is lower.

5.2.7 According to the Baseline Monitoring Report of Kai Tak Development[11], the background noise level measured at the roof of the nearby school (CCC Kei To Secondary School) is 65.1 dB(A) during daytime, 64.3 during evening-time, and 56.2 dB(A) during night-time.

Table 5-3 Background Noise Level

Time Period	M8 - CCC Kei To Secondary School	
Daytime of Normal Weekday	65.1	dB(A) ($L_{90, 30\ min}$)
Evening-Time of Normal Weekday & Daytime of Holidays	64.3	dB(A) ($L_{90, 30\ min}$)
Night-Time Noise Monitoring Results	56.2	dB(A) ($L_{90, 5\ min}$)

[11] Environmental Monitoring Works for Kai Tak Development - Baseline Environmental Monitoring Report https://www.ktd.gov.hk/photo/environmentalmonitoringworks/html/MA0040_BMR_PartI_v.2.0.pdf

Note: The noise levels are extracted from Tables 4.5 to 4.7 of Environmental Monitoring Works for Kai Tak Development - Baseline Environmental Monitoring Report

5.2.8 As the measured background noise level is higher than ANL-5 dB(A), the planning criteria would be 60 dB(A) for day and evening time and 50 dB(A) for night time.

5.3 Construction Noise Impact Assessment

5.3.1 The use of PME will generate construction noise impact to the nearby NSRs. The major noise emitting activities will be the foundation works and superstructure works of future development.

5.3.2 As the number of PME that the Site can accommodate is limited, the noise from construction activities may still be an impact if the construction works are not planned and arranged properly.

5.3.3 ProPECC PN1/24 "Minimizing Noise from Construction Activities" provides construction noise requirements and recommendations on practicable measures such as quieter construction methods and equipment to minimize construction noise.

5.3.4 To minimize noise generation, Contractor shall consider the following mitigation measure:

- Use non-percussive equipment such as hydraulic crusher, sawing, coring machines for demolishing existing building and structure
- Use non-percussive piling diving method such as hydraulic press-in method, vibration or jacking method for foundation work
- Use Quality Powered Mechanical Equipment (QPME) recognized by EPD. The QPME shall be registered with EPD, and valid label issued by EPD shall be affixed on the QPME all times.
- Use Quieter Construction Methods[12] as far as practicable
- Schedule work to minimize concurrent activity and duration of impact
- Regular maintenance of equipment to prevent noise emission due to impairment
- Adopt good site practice, such as throttle down or switch off equipment unused or intermittently used between works
- Position mobile noisy equipment in locations away from nearby NSRs and point the noise sources to directions away from NSRs
- Make good use of other structures for noise screening
- Use of mobile noise barriers/enclosures along the path of noise propagation

5.3.5 Construction activities under the Proposed Development involves concrete removal works, site formation/excavation works and superstructure works. With proper implementation of the following mitigation measures at each stage, the construction noise impact is not anticipated.

Concrete Removal Works:

- Use of high-pressure water jetting instead of traditional jackhammers and drill hammers;

[12] Quieter Construction Methods: https://www.epd.gov.hk/epd/misc/construction_noise/contents/index.php/en/home2/quieter-construction-methods.html.

- Use of quieter type wire saws or diamond wire saws for cutting large areas and heavily reinforced concrete;
- Use of quieter type blade saws utilizing diamond blades with higher speeds and smoother blades reduces excitation of vibration;
- Use of hydraulic crushers for concrete breaking instead of traditional excavator-mounted breakers;
- Use of handheld concrete crushers instead of traditional jackhammers;
- Use of hydraulic splitters instead of traditional jackhammers and breakers.

Site Formation / Excavation Works:

- Use of silent piling by press-in method instead of traditional massive auger drilling and piling machines or drop hammer for sheet piling / channel planking installation work;
- Use of a sheet piling noise reducer such as a suitable shock absorber to reduce collisions between sheet pile / channel planking and holding parts;
- Use of pile driving impact cushions to reduce noise generated by piling impact;
- Pre-auger/pre-trench/boring pile holes to remove underground obstruction for avoiding hard driving / soften the ground;
- Use of crack inducers instead of traditional percussive breakers.

Superstructure Works:

- Use of prefabricated structure / sections to replace in-situ construction to reduce the amount of mechanical equipment used on site;
- Use of self-compacting concrete (without the aid of a vibrator e.g. poker for compaction) for in-situ concreting;
- Use of crack inducers instead of traditional percussive breakers.

5.3.6 With the aforementioned noise mitigation measures implemented during the construction phase, no adverse noise impact arising from the construction activities is expected.

5.4 Operation Noise Impact Assessment

Representative Noise Sensitive Receivers during Operation Phase

Road Traffic Noise

5.4.1 All living rooms and bedrooms of the residential flats were identified as NSRs according to the nature of use. The noise assessment points were located 1.2m above the slab level and 1m away from the noise sensitive façade. All potential window / balcony locations of all residential flats are covered.

5.4.2 Commercial, clubhouse and GIC facilities will be equipped with air-conditioning system and will not rely on openable windows for ventilation, and thus the noise standard is not applicable.

5.4.3 There are 1,218 residential flats based on the notional layout of typical floor. For assessment purpose, the traffic noise level at all 1,218 flats have been assessed. The assessment points

are summarized in **Table 5-4** and their locations are illustrated in **Figures 5-1a** to **5-1b**. It should be noted that the notional layout of the Proposed Development is for assessment purpose only and subject to change in detailed design stage.

Table 5-4 Summary of Representative Noise Sensitive Receivers and Assessment Points for Traffic Noise Impact Assessment

Location	NSR ID [1]	Number of Flat per floor [2]	Total Number of Flat	Elevation of the Assessment Point [3]
Tower 1	T1-01-W1 to T1-22-W2	1/F to 24/F: 22 flats 25/F:19 Flats	547	30.75mPD for 1/F, (+3.15m for 1/F to 15/F; +3.32m for 11/F to 25/F)
Tower 2	T2-01-W1 to T2-27-W2	1/F to 24/F: 27 flats 25/F: 23 Flats	671	
Total			**1,218**	

[1] NSR ID for Tower 1, 2 is in the form of TT-YY-ZZ, where "TT" is tower identity = T1/T2, "YY" is the flat ID; ZZ is the location of the openable window for ventilation (Balcony at living room = LB; Window at the same flat= W1/W2/W3).

[2] Larger flats that having size of two flat have been provided on 25/F of both towers, including T1-01, T1-10, T1-16, T2-13, T2-15 & T2-17 & T2-22. Location of openable windows/balconies remains unchanged.

[3] The notional design including the elevation is subject to change.

Existing Fixed Plant Noise

5.4.4 Outdoor unit of variable refrigerant volume (VRV) / variable refrigerant flow (VRF) air conditioning system, air-cooled chiller and cooling tower are considered as the major existing fixed noise sources, which are mainly located to the west and south of the Site. Hence, 6 representative Noise Assessments Points (NAPs) at the west and south side of the residential towers have been selected for the existing fixed noise assessment. Location of representative NAPs is illustrated in **Figure 5-2** and tabulated in **Table 5-5**. The record of existing fixed noise sources has been summarized in **Appendix 5-5**.

Table 5-5 Representative Noise Assessment Points for Existing Fixed Noise Sources

NAP ID	Location	Daytime & Evening Noise Criteria, dB(A)	Night-Time Noise Criteria, dB(A)
T1-01	Tower 1 – Flat 22 (Window at the Bedroom)	65	55
T1-02	Tower 1 – Flat 15 (Window at the Bedroom)	65	55
T2-01	Tower 2 – Flat 27 (Window at the Bedroom)	65	55
T2-02	Tower 2 – Flat 21 (Window at the Bedroom)	65	55
T2-03	Tower 2 – Flat 20 (Window at the Bedroom)	65	55
T2-04	Tower 2 – Flat 16 (Balcony at the Living Room)	65	55

Planned Fixed Plant Noise

5.4.5 Planned fixed noise sources are anticipated at the Site, for example, central air ventilation to lobby and corridor of the residential buildings, clubhouse, and GIC. Noise impact to vicinity of the Site may be induced by these noise sources. Hence, potential planned fixed noise sources are anticipated.

5.4.6 NSRs are identified at the west and south side of the Site, which are schools and commercial buildings. The east side of the Site is Kowloon Bay, where no NSRs is identified. The representative NAPs in the vicinity have been listed in **Table 5-6** and illustrated in **Figure 5-3**.

Table 5-6 Representative Noise Assessment Points for Planned Fixed Noise Sources

NSR ID	Description	Horizontal Distance from the Representative NSRs in the vicinity to the Site Boundary(m)[1]
NSR01	Chi Yun School	27
NSR02	The Church of Christ in China Kei To Secondary School	51
NSR03	Po Leung Kuk Ngan Po Ling College	27
NSR04	APB Centre	**22**

Note:
[1] The nearest Representative Noise Sensitive Receivers are **bold underlined**.

Road Traffic Noise Impact

Assessment Methodology

5.4.7 An in-house noise model (MARC) was used to predict the traffic noise levels arising from the road network. It adopts the methodology provided in the UK Department of Transport's Calculation of Road Traffic Noise (CRTN) 1988, which is stipulated in Chapter 9, Section 4.2.7 of the HKPSG for assessing road traffic noise impact. Road traffic noise levels are presented in terms of noise levels exceeded for 10% of the one-hour period for the hour having the peak traffic flow [L10 (1-hour) dB(A)].

5.4.8 The assessment was based on the projected peak hour flows for the worst year within 15 years after completion of the Project in Year 2032. Based on the traffic forecast provided by the traffic consultant, the AM peak hour flows in Year 2047 will generate the highest road traffic noise within 15 years from the completion of the Proposed Development. The major roads within 300m from the boundary of the Proposed Development have been included in the assessment and are shown in **Appendix 5-1**. According to the Low Noise Road Surfacing Plan from Highways Department in Year 2022 (**Appendix 5-2**), Low Noise Road Surfacing (LNRS) is identified within 300m assessment boundary and adopted in the traffic noise modeling.

5.4.9 To minimize the traffic noise impact to the Proposed Development, the following architectural design consideration has been adopted. In partially, the podium will partially obstruct the view between the west-facing windows of lower-floor flats and the road traffic. Additionally, the orientation and disposition of Tower 2 has been purposefully planned to block the view of road traffic from the south-facing facades of Tower 1.

5.4.10 Two scenarios have been considered in the traffic noise impact assessment. The first one is a (a) Base Scenario which only considered architectural design and location of the openable windows/balconies; the second scenario is a (b) Mitigated Scenario with Acoustic Windows, Acoustic Balconies.

Impact Identification and Assessment

a) Base Scenario: Careful Design on Buildings Disposition & Window Locations

5.4.11 In the Base Scenario, the residential towers have been carefully designed to avoid adverse traffic noise impact. View angle from the windows of residential flat to the major road has been minimized by the architectural design like building disposition, building orientation and

window locations. Without the design, the traffic noise level in Base Scenario is expected to be much higher.

5.4.12 The detail results of Base Scenario are presented in **Appendix 5-3**. The results show that about 94.3% of flats complying with the noise criteria of 70dB(A). The maximum predicted traffic noise level, ~75 dB(A), is found at 1/F Flat T2-20 of Tower 2, which has direct line-of-sight to the nearby road (Hung Hom Road, Bailey Street and Chi Kiang Street). Location of predicted traffic noise exceedance is illustrated in **Figure 5-4**.

b) Mitigated Scenario: With Acoustic Windows, Acoustic Balcony

5.4.13 With reference to ProPECC PN5/23, practicable mitigation measures like acoustic window and acoustic balcony shall be adopted to provide at-receiver mitigation measures to further minimize the traffic noise impact on the noise exceedance of the Proposed Development.

5.4.14 Subject to detailed design, mitigation measures are proposed in this mitigated scenario:

- Baffle Type Acoustic Window[13] (Noise Reduction: -6.0 dB(A))

  The baffle type acoustic windows consist of two layers, i.e. an openable window with fixed side (the fixed glazing / maintenance window) at the outer layer and a sliding window at the inner side. The two-window-layer design can create an air gap for the supply of fresh air with noise mitigation effect. Under normal operation, the fixed glazing / maintenance window shall be locked with allen key and shall not be opened for ventilation in order to reduce noise entering into the flat. The fixed glazing locked with allen key will be opened for cleansing and maintenance purpose only. This type of acoustic windows has been proven that both traffic noise mitigation and air ventilation could be achieved. The design of the proposed acoustic window can meet the relevant ventilation requirement under the Building (Planning) Regulations. According to the Practice Note on Lighting and Ventilation Requirements - Performance-based Approach (APP-130) issued by Buildings Department, for optimum performance with the inner sliding glass panel in a closed position, the air gap should have a length of not less than 100mm and a width between 100mm and 175mm. The length and width of the air gap of the proposed acoustic window also meet these conditions.

- Acoustic Balcony (Noise Reduction: -2.5 dB(A))

  Acoustic Balcony with 1.2m high of solid parapet and ceiling lined with sound absorptive for shielding noise and absorbing noise respectively, can effectively reduce the traffic noise entering the premises. The depth of the balcony should be more than 1m and noise reduction of noise 2.5 dB(A)[14] has been adopted in the calculation.

5.4.15 Typical design of Baffle Type Acoustic Windows is illustrated in **Figure 5-5**. Mitigation measures have been proposed to all locations with traffic noise exceedance. The locations

[13] Baffle Type Acoustic Window: https://www.epd.gov.hk/epd/Innovative/greeny/eng/innovation/baffle-type.html
[14] Acoustic Balcony: https://www.epd.gov.hk/epd/Innovative/greeny/eng/balcony_soild.html

with predicted noise exceedance and proposed mitigation measures to be adopted are illustrated in **Figure 5-6** and listed in **Appendix 5-4**.

5.4.16 Given specific noise reduction measures at different assessment points, the compliance rate by flat has been increased to 99.7%. The maximum exceedance is found at 1/F to 2/F of Flat T2-19 and T2-20 of Tower 2, which exceeding the criteria of 70 dB(A) with ~ 1 dB(A). Flat T2-19 and T2-20 of Tower 2 is expected to experience adverse traffic noise impact. Except for Flat T2-19 and T2-20 of Tower 2, rest of the flats have complied the criteria. Detailed result of each assessment points of the flat under mitigated scenario is shown in **Appendix 5-4**.

Table 5-7 Summary of Traffic Noise Impact Assessment

	Number of Flat	Base Scenario		Mitigated Scenario	
		Flat with Noise Exceedance	Compliance Rate	Flat with Noise Exceedance	Compliance Rate
Tower 1	547	0	100%	0	100%
Tower 2	671	70	89.6%	4	99.4%
Total	1218	70	94.3%	4	99.7%

Fixed Noise Impact

Assessment Methodology

5.4.17 The fixed plant noise impact on the sensitive use at the Proposed Development was quantified by the predicted fixed noise level (sound pressure level) at the adopted assessment points. The calculations were made based on the following standard formula:

SPL = SWL - DC - BC + FC + TC

where,

SPL: Sound Pressure Levels at receiver, in dB(A)

SWL: Sound Power Levels of Fixed Noise Sources, in dB(A)

DC: Distance Correction, DC = 20 × log10 (D) + 8, D is the slant distance between the NSR and noise source in metres. However, for simplicity and conservatism, horizontal distance has been adopted instead of slant distance

FC: Façade Correction of 3dB(A)

BC: Barrier Correction of 10dB(A) when direct line of sight is completely blocked by building

TC: Tonality Correction of 3dB(A) is assumed

Existing Fixed Noise Source

5.4.18 As the existing fixed plants in the surrounding buildings cannot be easily accessed for the identification of their types and the respective noise levels. The sound power levels of the major fixed plants contributing to the sound pressure level at the assessment points were adopted with reference to the specifications of the building service equipment such as water cooling or air-cooled air conditioning system with similar scale. The record for the existing fixed noise sources is presented in **Appendix 5-5**.

5.4.19 The Site is currently surrounded by various buildings, including schools, commercial buildings and industrial buildings. Equipment that may cause noise disturbance like air-cooled chillers were identified on roof and podium of these buildings during site visit in March 2024. During site visit, no noticeable fixed noise was detected at the vicinity of the site including the TKW Pigging Station, TKW Preliminary Treatment Works, etc., when compared to the dominant noise source in the vicinity of the Site, which is the road traffic noise. Hence, no adverse impact from existing fixed noise source to NSRs of the Site is anticipated.

5.4.20 Locations of existing fixed noise sources within 300m from site boundary are depicted in **Figures 5-7a** to **5-7c**. In total, three types of existing fixed noise sources identified in assessment area, i.e., VRV/VRF, air-cooled chillers and cooling tower. As a conservative approach, it is assumed that all equipment operates for 24 hours for fixed noise impact assessment. Although numerous VRV/VRF and chillers were identified on the roofs and/or podium of the nearby buildings, it was observed that these identified VRV/VRF and chillers are generally quiet, with SWL ranging from 61 dB(A) to 78 dB(A). The nearest horizontal distance between representative NSRs and nearest fixed noise source is ~40m (from NSR T2-04 to Noise Source F-30; **Appendix 5-6**) and able to provide at least 40dB(A) noise attenuation. Hence, adverse noise impacts from VRV/VRF and chillers on the planned development are not anticipated as long as there is a distance in between.

5.4.21 On the other hand, cooling tower are the major fixed noise sources due to its relatively higher noise level. In particular, the cooling tower on the roof of Kowloon City Government Offices and APB Centre are having SWL of ~81 dB(A) and ~87 dB(A). respectively. The nearest horizontal distance between representative NSRs and nearest cooling tower is ~63m (from NSR T2-03 & T2-04 to Noise Source F-37; **Appendix 5-6)** and able to provide 44dB(A) noise attenuation. Thus, significant noise impacts from cooling tower on the planned development are also not expected.

Assessment Result for Existing Fixed Noise Source

5.4.22 According to the calculation, the corrected noise level at NSRs ranges from 46 dB(A) to 52 dB(A). Among the representative NSRs, T2-04 is identified as the most affected, with a predicted noise level of 52 dB(A). The results and comparison are summarized in **Table 5-8** and detailed in **Appendix 5-6**.

5.4.23 The predicted noise levels at the representative NSRs of the Scheme comply with the day/evening time criteria (65 dB(A)) and night time criteria (55 dB(A)). Hence, no adverse impact from existing fixed noise sources is anticipated.

Table 5-8 Summary of Existing Fixed Noise Impact Assessment

NSR (ID)	Corrected Noise Level, dB(A)	Criteria
T1-01	46	Day/Evening Time: 65 dB(A) Night Time: 55 dB(A)
T1-02	46	
T2-01	47	
T2-02	48	
T2-03	52	
T2-04	52	

Planned Fixed Noise Source

5.4.24 The Proposed Development will provide central air ventilation for non-residential areas such as commercial area, retails, clubhouse, GIC facilities and basement carpark. The associated HVAC system may cause noise impact to surrounding NSRs. Although the large exhaust fans are usually located indoor and enclosed within the air ducts, the fan noise will transmit via the ventilation pipe and emit at the duct exhaust. Therefore, the potential planned fixed noise sources of the Proposed Development are the large exhaust fans and the outdoor units of air conditioner. Other equipment such as water pumps and lift motors will be located in enclosed rooms thus no adverse noise impact to the surrounding is anticipated.

5.4.25 The facilities in the podium, including commercial & retail area, clubhouse, GIC facilities, will be closed beyond operation hours and the associated HVAC system are expected to stop during night time. Besides, the expected ventilation requirement of the basement carpark during night-time is expected to be very low thus the primary exhaust fan is unlikely required. Due to the relatively small size of the served zones, VRV system is preferred over chiller plants and/or water-cooling tower as VRV provide flexible cooling capacity with high efficiency over large range of loading. To avoid the noise from fixed plants affecting the residential portions, the large plants and large ventilation exhaust pipes are planned to be located at semi-confined areas such as plant rooms and/or entrance/exit of the carpark, with acoustic louvers if necessary. The ventilation pipes will be equipped with silencer to further reduce the in-duct noise level. With carefully design, there should be no direct line of sight between the fixed noise sources and the residential flats, thus, no adverse noise impact from the fixed noise sources to the residential flats is anticipated. As the fixed noise source of the Site, including the louvers serving the fixed noise sources, may visible from the NSRs in the surrounding, maximum allowable sound power levels will be recommended.

Maximum Allowable Sound Power Levels (SWL)

5.4.26 The maximum allowable SWL for the planned fixed noise sources are present in **Table 5-9**.

5.4.27 According to the calculation based on the horizontal distance of the nearest NSRs for each corresponding source, the cumulative SWL of the building service equipment at podium of Site should not exceed 89 dB(A) during day and evening time, and should not exceed 79 dB(A) during night time.

5.4.28 It should be noted that a 3 dB correction has been adopted accounting for the tonality, characteristics for assessment purpose. In case the noise exhibits tonality, intermittency and impulsiveness characteristics during the operation, the maximum allowable SWLs of the fixed plants should be corrected based on the recommendation given in Section 3.3 of the IND-TM.

5.4.29 Although the proposed rezoning is still at its early planning stage and no detailed design including the location of the noisy plants is available, no adverse fixed noise impact to the NSRs is anticipated if the choice of equipment, installation locations, installation and mitigations are properly designed.

Table 5-9 Maximum Allowable Sound Power Level for the Building Service Equipment of the Proposed Development

Time Period	Maximum Allowable SPL at Representative NSR, dB(A)	Horizontal Distance from the Project Site Boundary to the Nearest NSR, m	Correction, dB(A) [1]			Allowable Sound Power Level at Source, dB(A) [2]
			Distance	Facade	Tonality	
Day and Evening Time (07:00-23:00)	60	22	35	-3	-3	89
Night Time (23:00 – 07:00)	50	22	35	-3	-3	79

[1] For assessment purpose, a 3 dB of tonality has been adopted.
[2] The Maximum Allowable Sound Power Level at Source should be corrected by the tonality, intermittency, & impulsiveness correction of the selected equipment, according to Section 3.3 of the IND-TM.

5.5 Conclusion

5.5.1 The overall noise impact during the construction phase is considered insignificant. Mitigation measures shall be implemented in accordance with ProPECC PN 1/24 during construction to minimize construction noise impact on the nearby NSRs.

5.5.2 Traffic noise impact has been taken into consideration when designing the notional layout of the residential development. The view angle from the windows to the road traffic has been minimized by buildings disposition, buildings orientation and windows locations. In the base scenario, ~94.3% of flats comply with the 70 dB(A) traffic noise assessment criterion as demonstrated. In the mitigated scenario where acoustic window and acoustic balcony are incorporated into the Proposed Development, the compliance rate by flat has been increased to ~99.7%. Given the notional design is at planning stage, which is subjected to detailed design upon CE in C's approval of the proposed rezoning, the current assessment is based on a notional design and its anticipated result, of which baffle type acoustic window and acoustic balcony have been adopted to achieve the noise compliance level. It should be noted that the actual layout in the future Proposed Development will be subject to detailed design, site constraints and feasibility.

5.5.3 A preliminary study of fixed noise sources is conducted based on the existing situation and the available information for planned developments. The results suggest that no adverse fixed noise impact is anticipated from existing environment to the Proposed Development. Additionally, the planned fixed noise source from the Proposed Development should not induce any adverse noise impact to the vicinity of Site when the maximum allowable SWLs is implemented appropriately.

6 WATER QUALITY IMPACT ASSESSMENT

6.1 Introduction

6.1.1 This chapter identifies and evaluates potential water quality impact due to the Proposed Development, and recommends appropriate mitigation measures for the potential impact.

6.2 Legislations, Standards & Guidelines

6.2.1 The Water Pollution Control Ordinance (Cap. 358) (WPCO), in existence since 1980, is the major legislation relating to the protection and control of water quality in Hong Kong. According to the ordinance and its subsidiary legislation, Hong Kong waters are divided into ten Water Control Zones (WCZ)s. Water Quality Objectives (WQOs) provide the limits for different parameter for each WCZ to minimize the impact on water quality. With reference to the WCZs map, the study area, i.e. the area within 500m from the Site boundary, is located within the Victoria Harbour (Phase 2) WCZ. **Table 6-1** has summarized the Water Quality Objectives (WQO) for Victoria Harbour (Phase 2) WCZ.

Table 6-1 Water Quality Objectives

WQO	Victoria Harbour (Phase 2) WCZ
AESTHETIC APPEARANCE	
There should be no objectionable odours or discolouration of the water.	Whole Zone
Tarry residues, floating wood, articles made of glass, plastic, rubber or of any other substance should be absent.	Whole Zone
Mineral oil should not be visible on the surface. Surfactants should not give rise to a lasting foam.	Whole Zone
There should be no recognisable sewage-derived debris.	Whole Zone
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
The water should not contain substances which settle to form objectionable deposits.	Whole Zone
BACTERIA	
The level of Escherichia coli should not exceed 1 000 per 100 mL, calculated as the geometric mean of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days.	Inland waters
COLOUR	
Human activity should not cause the colour of water to exceed 50 Hazen units.	Inland Waters
DISSOLVED OXYGEN	
The level of dissolved oxygen should not fall below 4 mg per litre for 90% of the sampling occasions during the whole year; values should be calculated as the annual water column average (see Note). In addition, the concentration of dissolved oxygen should not be less than 2 mg per litre within 2 m of the seabed for 90% of the sampling occasions during the whole year.	Marine waters
The level of dissolved oxygen should not be less than 4 mg per litre.	Inland waters
pH	
The pH of the water should be within the range of 6.5–8.5 units. In addition, human activity should not cause the natural pH range to be extended by more than 0.2 unit.	Marine waters
Human activity should not cause the pH of the water to exceed the range of 6.0–9.0 units.	Inland waters
TEMPERATURE	
Human activity should not cause the daily temperature range to change by more than 2.0ºC.	Whole Zone
SALINITY	
Human activity should not cause the salinity level to change by more than 10%.	Whole Zone

WQO	Victoria Harbour (Phase 2) WCZ
SUSPENDED SOLIDS	
Human activity should neither cause the suspended solids concentration to be raised more than 30% nor give rise to accumulation of suspended solids which may adversely affect aquatic communities.	Marine waters
Human activity should not cause the annual median of suspended solids to exceed 25 mg per litre.	Inland waters
AMMONIA	
The un-ionized ammoniacal nitrogen level should not be more than 0.021 mg per litre, calculated as the annual average (arithmetic mean).	Whole Zone
NUTRIENTS	
Nutrients should not be present in quantities sufficient to cause excessive or nuisance growth of algae or other aquatic plants.	Marine waters
Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.4 mg per litre, expressed as annual water column average (see Note).	Marine waters
5-DAY BIOCHEMICAL OXYGEN DEMAND	
The 5-day biochemical oxygen demand should not exceed 5 mg per litre.	Inland waters
CHEMICAL OXYGEN DEMAND	
The chemical oxygen demand should not exceed 30 mg per litre.	Inland waters
TOXIC SUBSTANCES	
Toxic substances in the water should not attain such level as to produce significant toxic, carcinogenic, mutagenic or teratogenic 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
Human activity should not cause a risk to any beneficial use of the aquatic environment.	Whole Zone

Source:
[1] Statement of Water Quality Objectives (Victoria Harbour (Phase Two) Water Control Zone), (Cap. 358, section 5), https://www.elegislation.gov.hk/hk/cap358AR, Last checked 3rd Apr 2025.

6.2.2 In addition to establishing WQOs, the WPCO regulates effluent discharges into Water Control Zones (WCZs) through a licensing system. A Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) has been issued under the WPCO, providing guidance on permissible effluent discharges based on the type of receiving waters (foul sewers, inland waters, marine waters, inshore waters, and coastal waters) and flow rates. These limits control the physical, chemical, and microbial quality of effluents. Sewage generated from the proposed construction activities must comply with the TM standards for effluent discharge. It is important to note that new effluents in typhoon shelters are not permitted according to TM-DSS.

6.2.3 A practice note (PN) for professional persons was issued by the EPD to provide environmental guidelines for handling and disposal of construction site discharges. The (ProPECC) "Construction Site Drainage" PN (2/24) provides good practice guidelines for dealing with various types of discharge from a construction site. Practices outlined in the PN should be followed as far as possible during construction to minimize the water quality impact due to construction site drainage.

6.3 Water Quality Sensitive Receivers

6.3.1 The Water Quality Sensitive Receivers (WSRs) within the 500m assessment boundary are illustrated in **Figure 6-1**.

6.3.2 Kowloon Bay (WSR01), which fall into Victoria Harbour WCZ, is located about 20m to the east of the Site. In addition, the To Kwa Wan Typhoon Shelter (WSR02) is also within the 500m assessment area from the site boundary.

Table 6-2 List of Representative Water Quality Sensitive Receivers

WSR ID	Description	Status	Approximate Distance to Site (m)
	Victoria Harbour (Phase 2) WCZ		
WSR01	Kowloon Bay	Active	20
WSR01	To Kwa Wan Typhoon Shelter	Active	350

6.3.3 Although there is no direct connection between the site and the nearby WSRs, which are separated by Hoi Sham Park, potential water quality impacts may arise from stormwater runoff during the construction phase. Additionally, the water drainage system near the site could transport pollutants, such as suspended solids and chemicals, to the receiving waters.

6.3.4 For operation phase, all water should be discharged through the public drainage and sewerage system that have been addressed in separate reports (Drainage Impact Assessment and Sewerage Impact Assessment).

6.4 Impact Identification & Evaluation

6.4.1 The potential sources of water quality impact associated with the Proposed Development have been identified. They include construction site surface runoff, sewage generated from construction staff, and accidental leakage of chemicals.

Construction Site Surface Runoff

6.4.2 Construction site surface runoff has the potential to carry pollutants into nearby water drainage systems, which can result in increased concentrations of suspended solids and other pollutants (such as metals and organics) in receiving waters. This runoff can also lead to the blockage of stormwater drains. However, if the mitigations proposed in **Section 6.5** are properly implemented, the impact is anticipated to be insignificant.

6.4.3 According to the Stormwater Drainage Manual Corrigendum No. 1/2022, the extreme sea level with a return period of 50 years at the end of the 21st century is projected to reach 4.51 mPD during extreme storm surge events[15]. It is worth noting that the playgrounds in Hoi Sham Park adjoining the Site are located at 4.9 mPD, and the roads surrounding the Site fall within the range of 4.9 mPD to 5.5 mPD. Consequently, it is unlikely that flooding will occur at the Site or its surrounding area due to increased sea level, based on the current projections.

Sewage Generated from Construction Staff

6.4.4 Sewage generated from construction staff may pollute the groundwater if not properly collected. Chemical toilets should be provided and regularly maintained by licensed contractors. This can ensure that the sewage is delivered offsite for treatment before discharge and the capacity is always sufficient.

Accidental Leakage of Chemicals

6.4.5 Chemicals, such as fuel and lubricating oil for PME, may be stored and used onsite for the construction work. Accidental leakage/spillage of these chemicals may be carried down by

[15] The extreme sea level is referenced to the projected data of North Point/Quarry Bay. For return period of 50 years, the extreme sea level at North Point/Quarry Bay is 3.66mPD (design extreme sea level) + 0.47 m (climate change) + 0.08m (storm surge) + 0.24m (design allowance) = 4.51mPD

construction site runoff and deteriorate water quality in receiving waters. Nevertheless, since there should be no immerse need for chemical or oil in this Proposed Development, the quantity stored or used onsite should be limited. With proper implementation of mitigations proposed in **Section 6.5**, the impact is anticipated to be insignificant.

6.5 Mitigation Measures

6.5.1 Construction site runoff should be prevented or minimized in accordance with the guidelines stipulated in the ProPECC PN 2/24 published by the EPD, which includes but not limited to the followings:

Surface Run-off

- Sand/silt removal facilities such as sand traps, silt traps and sediment basins shall be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the WPCO. These facilities shall be properly and regularly maintained.
- Channels, earth bunds or sand bag barriers should be provided on site to direct storm-water to sand/silt removal facilities. Where necessary, perimeter channels should be provided at the Site boundary to intercept storm-runoff from outside the site. These shall be implemented in advance of construction work.
- Construction works should be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil could not be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporarily exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest/edge of excavation) to prevent storm runoff from washing across exposed soil surfaces.
- Trench digging work should be minimized and the trenches should be backfilled in short sections during wet season
- Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.
- Open stockpiles of materials on site shall be covered with tarpaulin or similar fabric during rainstorms.
- Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.

Groundwater

- Rainwater pumped out from trenches/foundation excavations, groundwater pumped out from wells, as well as groundwater seepage pumped out of subway/caverns under construction should be discharged into storm drains via silt removal facilities.

Boring and Drilling Water

- Water used in ground boring and drilling should be recirculated as far as practicable after sedimentation. The wastewater should be discharged into storm drains via silt removal facilities.

Wheel Washing Water

- Wheel washing facilities shall be provided in the construction site and all vehicles and plant shall be cleaned before they leave the site. The wastewater shall be treated by silt removal facilities and sedimentation before discharging into storm drains. The section between the wheel washing facilities and public road shall be paved to avoid site run-off from intruding public drainage system.

Wastewater from Building Construction

- Wastewater from building construction works like cleaning of works, concreting and similar activities shall not be discharged into the storm drains. The wastewater shall be treated by the silt removal facilities to remove settleable solids and pH adjustment before discharging into foul sewers.

Wastewater from Site Facility

- Provide sufficient chemical toilets with regular maintenance by licensed chemical waste collector where necessary.

Bentonite Slurries

- Bentonite slurries used in diaphragm wall and bore-pile construction should be reconditioned and reused wherever practicable. The used bentonite slurries should be disposed at the marine spoil ground with marine dumping license from EPD. The used bentonite slurries could be discharged to the public drainage system only after treated to the respective effluent standards applicable to foul sewers, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.

Licensing of Construction of Site Discharges

- All discharges into any drainage or sewerage systems, or inland or coastal waters, or into the ground (e.g. from septic tanks) are controlled under the Water Pollution Control ordinance (WPCO) (Cap. 358), except the discharge of domestic sewage into foul sewers or the discharge of unpolluted water into storm water drains or into the waters of Hong Kong. Construction site discharges are controlled under the WPCO

6.5.2 The follow mitigation measures for potential leaked oil and chemical should be applied to both construction phase and operational phase:

- Oil interceptors and/or grease trap shall be provided in the drainage system in both construction phase and operational phase. They shall be emptied regularly to prevent the release of oil and grease into water drainage system after accidental spillages. Interceptors shall have a bypass to prevent flushing during periods of heavy rain.
- All chemicals shall be stored in suitable containers which are sealable, robust and in good condition.

- Chemical storage areas shall have impermeable floor and bund-wall. The bund shall at least have a capacity of 110% of the volume of the largest container or 20% by volume of the chemical stored in the area, whichever is largest. All liquid collected within the bund shall be treated as chemical waste. Where possible, storage areas should be sheltered to prevent rainfall entering.

6.5.3 The ProPECC PN 1/23 "*Drainage Plans subject to Comments by Environmental Protection Department*" provides guidelines and practices for handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers during the operational phase. The design of site drainage and disposal of various site effluents generated within the Proposed Development should follow the relevant guidelines and practices as given in the ProPECC PN 1/23.

6.5.4 A separate Sewerage Impact Assessment (SIA) has been conducted to address potential operational impacts from the Proposed Development. Required mitigation measure, if any, have been included in the SIA for implementation.

6.6 Conclusion

6.6.1 There is natural water body such as Kowloon Bay in the vicinity of the Site. Both construction site runoff and water drainage system near the Site could carry pollutants to receiving waters. Potential water quality impact associated with the Proposed Development would be construction site runoff, sewage generated from construction staff and accidental leakage of chemicals. However, with proper implementation of mitigation measures, the impact on water quality is anticipated to be insignificant.

7 WASTE MANAGEMENT CONSIDERATION

7.1 Introduction

Background

7.1.1 In general, sustainable approaches to waste management should be adopted to produce less waste, and reuse or recover materials value from waste stream. This section identifies the quality and quantity of waste generated from construction and operation phase of the Project, and evaluates the potential waste management implications that may result from waste generated during these phases.

Legislations, Standards, and Criteria

7.1.2 The assessment has been conducted with reference to the following legislations/guidelines that are related to the handling, treatment and disposal of waste in Hong Kong, and applicable to the Project:

- Waste Disposal Ordinance (Cap. 354) (WDO)
- Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C)
- Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)
- Land (Miscellaneous Provisions) Ordinance (Cap. 28)
- Dumping at Sea Ordinance (Cap. 466)
- ADV-19 – Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers – Construction and Demolition Waste
- ADV-21 - Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers - Management framework for Disposal of Dredged/Excavated Sediment
- Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
- DEVB TCW No. 9/2011, Enhanced Control Measures for Management of Public Fill
- Guide to the Chemical Waste Control Scheme
- Monitoring of Solid Waste in Hong Kong - Waste Statistics for 2022
- Public Cleansing and Prevention of Nuisances Regulation (Cap. 132BK)
- Administrative Guidance - Management Framework for Disposal of Dredged/Excavated Sediment
- Project Administration Handbook (PAH) for Civil Engineering Works – Section 4.1.3

7.1.3 According to URA, as the Project is not considered as public works, the following legislations/guidelines are considered as not applicable to the Project:

- CEDD TC No. 11/2019, Management of Construction and Demolition Materials
- ETWB TCW No. 19/2005, Environmental Management on Construction Sites

7.1.4 Waste collection and disposal is covered by the Waste Disposal Ordinance (Cap. 354) (WDO). This provides a licensing system for the disposal of certain wastes and for the control

of certain wastes by regulation. All wastes should be properly stored and disposed in accordance with relevant waste management regulations and guidelines.

7.1.5 Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C) outlines the requirement for chemical waste handling and disposal.

7.1.6 Under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N), construction waste delivered to a landfill for disposal must not contain more than 50% by weight of inert materials. Construction waste delivered to a sorting facility for disposal must contain more than 50% by weight of inert materials, and construction waste delivered to a public fill reception facility for disposal must consist entirely of inert materials.

7.1.7 Land (Miscellaneous Provisions) Ordinance provides control on dumping at public fill reception facility.

7.1.8 Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (ADV-19) provides mitigation measures on C&D waste generation and management during the project planning and design stage as well as construction stage.

7.1.9 With reference to historical photo shown in **Appendix 8-1**, the Site has encroached into a reclaimed land. Thus, ADV-21, PAH, and Administrative Guidance - Management Framework for Disposal of Dredged/Excavated Sediment (whichever applicable) are applicable for the Project as land-based sediment is expected.

7.2 Assessment Methodology for Waste Management Implications

7.2.1 The waste management implications during the construction and operational phases shall be assessed. The objectives and methods shall include, but not limited to, the following:

(i) Identification/estimation of the types and quantities of waste arising from the Project;

(ii) Identification of disposal options and frequency for each type of waste;

(iii) Addressing impacts caused by handling (including stockpiling, labelling, packaging and storage), collection, transportation and reuse/disposal of wastes in detail and propose appropriate mitigation measures;

(iv) Adoption of waste management hierarchy with priorities towards waste avoidance, reduction, on-site or off-site reuse and recycling;

(v) Estimation of the types and quantities of wastes required to be disposed of and their disposal method; and

(vi) Assessment of the impacts on the capacity of waste collection, transfer and disposal facilities.

7.3 Waste Management for Construction Phase

Waste Types

7.3.1 The site clearance, excavation, and superstructure construction activities to be carried out for the Proposed Development would generate a variety of waste that can be divided into distinct categories based on their composition and ultimate method of disposal. The identified waste types include:

- Construction and demolition (C&D) materials, comprising inert and non-inert materials, from the demolition and construction works;
- Land-based sediment arising from the excavation works of the Proposed Development
- Chemical waste arising from any maintenance of construction plant and equipment; and
- General refuse from the workforce

Inert and non-inert C&D Materials

7.3.2 Inert C&D Material (or public fills) includes building debris, soil, rock and concrete, should be re-used on-site as filling materials or off-site as public fill at public fill reception facilities. Non-inert C&D Material (or C&D waste) includes metal from the existing structures, wood from formwork, timber and woody materials from existing trees, equipment parts, and materials and equipment wrappings, etc., should be re-used or recycled before disposal to the landfill as a last resort.

7.3.3 Under the current notional design, the excavation works for the 2 floors of basement for the Proposed Development, including the site formation works, are expected to generate about 32,852m^3 (32,091 m^3 + 761 m^3) of inert C&D materials during construction [16,17]. To account for the quantity of C&D materials to be generated from construction of the new building, the C&D materials generation rate of 0.19 m^3 per m^2 of GFA constructed is adopted[18], with reference to the actual volume of C&D waste generated from the superstructure stage of projects that are of similar type of development. As the total GFA of the Proposed Development will be around 71,590m^2 (= 60,880m^2 + 7,610m^2 + 3,100m^2), total C&D materials from superstructure construction will be approximately 13,602m^3 (= 71,590m^2 x 0.19m^3/m^2), consisting of 12,242m^3 of inert C&D materials and 1,360m^3 of non-inert C&D materials[19]. Hence, the total amount of inert C&D materials generated by the Project is projected at 45,018m^3 (= 32,091 m^2 + 685 m^2 + 12,242m^3).

7.3.4 The volume of non-inert C&D material—such as building materials, maintenance and packaging waste—generated during site clearance and superstructure construction works is projected at 1,436m^3, which will be subject to specific construction procedures and site practices. Timber and woody materials, if encountered in site clearance, should be sent to the Yard Waste Recycling Centre in Y-park as far as possible prior to the disposal. The estimated amount of non-inert C&D material generated would be minimal with careful design, planning, good site management and control of ordering procedures, etc.

7.3.5 The estimated quantities of inert and non-inert C&D material to be generated or reused or disposed of from the construction of the Proposed Development, are presented in **Table 7-1**.

16 It is assumed that soil only exist at or above 0mPD considering the site is located at a reclaimed land. The extend of excavation above 0mPD (B1 & B2) is 5,630m^2. Therefore, the total amount of soil to be excavate is 5,630 m^2 x 5.7 m (depth) = 32,091 m^3.

17 From site observation, the average depth of soil/concrete slab/tree to be removed is 0.1m. Therefore, the volume of C&D waste during site clearance / formation is estimated to be 7610 m^2 x 0.1 m = 761 m^3. Non-inert C&D materials estimated to be 10% of the total generated.

18 Since the development at No. 42 Lei Yue Mun, Kowloon, also involves the construction of two residential towers with commercial and basement floors, it is considered comparable to that for the Project. Therefore, the waste generation rate from the BEAM PLUS Project is adopted. The Gross Floor Area (GFA) of Lei Yue Mun is 29,883 m^2, with a total C&D waste generation of 5,675 m^3. This results in a C&D waste generation rate of 0.19 m^3/m^2.

19 Non-inert C&D materials estimated to be 10% of the total generated.

Table 7-1 Estimated Quantities of C&D materials to be Generated, Reused and Disposed of

Construction Activities	Sum (m^3)	Wastes to be Reused/Recycled/disposed of (m^3)				
		Inert C&D materials		Non-inert C&D materials		
		Reused / Recycled On-Site	Reused Off-Site (a)	Reused / Recycled On-Site	Reused / Recycled Off-Site (b)	Disposed Off-Site
Excavation	32,091	8,000	24,091	0	0	0
Site Clearance / Formation	761	0	685	0	76	0
Superstructure Construction	13,602	0	12,242	0	136	1224
All	46,454	8,000	37,018	0	212	1,224
		45,018		1,436		
All (with 15% sensitivity test)	53,422	51,770		1,652		

Note
(a) The surplus inert C&D materials shall be delivered to Public Fill Reception Facilities for beneficial reuse in other projects, the destination of the surplus inert C&D materials is subject to the designation by the Public Fill Committee according to DEVB TC(W) No.6/2010.
(b) Non-inert C&D materials should be reused or recycled as much as possible before disposed off-site, estimated to be 10% of the total generated.

7.3.6 It is estimated that about 18% of inert C&D material to be reused on-site. The destination of the surplus inert C&D materials is subject to the designation by the Public Fill Committee according to DEVB TC(W) No.6/2010. The remaining non-recyclable non-inert C&D materials are not suitable for public fill and hence require disposal to landfill (the closest landfill is the South East New Territories (SENT) Landfill). The disposal of non-inert C&D materials at designated landfill shall be subject to agreement with the relevant section of the EPD.

Excavated Sediment

7.3.7 In addition, as the land of the Site is within a reclamation ground, approximately 32,654 m^3 of excavated sediment [20] is estimated to be generated and some of them may need to be disposed off-site from the Project subject to detailed design at a later stage. When disposal of sediment is found to be necessary during detailed design stage, Sediment Sampling and Testing Plan (SSTP) shall be submitted EPD for approval before construction commencement. The marine disposal of the sediment should be disposed in accordance to the ADV-21, PAH, and Administrative Guidance - Management Framework for Disposal of Dredged/Excavated Sediment (whichever applicable). The rationale for sediment removal must be provided to the Secretary of Marine Fill Committee (MFC) for agreement, as early as possible. The allocation of sediment disposal space at sea will not be considered until the need for removal of the sediment has first been satisfactorily demonstrated.

7.3.8 To minimize waste generation and off-site disposal, the excavated sediment should be reused on-site as fill materials, as far as practicable subject to detailed design at a later stage. The potential on-site reuse of the sediment as backfilling material during construction may be adopted after treatment of the sediment using cement stabilization/solidification. If sediment cannot be reused on-site or on alternative sites, marine dumping of sediment is required. All

[20] It is assumed that soil only exist at or above 0mPD considering the site is located at a reclaimed land. The extend of excavation below 0mPD is 5,630m^2 for B1/B2. Therefore, the total amount of sediment to be excavate is 5,630 m^2 x 5.8 m = 32,654 m^3. It is assumed that the bottom of the excavation is 1m below the target slab level.

practices for marine dumping of sediment should strictly be in accordance with Dumping at Sea Ordinance (Cap. 466).

7.3.9 For sediment dumping, the Contractor who will be undertaking the works must make a formal application to DEP for a dumping permit, in accordance to Administrative Guidance - Management Framework for Disposal of Dredged/Excavated Sediment, PAH, and ADV-21 (whichever applicable), and if the permit is granted, it will be the contractor's responsibility to ensure that the permit conditions are met to DEP's satisfaction.

Chemical Waste

7.3.10 Chemical waste, such as cleaning fluids, solvents, spent lubricants and fuel for equipment or waste battery, may be generated. As far as the scale of the works is small, the quantity of chemical waste generated would be minimal. It is expected that the approximate quantity of the lubrication oil is about 40L/month and hence approximately 2.4 m^3 of chemical waste will be generated during construction period of 60 months (general assumption of construction time for URA redevelopment projects adopted). A licensed chemical waste collector should be employed to collect and dispose of the chemical waste. Furthermore, the chemical waste should be handled in accordance with relevant guidelines and legislations, e.g., the *Waste Disposal (Chemical Waste)(General) Regulation*. The Works Contractor should register as a Chemical Waste Producer under the WDO.

7.3.11 No hazardous materials or hazardous wastes are expected to be generated during the construction of the Site.

General Refuse

7.3.12 General refuse such as food scraps, waste paper, empty containers, etc., would be generated from construction workforce during construction phase.

7.3.13 The maximum number of construction workers to be employed will be approximately 50 workers per day. The daily arising of general refuse from the construction workforce can be estimated based on a generation rate of 0.65kg per worker per day, the estimated quantity of the general refuse is 32.5kg (= 50 workers x 0.65kg/worker/day).

7.3.14 Such refuse should be properly managed so intentional or accidental release to the surrounding environment does not occur. If the general refuse is recyclable, such as food scraps, paper, plastics and aluminum materials, the reuse and recycling of such waste is encouraged. Effective collection of site wastes such as providing enclosed bins or compaction units would be required to prevent waste materials being blown around by wind, flushed or leached into nearby waters, or creating an odour nuisance or pest and vermin problem. Waste storage areas should be well maintained and cleaned regularly. As food waste is the main source of generating unpleasant odour and causing environmental hygiene concerns. Food waste shall be considered as recyclables and separated from other wastes to facilitate the recycling of food waste on-site or off-site. It is also recommended that yard waste shall be separated from C&D material for recycling through delivered to Y-park so as to minimise the quantity of waste to be disposed at landfill site.

7.3.15 With the implementation of good waste management practices as suggested in **Section 7.3.24** at the Site, adverse environmental impacts are not expected to arise from the storage, handling and transportation of general refuse generated by construction workers.

Mitigation Measures

7.3.16 Prior to the commencement of the construction works, the contractor will identify the types and amount of waste generated, and handle, store, collect and dispose waste in accordance with Waste Disposal Ordinance (Cap. 354). The associated mitigation measures and good site practice should be implemented as follows:

C&D Materials

7.3.17 In general, minimization/reuse/recycling of C&D materials (i.e. both inert and non-inert C&D materials) should be considered prior to disposal. Good Site Practices and Waste Reduction Measures should be adopted during construction phase, measures may include:

- On-site sorting of C&D materials;
- Recycling and reuse of excavated materials for on-site filling materials;
- Avoidance and minimization to reduce the potential quantity of C&D materials generated;
- Reuse of materials as practical as possible;
- Recovery and Recycling as practical as possible; and
- Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse, recycling, public cleanliness and obstruction offences.

7.3.18 The contractor should submit a Waste Management Plan (the Plan) to the project proponent for agreement, covering the types of waste and their estimated quantities, timing of waste arising; measures for reducing waste generation etc. as recommended in Section 3 of ADV-19. This ensures that appropriate measures are in place to effectively manage the significant amount of C&D material generated by the project.

7.3.19 Waste storage should be performed by contractor prior to disposal. Stockpiling and segregating areas should be provided at site. Effective collection of site wastes would be required to prevent waste materials being blown around by wind, flushed or leached into nearby waters, or creating an odour nuisance or pest and vermin problems. Waste storage areas should be well maintained and cleaned regularly.

7.3.20 During inclement weather (e.g. heavy rainstorm), the stockpile should be covered by tarpaulin or other water-resistant fabric. This can prevent dust and waste from being blown away by wind or washed into watercourses/drainage system.

7.3.21 Excavated C&D materials should be reused as far as possible. Excavated materials will firstly be backfilled on-site during site formation. The remaining surplus excavated materials are from inert C&D materials and hence disposed to public fill reception facilities. Dewatering on excavated materials is required prior to disposal.

7.3.22 Segregating areas are required for on-site sorting of C&D materials. Contaminants like chemical waste can also be removed through sorting of C&D materials. After grouping C&D materials into inert and non-inert waste, the sorted materials should be stored in storage area. To facilitate recycling and reuse, on-site breaking of inert C&D materials into small pieces will be conducted prior to public fill reception facilities. Subject to recovery of reusable/recyclable items, disposal of non-inert C&D material at landfills will be served as last resort.

7.3.23 To reduce impacts generated from transportation of C&D materials for off-site disposal, the C&D materials would be recycled and reused on-site as practical as possible. In addition, overloading is strictly prohibited. Mechanical covers should be present in the transportation vehicles for an entire cover of C&D materials, especially dusty materials. Vehicle bodies and wheels should be thoroughly washed before leaving construction sites. Nevertheless, the C&D materials shall be exported on a regular basis to minimise dust and other potential impacts on the surrounding environment due to the transportation of C&D materials. In order to monitor the disposal of C&D material and solid wastes at public fill reception facilities and landfills and to control fly-tipping, a trip-ticket system should be included.

General Refuse

7.3.24 General refuse should be stored in enclosed bins or compaction units separate from C&D materials. 3-color recycle bins for the collection of recyclable municipal waste should also be provided. A reputable waste collector should be employed by the contractor to remove or recycle general refuse from the Site, separately from C&D materials. It is proposed that collection of general refuse should be carried out at least once per day. Preferably an enclosed and covered area should be provided to reduce the occurrence of "wind-blown" light materials.

Chemical Waste

7.3.25 If chemical waste is produced at the construction site, the contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines and the relevant legislations, e.g. the *Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C).* Chemical waste should be stored in appropriate containers. The Contractor should employ a licensed chemical waste collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre (CWTC) in Tsing Yi, or any other licensed facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. The chemical waste management measures should include, but not limited to the following:

- Minimize the production of Chemical Waste
- Registration of Chemical Waste Producers with EPD should be carried out for any person who produces chemical waste
- Give notification of certain Chemical Waste for Disposal to EPD as required in *Section 4 of the Regulation & Section 17 of the Ordinance*
- Carry out Packaging, Labelling and Storage of Chemical Wastes as per *Sections 9 to 19 of the Regulation*
- Collection of Chemical Waste and the "Trip Ticket" System as per *Sections 20 to 29 of the Regulation*
- Precautions Against Dangers from Spillages, Leakages or Accidents involving Chemical Waste as per *Sections 30 to 32 of the Regulation*

7.3.26 Provided that good site practices are strictly followed, there would be no adverse impacts related to waste management during construction phase.

7.4 Waste Management for Operation Phase

7.4.1 Domestic wastes will be expected as the major type of waste from the development, including food residues, plastic, metal products, paper. Additionally, commercial waste, i.e. food waste from restaurant and packaging waste from retail, may arise from the development. No chemical or hazardous waste is anticipated, including waste generated during the

operation and maintenance of the equipment and facilities. Wastes generated will be collected and disposed of on a regular basis. Building management will be arranged by the future owners to manage the development including waste disposal.

7.4.2 The domestic waste will be collected (at the refuse collection point) and regularly disposed of at landfill or regularly collected by recyclers, waste recycling would be carried out during operation phase. To minimize waste generation and promote recycling, it is recommended to implement source separation of domestic waste in the Proposed Development. This should include separate collection for waste paper, metals, plastics, and glass. Provision of 3-color recycle bin is encouraged to facilitate source separation of domestic wastes. Additionally, during the detailed design stage, the possibility of implementing additional separation measures for food waste, i.e. provision of food waste recycling bins, and sending the collected food waste to O · PARK should be explored.

7.4.3 Based on the anticipated population intake for the Proposed Development, which is projected to be 2924 and will be further refined during the detailed design stage, it is estimated that approximately 2719 kg per day (= 2924 persons x 0.93kg/person/day[21]) of general refuse will be generated during the operation phase. With the proper implementation of the control measures, adverse impacts due to waste management will not be anticipated.

7.5 Hierarchy of Waste Management

7.5.1 Waste management options would be adopted and exercised in accordance with a hierarchy in order to reduce and manage waste. The hierarchy of waste management and relevant recommendations provided for the construction and operation phases of the Proposed Development are summarized in **Table 7-2**.

Table 7-2 Hierarchy of Waste Management

Order of Preference	Waste Management	Construction Phase	Operation Phase
1	Avoidance and Minimization	• The potential quantity of C&D materials, general refuse and chemical waste generated, should be reduced and minimized. • Alternative design, general layout, construction methods and programme would be considered and further studied in the subsequent detailed design stage.	• Promote waste reduction in the community.
2	Reuse	• Inert C&D Material, including construction debris, soil, rock and concrete, should be re-used on-site as filling materials or off-site as public fill at public fill reception facilities.	N/A
3	Recovery and Recycling	• Non-inert C&D Material, including metal from the existing structures, wood from formwork, equipment parts, and materials and equipment wrappings, should be re-used or recycled; • General refuse, such as paper, plastics and aluminium materials, should be re-used or recycled. 3-color recycle bins and a	• Implement source separation of domestic waste to facilitate recycling. • Provision of 3-color recycling bins and food waste recycling bins to facilitate waste recycling.

[21] The domestic waste disposal rate of 0.93 kg/person/day is adopted according to the latest Monitoring of Solid Waste in Hong Kong (i.e. waste statistics 2022)

Order of Preference	Waste Management	Construction Phase	Operation Phase
		reputable waste collector are provided and employed respectively to enhance recycling.	
4	Treatment and Disposal	• C&D waste will be sorted on-site to separate inert and non-inert C&D waste. Inert C&D waste will firstly be reused as backfill materials. The surplus inert C&D materials is sent to public fill. The non-inert C&D waste, subject to recovery of reusable/recyclable items, will be disposed at landfills. • With absence of sufficient information, excavated sediments should be chemically and biologically tested and classified prior to marine dumping. • Chemical waste should be treated and disposed at licensed facilities. "Trip-ticket" must be provided throughout all movements for records; • General refuse is disposed by a reputable waste collector.	• General refuse and commercial waste are disposed by a reputable waste collector.

7.6 Conclusion

7.6.1 A variety of wastes including inert C&D material, C&D waste, chemical waste, excavated sediment, and general refuse would be generated during the construction phase and domestic waste and commercial waste would be generated during operation phase. Provided that the wastes generated would be managed with appropriate measures, no adverse environmental impacts arising from the handling, storage, transportation or disposal of the wastes generated during the construction and operation stage of the Proposed Development would be envisaged.

8 POTENTIAL LAND CONTAMINATION

8.1 Introduction

8.1.1 This chapter identifies and evaluates any potential land contamination impact within the Site boundary of the Proposed Development. Preliminary assessment has been conducted with reference to the applicable legislation and guidelines.

8.2 Legislations, Standards & Guidelines

8.2.1 Legislations and guidelines related to land contamination are given below:

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

Potential Land Contamination Impact

8.2.2 According to GN, EIAO-TM Annex 19 and PG, A number of industries have been identified as having potential for causing land contamination. These include among others:

- Boat / ship building or repairing works
- Chemical manufacturing / processing plants, dangerous goods stores
- Concrete and asphalt production
- Golf courses
- Motor vehicle / equipment depot, repairing, service centres
- Open area storage
- Petroleum products and coal industrial operations (including gas works)
- Oil installations, including oil depots and petrol filling stations
- Power plants, individual power generation units
- Scrap yards
- Steel mills / metal workshops
- Waste recycling workshops
- Dumping ground and landfill
- Car repairing/dismantling workshops

8.3 Assessment Methodology

8.3.1 With reference to the PG, Site Appraisal shall be carried out to assess the land contamination potential via the following methods for the preliminary assessment:

- Review of available historical and recent aerial photos
- Inquiry with the EPD and Fire Services Department (FSD) on potential land contamination issues in past years
- Site inspection at Site and surrounding area for identifying any potential land contamination land use and activity

- The Sites shall be re-appraised and site walkover(s) shall be carried out upon land resumption. The findings shall be reported in the detailed Land Contamination Assessment and Remediation (if needed), which should be completed with reference to the prevailing guidelines on land contamination assessment prior to the development of the Sites.

8.4 Site Appraisal

Aerial Photos

8.4.1 Aerial photos between 1945, the first available year, and 2022, the latest available year, were inspected at the Map and Aerial Photograph Library of the Lands Department. Aerial photos overlaid with the Site boundary is provided in **Appendix 8-1**. The land use history of the Sites is summarised in **Table 8-1** as below:

Table 8-1 Historical Land Use

Year	Photo No./ Reference	Observations	Assumed Major Land Use of the Site
1945	1945_681_5-4151	The entire Site was an aera belonging to the habour located to the East of To Kwa Wan. To the west of the Site in To Kwa Wan area, main road and loose building were identified.	N/A
1954	1954_V81A_547-0011	There is no change of the Site compared to year 1945. Increase number of buildings were recorded at To Kwa Wan, which is the west of the Site.	N/A
1967	1967_1967-5570	There is no change of the Site compared to year 1954. Dense buildings were recorded at To Kwa Wan, which is to the West of the Site.	N/A
1980	1980_30071	The Site is under reclamation. No significant change was recorded to the surrounding areas.	N/A
1984	1984_54030	Car parking activity was recorded at the Site. No significant change was recorded to the surrounding areas.	Car Park, Vacant Land
1991	1991_A25178	Car parking activity was recorded at the Site. Vegetation was identified in the middle of the Site. Numerous boats were identified to the East of Site along the coast. Commercial building, APB Centre, was recorded to the South of Site.	Car Park, Vacant Land
2001	2001_CW34825	The major land use in the northern part of the Site is car parking, while the southern part was used for the temporary storage of construction materials. No boats were recorded to the east of the Site along the coast, and barren land is observed to the west of the Site.	Car Park / Temporary Storage
2015	2015_CW117590	Barren land was recorded at the Site. Two schools, namely, Po Leung Kuk Ngan Po Ling College and The Church of Christ in China Kei To Secondary School, were recorded to the West of Site.	Vacant Land
2018	2018_E051198C	There is no change of the Site compared to year 2015. Another new school, Chi Yun School, was recorded to the North of Site.	Car Park
2022	2022_E15800C	There is no change recorded for the Site. However, a construction site is located to east of the Site.	Car Park

8.4.2 The review of historical land use from aerial photos has indicated that the major land use of the Sites from 1945 – 2022, are either undeveloped sea area used for open-air car parking uses. Based on findings from the historical land use, no off-site potential land contamination issue is identified.

8.4.3 Apart from aerial photos, the historical records[22] show that the Bailey's shipyard was identified in the vicinity of the Project Site. However, the shipyard had ceased operation before 1960. The land was then transformed into residential development across Ngan Hon Street, Hung Fok Street and Kai Ming Street, which are about 200m from the Project Site. Since it was far away from the Project Site, i.e. 200m, and the following major land use was residential land, hence, potential land contamination is not anticipated. The approximate locations for the Bailey's shipyard & ship cradle, and their distances to the Site are illustrated in **Appendix 8-1** (1945).

Site Visit

8.4.4 Desktop study on previous land uses within and in the vicinity of the Site has been conducted prior to site visit. Site inspection was conducted on March 2024 and reviewed on June 2025, which covered assessment areas, namely, the existing temporary open-air car parking lot within the Site, Pigging Station, and To Kwa Wan PTW surrounding the Site. A supplementary site appraisal will be conducted after the land handover for this project prior to carrying out construction works or development of Site.

8.4.5 A temporary open-air parking lot that was still in operation had been identified within the Site. During the site visit, fully concrete paved ground was identified without any crack or fissure. No sign of chemical leakage was recorded. Although a small proportion of black surface was observed on the ground, which was believed to be resulted from vehicle traction between wheel and ground surface over time, no potential land contamination activity as stated in **Section 8.2.2**, i.e. vehicle repair/maintenance, was observed at the Site. Given that no potential contaminated land types or activities was recorded and favourable ground condition, potential land contamination is not anticipated. If necessary, further site appraisal and soil sampling may be conducted to determine whether the site is contaminated, and, if so, the extent of the potential contamination, at the subsequent project implementation stage. The Site walkover checklist according to the Annex C1 of PG is attached in **Appendix 8-4**.

8.4.6 To Kwa Wan Pigging Station is next to the Site. During the site visit, the Pigging Station was not in operation. In addition, pigging station only performs regular inspection and cleaning in completely sealed submarine gas pipelines with the aid of PIG. No leakage of gas occurs. Additionally, no chemical storage is found in Pigging Station. Hence, no off-site potential land contamination from To Kwa Wan Pigging Station is anticipated.

8.4.7 Also, Sewage Treatment Plant is located to the South-east of the Site. During the site visit, no cracks or fissures were identified on the fully paved ground. No oil marks or stains were identified. Furthermore, no chemical storage was identified. Thus, no off-site land contamination potential from Sewage Treatment Plant is expected.

8.4.8 In conclusion, during site visit, although a car parking is recorded within the Site, none of industrial/commercial activity, i.e., vehicle maintenance, is identified. Additionally, the ground condition for the parking lot is considered ideal with no sign of contamination. On top of that, no off-site land contamination issue arises from surrounding land use. Hence,

[22] https://gwulo.com/node/50049#17~22.31374~114.18809~Map_by_GovHK-Markers~100

land contamination potential on the Site is not anticipated. The detailed photo records of site visit are provided in **Appendix 8-3**.

8.5 Site Geology & Hydrogeology

8.5.1 According to Geology of Hong Kong Island and Kowloon (1986), extensive and flat alluvial tracts was recorded at boundary of Kowloon Bay Reclamation, where the Site is located. The alluvial valley at Ho Man Tin, East of the Site, is now covered by fill.

8.6 Inquiry with EPD & FSD

8.6.1 Information was requested from FSD and EPD's Regional Office (East) on the history of operation and land use of the sites. The EPD was consulted with regard to any records of chemical waste producer (CWP). The FSD was consulted with regard to any records of dangerous good (GD) license(s). Both departments were also inquired on any reported accidents or spillage/leakage incidents within the three areas of concern. The correspondences from EPD and FSD are documented in **Appendix 8-2**.

8.6.2 **Table 8-2** below shows the summary of the responses from Government Departments.

Table 8-2 Summary of Response from Government Departments

Government Department	Response
Environmental Protection Department Regional Office (East)	No record of reported accidents of spillage / leakage of chemicals at or near the concerned sites.
Fire Services Department	No record of reported accidents of spillage / leakage of dangerous goods / fire incidents at or near the concerned sites. No DG license within the sites and storages with DG license near the sites have been identified.

8.6.3 The record of CWP was requested from EPD for inspection, and the registry was inspected on 28th March 2023 at EPD's office. No CPW is identified within the Site. The valid CWPs recorded in the registry in the vicinity of Site are summarised in the **Table 8-3**.

Table 8-3 Recorded Chemical Waste Producers in the Vicinity of Site

Licensee Name	Status	Premises Address	Nature of Business
Department of Health	Valid	5/F, Kowloon City Health Centre, Kowloon City Government Offices, 42 Bailey Street, Kowloon	Dispensary
Department of Health	Valid	4/F, Kowloon City Health Centre, Kowloon City Government Offices, 42 Bailey Street, Kowloon	Clinic
Department of Health	Valid	3/F, Kowloon City Health Centre, Kowloon City Government Offices, 42 Bailey Street, Kowloon	Dental Service

Licensee Name	Status	Premises Address	Nature of Business
Department of Health	Valid	5/F, Kowloon City Health Centre, Kowloon City Government Offices, 42 Bailey Street, Kowloon	Dispensary
Wilson Parking (Holdings) Limited	Valid	1/F, Peninsula Square, 18 Sung On Street, Hung Hom, Kowloon	Carpark management & operator security guard service
Gary Cleaning and Services Company Limited	Valid	1/F, Peninsula Square, 18 Sung On Street, Hung Hom, Kowloon	Cleaning services
The Church of Christ in China Kei To Secondary School	Valid	28 Sung On Street, To Kwa Wan, Kowloon, Hong Kong	Teaching Laboratory
Po Leung Kuk Ngan Po Ling College	Valid	26 Sung On Street, To Kwa Wan, Kowloon, Hong Kong	Teaching Laboratory
Chi Yun School	Valid	13 Chi Kiang Street, To Kwa Wan, Kowloon	Special schools for the handicapped and mentally retarded

8.6.4 For records of DG license, no DG license was identified within the Site. Storages of DG license in the vicinity of the Site are recorded and summarised in **Table 8-4**.

Table 8-4 Recorded Dangerous Goods License in the Vicinity of Site

Type of DG	Quantity	Storage Location	Cancel (Y/N)
Acetylene	10 cylinders	No. 18-24 Wan On Street, Hung Hom	Y
Oxygen	10 cylinders		Y
Kerosene	400 litres	No. 38 Wing Kwong Street, Hung Hom	Y
Thinner	338 litres	No. 3 Hok Yuen Street East, Hung Hom	Y
Rubber Solution	338 litres		
Petroleum Spirit	338 litres		
Lacquer	338 litres		

8.6.5 Base on the CWP records, there is no CWP within the Site area. Although eight CWPs are recorded, most of CWPs are not on the ground floor. Land contamination issue is unlikely to arise from upper floors. Hence, off-site land contamination potential from CWP is not expected.

8.6.6 Based on the records of DG license, there is no DG license within the Sites. However, three DG licenses have been identified at No. 18-24 Wan On Street, No. 38 Wing Kwong Street, and No. 3 Hok Yuen Street East, which are 213, 239, and 144 metre from the closest point of Site boundary respectively. Since there is certain distance, i.e., more than 140 meters, between the shop containing DG licence and the Site, off-site land contamination potential is not expected.

8.7 Conclusion

8.7.1 The available information from aerial photos, site inspections, and records from authorities are gathered for a preliminary assessment of land contamination for the Site area and its surroundings. Based on findings from historical land use and existing uses, enquiry with the relevant government departments, and site conditions identified during site visits, potential land contamination is unlikely to arise from the previous activities in the Site.

9 CONCLUSION

9.1.1 An Environmental Assessment has been carried out to evaluate the potential environmental benefits and impacts likely to arise from the Proposed Development. The key environmental issues associated with the Proposed Development are construction dust impact, construction noise impact and waste management during the construction phase; as well as potential air quality, hazard to life and noise impact during the operational phase.

Air Quality

9.1.2 With the implementation of dust suppression measures stipulated under the Air Pollution Control (Construction Dust) Regulation and the adoption of good site practice, no adverse air quality impact associated with the construction works is expected.

9.1.3 Air emissions are not anticipated from the Proposed Development during the operational phase. A desktop study and on-site observations have been conducted to identify potential odour impacts arising from the TKWPTW. Given the high odour removal efficiency of the deodorization units, it is concluded that no adverse odour impact is expected from the TKWPTW, provided that the deodorization units are functioning properly.

9.1.4 An air quality model approach based on the current notional design has been adopted. The model results indicate that the predicted air quality at all proposed residential flats and the external facades of non-residential areas fully comply with the AQOs. Therefore, no adverse air quality impact during the operation of the Proposed Development is anticipated.

Hazard to Life

9.1.5 The TKWPS consists of an instrument room and the associated above ground and underground pipes. The whole TKWPS is fenced off by a 3m high boundary concrete wall with an area about 662 m^2. The TKWPS consists of minimum length of aboveground pipework while that other pipework is built below ground. According to the international standards, minimum 3m setback to the boundary of TKWPS is allowed for the pipework. During normal operation, the pigging facilities is isolated from the pipelines in standby mode. There is no storage of any town gas in the TKWPS. It is not classified as PHI in accordance with the HKPSG. There is no record of incidence for all pigging stations in Hong Kong since they started operation in early 70's by HKCG.

9.1.6 Qualitative risk assessment of failure of the pigging station is found to be low based on different failure causes. Based on the QRA for supporting the hazard to life section of EIA study undertaken by HKCG, the offsite individual risk of the TKWPS is estimated to be $1x10^{-7}$ per year which is much lower than the maximum offsite individual risk criteria of $1x10^{-5}$ per year as stipulated in the Hong Kong risk guidelines. The societal risk falls within the "ACCEPTABLE" region of the risk guidelines that already taken into account all the existing and planned population groups near the TKWPS, including the planned school developments in the Project Site. Since the societal risk level for the Proposed Development would not be worse than the planned school development, the conclusion made in the QRA study would valid for the Proposed Development.

9.1.7 To sum up, the rezoning of G/IC site from the planned school development to the proposed high-rise residential development would not leading to any unacceptable risk due to the TKW Pigging Station.

Noise

9.1.8 The overall noise impact during the construction phase is considered insignificant. Mitigation measures shall be implemented in accordance with ProPECC PN 1/24 during construction to minimize construction noise impact on the nearby NSRs.

9.1.9 Traffic noise impact has been taken into consideration when designing the notional layout of the residential development. The view angle from the windows to the road traffic has been minimized by buildings disposition, buildings orientation and windows locations. In the base scenario, ~94.3% of flats comply with the 70 dB(A) traffic noise assessment criterion as demonstrated. In the mitigated scenario where acoustic window and acoustic balcony are incorporated into the Proposed Development, the compliance rate by flat has been increased to ~99.7%. Given the notional design is at planning stage, which is subjected to detailed design upon CE in C's approval of the proposed rezoning, the current assessment is based on a notional design and its anticipated result, of which baffle type acoustic window and acoustic balcony have been adopted to achieve the noise compliance level. It should be noted that the actual layout in the future Proposed Development will be subject to detailed design, site constraints and feasibility.

9.1.10 A preliminary study of fixed noise sources is conducted based on the existing situation and the available information for planned developments. The results suggest that no adverse fixed noise impact is anticipated from existing environment to the Proposed Development. Additionally, the planned fixed noise source from the Proposed Development should not induce any adverse noise impact to the vicinity of Site when the maximum allowable SWLs is implemented appropriately.

Water Quality

9.1.11 There is natural water body such as Kowloon Bay in the vicinity of the Site. Both construction site runoff and water drainage system near the Site could carry pollutants to receiving waters. Potential water quality impact associated with the Proposed Development would be construction site runoff, sewage generated from construction staff and accidental leakage of chemicals. However, with proper implementation of mitigation measures, the impact on water quality is anticipated to be insignificant.

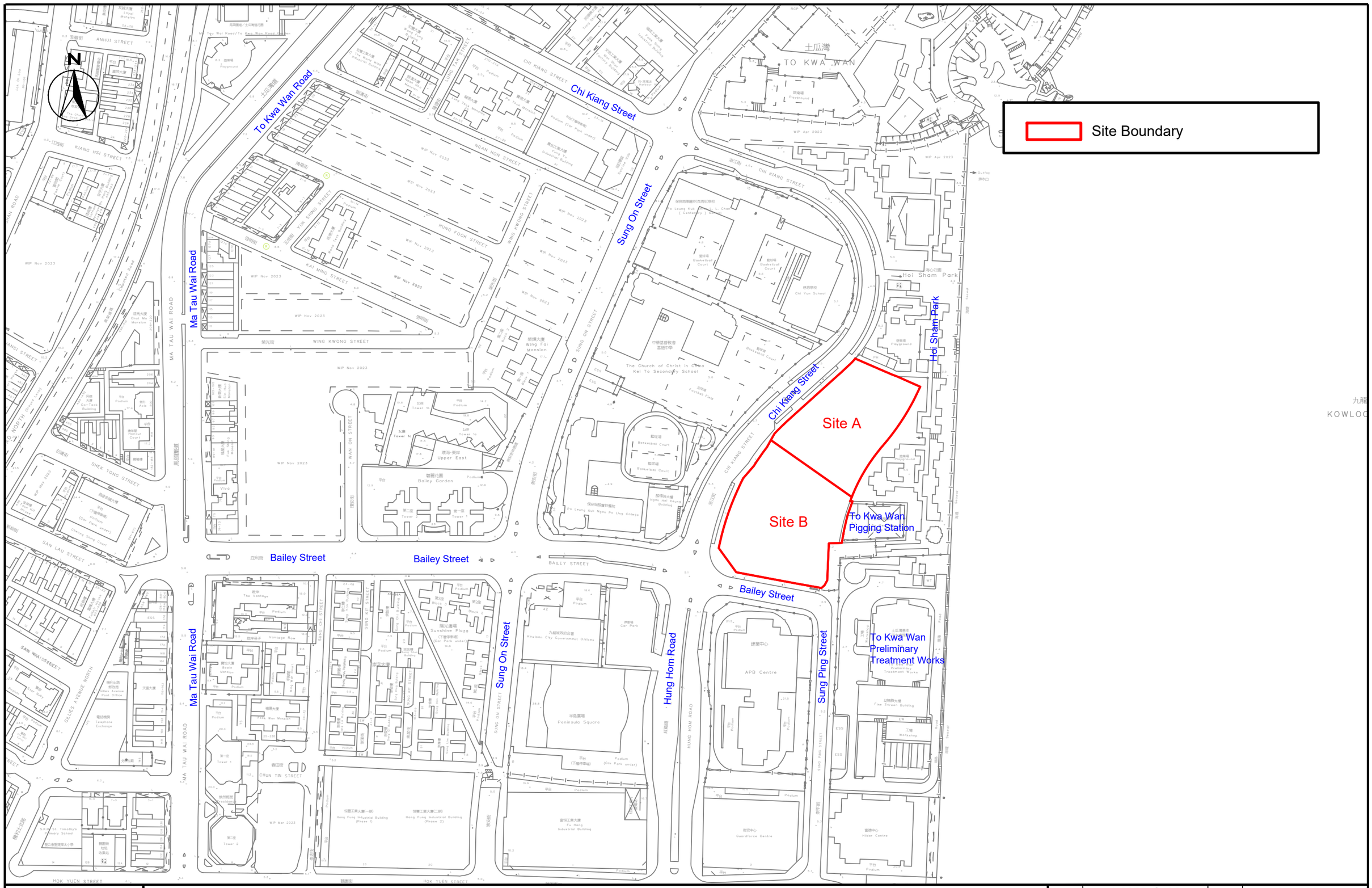
Waste Management

9.1.12 A variety of wastes including inert and non-inert C&D material and waste, chemical waste, excavated sediment, general refuse would be generated during the construction phase and domestic waste and commercial waste would be generated during operation phase. Provided that the wastes generated would be managed with appropriate measures, no adverse environmental impacts arising from the handling, storage, transportation or disposal of the wastes generated during the construction and operation stage of the Proposed Development would be envisaged.

Land Contamination

9.1.13 The available information from aerial photos, site inspections, and records from authorities are gathered for a preliminary assessment of land contamination for the Site area and its surroundings. Based on findings from historical land use and existing uses, enquiry with the relevant government departments, and site conditions identified during site visits, potential land contamination is unlikely to arise from the previous activities in the Site.

FIGURES



CINOTECH
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Proposed Residential Development in Bailey Street, Kowloon City District

Location Plan

SCALE	1:2000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	2-1
		REV	-

Site Boundary

Site A

Site B

G/IC

The Church of Christ in China Kei To Secondary School

Po Leung Kuk Ngan Po Ling College

Ngan Hon Keung Building

To Kwa Wan Pigging Station

Kowloon City Government Offices

APB Centre

To Kwa Wan Preliminary Treatment Works

Fine Screen Building

Workshop

Workshop

Peninsula Square

Block 2 Wing Fai Mansion Block 1

Sung On Street Sitting-out Area

CHI KANG STREET

SUNG ON STREET

BAILEY STREET

HUNG HOM ROAD

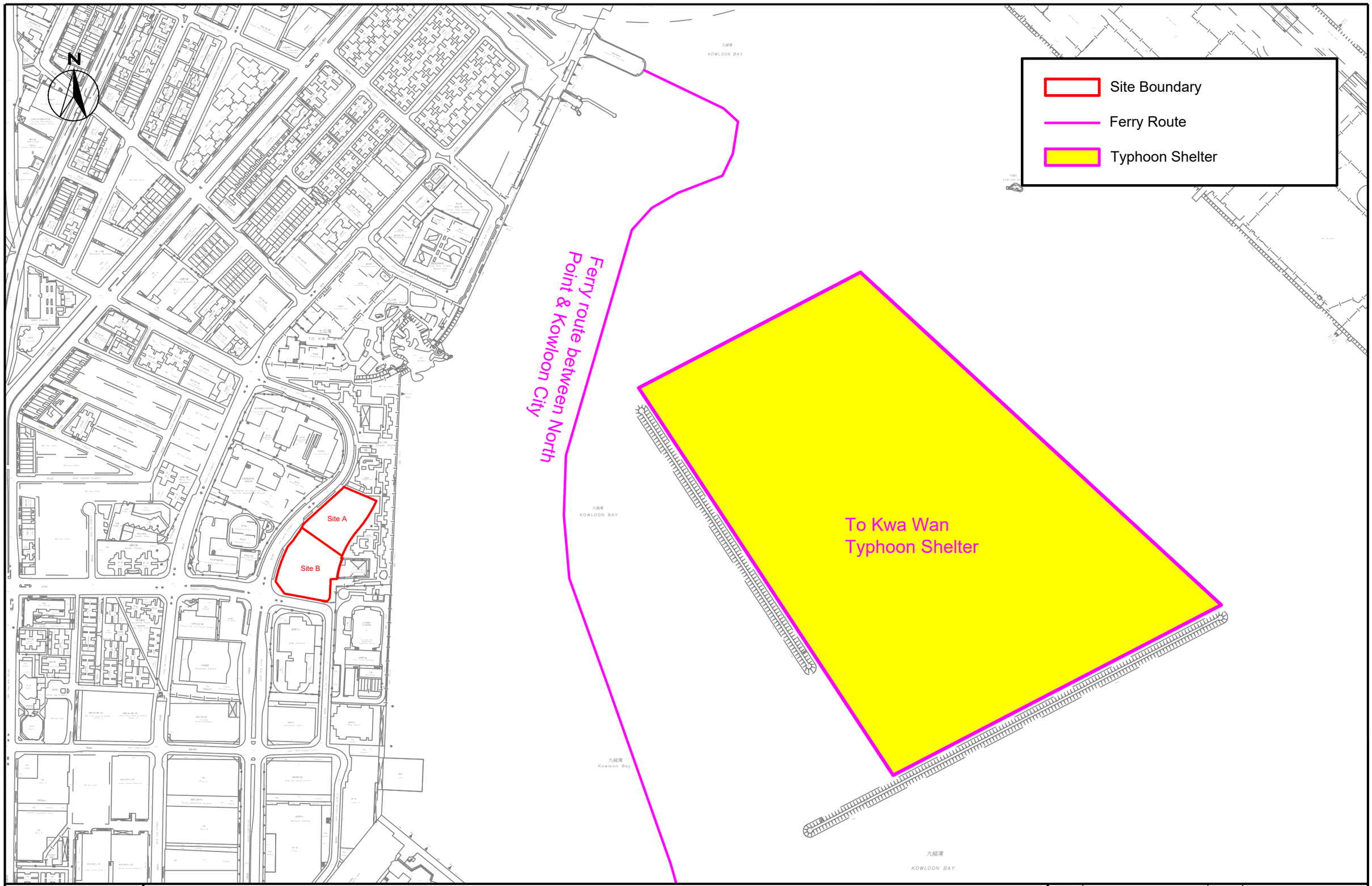
Seawall

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Proposed Residential Development in Bailey Street, Kowloon City District

Outline Zoning Plan

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	2-2
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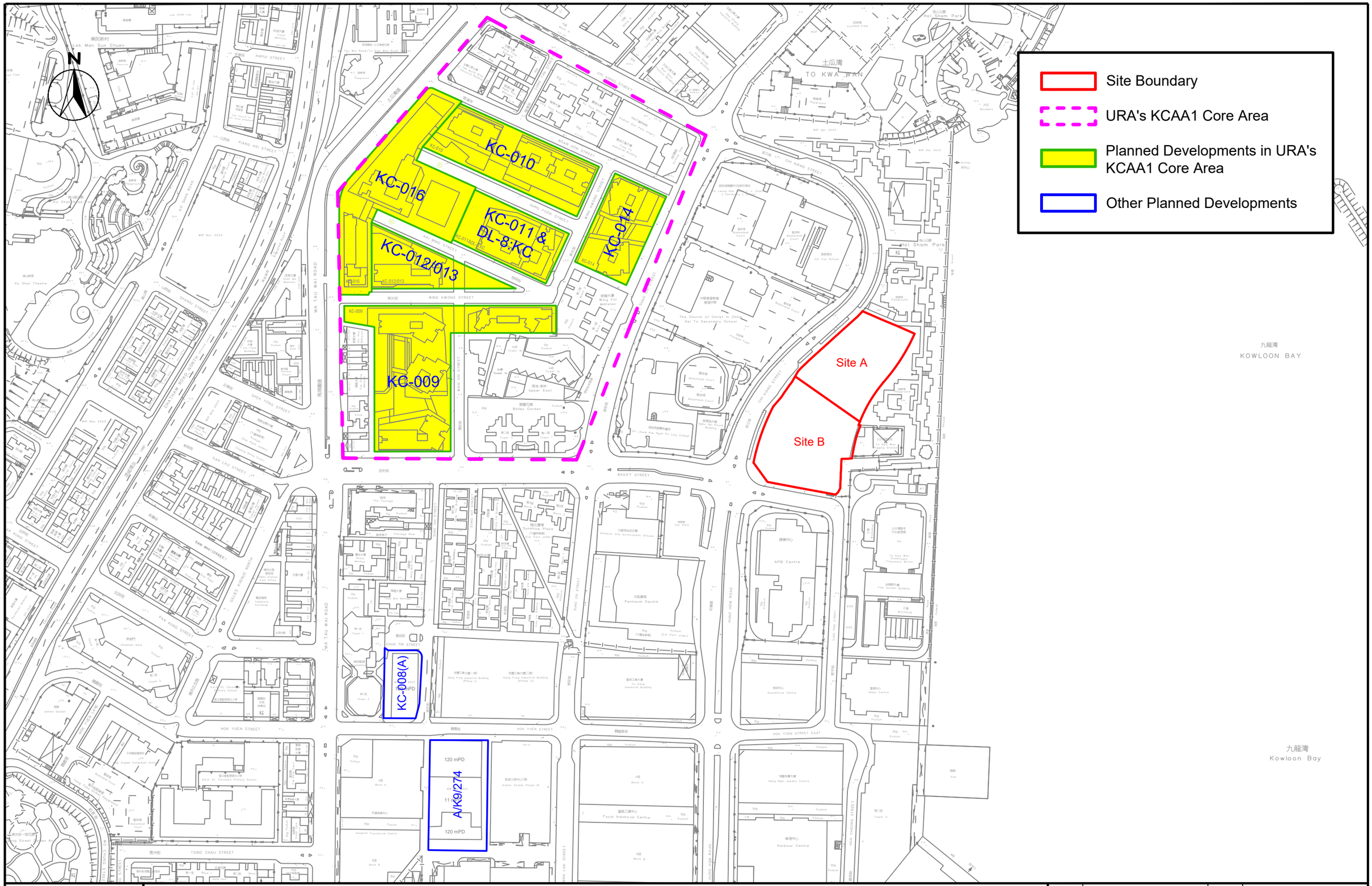


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Proposed Residential Development in Bailey Street, Kowloon City District

Ferry Route and Typhoon Shelter in the Vicinity

SCALE	1:4000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	2-3
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Proposed Residential Development in Bailey Street, Kowloon City District

Identified Planned Developments

SCALE	1:2500 @ A3	DATE	Jun 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	2-4
		REV	-



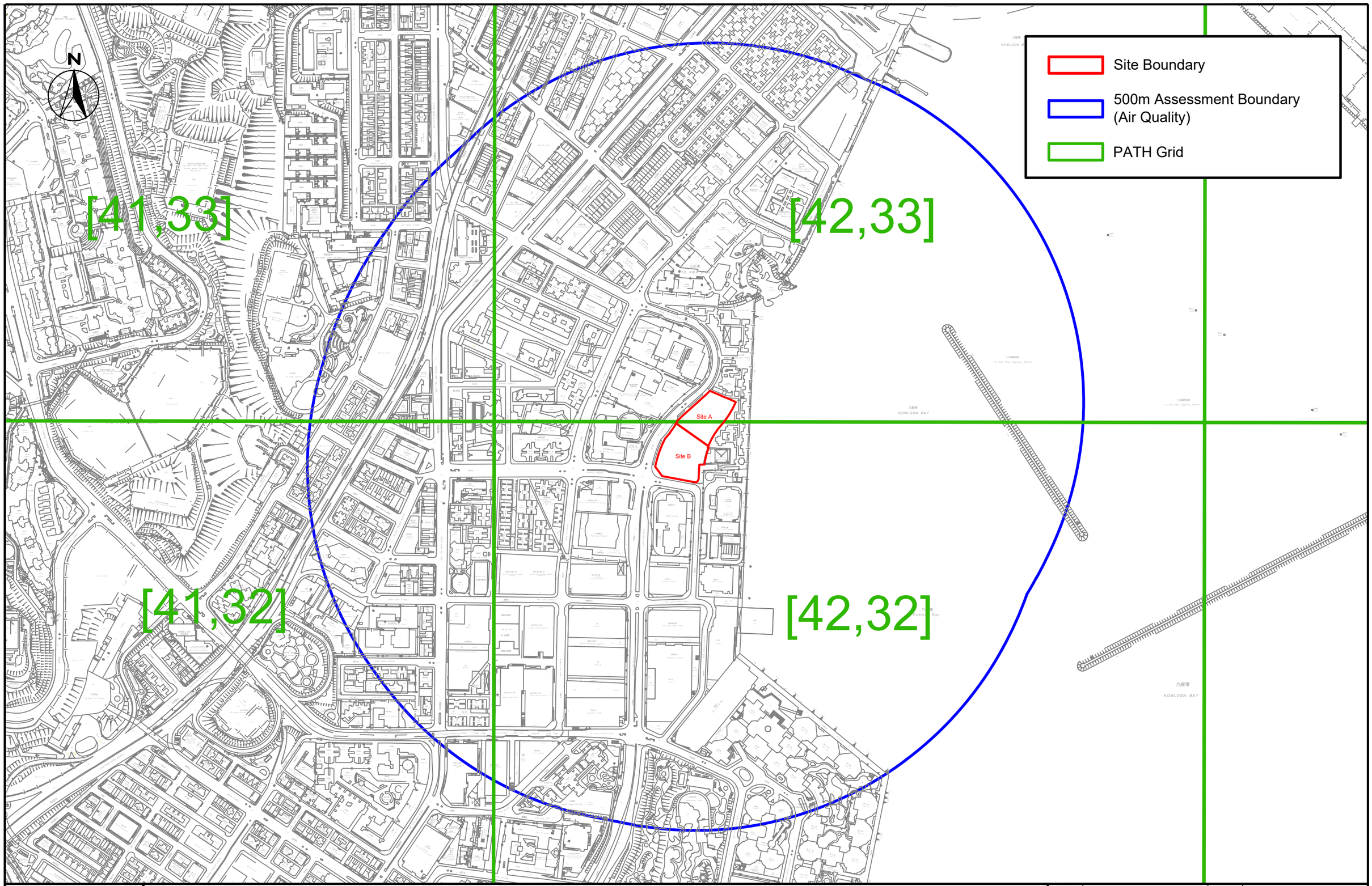
(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

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Proposed Residential Development in Bailey Street, Kowloon City District

Notional Block Plan of the Proposed Development

SCALE	1:750 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	2-5
		REV	-

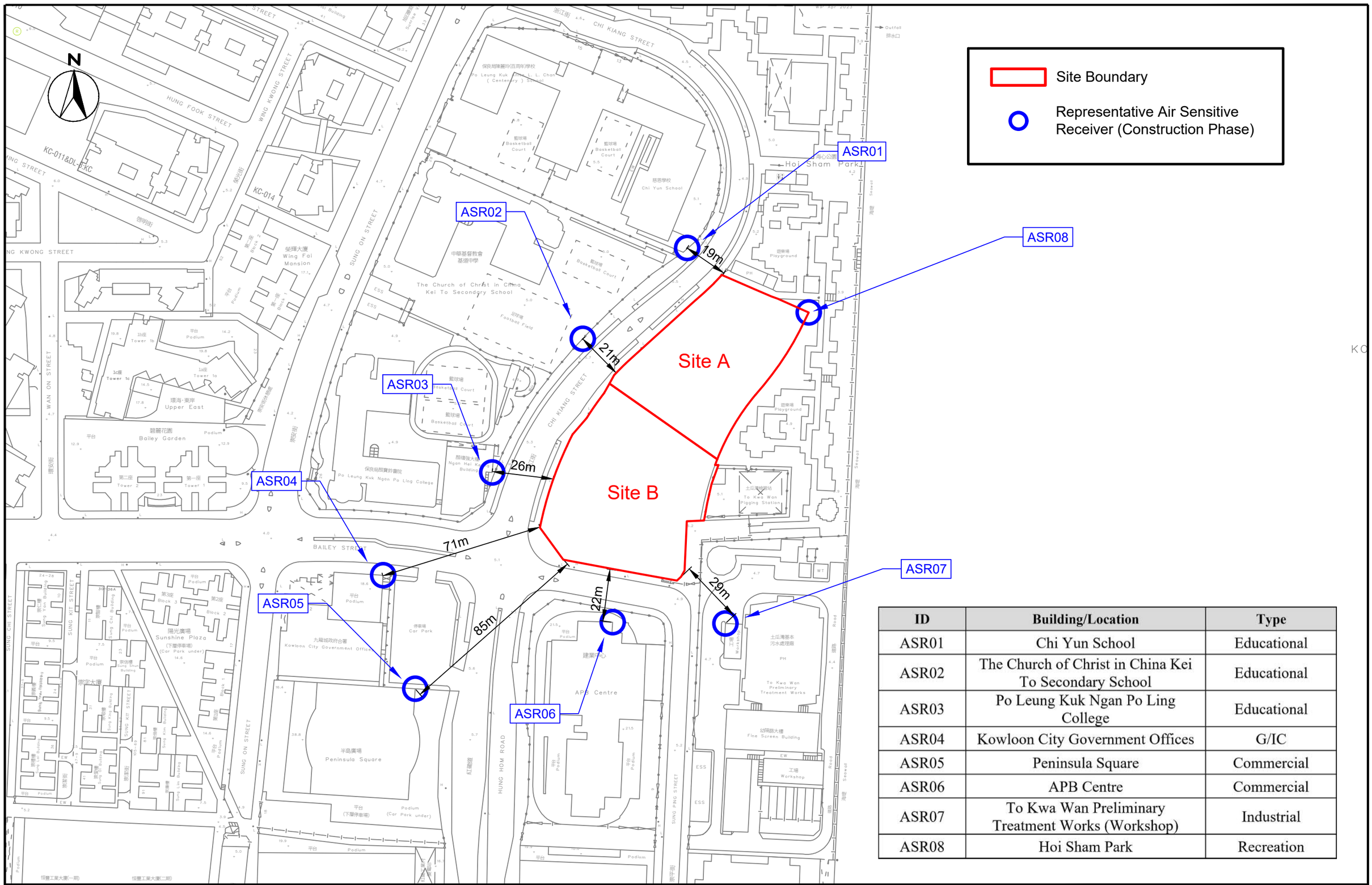


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Proposed Residential Development in Bailey Street, Kowloon City District

Assessment Boundary (Air Quality)

SCALE	1:5000 @ A3	DATE	Jun 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	3-1
		REV	-



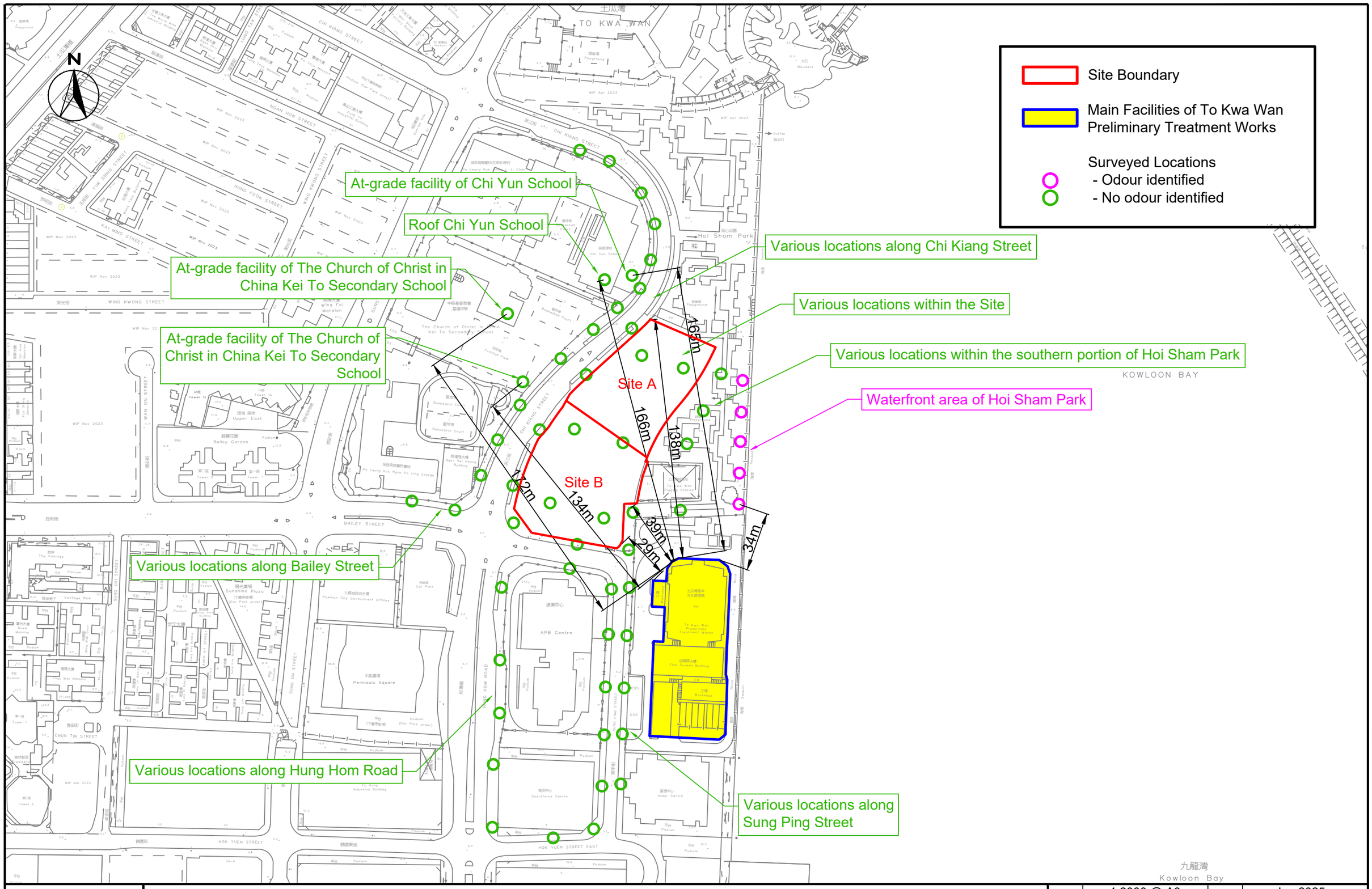
ID	Building/Location	Type
ASR01	Chi Yun School	Educational
ASR02	The Church of Christ in China Kei To Secondary School	Educational
ASR03	Po Leung Kuk Ngan Po Ling College	Educational
ASR04	Kowloon City Government Offices	G/IC
ASR05	Peninsula Square	Commercial
ASR06	APB Centre	Commercial
ASR07	To Kwa Wan Preliminary Treatment Works (Workshop)	Industrial
ASR08	Hoi Sham Park	Recreation

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Proposed Residential Development in Bailey Street, Kowloon City District

Representative Air Sensitive Receiver (Construction Phase)

SCALE	1:1500 @ A3	DATE	Apr 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-2
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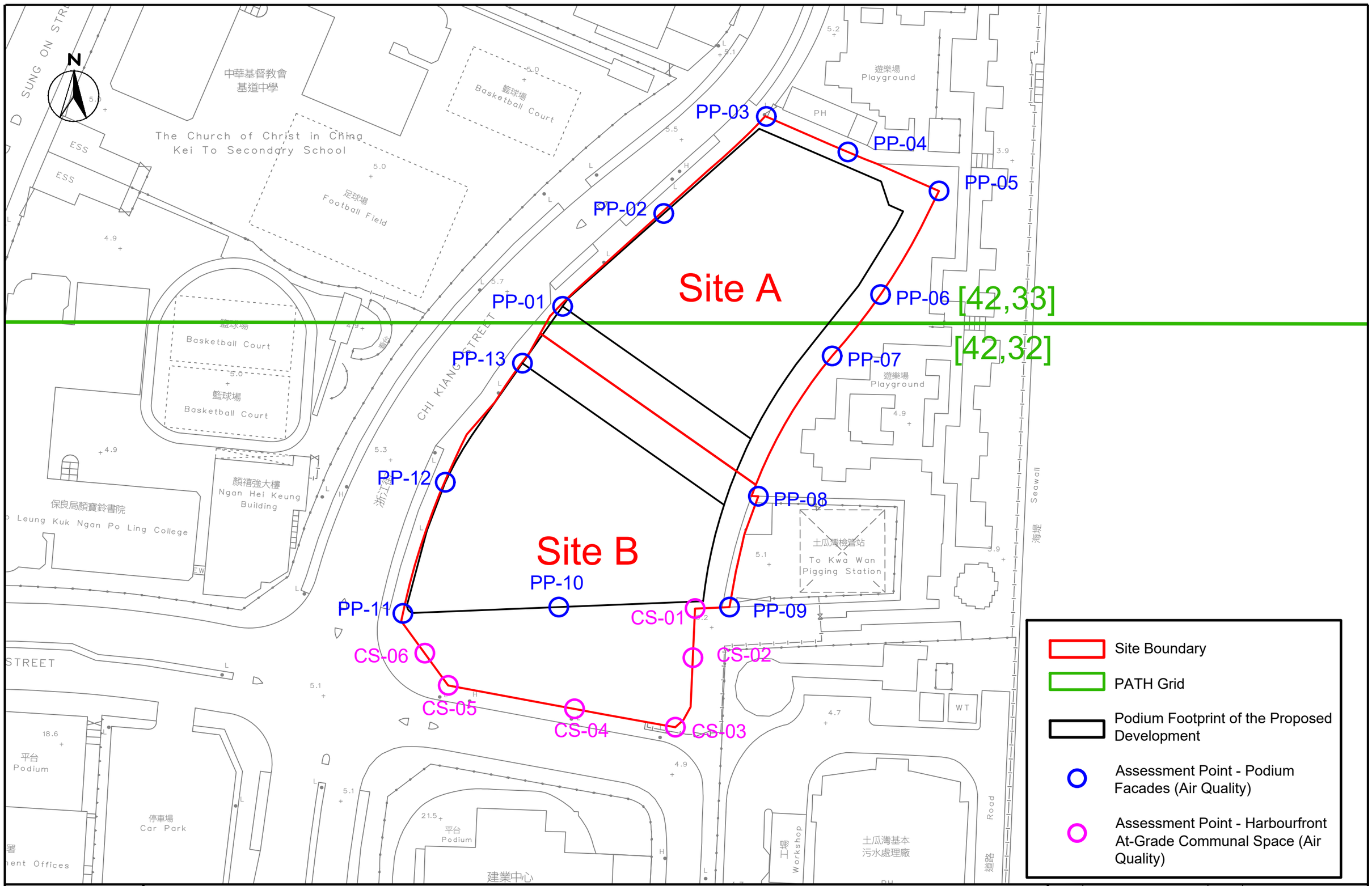


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Proposed Residential Development in Bailey Street, Kowloon City District

To Kwa Wan Preliminary Treatment Works and the Visited Locations during Odour Survey

SCALE	1:2000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-3
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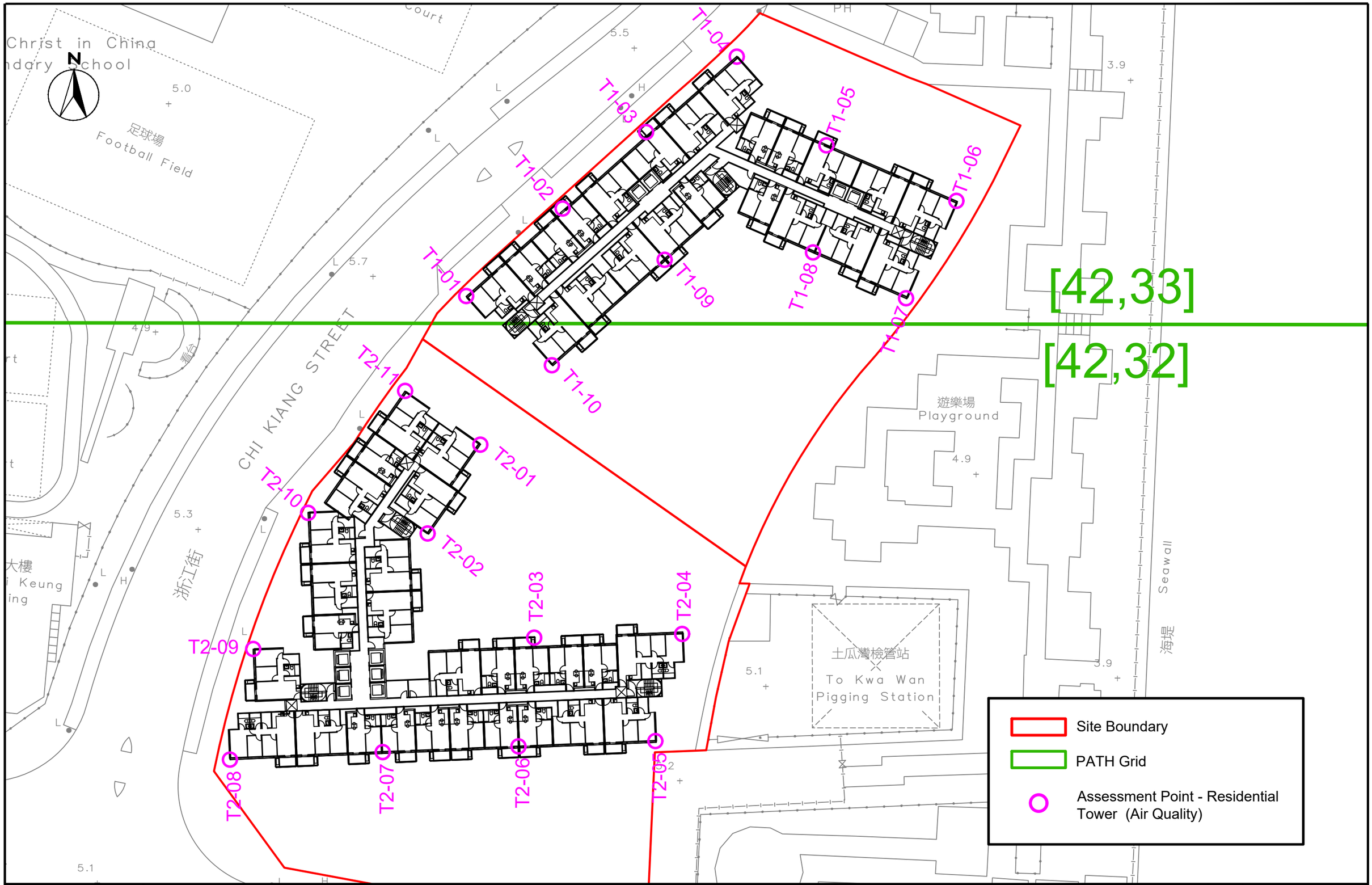


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Proposed Residential Development in Bailey Street, Kowloon City District

Assessment Points (Air Quality) - Podium and Harbourfront At-Grade Communal Space

SCALE	1:750 @ A3	DATE	Jun 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	3-4a
		REV	-



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Proposed Residential Development in Bailey Street, Kowloon City District

Assessment Points (Air Quality) - Residential Towers

SCALE	1:500 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-4b
		REV	-

Site A

Site B

Site Boundary

Major Car Park for HGV and Coaches in the Vicinity

Vehicle Exit of the Car Park

Outdoor car park adjacent to Kowloon City Government Offices (Coaches)

Car Park B

Car Park A

Car Park C

Car park of APB Centre (HGV)

Car park of Peninsula Square (HGV & Coaches)

CHI KIANG STREET

BAILEY STREET

SUNG ON STREET

HUNG HOM ROAD

SUNG PING STREET

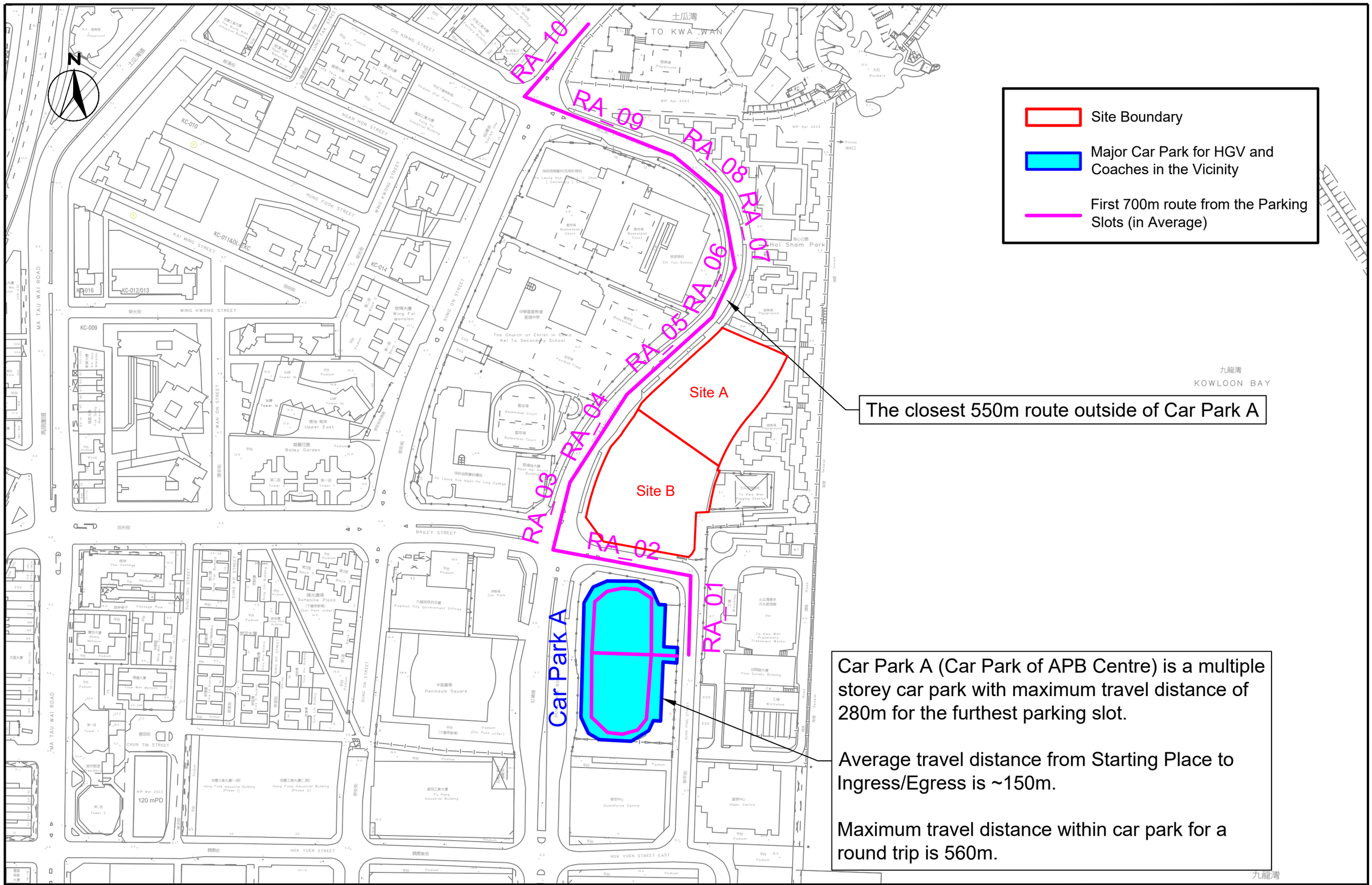
SUNG KIT STREET

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Proposed Residential Development in Bailey Street, Kowloon City District

Major Car Parks for HGV and Coaches in the Vicinity

SCALE	1:1000 @ A3	DATE	Jun 2025
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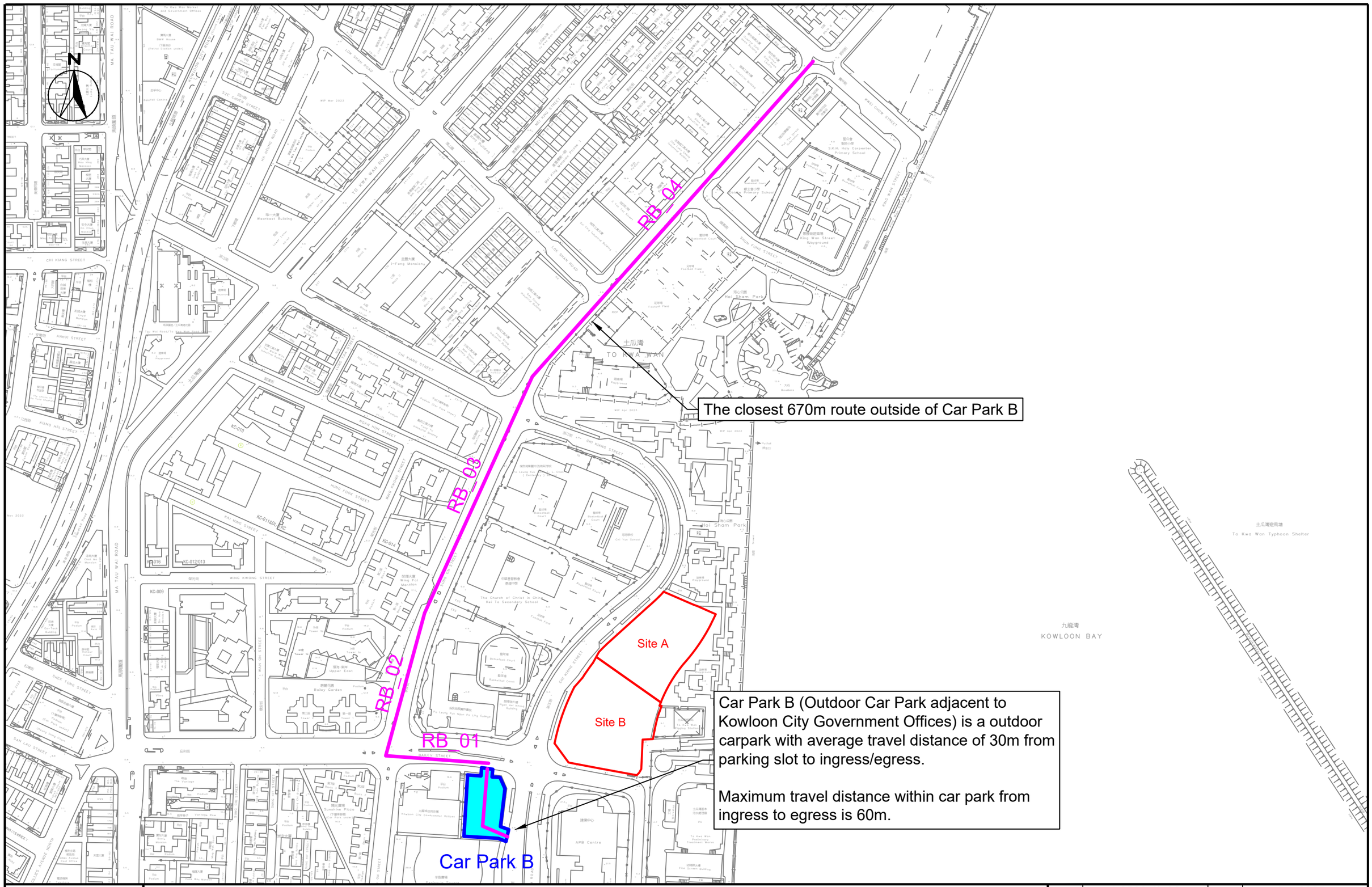


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Proposed Residential Development in Bailey Street, Kowloon City District

The Vehicular Emission from the Car Park of APB Centre

SCALE	1:2000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-5b
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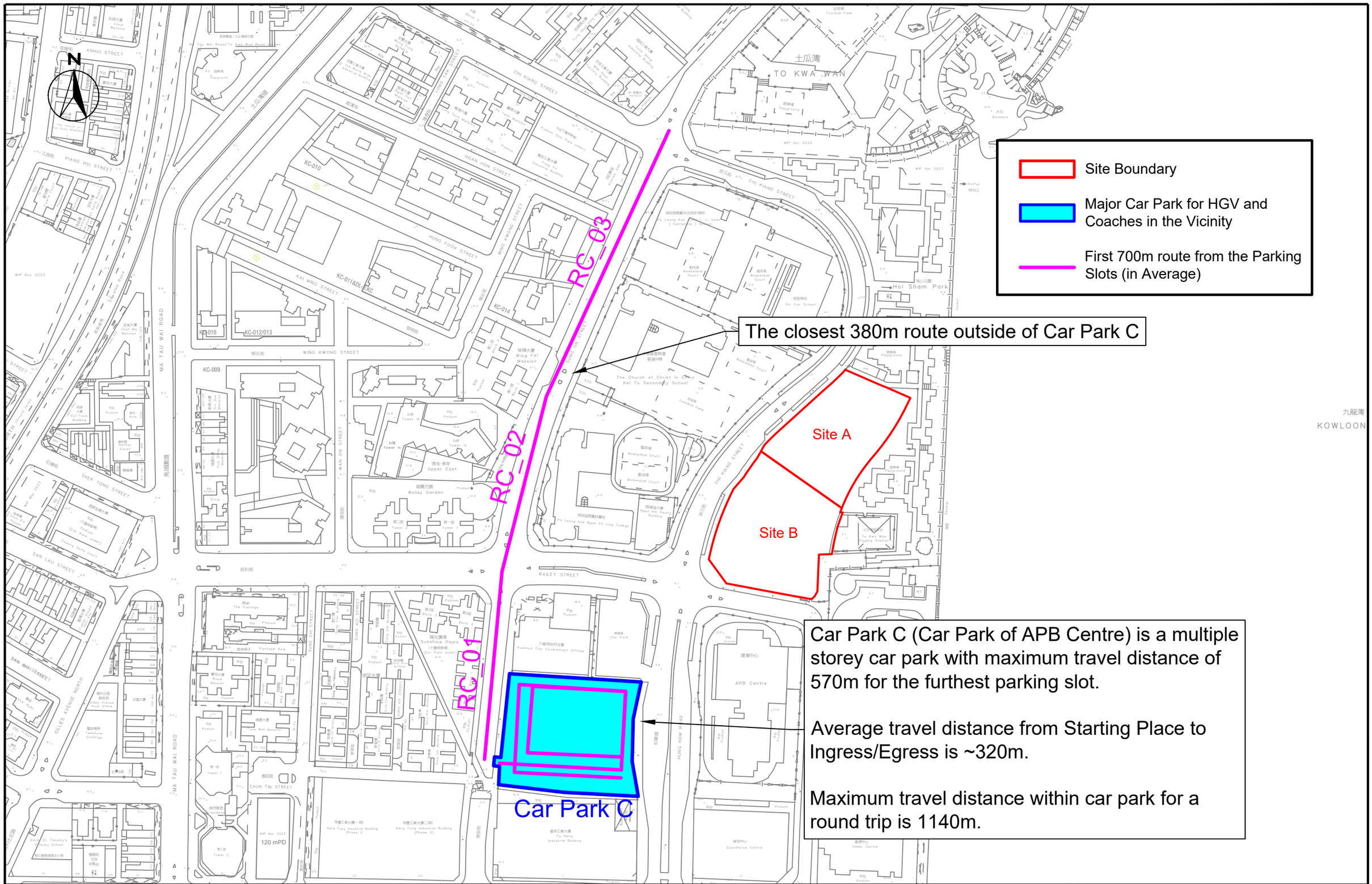


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Proposed Residential Development in Bailey Street, Kowloon City District

The Vehicular Emission from the Outdoor Car Park adjacent to Kowloon City Government Offices

SCALE	1:2500 @ A3	DATE	Jun 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	3-5c
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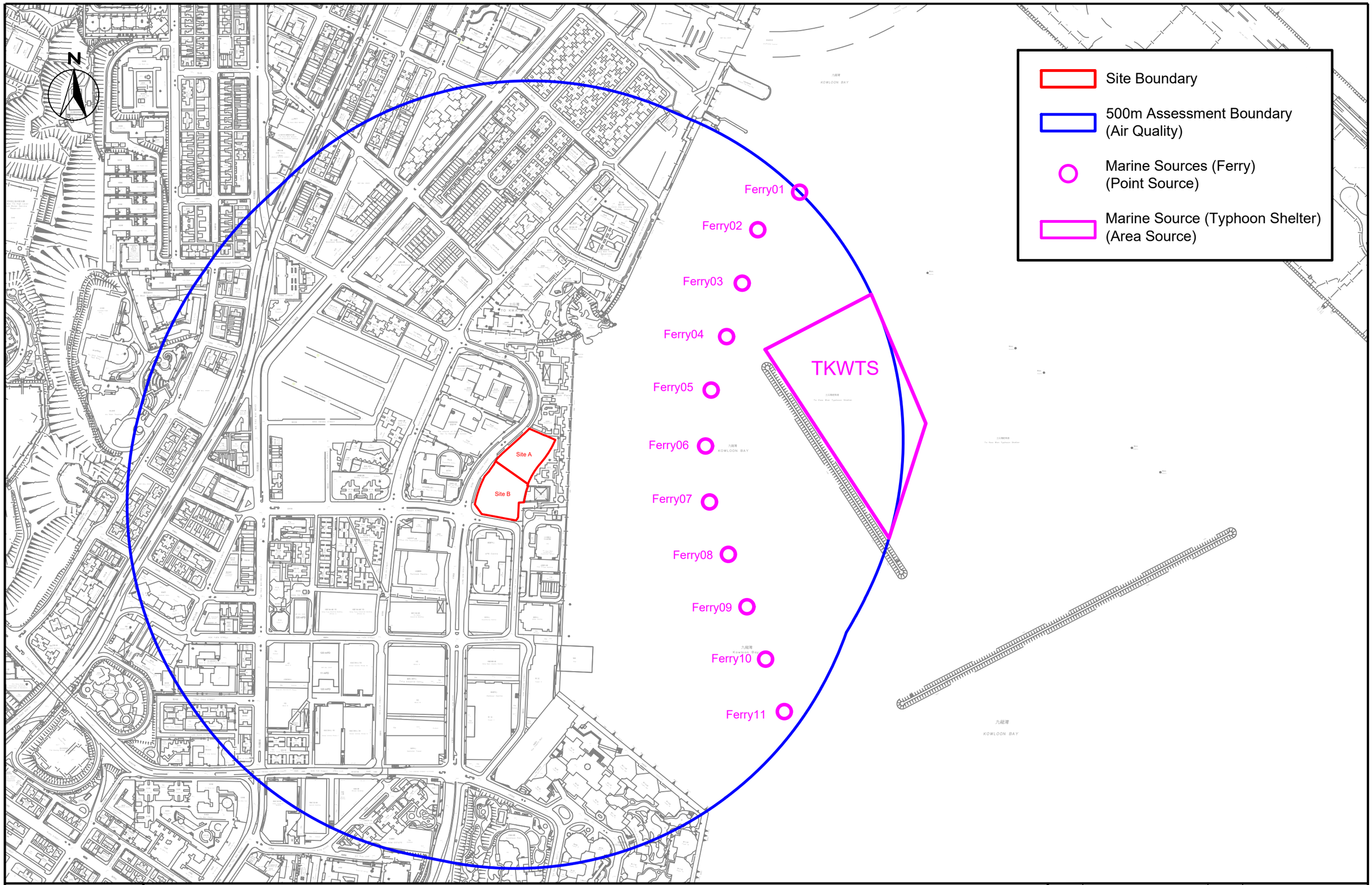


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Proposed Residential Development in Bailey Street, Kowloon City District

The Vehicular Emission from the Car Park of Peninsula Square

SCALE	1:2000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-5d
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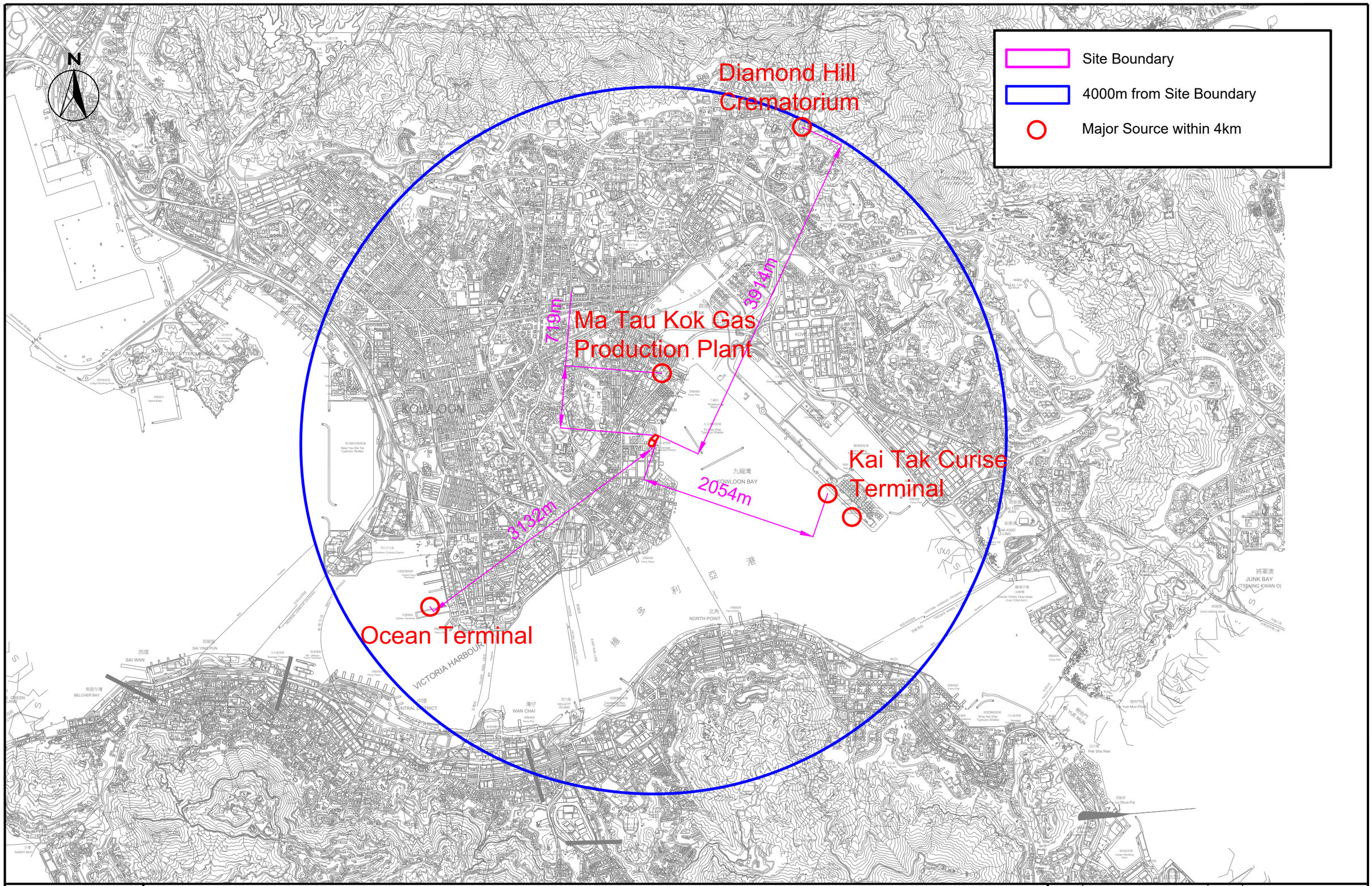


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Proposed Residential Development in Bailey Street, Kowloon City District

Marine Sources

SCALE	1:5000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-6
		REV	-

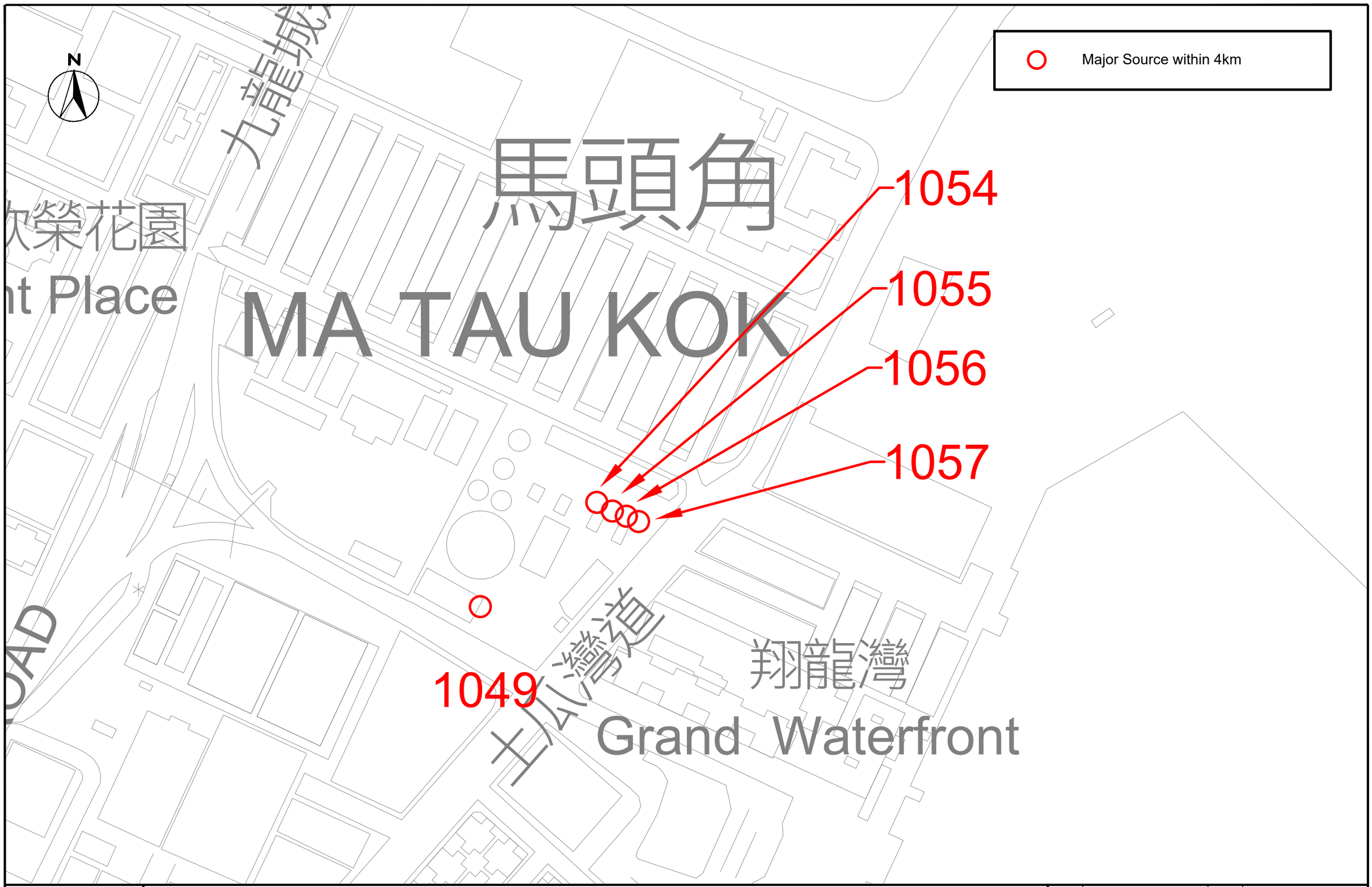


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Proposed Residential Development in Bailey Street, Kowloon City District

Major Air Pollutant Sources within 4km

SCALE	1:40000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-7a
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Proposed Residential Development in Bailey Street, Kowloon City District

Major Air Pollutant Source - Ma Tau Kok Gas Production Plant

SCALE	1:2000 @ A3	DATE	Apr 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-7b
		REV	-

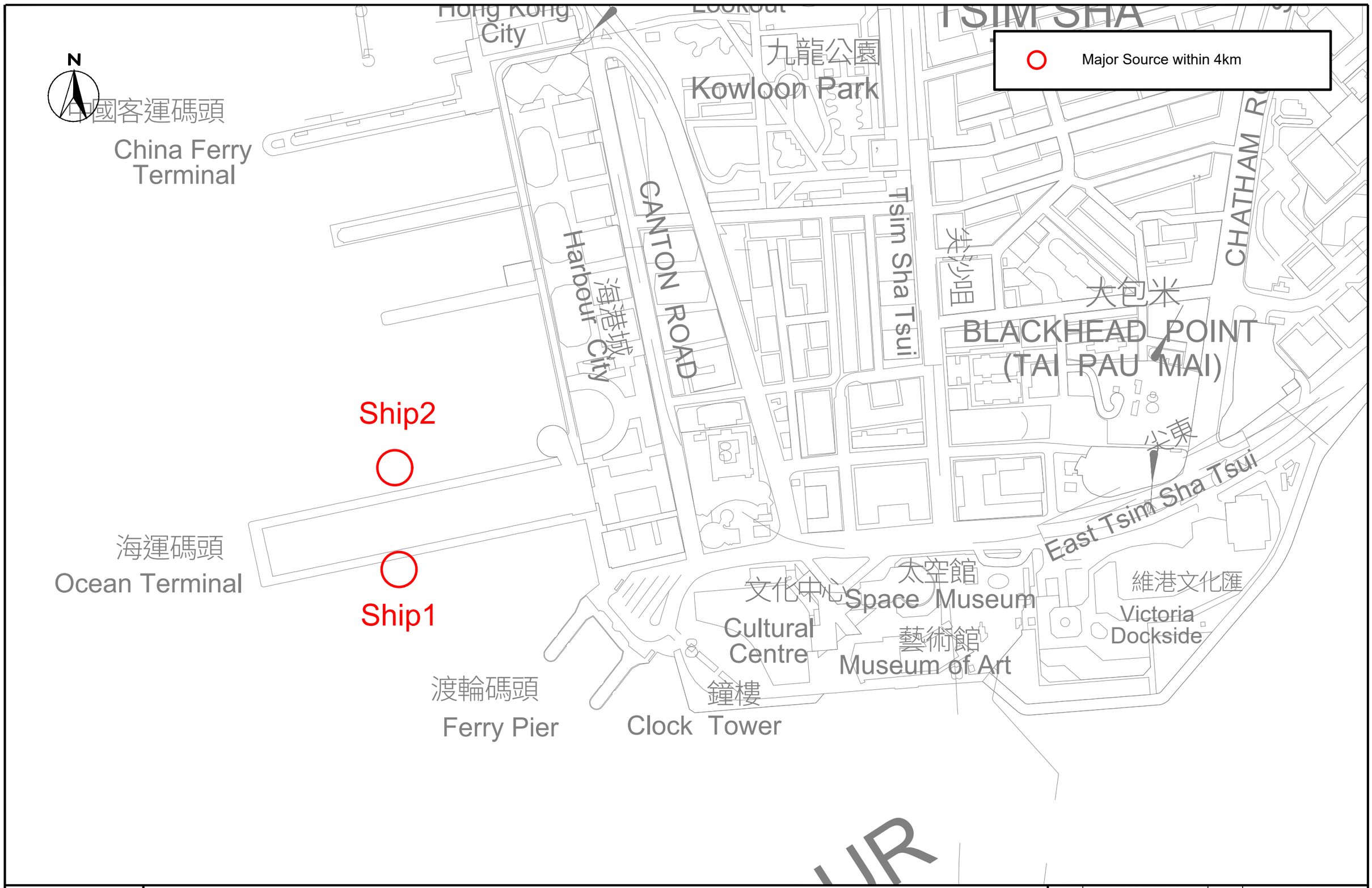


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Proposed Residential Development in Bailey Street, Kowloon City District

Major Air Pollutant Source - Kai Tak Cruise Terminal

SCALE	1:4000 @ A3	DATE	Apr 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	3-7c
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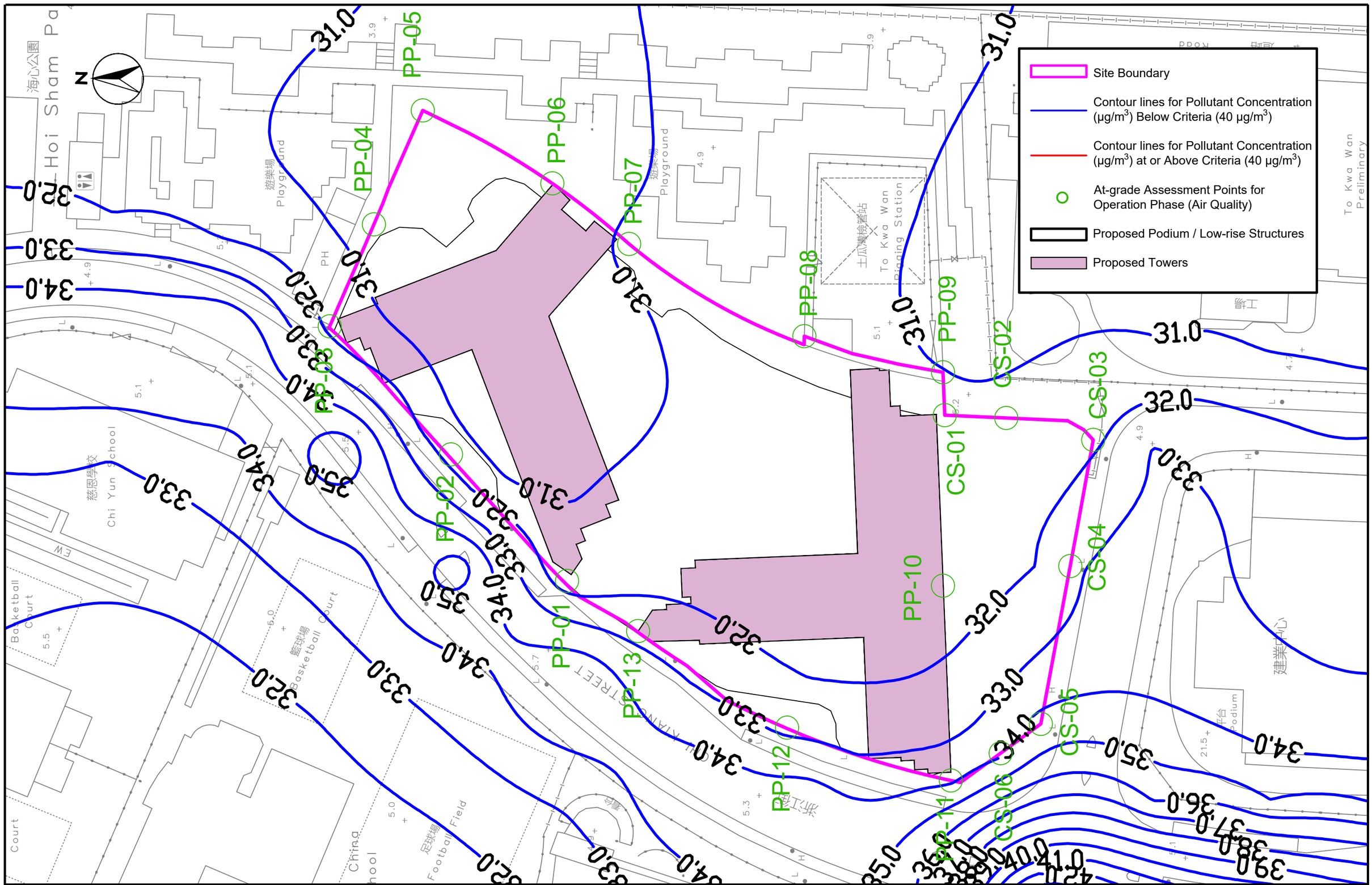


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Proposed Residential Development in Bailey Street, Kowloon City District

Major Air Pollutant Source - Ocean Terminal

SCALE	1:4000 @ A3	DATE	Apr 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	3-7d
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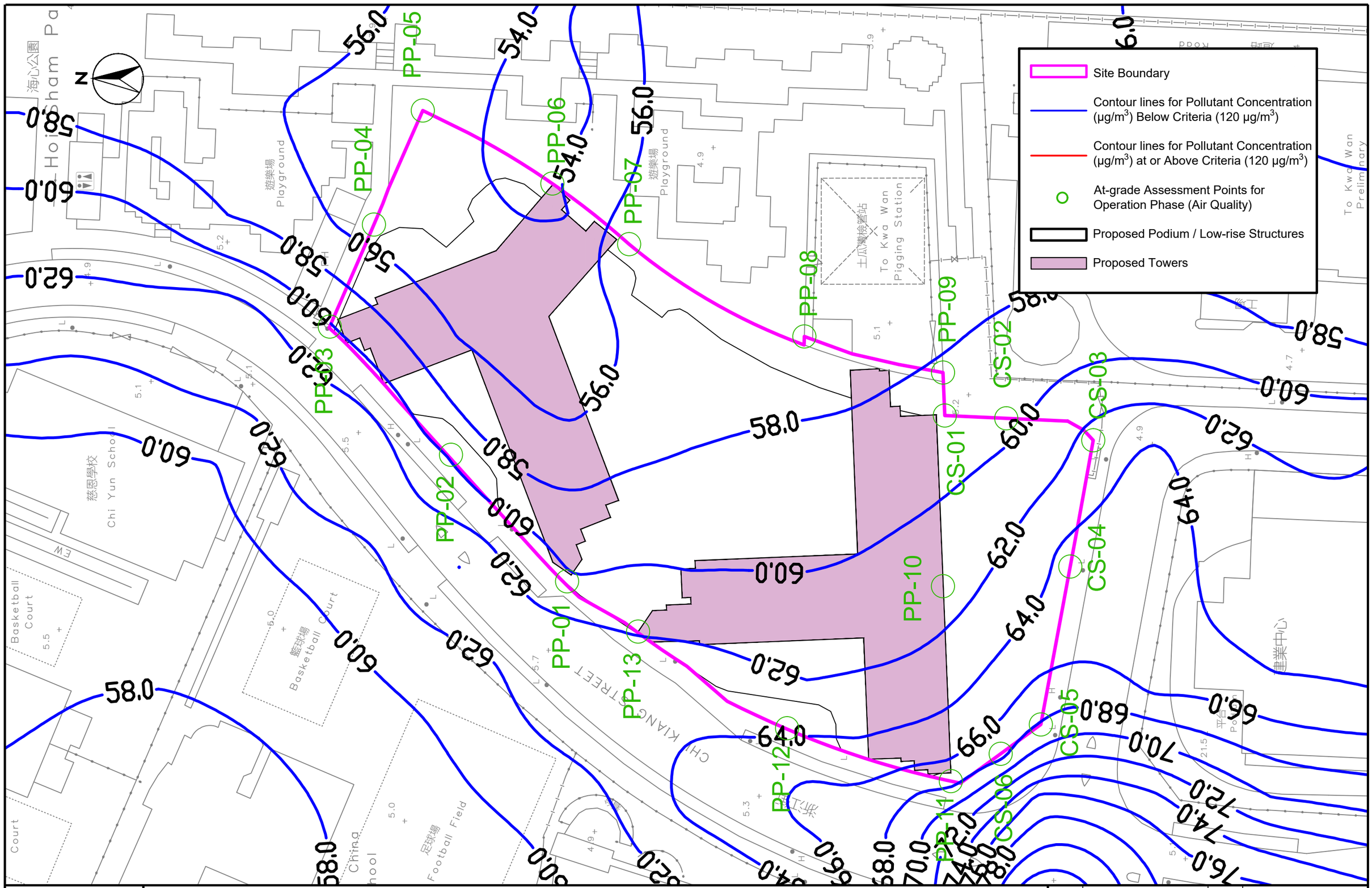


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Proposed Residential Development in Bailey Street, Kowloon City District

Annual Averaged NO_2 Concentration at 1.5mAG (μg/m^3)

SCALE	1:600 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-8a
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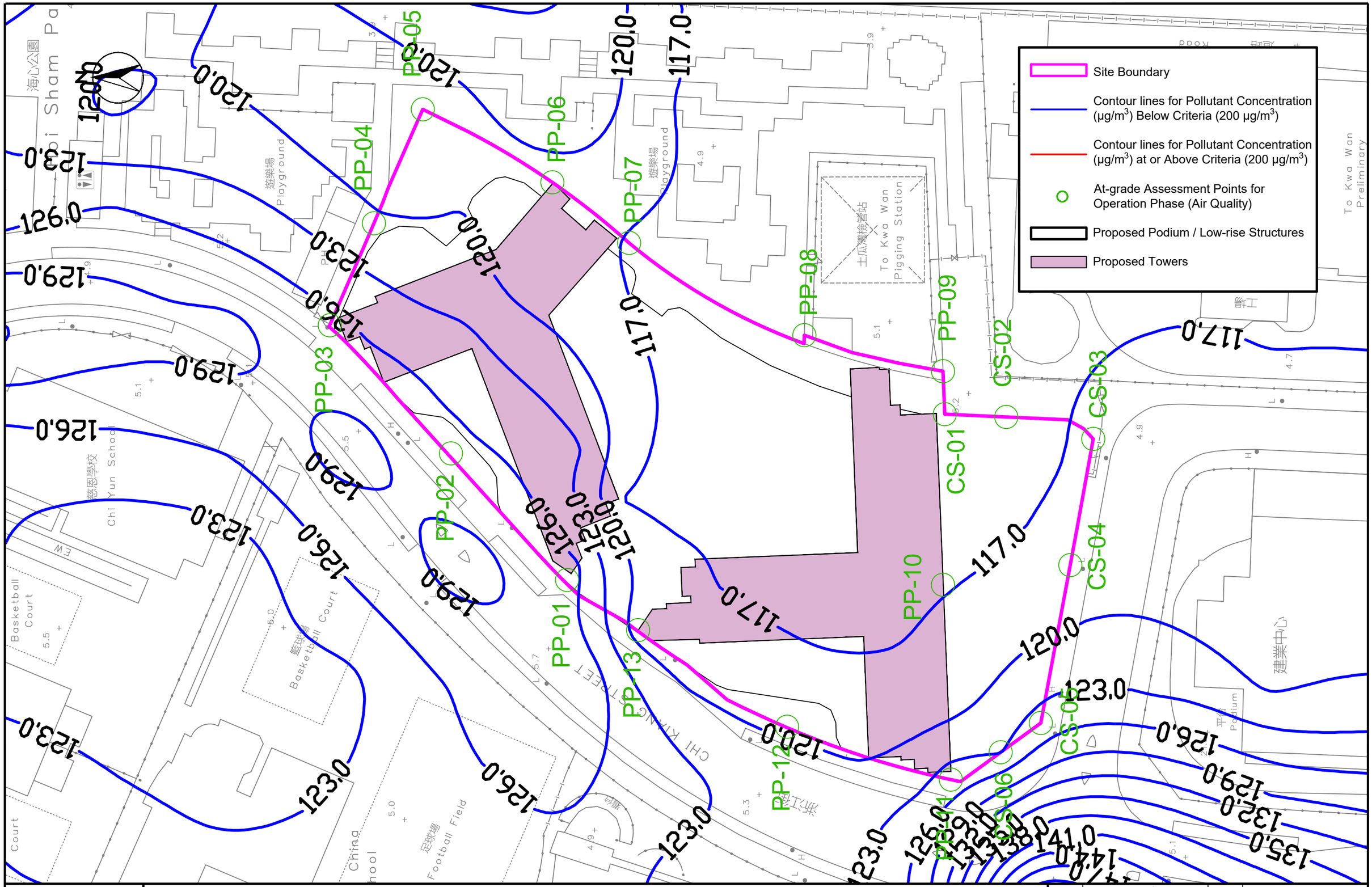


CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Daily 10th Maximum Averaged NO_2 Concentration at 1.5mAG (μg/m³)

SCALE	1:600 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-8b
		REV	-

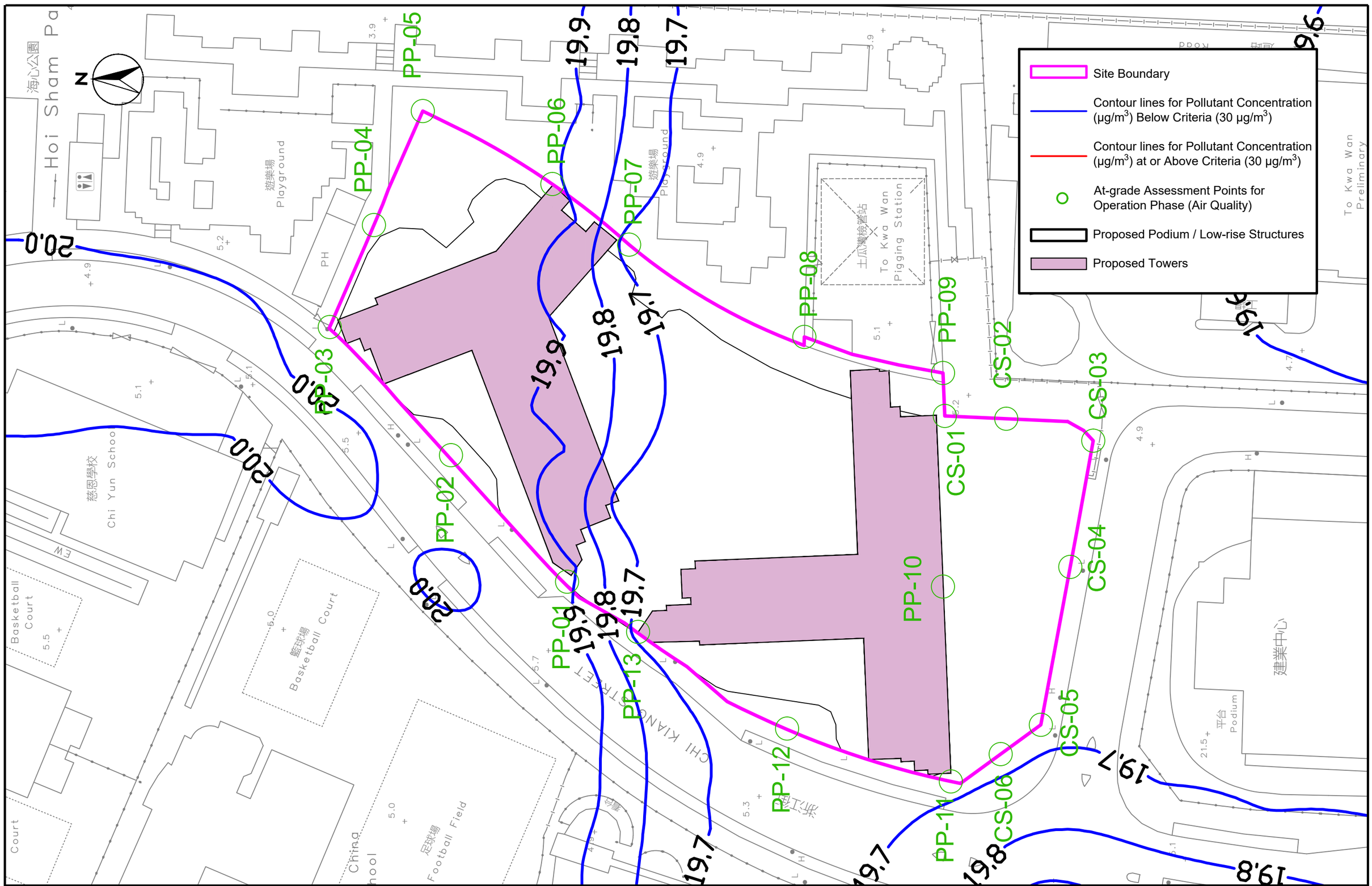


CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Hourly 19th Maximum Averaged NO_2 Concentration at 1.5mAG (μg/m³)

SCALE	1:600 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-8c
		REV	-

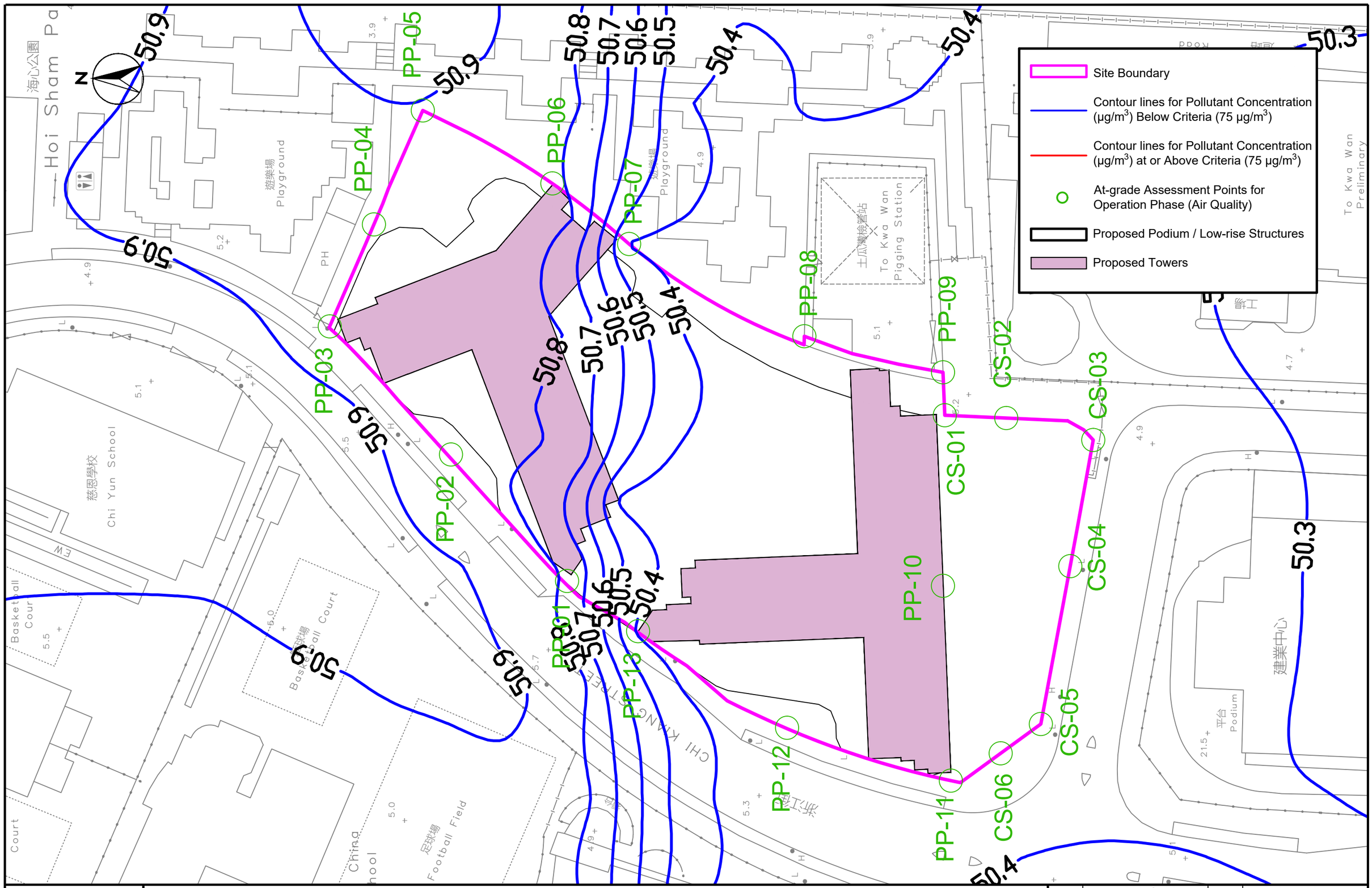


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Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Annual Averaged RSP Concentration at 1.5mAG (μg/m^3)

SCALE	1:600 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
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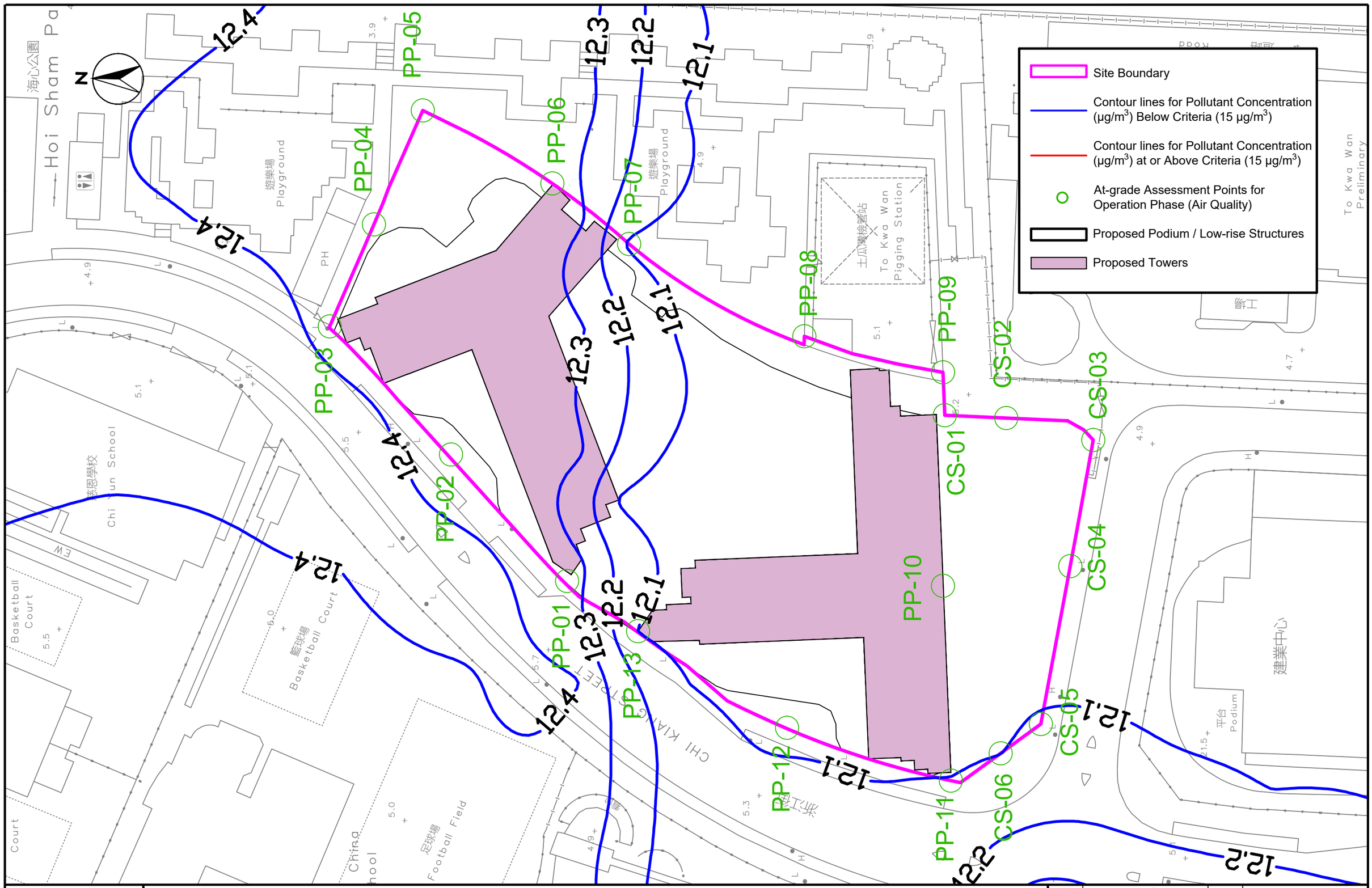


CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Daily 10th Maximum RSP Concentration at 1.5mAG (μg/m3)

SCALE	1:600 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
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		REV	-

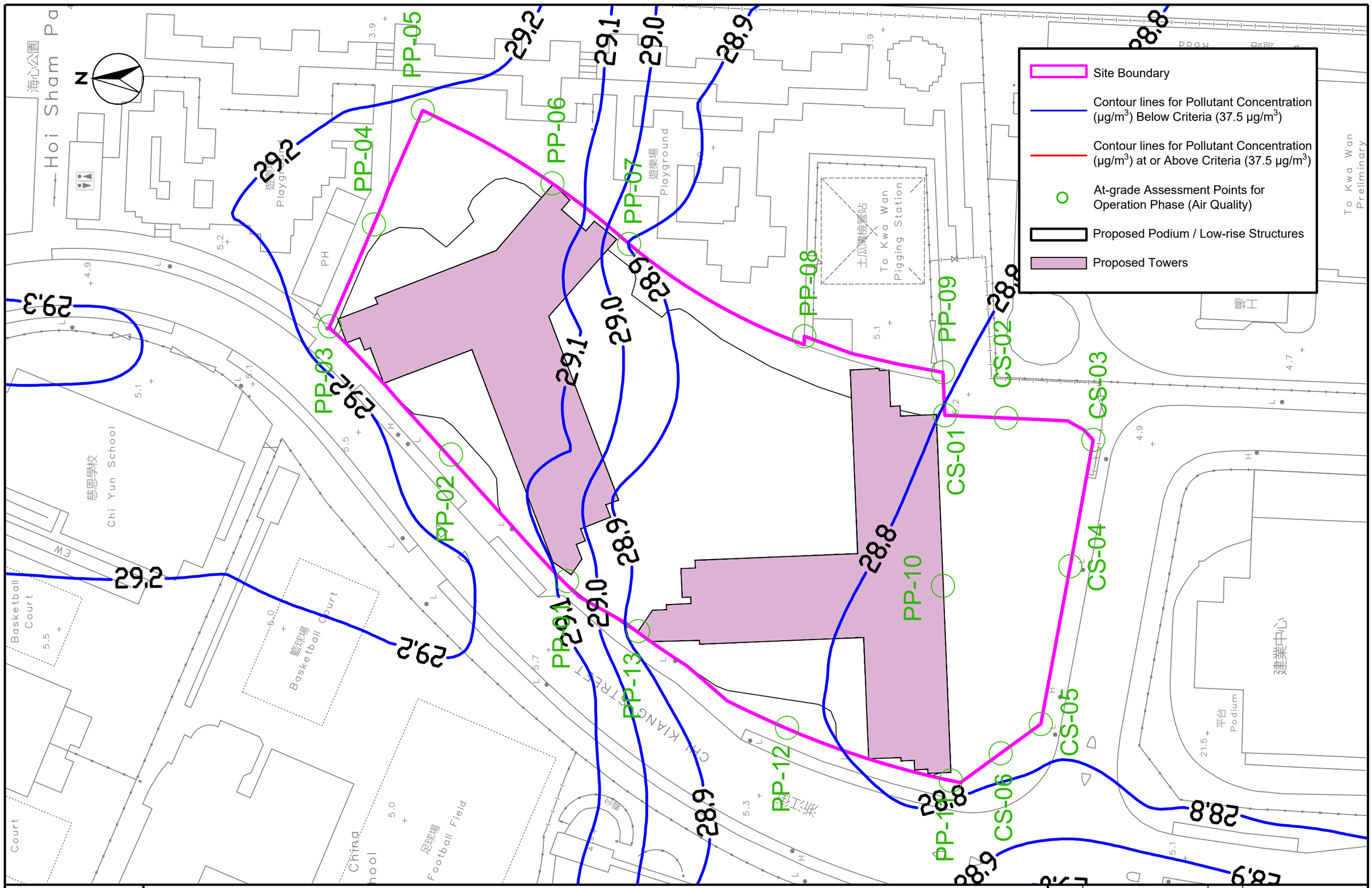


CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Annual Averaged FSP Concentration at 1.5mAG (μg/m^3)

SCALE	1:600 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-8f
		REV	-

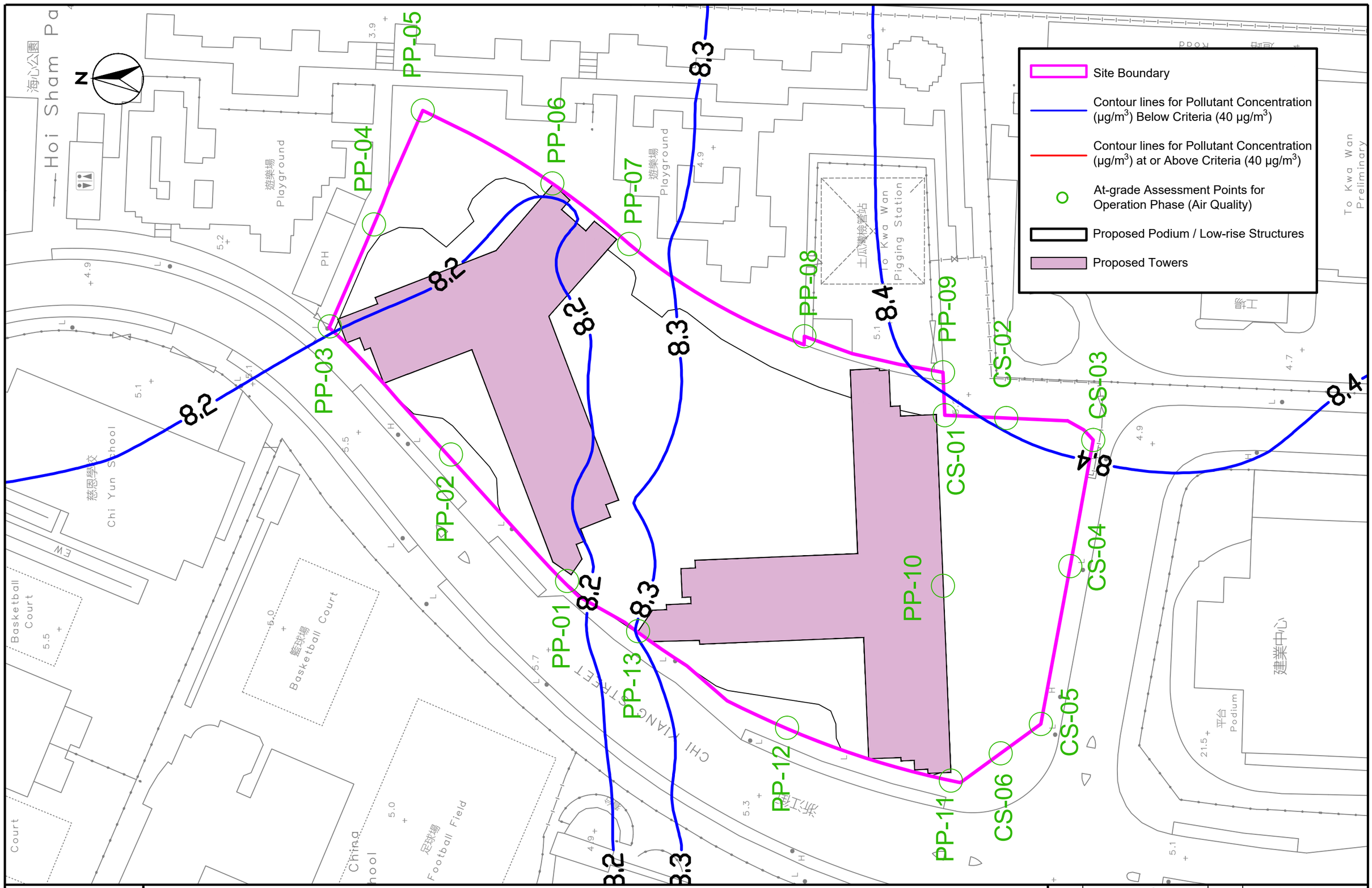


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Proposed Residential Development in Bailey Street, Kowloon City District

Daily 36th Maximum FSP Concentration at 1.5mAG (μg/m3)

SCALE	1:600 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-8g
		REV	-

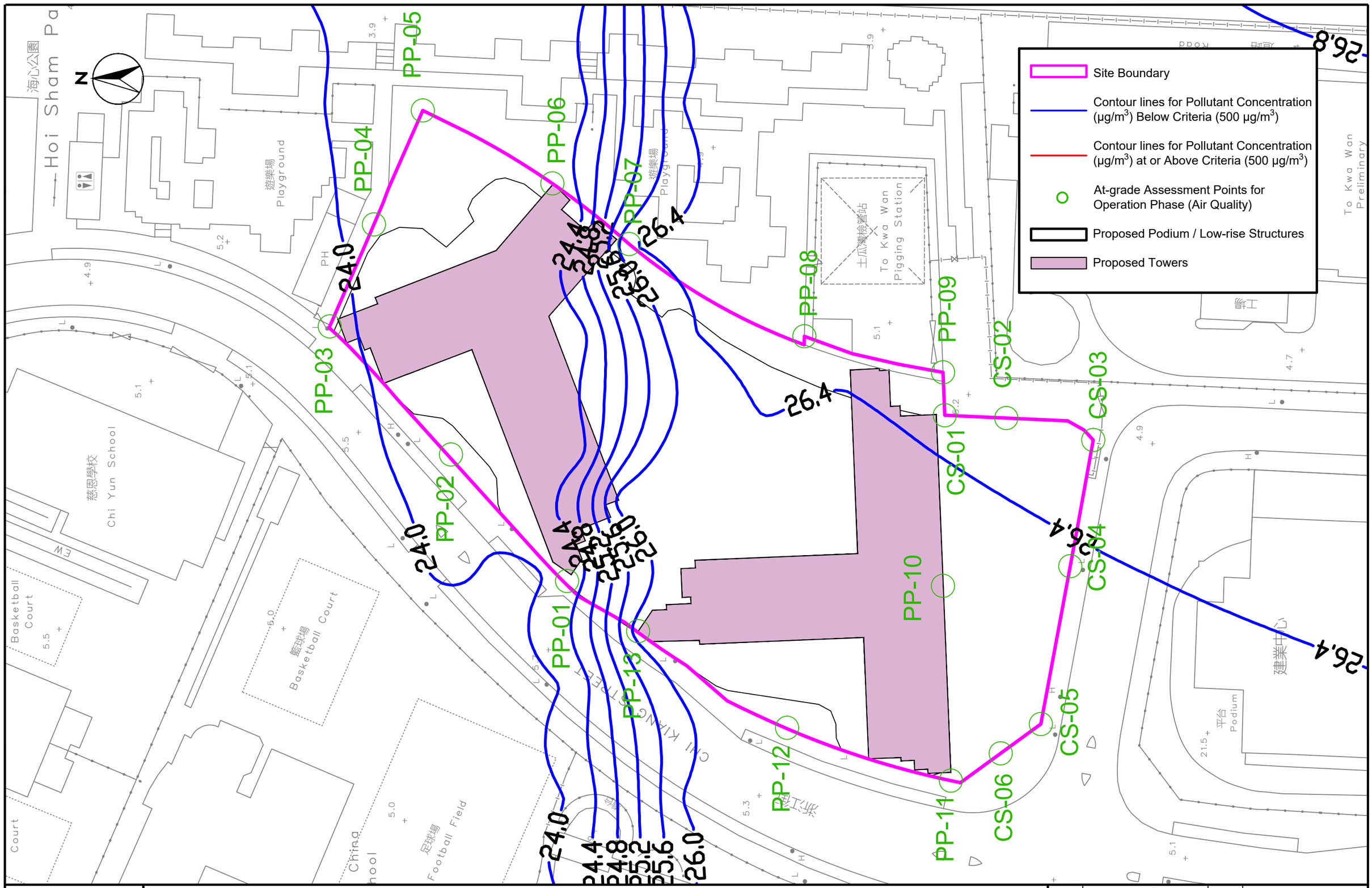


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Proposed Residential Development in Bailey Street, Kowloon City District

Daily 4th Maximum SO_2 Concentration at 1.5mAG (μg/m³)

SCALE	1:600 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-8h
		REV	-



Proposed Residential Development in Bailey Street, Kowloon City District

10-minutes Averaged 4th Maximum SO_2 Concentration at 1.5mAG (μg/m³)

CINOTECH
Cinotech Consultants Limited

SCALE	1:600 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-8i
		REV	-

N

Noise Assessment Points



CINOTECH
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Proposed Residential Development in Bailey Street, Kowloon City District

Location of Noise Assessment Points for Traffic Noise (Tower 1)

SCALE	1:250 @ A3	DATE	Jun 2024
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	5-1a
		REV	-

N

Noise Assessment Points

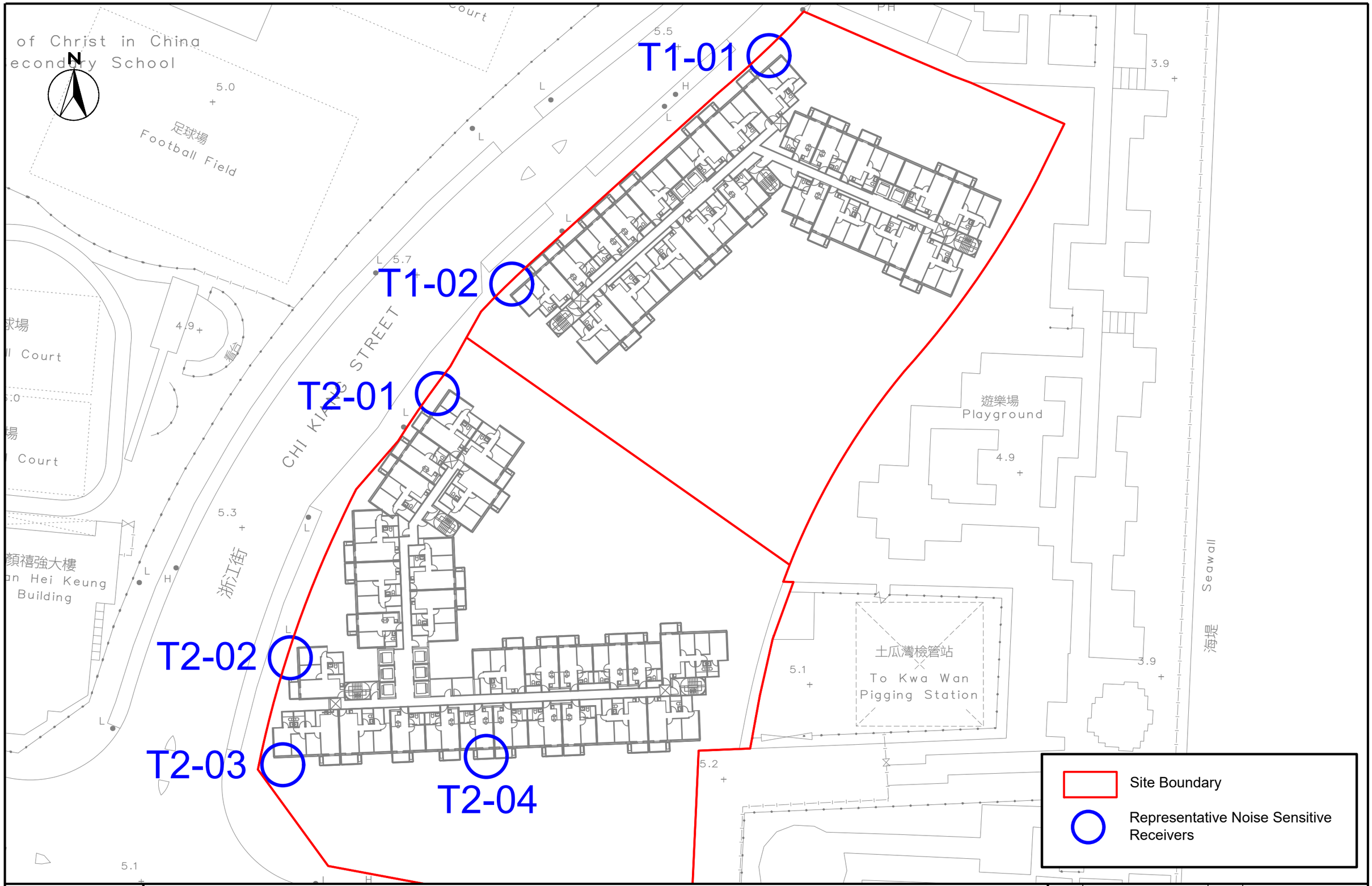
T2-27-W2
T2-27-W1
T2-27-LB
T2-26-W1
T2-26-LB
T2-25-LB
T2-25-W2
T2-25-W1
T2-24-W2
T2-24-W1
T2-24-LB
T2-23-LB
T2-23-W2
T2-23-W1
T2-22-LB
T2-22-W1
T2-21-W2
T2-21-W1
T2-21-LB
T2-01-W1
T2-01-W2
T2-01-LB
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T2-04-LB
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T1-04-W2
T1-05-W1
T1-05-W2
T2-05-LB
T2-06-W1
T2-06-LB
T2-07-LB
T2-07-W1
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T2-19-LB
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T2-19-W1
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T2-18-W1
T2-17-W1
T2-17-LB
T2-16-W1
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T2-14-LB
T2-13-LB
T2-13-W1
T2-12-W2
T2-12-W1
T2-12-LB
T2-11-LB
T2-11-W2
T2-11-W1

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Proposed Residential Development in Bailey Street, Kowloon City District

Location of Noise Assessment Points for Traffic Noise (Tower 2)

SCALE	1:250 @ A3	DATE	Jun 2024
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	5-1b
		REV	-

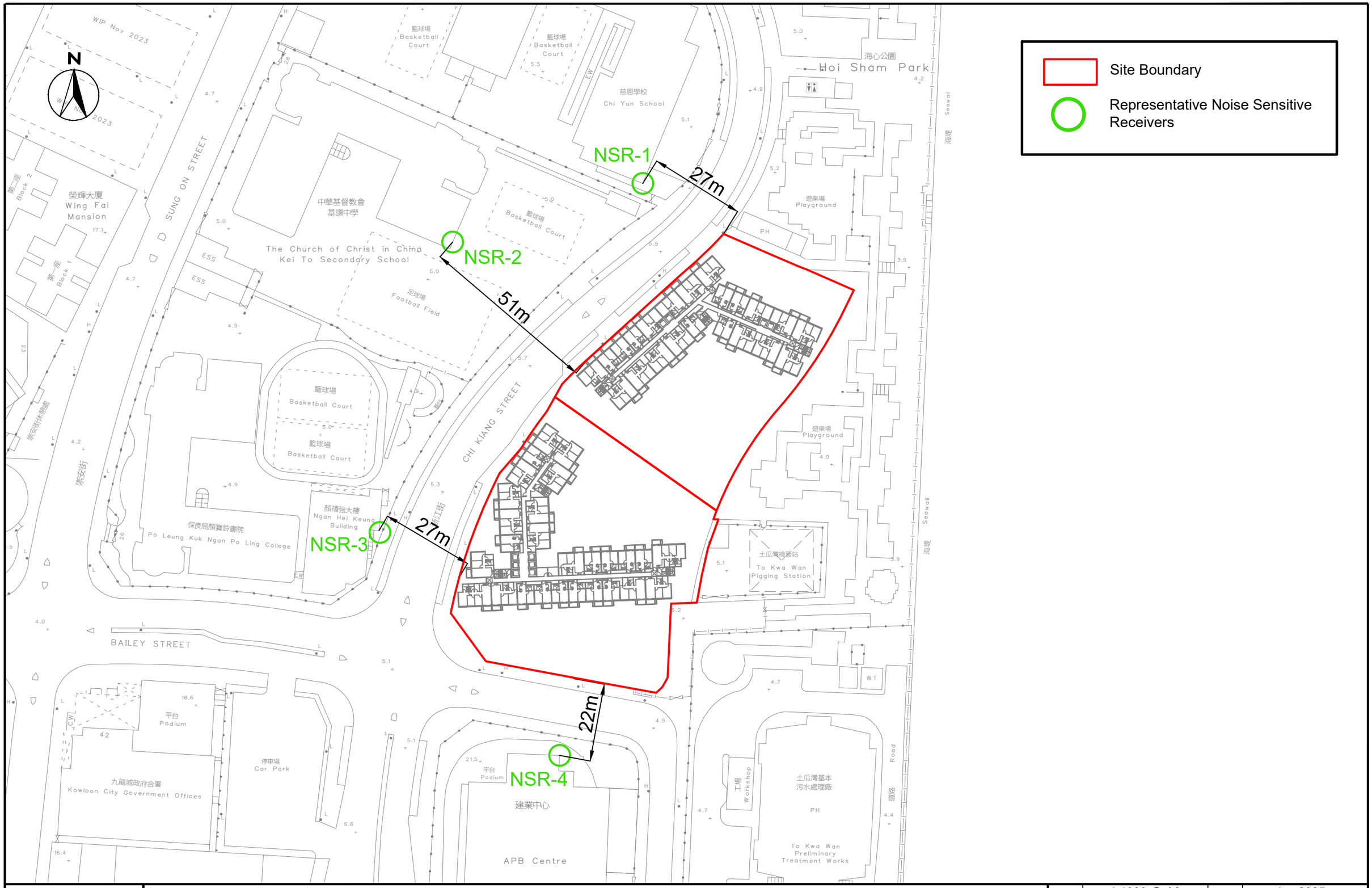


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Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Representative Noise Assessment Points for Existing Fixed Noise Sources

SCALE	1:500 @ A3	DATE	Jun 2025
CHECK	LL	DRAWN	DC
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 5-2
		REV	-



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Proposed Residential Development in Bailey Street, Kowloon City District

Representative Noise Assessment Points for Planned Fixed Noise Sources

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	LL	DRAWN	DC
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 5-3
		REV	-

N

Noise Assessment Points

Predicted Noise Exceedance

T2-24
1/F - 6/F
Max: 72 dB(A)

T2-21
1/F - 11/F
Max: 73 dB(A)

T2-20
1/F - 16/F
Max: 75 dB(A)

T2-19
1/F - 12/F
Max: 73 dB(A)

T2-18
1/F - 9/F
Max: 73 dB(A)

T2-17
1/F - 7/F
Max: 72 dB(A)

T2-16
1/F - 5/F
Max: 72 dB(A)

T2-15
1/F - 3/F
Max: 71 dB(A)

T2-14
1/F
Max: 71 dB(A)

T2-27-W2, T2-27-W1, T2-27-LB, T2-26-W1, T2-26-LB, T2-25-LB, T2-25-W2, T2-25-W1, T2-24-W2, T2-24-W1, T2-24-LB, T2-23-LB, T2-23-W2, T2-23-W1, T2-22-LB, T2-22-W1, T2-21-W2, T2-21-W1, T2-21-LB, T2-20-W3, T2-20-W2, T2-20-W1, T2-20-LB, T2-19-LB, T2-19-W2, T2-19-W1, T2-18-LB, T2-18-W1, T2-17-W1, T2-17-LB, T2-16-W1, T2-16-LB, T2-15-LB, T2-15-W1, T2-14-W1, T2-14-LB, T2-13-LB, T2-13-W1, T2-12-W2, T2-12-W1, T2-12-LB, T2-11-LB, T2-11-W2, T2-11-W1

T2-01-W1, T2-01-W2, T2-01-LB, T2-02-LB, T2-02-W1, T2-02-W2, T2-03-W1, T2-03-W2, T2-03-LB, T2-04-LB, T2-04-W1, T2-05-LB, T2-06-W1, T2-06-LB, T2-07-LB, T2-07-W1, T2-08-W1, T2-08-LB, T2-09-LB, T2-09-W1, T2-10-LB, T2-10-W1, T2-10-W2, T2-10-W3

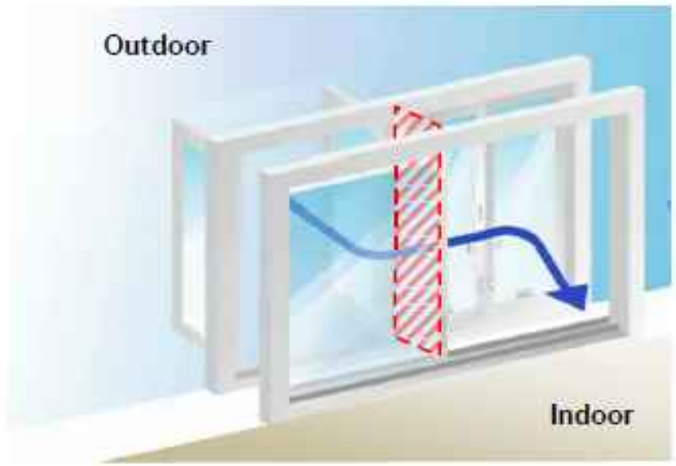
T1-04-W2, T1-05-W1, T1-05-W2

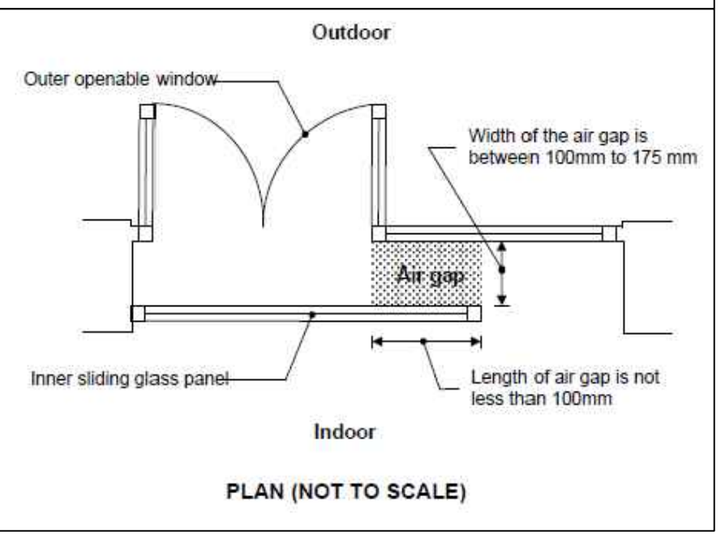
CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Location of Predicted Noise Exceedance for Traffic Noise (Tower 2)

SCALE	1:300 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	5-4
		REV	-



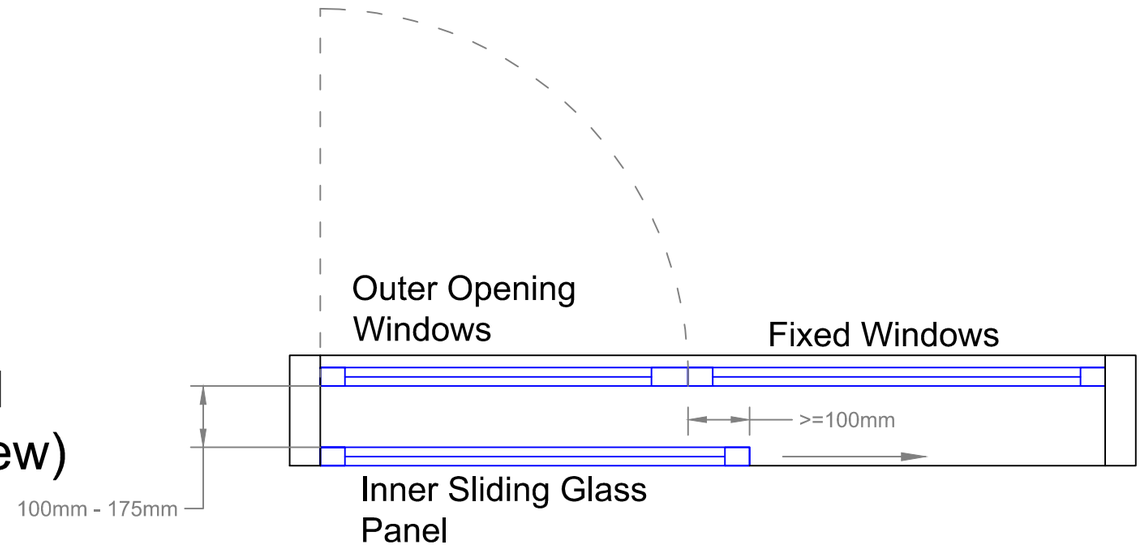


Extracted from Appendix A of Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (APP-130) by Building Department

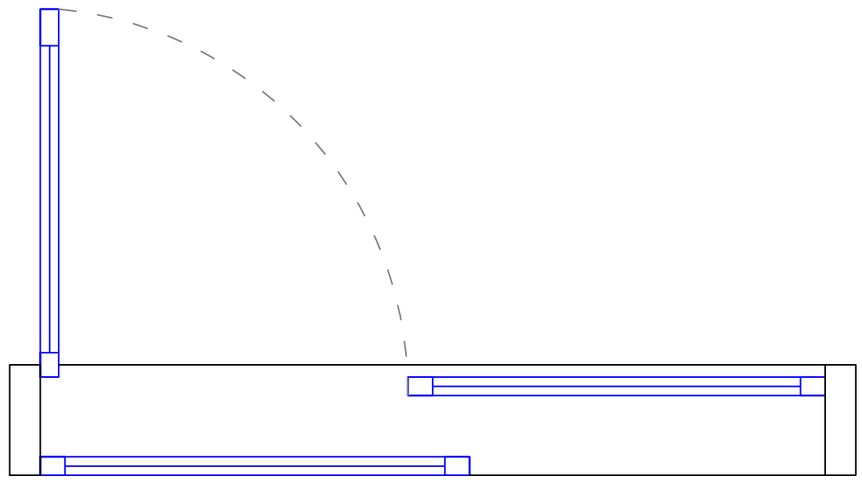
Typical Design

Reference to Practice Note on Application of ACOUSTIC WINDOWS (BAFFLE TYPE) in Planning Residential Developments against Road Traffic Noise Impact

Closed (top view)



Fully Opened (top view)

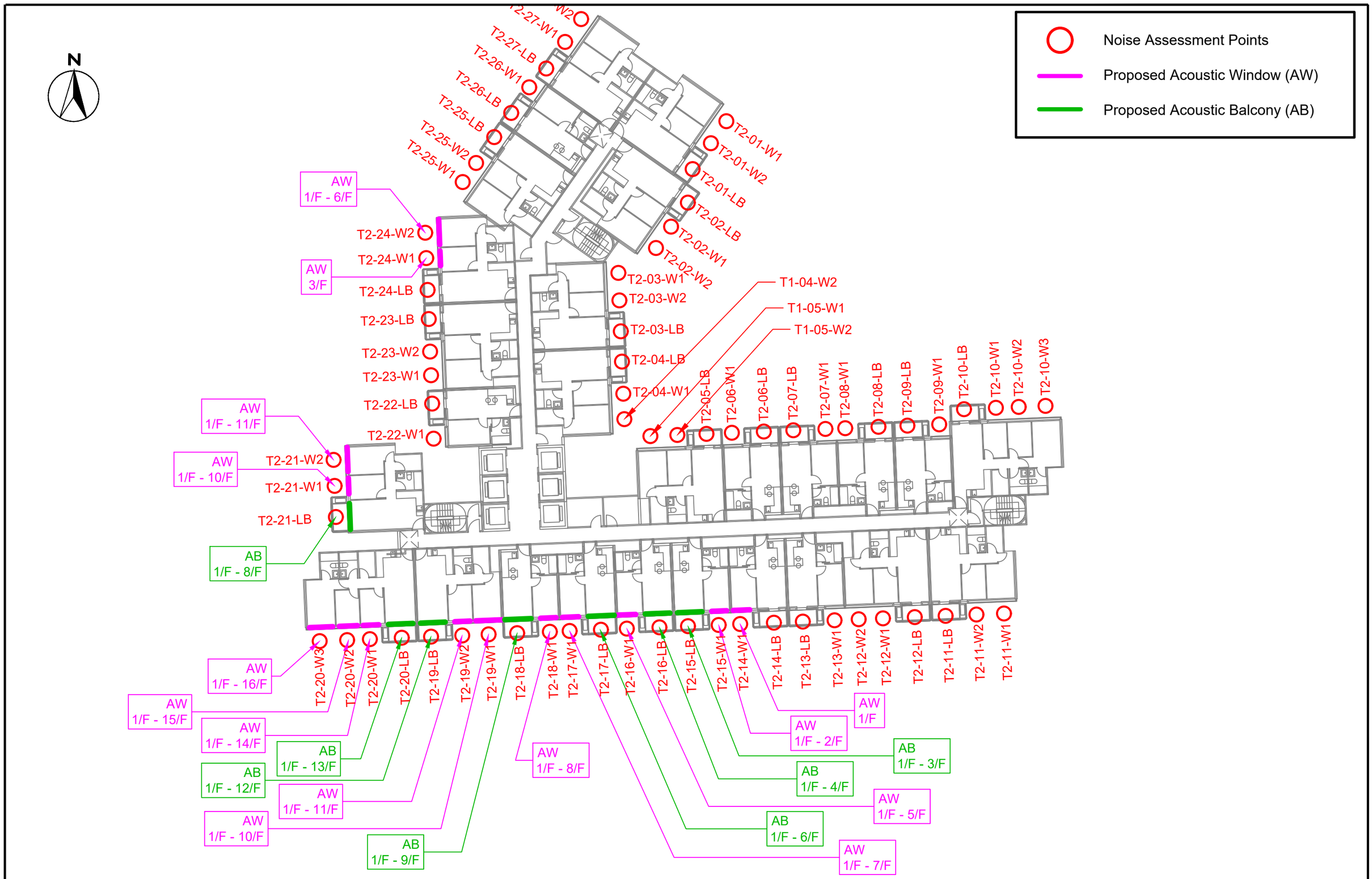


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Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Typical Design for Acoustic Windows (Baffle Type)

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CHECK	KC	DRAWN	CC
JOB No.	IA21009\KCAA110	DRAWING No.	5-5
		REV	-

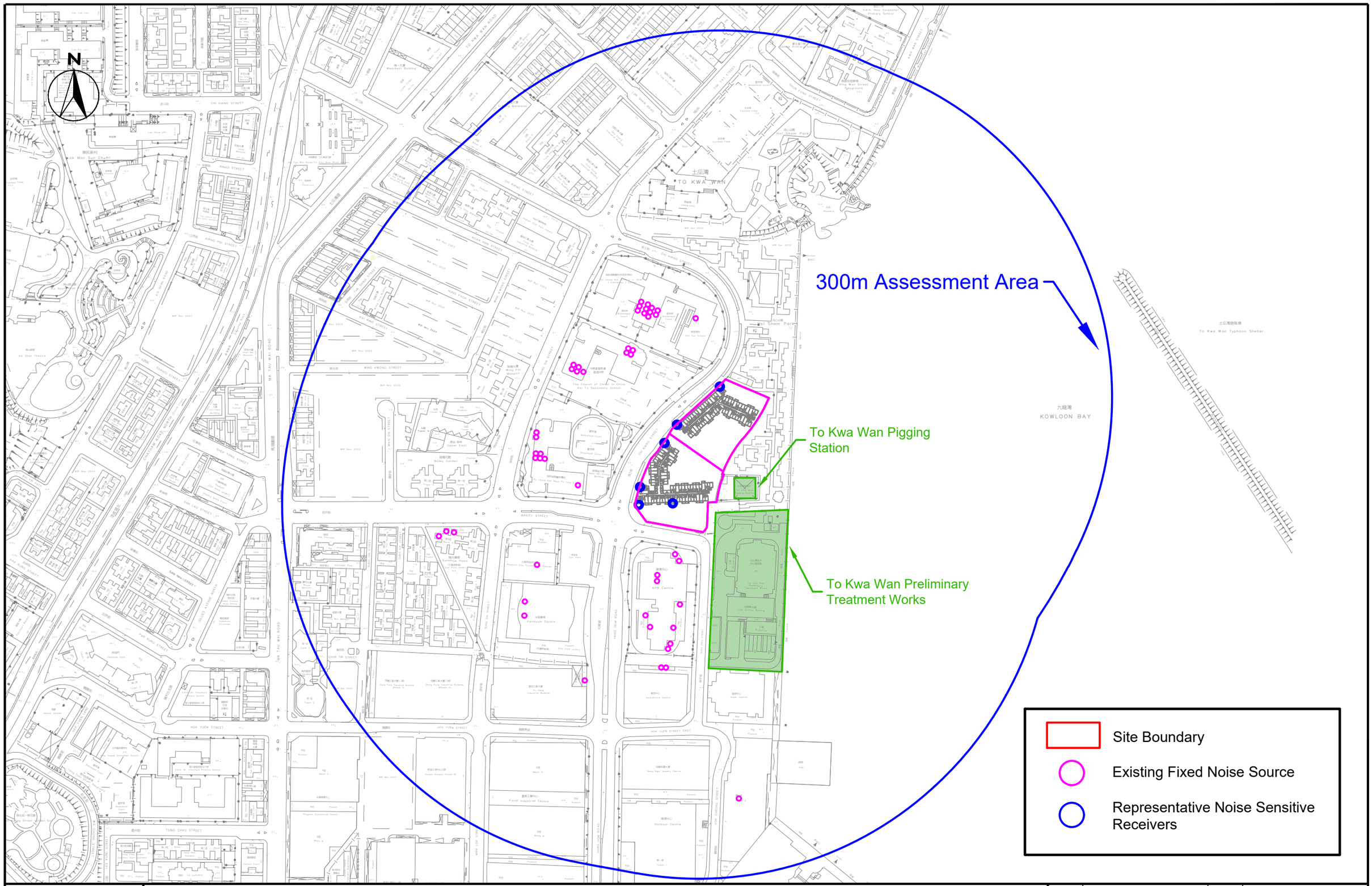


CINOTECH
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Proposed Residential Development in Bailey Street, Kowloon City District

Proposed Mitigation Measures (Tower 2)

SCALE	1:300 @ A3	DATE	Jun 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	5-6
		REV	-

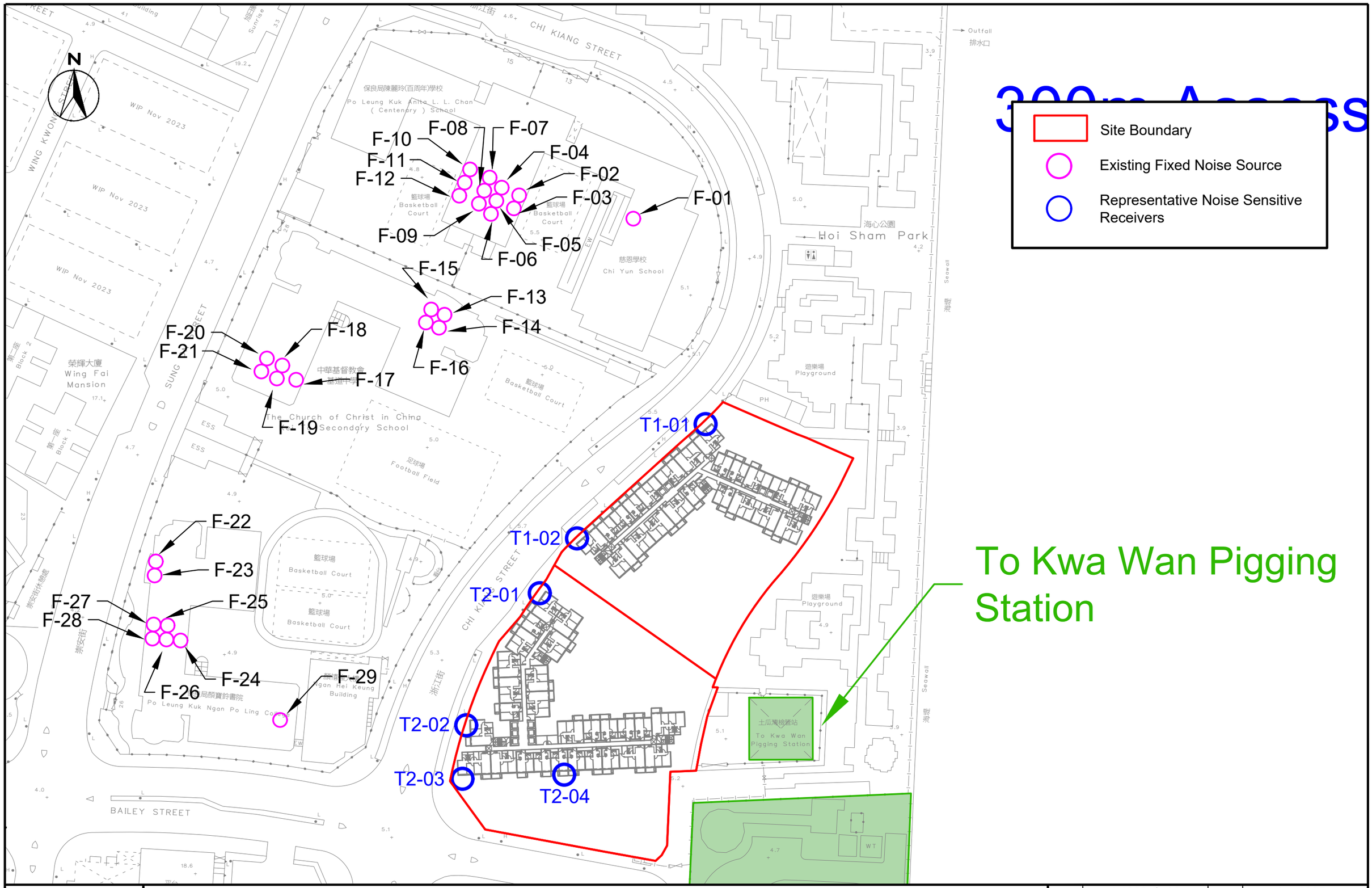


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Proposed Residential Development in Bailey Street, Kowloon City District

Existing Fixed Noise Source - Overview

SCALE	1:1500 @ A3	DATE	Jun 2025
CHECK	LL	DRAWN	DC
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 5-7a
		REV	-

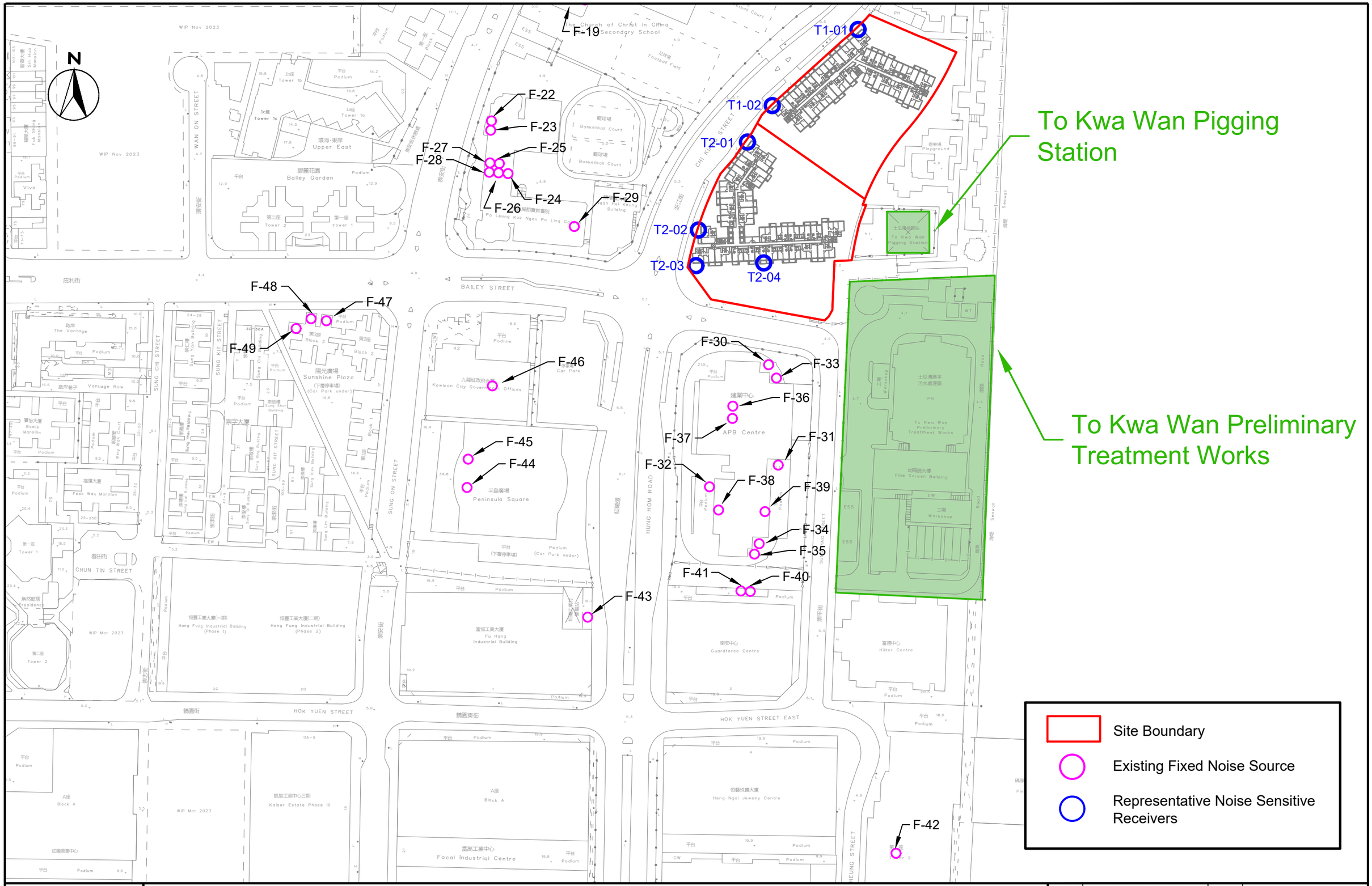


Proposed Residential Development in Bailey Street, Kowloon City District

Existing Fixed Noise Source - 1

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	LL	DRAWN	DC
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 5-7b
		REV	-

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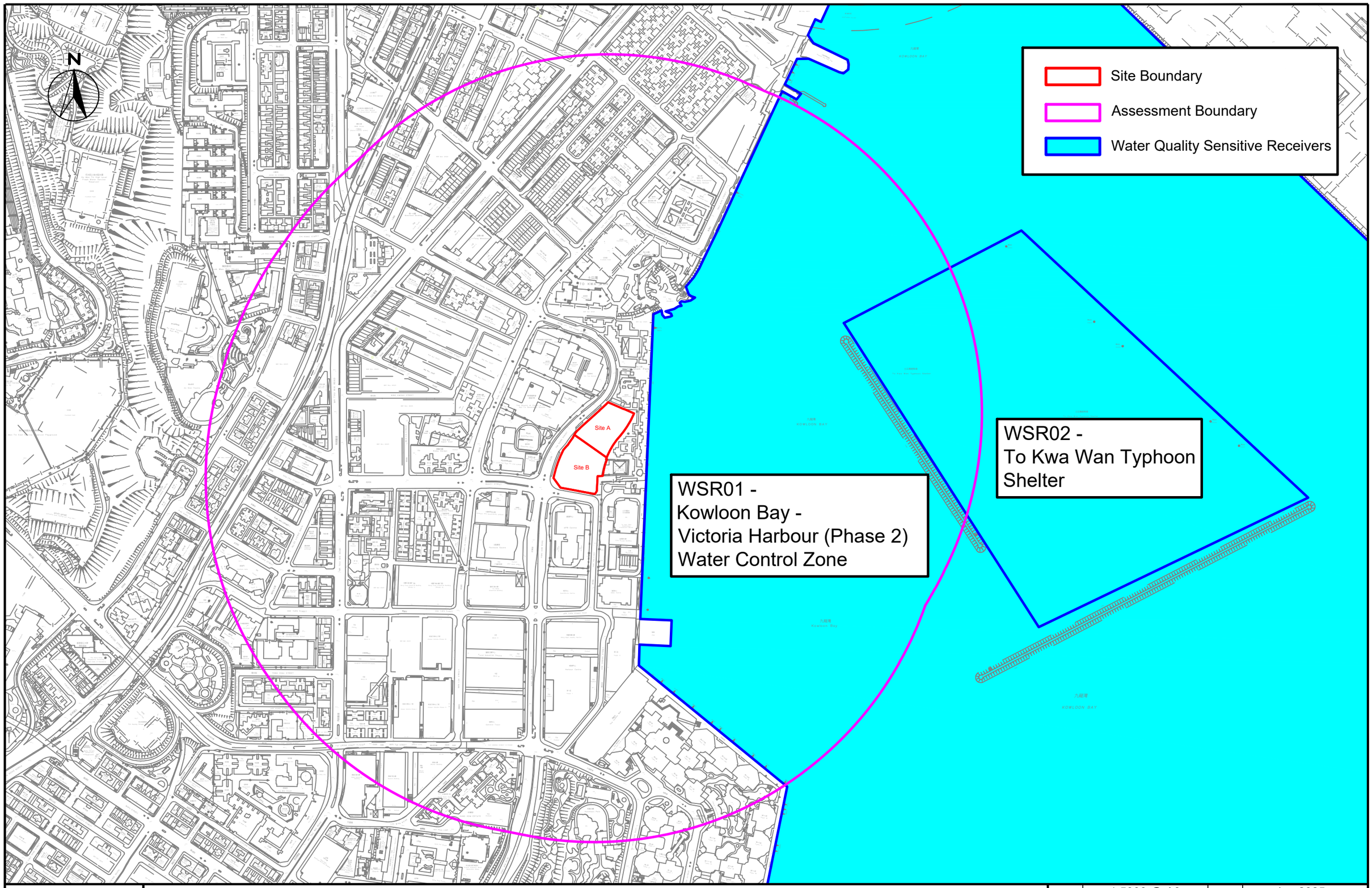


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Proposed Residential Development in Bailey Street, Kowloon City District

Existing Fixed Noise Source - 2

SCALE	1:1500 @ A3	DATE	Jun 2025
CHECK	LL	DRAWN	DC
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 5-7c
		REV	-



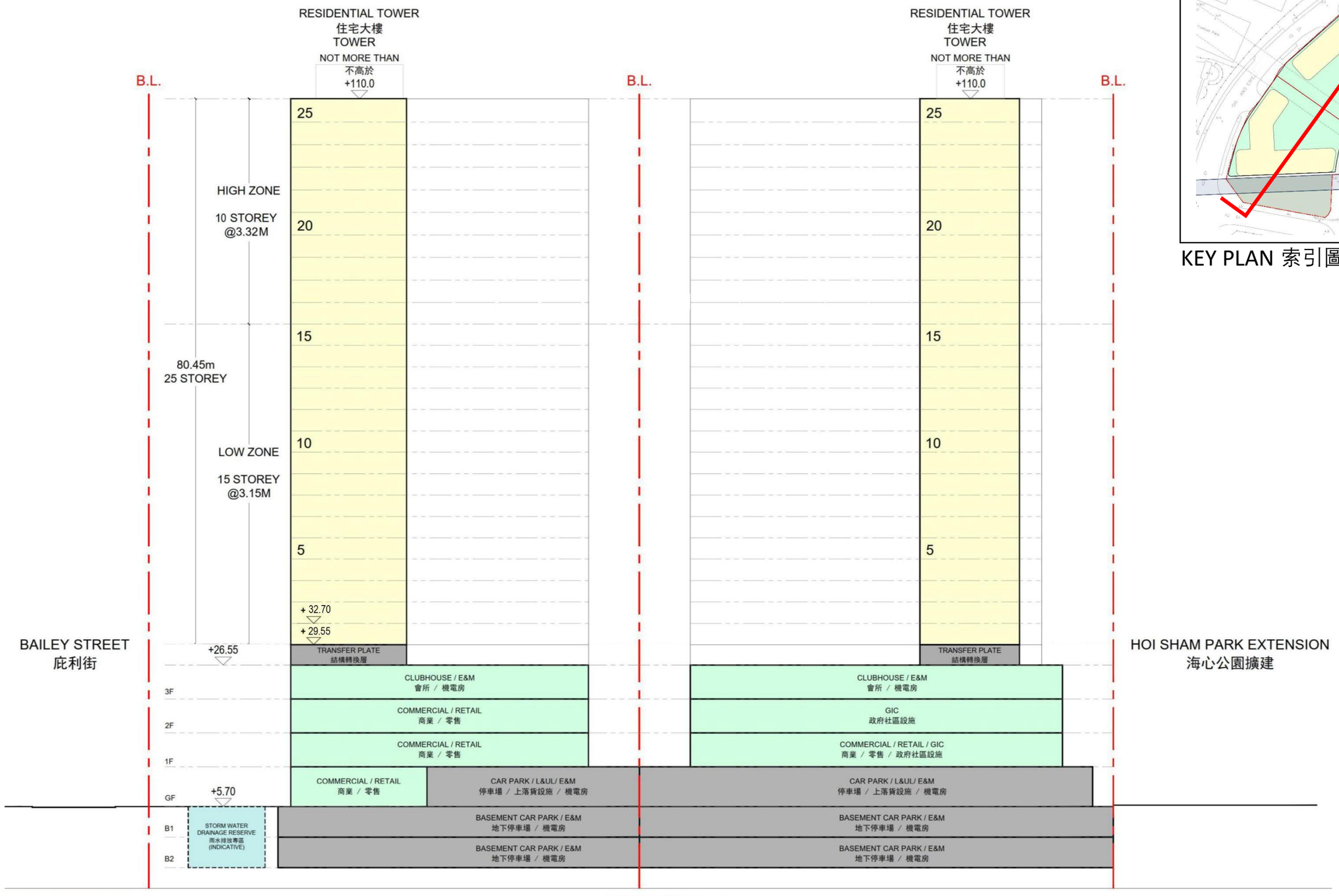
CINOTECH
Cinotech Consultants Limited

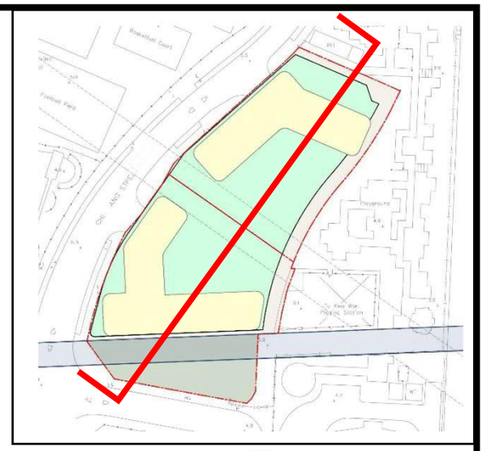
Proposed Residential Development in Bailey Street, Kowloon City District

Water Quality Sensitive Receivers

SCALE	1:5000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	6-1
		REV	-

APPENDIX 2-1
NOTIONAL SECTION PLAN





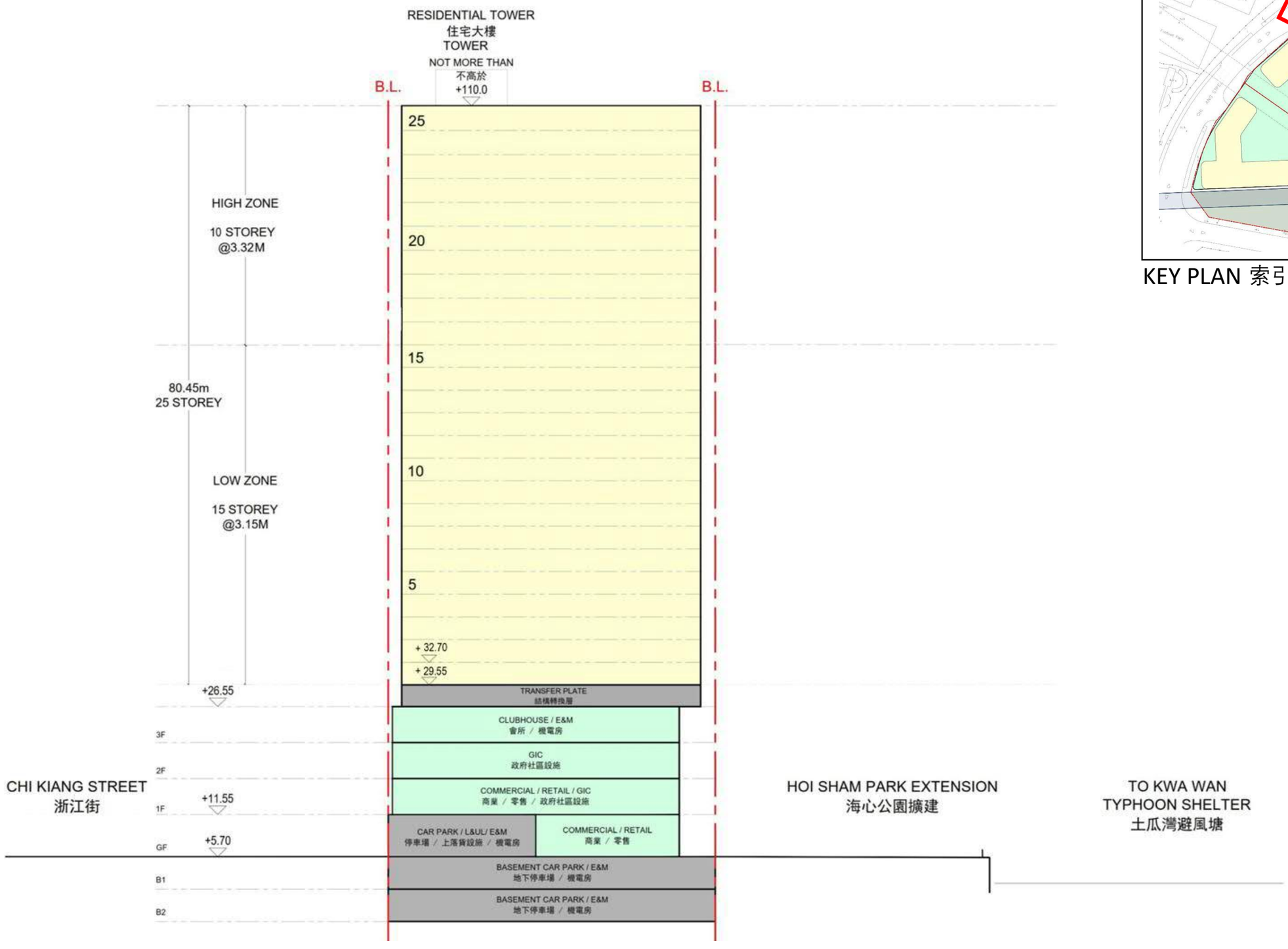
KEY PLAN 索引圖

(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 2**	**Notional Design – Indicative Section**	Not to scale June 2025



KEY PLAN 索引圖

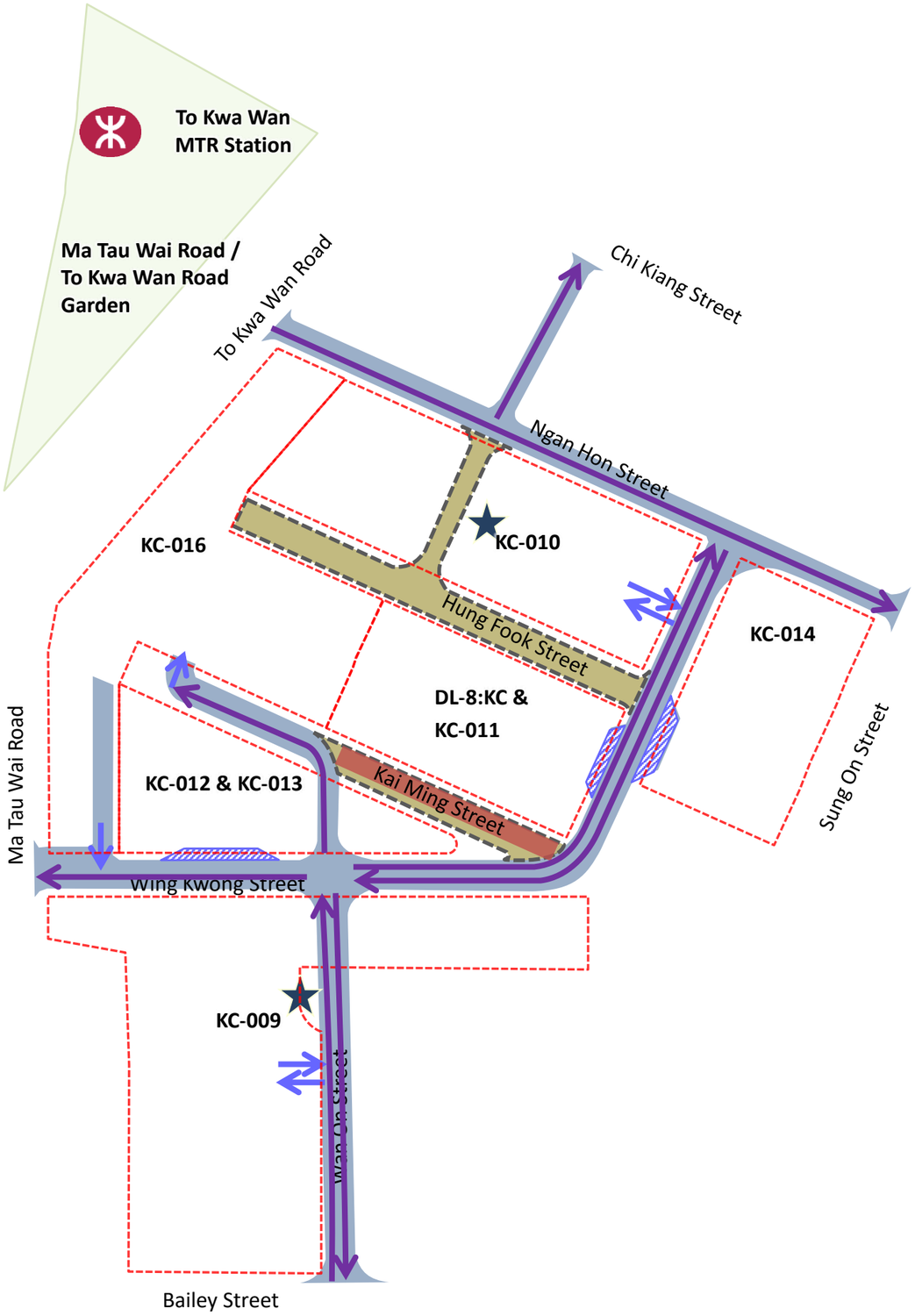


(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 3**	**Notional Design – Indicative Section**	Not to scale June 2025

APPENDIX 2-2
ROAD NETWORK UNDER FUTURE ROAD SCHEME OF KCAA1

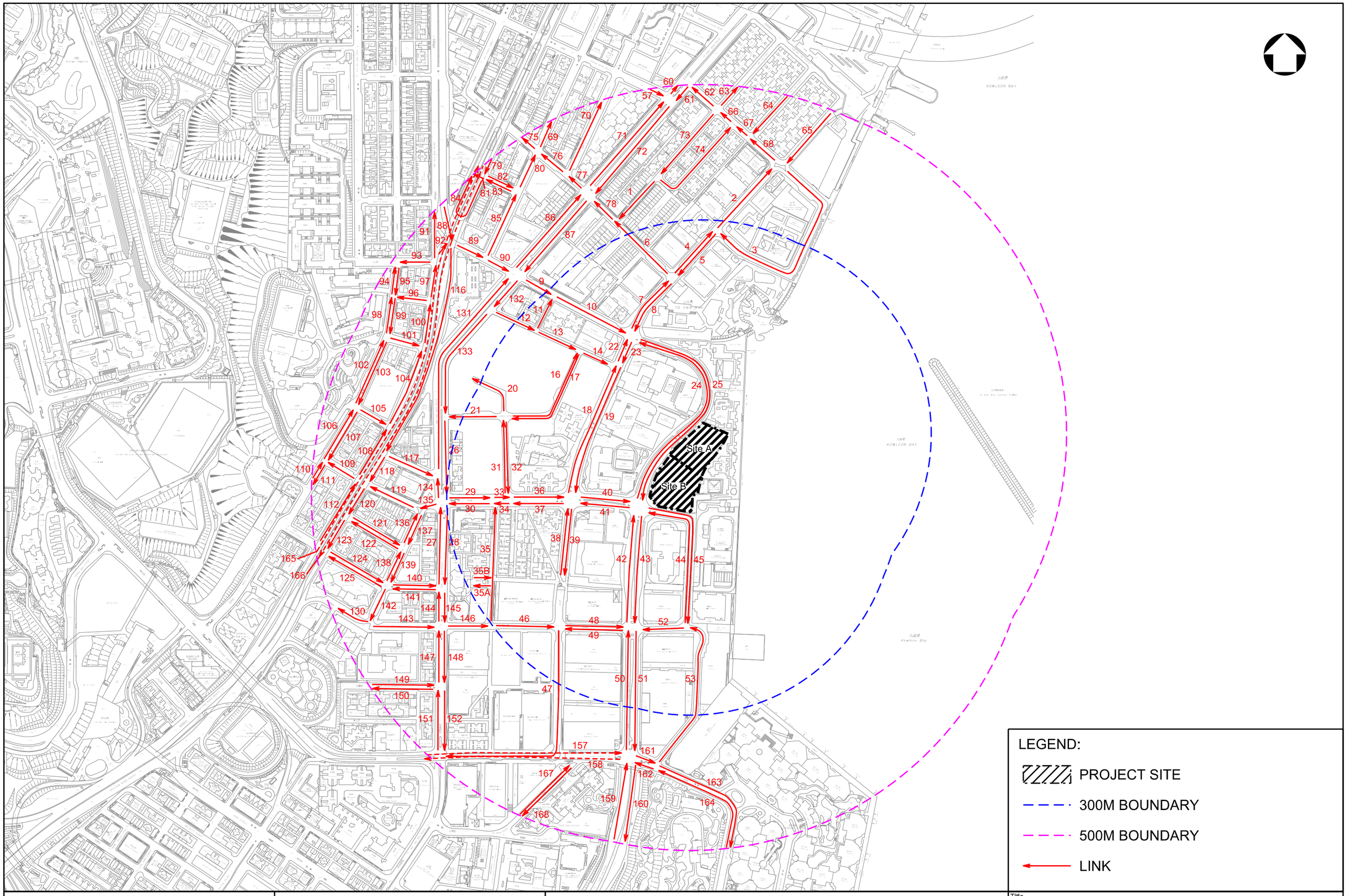
Road Network under future Road Scheme



- Vehicular Direction
- Carpark Ingress and Egress
- Alternative location for EVA provision
- Vehicular Network
- On Street Lay-by / Loading & Unloading
- Pedestrianisation of Existing Street
- **Carpark User Access Point**
  Carpark Users to access to/from B1:
  - Public carpark (KC-009)
  - Communal carpark (KC-010)

All drawings and images as shown for design intent and indicative purpose only, subject to detailed design and changes at later stage (and not deemed to be final).

APPENDIX 3-1
LIST OF ROAD SECTIONS AND ENDORSEMENT FROM TRANSPORT DEPARTMENT



LEGEND:

- PROJECT SITE
- 300M BOUNDARY
- 500M BOUNDARY
- LINK

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

PROPOSED ZONING AMENDMENTS
FOR PROPOSED RESIDENTIAL DEVELOPMENT
AT BAILEY STREET

Title: LINK INDEX PLAN

Scale at A3: 1 : 5,000 | Date: JUN 2025 | Figure No.: Figure 3.1E

PRINTED BY: CHEUI6310 2/6/2025 11:13:19 AM
FILENAME: \\watkins.com\Project\CN\CNHK\Project\5219646_URA_term2022\28.00 Working and Temporary\05 SO\06\NIA and AQIA\Figure 3.1E.dgn
MODEL_NAME: Default

ID	Road No.	Road Name	Type	Speed Limit (km/hr)
R001	1	Mei King Street	LD	50
R002	2	Yuk Yat Street	LD	50
R003	3	Shun Fung Street	LD	50
R004	4	Yuk Yat Street	LD	50
R005	5	Yuk Yat Street	LD	50
R006	6	Lok Shan Road	LD	50
R007	7	Yuk Yat Street	LD	50
R008	8	Yuk Yat Street	LD	50
R009	9	Chi Kiang Street	DD	50
R010	10	Chi Kiang Street	DD	50
R011	11	Lung Tak Street	LD	50
R012	12	Ngan Hon Street	LD	50
R013	13	Ngan Hon Street	LD	50
R014	14	Ngan Hon Street	LD	50
R016	16	Wing Kwong Street	LD	50
R017	17	Wing Kwong Street	LD	50
R018	18	Sung On Street	LD	50
R019	19	Sung On Street	LD	50
R020	20	Access Road	LD	50
R021	21	Wing Kwong Street	LD	50
R022	22	Sung On Street	LD	50
R023	23	Sung On Street	LD	50
R024	24	Chi Kiang Street	DD	50
R025	25	Chi Kiang Street	DD	50
R026	26	Ma Tau Wai Road	DD	50
R027	27	Ma Tau Wai Road	DD	50
R028	28	Ma Tau Wai Road	DD	50
R029	29	Bailey Street	DD	50
R030	30	Bailey Street	DD	50
R031	31	Wan On Street	LD	50
R032	32	Wan On Street	LD	50
R033	33	Bailey Street	DD	50
R034	34	Bailey Street	DD	50
R035	35	Sung Chi Street	LD	50
R036	36	Bailey Street	DD	50
R037	37	Bailey Street	DD	50
R038	38	Sung On Street	LD	50
R039	39	Sung On Street	LD	50
R040	40	Bailey Street	DD	50
R041	41	Bailey Street	DD	50
R042	42	Hung Hom Road	DD	50
R043	43	Hung Hom Road	DD	50
R044	44	Bailey Street	DD	50
R045	45	Bailey Street	DD	50
R046	46	Hok Yuen Street	LD	50
R047	47	Man Lok Street	LD	50
R048	48	Hok Yuen Street East	LD	50
R049	49	Hok Yuen Street East	LD	50
R050	50	Hung Hom Road	DD	50
R051	51	Hung Hom Road	DD	50
R052	52	Hok Yuen Street East	LD	50
R053	53	Hok Cheung Street	LD	50

ID	Road No.	Road Name	Type	Speed Limit (km/hr)
R057	57	Sheung Heung Road	LD	50
R060	60	To Kwa Wan Road	DD	50
R061	61	To Kwa Wan Road	DD	50
R062	62	Kwei Chow Street	LD	50
R063	63	Mei King Street	LD	50
R064	64	Wai King Street	LD	50
R065	65	Long Yuet Street	LD	50
R066	66	Kwei Chow Street	LD	50
R067	67	Kwei Chow Street	LD	50
R068	68	Kwei Chow Street	LD	50
R069	69	Ha Heung Road	LD	50
R070	70	Cheung Ning Street	LD	50
R071	71	To Kwa Wan Road	DD	50
R072	72	To Kwa Wan Road	DD	50
R073	73	Mei King Street	LD	50
R074	74	Mei Kwong Street	LD	50
R075	75	Lok Shan Road	LD	50
R076	76	Lok Shan Road	LD	50
R077	77	Lok Shan Road	LD	50
R078	78	Lok Shan Road	LD	50
R079	79	Kowloon City Road	LD	50
R080	80	Ha Heung Road	LD	50
R081	81	Sze Chuen Street	LD	50
R082	82	Sze Chuen Street	LD	50
R083	83	Sze Chuen Street	LD	50
R084	84	Kowloon City Road	LD	50
R085	85	Ha Heung Road	LD	50
R086	86	To Kwa Wan Road	DD	50
R087	87	To Kwa Wan Road	DD	50
R088	88	Ma Tau Wai Road	PD	50
R089	89	Chi Kiang Street	DD	50
R090	90	Chi Kiang Street	DD	50
R091	91	Ma Tau Wai Road	PD	50
R092	92	Ma Tau Wai Road	PD	50
R093	93	Chi Kiang Street	DD	50
R094	94	Ko Shan Road	LD	50
R095	95	Ko Shan Road	LD	50
R096	96	Anhui Street	LD	50
R097	97	Ma Tau Wai Road	PD	50
R098	98	Ko Shan Road	LD	50
R099	99	Ko Shan Road	LD	50
R100	100	Ma Tau Wai Road	PD	50
R101	101	Kiang Hsi Street	LD	50
R102	102	Ko Shan Road	LD	50
R103	103	Ko Shan Road	LD	50
R104	104	Chatham Road North	PD	50
R105	105	Shan Si Street	LD	50
R106	106	Ko Shan Road	LD	50
R107	107	Ko Shan Road	LD	50
R108	108	Chatham Road North	PD	50
R109	109	San Lau Street	LD	50
R110	110	Ko Shan Road	LD	50

ID	Road No.	Road Name	Type	Speed Limit (km/hr)
R111	111	Ko Shan Road	LD	50
R112	112	Chatham Road North	PD	50
R116	116	Chatham Road North	PD	50
R117	117	Shek Tong Street	LD	50
R118	118	Chatham Road North	PD	50
R119	119	San Lau Street	LD	50
R120	120	Chatham Road North	PD	50
R121	121	San Wai Street	LD	50
R122	122	San Wai Street	LD	50
R123	123	Chatham Road North	PD	50
R124	124	Pak Kung Street	LD	50
R125	125	Pak Kung Street	LD	50
R130	130	Hok Yuen Street	LD	50
R131	131	To Kwa Wan Road	DD	50
R132	132	To Kwa Wan Road	DD	50
R133	133	To Kwa Wan Road	DD	50
R134	134	Ma Tau Wai Road	DD	50
R135	135	Gillies Avenue North	LD	50
R136	136	Gillies Avenue North	LD	50
R137	137	Gillies Avenue North	LD	50
R138	138	Gillies Avenue North	LD	50
R139	139	Gillies Avenue North	LD	50
R140	140	Pak Kung Street	LD	50
R141	141	Pak Kung Street	LD	50
R142	142	Gillies Avenue North	LD	50
R143	143	Hok Yuen Street	LD	50
R144	144	Ma Tau Wai Road	DD	50
R145	145	Ma Tau Wai Road	DD	50
R146	146	Hok Yuen Street	LD	50
R147	147	Ma Tau Wai Road	DD	50
R148	148	Ma Tau Wai Road	DD	50
R149	149	Tsing Chau Street	LD	50
R150	150	Tsing Chau Street	LD	50
R151	151	Ma Tau Wai Road	DD	50
R152	152	Ma Tau Wai Road	DD	50
R157	157	Fat Kwong Street Flyover	DD	50
R158	158	Fat Kwong Street Flyover	DD	50
R159	159	Hung Hom Road	DD	50
R160	160	Hung Hom Road	DD	50
R161	161	Tai Wan Road East	LD	50
R162	162	Tai Wan Road East	LD	50
R163	163	Tai Wan Road East	LD	50
R164	164	Tai Wan Road East	LD	50
R165	165	East Kowloon Corridor	UT	70
R166	166	East Kowloon Corridor	UT	70
R035A	35A	Chun Tin Street	LD	50
R035B	35B	Chun Tin Street	LD	50
R167	167	Tai Wan Road	LD	50
R168	168	Tai Wan Road	LD	50

From: Chun WONG <chunwong@td.gov.hk>
Sent: Wednesday, October 16, 2024 12:27 PM
To: Cheung, Enoch <Enoch.Cheung@atkinsrealis.com>
Cc: Lee, Jacky <Jacky.Lee@atkinsrealis.com>; La, Nicole <Nicole.La@atkinsrealis.com>; Wu, Peter <PWu@ura.org.hk>; Chow, Stanley <Stanley.Chow2@atkinsrealis.com>; Li, Yee Ting <YTLi@ura.org.hk>; Vincent Ka Lok CHOW <vincentklchow@td.gov.hk>
Subject: [EXTERNAL] Re: Technical Note of Traffic Forecast for Environmental Assessments - URA Term Traffic Consultancy SO06 - KCAA1-10-r1

CAUTION: This Email is from an EXTERNAL source. Ensure you trust this sender before clicking on any links or attachments.

Dear Enoch,

I refer to your email dated 2 Oct 2024 regarding the captioned. I have no adverse comment on the methodology as detailed in the Technical Note from traffic engineering point of view. Please be reminded that the traffic assessment done in the subject report shall only be applied for environmental assessment purpose. Thanks.

Regards,

Andy WONG
EK/HM, TEK, TD
Tel: 2399 2504

AtkinsRéalis

Transport Department
Urban Regional Office
Traffic Engineering (Kln.) Division
Kln. District Central Section
8/F, Mongkok Government Offices
30 Luen Wan Street
Mongkok, Kowloon

Attn: Mr. WONG Chun (Engr/Hung Hom)

OUR REFERENCE:
5219646/18.30/OC065/NL/SC/EC

YOUR REFERENCE:

DATE:
2 October 2024

Dear Sir,

Urban Renewal Authority
Term Traffic Consultancy Services
Service Order No. 06 for
Proposed Residential Development at Bailey Street

Technical Note of Traffic Forecast for Environmental Assessments

We are the Traffic Consultant commissioned by Urban Renewal Authority to undertake the captioned consultancy services.

We are pleased to submit herewith the Technical Note of Traffic Forecast for Environmental Assessments for your endorsement to suit Environmental Protection Department's requirement.

We shall be grateful if you could confirm your acceptance of the Technical Note on or before **23 October 2024**. Should you have any queries, please feel free to contact Mr. Enoch Cheung at 2972 1436 or email to enoch.cheung@atkinsrealis.com.

Yours faithfully
For and on behalf of
Atkins China Limited

Stanley CHOW
Associate Director

Encl.

c.c. URA Mr. Peter Wu (Manger, Planning and Design) By Email Only

APPENDIX 3-2
EMISSION RATES FROM SAMP V2.1

Softcopy only

APPENDIX 3-3
EMISSION OF HEAVY GOOD VEHICLE AND COACHES FOR THE NEARBY PARKS

Table 1 - Traffic Flow

Route	A			B				C						
From Car Park	Carpark of APB Centre			Outdoor car park adjacent to Kowloon City Government Offices				Carpark of Peninsula Square						
Reference Road Section	44 & 45			41				38						
	Flow count													
Hour	HGV			Coaches				HGV			Coaches			
	HGV7	HGV8	HGV9	NFB6	NFB7	NFB8	NFB9	HGV7	HGV8	HGV9	NFB6	NFB7	NFB8	NFB9
0000-0100	2	4	1	0	0	0	0	1	2	1	0	0	1	0
0100-0200	1	2	0	0	0	0	0	1	1	0	1	0	1	0
0200-0300	2	3	0	0	0	0	0	1	2	0	0	0	1	0
0300-0400	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0400-0500	1	2	0	0	0	0	0	1	1	0	1	0	1	0
0500-0600	0	1	0	0	0	0	0	0	1	0	1	1	1	0
0600-0700	2	4	0	0	0	1	0	1	2	1	1	1	2	0
0700-0800	1	2	0	1	0	1	0	1	1	0	1	1	2	0
0800-0900	2	5	2	1	1	1	0	1	3	1	1	1	2	0
0900-1000	3	6	2	2	1	3	0	2	4	1	3	2	5	0
1000-1100	2	3	1	0	0	1	0	1	2	1	4	3	6	0
1100-1200	2	3	0	0	0	0	0	1	2	0	0	0	0	0
1200-1300	1	2	0	0	0	0	0	1	1	0	0	0	0	0
1300-1400	3	5	1	1	1	2	0	1	2	1	2	1	3	0
1400-1500	3	6	1	1	0	1	0	1	3	1	2	1	3	0
1500-1600	0	1	0	0	0	0	0	0	0	0	1	1	1	0
1600-1700	1	3	1	1	1	1	0	1	1	0	1	1	2	0
1700-1800	1	2	1	0	0	1	0	0	1	0	1	0	1	0
1800-1900	1	2	1	1	0	1	0	1	1	0	1	1	1	0
1900-2000	1	2	0	1	0	1	0	0	1	0	1	1	1	0
2000-2100	1	1	0	0	0	0	0	0	1	0	1	0	1	0
2100-2200	0	0	0	0	0	0	0	0	0	0	1	1	2	0
2200-2300	1	2	1	0	0	0	0	0	1	0	1	0	1	0
2300-0000	1	4	1	0	0	0	0	1	1	0	1	0	1	0

Table 2a - Start NO2 Emission outside Car Park

Route	A	B	C		
From Car Park	Carpark of APB Centre	Outdoor car park adjacent to Kowloon City Government Offices	Carpark of Peninsula Square		
	HGV	Coaches	HGV	Coaches	Total
Hour	NO2 Emission (g/s)				
0000-0100	1.722E-03	0.000E+00	6.786E-04	1.626E-04	8.412E-04
0100-0200	7.403E-04	0.000E+00	3.408E-04	2.397E-04	5.805E-04
0200-0300	1.234E-03	0.000E+00	5.114E-04	1.626E-04	6.741E-04
0300-0400	0.000E+00	0.000E+00	1.706E-04	0.000E+00	1.706E-04
0400-0500	7.403E-04	0.000E+00	3.408E-04	2.397E-04	5.805E-04
0500-0600	2.469E-04	0.000E+00	1.706E-04	4.061E-04	5.767E-04
0600-0700	1.481E-03	2.868E-04	6.786E-04	5.687E-04	1.247E-03
0700-0800	7.403E-04	4.226E-04	3.408E-04	5.687E-04	9.096E-04
0800-0900	2.211E-03	7.160E-04	8.492E-04	5.687E-04	1.418E-03
0900-1000	2.705E-03	1.425E-03	1.190E-03	1.377E-03	2.567E-03
1000-1100	1.475E-03	2.868E-04	6.786E-04	1.783E-03	2.462E-03
1100-1200	1.234E-03	0.000E+00	5.114E-04	0.000E+00	5.114E-04
1200-1300	7.403E-04	0.000E+00	3.408E-04	0.000E+00	3.408E-04
1300-1400	2.216E-03	1.003E-03	6.786E-04	8.084E-04	1.487E-03
1400-1500	2.463E-03	4.226E-04	8.492E-04	8.084E-04	1.658E-03
1500-1600	2.469E-04	0.000E+00	0.000E+00	4.061E-04	4.061E-04
1600-1700	1.229E-03	7.160E-04	3.408E-04	5.687E-04	9.096E-04
1700-1800	9.821E-04	2.868E-04	1.706E-04	2.397E-04	4.103E-04
1800-1900	9.821E-04	4.226E-04	3.408E-04	4.061E-04	7.469E-04
1900-2000	7.403E-04	4.226E-04	1.706E-04	4.061E-04	5.767E-04
2000-2100	4.933E-04	0.000E+00	1.706E-04	2.397E-04	4.103E-04
2100-2200	0.000E+00	0.000E+00	0.000E+00	5.687E-04	5.687E-04
2200-2300	9.821E-04	0.000E+00	1.706E-04	2.397E-04	4.103E-04
2300-0000	1.476E-03	0.000E+00	3.408E-04	2.397E-04	5.805E-04

Table 2b - Start NO Emission outside Car Park

Route	A	B	C		
From Car Park	Carpark of APB Centre	Outdoor car park adjacent to Kowloon City Government Offices	Carpark of Peninsula Square		
	HGV	Coaches	HGV	Coaches	Total
Hour	NO Emission (g/s)				
0000-0100	**4.092E-03**	**0.000E+00**	1.632E-03	3.801E-04	**2.012E-03**
0100-0200	**1.730E-03**	**0.000E+00**	7.724E-04	5.782E-04	**1.351E-03**
0200-0300	**2.848E-03**	**0.000E+00**	1.195E-03	3.801E-04	**1.575E-03**
0300-0400	**0.000E+00**	**0.000E+00**	4.229E-04	0.000E+00	**4.229E-04**
0400-0500	**1.730E-03**	**0.000E+00**	7.724E-04	5.782E-04	**1.351E-03**
0500-0600	**6.121E-04**	**0.000E+00**	4.229E-04	9.161E-04	**1.339E-03**
0600-0700	**3.460E-03**	**6.702E-04**	1.632E-03	1.296E-03	**2.928E-03**
0700-0800	**1.730E-03**	**1.019E-03**	7.724E-04	1.296E-03	**2.069E-03**
0800-0900	**5.337E-03**	**1.615E-03**	2.055E-03	1.296E-03	**3.351E-03**
0900-1000	**6.455E-03**	**3.305E-03**	2.827E-03	3.171E-03	**5.998E-03**
1000-1100	**3.480E-03**	**6.702E-04**	1.632E-03	4.087E-03	**5.719E-03**
1100-1200	**2.848E-03**	**0.000E+00**	1.195E-03	0.000E+00	**1.195E-03**
1200-1300	**1.730E-03**	**0.000E+00**	7.724E-04	0.000E+00	**7.724E-04**
1300-1400	**5.210E-03**	**2.285E-03**	1.632E-03	1.874E-03	**3.507E-03**
1400-1500	**5.822E-03**	**1.019E-03**	2.055E-03	1.874E-03	**3.929E-03**
1500-1600	**6.121E-04**	**0.000E+00**	0.000E+00	9.161E-04	**9.161E-04**
1600-1700	**2.974E-03**	**1.615E-03**	7.724E-04	1.296E-03	**2.069E-03**
1700-1800	**2.362E-03**	**6.702E-04**	4.229E-04	5.782E-04	**1.001E-03**
1800-1900	**2.362E-03**	**1.019E-03**	7.724E-04	9.161E-04	**1.688E-03**
1900-2000	**1.730E-03**	**1.019E-03**	4.229E-04	9.161E-04	**1.339E-03**
2000-2100	**1.118E-03**	**0.000E+00**	4.229E-04	5.782E-04	**1.001E-03**
2100-2200	**0.000E+00**	**0.000E+00**	0.000E+00	1.296E-03	**1.296E-03**
2200-2300	**2.362E-03**	**0.000E+00**	4.229E-04	5.782E-04	**1.001E-03**
2300-0000	**3.587E-03**	**0.000E+00**	7.724E-04	5.782E-04	**1.351E-03**

Table 2c - NO2 Emission inside Car Park

Car Park	A	B	C		
From Car Park	Carpark of APB Centre	Outdoor car park adjacent to Kowloon City Government Offices	Carpark of Peninsula Square		
	HGV	Coaches	HGV	Coaches	Total
Hour	NO2 Emission (g/s)				
0000-0100	1.723E-03	0.000E+00	1.909E-03	5.809E-04	2.490E-03
0100-0200	7.279E-04	0.000E+00	8.763E-04	7.764E-04	1.653E-03
0200-0300	1.189E-03	0.000E+00	1.393E-03	5.809E-04	1.974E-03
0300-0400	0.000E+00	0.000E+00	5.166E-04	0.000E+00	5.166E-04
0400-0500	7.279E-04	0.000E+00	8.763E-04	7.764E-04	1.653E-03
0500-0600	2.668E-04	0.000E+00	5.166E-04	1.169E-03	1.685E-03
0600-0700	1.456E-03	9.114E-05	1.909E-03	1.750E-03	3.659E-03
0700-0800	7.279E-04	1.232E-04	8.763E-04	1.750E-03	2.626E-03
0800-0900	2.257E-03	2.100E-04	2.426E-03	1.750E-03	4.175E-03
0900-1000	2.718E-03	4.243E-04	3.302E-03	4.275E-03	7.577E-03
1000-1100	1.456E-03	9.114E-05	1.909E-03	5.444E-03	7.353E-03
1100-1200	1.189E-03	0.000E+00	1.393E-03	0.000E+00	1.393E-03
1200-1300	7.279E-04	0.000E+00	8.763E-04	0.000E+00	8.763E-04
1300-1400	2.184E-03	3.012E-04	1.909E-03	2.526E-03	4.435E-03
1400-1500	2.451E-03	1.232E-04	2.426E-03	2.526E-03	4.952E-03
1500-1600	2.668E-04	0.000E+00	0.000E+00	1.169E-03	1.169E-03
1600-1700	1.262E-03	2.100E-04	8.763E-04	1.750E-03	2.626E-03
1700-1800	9.951E-04	9.114E-05	5.166E-04	7.764E-04	1.293E-03
1800-1900	9.951E-04	1.232E-04	8.763E-04	1.169E-03	2.045E-03
1900-2000	7.279E-04	1.232E-04	5.166E-04	1.169E-03	1.685E-03
2000-2100	4.611E-04	0.000E+00	5.166E-04	7.764E-04	1.293E-03
2100-2200	0.000E+00	0.000E+00	0.000E+00	1.750E-03	1.750E-03
2200-2300	9.951E-04	0.000E+00	5.166E-04	7.764E-04	1.293E-03
2300-0000	1.529E-03	0.000E+00	8.763E-04	7.764E-04	1.653E-03

Table 2d - NO Emission inside Car Park

Car Park	A	B	C		
From Car Park	Carpark of APB Centre	Outdoor car park adjacent to Kowloon City Government Offices	Carpark of Peninsula Square		
	HGV	Coaches	HGV	Coaches	Total
Hour	NO Emission (g/s)				
0000-0100	4.000E-03	0.000E+00	4.484E-03	1.338E-03	5.822E-03
0100-0200	1.668E-03	0.000E+00	1.975E-03	1.841E-03	3.816E-03
0200-0300	2.705E-03	0.000E+00	3.198E-03	1.338E-03	4.536E-03
0300-0400	0.000E+00	0.000E+00	1.223E-03	0.000E+00	1.223E-03
0400-0500	1.668E-03	0.000E+00	1.975E-03	1.841E-03	3.816E-03
0500-0600	6.305E-04	0.000E+00	1.223E-03	2.637E-03	3.860E-03
0600-0700	3.336E-03	2.095E-04	4.484E-03	3.975E-03	8.459E-03
0700-0800	1.668E-03	2.919E-04	1.975E-03	3.975E-03	5.950E-03
0800-0900	5.295E-03	4.683E-04	5.707E-03	3.975E-03	9.682E-03
0900-1000	6.332E-03	9.697E-04	7.682E-03	9.791E-03	1.747E-02
1000-1100	3.370E-03	2.095E-04	4.484E-03	1.243E-02	1.691E-02
1100-1200	2.705E-03	0.000E+00	3.198E-03	0.000E+00	3.198E-03
1200-1300	1.668E-03	0.000E+00	1.975E-03	0.000E+00	1.975E-03
1300-1400	5.038E-03	6.778E-04	4.484E-03	5.816E-03	1.030E-02
1400-1500	5.668E-03	2.919E-04	5.707E-03	5.816E-03	1.152E-02
1500-1600	6.305E-04	0.000E+00	0.000E+00	2.637E-03	2.637E-03
1600-1700	2.963E-03	4.683E-04	1.975E-03	3.975E-03	5.950E-03
1700-1800	2.332E-03	2.095E-04	1.223E-03	1.841E-03	3.064E-03
1800-1900	2.332E-03	2.919E-04	1.975E-03	2.637E-03	4.612E-03
1900-2000	1.668E-03	2.919E-04	1.223E-03	2.637E-03	3.860E-03
2000-2100	1.037E-03	0.000E+00	1.223E-03	1.841E-03	3.064E-03
2100-2200	0.000E+00	0.000E+00	0.000E+00	3.975E-03	3.975E-03
2200-2300	2.332E-03	0.000E+00	1.223E-03	1.841E-03	3.064E-03
2300-0000	3.593E-03	0.000E+00	1.975E-03	1.841E-03	3.816E-03

Table 2e - RSP Emission inside Car Park

Car Park	A	B	C		
From Car Park	Carpark of APB Centre	Outdoor car park adjacent to Kowloon City Government Offices	Carpark of Peninsula Square		
	HGV	Coaches	HGV	Coaches	Total
Hour	RSP Emission (g/s)				
0000-0100	7.913E-05	0.000E+00	9.360E-05	3.133E-05	1.249E-04
0100-0200	3.295E-05	0.000E+00	4.066E-05	5.193E-05	9.259E-05
0200-0300	5.302E-05	0.000E+00	6.678E-05	3.133E-05	9.811E-05
0300-0400	0.000E+00	0.000E+00	2.612E-05	0.000E+00	2.612E-05
0400-0500	3.295E-05	0.000E+00	4.066E-05	5.193E-05	9.259E-05
0500-0600	1.288E-05	0.000E+00	2.612E-05	6.593E-05	9.206E-05
0600-0700	6.590E-05	1.720E-06	9.360E-05	9.726E-05	1.909E-04
0700-0800	3.295E-05	2.879E-06	4.066E-05	9.726E-05	1.379E-04
0800-0900	1.053E-04	3.681E-06	1.197E-04	9.726E-05	2.170E-04
0900-1000	1.253E-04	8.281E-06	1.604E-04	2.465E-04	4.068E-04
1000-1100	6.625E-05	1.720E-06	9.360E-05	3.124E-04	4.060E-04
1100-1200	5.302E-05	0.000E+00	6.678E-05	0.000E+00	6.678E-05
1200-1300	3.295E-05	0.000E+00	4.066E-05	0.000E+00	4.066E-05
1300-1400	9.920E-05	5.402E-06	9.360E-05	1.492E-04	2.428E-04
1400-1500	1.121E-04	2.879E-06	1.197E-04	1.492E-04	2.689E-04
1500-1600	1.288E-05	0.000E+00	0.000E+00	6.593E-05	6.593E-05
1600-1700	5.907E-05	3.681E-06	4.066E-05	9.726E-05	1.379E-04
1700-1800	4.619E-05	1.720E-06	2.612E-05	5.193E-05	7.805E-05
1800-1900	4.619E-05	2.879E-06	4.066E-05	6.593E-05	1.066E-04
1900-2000	3.295E-05	2.879E-06	2.612E-05	6.593E-05	9.206E-05
2000-2100	2.007E-05	0.000E+00	2.612E-05	5.193E-05	7.805E-05
2100-2200	0.000E+00	0.000E+00	0.000E+00	9.726E-05	9.726E-05
2200-2300	4.619E-05	0.000E+00	2.612E-05	5.193E-05	7.805E-05
2300-0000	7.195E-05	0.000E+00	4.066E-05	5.193E-05	9.259E-05

Table 2f - FSP Emission inside Car Park

Car Park	A	B	C		
From Car Park	Carpark of APB Centre	Outdoor car park adjacent to Kowloon City Government Offices	Carpark of Peninsula Square		
	HGV	Coaches	HGV	Coaches	Total
Hour	FSP Emission (g/s)				
0000-0100	7.283E-05	0.000E+00	8.613E-05	2.883E-05	1.150E-04
0100-0200	3.032E-05	0.000E+00	3.740E-05	4.778E-05	8.518E-05
0200-0300	4.879E-05	0.000E+00	6.143E-05	2.883E-05	9.026E-05
0300-0400	0.000E+00	0.000E+00	2.403E-05	0.000E+00	2.403E-05
0400-0500	3.032E-05	0.000E+00	3.740E-05	4.778E-05	8.518E-05
0500-0600	1.185E-05	0.000E+00	2.403E-05	6.067E-05	8.471E-05
0600-0700	6.064E-05	1.589E-06	8.613E-05	8.950E-05	1.756E-04
0700-0800	3.032E-05	2.661E-06	3.740E-05	8.950E-05	1.269E-04
0800-0900	9.688E-05	3.405E-06	1.102E-04	8.950E-05	1.997E-04
0900-1000	1.153E-04	7.654E-06	1.476E-04	2.268E-04	3.743E-04
1000-1100	6.098E-05	1.589E-06	8.613E-05	2.875E-04	3.736E-04
1100-1200	4.879E-05	0.000E+00	6.143E-05	0.000E+00	6.143E-05
1200-1300	3.032E-05	0.000E+00	3.740E-05	0.000E+00	3.740E-05
1300-1400	9.130E-05	4.993E-06	8.613E-05	1.373E-04	2.234E-04
1400-1500	1.032E-04	2.661E-06	1.102E-04	1.373E-04	2.474E-04
1500-1600	1.185E-05	0.000E+00	0.000E+00	6.067E-05	6.067E-05
1600-1700	5.437E-05	3.405E-06	3.740E-05	8.950E-05	1.269E-04
1700-1800	4.251E-05	1.589E-06	2.403E-05	4.778E-05	7.181E-05
1800-1900	4.251E-05	2.661E-06	3.740E-05	6.067E-05	9.807E-05
1900-2000	3.032E-05	2.661E-06	2.403E-05	6.067E-05	8.471E-05
2000-2100	1.847E-05	0.000E+00	2.403E-05	4.778E-05	7.181E-05
2100-2200	0.000E+00	0.000E+00	0.000E+00	8.950E-05	8.950E-05
2200-2300	4.251E-05	0.000E+00	2.403E-05	4.778E-05	7.181E-05
2300-0000	6.622E-05	0.000E+00	3.740E-05	4.778E-05	8.518E-05

Table 3a - Road Section

Route A

Section	x1	y1	x2	y2	elevation (mPD)	width , with mixing zone (m)	length (m)	emission height (m)	Szinit (m)
RA_01	837741.93	819184.35	837743.06	819229.86	5	11	46	3.31	3.08
RA_02	837743.06	819229.86	837663.83	819244.73	5	11	81	3.31	3.08
RA_03	837663.83	819244.73	837673.61	819283.46	5.1	13	40	3.31	3.08
RA_04	837673.61	819283.46	837706.38	819334.12	5.5	13	60	3.31	3.08
RA_05	837706.38	819334.12	837755.47	819378.5	5.6	11	66	3.31	3.08
RA_06	837755.47	819378.5	837768.69	819406.56	5.2	11	31	3.31	3.08
RA_07	837768.69	819406.56	837760.67	819448.61	4.7	11	43	3.31	3.08
RA_08	837760.67	819448.61	837733.06	819471.49	4.5	11	36	3.31	3.08
RA_09	837733.06	819471.49	837647.47	819505.29	4.5	11	92	3.31	3.08
RA_10	837647.47	819505.29	837684.25	819547.05	4.4	11	56	3.31	3.08
						Total length	550		

Route B

Section	x1	y1	x2	y2	elevation (mPD)	width , with mixing zone (m)	length (m)	emission height (m)	Szinit (m)
RB_01	837635.3	819249.2	837561.4	819254.5	4.5	13	74	3.23	3.00
RB_02	837561.4	819254.5	837589.4	819357.1	4.3	14	106	3.23	3.00
RB_03	837589.4	819357.1	837666.9	819527.0	4.5	13	187	3.23	3.00
RB_04	837666.9	819527.0	837868.7	819753.5	4.4	12	303	3.23	3.00
						Total length	670		

Route C

Section	x1	y1	x2	y2	elevation (mPD)	width , with mixing zone (m)	length (m)	emission height (m)	Szinit (m)
RC_01	837553.82	819148.53	837563.89	819256.47	4.5	11	108	3.27	3.04
RC_02	837563.89	819256.47	837589.38	819357.1	4.3	14	104	3.27	3.04
RC_03	837589.38	819357.1	837659.87	819509.88	4.5	13	168	3.27	3.04
						Total length	380		

Table 3b - Start NO2 Emission along the Road

Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Route A	**Total NO_2 Emission (g/s)**	1.722E-03	7.403E-04	1.234E-03	0.000E+00	7.403E-04	2.469E-04	1.481E-03	7.403E-04	2.211E-03	2.705E-03	1.475E-03	1.234E-03	7.403E-04	2.216E-03	2.463E-03	2.469E-04	1.229E-03	9.821E-04	9.821E-04	7.403E-04	4.933E-04	0.000E+00	9.821E-04	1.476E-03
Section		**Emission by Road Section**																						
RA_01	**NO_2 Emission ($g/s/m^2$)**	2.847E-07	1.224E-07	2.039E-07	0.000E+00	1.224E-07	4.082E-08	2.447E-07	1.224E-07	3.655E-07	4.471E-07	2.439E-07	2.039E-07	1.224E-07	3.663E-07	4.071E-07	4.082E-08	2.032E-07	1.623E-07	1.623E-07	1.224E-07	8.155E-08	0.000E+00	1.623E-07	2.440E-07
RA_02		2.847E-07	1.224E-07	2.039E-07	0.000E+00	1.224E-07	4.082E-08	2.447E-07	1.224E-07	3.655E-07	4.471E-07	2.439E-07	2.039E-07	1.224E-07	3.663E-07	4.071E-07	4.082E-08	2.032E-07	1.623E-07	1.623E-07	1.224E-07	8.155E-08	0.000E+00	1.623E-07	2.440E-07
RA_03		2.409E-07	1.035E-07	1.725E-07	0.000E+00	1.035E-07	3.454E-08	2.071E-07	1.035E-07	3.093E-07	3.783E-07	2.064E-07	1.725E-07	1.035E-07	3.099E-07	3.444E-07	3.454E-08	1.719E-07	1.374E-07	1.374E-07	1.035E-07	6.900E-08	0.000E+00	1.374E-07	2.064E-07
RA_04		2.409E-07	1.035E-07	1.725E-07	0.000E+00	1.035E-07	3.454E-08	2.071E-07	1.035E-07	3.093E-07	3.783E-07	2.064E-07	1.725E-07	1.035E-07	3.099E-07	3.444E-07	3.454E-08	1.719E-07	1.374E-07	1.374E-07	1.035E-07	6.900E-08	0.000E+00	1.374E-07	2.064E-07
RA_05		2.847E-07	1.224E-07	2.039E-07	0.000E+00	1.224E-07	4.082E-08	2.447E-07	1.224E-07	3.655E-07	4.471E-07	2.439E-07	2.039E-07	1.224E-07	3.663E-07	4.071E-07	4.082E-08	2.032E-07	1.623E-07	1.623E-07	1.224E-07	8.155E-08	0.000E+00	1.623E-07	2.440E-07
RA_06		2.847E-07	1.224E-07	2.039E-07	0.000E+00	1.224E-07	4.082E-08	2.447E-07	1.224E-07	3.655E-07	4.471E-07	2.439E-07	2.039E-07	1.224E-07	3.663E-07	4.071E-07	4.082E-08	2.032E-07	1.623E-07	1.623E-07	1.224E-07	8.155E-08	0.000E+00	1.623E-07	2.440E-07
RA_07		2.847E-07	1.224E-07	2.039E-07	0.000E+00	1.224E-07	4.082E-08	2.447E-07	1.224E-07	3.655E-07	4.471E-07	2.439E-07	2.039E-07	1.224E-07	3.663E-07	4.071E-07	4.082E-08	2.032E-07	1.623E-07	1.623E-07	1.224E-07	8.155E-08	0.000E+00	1.623E-07	2.440E-07
RA_08		2.847E-07	1.224E-07	2.039E-07	0.000E+00	1.224E-07	4.082E-08	2.447E-07	1.224E-07	3.655E-07	4.471E-07	2.439E-07	2.039E-07	1.224E-07	3.663E-07	4.071E-07	4.082E-08	2.032E-07	1.623E-07	1.623E-07	1.224E-07	8.155E-08	0.000E+00	1.623E-07	2.440E-07
RA_09		2.847E-07	1.224E-07	2.039E-07	0.000E+00	1.224E-07	4.082E-08	2.447E-07	1.224E-07	3.655E-07	4.471E-07	2.439E-07	2.039E-07	1.224E-07	3.663E-07	4.071E-07	4.082E-08	2.032E-07	1.623E-07	1.623E-07	1.224E-07	8.155E-08	0.000E+00	1.623E-07	2.440E-07
RA_10		2.847E-07	1.224E-07	2.039E-07	0.000E+00	1.224E-07	4.082E-08	2.447E-07	1.224E-07	3.655E-07	4.471E-07	2.439E-07	2.039E-07	1.224E-07	3.663E-07	4.071E-07	4.082E-08	2.032E-07	1.623E-07	1.623E-07	1.224E-07	8.155E-08	0.000E+00	1.623E-07	2.440E-07

Route B	**Total NO_2 Emission (g/s)**	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.868E-04	4.226E-04	7.160E-04	1.425E-03	2.868E-04	0.000E+00	0.000E+00	1.003E-03	4.226E-04	0.000E+00	7.160E-04	2.868E-04	4.226E-04	4.226E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Section		**Emission by Road Section**																						
RB_01	**NO_2 Emission ($g/s/m^2$)**	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.292E-08	4.851E-08	8.220E-08	1.636E-07	3.292E-08	0.000E+00	0.000E+00	1.151E-07	4.851E-08	0.000E+00	8.220E-08	3.292E-08	4.851E-08	4.851E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB_02		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.057E-08	4.505E-08	7.633E-08	1.520E-07	3.057E-08	0.000E+00	0.000E+00	1.069E-07	4.505E-08	0.000E+00	7.633E-08	3.057E-08	4.505E-08	4.505E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB_03		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.292E-08	4.851E-08	8.220E-08	1.636E-07	3.292E-08	0.000E+00	0.000E+00	1.151E-07	4.851E-08	0.000E+00	8.220E-08	3.292E-08	4.851E-08	4.851E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB_04		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.567E-08	5.256E-08	8.906E-08	1.773E-07	3.567E-08	0.000E+00	0.000E+00	1.247E-07	5.256E-08	0.000E+00	8.906E-08	3.567E-08	5.256E-08	5.256E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Route C	**Total NO_2 Emission (g/s)**	8.412E-04	5.805E-04	6.741E-04	1.706E-04	5.805E-04	5.767E-04	1.247E-03	9.096E-04	1.418E-03	2.567E-03	2.462E-03	5.114E-04	3.408E-04	1.487E-03	1.658E-03	4.061E-04	9.096E-04	4.103E-04	7.469E-04	5.767E-04	4.103E-04	5.687E-04	4.103E-04	5.805E-04
Section		**Emission by Road Section**																						
RC_01	**NO_2 Emission ($g/s/m^2$)**	2.012E-07	1.389E-07	1.613E-07	4.081E-08	1.389E-07	1.380E-07	2.984E-07	2.176E-07	3.392E-07	6.141E-07	5.889E-07	1.224E-07	8.154E-08	3.557E-07	3.965E-07	9.715E-08	2.176E-07	9.815E-08	1.787E-07	1.380E-07	9.815E-08	1.361E-07	9.815E-08	1.389E-07
RC_02		1.581E-07	1.091E-07	1.267E-07	3.207E-08	1.091E-07	1.084E-07	2.345E-07	1.710E-07	2.665E-07	4.825E-07	4.627E-07	9.614E-08	6.407E-08	2.795E-07	3.116E-07	7.633E-08	1.710E-07	7.712E-08	1.404E-07	1.084E-07	7.712E-08	1.069E-07	7.712E-08	1.091E-07
RC_03		1.703E-07	1.175E-07	1.365E-07	3.454E-08	1.175E-07	1.167E-07	2.525E-07	1.841E-07	2.870E-07	5.197E-07	4.983E-07	1.035E-07	6.900E-08	3.010E-07	3.355E-07	8.220E-08	1.841E-07	8.305E-08	1.512E-07	1.167E-07	8.305E-08	1.151E-07	8.305E-08	1.175E-07

Table 3c - Start NO Emission along the Road

Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Route A	**Total NO Emission (g/s)**	4.092E-03	1.730E-03	2.848E-03	0.000E+00	1.730E-03	6.121E-04	3.460E-03	1.730E-03	5.337E-03	6.455E-03	3.480E-03	2.848E-03	1.730E-03	5.210E-03	5.822E-03	6.121E-04	2.974E-03	2.362E-03	2.362E-03	1.730E-03	1.118E-03	0.000E+00	2.362E-03	3.587E-03
Section		**Emission by Road Section**																						
RA_01	**NO Emission ($g/s/m^2$)**	6.765E-07	2.860E-07	4.708E-07	0.000E+00	2.860E-07	1.012E-07	5.719E-07	2.860E-07	8.822E-07	1.067E-06	5.753E-07	4.708E-07	2.860E-07	8.613E-07	9.624E-07	1.012E-07	4.917E-07	3.905E-07	3.905E-07	2.860E-07	1.848E-07	0.000E+00	3.905E-07	5.928E-07
RA_02		6.765E-07	2.860E-07	4.708E-07	0.000E+00	2.860E-07	1.012E-07	5.719E-07	2.860E-07	8.822E-07	1.067E-06	5.753E-07	4.708E-07	2.860E-07	8.613E-07	9.624E-07	1.012E-07	4.917E-07	3.905E-07	3.905E-07	2.860E-07	1.848E-07	0.000E+00	3.905E-07	5.928E-07
RA_03		5.724E-07	2.420E-07	3.983E-07	0.000E+00	2.420E-07	8.561E-08	4.839E-07	2.420E-07	7.464E-07	9.028E-07	4.868E-07	3.983E-07	2.420E-07	7.288E-07	8.144E-07	8.561E-08	4.160E-07	3.304E-07	3.304E-07	2.420E-07	1.564E-07	0.000E+00	3.304E-07	5.016E-07
RA_04		5.724E-07	2.420E-07	3.983E-07	0.000E+00	2.420E-07	8.561E-08	4.839E-07	2.420E-07	7.464E-07	9.028E-07	4.868E-07	3.983E-07	2.420E-07	7.288E-07	8.144E-07	8.561E-08	4.160E-07	3.304E-07	3.304E-07	2.420E-07	1.564E-07	0.000E+00	3.304E-07	5.016E-07
RA_05		6.765E-07	2.860E-07	4.708E-07	0.000E+00	2.860E-07	1.012E-07	5.719E-07	2.860E-07	8.822E-07	1.067E-06	5.753E-07	4.708E-07	2.860E-07	8.613E-07	9.624E-07	1.012E-07	4.917E-07	3.905E-07	3.905E-07	2.860E-07	1.848E-07	0.000E+00	3.905E-07	5.928E-07
RA_06		6.765E-07	2.860E-07	4.708E-07	0.000E+00	2.860E-07	1.012E-07	5.719E-07	2.860E-07	8.822E-07	1.067E-06	5.753E-07	4.708E-07	2.860E-07	8.613E-07	9.624E-07	1.012E-07	4.917E-07	3.905E-07	3.905E-07	2.860E-07	1.848E-07	0.000E+00	3.905E-07	5.928E-07
RA_07		6.765E-07	2.860E-07	4.708E-07	0.000E+00	2.860E-07	1.012E-07	5.719E-07	2.860E-07	8.822E-07	1.067E-06	5.753E-07	4.708E-07	2.860E-07	8.613E-07	9.624E-07	1.012E-07	4.917E-07	3.905E-07	3.905E-07	2.860E-07	1.848E-07	0.000E+00	3.905E-07	5.928E-07
RA_08		6.765E-07	2.860E-07	4.708E-07	0.000E+00	2.860E-07	1.012E-07	5.719E-07	2.860E-07	8.822E-07	1.067E-06	5.753E-07	4.708E-07	2.860E-07	8.613E-07	9.624E-07	1.012E-07	4.917E-07	3.905E-07	3.905E-07	2.860E-07	1.848E-07	0.000E+00	3.905E-07	5.928E-07
RA_09		6.765E-07	2.860E-07	4.708E-07	0.000E+00	2.860E-07	1.012E-07	5.719E-07	2.860E-07	8.822E-07	1.067E-06	5.753E-07	4.708E-07	2.860E-07	8.613E-07	9.624E-07	1.012E-07	4.917E-07	3.905E-07	3.905E-07	2.860E-07	1.848E-07	0.000E+00	3.905E-07	5.928E-07
RA_10		6.765E-07	2.860E-07	4.708E-07	0.000E+00	2.860E-07	1.012E-07	5.719E-07	2.860E-07	8.822E-07	1.067E-06	5.753E-07	4.708E-07	2.860E-07	8.613E-07	9.624E-07	1.012E-07	4.917E-07	3.905E-07	3.905E-07	2.860E-07	1.848E-07	0.000E+00	3.905E-07	5.928E-07

Route B	**Total NO Emission (g/s)**	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.702E-04	1.019E-03	1.615E-03	3.305E-03	6.702E-04	0.000E+00	0.000E+00	2.285E-03	1.019E-03	0.000E+00	1.615E-03	6.702E-04	1.019E-03	1.019E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Section		**Emission by Road Section**																						
RB_01	**NO Emission ($g/s/m^2$)**	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.695E-08	1.170E-07	1.854E-07	3.794E-07	7.695E-08	0.000E+00	0.000E+00	2.624E-07	1.170E-07	0.000E+00	1.854E-07	7.695E-08	1.170E-07	1.170E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB_02		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.145E-08	1.087E-07	1.722E-07	3.523E-07	7.145E-08	0.000E+00	0.000E+00	2.436E-07	1.087E-07	0.000E+00	1.722E-07	7.145E-08	1.087E-07	1.087E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB_03		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.695E-08	1.170E-07	1.854E-07	3.794E-07	7.695E-08	0.000E+00	0.000E+00	2.624E-07	1.170E-07	0.000E+00	1.854E-07	7.695E-08	1.170E-07	1.170E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB_04		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.336E-08	1.268E-07	2.009E-07	4.110E-07	8.336E-08	0.000E+00	0.000E+00	2.843E-07	1.268E-07	0.000E+00	2.009E-07	8.336E-08	1.268E-07	1.268E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Route C	**Total NO Emission (g/s)**	2.012E-03	1.351E-03	1.575E-03	4.229E-04	1.351E-03	1.339E-03	2.928E-03	2.069E-03	3.351E-03	5.998E-03	5.719E-03	1.195E-03	7.724E-04	3.507E-03	3.929E-03	9.161E-04	2.069E-03	1.001E-03	1.688E-03	1.339E-03	1.001E-03	1.296E-03	1.001E-03	1.351E-03
Section		**Emission by Road Section**																						
RC_01	**NO Emission ($g/s/m^2$)**	4.814E-07	3.231E-07	3.769E-07	1.012E-07	3.231E-07	3.203E-07	7.006E-07	4.949E-07	8.017E-07	1.435E-06	1.368E-06	2.860E-07	1.848E-07	8.389E-07	9.401E-07	2.192E-07	4.949E-07	2.395E-07	4.039E-07	3.203E-07	2.395E-07	3.101E-07	2.395E-07	3.231E-07
RC_02		3.783E-07	2.539E-07	2.961E-07	7.949E-08	2.539E-07	2.517E-07	5.504E-07	3.888E-07	6.299E-07	1.127E-06	1.075E-06	2.247E-07	1.452E-07	6.591E-07	7.386E-07	1.722E-07	3.888E-07	1.882E-07	3.174E-07	2.517E-07	1.882E-07	2.436E-07	1.882E-07	2.539E-07
RC_03		4.073E-07	2.734E-07	3.189E-07	8.561E-08	2.734E-07	2.710E-07	5.928E-07	4.187E-07	6.784E-07	1.214E-06	1.158E-06	2.420E-07	1.564E-07	7.098E-07	7.954E-07	1.854E-07	4.187E-07	2.026E-07	3.418E-07	2.710E-07	2.026E-07	2.624E-07	2.026E-07	2.734E-07

Table 4 - Emission within Car Parks

Car Park A

ID	ParkA
Elevation (mPD)	5.2
Area (m2)	4003
Emission height (m)	3.31
Szinit (m)	3.08

Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	Vehicular Emission within Car Park A (g/s)																							
NO2	1.72E-03	7.28E-04	1.19E-03	0.00E+00	7.28E-04	2.67E-04	1.46E-03	7.28E-04	2.26E-03	2.72E-03	1.46E-03	1.19E-03	7.28E-04	2.18E-03	2.45E-03	2.67E-04	1.26E-03	9.95E-04	9.95E-04	7.28E-04	4.61E-04	0.00E+00	9.95E-04	1.53E-03
NO	4.00E-03	1.67E-03	2.71E-03	0.00E+00	1.67E-03	6.31E-04	3.34E-03	1.67E-03	5.30E-03	6.33E-03	3.37E-03	2.71E-03	1.67E-03	5.04E-03	5.67E-03	6.31E-04	2.96E-03	2.33E-03	2.33E-03	1.67E-03	1.04E-03	0.00E+00	2.33E-03	3.59E-03
RSP	7.91E-05	3.29E-05	5.30E-05	0.00E+00	3.29E-05	1.29E-05	6.59E-05	3.29E-05	1.05E-04	1.25E-04	6.63E-05	5.30E-05	3.29E-05	9.92E-05	1.12E-04	1.29E-05	5.91E-05	4.62E-05	4.62E-05	3.29E-05	2.01E-05	0.00E+00	4.62E-05	7.19E-05
FSP	7.28E-05	3.03E-05	4.88E-05	0.00E+00	3.03E-05	1.19E-05	6.06E-05	3.03E-05	9.69E-05	1.15E-04	6.10E-05	4.88E-05	3.03E-05	9.13E-05	1.03E-04	1.19E-05	5.44E-05	4.25E-05	4.25E-05	3.03E-05	1.85E-05	0.00E+00	4.25E-05	6.62E-05

	Vehicular Emission within Car Park A (g/s/m2)																							
NO2	4.30E-07	1.82E-07	2.97E-07	0.00E+00	1.82E-07	6.66E-08	3.64E-07	1.82E-07	5.64E-07	6.79E-07	3.64E-07	2.97E-07	1.82E-07	5.46E-07	6.12E-07	6.66E-08	3.15E-07	2.49E-07	2.49E-07	1.82E-07	1.15E-07	0.00E+00	2.49E-07	3.82E-07
NO	9.99E-07	4.17E-07	6.76E-07	0.00E+00	4.17E-07	1.58E-07	8.33E-07	4.17E-07	1.32E-06	1.58E-06	8.42E-07	6.76E-07	4.17E-07	1.26E-06	1.42E-06	1.58E-07	7.40E-07	5.83E-07	5.83E-07	4.17E-07	2.59E-07	0.00E+00	5.83E-07	8.98E-07
RSP	1.98E-08	8.23E-09	1.32E-08	0.00E+00	8.23E-09	3.22E-09	1.65E-08	8.23E-09	2.63E-08	3.13E-08	1.66E-08	1.32E-08	8.23E-09	2.48E-08	2.80E-08	3.22E-09	1.48E-08	1.15E-08	1.15E-08	8.23E-09	5.01E-09	0.00E+00	1.15E-08	1.80E-08
FSP	1.82E-08	7.57E-09	1.22E-08	0.00E+00	7.57E-09	2.96E-09	1.51E-08	7.57E-09	2.42E-08	2.88E-08	1.52E-08	1.22E-08	7.57E-09	2.28E-08	2.58E-08	2.96E-09	1.36E-08	1.06E-08	1.06E-08	7.57E-09	4.61E-09	0.00E+00	1.06E-08	1.65E-08

Car Park B

ID	ParkB
Elevation (mPD)	5.2
Area (m2)	1248
Emission height (m)	3.23
Szinit (m)	3.00

Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	Vehicular Emission within Car Park B (g/s)																							
NO2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.11E-05	1.23E-04	2.10E-04	4.24E-04	9.11E-05	0.00E+00	0.00E+00	3.01E-04	1.23E-04	0.00E+00	2.10E-04	9.11E-05	1.23E-04	1.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-04	2.92E-04	4.68E-04	9.70E-04	2.10E-04	0.00E+00	0.00E+00	6.78E-04	2.92E-04	0.00E+00	4.68E-04	2.10E-04	2.92E-04	2.92E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-06	2.88E-06	3.68E-06	8.28E-06	1.72E-06	0.00E+00	0.00E+00	5.40E-06	2.88E-06	0.00E+00	3.68E-06	1.72E-06	2.88E-06	2.88E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FSP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-06	2.66E-06	3.40E-06	7.65E-06	1.59E-06	0.00E+00	0.00E+00	4.99E-06	2.66E-06	0.00E+00	3.40E-06	1.59E-06	2.66E-06	2.66E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00

	Vehicular Emission within Car Park B (g/s/m2)																							
NO2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.30E-08	9.87E-08	1.68E-07	3.40E-07	7.30E-08	0.00E+00	0.00E+00	2.41E-07	9.87E-08	0.00E+00	1.68E-07	7.30E-08	9.87E-08	9.87E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-07	2.34E-07	3.75E-07	7.77E-07	1.68E-07	0.00E+00	0.00E+00	5.43E-07	2.34E-07	0.00E+00	3.75E-07	1.68E-07	2.34E-07	2.34E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-09	2.31E-09	2.95E-09	6.64E-09	1.38E-09	0.00E+00	0.00E+00	4.33E-09	2.31E-09	0.00E+00	2.95E-09	1.38E-09	2.31E-09	2.31E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FSP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-09	2.13E-09	2.73E-09	6.13E-09	1.27E-09	0.00E+00	0.00E+00	4.00E-09	2.13E-09	0.00E+00	2.73E-09	1.27E-09	2.13E-09	2.13E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Car Park C

ID	ParkC
Elevation (mPD)	5
Area (m2)	4972
Emission height (m)	3.27
Szinit (m)	3.04

Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	Vehicular Emission within Car Park C (g/s)																							
NO2	2.49E-03	1.65E-03	1.97E-03	5.17E-04	1.65E-03	1.69E-03	3.66E-03	2.63E-03	4.18E-03	7.58E-03	7.35E-03	1.39E-03	8.76E-04	4.43E-03	4.95E-03	1.17E-03	2.63E-03	1.29E-03	2.04E-03	1.69E-03	1.29E-03	1.75E-03	1.29E-03	1.65E-03
NO	5.82E-03	3.82E-03	4.54E-03	1.22E-03	3.82E-03	3.86E-03	8.46E-03	5.95E-03	9.68E-03	1.75E-02	1.69E-02	3.20E-03	1.97E-03	1.03E-02	1.15E-02	2.64E-03	5.95E-03	3.06E-03	4.61E-03	3.86E-03	3.06E-03	3.98E-03	3.06E-03	3.82E-03
RSP	1.25E-04	9.26E-05	9.81E-05	2.61E-05	9.26E-05	9.21E-05	1.91E-04	1.38E-04	2.17E-04	4.07E-04	4.06E-04	6.68E-05	4.07E-05	2.43E-04	2.69E-04	6.59E-05	1.38E-04	7.81E-05	1.07E-04	9.21E-05	7.81E-05	9.73E-05	7.81E-05	9.26E-05
FSP	1.15E-04	8.52E-05	9.03E-05	2.40E-05	8.52E-05	8.47E-05	1.76E-04	1.27E-04	2.00E-04	3.74E-04	3.74E-04	6.14E-05	3.74E-05	2.23E-04	2.47E-04	6.07E-05	1.27E-04	7.18E-05	9.81E-05	8.47E-05	7.18E-05	8.95E-05	7.18E-05	8.52E-05

	Vehicular Emission within Car Park C (g/s/m2)																							
NO2	5.01E-07	3.32E-07	3.97E-07	1.04E-07	3.32E-07	3.39E-07	7.36E-07	5.28E-07	8.40E-07	1.52E-06	1.48E-06	2.80E-07	1.76E-07	8.92E-07	9.96E-07	2.35E-07	5.28E-07	2.60E-07	4.11E-07	3.39E-07	2.60E-07	3.52E-07	2.60E-07	3.32E-07
NO	1.17E-06	7.67E-07	9.12E-07	2.46E-07	7.67E-07	7.76E-07	1.70E-06	1.20E-06	1.95E-06	3.51E-06	3.40E-06	6.43E-07	3.97E-07	2.07E-06	2.32E-06	5.30E-07	1.20E-06	6.16E-07	9.28E-07	7.76E-07	6.16E-07	8.00E-07	6.16E-07	7.67E-07
RSP	2.51E-08	1.86E-08	1.97E-08	5.25E-09	1.86E-08	1.85E-08	3.84E-08	2.77E-08	4.36E-08	8.18E-08	8.17E-08	1.34E-08	8.18E-09	4.88E-08	5.41E-08	1.33E-08	2.77E-08	1.57E-08	2.14E-08	1.85E-08	1.57E-08	1.96E-08	1.57E-08	1.86E-08
FSP	2.31E-08	1.71E-08	1.82E-08	4.83E-09	1.71E-08	1.70E-08	3.53E-08	2.55E-08	4.02E-08	7.53E-08	7.51E-08	1.24E-08	7.52E-09	4.49E-08	4.98E-08	1.22E-08	2.55E-08	1.44E-08	1.97E-08	1.70E-08	1.44E-08	1.80E-08	1.44E-08	1.71E-08

Remark: The contents are for reference only, please revise if more than one combination of temperature and relative humidity are adopted.

Year: 2032 **Temp:** 11 **RH:** 18

Start Emission Factor (g/trip) - NOx

Time (min)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt 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 (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
5	0.04550	0.96470	0.00220	0.00090	0.06530	0.12210	0.13490	0.34460	0.01410	0.14980	0.06510	0.12630	0.13400	0.16480	0.62920	0.04830	0.13790	0.12440
10	0.04630	0.98070	0.00260	0.00090	0.11750	0.21980	0.24290	0.53470	0.01710	0.24280	0.11720	0.22730	0.24110	0.29670	1.13260	0.05900	0.24830	0.22390
20	0.04780	1.01190	0.00310	0.00100	0.15670	0.29300	0.32380	0.82610	0.02250	0.35920	0.15620	0.30310	0.32150	0.39550	1.51020	0.07810	0.33110	0.29850
30	0.04930	1.04200	0.00360	0.00110	0.22190	0.41510	0.45880	1.09050	0.02700	0.48380	0.22130	0.42940	0.45550	0.56040	2.13940	0.09390	0.46900	0.42290
40	0.05070	1.07120	0.00400	0.00110	0.27410	0.51280	0.56670	1.29620	0.03040	0.58170	0.27340	0.53040	0.56260	0.69220	2.64280	0.10640	0.57940	0.52240
50	0.05200	1.09940	0.00430	0.00120	0.36550	0.68370	0.75560	1.48540	0.03300	0.69940	0.36450	0.70720	0.75020	0.92290	3.52380	0.11570	0.77250	0.69650
60	0.05330	1.12650	0.00440	0.00120	0.53520	1.00110	1.10650	1.68960	0.03450	0.87200	0.53370	1.03550	1.09850	1.35140	5.15980	0.12170	1.13120	1.01990
120	0.05930	1.25380	0.00470	0.00130	0.66580	1.24530	1.37630	1.82160	0.03570	0.99700	0.66390	1.28810	1.36640	1.68110	6.41830	0.12330	1.40710	1.26860
180	0.06370	1.34640	0.00480	0.00140	0.97910	1.83130	2.02400	2.06950	0.03830	1.27510	0.97630	1.89420	2.00940	2.47210	9.43870	0.12290	2.06920	1.86560
240	0.06320	1.33530	0.00480	0.00140	1.27930	2.39290	2.64470	2.30430	0.03810	1.54080	1.27560	2.47510	2.62560	3.23030	12.33320	0.12080	2.70370	2.43770
300	0.06230	1.31670	0.00470	0.00140	1.43600	2.68590	2.96850	2.42080	0.03770	1.67760	1.43180	2.77810	2.94710	3.62580	13.84340	0.11810	3.03480	2.73620
360	0.06110	1.29030	0.00450	0.00130	1.69710	3.17430	3.50830	2.61910	0.03720	1.90680	1.69220	3.28330	3.48300	4.28500	16.36040	0.11480	3.58660	3.23370
420	0.05950	1.25640	0.00440	0.00130	1.86680	3.49170	3.85910	2.74120	0.03660	2.05370	1.86140	3.61160	3.83130	4.71360	17.99640	0.11090	3.94530	3.55710
480	0.05750	1.21480	0.00420	0.00130	1.95810	3.66260	4.04800	2.79770	0.03590	2.12980	1.95250	3.78840	4.01880	4.94430	18.87740	0.10650	4.13840	3.73120
540	0.05520	1.16570	0.00410	0.00120	2.01040	3.76030	4.15590	2.82010	0.03510	2.17030	2.00460	3.88940	4.12600	5.07610	19.38080	0.10160	4.24870	3.83070
600	0.05250	1.10890	0.00390	0.00120	2.06260	3.85800	4.26390	2.84000	0.03410	2.20990	2.05670	3.99040	4.23320	5.20800	19.88420	0.09600	4.35910	3.93020
660	0.04950	1.04440	0.00360	0.00110	2.08870	3.90680	4.31790	2.83640	0.03310	2.22550	2.08270	4.04090	4.28680	5.27390	20.13590	0.08990	4.41430	3.98000
720	0.04610	0.97230	0.00340	0.00100	2.08870	3.90680	4.31790	2.80920	0.03190	2.21700	2.08270	4.04090	4.28680	5.27390	20.13590	0.08330	4.41430	3.98000

Running Exhaust Emission Factor (g/km-vehicle) - NOx

Speed (km/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt 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 (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
12	0.03370	0.79040	1.56500	1.56890	1.05700	1.72460	3.57990	1.00710	1.39020	0.97480	1.24670	1.80190	4.01320	2.58330	8.02910	0.27600	3.72580	3.84200

Remark: The contents are for reference only, please revise if more than one combination of temperature and relative humidity are adopted.

Year: 2032 **Temp:** 11 **RH:** 18

Start Emission Factor (g/trip) - NO2

Time (min)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt 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 (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
5	0.00230	0.02630	0.00010	0.00000	0.01830	0.03990	0.03890	0.01620	0.00070	0.01680	0.01820	0.04170	0.04020	0.03370	0.06060	0.00240	0.03830	0.04100
10	0.00230	0.02680	0.00010	0.00000	0.03290	0.07180	0.07010	0.02870	0.00090	0.03010	0.03280	0.07500	0.07240	0.06060	0.10900	0.00300	0.06900	0.07390
20	0.00240	0.02760	0.00020	0.00010	0.04390	0.09580	0.09350	0.03890	0.00110	0.04030	0.04370	0.10000	0.09650	0.08080	0.14530	0.00390	0.09200	0.09850
30	0.00250	0.02840	0.00020	0.00010	0.06210	0.13570	0.13240	0.05460	0.00130	0.05690	0.06200	0.14170	0.13680	0.11440	0.20590	0.00470	0.13040	0.13950
40	0.00250	0.02920	0.00020	0.00010	0.07680	0.16760	0.16360	0.06720	0.00150	0.07020	0.07650	0.17500	0.16900	0.14130	0.25430	0.00530	0.16100	0.17240
50	0.00260	0.03000	0.00020	0.00010	0.10230	0.22340	0.21810	0.08850	0.00160	0.09330	0.10210	0.23340	0.22530	0.18850	0.33910	0.00580	0.21470	0.22980
60	0.00270	0.03070	0.00020	0.00010	0.14990	0.32720	0.31940	0.12710	0.00170	0.13580	0.14940	0.34170	0.32990	0.27600	0.49650	0.00610	0.31440	0.33660
120	0.00300	0.03420	0.00020	0.00010	0.18640	0.40700	0.39730	0.15670	0.00180	0.16840	0.18590	0.42510	0.41030	0.34330	0.61760	0.00620	0.39110	0.41860
180	0.00320	0.03670	0.00020	0.00010	0.27410	0.59850	0.58420	0.22740	0.00190	0.24670	0.27340	0.62510	0.60340	0.50480	0.90830	0.00610	0.57510	0.61570
240	0.00320	0.03640	0.00020	0.00010	0.35820	0.78200	0.76330	0.29510	0.00190	0.32180	0.35720	0.81680	0.78850	0.65960	1.18680	0.00600	0.75150	0.80450
300	0.00310	0.03590	0.00020	0.00010	0.40210	0.87770	0.85680	0.33040	0.00190	0.36090	0.40090	0.91680	0.88500	0.74040	1.33210	0.00590	0.84350	0.90300
360	0.00310	0.03520	0.00020	0.00010	0.47520	1.03730	1.01260	0.38930	0.00190	0.42610	0.47380	1.08350	1.04590	0.87500	1.57430	0.00570	0.99690	1.06710
420	0.00300	0.03430	0.00020	0.00010	0.52270	1.14110	1.11390	0.42750	0.00180	0.46850	0.52120	1.19180	1.15050	0.96250	1.73170	0.00550	1.09660	1.17390
480	0.00290	0.03320	0.00020	0.00010	0.54830	1.19690	1.16840	0.44800	0.00180	0.49130	0.54670	1.25020	1.20680	1.00960	1.81650	0.00530	1.15030	1.23130
540	0.00280	0.03180	0.00020	0.00010	0.56290	1.22880	1.19950	0.45970	0.00180	0.50430	0.56130	1.28350	1.23900	1.03650	1.86490	0.00510	1.18090	1.26410
600	0.00260	0.03030	0.00020	0.00010	0.57750	1.26080	1.23070	0.47140	0.00170	0.51730	0.57590	1.31680	1.27120	1.06340	1.91340	0.00480	1.21160	1.29700
660	0.00250	0.02850	0.00020	0.00010	0.58480	1.27670	1.24630	0.47720	0.00170	0.52380	0.58320	1.33350	1.28730	1.07690	1.93760	0.00450	1.22690	1.31340
720	0.00230	0.02650	0.00020	0.00010	0.58480	1.27670	1.24630	0.47700	0.00160	0.52380	0.58320	1.33350	1.28730	1.07690	1.93760	0.00420	1.22690	1.31340

Running Exhaust Emission Factor (g/km-vehicle) - NO_2

Speed (km/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt 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 (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
12	0.00180	0.02160	0.09780	0.09640	0.29590	0.55370	1.07680	0.19500	0.27440	0.25320	0.34910	0.59460	1.21870	0.52940	0.67610	0.01380	1.08150	1.26780

Remark: The contents are for reference only, please revise if more than one combination of temperature and relative humidity are adopted.

Year: 2032 **Temp:** 11 **RH:** 18

Start Emission Factor (g/trip) - NO

Time (min)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt 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 (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
5	0.04320	0.93840	0.00210	0.00090	0.04700	0.08220	0.09600	0.32840	0.01340	0.13300	0.04690	0.08460	0.09380	0.13110	0.56860	0.04590	0.09960	0.08340
10	0.04400	0.95390	0.00250	0.00090	0.08460	0.14800	0.17280	0.50600	0.01620	0.21270	0.08440	0.15230	0.16870	0.23610	1.02360	0.05600	0.17930	0.15000
20	0.04540	0.98430	0.00290	0.00090	0.11280	0.19720	0.23030	0.78720	0.02140	0.31890	0.11250	0.20310	0.22500	0.31470	1.36490	0.07420	0.23910	0.20000
30	0.04680	1.01360	0.00340	0.00100	0.15980	0.27940	0.32640	1.03590	0.02570	0.42690	0.15930	0.28770	0.31870	0.44600	1.93350	0.08920	0.33860	0.28340
40	0.04820	1.04200	0.00380	0.00100	0.19730	0.34520	0.40310	1.22900	0.02890	0.51150	0.19690	0.35540	0.39360	0.55090	2.38850	0.10110	0.41840	0.35000
50	0.04940	1.06940	0.00410	0.00110	0.26320	0.46030	0.53750	1.39690	0.03140	0.60610	0.26240	0.47380	0.52490	0.73440	3.18470	0.10990	0.55780	0.46670
60	0.05060	1.09580	0.00420	0.00110	0.38530	0.67390	0.78710	1.56250	0.03280	0.73620	0.38430	0.69380	0.76860	1.07540	4.66330	0.11560	0.81680	0.68330
120	0.05630	1.21960	0.00450	0.00120	0.47940	0.83830	0.97900	1.66490	0.03390	0.82860	0.47800	0.86300	0.95610	1.33780	5.80070	0.11710	1.01600	0.85000
180	0.06050	1.30970	0.00460	0.00130	0.70500	1.23280	1.43980	1.84210	0.03640	1.02840	0.70290	1.26910	1.40600	1.96730	8.53040	0.11680	1.49410	1.24990
240	0.06000	1.29890	0.00460	0.00130	0.92110	1.61090	1.88140	2.00920	0.03620	1.21900	0.91840	1.65830	1.83710	2.57070	11.14640	0.11480	1.95220	1.63320
300	0.05920	1.28080	0.00450	0.00130	1.03390	1.80820	2.11170	2.09040	0.03580	1.31670	1.03090	1.86130	2.06210	2.88540	12.51130	0.11220	2.19130	1.83320
360	0.05800	1.25510	0.00430	0.00120	1.22190	2.13700	2.49570	2.22980	0.03530	1.48070	1.21840	2.19980	2.43710	3.41000	14.78610	0.10910	2.58970	2.16660
420	0.05650	1.22210	0.00420	0.00120	1.34410	2.35060	2.74520	2.31370	0.03480	1.58520	1.34020	2.41980	2.68080	3.75110	16.26470	0.10540	2.84870	2.38320
480	0.05460	1.18160	0.00400	0.00120	1.40980	2.46570	2.87960	2.34970	0.03410	1.63850	1.40580	2.53820	2.81200	3.93470	17.06090	0.10120	2.98810	2.49990
540	0.05240	1.13390	0.00390	0.00110	1.44750	2.53150	2.95640	2.36040	0.03330	1.66600	1.44330	2.60590	2.88700	4.03960	17.51590	0.09650	3.06780	2.56660
600	0.04990	1.07860	0.00370	0.00110	1.48510	2.59720	3.03320	2.36860	0.03240	1.69260	1.48080	2.67360	2.96200	4.14460	17.97080	0.09120	3.14750	2.63320
660	0.04700	1.01590	0.00340	0.00100	1.50390	2.63010	3.07160	2.35920	0.03140	1.70170	1.49950	2.70740	2.99950	4.19700	18.19830	0.08540	3.18740	2.66660
720	0.04380	0.94580	0.00320	0.00090	1.50390	2.63010	3.07160	2.33220	0.03030	1.69320	1.49950	2.70740	2.99950	4.19700	18.19830	0.07910	3.18740	2.66660

Running Exhaust Emission Factor (g/km-vehicle) - NO

Speed (km/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt 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 (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
12	0.03190	0.76880	1.46720	1.47250	0.76110	1.17090	2.50310	0.81210	1.11580	0.72160	0.89760	1.20730	2.79450	2.05390	7.35300	0.26220	2.64430	2.57420

Remark: The contents are for reference only, please revise if more than one combination of temperature and relative humidity are adopted.

Year: 2032 **Temp:** 11 **RH:** 18

Start Emission Factor (g/trip) - RSP

Time (min)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt 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 (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
5	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00180	0.00000	0.00000
10	0.00080	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00220	0.00000	0.00000
20	0.00150	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00290	0.00000	0.00000
30	0.00220	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00350	0.00000	0.00000
40	0.00290	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00410	0.00000	0.00000
50	0.00360	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00080	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00470	0.00000	0.00000
60	0.00420	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00090	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00520	0.00000	0.00000
120	0.00690	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00140	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00750	0.00000	0.00000
180	0.00780	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00150	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00820	0.00000	0.00000
240	0.00850	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00160	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00880	0.00000	0.00000
300	0.00920	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00170	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00940	0.00000	0.00000
360	0.00970	0.00000	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00180	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00990	0.00000	0.00000
420	0.01020	0.00000	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00190	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01040	0.00000	0.00000
480	0.01060	0.00000	0.00020	0.00010	0.00000	0.00000	0.00000	0.00000	0.00190	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01090	0.00000	0.00000
540	0.01090	0.00000	0.00020	0.00010	0.00000	0.00000	0.00000	0.00000	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01130	0.00000	0.00000
600	0.01100	0.00000	0.00020	0.00010	0.00000	0.00000	0.00000	0.00000	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01170	0.00000	0.00000
660	0.01110	0.00000	0.00020	0.00010	0.00000	0.00000	0.00000	0.00000	0.00210	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01200	0.00000	0.00000
720	0.01110	0.00000	0.00020	0.00010	0.00000	0.00000	0.00000	0.00000	0.00210	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01230	0.00000	0.00000

Running Exhaust Emission Factor (g/km-vehicle) - RSP

Speed (km/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt 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 (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
12	0.00890	0.00000	0.01390	0.01400	0.02440	0.04560	0.08220	0.04830	0.01090	0.04110	0.06480	0.04400	0.09870	0.05070	0.28420	0.01010	0.08430	0.10550

Remark: The contents are for reference only, please revise if more than one combination of temperature and relative humidity are adopted.

Year: 2032 **Temp:** 11 **RH:** 18

Start Emission Factor (g/trip) - FSP

Time (min)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt 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 (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
5	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00150	0.00000	0.00000
10	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00180	0.00000	0.00000
20	0.00140	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00250	0.00000	0.00000
30	0.00210	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00310	0.00000	0.00000
40	0.00270	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00370	0.00000	0.00000
50	0.00330	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00430	0.00000	0.00000
60	0.00390	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00080	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00480	0.00000	0.00000
120	0.00640	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00130	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00680	0.00000	0.00000
180	0.00720	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00140	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00740	0.00000	0.00000
240	0.00790	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00150	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00790	0.00000	0.00000
300	0.00850	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00160	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00840	0.00000	0.00000
360	0.00900	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00170	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00880	0.00000	0.00000
420	0.00950	0.00000	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00170	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00920	0.00000	0.00000
480	0.00980	0.00000	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00180	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00960	0.00000	0.00000
540	0.01010	0.00000	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00180	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01000	0.00000	0.00000
600	0.01020	0.00000	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00190	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01030	0.00000	0.00000
660	0.01030	0.00000	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00190	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01060	0.00000	0.00000
720	0.01030	0.00000	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00190	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01080	0.00000	0.00000

Running Exhaust Emission Factor (g/km-vehicle) - FSP

Speed (km/hr)	01 - Private Cars	02 - Taxi	03 - Light Goods Vehicles<= 2.5t	04 - Lt 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 (SD)	15 - Franchised Bus (DD)	16 - Motorcycles	17 - Heavy Goods Vehicles>24t	18 - Non-franchised Bus >24t
12	0.00830	0.00000	0.01280	0.01290	0.02240	0.04190	0.07560	0.04440	0.01000	0.03780	0.05960	0.04050	0.09080	0.04670	0.26150	0.00900	0.07760	0.09710

Idling Emission Factors

NFB6
NO2/NOx Ratio = 0.2800 From EMFAC

Vehicle Emission Standard	Population	EmFactor (g/s)		EmFactor (g/s)		Mass Factor	A/C Factor	Weighted Average Emission Factor (g/s)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx	PM	NOx	PM			NOx	NO	NO2	PM	NOx	NO	NO2	PM
Euro V	4.99%	0.0474	2.78E-05	0.0033	2.78E-05	0.90	1.30	4.31E-03	3.10E-03	1.21E-03	4.71E-06	7.30E-04	5.26E-04	2.04E-04	4.71E-06
Euro VI	95.01%	0.0010	2.78E-06	0.0005	2.78E-06	0.90	1.30								

NFB7
NO2/NOx Ratio = 0.3300 From EMFAC

Vehicle Emission Standard	Population	EmFactor (g/s)		EmFactor (g/s)		Mass Factor	A/C Factor	Weighted Average Emission Factor (g/s)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx	PM	NOx	PM			NOx	NO	NO2	PM	NOx	NO	NO2	PM
Euro V	3.09%	0.0474	2.78E-05	0.0033	2.78E-05	0.90	1.30	1.16E-02	7.78E-03	3.83E-03	4.16E-06	6.69E-04	4.48E-04	2.21E-04	4.16E-06
Euro VI	96.91%	0.0077	2.78E-06	0.0005	2.78E-06	0.90	1.30								

NFB8
NO2/NOx Ratio = 0.3037 From EMFAC

Vehicle Emission Standard	Population	EmFactor (g/s)		EmFactor (g/s)		Mass Factor	A/C Factor	Weighted Average Emission Factor (g/s)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx	PM	NOx	PM			NOx	NO	NO2	PM	NOx	NO	NO2	PM
Euro V	2.80%	0.0474	2.78E-05	0.0033	2.78E-05	1.00	1.30	1.15E-02	7.98E-03	3.48E-03	4.52E-06	7.33E-04	5.10E-04	2.23E-04	4.52E-06
Euro VI	97.20%	0.0077	2.78E-06	0.0005	2.78E-06	1.00	1.30								

NFB9
NO2/NOx Ratio = 0.3300 From EMFAC

Vehicle Emission Standard	Population	EmFactor (g/s)		EmFactor (g/s)		Mass Factor	A/C Factor	Weighted Average Emission Factor (g/s)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx	PM	NOx	PM			NOx	NO	NO2	PM	NOx	NO	NO2	PM
Euro VI	100.00%	0.0077	2.78E-06	0.0005	2.78E-06	1.20	1.30	1.00E-02	6.71E-03	3.30E-03	4.33E-06	7.58E-04	5.08E-04	2.50E-04	4.33E-06

HGV7
NO2/NOx Ratio = 0.3211 From EMFAC

Vehicle Emission Standard	Population	EmFactor (g/s)		EmFactor (g/s)		Mass Factor	A/C Factor	Weighted Average Emission Factor (g/s)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx	PM	NOx	PM			NOx	NO	NO2	PM	NOx	NO	NO2	PM
Euro V	8.23%	0.0059	2.78E-05	0.0033	2.78E-05	0.90	1.30	7.67E-03	5.21E-03	2.46E-03	5.66E-06	8.35E-04	5.67E-04	2.68E-04	5.66E-06
Euro VI	91.77%	0.0059	2.78E-06	0.0005	2.78E-06	0.90	1.30								

HGV8
NO2/NOx Ratio = 0.3008 From EMFAC

Vehicle Emission Standard	Population	EmFactor (g/s)		EmFactor (g/s)		Mass Factor	A/C Factor	Weighted Average Emission Factor (g/s)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx	PM	NOx	PM			NOx	NO	NO2	PM	NOx	NO	NO2	PM
Euro V	6.21%	0.0230	2.78E-05	0.0033	2.78E-05	1.00	1.30	6.37E-03	4.45E-03	1.92E-03	5.63E-06	8.55E-04	5.98E-04	2.57E-04	5.63E-06
Euro VI	93.79%	0.0037	2.78E-06	0.0005	2.78E-06	1.00	1.30								

HGV9
NO2/NOx Ratio = 0.2903 From EMFAC

Vehicle Emission Standard	Population	EmFactor (g/s)		EmFactor (g/s)		Mass Factor	A/C Factor	Weighted Average Emission Factor (g/s)							
		Cold Idling		Hot Idling				Cold Idling				Hot Idling			
	%	NOx	PM	NOx	PM			NOx	NO	NO2	PM	NOx	NO	NO2	PM
Euro V	7.98%	0.0230	2.78E-05	0.0033	2.78E-05	1.20	1.30	6.81E-03	4.84E-03	1.98E-03	7.45E-06	1.10E-03	7.83E-04	3.20E-04	7.45E-06
Euro VI	92.02%	0.0037	2.78E-06	0.0005	2.78E-06	1.20	1.30								

Remark:

[1] For hot idling, reference has been made to 'Road Tunnels: Vehicle Emissions and Air Demand for Ventilation (2019R02EN)' (PIARC-VEADV), published by the World Road Association, concerning vehicle traffic with a speed of 0 km/h on a horizontal surface (gradient 0%).

[2] For NOx emission from cold idling, referenced from Calculation of Start Emissions in Air Quality Impact Assessment (2021) published by EPD.

[3] For NOx emission from cold idling of NFB6 (Euro V), NFB7, NFB8 & NFB9, emission factor of FBSD has been adopted.

[4] For PM emissing from cold idling, referenced to hot idling emission factors from PIARC-VEADV to its respective fuels (i.e. HGV).

[5] Mass factor has been reference to Table 27 of PIARC-VEADV. 0.9 for 15t; 1.0 for 23t; 1.2 for 32t). Only applicable to data from PIARC-VEADV.

[6] A/C factor of 1.3 has been applied to account for the additional A/C loading, reference to Appendix 3.4 of Traffic Improvement Scheme in Tuen Mun (AEIAR-251/2023)

HGV Parking (Car Park A)

Temp: 11 RH: 18

Start Emission

Medium Goods Vehicles<=15t (HGV7) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1221	0.2198	0.293	0.4151	0.5128	0.6837	1.0011	1.2453	1.8313	2.3929	2.6859	3.1743	3.4917	3.6626	3.7603	3.858	3.9068	3.9068
NO	0.0822	0.1480	0.1972	0.2794	0.3452	0.4603	0.6739	0.8383	1.2328	1.6109	1.8082	2.1370	2.3506	2.4657	2.5315	2.5972	2.6301	2.6301
NO2	0.0399	0.0718	0.0958	0.1357	0.1676	0.2234	0.3272	0.4070	0.5985	0.7820	0.8777	1.0373	1.1411	1.1969	1.2288	1.2608	1.2767	1.2767
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Medium Goods Vehicles15-24t (HGV8) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1349	0.2429	0.3238	0.4588	0.5667	0.7556	1.1065	1.3763	2.024	2.6447	2.9685	3.5083	3.8591	4.048	4.1559	4.2639	4.3179	4.3179
NO	0.0960	0.1728	0.2303	0.3264	0.4031	0.5375	0.7871	0.9790	1.4398	1.8814	2.1117	2.4957	2.7452	2.8796	2.9564	3.0332	3.0716	3.0716
NO2	0.0389	0.0701	0.0935	0.1324	0.1636	0.2181	0.3194	0.3973	0.5842	0.7633	0.8568	1.0126	1.1139	1.1684	1.1995	1.2307	1.2463	1.2463
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Heavy Goods Vehicles>24t (HGV9) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1379	0.2483	0.3311	0.469	0.5794	0.7725	1.1312	1.4071	2.0692	2.7037	3.0348	3.5866	3.9453	4.1384	4.2487	4.3591	4.4143	4.4143
NO	0.0996	0.1793	0.2391	0.3386	0.4184	0.5578	0.8168	1.0160	1.4941	1.9522	2.1913	2.5897	2.8487	2.9881	3.0678	3.1475	3.1874	3.1874
NO2	0.0383	0.0690	0.0920	0.1304	0.1610	0.2147	0.3144	0.3911	0.5751	0.7515	0.8435	0.9969	1.0966	1.1503	1.1809	1.2116	1.2269	1.2269
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

No. of Trips of HGV7

Soaking Time (min) / Hour	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		2
0100 - 0200																		1
0200 - 0300																		2
0300 - 0400																		0
0400 - 0500																		1
0500 - 0600																		0
0600 - 0700																		2
0700 - 0800																		1
0800 - 0900																		2
0900 - 1000																		3
1000 - 1100																		2
1100 - 1200																		2
1200 - 1300																		1
1300 - 1400																		3
1400 - 1500																		3
1500 - 1600																		0
1600 - 1700																		1
1700 - 1800																		1
1800 - 1900																		1
1900 - 2000																		1
2000 - 2100																		1
2100 - 2200																		0
2200 - 2300																		1
2300 - 2400																		1

No. of Trips of HGV8

Soaking Time (min) / Hour	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		4
0100 - 0200																		2
0200 - 0300																		3
0300 - 0400																		0
0400 - 0500																		2
0500 - 0600																		1
0600 - 0700																		4
0700 - 0800																		2
0800 - 0900																		5
0900 - 1000																		6
1000 - 1100																		3
1100 - 1200																		3
1200 - 1300																		2
1300 - 1400																		5
1400 - 1500																		6
1500 - 1600																		1
1600 - 1700																		3
1700 - 1800																		2
1800 - 1900																		2
1900 - 2000																		2
2000 - 2100																		1
2100 - 2200																		0
2200 - 2300																		2
2300 - 2400																		4

No. of Trips of HGV9

Soaking Time (min) / Hour	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		1
0100 - 0200																		0
0200 - 0300																		0
0300 - 0400																		0
0400 - 0500																		0
0500 - 0600																		0
0600 - 0700																		0
0700 - 0800																		0
0800 - 0900																		2
0900 - 1000																		2
1000 - 1100																		1
1100 - 1200																		0
1200 - 1300																		0
1300 - 1400																		1
1400 - 1500																		1
1500 - 1600																		0
1600 - 1700																		1
1700 - 1800																		1
1800 - 1900																		1
1900 - 2000																		0
2000 - 2100																		0
2100 - 2200																		0
2200 - 2300																		1
2300 - 2400																		1

Total Start Emission of HGV7, HGV8 & HGV9 (g)

NOx	NO	NO2	RSP	FSP
29.50	20.73	8.77	0.00	0.00
12.54	8.77	3.77	0.00	0.00
20.77	14.48	6.29	0.00	0.00
0.00	0.00	0.00	0.00	0.00
12.54	8.77	3.77	0.00	0.00
4.32	3.07	1.25	0.00	0.00
25.09	17.55	7.54	0.00	0.00
12.54	8.77	3.77	0.00	0.00
38.23	26.99	11.24	0.00	0.00
46.46	32.69	13.76	0.00	0.00
25.18	17.66	7.52	0.00	0.00
20.77	14.48	6.29	0.00	0.00
12.54	8.77	3.77	0.00	0.00
37.72	26.44	11.29	0.00	0.00
42.04	29.51	12.53	0.00	0.00
4.32	3.07	1.25	0.00	0.00
21.27	15.03	6.24	0.00	0.00
16.96	11.96	5.00	0.00	0.00
16.96	11.96	5.00	0.00	0.00
12.54	8.77	3.77	0.00	0.00
8.22	5.70	2.52	0.00	0.00
0.00	0.00	0.00	0.00	0.00
16.96	11.96	5.00	0.00	0.00
25.59	18.10	7.49	0.00	0.00

Cold Idling Emission

Idling Time =	1	min
Max. Idling Time for Adjusting Start Emission =	1	min

Hour	HGV7												HGV8												HGV9												N/A											
	Frequency	Cold Idling Emission Factor (g/s)						Cold Idling Emission (g) [1]						Frequency	Cold Idling Emission Factor (g/s)						Cold Idling Emission (g) [1]						Frequency	Cold Idling Emission Factor (g/s)						Cold Idling Emission (g) [1]						Frequency	Cold Idling Emission Factor (g/s)						Cold Idling Emission (g) [1]					
		NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP			NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP			NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP			NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP		
0000 - 0100	2	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	9.2E-01	6.2E-01	3.0E-01	6.8E-04	6.8E-04		4	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	7.6E-01	5.3E-01	2.3E-01	6.8E-04	6.8E-04		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	1.6E+00	1.1E+00	4.8E-01	1.7E-03	1.7E-03														
0100 - 0200	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	7.6E-01	5.3E-01	2.3E-01	6.8E-04	6.8E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
0200 - 0300	2	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	9.2E-01	6.2E-01	3.0E-01	6.8E-04	6.8E-04		3	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	1.1E+00	8.0E-01	3.4E-01	1.0E-03	1.0E-03		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
0300 - 0400	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
0400 - 0500	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	7.6E-01	5.3E-01	2.3E-01	6.8E-04	6.8E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
0500 - 0600	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
0600 - 0700	2	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	9.2E-01	6.2E-01	3.0E-01	6.8E-04	6.8E-04		4	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	1.5E+00	1.1E+00	4.6E-01	1.4E-03	1.4E-03		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
0700 - 0800	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		3	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	1.1E+00	8.0E-01	3.4E-01	1.0E-03	1.0E-03		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
0800 - 0900	2	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	9.2E-01	6.2E-01	3.0E-01	6.8E-04	6.8E-04		5	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	1.9E+00	1.3E+00	5.7E-01	1.7E-03	1.7E-03		2	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	3.2E-01	5.8E-01	2.4E-01	8.9E-04	8.9E-04														
0900 - 1000	3	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	1.4E+00	9.4E-01	4.4E-01	1.0E-03	1.0E-03		6	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	2.3E+00	1.6E+00	6.9E-01	2.0E-03	2.0E-03		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04														
1000 - 1100	2	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	9.2E-01	6.2E-01	3.0E-01	6.8E-04	6.8E-04		3	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	1.1E+00	8.0E-01	3.4E-01	1.0E-03	1.0E-03		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04														
1100 - 1200	2	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	9.2E-01	6.2E-01	3.0E-01	6.8E-04	6.8E-04		3	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	1.1E+00	8.0E-01	3.4E-01	1.0E-03	1.0E-03		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04														
1200 - 1300	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	7.6E-01	5.3E-01	2.3E-01	6.8E-04	6.8E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
1300 - 1400	2	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	9.2E-01	6.2E-01	3.0E-01	6.8E-04	6.8E-04		5	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	1.9E+00	1.3E+00	5.7E-01	1.7E-03	1.7E-03		2	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	3.2E-01	5.8E-01	2.4E-01	8.9E-04	8.9E-04														
1400 - 1500	3	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	1.4E+00	9.4E-01	4.4E-01	1.0E-03	1.0E-03		6	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	2.3E+00	1.6E+00	6.9E-01	2.0E-03	2.0E-03		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04														
1500 - 1600	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
1600 - 1700	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	7.6E-01	5.3E-01	2.3E-01	6.8E-04	6.8E-04		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04														
1700 - 1800	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	7.6E-01	5.3E-01	2.3E-01	6.8E-04	6.8E-04		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04														
1800 - 1900	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	7.6E-01	5.3E-01	2.3E-01	6.8E-04	6.8E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
1900 - 2000	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	7.6E-01	5.3E-01	2.3E-01	6.8E-04	6.8E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
2000 - 2100	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
2100 - 2200	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	7.6E-01	5.3E-01	2.3E-01	6.8E-04	6.8E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00														
2200 - 2300	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	7.6E-01	5.3E-01	2.3E-01	6.8E-04	6.8E-04		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04														
2300 - 2400	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06	4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		4	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06	1.5E+00	1.1E+00	4.6E-01	1.4E-03	1.4E-03		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06	4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04														

Average Distance from Starting Place to Egress =	150	m
Average Spread Distance outside parking site =	500	m

Hour	Total Idling Emission (g) [2]					Idling Emission for Start Emission Adjustment (g) [3]					Adjusted Start Emission within parking site (g) [4]					Adjusted Start Emission outside parking site (g) [5]					Start Emission Rate outside parking site (g/s)				
	NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP
0000 - 0100	2.9E+00	2.0E+00	8.7E-01	2.5E-03	2.5E-03	2.9E+00	2.0E+00	8.7E-01	2.5E-03	2.5E-03	5.7E+00	4.0E+00	1.7E+00	0.0E+00	0.0E+00	2.1E+01	1.5E+01	6.2E+00	0.0E+00	0.0E+00	5.8E-03	4.1E-03	1.7E-03	0.0E+00	0.0E+00
0100 - 0200	1.2E+00	8.5E-01	3.8E-01	1.0E-03	1.0E-03	1.2E+00	8.5E-01	3.8E-01	1.0E-03	1.0E-03	2.4E+00	1.7E+00	7.3E-01	0.0E+00	0.0E+00	8.9E+00	6.2E+00	2.7E+00	0.0E+00	0.0E+00	2.5E-03	1.7E-03	7.4E-04	0.0E+00	0.0E+00
0200 - 0300	2.1E+00	1.4E+00	6.4E-01	1.7E-03	1.7E-03	2.1E+00	1.4E+00	6.4E-01	1.7E-03	1.7E-03	4.0E+00	2.8E+00	1.2E+00	0.0E+00	0.0E+00	1.5E+01	1.0E+01	4.4E+00	0.0E+00	0.0E+00	4.1E-03	2.8E-03	1.2E-03	0.0E+00	0.0E+00
0300 - 0400	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0400 - 0500	1.2E+00	8.5E-01	3.8E-01	1.0E-03	1.0E-03	1.2E+00	8.5E-01	3.8E-01	1.0E-03	1.0E-03	2.4E+00	1.7E+00	7.3E-01	0.0E+00	0.0E+00	8.9E+00	6.2E+00	2.7E+00	0.0E+00	0.0E+00	2.5E-03	1.7E-03	7.4E-04	0.0E+00	0.0E+00
0500 - 0600	3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04	3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04	8.4E-01	6.0E-01	2.4E-01	0.0E+00	0.0E+00	3.1E+00	2.2E+00	8.9E-01	0.0E+00	0.0E+00	8.8E-04	6.1E-04	2.5E-04	0.0E+00	0.0E+00
0600 - 0700	2.4E+00	1.7E+00	7.6

Coach Parking (Car Park B)

Temp: 11 **RH:** 18

Start Emission

Non-franchised Buses <=6.4t (NFB6) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.0651	0.1172	0.1562	0.2213	0.2734	0.3645	0.5337	0.6639	0.9763	1.2756	1.4318	1.6922	1.8614	1.9525	2.0046	2.0567	2.0827	2.0827
NO	0.0469	0.0844	0.1125	0.1593	0.1969	0.2624	0.3843	0.4780	0.7029	0.9184	1.0309	1.2184	1.3402	1.4058	1.4433	1.4808	1.4995	1.4995
NO2	0.0182	0.0328	0.0437	0.0620	0.0765	0.1021	0.1494	0.1859	0.2734	0.3572	0.4009	0.4738	0.5212	0.5467	0.5613	0.5759	0.5832	0.5832
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

No. of Trips of NFB6

Hour / Soaking Time (min)	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		0
0100 - 0200																		0
0200 - 0300																		0
0300 - 0400																		0
0400 - 0500																		0
0500 - 0600																		0
0600 - 0700																		0
0700 - 0800																		2
0800 - 0900																		1
0900 - 1000																		2
1000 - 1100																		0
1100 - 1200																		0
1200 - 1300																		0
1300 - 1400																		1
1400 - 1500																		1
1500 - 1600																		0
1600 - 1700																		1
1700 - 1800																		0
1800 - 1900																		1
1900 - 2000																		1
2000 - 2100																		0
2100 - 2200																		0
2200 - 2300																		0
2300 - 2400																		0

Non-franchised Buses 6.4-15t (NFB7) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1263	0.2273	0.3031	0.4294	0.5304	0.7072	1.0355	1.2881	1.8942	2.4751	2.7781	3.2833	3.6116	3.7884	3.8894	3.9904	4.0409	4.0409
NO	0.0846	0.1523	0.2031	0.2877	0.3554	0.4738	0.6938	0.8630	1.2691	1.6583	1.8613	2.1998	2.4198	2.5382	2.6059	2.6736	2.7074	2.7074
NO2	0.0417	0.0750	0.1000	0.1417	0.1750	0.2334	0.3417	0.4251	0.6251	0.8168	0.9168	1.0835	1.1918	1.2502	1.2835	1.3168	1.3335	1.3335
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

No. of Trips of NFB7

Hour / Soaking Time (min)	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		0
0100 - 0200																		0
0200 - 0300																		0
0300 - 0400																		0
0400 - 0500																		0
0500 - 0600																		0
0600 - 0700																		0
0700 - 0800																		1
0800 - 0900																		1
0900 - 1000																		1
1000 - 1100																		0
1100 - 1200																		0
1200 - 1300																		0
1300 - 1400																		1
1400 - 1500																		1
1500 - 1600																		0
1600 - 1700																		1
1700 - 1800																		0
1800 - 1900																		0
1900 - 2000																		0
2000 - 2100																		0
2100 - 2200																		0
2200 - 2300																		0
2300 - 2400																		0

Non-franchised Buses 15-24t (NFB8) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1340	0.2411	0.3215	0.4555	0.5626	0.7502	1.0985	1.3664	2.0094	2.6256	2.9471	3.4830	3.8313	4.0188	4.1260	4.2332	4.2868	4.2868
NO	0.0938	0.1687	0.2250	0.3187	0.3936	0.5249	0.7686	0.9561	1.4060	1.8371	2.0621	2.4371	2.6808	2.8120	2.8870	2.9620	2.9995	2.9995
NO2	0.0402	0.0724	0.0965	0.1368	0.1690	0.2253	0.3299	0.4103	0.6034	0.7885	0.8850	1.0459	1.1505	1.2068	1.2390	1.2712	1.2873	1.2873
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

No. of Trips of NFB8

Hour / Soaking Time (min)	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		0
0100 - 0200																		0
0200 - 0300																		0
0300 - 0400																		0
0400 - 0500																		0
0500 - 0600																		0
0600 - 0700																		0
0700 - 0800																		0
0800 - 0900																		1
0900 - 1000																		3
1000 - 1100																		0
1100 - 1200																		0
1200 - 1300																		0
1300 - 1400																		2
1400 - 1500																		1
1500 - 1600																		0
1600 - 1700																		1
1700 - 1800																		1
1800 - 1900																		1
1900 - 2000																		1
2000 - 2100																		0
2100 - 2200																		0
2200 - 2300																		0
2300 - 2400																		0

Non-franchised Buses >24t (NFB9) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1244	0.2239	0.2985	0.4229	0.5224	0.6965	1.0199	1.2686	1.8656	2.4377	2.7362	3.2337	3.5571	3.7312	3.8307	3.9302	3.9800	3.9800
NO	0.0834	0.1500	0.2000	0.2834	0.3500	0.4667	0.6833	0.8500	1.2499	1.6332	1.8332	2.1666	2.3832	2.4999	2.5666	2.6332	2.6666	2.6666
NO2	0.0410	0.0739	0.0985	0.1395	0.1724	0.2298	0.3366	0.4186	0.6157	0.8045	0.9030	1.0671	1.1739	1.2313	1.2641	1.2970	1.3134	1.3134
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

No. of Trips of NFB9

Hour / Soaking Time (min)	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		0
0100 - 0200																		0
0200 - 0300																		0
0300 - 0400																		0
0400 - 0500																		0
0500 - 0600																		0
0600 - 0700																		1
0700 - 0800																		0
0800 - 0900																		1
0900 - 1000																		1
1000 - 1100																		0
1100 - 1200																		0
1200 - 1300																		0
1300 - 1400																		0
1400 - 1500																		1
1500 - 1600																		1
1600 - 1700																		1
1700 - 1800																		1
1800 - 1900																		1
1900 - 2000																		1
2000 - 2100																		0
2100 - 2200																		0
2200 - 2300																		0
2300 - 2400																		0

Total Start Emission of NFB6, NFB7, NFB8 & NFB9 (g)

NOx	NO	NO2	RSP	FSP
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	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
4.29	3.00	1.29	0.00	0.00
6.37	4.50	1.87	0.00	0.00
10.41	7.21	3.20	0.00	0.00
21.07	14.70	6.38	0.00	0.00
4.29	3.00	1.29	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
14.70	10.21	4.49	0.00	0.00
6.37	4.50	1.87	0.00	0.00
0.00	0.00	0.00	0.00	0.00
10.41	7.21	3.20	0.00	0.00
4.29	3.00	1.29	0.00	0.00
6.37	4.50	1.87	0.00	0.00
6.37	4.50	1.87	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	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00

Cold Idling Emission

Idling Time is	1	min
Max. Idling Time for Adjusting Start Emission =	1	min

Hour	NFB6 Freq.	NFB6 Cold Idling Emission Factor (g/s)					NFB6 Cold Idling Emission (g) [1]					NFB7 Freq.	NFB7 Cold Idling Emission Factor (g/s)					NFB7 Cold Idling Emission (g) [1]				
		NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP		NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP
0000 - 0100	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0100 - 0200	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0200 - 0300	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0300 - 0400	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0400 - 0500	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0500 - 0600	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0600 - 0700	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0700 - 0800	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
0800 - 0900	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	5.2E-01	3.7E-01	1.4E-01	5.7E-04	5.7E-04	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
0900 - 1000	2	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1000 - 1100	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1100 - 1200	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1200 - 1300	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1300 - 1400	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
1400 - 1500	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
1500 - 1600	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1600 - 1700	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	5.2E-01	3.7E-01	1.4E-01	5.7E-04	5.7E-04	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
1700 - 1800	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1800 - 1900	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
1900 - 2000	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
2000 - 2100	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2100 - 2200	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2200 - 2300	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2300 - 2400	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Hour	NFB8 Freq.	NFB8 Cold Idling Emission Factor (g/s)					NFB8 Cold Idling Emission (g) [1]					NFB9 Freq.	NFB9 Cold Idling Emission Factor (g/s)					NFB9 Cold Idling Emission (g) [1]				
		NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP		NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP
0000 - 0100	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0100 - 0200	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0200 - 0300	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0300 - 0400	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0400 - 0500	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0500 - 0600	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0600 - 0700	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0700 - 0800	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0800 - 0900	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	5.6E-01	4.1E-01	1.7E-01	2.3E-04	2.3E-04	1	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0900 - 1000	3	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	1.7E-01	1.2E-01	5.2E-02	6.9E-05	6.9E-05	3	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1000 - 1100	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1100 - 1200	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1200 - 1300	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0	1.0E-02	6.7E-03	3.3E-03	4.3E-06	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1300 - 1400	2	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	3.7E-01	2.7E-01	1

HGV Parking (Car Park C)

Temp: 11 RH: 18

Start Emission

Medium Goods Vehicles<=15t (HGV7) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1221	0.2198	0.293	0.4151	0.5128	0.6837	1.0011	1.2453	1.8313	2.3929	2.6859	3.1743	3.4917	3.6626	3.7603	3.858	3.9068	3.9068
NO	0.0822	0.1480	0.1972	0.2794	0.3452	0.4603	0.6739	0.8383	1.2328	1.6109	1.8082	2.1370	2.3506	2.4657	2.5315	2.5972	2.6301	2.6301
NO2	0.0399	0.0718	0.0958	0.1357	0.1676	0.2234	0.3272	0.4070	0.5985	0.7820	0.8777	1.0373	1.1411	1.1969	1.2288	1.2608	1.2767	1.2767
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Medium Goods Vehicles15-24t (HGV8) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1349	0.2429	0.3238	0.4588	0.5667	0.7556	1.1065	1.3763	2.024	2.6447	2.9685	3.5083	3.8591	4.048	4.1559	4.2639	4.3179	4.3179
NO	0.0960	0.1728	0.2303	0.3264	0.4031	0.5375	0.7871	0.9790	1.4398	1.8814	2.1117	2.4957	2.7452	2.8796	2.9564	3.0332	3.0716	3.0716
NO2	0.0389	0.0701	0.0935	0.1324	0.1636	0.2181	0.3194	0.3973	0.5842	0.7633	0.8568	1.0126	1.1139	1.1684	1.1995	1.2307	1.2463	1.2463
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Heavy Goods Vehicles>24t (HGV9) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1379	0.2483	0.3311	0.469	0.5794	0.7725	1.1312	1.4071	2.0692	2.7037	3.0348	3.5866	3.9453	4.1384	4.2487	4.3591	4.4143	4.4143
NO	0.0996	0.1793	0.2391	0.3386	0.4184	0.5578	0.8168	1.0160	1.4941	1.9522	2.1913	2.5897	2.8487	2.9881	3.0678	3.1475	3.1874	3.1874
NO2	0.0383	0.0690	0.0920	0.1304	0.1610	0.2147	0.3144	0.3911	0.5751	0.7515	0.8435	0.9969	1.0966	1.1503	1.1809	1.2116	1.2269	1.2269
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

No. of Trips of HGV7

Soaking Time (min) / Hour	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	
0000 - 0100																			1
0100 - 0200																			1
0200 - 0300																			1
0300 - 0400																			0
0400 - 0500																			1
0500 - 0600																			0
0600 - 0700																			1
0700 - 0800																			1
0800 - 0900																			1
0900 - 1000																			2
1000 - 1100																			1
1100 - 1200																			1
1200 - 1300																			1
1300 - 1400																			1
1400 - 1500																			1
1500 - 1600																			0
1600 - 1700																			1
1700 - 1800																			0
1800 - 1900																			1
1900 - 2000																			0
2000 - 2100																			0
2100 - 2200																			0
2200 - 2300																			0
2300 - 2400																			1

No. of Trips of HGV8

Soaking Time (min) / Hour	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	
0000 - 0100																			2
0100 - 0200																			1
0200 - 0300																			2
0300 - 0400																			1
0400 - 0500																			1
0500 - 0600																			1
0600 - 0700																			2
0700 - 0800																			1
0800 - 0900																			3
0900 - 1000																			4
1000 - 1100																			2
1100 - 1200																			2
1200 - 1300																			1
1300 - 1400																			2
1400 - 1500																			3
1500 - 1600																			0
1600 - 1700																			1
1700 - 1800																			1
1800 - 1900																			1
1900 - 2000																			1
2000 - 2100																			1
2100 - 2200																			0
2200 - 2300																			1
2300 - 2400																			1

No. of Trips of HGV9

Soaking Time (min) / Hour	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720	
0000 - 0100																			1
0100 - 0200																			0
0200 - 0300																			0
0300 - 0400																			0
0400 - 0500																			0
0500 - 0600																			0
0600 - 0700																			1
0700 - 0800																			0
0800 - 0900																			1
0900 - 1000																			1
1000 - 1100																			1
1100 - 1200																			0
1200 - 1300																			0
1300 - 1400																			1
1400 - 1500																			1
1500 - 1600																			1
1600 - 1700																			0
1700 - 1800																			0
1800 - 1900																			0
1900 - 2000																			0
2000 - 2100																			0
2100 - 2200																			0
2200 - 2300																			0
2300 - 2400																			0

Total Start Emission of HGV7, HGV8 & HGV9 (g)

NOx	NO	NO2	RSP	FSP
16.96	11.96	5.00	0.00	0.00
8.22	5.70	2.52	0.00	0.00
12.54	8.77	3.77	0.00	0.00
4.32	3.07	1.25	0.00	0.00
8.22	5.70	2.52	0.00	0.00
4.32	3.07	1.25	0.00	0.00
16.96	11.96	5.00	0.00	0.00
8.22	5.70	2.52	0.00	0.00
21.27	15.03	6.24	0.00	0.00
29.50	20.73	8.77	0.00	0.00
16.96	11.96	5.00	0.00	0.00
12.54	8.77	3.77	0.00	0.00
8.22	5.70	2.52	0.00	0.00
16.96	11.96	5.00	0.00	0.00
21.27	15.03	6.24	0.00	0.00
0.00	0.00	0.00	0.00	0.00
8.22	5.70	2.52	0.00	0.00
4.32	3.07	1.25	0.00	0.00
8.22	5.70	2.52	0.00	0.00
4.32	3.07	1.25	0.00	0.00
0.00	0.00	0.00	0.00	0.00
4.32	3.07	1.25	0.00	0.00
8.22	5.70	2.52	0.00	0.00

Cold Idling Emission

Idling Time =	1	min
Max. Idling Time for Adjusting Start Emission =	1	min

Hour	HGV7												HGV8												HGV9												N/A											
	Frequency	Cold Idling Emission Factor (g/s)						Cold Idling Emission (g) [1]						Frequency	Cold Idling Emission Factor (g/s)						Cold Idling Emission (g) [1]						Frequency	Cold Idling Emission Factor (g/s)						Cold Idling Emission (g) [1]						Frequency	Cold Idling Emission Factor (g/s)						Cold Idling Emission (g) [1]					
		NOx	NO	NO2	RSP	FSP		NOx	NO	NO2	RSP	FSP			NOx	NO	NO2	RSP	FSP		NOx	NO	NO2	RSP	FSP			NOx	NO	NO2	RSP	FSP		NOx	NO	NO2	RSP	FSP			NOx	NO	NO2	RSP	FSP		NOx	NO	NO2	RSP	FSP
0000 - 0100	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		3.8E-01	2.7E-01	1.1E-01	3.3E-04	3.3E-04		2	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		8.2E-01	5.8E-01	2.4E-01	4.5E-04	4.5E-04															
0100 - 0200	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
0200 - 0300	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		7.6E-01	5.3E-01	2.3E-01	8.8E-04	8.8E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
0300 - 0400	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
0400 - 0500	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
0500 - 0600	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
0600 - 0700	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		7.6E-01	5.3E-01	2.3E-01	8.8E-04	8.8E-04		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04															
0700 - 0800	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		7.6E-01	5.3E-01	2.3E-01	8.8E-04	8.8E-04		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04															
0800 - 0900	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		3	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		1.1E+00	8.0E-01	3.4E-01	1.0E-03	1.0E-03		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04															
0900 - 1000	2	7.7E-03	5.2E-03	2.5E-03	5.7E-06	9.2E-01	6.2E-01	3.1E-01	2.1E-01	1.0E-01	6.8E-04	4.6E-04		4	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		1.5E+00	1.1E+00	4.6E-01	1.3E-03	1.3E-03		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04															
1000 - 1100	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		7.6E-01	5.3E-01	2.3E-01	8.8E-04	8.8E-04		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04															
1100 - 1200	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		7.6E-01	5.3E-01	2.3E-01	8.8E-04	8.8E-04		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04															
1200 - 1300	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
1300 - 1400	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		2	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		7.6E-01	5.3E-01	2.3E-01	8.8E-04	8.8E-04		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04															
1400 - 1500	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		3	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		1.1E+00	8.0E-01	3.4E-01	1.0E-03	1.0E-03		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04															
1500 - 1600	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
1600 - 1700	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	9.2E-01	6.2E-01	3.1E-01	2.1E-01	1.0E-01	6.8E-04	4.6E-04		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		1.1E+00	8.0E-01	3.4E-01	1.0E-03	1.0E-03		1	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		4.1E-01	2.9E-01	1.2E-01	4.5E-04	4.5E-04															
1700 - 1800	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
1800 - 1900	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
1900 - 2000	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
2000 - 2100	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
2100 - 2200	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
2200 - 2300	0	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															
2300 - 2400	1	7.7E-03	5.2E-03	2.5E-03	5.7E-06	5.7E-06		4.6E-01	3.1E-01	1.5E-01	3.4E-04	3.4E-04		1	6.4E-03	4.5E-03	1.9E-03	5.6E-06	5.6E-06		3.8E-01	2.7E-01	1.1E-01	3.4E-04	3.4E-04		0	6.8E-03	4.8E-03	2.0E-03	7.4E-06	7.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00															

Average Distance from Starting Place to Egress =	320	m
Average Spread Distance outside parking site =	330	m

Hour	Total Idling Emission (g) [2]					Idling Emission for Start Emission Adjustment (g) [3]					Adjusted Start Emission within parking site (g) [4]					Adjusted Start Emission outside parking site (g) [5]					Start Emission Rate outside parking site (g/s)				
	NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP
0000 - 0100	1.6E+00	1.1E+00	5.0E-01	1.5E-03	1.5E-03	1.6E+00	1.1E+00	5.0E-01	1.5E-03	1.5E-03	7.0E+00	4.9E+00	2.1E+00	0.0E+00	0.0E+00	8.3E+00	5.9E+00	2.4E+00	0.0E+00	0.0E+00	2.3E-03	1.6E-03	6.8E-04	0.0E+00	0.0E+00
0100 - 0200	8.4E-01	5.8E-01	2.6E-01	6.8E-04	6.8E-04	8.4E-01	5.8E-01	2.6E-01	6.8E-04	6.8E-04	3.4E+00	2.3E+00	1.0E+00	0.0E+00	0.0E+00	4.0E+00	2.8E+00	1.2E+00	0.0E+00	0.0E+00	1.1E-03	7.7E-04	3.4E-04	0.0E+00	0.0E+00
0200 - 0300	1.2E+00	8.5E-01	3.8E-01	1.0E-03	1.0E-03	1.2E+00	8.5E-01	3.8E-01	1.0E-03	1.0E-03	5.2E+00	3.6E+00	1.6E+00	0.0E+00	0.0E+00	6.1E+00	4.3E+00	1.8E+00	0.0E+00	0.0E+00	1.7E-03	1.2E-03	5.1E-04	0.0E+00	0.0E+00
0300 - 0400	8.4E-01	5.8E-01	2.6E-01	6.8E-04	6.8E-04	8.4E-01	5.8E-01	2.6E-01	6.8E-04	6.8E-04	3.4E+00	2.3E+00	1.0E+00	0.0E+00	0.0E+00	4.0E+00	2.8E+00	1.2E+00	0.0E+00	0.0E+00	1.1E-03	7.7E-04	3.4E-04	0.0E+00	0.0E+00
0400 - 0500	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0500 - 0600	1.6E+00	1.1E+00	5.0E-01	1.5E-03	1.5E-03	1.6E+00	1.1E+00	5.0E-01	1.5E-03	1.5E-03	7.0E+

Coach Parking (Car Park C)

Temp: 11 **RH:** 18

Start Emission

Non-franchised Buses <=6.4t (NFB6) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.0651	0.1172	0.1562	0.2213	0.2734	0.3645	0.5337	0.6639	0.9763	1.2756	1.4318	1.6922	1.8614	1.9525	2.0046	2.0567	2.0827	2.0827
NO	0.0469	0.0844	0.1125	0.1593	0.1969	0.2624	0.3843	0.4780	0.7029	0.9184	1.0309	1.2184	1.3402	1.4058	1.4433	1.4808	1.4995	1.4995
NO2	0.0182	0.0328	0.0437	0.0620	0.0765	0.1021	0.1494	0.1859	0.2734	0.3572	0.4009	0.4738	0.5212	0.5467	0.5613	0.5759	0.5832	0.5832
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Non-franchised Buses 6.4-15t (NFB7) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1263	0.2273	0.3031	0.4294	0.5304	0.7072	1.0355	1.2881	1.8942	2.4751	2.7781	3.2833	3.6116	3.7884	3.8894	3.9904	4.0409	4.0409
NO	0.0846	0.1523	0.2031	0.2877	0.3554	0.4738	0.6938	0.8630	1.2691	1.6583	1.8613	2.1998	2.4198	2.5382	2.6059	2.6736	2.7074	2.7074
NO2	0.0417	0.0750	0.1000	0.1417	0.1750	0.2334	0.3417	0.4251	0.6251	0.8168	0.9168	1.0835	1.1918	1.2502	1.2835	1.3168	1.3335	1.3335
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Non-franchised Buses 15-24t (NFB8) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1340	0.2411	0.3215	0.4555	0.5626	0.7502	1.0985	1.3664	2.0094	2.6256	2.9471	3.4830	3.8313	4.0188	4.1260	4.2332	4.2868	4.2868
NO	0.0938	0.1687	0.2250	0.3187	0.3936	0.5249	0.7686	0.9561	1.4060	1.8371	2.0621	2.4371	2.6808	2.8120	2.8870	2.9620	2.9995	2.9995
NO2	0.0402	0.0724	0.0965	0.1368	0.1690	0.2253	0.3299	0.4103	0.6034	0.7885	0.8850	1.0459	1.1505	1.2068	1.2390	1.2712	1.2873	1.2873
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Non-franchised Buses >24t (NFB9) Start Emission Factor (g/trip)

Soaking Time (min) / Pollutant	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
NOx	0.1244	0.2239	0.2985	0.4229	0.5224	0.6965	1.0199	1.2686	1.8656	2.4377	2.7362	3.2337	3.5571	3.7312	3.8307	3.9302	3.9800	3.9800
NO	0.0834	0.1500	0.2000	0.2834	0.3500	0.4667	0.6833	0.8500	1.2499	1.6332	1.8332	2.1666	2.3832	2.4999	2.5666	2.6332	2.6666	2.6666
NO2	0.0410	0.0739	0.0985	0.1395	0.1724	0.2298	0.3366	0.4186	0.6157	0.8045	0.9030	1.0671	1.1739	1.2313	1.2641	1.2970	1.3134	1.3134
RSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FSP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

No. of Trips of NFB6

Hour \ Soaking Time (min)	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		0
0100 - 0200																		1
0200 - 0300																		0
0300 - 0400																		0
0400 - 0500																		1
0500 - 0600																		1
0600 - 0700																		1
0700 - 0800																		1
0800 - 0900																		1
0900 - 1000																		3
1000 - 1100																		4
1100 - 1200																		0
1200 - 1300																		0
1300 - 1400																		2
1400 - 1500																		2
1500 - 1600																		1
1600 - 1700																		1
1700 - 1800																		1
1800 - 1900																		1
1900 - 2000																		1
2000 - 2100																		1
2100 - 2200																		1
2200 - 2300																		1
2300 - 2400																		1

No. of Trips of NFB7

Hour \ Soaking Time (min)	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		0
0100 - 0200																		0
0200 - 0300																		0
0300 - 0400																		0
0400 - 0500																		0
0500 - 0600																		1
0600 - 0700																		1
0700 - 0800																		1
0800 - 0900																		1
0900 - 1000																		2
1000 - 1100																		3
1100 - 1200																		0
1200 - 1300																		0
1300 - 1400																		1
1400 - 1500																		1
1500 - 1600																		1
1600 - 1700																		1
1700 - 1800																		1
1800 - 1900																		1
1900 - 2000																		1
2000 - 2100																		0
2100 - 2200																		1
2200 - 2300																		1
2300 - 2400																		1

No. of Trips of NFB8

Hour \ Soaking Time (min)	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		1
0100 - 0200																		0
0200 - 0300																		1
0300 - 0400																		0
0400 - 0500																		0
0500 - 0600																		1
0600 - 0700																		1
0700 - 0800																		2
0800 - 0900																		2
0900 - 1000																		5
1000 - 1100																		6
1100 - 1200																		0
1200 - 1300																		0
1300 - 1400																		3
1400 - 1500																		3
1500 - 1600																		1
1600 - 1700																		2
1700 - 1800																		1
1800 - 1900																		1
1900 - 2000																		0
2000 - 2100																		1
2100 - 2200																		2
2200 - 2300																		0
2300 - 2400																		1

No. of Trips of NFB9

Hour \ Soaking Time (min)	5	10	20	30	40	50	60	120	180	240	300	360	420	480	540	600	660	720
0000 - 0100																		0
0100 - 0200																		0
0200 - 0300																		0
0300 - 0400																		0
0400 - 0500																		0
0500 - 0600																		1
0600 - 0700																		2
0700 - 0800																		2
0800 - 0900																		2
0900 - 1000																		5
1000 - 1100																		6
1100 - 1200																		0
1200 - 1300																		0
1300 - 1400																		3
1400 - 1500																		3
1500 - 1600																		1
1600 - 1700																		2
1700 - 1800																		1
1800 - 1900																		1
1900 - 2000																		0
2000 - 2100																		1
2100 - 2200																		2
2200 - 2300																		0
2300 - 2400																		1

Total Start Emission of NFB6, NFB7, NFB8 & NFB9 (g)

NOx	NO	NO2	RSP	FSP
4.29	3.00	1.29	0.00	0.00
6.37	4.50	1.87	0.00	0.00
4.29	3.00	1.29	0.00	0.00
0.00	0.00	0.00	0.00	0.00
6.37	4.50	1.87	0.00	0.00
10.41	7.21	3.20	0.00	0.00
14.70	10.21	4.49	0.00	0.00
14.70	10.21	4.49	0.00	0.00
14.70	10.21	4.49	0.00	0.00
35.76	24.91	10.85	0.00	0.00
46.17	32.12	14.06	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
21.07	14.70	6.36	0.00	0.00
21.07	14.70	6.36	0.00	0.00
10.41	7.21	3.20	0.00	0.00
14.70	10.21	4.49	0.00	0.00
6.37	4.50	1.87	0.00	0.00
10.41	7.21	3.20	0.00	0.00
10.41	7.21	3.20	0.00	0.00
6.37	4.50	1.87	0.00	0.00
14.70	10.21	4.49	0.00	0.00
6.37	4.50	1.87	0.00	0.00

Cold Idling Emission

Idling Time is	1	min
Max. Idling Time for Adjusting Start Emission =	1	min

NFB6

Hour	Frequency	Cold Idling Emission Factor (g/s)					Cold Idling Emission (g) [1]				
		NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP
0000 - 0100	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0100 - 0200	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
0200 - 0300	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0300 - 0400	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0400 - 0500	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
0500 - 0600	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
0600 - 0700	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
0700 - 0800	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
0800 - 0900	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
0900 - 1000	3	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	7.8E-01	5.6E-01	2.2E-01	8.5E-04	8.5E-04
1000 - 1100	4	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	1.0E+00	7.4E-01	2.9E-01	1.1E-03	1.1E-03
1100 - 1200	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1200 - 1300	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1300 - 1400	2	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	5.2E-01	3.7E-01	1.4E-01	5.7E-04	5.7E-04
1400 - 1500	2	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	5.2E-01	3.7E-01	1.4E-01	5.7E-04	5.7E-04
1500 - 1600	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
1600 - 1700	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
1700 - 1800	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
1800 - 1900	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
1900 - 2000	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
2000 - 2100	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
2100 - 2200	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04
2200 - 2300	0	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2300 - 2400	1	4.3E-03	3.1E-03	1.2E-03	4.7E-06	4.7E-06	2.6E-01	1.9E-01	7.2E-02	2.8E-04	2.8E-04

NFB7

Hour	Frequency	Cold Idling Emission Factor (g/s)					Cold Idling Emission (g) [1]				
		NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP
0000 - 0100	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0100 - 0200	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0200 - 0300	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0300 - 0400	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0400 - 0500	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0500 - 0600	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
0600 - 0700	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
0700 - 0800	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
0800 - 0900	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
0900 - 1000	2	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	1.4E+00	9.3E-01	4.5E-01	5.0E-04	5.0E-04
1000 - 1100	3	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	2.1E+00	1.4E+00	6.8E-01	7.5E-04	7.5E-04
1100 - 1200	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1200 - 1300	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1300 - 1400	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
1400 - 1500	2	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	1.4E+00	9.3E-01	4.5E-01	5.0E-04	5.0E-04
1500 - 1600	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
1600 - 1700	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
1700 - 1800	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
1800 - 1900	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
1900 - 2000	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
2000 - 2100	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
2100 - 2200	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04
2200 - 2300	0	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2300 - 2400	1	1.2E-02	7.8E-03	3.8E-03	4.2E-06	4.2E-06	7.0E-01	4.7E-01	2.3E-01	2.5E-04	2.5E-04

NFB8

Hour	Frequency	Cold Idling Emission Factor (g/s)					Cold Idling Emission (g) [1]				
		NOx	NO	NO2	RSP	FSP	NOx	NO	NO2	RSP	FSP
0000 - 0100	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04
0100 - 0200	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04
0200 - 0300	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0300 - 0400	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
0400 - 0500	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04
0500 - 0600	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04
0600 - 0700	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04
0700 - 0800	2	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	1.4E+00	9.6E-01	4.2E-01	5.4E-04	5.4E-04
0800 - 0900	2	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	1.4E+00	9.6E-01	4.2E-01	5.4E-04	5.4E-04
0900 - 1000	5	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	3.4E+00	2.4E+00	1.0E+00	1.4E-03	1.4E-03
1000 - 1100	6	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	4.1E+00	2.9E+00	1.3E+00	1.6E-03	1.6E-03
1100 - 1200	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1200 - 1300	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
1300 - 1400	3	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	2.1E+00	1.4E+00	6.8E-01	8.1E-04	8.1E-04
1400 - 1500	3	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	2.1E+00	1.4E+00	6.8E-01	8.1E-04	8.1E-04
1500 - 1600	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04
1600 - 1700	2	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	1.4E+00	9.6E-01	4.2E-01	5.4E-04	5.4E-04
1700 - 1800	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04
1800 - 1900	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04
1900 - 2000	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04
2000 - 2100	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04
2100 - 2200	2	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	1.4E+00	9.6E-01	4.2E-01	5.4E-04	5.4E-04
2200 - 2300	0	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2300 - 2400	1	1.1E-02	8.0E-03	3.5E-03	4.5E-06	4.5E-06	6.9E-01	4.8E-01	2.1E-01	2.7E-04	2.7E-04

NFB9

| Hour | Frequency |

APPENDIX 3-4
EMISSION INVENTORY FOR MARINE EMISSION SOURCE

Emission for Commercial Ferry between North Point Ferry Pier and Kowloon City Ferry Pier

Table 1a - Source Strength of a Sailing Ferry (First Ferry series high-speed vessels)

		(unit)	Remark / Reference
Vessel/Chimney Information			
Stack Height	1	m	Note 1 - 1 m about sea level
Emission Temperature	373	K	Note 2
Exhaust Velocity	0	m/s	Note 1
Stack Diameter	0.3	m	Note 2
Engine Information			
Power of Main Engine	2100	kW	Note 3
Load Factor (Cruise)	0.45		Note 4 - Table 4-7
Emissions factor (from emission table, exclude Load Factor)			
Main Engine			
- NO_X	10.000	g/kwh	Note 4 - Table 4-16 - ME (Cat.1)
- RSP	0.300	g/kwh	
- FSP	0.290	g/kwh	
- SO_2	0.208	g/kwh	Note 5
Emissions Rate per Vessel			
Cruise			
- NO_X	9450.0	g/h	= Emission Factor x Engine Power x Load Factor
- RSP	283.5	g/h	
- FSP	274.1	g/h	
- SO_2	196.6	g/h	
Travel Duration of a Single Trip within Assessment Area			
Total Route length	3.0	km	
Total Duration of a trip	14.00	minute	[6] The journey time is 14 minutes according to Sunferry
Route length within Assessment Area	0.8	km	
Duration within Assessment Area	3.73	minutes	Estimated by the ratio of traval distance. Assume the velocity of ferry is constant.
Emissions Rate per Vessel at each emission point			
Number of emission point	11		Ferry01 - Ferry11
NO_X	**5.35E+01**	g/h	= Emissions Rate per Vessel x (During of a single trip within Assessment Area / 60 minites) / number of emission point
RSP	**1.60E+00**	g/h	
FSP	**1.55E+00**	g/h	
SO_2	**1.11E+00**	g/h	
NO_X	1.48E-02	g/s	Unit conversion
RSP	4.45E-04	g/s	
FSP	4.31E-04	g/s	
SO_2	3.09E-04	g/s	

Note/Reference:

1 Based on on-site observations,the exhaust is located at the tail of the vessel, close to sea level. exhasut elevation of 1m above sea level have been adopted.
The emissions at tail are horizontal, an emission velocity of 0 m/s has been adopted.

2 Reference has been made to Appendix 3.15 of Tung Chung New Town Extension (AEIAR-1962016), which adopted exhaust diameter of 0.3m and emission temperature of 373k for ferry.

3 http://www.barcaferry.com/photo/photo_shipyards/marintekink/marintekink_cpv36_date.html

4 HKUST (2012), Study on Marine Vessels Emission Inventory

5 The Air Pollution Control (Marine Light Diesel) Regulation was introduced on 1 April 2014 to cap the Sulphur content of locally supplied marine light diesel at 0.05%.
Therefore, SO_2 emission has been multiplied by a factor of 0.1 (from 0.5% to 0.05% Sulphur content)

6 https://www.sunferry.com.hk/en/route-and-fare/timetable?route=north-point-to-kowloon-city

Emission for Commercial Ferry between North Point Ferry Pier and Kowloon City Ferry Pier

Table 1b - Source Strength of a Sailing Ferry

Source	ID	Easting (m)	Northing (m)	Individual Source Strength [1]				Emission Height [1]	Temp [1]	Exhaust Velocity [1]	Diameter [1]	Operation hour [2]
				NOx (g/s)	RSP (g/s)	FSP (g/s)	SO_2 (g/s)	(mPD)	(K)	(m/s)	(m)	
Commercial Ferry	Ferry01	838149.8	819712.3	1.48E-02	4.45E-04	4.31E-04	3.09E-04	2.73 (sea level) + 1 (emission height above sea level)	373	0	0.3	20:00 - 07:00 : 0 trips/hour 07:00 - 19:00 : 4 trips/hour 19:00 - 20:00 : 3 trips/hour
	Ferry02	838089.6	819658.3									
	Ferry03	838067.2	819581.5									
	Ferry04	838044.8	819504.7									
	Ferry05	838022.4	819427.9									
	Ferry06	838014.4	819347.3									
	Ferry07	838020.3	819267.0									
	Ferry08	838047.3	819191.7									
	Ferry09	838074.0	819116.3									
	Ferry10	838100.9	819040.9									
	Ferry11	838127.7	818965.5									

Note/Referrence:

1 Emission source strength of a single trip. Refer to Table 1a of this Appendix for details

2 Time Table of the Ferry, last checked on 11 Apr 2025.
https://www.sunferry.com.hk/en/route-and-fare/timetable?route=north-point-to-kowloon-city

Emission for To Kwa Wan Typhoon Shelter (TKWTS)

Table 2 - Emisison Information for TKWTS

			Remark
Population of Active Barges	20		[Note 1]
Engine Power of the Barge	116	kW	[Note 2]
Load Factor (%)	43	%	[Note 3]
Total area of TKWTS	233,200	m^2	[Note 4]
	Easting (m)	**Northing (m)**	
Coordinations of the To Kwa Wan Typhoon Shelter	838100.3	819486.3	Vertices of the TKWTS within assessment area
	838252.7	819565.8	
	838331.4	819379.9	
	838278.4	819215.2	
Emission Height	15	m above sea level	[Notes 5 & 6]
Operation Schudule	24	hour / day	

Table 3 - Source Strength of TKWTS

	Emission Factor [Notes 7 & 8]	**Emission Rate per Active Barge [Note 9]**	**Total Emission Rate [Note 10]**	**Emission Rate per unit Area [Note 11]**
	g/kWh/barge	**g/hr/barge**	**g/s**	**$g/s/m^2$**
NOx	10.0	498.8	2.77	1.188E-05
SO_2	0.208	10.4	0.06	2.472E-07
RSP	0.40	20.0	0.11	4.753E-07
FSP	0.39	19.5	0.11	4.634E-07

Note/Referrence:

1 A very conservative estimation as TKWTS serves as a sheltered space for vessels rather than as a Public Cargo Working Area.
2 Table 4-6 of Study on Marine Vessels Emission Inventory, HKUST (2012).
3 Table 4-10 of Study on Marine Vessels Emission Inventory, HKUST (2012).
4 Appendix 6.6 of the approved Kai Tak Development (KTD) EIA report (AEIAR-130/2009)
Appendix 3.7 of the approved Kai Tak Multi-purpose Sports Complex (KT MPSC) EIA report (AEIAR-204/2017)
5 From site observations
6 Sea level is assumed to be 2.73mPD
7 Emisison factors for Auxiliary Engine in Table 4-16 of Study on Marine Vessels Emission Inventory, HKUST (2012).
8 The Air Pollution Control (Marine Light Diesel) Regulation was introduced on 1 April 2014 to cap the sulphur content of locally supplied marine light diesel at 0.05%.
Therefore, SO_2 emission has been multiplied by a factor of 0.1 (from 0.5% to 0.05% sulphur content)
9 Emission Rate per Active barge = Emission Factor x Engine Power x Load Factor
10 Total Emission Rate (g/s) = Emission Rate per Active barge x Population of Active Barges / 3600
11 Total area of TKWTS Emission Rate per unit Area = Total Emission Rate / Total area of TKWTS

Photo Records of To Kwa Wan Typhoon Shelter







Photo Records of the Sun Ferry







The photos were taken on 27 Nov 2024

2025年1月25日起生效
Effective from 25 January 2025

北角 NORTH POINT ⇄ 九龍城 KOWLOON CITY

由北角開 From North Point
每日 Daily

◆7:17 am	10:47 am	2:17 pm	5:47 pm
◆7:47 am	11:17 am	2:47 pm	6:17 pm
8:17 am	11:47 am	3:17 pm	6:47 pm
8:47 am	12:17 pm	3:47 pm	7:17 pm
9:17 am	12:47 pm	4:17 pm	
9:47 am	1:17 pm	4:47 pm	
10:17 am	1:47 pm	5:17 pm	

由九龍城開 From Kowloon City
每日 Daily

◆7:05 am	10:35 am	2:05 pm	5:35 pm
◆7:35 am	11:05 am	2:35 pm	6:05 pm
8:05 am	11:35 am	3:05 pm	6:35 pm
8:35 am	12:05 pm	3:35 pm	7:05 pm
9:05 am	12:35 pm	4:05 pm	7:35 pm
9:35 am	1:05 pm	4:35 pm	
10:05 am	1:35 pm	5:05 pm	

收費 FARE TABLE

成人 Adult	$10	✛長者、小童、殘疾人士 Senior, Child, Disabled	$5
月票 Monthly Ticket	$400		

貨物(每立方米) Freight (per cubic metre)	貨物(每輛單車) Freight (per bicycle)
$332.6	$11

◆ 只限星期一至五，公眾假期除外
Only available from Mondays to Fridays except Public Holidays

乘客須於上列時間前進入候船室
Passenger should enter the waiting hall ahead of the above schedule

✛ 六十五歲或以上長者，年滿三歲至未滿十二歲之小童及殘疾人士登記證持有人士
Senior Citizen aged 65 or above; Child aged between 3 and under 12 years old & Holder of Registration Card for People with Disabilities

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2131 8877 www.sunferry.com.hk

新渡輪 SUN FERRY

APPENDIX 3-5
EMISSION INVENTORY FOR MAJOR EMISSION SOURCE

Details of Marine Emission for Kai Tak Cruise Terminal

Table 1a - Marine Emission for Kai Tak Cruise Terminal (Costa Serena)

		(unit)	**Remark / Reference**
Vessel/Chimney Information			
Stack Height	69.4	m above water level	Note 4 - chimney exhaust is located at the highest location of the vessel.
Emission Temperature	537	K	Chimney information are not available.
Exhaust Velocity	24.6	m/s	Refernce has been made to Queen
Stack Diameter	1.9	m	Elizabeth II from the approved EIA report [Note 1]
Engine Information			
Power of Main Engine	75600	kW	Note 2 - Costa Serena
Power of Auxiliary Engine	21016.8	kW	Note 3 - Table 3-19 - Power Ratios of 0.278 for Cruise
Power of Boiler	1000	kW	Note 3 - Table 3-23 - Item c. Cruise/Ferry
Load Factor (Hotelling)	0.416		Note 3 - Table 3-21 - Item c. Cruise/Ferry - Hotelling
Load Factor (Boiler)	1		
Emissions factor (from emission table, exclude Load Factor)			
Auxiliary Engine			
- NO_X	13.900	g/kwh	Note 3 - Table 3-28 - 0.5% Sulphur content
- RSP	0.320	g/kwh	
- FSP	0.290	g/kwh	
- SO_2	2.120	g/kwh	
Boiler			
- NO_X	2.000	g/kwh	Note 3 - Table 3-29 - 0.5% Sulphur content
- RSP	0.190	g/kwh	
- FSP	0.140	g/kwh	
- SO_2	2.830	g/kwh	
Emissions Rate per Vessel			
Auxiliary Engine (Hotelling)			
- NO_X	121527.5	g/h	= Power of Auxiliary Engine x Load Factor (Hotelling) x Emissions factor (Auxiliary Engine)
- RSP	2797.8	g/h	
- FSP	2535.5	g/h	
- SO_2	18535.1	g/h	
Boiler (Hotelling)			
- NO_X	2000.0	g/h	= Power of Boiler x Load Factor (Boiler) x Emissions factor (Boiler)
- RSP	190.0	g/h	
- FSP	140.0	g/h	
- SO_2	2830.0	g/h	
Auxiliary Engine + Boiler (Hotelling)			
- NO_X	**34.31**	**g/s**	**Auxiliary Engine (Hotelling) + Boiler (Hotelling) with Unit Conversion**
- RSP	**0.830**	**g/s**	
- FSP	**0.743**	**g/s**	
- SO_2	**5.93**	**g/s**	

Note/Reference:

1 Appendix 3.6 of the approved EIA Report of Kai Tak Multi-purpose Sport Complex (AEIAR-204/2017).
2 Total Engine power of Costa Serena = 75600kW
https://www.fincantieri.com/en/products-and-services/cruise-ships/costa-serena/
3 HKUST (2012), Study on Marine Vessels Emission Inventory
4 Height of Costa Serena is 69.4m
https://www.marinelink.com/news/serena-costa-makes315521

Details of Marine Emission for Kai Tak Cruise Terminal

Table 1b - Marine Emission for Kai Tak Cruise Terminal (MSC Bellissima)

		(unit)	**Remark / Reference**
Vessel/Chimney Information			
Stack Height	64.75	m above water level	Notes 2 & 4 - chimney exhaust is located at the highest location of the vessel.
Emission Temperature	537	K	Chimney information are not available.
Exhaust Velocity	24.6	m/s	Refernce has been made to Queen
Stack Diameter	1.9	m	Elizabeth II from the approved EIA report [Note 1]
Engine Information			
Power of Main Engine	67200	kW	Note 2 - MSC Bellissima
Power of Auxiliary Engine	18681.6	kW	Note 3 - Table 3-19 - Power Ratios of 0.278 for Cruise
Power of Boiler	1000	kW	Note 3 - Table 3-23 - Item c. Cruise/Ferry
Load Factor (Hotelling)	0.416		Note 3 - Table 3-21 - Item c. Cruise/Ferry - Hotelling
Load Factor (Boiler)	1		
Emissions factor (from emission table, exclude Load Factor)			
Auxiliary Engine			
- NO_X	13.900	g/kwh	Note 3 - Table 3-28 - 0.5% Sulphur content
- RSP	0.320	g/kwh	
- FSP	0.290	g/kwh	
- SO_2	2.120	g/kwh	
Boiler			
- NO_X	2.000	g/kwh	Note 3 - Table 3-29 - 0.5% Sulphur content
- RSP	0.190	g/kwh	
- FSP	0.140	g/kwh	
- SO_2	2.830	g/kwh	
Emissions Rate per Vessel			
Auxiliary Engine (Hotelling)			
- NO_X	108024.5	g/h	= Power of Auxiliary Engine x Load Factor (Hotelling) x Emissions factor (Auxiliary Engine)
- RSP	2486.9	g/h	
- FSP	2253.7	g/h	
- SO_2	16475.7	g/h	
Boiler (Hotelling)			
- NO_X	2000.0	g/h	= Power of Boiler x Load Factor (Boiler) x Emissions factor (Boiler)
- RSP	190.0	g/h	
- FSP	140.0	g/h	
- SO_2	2830.0	g/h	
Auxiliary Engine + Boiler (Hotelling)			
- NO_X	**30.56**	**g/s**	**Auxiliary Engine (Hotelling) + Boiler (Hotelling) with Unit Conversion**
- RSP	**0.744**	**g/s**	
- FSP	**0.665**	**g/s**	
- SO_2	**5.36**	**g/s**	

Note/Reference:

1 Appendix 3.6 of the approved EIA Report of Kai Tak Multi-purpose Sport Complex (AEIAR-204/2017).
2 Total Engine power of MSC Bellissima = 67200kW
e-maritime, 02/2019 June, p.29, https://e-maritime.cz/wp-content/uploads/2019/06/June2019.pdf
3 HKUST (2012), Study on Marine Vessels Emission Inventory
4 Height from Keel to Mast = 73.5m; Draught = 8.75m
Chimney height above wate level = 73.5 - 8.75= 64.75m

Details of Marine Emission for Ocean Terminal

Table 2 - Marine Emission for Ocean Terminal (Queen Victoria)

		(unit)	**Remark / Reference**
Vessel/Chimney Information			
Stack Height	54.5	mPD	Note 4 - chimney exhaust is located at the highest location of the vessel.
Emission Temperature	537	K	Chimney information are not available.
Exhaust Velocity	24.6	m/s	Refernce has been made to Queen
Stack Diameter	1.9	m	Elizabeth II from the approved EIA report [Note 1]
Engine Information			
Power of Main Engine	63360	kW	Note 2
Power of Auxiliary Engine	17614	kW	Note 3 - Table 3-19 - Power Ratios of 0.278 for Cruise
Power of Boiler	1000	kW	Note 3 - Table 3-23 - Item c. Cruise/Ferry
Load Factor (Hotelling)	0.416		Note 3 - Table 3-21 - Item c. Cruise/Ferry - Hotelling
Load Factor (Boiler)	1		
Emissions factor (from emission table, exclude Load Factor)			
Auxiliary Engine			
- NO_X	13.900	g/kwh	Note 3 - Table 3-28 - 0.5% Sulphur content
- RSP	0.320	g/kwh	
- FSP	0.290	g/kwh	
- SO_2	2.120	g/kwh	
Boiler			
- NO_X	2.000	g/kwh	Note 3 - Table 3-29 - 0.5% Sulphur content
- RSP	0.190	g/kwh	
- FSP	0.140	g/kwh	
- SO_2	2.830	g/kwh	
Emissions Rate per Vessel			
Auxiliary Engine (Hotelling)			
- NO_X	101851.7	g/h	= Power of Auxiliary Engine x Load Factor (Hotelling) x Emissions factor (Auxiliary Engine)
- RSP	2344.8	g/h	
- FSP	2125.0	g/h	
- SO_2	15534.2	g/h	
Boiler (Hotelling)			
- NO_X	2000.0	g/h	= Power of Boiler x Load Factor (Boiler) x Emissions factor (Boiler)
- RSP	190.0	g/h	
- FSP	140.0	g/h	
- SO_2	2830.0	g/h	
Auxiliary Engine + Boiler (Hotelling)			
- NO_X	**28.85**	**g/s**	**Auxiliary Engine (Hotelling) + Boiler (Hotelling) with Unit Conversion**
- RSP	**0.70**	**g/s**	
- FSP	**0.63**	**g/s**	
- SO_2	**5.10**	**g/s**	

Note/Reference:

1 Appendix 3.6 of the approved EIA Report of Kai Tak Multi-purpose Sport Complex (AEIAR-204/2017).
2 Total power = 4 x 11520 + 2 x 8640 kW = 63360 KW
https://www.fincantieri.com/en/products-and-services/cruise-ships/queen-victoria/
3 HKUST (2012), Study on Marine Vessels Emission Inventory
4 Height of Queen Victoria is 54.5m
https://www.chriscunard.com/queenvictoria/qv-facts/

Emission for Kai Tak Cruise Terminal

Table 3 - Source strength of Hotelling OGV for

Source	ID	Vessel	Easting (m)	Northing (m)	Individual Source Strength				Emission Height	Temp	Exhaust Velocity	Diameter	Operation hour
					NOx (g/s)	RSP (g/s)	FSP (g/s)	SO_2 (g/s)	(mPD)	(K)	(m/s)	(m)	
Kai Tak Cruise Terminal	H1	Costa Serena	839744	818698	34.31	0.830	0.743	5.93	2.73 (sea level) + 69.4 (emission height above sea level)	537	24.6	1.9	24 hours / day
	H2	MSC Bellissim	840021	818427	30.56	0.744	0.665	5.36	2.73 (sea level) + 64.75 (emission height above sea level)				

Note/Referrence:

1 Emission temperature, exhaust velocity, and stack diameter have been made refernce to Section 7 & Table 7 in Appendix 3.6 of the Approved EIA of Kai Tak Multi-purpose Sport Complex (AEIAR-204/2017).

2 The emission rates of the two vessels with the highest engine power, referenced from the 2024 schedule of the Kai Tak Cruise Terminal, namely MSC Bellissima and Costa Serena, have been applied to the berths at H1 and H2, respectively. The details of the emisison rates can be found in Tables 1a & 1b.

Emission for Ocean Terminal

Table 4 - Source strength of Hotelling OGV for Ocean Terminal

Source	ID	Vessel	Easting (m)	Northing (m)	Individual Source Strength				Emission Height	Temp	Exhaust Velocity	Diameter	Operation hour
					NOx (g/s)	RSP (g/s)	FSP (g/s)	SO_2 (g/s)	(mPD)	(K)	(m/s)	(m)	
Ocean Terminal Berth 1	Ship 1	Queen Victoria	835175.4	817276.3	28.85	0.70	0.63	5.10	2.73 (sea level) + 54.5 (emission height above sea level)	537	24.6	1.9	24 hours / day
Ocean Terminal Berth 2	Ship 2	Queen Victoria	835170.5	817393.3	28.85	0.70	0.63	5.10					

Note/Referrence:

1 Emission temperature, exhaust velocity, and stack diameter have been made refernce to Section 7 & Table 7 in Appendix 3.6 of the Approved EIA of Kai Tak Multi-purpose Sport Complex (AEIAR-204/2017).

2 The emissions rates of Queen Victoria have been apply to both berth of Ocean Terminal.
The details of the emisison rates can be found in **Table 2**

Emission for Ma Tau Kok Gas Production Plant

Table 5 - Source strength of Ma Tau Kok Gas Production Plant

Source	ID	Easting (m)	Northing (m)	Individual Source Strength [3]				Emission Height	Temp	Exhaust Velocity	Diameter	Operation hour
				NOx (g/s)	RSP (g/s)	FSP (g/s)	SO_2 (g/s)	(mAG)	(K)	(m/s)	(m)	
To Kwa Wan Gas Plant	1049	837837.0	820081.0	0.1667	0.0000	0.0000	0.0000	44.5	450	20.4	0.5	24 hours / day
	1054	837904.0	820141.0	0.3472	0.0000	0.0000	0.0000	34	473	5.5	1	
	1055	837913.0	820136.0	0.3472	0.0000	0.0000	0.0000	34	473	5.5	1	
	1056	837921.0	820133.0	0.3472	0.0000	0.0000	0.0000	34	473	5.5	1	
	1057	837928.0	820130.0	0.3472	0.0000	0.0000	0.0000	34	473	5.5	1	

Note/Referrence:

1 Emission Height, Emission temperature, exhaust velocity, and stack diameter have been made refernce to Appendix 3.5 of the Approved EIA of Kai Tak Multi-purpose Sport Complex (AEIAR-204/2017).

2 The corresponding Emission Point in the of the SP Licence No: L-8-004(6) are:
- ID 1049 - Emission Point No. 16
- ID 1054 to 1057 - Emission Points No. 1 to 4

3 The source strength is copied directly from the SP license, with unit conversion only.
From kh/h to g/s, with a factor of 1/3.6

Table 6. List of Visiting Vessels for Kai Tak Cruise Terminal according to Schedule of 2024

Cruise Name	Tonnage	Engine Power (KW)	Reference
MSC Bellissima	171,598	67,200	https://e-maritime.cz/wp-content/uploads/2019/06/June2019.pdf
Spectrum of the Seas	169,379	67,200	https://www.meyerwerft.de/en/ships/spectrum_of_the_seas.jsp
Quantum of the Seas	168,666	67,200	https://www.meyerwerft.de/en/ships/quantum_of_the_seas.jsp
Queen Mary 2	148,528	67,200	https://www.cruisemapper.com/ships/Queen-Mary-2-721 https://www.wartsila.com/marine/customer-segments/references/cruise/queen-mary-ii
Royal Princess	142,714	62,400	https://www.fincantieri.com/en/products-and-services/cruise-ships/royal-princess/
Celebrity Solstice	122,000	67,200	https://www.meyerwerft.de/en/ships/celebrity_solstice.jsp
Diamond Princess	115,875	35,700	https://www.shipspotting.com/photos/3165774
Costa Serena	114,500	75,600	https://www.fincantieri.com/en/products-and-services/cruise-ships/costa-serena/
Mein Schiff 6	98,811	44,000	https://www.scheepvaartwest.be/CMS/index.php/passengers-cruise/7615-mein-schiff-6-imo-9753208
Mein Schiff 5	98,785	48,000	https://www.meyerwerft.de/en/ships/mein_schiff_5.jsp
Coral Princess	91,627	58,600	Coral Princess
Celebrity Millennium	90,228	39,000	https://www.ship-technology.com/projects/millennium/
Serenade of the Seas	90,090	57,600	https://www.meyerwerft.de/en/ships/serenade_of_the_seas.jsp
Westerdam	82,348	65,840	https://www.travelweekly.com/Cruise/Holland-America-Line/Westerdam
Noordam	81,811	65,840	https://www.captainalbert.com/current-fleet/ms-westerdam-ii/
Zuiderdam	81,769	51,872	https://www.captainalbert.com/current-fleet/ms-zuiderdam-ii/
Norwegian Spirit	75,904	58,800	https://www.scheepvaartwest.be/CMS/index.php/passengers-cruise/2774-norwegian-spirit-imo-9141065
Resorts World One	75,338	58,800	https://en.wikipedia.org/wiki/Resorts_World_One
Insignia	30,277	13,500	https://www.balticshipping.com/vessel/imo/9156462

Schedule of Kai Tak Cruise Terminal in 2024:
https://www.kaitakcruiseterminal.com.hk/schedule/

Relevant Page of the SP Licence No: L-8-004(6)

Emission Point No.	Details of Emissions													
	Composition		Emission Rate (kg/h)				Control Equipment		Average Daily Concentration* (mg/m^3)		Maximum Concentration* (mg/m^3)		Duration of Concentration	
			Average		Maximum									
	1	2	1	2	1	2	1	2	1	2	1	2	1	
1-4	NO_x	No Change	1.25	No Change	1.25	No Change	None	No Change	150(3%O_2)	No Change	150(3%O_2)	No Change	24	
5-6	NO_x	No Change	1.25	No Change	1.25	No Change	None	No Change	150(3%O_2)	No Change	150(3%O_2)	No Change	Emergency	
15	NO_x SO_2	No Change	13.4 1.7	No Change	13.4 1.7	No Change	None	No Change	2000(15%O_2) 250(15%O_2)	No Change	2000(15%O_2) 250(15%O_2)	No Change	Emergency	
16	NO_x	No Change	0.6	No Change	0.6	No Change	None	No Change	180(3%O_2)	No Change	180(3%O_2)	No Change	24	
17-18	Naphtha Vapour	No Change	N/A	No Change	N/A	No Change	None	No Change	N/A	No Change	N/A	No Change	<1	
19-21	Odour	No Change	11.9 ou/s	No Change	11.9 ou/s	No Change	Total enclosure	No Change	N/A	No Change	2369ou/m^3	No Change	24	
22	Odour	No Change	5.2 ou/s	No Change	5.2 ou/s	No Change	None	No Change	N/A	No Change	39ou/m^3	No Change	24	
23	Odour	No Change	4.0 ou/s	No Change	4.0 ou/s	No Change	None	No Change	N/A	No Change	39ou/m^3	No Change	24	

essed as at standard temperature & pressure of 0°C and 101.325 kPa

1 of each item refers to PROPOSED VALUE in the case of a new application or EXISTING VALUE if otherwise and column 2 refers to PROPOSED VARIATION

lote:

is variation application is referring to process variation only. The plant will carry out natural gas conversion process at N3 & N4 gas production units additionally and the gas
n units N1 to N4 will be modified to use natural gas as fuel. All existing emission points will not be affected and remain unchanged.

person may object within 30 days of notice in newspapers, to the granting of the applicatio

APPENDIX 3-6
PREDICTED POLLUTANT CONCENTRATION (AIR QUALITY)

Predicted Pollutant Concentration

Assessment Point	PATH Grid	Easting (m)	Northing (m)	Level (mAG)	Level (mPD)	Concentraion (µg/m³)						
						Daily 1st Maximum RSP	Daily 10th Maximum RSP	Annual RSP	Daily 1st Maximum FSP	Daily 36th Maximum FSP	Annual FSP	Hourly 1st Maximum NO2
	Criteria (AQO)					--	75	30	--	37.5	15	--
PP-01	4233	837717.56	819331.38	1.5	7.20	64.1	50.8	19.9	41.2	29.1	12.3	149.8
PP-01	4233	837717.56	819331.38	7.35	13.05	64.1	50.8	19.9	41.1	29.1	12.3	144.8
PP-01	4233	837717.56	819331.38	12.35	18.05	64.0	50.8	19.8	41.1	29.1	12.3	138.4
PP-01	4233	837717.56	819331.38	17.35	23.05	64.0	50.7	19.8	41.0	29.0	12.2	134.6
PP-01	4233	837717.56	819331.38	22.35	28.05	63.9	50.6	19.7	41.0	28.9	12.2	132.0
PP-02	4233	837739.38	819351.40	1.5	7.20	64.2	50.8	19.9	41.2	29.1	12.4	150.3
PP-02	4233	837739.38	819351.40	7.35	13.05	64.1	50.8	19.9	41.2	29.1	12.3	144.3
PP-02	4233	837739.38	819351.40	12.35	18.05	64.1	50.8	19.9	41.1	29.1	12.3	137.9
PP-02	4233	837739.38	819351.40	17.35	23.05	64.0	50.7	19.8	41.1	29.0	12.2	134.6
PP-02	4233	837739.38	819351.40	22.35	28.05	63.9	50.6	19.8	41.0	28.9	12.2	132.1
PP-03	4233	837761.48	819372.33	1.5	7.20	64.2	50.9	20.0	41.3	29.2	12.4	150.3
PP-03	4233	837761.48	819372.33	7.35	13.05	64.1	50.9	19.9	41.2	29.2	12.3	143.6
PP-03	4233	837761.48	819372.33	12.35	18.05	64.1	50.9	19.9	41.1	29.2	12.3	137.3
PP-03	4233	837761.48	819372.33	17.35	23.05	64.0	50.8	19.8	41.1	29.1	12.3	134.5
PP-03	4233	837761.48	819372.33	22.35	28.05	64.0	50.6	19.8	41.0	28.9	12.2	132.2
PP-04	4233	837779.07	819364.70	1.5	7.20	64.2	50.9	19.9	41.3	29.2	12.4	145.4
PP-04	4233	837779.07	819364.70	7.35	13.05	64.2	50.9	19.9	41.2	29.2	12.3	145.3
PP-04	4233	837779.07	819364.70	12.35	18.05	64.1	50.9	19.9	41.2	29.2	12.3	139.9
PP-04	4233	837779.07	819364.70	17.35	23.05	64.0	50.8	19.8	41.1	29.1	12.3	134.5
PP-04	4233	837779.07	819364.70	22.35	28.05	64.0	50.6	19.8	41.0	28.9	12.2	132.2
PP-05	4233	837798.73	819356.27	1.5	7.20	64.2	50.9	19.9	41.3	29.2	12.4	145.9
PP-05	4233	837798.73	819356.27	7.35	13.05	64.2	50.9	19.9	41.2	29.2	12.3	145.7
PP-05	4233	837798.73	819356.27	12.35	18.05	64.1	50.9	19.9	41.2	29.2	12.3	143.8
PP-05	4233	837798.73	819356.27	17.35	23.05	64.0	50.8	19.9	41.1	29.1	12.3	134.8
PP-05	4233	837798.73	819356.27	22.35	28.05	64.0	50.6	19.8	41.1	29.0	12.2	132.2
PP-06	4233	837786.14	819333.91	1.5	7.20	64.2	50.8	19.9	41.2	29.1	12.3	145.9
PP-06	4233	837786.14	819333.91	7.35	13.05	64.1	50.8	19.9	41.2	29.2	12.3	145.8
PP-06	4233	837786.14	819333.91	12.35	18.05	64.1	50.8	19.9	41.1	29.1	12.3	144.8
PP-06	4233	837786.14	819333.91	17.35	23.05	64.0	50.7	19.8	41.1	29.1	12.3	134.6
PP-06	4233	837786.14	819333.91	22.35	28.05	63.9	50.6	19.8	41.0	28.9	12.2	132.2
PP-07	4232	837775.69	819320.68	1.5	7.20	63.0	50.4	19.7	41.1	28.9	12.1	139.0
PP-07	4232	837775.69	819320.68	7.35	13.05	62.9	50.4	19.6	41.0	28.9	12.1	138.1
PP-07	4232	837775.69	819320.68	12.35	18.05	62.9	50.4	19.6	41.0	28.8	12.1	136.4
PP-07	4232	837775.69	819320.68	17.35	23.05	62.8	50.4	19.6	40.9	28.8	12.0	133.1
PP-07	4232	837775.69	819320.68	22.35	28.05	62.7	50.3	19.5	40.9	28.7	12.0	132.9
PP-08	4232	837759.78	819290.43	1.5	7.20	63.0	50.4	19.6	41.0	28.8	12.1	138.5
PP-08	4232	837759.78	819290.43	7.35	13.05	62.9	50.4	19.6	41.0	28.8	12.0	140.1
PP-08	4232	837759.78	819290.43	12.35	18.05	62.8	50.4	19.6	41.0	28.8	12.0	137.1
PP-08	4232	837759.78	819290.43	17.35	23.05	62.8	50.3	19.6	40.9	28.7	12.0	133.0
PP-08	4232	837759.78	819290.43	22.35	28.05	62.7	50.2	19.5	40.9	28.6	12.0	132.8
PP-09	4232	837753.55	819266.50	1.5	7.20	62.9	50.4	19.6	41.0	28.8	12.1	140.4
PP-09	4232	837753.55	819266.50	7.35	13.05	62.9	50.3	19.6	41.0	28.8	12.0	140.9
PP-09	4232	837753.55	819266.50	12.35	18.05	62.8	50.3	19.6	40.9	28.7	12.0	136.2
PP-09	4232	837753.55	819266.50	17.35	23.05	62.8	50.3	19.5	40.9	28.7	12.0	132.9
PP-09	4232	837753.55	819266.50	22.35	28.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
PP-10	4232	837716.73	819266.52	1.5	7.20	62.9	50.3	19.6	41.0	28.8	12.1	143.2
PP-10	4232	837716.73	819266.52	7.35	13.05	62.9	50.3	19.6	41.0	28.8	12.0	142.9
PP-10	4232	837716.73	819266.52	12.35	18.05	62.8	50.3	19.6	40.9	28.7	12.0	141.8
PP-10	4232	837716.73	819266.52	17.35	23.05	62.8	50.3	19.5	40.9	28.7	12.0	132.9
PP-10	4232	837716.73	819266.52	22.35	28.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
PP-11	4232	837683.12	819265.16	1.5	7.20	62.9	50.3	19.7	41.0	28.8	12.1	155.4
PP-11	4232	837683.12	819265.16	7.35	13.05	62.9	50.3	19.6	40.9	28.7	12.0	144.7
PP-11	4232	837683.12	819265.16	12.35	18.05	62.8	50.3	19.6	40.9	28.7	12.0	142.5
PP-11	4232	837683.12	819265.16	17.35	23.05	62.7	50.3	19.5	40.9	28.7	12.0	133.0
PP-11	4232	837683.12	819265.16	22.35	28.05	62.7	50.2	19.5	40.8	28.6	11.9	132.9
PP-12	4232	837692.25	819293.42	1.5	7.20	62.9	50.4	19.7	41.0	28.8	12.1	146.0
PP-12	4232	837692.25	819293.42	7.35	13.05	62.9	50.3	19.6	41.0	28.8	12.0	144.8
PP-12	4232	837692.25	819293.42	12.35	18.05	62.8	50.3	19.6	40.9	28.8	12.0	143.1
PP-12	4232	837692.25	819293.42	17.35	23.05	62.8	50.3	19.6	40.9	28.7	12.0	135.0
PP-12	4232	837692.25	819293.42	22.35	28.05	62.7	50.2	19.5	40.8	28.6	11.9	132.9
PP-13	4232	837708.90	819319.13	1.5	7.20	62.9	50.4	19.7	41.0	28.8	12.1	145.3
PP-13	4232	837708.90	819319.13	7.35	13.05	62.9	50.4	19.6	41.0	28.8	12.1	144.4
PP-13	4232	837708.90	819319.13	12.35	18.05	62.8	50.4	19.6	40.9	28.8	12.0	143.3
PP-13	4232	837708.90	819319.13	17.35	23.05	62.8	50.3	19.6	40.9	28.7	12.0	137.3
PP-13	4232	837708.90	819319.13	22.35	28.05	62.7	50.3	19.5	40.9	28.7	12.0	132.9
CS-01	4232	837746.15	819266.20	1.5	7.20	62.9	50.4	19.6	41.0	28.8	12.1	141.8
CS-02	4232	837745.66	819255.60	1.5	7.20	62.9	50.3	19.6	41.0	28.8	12.0	141.8

Predicted Pollutant Concentration

Assessment Point	PATH Grid	Easting (m)	Northing (m)	Level (mAG)	Level (mPD)	Concentraion (µg/m³)						
						Hourly 19th Maximum NO2	Daily 1st Maximum NO2	Daily 10th Maximum NO2	Annual NO2	10-minute 4th Maximum SO2	Daily 1st Maximum SO2	Daily 4th Maximum SO2
	Criteria (AQO)					200	--	120	40	500	--	40
PP-01	4233	837717.56	819331.38	1.5	7.20	127.1	75.9	60.8	31.5	24.2	8.8	8.2
PP-01	4233	837717.56	819331.38	7.35	13.05	122.1	69.0	56.2	29.5	24.1	8.8	8.1
PP-01	4233	837717.56	819331.38	12.35	18.05	117.0	65.9	54.5	28.4	24.0	8.8	8.1
PP-01	4233	837717.56	819331.38	17.35	23.05	115.6	64.0	53.2	27.4	24.0	8.7	8.1
PP-01	4233	837717.56	819331.38	22.35	28.05	111.9	62.3	51.6	26.2	23.9	8.7	8.0
PP-02	4233	837739.38	819351.40	1.5	7.20	128.1	74.7	59.8	31.6	24.1	8.8	8.2
PP-02	4233	837739.38	819351.40	7.35	13.05	120.7	68.3	55.2	29.8	24.0	8.8	8.2
PP-02	4233	837739.38	819351.40	12.35	18.05	116.7	65.5	53.8	28.8	24.0	8.8	8.1
PP-02	4233	837739.38	819351.40	17.35	23.05	114.9	63.8	52.7	27.7	23.9	8.7	8.1
PP-02	4233	837739.38	819351.40	22.35	28.05	112.6	62.3	51.5	26.4	23.8	8.7	8.1
PP-03	4233	837761.48	819372.33	1.5	7.20	126.7	74.4	60.2	31.8	24.0	8.8	8.2
PP-03	4233	837761.48	819372.33	7.35	13.05	120.8	67.9	54.9	30.1	24.0	8.8	8.2
PP-03	4233	837761.48	819372.33	12.35	18.05	115.8	65.2	53.4	29.2	23.9	8.8	8.2
PP-03	4233	837761.48	819372.33	17.35	23.05	114.1	63.6	52.4	28.1	23.8	8.7	8.1
PP-03	4233	837761.48	819372.33	22.35	28.05	112.8	62.2	51.4	26.7	23.7	8.7	8.1
PP-04	4233	837779.07	819364.70	1.5	7.20	121.0	68.9	55.2	30.7	24.1	8.9	8.2
PP-04	4233	837779.07	819364.70	7.35	13.05	118.6	67.4	54.2	30.0	24.0	8.8	8.2
PP-04	4233	837779.07	819364.70	12.35	18.05	117.4	65.3	53.0	29.2	23.9	8.8	8.2
PP-04	4233	837779.07	819364.70	17.35	23.05	114.0	63.6	52.0	28.2	23.8	8.7	8.1
PP-04	4233	837779.07	819364.70	22.35	28.05	113.6	62.1	51.3	26.7	23.8	8.7	8.1
PP-05	4233	837798.73	819356.27	1.5	7.20	119.1	67.1	54.9	30.6	24.1	8.9	8.2
PP-05	4233	837798.73	819356.27	7.35	13.05	123.0	66.4	53.6	29.9	24.0	8.8	8.2
PP-05	4233	837798.73	819356.27	12.35	18.05	117.1	65.0	52.6	29.3	24.0	8.8	8.2
PP-05	4233	837798.73	819356.27	17.35	23.05	114.2	63.5	51.8	28.2	23.9	8.7	8.1
PP-05	4233	837798.73	819356.27	22.35	28.05	113.6	62.1	51.2	26.7	23.8	8.7	8.1
PP-06	4233	837786.14	819333.91	1.5	7.20	120.0	67.2	53.8	30.1	24.2	8.9	8.2
PP-06	4233	837786.14	819333.91	7.35	13.05	121.9	66.6	53.5	29.4	24.1	8.8	8.2
PP-06	4233	837786.14	819333.91	12.35	18.05	117.5	65.3	52.8	28.8	24.1	8.8	8.1
PP-06	4233	837786.14	819333.91	17.35	23.05	114.0	63.7	51.8	27.8	24.0	8.8	8.1
PP-06	4233	837786.14	819333.91	22.35	28.05	113.6	62.1	51.2	26.4	23.9	8.7	8.1
PP-07	4232	837775.69	819320.68	1.5	7.20	116.5	71.0	57.7	31.4	26.4	9.5	8.3
PP-07	4232	837775.69	819320.68	7.35	13.05	116.1	70.6	56.2	30.9	26.4	9.4	8.2
PP-07	4232	837775.69	819320.68	12.35	18.05	113.4	69.9	54.8	30.4	26.3	9.4	8.2
PP-07	4232	837775.69	819320.68	17.35	23.05	112.7	68.6	53.7	29.6	26.3	9.3	8.2
PP-07	4232	837775.69	819320.68	22.35	28.05	111.8	67.2	52.9	28.4	26.3	9.3	8.1
PP-08	4232	837759.78	819290.43	1.5	7.20	116.0	70.0	57.3	31.1	26.4	9.5	8.4
PP-08	4232	837759.78	819290.43	7.35	13.05	116.1	69.6	56.8	30.6	26.4	9.4	8.3
PP-08	4232	837759.78	819290.43	12.35	18.05	114.0	68.9	55.5	30.0	26.4	9.4	8.3
PP-08	4232	837759.78	819290.43	17.35	23.05	113.0	67.6	53.4	29.1	26.3	9.4	8.3
PP-08	4232	837759.78	819290.43	22.35	28.05	112.3	66.3	52.5	28.1	26.3	9.3	8.2
PP-09	4232	837753.55	819266.50	1.5	7.20	115.7	69.5	58.3	31.0	26.5	9.5	8.4
PP-09	4232	837753.55	819266.50	7.35	13.05	115.4	69.1	57.6	30.4	26.4	9.4	8.4
PP-09	4232	837753.55	819266.50	12.35	18.05	114.2	68.2	55.9	29.7	26.4	9.4	8.3
PP-09	4232	837753.55	819266.50	17.35	23.05	113.1	66.9	53.5	28.8	26.4	9.4	8.3
PP-09	4232	837753.55	819266.50	22.35	28.05	111.7	65.6	52.3	27.9	26.4	9.4	8.3
PP-10	4232	837716.73	819266.52	1.5	7.20	116.8	72.2	61.1	31.5	26.3	9.5	8.4
PP-10	4232	837716.73	819266.52	7.35	13.05	116.4	70.7	59.8	30.7	26.3	9.4	8.3
PP-10	4232	837716.73	819266.52	12.35	18.05	113.8	68.1	57.2	29.8	26.3	9.4	8.3
PP-10	4232	837716.73	819266.52	17.35	23.05	112.8	66.8	53.7	28.8	26.3	9.4	8.3
PP-10	4232	837716.73	819266.52	22.35	28.05	111.0	65.5	52.4	27.8	26.2	9.3	8.3
PP-11	4232	837683.12	819265.16	1.5	7.20	124.2	82.1	67.4	33.8	26.2	9.4	8.3
PP-11	4232	837683.12	819265.16	7.35	13.05	117.2	72.4	62.4	31.3	26.2	9.4	8.3
PP-11	4232	837683.12	819265.16	12.35	18.05	114.7	68.1	57.0	29.7	26.2	9.4	8.3
PP-11	4232	837683.12	819265.16	17.35	23.05	112.8	66.6	53.7	28.6	26.2	9.3	8.3
PP-11	4232	837683.12	819265.16	22.35	28.05	110.4	65.4	52.7	27.7	26.1	9.3	8.2
PP-12	4232	837692.25	819293.42	1.5	7.20	119.5	75.9	63.7	32.8	26.2	9.4	8.3
PP-12	4232	837692.25	819293.42	7.35	13.05	116.6	69.9	60.8	31.1	26.2	9.4	8.3
PP-12	4232	837692.25	819293.42	12.35	18.05	113.8	68.6	57.1	29.9	26.1	9.4	8.3
PP-12	4232	837692.25	819293.42	17.35	23.05	112.7	67.4	53.8	29.0	26.1	9.3	8.3
PP-12	4232	837692.25	819293.42	22.35	28.05	111.3	66.2	52.8	28.0	26.1	9.3	8.2
PP-13	4232	837708.90	819319.13	1.5	7.20	118.8	73.6	61.9	32.6	26.2	9.4	8.3
PP-13	4232	837708.90	819319.13	7.35	13.05	115.3	70.5	59.4	31.1	26.2	9.4	8.3
PP-13	4232	837708.90	819319.13	12.35	18.05	113.3	69.4	56.4	30.2	26.1	9.3	8.2
PP-13	4232	837708.90	819319.13	17.35	23.05	112.7	68.2	53.9	29.3	26.1	9.3	8.2
PP-13	4232	837708.90	819319.13	22.35	28.05	111.7	67.0	52.9	28.2	26.1	9.3	8.2
CS-01	4232	837746.15	819266.20	1.5	7.20	115.0	69.5	58.8	31.1	26.4	9.5	8.4
CS-02	4232	837745.66	819255.60	1.5	7.20	115.9	70.3	59.6	31.1	26.4	9.5	8.4

Predicted Pollutant Concentration

Assessment Point	PATH Grid	Easting (m)	Northing (m)	Level (mAG)	Level (mPD)	Concentraion (µg/m³)						
						Daily 1st Maximum RSP	Daily 10th Maximum RSP	Annual RSP	Daily 1st Maximum FSP	Daily 36th Maximum FSP	Annual FSP	Hourly 1st Maximum NO2
	Criteria (AQO)					--	75	30	--	37.5	15	--
CS-03	4232	837741.89	819240.59	1.5	7.20	62.9	50.3	19.6	41.0	28.8	12.1	142.9
CS-04	4232	837720.12	819244.55	1.5	7.20	62.9	50.3	19.7	41.0	28.8	12.1	143.7
CS-05	4232	837692.88	819249.63	1.5	7.20	63.0	50.3	19.7	41.0	28.8	12.1	146.4
CS-06	4232	837687.83	819256.56	1.5	7.20	62.9	50.3	19.7	41.0	28.8	12.1	149.1
T1-01	4233	837719.02	819331.76	25.35	31.05	63.9	50.5	19.7	41.0	28.8	12.1	130.9
T1-01	4233	837719.02	819331.76	28.5	34.20	63.8	50.4	19.7	41.0	28.8	12.1	129.9
T1-01	4233	837719.02	819331.76	63.15	68.85	63.7	50.3	19.6	40.8	28.7	12.1	127.3
T1-01	4233	837719.02	819331.76	102.65	108.35	63.8	50.3	19.6	40.8	28.6	12.1	127.5
T1-02	4233	837732.88	819344.32	25.35	31.05	63.9	50.5	19.7	41.0	28.8	12.2	130.9
T1-02	4233	837732.88	819344.32	28.5	34.20	63.9	50.4	19.7	41.0	28.8	12.1	129.9
T1-02	4233	837732.88	819344.32	63.15	68.85	63.7	50.3	19.6	40.8	28.7	12.1	127.3
T1-02	4233	837732.88	819344.32	102.65	108.35	63.8	50.3	19.6	40.8	28.6	12.1	127.5
T1-03	4233	837744.89	819355.31	25.35	31.05	63.9	50.5	19.7	41.0	28.9	12.2	131.0
T1-03	4233	837744.89	819355.31	28.5	34.20	63.9	50.4	19.7	41.0	28.8	12.1	129.9
T1-03	4233	837744.89	819355.31	63.15	68.85	63.7	50.3	19.6	40.9	28.7	12.1	127.3
T1-03	4233	837744.89	819355.31	102.65	108.35	63.8	50.3	19.6	40.8	28.6	12.1	127.5
T1-04	4233	837757.93	819366.14	25.35	31.05	63.9	50.5	19.7	41.0	28.9	12.2	131.0
T1-04	4233	837757.93	819366.14	28.5	34.20	63.9	50.4	19.7	41.0	28.8	12.1	130.0
T1-04	4233	837757.93	819366.14	63.15	68.85	63.7	50.3	19.6	40.9	28.7	12.1	127.2
T1-04	4233	837757.93	819366.14	102.65	108.35	63.8	50.3	19.6	40.8	28.6	12.1	127.4
T1-05	4233	837770.81	819353.40	25.35	31.05	63.9	50.5	19.7	41.0	28.9	12.2	131.0
T1-05	4233	837770.81	819353.40	28.5	34.20	63.9	50.4	19.7	41.0	28.8	12.1	129.9
T1-05	4233	837770.81	819353.40	63.15	68.85	63.7	50.3	19.6	40.9	28.7	12.1	127.1
T1-05	4233	837770.81	819353.40	102.65	108.35	63.8	50.3	19.6	40.8	28.6	12.1	127.3
T1-06	4233	837789.51	819345.44	25.35	31.05	63.9	50.5	19.7	41.0	28.9	12.2	130.9
T1-06	4233	837789.51	819345.44	28.5	34.20	63.9	50.4	19.7	41.0	28.8	12.1	129.9
T1-06	4233	837789.51	819345.44	63.15	68.85	63.7	50.3	19.6	40.9	28.7	12.1	127.0
T1-06	4233	837789.51	819345.44	102.65	108.35	63.8	50.3	19.6	40.8	28.6	12.1	127.1
T1-07	4233	837782.27	819331.44	25.35	31.05	63.9	50.5	19.7	41.0	28.8	12.2	130.9
T1-07	4233	837782.27	819331.44	28.5	34.20	63.9	50.4	19.7	41.0	28.8	12.1	129.8
T1-07	4233	837782.27	819331.44	63.15	68.85	63.7	50.3	19.6	40.9	28.7	12.1	127.0
T1-07	4233	837782.27	819331.44	102.65	108.35	63.8	50.3	19.6	40.8	28.6	12.1	127.1
T1-08	4233	837768.88	819338.02	25.35	31.05	63.9	50.5	19.7	41.0	28.8	12.2	130.9
T1-08	4233	837768.88	819338.02	28.5	34.20	63.9	50.4	19.7	41.0	28.8	12.1	129.9
T1-08	4233	837768.88	819338.02	63.15	68.85	63.7	50.3	19.6	40.9	28.7	12.1	127.1
T1-08	4233	837768.88	819338.02	102.65	108.35	63.8	50.3	19.6	40.8	28.6	12.1	127.2
T1-09	4233	837747.56	819336.96	25.35	31.05	63.9	50.5	19.7	41.0	28.8	12.2	130.9
T1-09	4233	837747.56	819336.96	28.5	34.20	63.9	50.4	19.7	41.0	28.8	12.1	129.9
T1-09	4233	837747.56	819336.96	63.15	68.85	63.7	50.3	19.6	40.9	28.7	12.1	127.2
T1-09	4233	837747.56	819336.96	102.65	108.35	63.8	50.3	19.6	40.8	28.6	12.1	127.4
T1-10	4232	837731.35	819321.81	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
T1-10	4232	837731.35	819321.81	28.5	34.20	62.7	50.2	19.5	40.8	28.6	11.9	132.7
T1-10	4232	837731.35	819321.81	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.1
T1-10	4232	837731.35	819321.81	102.65	108.35	62.7	50.1	19.4	40.7	28.5	11.9	132.3
T2-01	4232	837721.07	819310.39	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
T2-01	4232	837721.07	819310.39	28.5	34.20	62.7	50.2	19.5	40.8	28.6	11.9	132.7
T2-01	4232	837721.07	819310.39	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.2
T2-01	4232	837721.07	819310.39	102.65	108.35	62.7	50.1	19.4	40.7	28.5	11.9	132.4
T2-02	4232	837713.47	819297.64	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
T2-02	4232	837713.47	819297.64	28.5	34.20	62.7	50.2	19.5	40.8	28.5	11.9	132.7
T2-02	4232	837713.47	819297.64	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.3
T2-02	4232	837713.47	819297.64	102.65	108.35	62.7	50.1	19.4	40.7	28.5	11.9	132.5
T2-03	4232	837728.81	819282.67	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
T2-03	4232	837728.81	819282.67	28.5	34.20	62.7	50.1	19.5	40.8	28.5	11.9	132.7
T2-03	4232	837728.81	819282.67	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.4
T2-03	4232	837728.81	819282.67	102.65	108.35	62.7	50.1	19.5	40.7	28.5	11.9	132.6
T2-04	4232	837750.07	819283.20	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.7
T2-04	4232	837750.07	819283.20	28.5	34.20	62.7	50.1	19.5	40.8	28.5	11.9	132.7
T2-04	4232	837750.07	819283.20	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.3
T2-04	4232	837750.07	819283.20	102.65	108.35	62.7	50.1	19.5	40.7	28.5	11.9	132.5
T2-05	4232	837746.23	819267.81	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.7
T2-05	4232	837746.23	819267.81	28.5	34.20	62.7	50.1	19.5	40.8	28.5	11.9	132.7
T2-05	4232	837746.23	819267.81	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.5
T2-05	4232	837746.23	819267.81	102.65	108.35	62.7	50.1	19.5	40.7	28.5	11.9	132.7
T2-06	4232	837726.53	819267.04	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
T2-06	4232	837726.53	819267.04	28.5	34.20	62.7	50.1	19.5	40.8	28.5	11.9	132.7
T2-06	4232	837726.53	819267.04	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.5

Predicted Pollutant Concentration

Assessment Point	PATH Grid	Easting (m)	Northing (m)	Level (mAG)	Level (mPD)	Concentraion (µg/m³)						
						Hourly 19th Maximum NO2	Daily 1st Maximum NO2	Daily 10th Maximum NO2	Annual NO2	10-minute 4th Maximum SO2	Daily 1st Maximum SO2	Daily 4th Maximum SO2
	Criteria (AQO)					200	--	120	40	500	--	40
CS-03	4232	837741.89	819240.59	1.5	7.20	117.8	73.7	62.8	31.8	26.5	9.5	8.4
CS-04	4232	837720.12	819244.55	1.5	7.20	118.8	75.6	65.2	32.8	26.4	9.5	8.4
CS-05	4232	837692.88	819249.63	1.5	7.20	124.3	82.0	68.2	34.3	26.3	9.5	8.4
CS-06	4232	837687.83	819256.56	1.5	7.20	122.8	81.9	67.3	33.8	26.3	9.4	8.4
T1-01	4233	837719.02	819331.76	25.35	31.05	110.8	61.4	51.0	25.5	23.9	8.7	8.0
T1-01	4233	837719.02	819331.76	28.5	34.20	109.4	60.3	50.6	24.9	23.9	8.7	8.0
T1-01	4233	837719.02	819331.76	63.15	68.85	98.3	54.0	46.7	23.3	23.8	8.6	8.1
T1-01	4233	837719.02	819331.76	102.65	108.35	101.2	54.7	47.4	24.0	30.1	8.8	8.5
T1-02	4233	837732.88	819344.32	25.35	31.05	110.9	61.4	51.0	25.6	23.8	8.7	8.0
T1-02	4233	837732.88	819344.32	28.5	34.20	108.7	60.3	50.5	24.9	23.8	8.6	8.0
T1-02	4233	837732.88	819344.32	63.15	68.85	98.6	54.1	46.7	23.3	23.7	8.6	8.1
T1-02	4233	837732.88	819344.32	102.65	108.35	101.4	54.3	47.4	23.9	30.8	8.7	8.5
T1-03	4233	837744.89	819355.31	25.35	31.05	110.9	61.4	50.9	25.7	23.8	8.6	8.0
T1-03	4233	837744.89	819355.31	28.5	34.20	108.7	60.4	50.5	25.0	23.7	8.6	8.0
T1-03	4233	837744.89	819355.31	63.15	68.85	99.0	54.1	46.7	23.3	23.6	8.6	8.1
T1-03	4233	837744.89	819355.31	102.65	108.35	101.4	54.0	47.5	23.8	31.3	8.6	8.5
T1-04	4233	837757.93	819366.14	25.35	31.05	110.9	61.3	50.9	25.8	23.7	8.6	8.0
T1-04	4233	837757.93	819366.14	28.5	34.20	108.7	60.4	50.4	25.0	23.7	8.6	8.0
T1-04	4233	837757.93	819366.14	63.15	68.85	99.3	54.1	46.7	23.3	23.5	8.5	8.1
T1-04	4233	837757.93	819366.14	102.65	108.35	101.4	53.5	47.6	23.8	31.5	8.6	8.4
T1-05	4233	837770.81	819353.40	25.35	31.05	110.8	61.3	50.9	25.7	23.8	8.7	8.0
T1-05	4233	837770.81	819353.40	28.5	34.20	108.9	60.3	50.4	25.0	23.8	8.6	8.0
T1-05	4233	837770.81	819353.40	63.15	68.85	99.4	54.1	46.7	23.3	23.6	8.6	8.1
T1-05	4233	837770.81	819353.40	102.65	108.35	101.4	54.0	47.6	23.8	31.6	8.7	8.5
T1-06	4233	837789.51	819345.44	25.35	31.05	111.0	61.2	50.8	25.7	23.8	8.7	8.0
T1-06	4233	837789.51	819345.44	28.5	34.20	109.3	60.3	50.3	25.0	23.8	8.6	8.0
T1-06	4233	837789.51	819345.44	63.15	68.85	99.7	54.2	46.7	23.3	23.7	8.6	8.1
T1-06	4233	837789.51	819345.44	102.65	108.35	101.4	54.2	47.6	23.9	31.9	8.7	8.5
T1-07	4233	837782.27	819331.44	25.35	31.05	110.7	61.2	50.8	25.6	23.9	8.7	8.0
T1-07	4233	837782.27	819331.44	28.5	34.20	109.6	60.2	50.4	24.9	23.9	8.7	8.0
T1-07	4233	837782.27	819331.44	63.15	68.85	99.3	54.1	46.7	23.3	23.8	8.6	8.1
T1-07	4233	837782.27	819331.44	102.65	108.35	101.4	54.8	47.5	23.9	31.5	8.8	8.5
T1-08	4233	837768.88	819338.02	25.35	31.05	110.7	61.3	50.9	25.6	23.9	8.7	8.0
T1-08	4233	837768.88	819338.02	28.5	34.20	109.5	60.3	50.4	24.9	23.8	8.6	8.0
T1-08	4233	837768.88	819338.02	63.15	68.85	99.2	54.1	46.7	23.3	23.8	8.6	8.1
T1-08	4233	837768.88	819338.02	102.65	108.35	101.4	54.6	47.5	23.9	31.4	8.8	8.5
T1-09	4233	837747.56	819336.96	25.35	31.05	110.8	61.3	50.9	25.6	23.9	8.7	8.0
T1-09	4233	837747.56	819336.96	28.5	34.20	109.3	60.3	50.5	24.9	23.9	8.6	8.0
T1-09	4233	837747.56	819336.96	63.15	68.85	98.8	54.1	46.7	23.3	23.8	8.6	8.1
T1-09	4233	837747.56	819336.96	102.65	108.35	101.4	54.6	47.4	23.9	31.0	8.7	8.5
T1-10	4232	837731.35	819321.81	25.35	31.05	111.3	66.5	52.4	27.6	26.1	9.3	8.1
T1-10	4232	837731.35	819321.81	28.5	34.20	110.4	65.9	51.0	27.0	26.1	9.3	8.1
T1-10	4232	837731.35	819321.81	63.15	68.85	99.1	63.7	51.7	25.7	26.0	9.3	8.0
T1-10	4232	837731.35	819321.81	102.65	108.35	107.4	64.6	52.5	26.6	30.9	9.6	8.2
T2-01	4232	837721.07	819310.39	25.35	31.05	111.4	66.1	52.4	27.6	26.1	9.3	8.2
T2-01	4232	837721.07	819310.39	28.5	34.20	109.8	65.6	50.9	27.0	26.1	9.3	8.1
T2-01	4232	837721.07	819310.39	63.15	68.85	99.2	63.4	51.8	25.7	26.0	9.3	8.1
T2-01	4232	837721.07	819310.39	102.65	108.35	108.5	64.4	52.6	26.7	31.5	9.7	8.3
T2-02	4232	837713.47	819297.64	25.35	31.05	111.4	65.8	52.3	27.5	26.1	9.3	8.2
T2-02	4232	837713.47	819297.64	28.5	34.20	109.3	65.2	50.7	26.9	26.1	9.3	8.2
T2-02	4232	837713.47	819297.64	63.15	68.85	99.4	63.1	51.6	25.7	26.0	9.4	8.1
T2-02	4232	837713.47	819297.64	102.65	108.35	108.9	64.0	53.1	26.8	31.9	9.7	8.3
T2-03	4232	837728.81	819282.67	25.35	31.05	111.1	65.4	52.0	27.4	26.2	9.3	8.2
T2-03	4232	837728.81	819282.67	28.5	34.20	108.9	64.9	50.5	26.9	26.2	9.3	8.2
T2-03	4232	837728.81	819282.67	63.15	68.85	99.5	62.9	51.6	25.8	26.1	9.4	8.2
T2-03	4232	837728.81	819282.67	102.65	108.35	108.7	63.8	53.3	26.9	32.4	9.7	8.4
T2-04	4232	837750.07	819283.20	25.35	31.05	111.3	65.5	52.0	27.4	26.3	9.3	8.2
T2-04	4232	837750.07	819283.20	28.5	34.20	109.3	65.0	50.4	26.9	26.3	9.3	8.2
T2-04	4232	837750.07	819283.20	63.15	68.85	99.5	63.1	51.7	25.8	26.2	9.4	8.2
T2-04	4232	837750.07	819283.20	102.65	108.35	109.8	64.1	53.4	26.9	32.4	9.7	8.4
T2-05	4232	837746.23	819267.81	25.35	31.05	110.6	65.0	51.7	27.3	26.3	9.3	8.2
T2-05	4232	837746.23	819267.81	28.5	34.20	108.7	64.6	50.2	26.8	26.3	9.3	8.2
T2-05	4232	837746.23	819267.81	63.15	68.85	99.5	62.7	51.5	25.8	26.2	9.4	8.2
T2-05	4232	837746.23	819267.81	102.65	108.35	108.8	63.7	53.4	27.0	32.7	9.8	8.6
T2-06	4232	837726.53	819267.04	25.35	31.05	110.1	65.0	51.7	27.3	26.3	9.3	8.2
T2-06	4232	837726.53	819267.04	28.5	34.20	108.3	64.5	50.3	26.8	26.2	9.3	8.2
T2-06	4232	837726.53	819267.04	63.15	68.85	99.5	62.5	51.4	25.8	26.2	9.4	8.2

Predicted Pollutant Concentration

Assessment Point	PATH Grid	Easting (m)	Northing (m)	Level (mAG)	Level (mPD)	Concentraion (µg/m³)						
						Daily 1st Maximum RSP	Daily 10th Maximum RSP	Annual RSP	Daily 1st Maximum FSP	Daily 36th Maximum FSP	Annual FSP	Hourly 1st Maximum NO2
	Criteria (AQO)					--	75	30	--	37.5	15	--
T2-06	**4232**	837726.53	819267.04	102.65	108.35	62.7	50.1	19.5	40.7	28.5	11.9	132.7
T2-07	**4232**	837707.03	819266.22	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
T2-07	**4232**	837707.03	819266.22	28.5	34.20	62.6	50.1	19.5	40.8	28.5	11.9	132.7
T2-07	**4232**	837707.03	819266.22	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.5
T2-07	**4232**	837707.03	819266.22	102.65	108.35	62.7	50.1	19.5	40.7	28.5	11.9	132.7
T2-08	**4232**	837685.06	819265.14	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
T2-08	**4232**	837685.06	819265.14	28.5	34.20	62.6	50.1	19.5	40.8	28.5	11.9	132.8
T2-08	**4232**	837685.06	819265.14	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.6
T2-08	**4232**	837685.06	819265.14	102.65	108.35	62.7	50.1	19.5	40.7	28.5	11.9	132.7
T2-09	**4232**	837688.39	819281.03	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
T2-09	**4232**	837688.39	819281.03	28.5	34.20	62.6	50.1	19.5	40.8	28.5	11.9	132.7
T2-09	**4232**	837688.39	819281.03	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.5
T2-09	**4232**	837688.39	819281.03	102.65	108.35	62.7	50.1	19.5	40.7	28.5	11.9	132.6
T2-10	**4232**	837696.30	819300.59	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
T2-10	**4232**	837696.30	819300.59	28.5	34.20	62.7	50.2	19.5	40.8	28.5	11.9	132.7
T2-10	**4232**	837696.30	819300.59	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.3
T2-10	**4232**	837696.30	819300.59	102.65	108.35	62.7	50.1	19.4	40.7	28.5	11.9	132.5
T2-11	**4232**	837710.24	819318.12	25.35	31.05	62.7	50.2	19.5	40.8	28.6	11.9	132.8
T2-11	**4232**	837710.24	819318.12	28.5	34.20	62.7	50.2	19.5	40.8	28.6	11.9	132.7
T2-11	**4232**	837710.24	819318.12	63.15	68.85	62.6	50.1	19.4	40.7	28.5	11.8	132.2
T2-11	**4232**	837710.24	819318.12	102.65	108.35	62.7	50.1	19.4	40.7	28.5	11.9	132.3

Predicted Pollutant Concentration

Assessment Point	PATH Grid	Easting (m)	Northing (m)	Level (mAG)	Level (mPD)	Concentraion (µg/m³)						
						Hourly 19th Maximum NO2	Daily 1st Maximum NO2	Daily 10th Maximum NO2	Annual NO2	10-minute 4th Maximum SO2	Daily 1st Maximum SO2	Daily 4th Maximum SO2
	Criteria (AQO)					200	--	120	40	500	--	40
T2-06	**4232**	837726.53	819267.04	102.65	108.35	108.6	63.4	53.3	27.0	32.6	9.8	8.7
T2-07	**4232**	837707.03	819266.22	25.35	31.05	109.5	64.9	51.8	27.3	26.2	9.3	8.2
T2-07	**4232**	837707.03	819266.22	28.5	34.20	107.9	64.4	50.3	26.8	26.2	9.3	8.2
T2-07	**4232**	837707.03	819266.22	63.15	68.85	99.5	62.4	51.4	25.8	26.1	9.4	8.2
T2-07	**4232**	837707.03	819266.22	102.65	108.35	108.4	63.2	53.3	27.0	32.4	9.8	8.7
T2-08	**4232**	837685.06	819265.14	25.35	31.05	108.9	64.8	51.8	27.2	26.1	9.3	8.2
T2-08	**4232**	837685.06	819265.14	28.5	34.20	107.7	64.3	50.3	26.8	26.1	9.3	8.2
T2-08	**4232**	837685.06	819265.14	63.15	68.85	99.4	62.2	51.4	25.8	26.1	9.4	8.2
T2-08	**4232**	837685.06	819265.14	102.65	108.35	107.9	63.0	53.2	27.0	32.1	9.8	8.7
T2-09	**4232**	837688.39	819281.03	25.35	31.05	110.0	65.3	52.0	27.4	26.1	9.3	8.2
T2-09	**4232**	837688.39	819281.03	28.5	34.20	108.3	64.7	50.5	26.9	26.1	9.3	8.2
T2-09	**4232**	837688.39	819281.03	63.15	68.85	99.4	62.5	51.4	25.8	26.0	9.4	8.2
T2-09	**4232**	837688.39	819281.03	102.65	108.35	108.4	63.4	53.2	26.9	32.1	9.7	8.5
T2-10	**4232**	837696.30	819300.59	25.35	31.05	111.4	65.8	52.4	27.5	26.1	9.3	8.2
T2-10	**4232**	837696.30	819300.59	28.5	34.20	109.2	65.3	50.8	27.0	26.1	9.3	8.2
T2-10	**4232**	837696.30	819300.59	63.15	68.85	99.4	63.0	51.6	25.8	26.0	9.3	8.1
T2-10	**4232**	837696.30	819300.59	102.65	108.35	108.6	63.9	53.1	26.8	31.8	9.7	8.3
T2-11	**4232**	837710.24	819318.12	25.35	31.05	111.4	66.3	52.5	27.6	26.1	9.3	8.1
T2-11	**4232**	837710.24	819318.12	28.5	34.20	110.0	65.7	51.0	27.0	26.1	9.3	8.1
T2-11	**4232**	837710.24	819318.12	63.15	68.85	99.0	63.5	51.7	25.7	26.0	9.3	8.1
T2-11	**4232**	837710.24	819318.12	102.65	108.35	108.3	64.4	52.7	26.6	31.2	9.6	8.3

The 10th Highest Daily RSP Concentration (µg/m^3) at different Height

	Assessment Point	mAG / mPD	1.5 / 7.2	7.35 / 13.05	12.35 / 18.05	17.35 / 23.05	22.35 / 28.05
Podium Facade	PP-01		50.8	50.8	50.8	50.7	50.6
	PP-02		50.8	50.8	50.8	50.7	50.6
	PP-03		50.9	50.9	50.9	50.8	50.6
	PP-04		50.9	50.9	50.9	50.8	50.6
	PP-05		50.9	50.9	50.9	50.8	50.6
	PP-06		50.8	50.8	50.8	50.7	50.6
	PP-07		50.4	50.4	50.4	50.4	50.3
	PP-08		50.4	50.4	50.4	50.3	50.2
	PP-09		50.4	50.3	50.3	50.3	50.2
	PP-10		50.3	50.3	50.3	50.3	50.2
	PP-11		50.3	50.3	50.3	50.3	50.2
	PP-12		50.4	50.3	50.3	50.3	50.2
	PP-13		50.4	50.4	50.4	50.3	50.3

	Assessment Point	mAG / mPD	1.5 / 7.2				
Harbourfront At-Grade Communal Space	CS-01		50.4				
	CS-02		50.3				
	CS-03		50.3				
	CS-04		50.3				
	CS-05		50.3				
	CS-06		50.3				

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 1	T1-01		50.5	50.4	50.3	50.3	
	T1-02		50.5	50.4	50.3	50.3	
	T1-03		50.5	50.4	50.3	50.3	
	T1-04		50.5	50.4	50.3	50.3	
	T1-05		50.5	50.4	50.3	50.3	
	T1-06		50.5	50.4	50.3	50.3	
	T1-07		50.5	50.4	50.3	50.3	
	T1-08		50.5	50.4	50.3	50.3	
	T1-09		50.5	50.4	50.3	50.3	
	T1-10		50.2	50.2	50.1	50.1	

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 2	T2-01		50.2	50.2	50.1	50.1	
	T2-02		50.2	50.2	50.1	50.1	
	T2-03		50.2	50.1	50.1	50.1	
	T2-04		50.2	50.1	50.1	50.1	
	T2-05		50.2	50.1	50.1	50.1	
	T2-06		50.2	50.1	50.1	50.1	
	T2-07		50.2	50.1	50.1	50.1	
	T2-08		50.2	50.1	50.1	50.1	
	T2-09		50.2	50.1	50.1	50.1	
	T2-10		50.2	50.2	50.1	50.1	
	T2-11		50.2	50.2	50.1	50.1	

Annual Averaged RSP Concentration (µg/m^3) at different Height

	Assessment Point	mAG mPD	1.5 7.2	7.35 13.05	12.35 18.05	17.35 23.05	22.35 28.05
Podium Facade	PP-01		19.9	19.9	19.8	19.8	19.7
	PP-02		19.9	19.9	19.9	19.8	19.8
	PP-03		20.0	19.9	19.9	19.8	19.8
	PP-04		19.9	19.9	19.9	19.8	19.8
	PP-05		19.9	19.9	19.9	19.9	19.8
	PP-06		19.9	19.9	19.9	19.8	19.8
	PP-07		19.7	19.6	19.6	19.6	19.5
	PP-08		19.6	19.6	19.6	19.6	19.5
	PP-09		19.6	19.6	19.6	19.5	19.5
	PP-10		19.6	19.6	19.6	19.5	19.5
	PP-11		19.7	19.6	19.6	19.5	19.5
	PP-12		19.7	19.6	19.6	19.6	19.5
	PP-13		19.7	19.6	19.6	19.6	19.5

	Assessment Point	mAG mPD	1.5 7.2				
Harbourfront At-Grade Communal Space	CS-01		19.6				
	CS-02		19.6				
	CS-03		19.6				
	CS-04		19.7				
	CS-05		19.7				
	CS-06		19.7				

	Assessment Point	mAG mPD	25.35 31.05	28.5 34.2	63.15 68.85	102.65 108.35	
Residential Towers 1	T1-01		19.7	19.7	19.6	19.6	
	T1-02		19.7	19.7	19.6	19.6	
	T1-03		19.7	19.7	19.6	19.6	
	T1-04		19.7	19.7	19.6	19.6	
	T1-05		19.7	19.7	19.6	19.6	
	T1-06		19.7	19.7	19.6	19.6	
	T1-07		19.7	19.7	19.6	19.6	
	T1-08		19.7	19.7	19.6	19.6	
	T1-09		19.7	19.7	19.6	19.6	
	T1-10		19.5	19.5	19.4	19.4	

	Assessment Point	mAG mPD	25.35 31.05	28.5 34.2	63.15 68.85	102.65 108.35	
Residential Towers 2	T2-01		19.5	19.5	19.4	19.4	
	T2-02		19.5	19.5	19.4	19.4	
	T2-03		19.5	19.5	19.4	19.5	
	T2-04		19.5	19.5	19.4	19.5	
	T2-05		19.5	19.5	19.4	19.5	
	T2-06		19.5	19.5	19.4	19.5	
	T2-07		19.5	19.5	19.4	19.5	
	T2-08		19.5	19.5	19.4	19.5	
	T2-09		19.5	19.5	19.4	19.5	
	T2-10		19.5	19.5	19.4	19.4	
	T2-11		19.5	19.5	19.4	19.4	

The 36th Highest Daily FSP Concentration (µg/m^3) at different Height

	Assessment Point	mAG mPD	1.5 7.2	7.35 13.05	12.35 18.05	17.35 23.05	22.35 28.05
Podium Facade	PP-01		29.1	29.1	29.1	29.0	28.9
	PP-02		29.1	29.1	29.1	29.0	28.9
	PP-03		29.2	29.2	29.2	29.1	28.9
	PP-04		29.2	29.2	29.2	29.1	28.9
	PP-05		29.2	29.2	29.2	29.1	29.0
	PP-06		29.1	29.2	29.1	29.1	28.9
	PP-07		28.9	28.9	28.8	28.8	28.7
	PP-08		28.8	28.8	28.8	28.7	28.6
	PP-09		28.8	28.8	28.7	28.7	28.6
	PP-10		28.8	28.8	28.7	28.7	28.6
	PP-11		28.8	28.7	28.7	28.7	28.6
	PP-12		28.8	28.8	28.8	28.7	28.6
	PP-13		28.8	28.8	28.8	28.7	28.7

	Assessment Point	mAG mPD	1.5 7.2				
Harbourfront At-Grade Communal Space	CS-01		28.8				
	CS-02		28.8				
	CS-03		28.8				
	CS-04		28.8				
	CS-05		28.8				
	CS-06		28.8				

	Assessment Point	mAG mPD	25.35 31.05	28.5 34.2	63.15 68.85	102.65 108.35	
Residential Towers 1	T1-01		28.8	28.8	28.7	28.6	
	T1-02		28.8	28.8	28.7	28.6	
	T1-03		28.9	28.8	28.7	28.6	
	T1-04		28.9	28.8	28.7	28.6	
	T1-05		28.9	28.8	28.7	28.6	
	T1-06		28.9	28.8	28.7	28.6	
	T1-07		28.8	28.8	28.7	28.6	
	T1-08		28.8	28.8	28.7	28.6	
	T1-09		28.8	28.8	28.7	28.6	
	T1-10		28.6	28.6	28.5	28.5	

	Assessment Point	mAG mPD	25.35 31.05	28.5 34.2	63.15 68.85	102.65 108.35	
Residential Towers 2	T2-01		28.6	28.6	28.5	28.5	
	T2-02		28.6	28.5	28.5	28.5	
	T2-03		28.6	28.5	28.5	28.5	
	T2-04		28.6	28.5	28.5	28.5	
	T2-05		28.6	28.5	28.5	28.5	
	T2-06		28.6	28.5	28.5	28.5	
	T2-07		28.6	28.5	28.5	28.5	
	T2-08		28.6	28.5	28.5	28.5	
	T2-09		28.6	28.5	28.5	28.5	
	T2-10		28.6	28.5	28.5	28.5	
	T2-11		28.6	28.6	28.5	28.5	

Annual Averaged FSP Concentration (µg/m^3) at different Height

	Assessment Point	mAG mPD	1.5 7.2	7.35 13.05	12.35 18.05	17.35 23.05	22.35 28.05
Podium Facade	PP-01		12.3	12.3	12.3	12.2	12.2
	PP-02		12.4	12.3	12.3	12.2	12.2
	PP-03		12.4	12.3	12.3	12.3	12.2
	PP-04		12.4	12.3	12.3	12.3	12.2
	PP-05		12.4	12.3	12.3	12.3	12.2
	PP-06		12.3	12.3	12.3	12.3	12.2
	PP-07		12.1	12.1	12.1	12.0	12.0
	PP-08		12.1	12.0	12.0	12.0	12.0
	PP-09		12.1	12.0	12.0	12.0	11.9
	PP-10		12.1	12.0	12.0	12.0	11.9
	PP-11		12.1	12.0	12.0	12.0	11.9
	PP-12		12.1	12.0	12.0	12.0	11.9
	PP-13		12.1	12.1	12.0	12.0	12.0

	Assessment Point	mAG mPD	1.5 7.2				
Harbourfront At-Grade Communal Space	CS-01		12.1				
	CS-02		12.0				
	CS-03		12.1				
	CS-04		12.1				
	CS-05		12.1				
	CS-06		12.1				

	Assessment Point	mAG mPD	25.35 31.05	28.5 34.2	63.15 68.85	102.65 108.35	
Residential Towers 1	T1-01		12.1	12.1	12.1	12.1	
	T1-02		12.2	12.1	12.1	12.1	
	T1-03		12.2	12.1	12.1	12.1	
	T1-04		12.2	12.1	12.1	12.1	
	T1-05		12.2	12.1	12.1	12.1	
	T1-06		12.2	12.1	12.1	12.1	
	T1-07		12.2	12.1	12.1	12.1	
	T1-08		12.2	12.1	12.1	12.1	
	T1-09		12.2	12.1	12.1	12.1	
	T1-10		11.9	11.9	11.8	11.9	

	Assessment Point	mAG mPD	25.35 31.05	28.5 34.2	63.15 68.85	102.65 108.35	
Residential Towers 2	T2-01		11.9	11.9	11.8	11.9	
	T2-02		11.9	11.9	11.8	11.9	
	T2-03		11.9	11.9	11.8	11.9	
	T2-04		11.9	11.9	11.8	11.9	
	T2-05		11.9	11.9	11.8	11.9	
	T2-06		11.9	11.9	11.8	11.9	
	T2-07		11.9	11.9	11.8	11.9	
	T2-08		11.9	11.9	11.8	11.9	
	T2-09		11.9	11.9	11.8	11.9	
	T2-10		11.9	11.9	11.8	11.9	
	T2-11		11.9	11.9	11.8	11.9	

The 19th Highest Hourly NO_2 Concentration ($\mu g/m^3$) at different Height

	Assessment Point	mAG / mPD	1.5 / 7.2	7.35 / 13.05	12.35 / 18.05	17.35 / 23.05	22.35 / 28.05
Podium Facade	PP-01		127.1	122.1	117.0	115.6	111.9
	PP-02		128.1	120.7	116.7	114.9	112.6
	PP-03		126.7	120.8	115.8	114.1	112.8
	PP-04		121.0	118.6	117.4	114.0	113.6
	PP-05		119.1	123.0	117.1	114.2	113.6
	PP-06		120.0	121.9	117.5	114.0	113.6
	PP-07		116.5	116.1	113.4	112.7	111.8
	PP-08		116.0	116.1	114.0	113.0	112.3
	PP-09		115.7	115.4	114.2	113.1	111.7
	PP-10		116.8	116.4	113.8	112.8	111.0
	PP-11		124.2	117.2	114.7	112.8	110.4
	PP-12		119.5	116.6	113.8	112.7	111.3
	PP-13		118.8	115.3	113.3	112.7	111.7

	Assessment Point	mAG / mPD	1.5 / 7.2				
Harbourfront At-Grade Communal Space	CS-01		115.0				
	CS-02		115.9				
	CS-03		117.8				
	CS-04		118.8				
	CS-05		124.3				
	CS-06		122.8				

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 1	T1-01		110.8	109.4	98.3	101.2	
	T1-02		110.9	108.7	98.6	101.4	
	T1-03		110.9	108.7	99.0	101.4	
	T1-04		110.9	108.7	99.3	101.4	
	T1-05		110.8	108.9	99.4	101.4	
	T1-06		111.0	109.3	99.7	101.4	
	T1-07		110.7	109.6	99.3	101.4	
	T1-08		110.7	109.5	99.2	101.4	
	T1-09		110.8	109.3	98.8	101.4	
	T1-10		111.3	110.4	99.1	107.4	

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 2	T2-01		111.4	109.8	99.2	108.5	
	T2-02		111.4	109.3	99.4	108.9	
	T2-03		111.1	108.9	99.5	108.7	
	T2-04		111.3	109.3	99.5	109.8	
	T2-05		110.6	108.7	99.5	108.8	
	T2-06		110.1	108.3	99.5	108.6	
	T2-07		109.5	107.9	99.5	108.4	
	T2-08		108.9	107.7	99.4	107.9	
	T2-09		110.0	108.3	99.4	108.4	
	T2-10		111.4	109.2	99.4	108.6	
	T2-11		111.4	110.0	99.0	108.3	

The 10th Highest Daily NO_2 Concentration ($\mu g/m^3$) at different Height

	Assessment Point	mAG / mPD	1.5 / 7.2	7.35 / 13.05	12.35 / 18.05	17.35 / 23.05	22.35 / 28.05
Podium Facade	PP-01		60.8	56.2	54.5	53.2	51.6
	PP-02		59.8	55.2	53.8	52.7	51.5
	PP-03		60.2	54.9	53.4	52.4	51.4
	PP-04		55.2	54.2	53.0	52.0	51.3
	PP-05		54.9	53.6	52.6	51.8	51.2
	PP-06		53.8	53.5	52.8	51.8	51.2
	PP-07		57.7	56.2	54.8	53.7	52.9
	PP-08		57.3	56.8	55.5	53.4	52.5
	PP-09		58.3	57.6	55.9	53.5	52.3
	PP-10		61.1	59.8	57.2	53.7	52.4
	PP-11		67.4	62.4	57.0	53.7	52.7
	PP-12		63.7	60.8	57.1	53.8	52.8
	PP-13		61.9	59.4	56.4	53.9	52.9

	Assessment Point	mAG / mPD	1.5 / 7.2				
Harbourfront At-Grade Communal Space	CS-01		58.8				
	CS-02		59.6				
	CS-03		62.8				
	CS-04		65.2				
	CS-05		68.2				
	CS-06		67.3				

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 1	T1-01		51.0	50.6	46.7	47.4	
	T1-02		51.0	50.5	46.7	47.4	
	T1-03		50.9	50.5	46.7	47.5	
	T1-04		50.9	50.4	46.7	47.6	
	T1-05		50.9	50.4	46.7	47.6	
	T1-06		50.8	50.3	46.7	47.6	
	T1-07		50.8	50.4	46.7	47.5	
	T1-08		50.9	50.4	46.7	47.5	
	T1-09		50.9	50.5	46.7	47.4	
	T1-10		52.4	51.0	51.7	52.5	

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 2	T2-01		52.4	50.9	51.8	52.6	
	T2-02		52.3	50.7	51.6	53.1	
	T2-03		52.0	50.5	51.6	53.3	
	T2-04		52.0	50.4	51.7	53.4	
	T2-05		51.7	50.2	51.5	53.4	
	T2-06		51.7	50.3	51.4	53.3	
	T2-07		51.8	50.3	51.4	53.3	
	T2-08		51.8	50.3	51.4	53.2	
	T2-09		52.0	50.5	51.4	53.2	
	T2-10		52.4	50.8	51.6	53.1	
	T2-11		52.5	51.0	51.7	52.7	

Annual Averaged NO_2 Concentration (µg/m^3) at different Height

	Assessment Point	mAG / mPD	1.5 / 7.2	7.35 / 13.05	12.35 / 18.05	17.35 / 23.05	22.35 / 28.05
Podium Facade	PP-01		31.5	29.5	28.4	27.4	26.2
	PP-02		31.6	29.8	28.8	27.7	26.4
	PP-03		31.8	30.1	29.2	28.1	26.7
	PP-04		30.7	30.0	29.2	28.2	26.7
	PP-05		30.6	29.9	29.3	28.2	26.7
	PP-06		30.1	29.4	28.8	27.8	26.4
	PP-07		31.4	30.9	30.4	29.6	28.4
	PP-08		31.1	30.6	30.0	29.1	28.1
	PP-09		31.0	30.4	29.7	28.8	27.9
	PP-10		31.5	30.7	29.8	28.8	27.8
	PP-11		33.8	31.3	29.7	28.6	27.7
	PP-12		32.8	31.1	29.9	29.0	28.0
	PP-13		32.6	31.1	30.2	29.3	28.2

	Assessment Point	mAG / mPD	1.5 / 7.2				
Harbourfront At-Grade Communal Space	CS-01		31.1				
	CS-02		31.1				
	CS-03		31.8				
	CS-04		32.8				
	CS-05		34.3				
	CS-06		33.8				

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 1	T1-01		25.5	24.9	23.3	24.0	
	T1-02		25.6	24.9	23.3	23.9	
	T1-03		25.7	25.0	23.3	23.8	
	T1-04		25.8	25.0	23.3	23.8	
	T1-05		25.7	25.0	23.3	23.8	
	T1-06		25.7	25.0	23.3	23.9	
	T1-07		25.6	24.9	23.3	23.9	
	T1-08		25.6	24.9	23.3	23.9	
	T1-09		25.6	24.9	23.3	23.9	
	T1-10		27.6	27.0	25.7	26.6	

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 2	T2-01		27.6	27.0	25.7	26.7	
	T2-02		27.5	26.9	25.7	26.8	
	T2-03		27.4	26.9	25.8	26.9	
	T2-04		27.4	26.9	25.8	26.9	
	T2-05		27.3	26.8	25.8	27.0	
	T2-06		27.3	26.8	25.8	27.0	
	T2-07		27.3	26.8	25.8	27.0	
	T2-08		27.2	26.8	25.8	27.0	
	T2-09		27.4	26.9	25.8	26.9	
	T2-10		27.5	27.0	25.8	26.8	
	T2-11		27.6	27.0	25.7	26.6	

The 4th Highest 10-minutes SO_2 Concentration (µg/m^3) at different Height

	Assessment Point	mAG / mPD	1.5 / 7.2	7.35 / 13.05	12.35 / 18.05	17.35 / 23.05	22.35 / 28.05
Podium Facade	PP-01		24.2	24.1	24.0	24.0	23.9
	PP-02		24.1	24.0	24.0	23.9	23.8
	PP-03		24.0	24.0	23.9	23.8	23.7
	PP-04		24.1	24.0	23.9	23.8	23.8
	PP-05		24.1	24.0	24.0	23.9	23.8
	PP-06		24.2	24.1	24.1	24.0	23.9
	PP-07		26.4	26.4	26.3	26.3	26.3
	PP-08		26.4	26.4	26.4	26.3	26.3
	PP-09		26.5	26.4	26.4	26.4	26.4
	PP-10		26.3	26.3	26.3	26.3	26.2
	PP-11		26.2	26.2	26.2	26.2	26.1
	PP-12		26.2	26.2	26.1	26.1	26.1
	PP-13		26.2	26.2	26.1	26.1	26.1

	Assessment Point	mAG / mPD	1.5 / 7.2				
Harbourfront At-Grade Communal Space	CS-01		26.4				
	CS-02		26.4				
	CS-03		26.5				
	CS-04		26.4				
	CS-05		26.3				
	CS-06		26.3				

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 1	T1-01		23.9	23.9	23.8	30.1	
	T1-02		23.8	23.8	23.7	30.8	
	T1-03		23.8	23.7	23.6	31.3	
	T1-04		23.7	23.7	23.5	31.5	
	T1-05		23.8	23.8	23.6	31.6	
	T1-06		23.8	23.8	23.7	31.9	
	T1-07		23.9	23.9	23.8	31.5	
	T1-08		23.9	23.8	23.8	31.4	
	T1-09		23.9	23.9	23.8	31.0	
	T1-10		26.1	26.1	26.0	30.9	

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 2	T2-01		26.1	26.1	26.0	31.5	
	T2-02		26.1	26.1	26.0	31.9	
	T2-03		26.2	26.2	26.1	32.4	
	T2-04		26.3	26.3	26.2	32.4	
	T2-05		26.3	26.3	26.2	32.7	
	T2-06		26.3	26.2	26.2	32.6	
	T2-07		26.2	26.2	26.1	32.4	
	T2-08		26.1	26.1	26.1	32.1	
	T2-09		26.1	26.1	26.0	32.1	
	T2-10		26.1	26.1	26.0	31.8	
	T2-11		26.1	26.1	26.0	31.2	

The 4th Highest Daily SO_2 Concentration (µg/m^3) at different Height

	Assessment Point	mAG / mPD	1.5 / 7.2	7.35 / 13.05	12.35 / 18.05	17.35 / 23.05	22.35 / 28.05
Podium Facade	PP-01		8.2	8.1	8.1	8.1	8.0
	PP-02		8.2	8.2	8.1	8.1	8.1
	PP-03		8.2	8.2	8.2	8.1	8.1
	PP-04		8.2	8.2	8.2	8.1	8.1
	PP-05		8.2	8.2	8.2	8.1	8.1
	PP-06		8.2	8.2	8.1	8.1	8.1
	PP-07		8.3	8.2	8.2	8.2	8.1
	PP-08		8.4	8.3	8.3	8.3	8.2
	PP-09		8.4	8.4	8.3	8.3	8.3
	PP-10		8.4	8.3	8.3	8.3	8.3
	PP-11		8.3	8.3	8.3	8.3	8.2
	PP-12		8.3	8.3	8.3	8.3	8.2
	PP-13		8.3	8.3	8.2	8.2	8.2

	Assessment Point	mAG / mPD	1.5 / 7.2				
Harbourfront At-Grade Communal Space	CS-01		8.4				
	CS-02		8.4				
	CS-03		8.4				
	CS-04		8.4				
	CS-05		8.4				
	CS-06		8.4				

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 1	T1-01		8.0	8.0	8.1	8.5	
	T1-02		8.0	8.0	8.1	8.5	
	T1-03		8.0	8.0	8.1	8.5	
	T1-04		8.0	8.0	8.1	8.4	
	T1-05		8.0	8.0	8.1	8.5	
	T1-06		8.0	8.0	8.1	8.5	
	T1-07		8.0	8.0	8.1	8.5	
	T1-08		8.0	8.0	8.1	8.5	
	T1-09		8.0	8.0	8.1	8.5	
	T1-10		8.1	8.1	8.0	8.2	

	Assessment Point	mAG / mPD	25.35 / 31.05	28.5 / 34.2	63.15 / 68.85	102.65 / 108.35	
Residential Towers 2	T2-01		8.2	8.1	8.1	8.3	
	T2-02		8.2	8.2	8.1	8.3	
	T2-03		8.2	8.2	8.2	8.4	
	T2-04		8.2	8.2	8.2	8.4	
	T2-05		8.2	8.2	8.2	8.6	
	T2-06		8.2	8.2	8.2	8.7	
	T2-07		8.2	8.2	8.2	8.7	
	T2-08		8.2	8.2	8.2	8.7	
	T2-09		8.2	8.2	8.2	8.5	
	T2-10		8.2	8.2	8.1	8.3	
	T2-11		8.1	8.1	8.1	8.3	

APPENDIX 3-7
CORRESPONDENCES FROM EPD AND FSD REGARDING FOR TO KWA WAN PRELIMINARY TREATMENT WORKS ENQUIRES

Subject:	Re: [Internet]Re: Fw: [Internet]Inquiry for To Kwa Wan Preliminary Treatment Works
Date:	Wed, 4 Sep 2024 11:37:18 +0800
From:	ytleung@dsd.gov.hk
To:	Colman Wong <colman.wong@cinotech.com.hk>
CC:	andyhclaw@dsd.gov.hk, cchung02@dsd.gov.hk, Karina Chan <karina.chan@cinotech.com.hk>, Lee Ks <ks.lee@cinotech.com.hk>, 'Leo Leung' <leo.leung@cinotech.com.hk>, Wu, Peter <PWu@ura.org.hk>

Dear Mr. Wong,

Please find ST2's reply below for your information.Thanks.

General

- The treatment capacity of To Kwa Wan Preliminary Treatment Works (TKWPTW). The design capacity is 288,000 m3/day.
- Is it only primary treatment is carried out in the Coarse Screen Building, Fine Screen Building, Grit Skip Buildings, and/or other building(s) of TKWPTW? Preliminary treatment only.

Ventilation See attachment

- Are the facilities of TKWPTW all located within the Coarse Screen Building, Fine Screen Building, Grit Skip Buildings and/or other building(s)?
- How are the facilities of TKWPTW ventilated?
- If ventilation is necessary, where are the ventilation inlet(s)/outlet(s) and what is the flow rate.

Odour Mitigation See attachment

- Are there any deodorizing facilities installed for each of the building of TKWPTW to suppress the odour level. If any, please also provide their locations, efficiency and/or target odour/H2S concentration?

Land Contamination

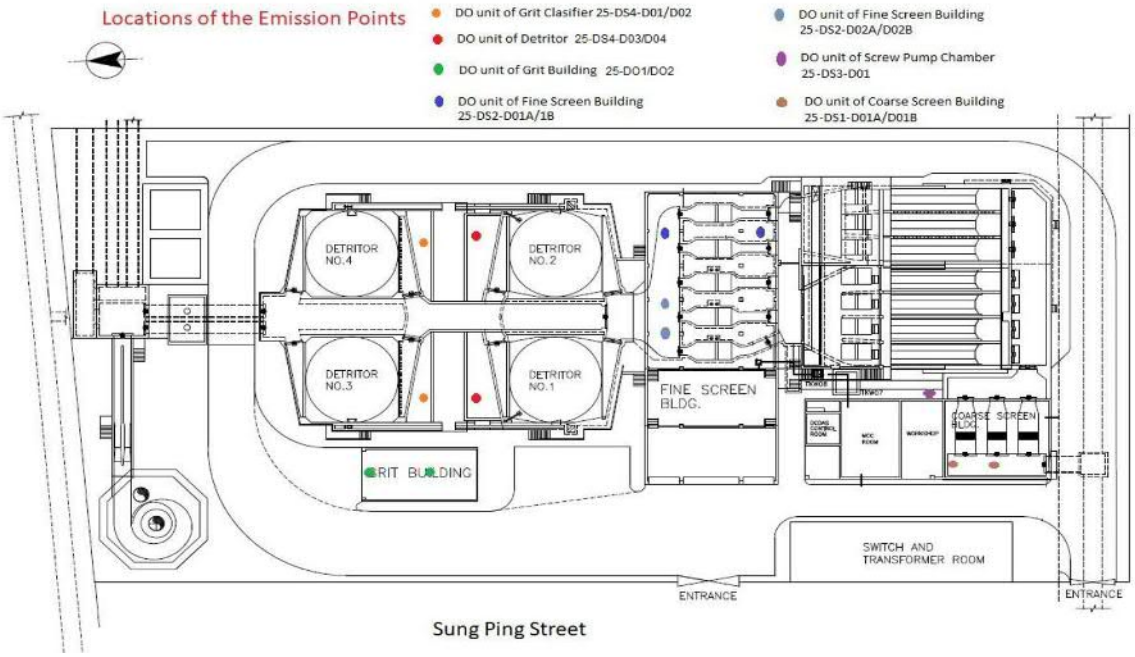
- Storage for the TKWPTW. If any, is the ground of the chemical storage fully paved without any cracks or fissures. Nil.

Operation hour

- I would like to confirm whether the To Kwa Wan Preliminary Treatment Works was in normal operation during 15th March 2024 from 2:00pm – 3:00pm. The plant was in normal operation.

Best regards,
Stephanie Y. T. LEUNG
EME/ST2/1/4, DSD
Tel.: 2195 3320 / 6029 3920

Deodourisation Unit for To Kwa Wan PTW			Efficiency
Equipment No.	Coverage Area	Air Flow Rate (m^3/hr)	H2S Removal
25-DS1-DO1A	Coarse Screen Building	8,640	99.5%
25-DS1-DO1B	Coarse Screen Building	8,640	99.5%
25-DS2-DO1A	Fine Screen Building	25,200	99.5%
25-DS2-DO1B	Fine Screen Building	25,200	99.5%
25-DS2-DO2A	Fine Screen Building	13,320	99.5%
25-DS2-DO2B	Fine Screen Building	13,320	99.5%
25-DO-1	Grit Building	5,100	99.5%
25-DO-2	Grit Building	5,100	99.5%
25-DS3-DO1	Screw Pump Chamber	10,080	99.5%
25-DS4-D01	Grit Classifier	720	99.5%
25-DS4-D02	Grit Classifier	720	99.5%
25-DS4-D03	Detritor	3,600	99.5%
25-DS4-D04	Detritor	3,600	99.5%



Subject:	Re: Inquiry of Complaint records for To Kwa Wan Preliminary Treatment Works - supplementary information
Date:	Wed, 28 Aug 2024 14:46:02 +0800
From:	joycehmchow@epd.gov.hk
To:	Colman Wong <colman.wong@cinotech.com.hk>
CC:	tschow@epd.gov.hk

Dear Colman,

According to our records, 2 complaints regarding odor issues from the To Kwa Wan Preliminary Treatment Works were received regarding the subject areas in the past 5 years. Fyi, please.

Best,
Joyce CHOW / EPD
2117 7527

APPENDIX 3-8
CORRESPONDENCES WITH TRANSPORT DEPARTMENT REGARDING VKT DATA OF THE ANNUAL TRAFFIC CENSUS 2023

Subject: Inquiry Regarding Raw Data for Annual Traffic Census (2023) (Case Ref: 3-8732713379)
From: <tdenq@1823.gov.hk>
Date: 16-May-25, 3:53 PM
To: <colman.wong@cinotech.com.hk>

16/05/2025

Dear Colman,

Subject: Inquiry Regarding Raw Data for Annual Traffic Census (2023) (Case Ref: 3-8732713379)

Regarding your above case, the substantive reply of the Transport Department is as follows –

"Please refer to the attachment."

If you have any questions about this reply, please contact us.

Best regards,
Josephine Choi
Customer Service Officer
1823

Tel: 1823
Fax: 2760 1823
Email: tellme@1823.gov.hk
SMS: 61631823 (For sending and receiving SMS only)

Service Disclaimer: www.1823.gov.hk/en/di.shtm

Attachments:

3-8732713379 substantive reply.pdf 611 KB

The Average Daily Vehicle-kilometre (VKM) figures provided in Section 3.4 of the Annual Traffic Census 2023 (the "Report") pertain only to the roads covered in the census, which account for approximately 87.1% of the total 2,239 km of trafficable roads within the territory. The report incorporated updated road data based on the definitions of major and minor road networks, as detailed in Appendix H.

In response to your request, we are pleased to provide the raw data (attached) used in the computation of VKM, as presented in Section 3.4 of the Report. You may calculate the VKM for any specified road type by following the methodology outlined in Appendix E and Appendix K.

Please note that the weighted mean annual average daily traffic (AADT) for "sampled" stations should be employed in your calculations. In the raw data file:

- The "Year" column indicates whether a station was included in the survey for that year.
- The "SymbolCur" column specifies whether a site survey was conducted - an empty cell denotes that a survey was performed during that year.

For example:
Station 1001 was designated as a sampled station in the 2023 Census; therefore, its data should be included in the calculation of the weighted mean AADT.
Conversely, Station 3117 was not a sampled station in 2023 and should be excluded from the calculation.

Please refer to the table below for the grouping of road types used in the computation of VKM in the Report (e.g., "UT" and "EX" are grouped together in the calculation of the Hong Kong Region Major Road Network).

Region	**Road Network**	**Road Type**
HK	Major	UT+EX
		PD
		DD
		LD
	Minor	LD+DD
K	Major	UT+EX
		PD
		DD
		LD
	Minor	LD+DD
NT	Major	RT+UT+EX
		PD
		RR+DD
		LD
	Minor	RR+LD+DD

Subject: Inquiry Regarding Raw Data for Annual Traffic Census (2023) (Case Ref: 3-8732713379)
From: <tdenq@1823.gov.hk>
Date: 23-May-25, 3:49 PM
To: <colman.wong@cinotech.com.hk>

23/05/2025

Dear Colman,

Subject: Inquiry Regarding Raw Data for Annual Traffic Census (2023) (Case Ref: 3-8732713379)

Thank you for your email dated 23/05/2025 to the Transport Department, which has been received by 1823 on behalf of the department.

Regarding your above case, the substantive reply of the Transport Department is as follows –

"The raw data file, QRdNet23_v01.xls, is included as file attachment in our reply PDF. To access the attachment using Adobe Acrobat Reader, please navigate to the menu and select View > Show/Hide > Side Panels > Attachments. Then, choose the attachment and select the appropriate option from the Options menu to either open it in its native application or save it. To ensure accessibility, we are reissuing the dataset as attached. If you have any questions about this case, please contact Ms. LI Wing Yee, Wendy by email (E-P2-TSSD@td.gov.hk)."

If you have any questions about this reply, please contact us.

Best regards,
Sam Wong
Customer Service Officer
1823

Tel: 1823
Fax: 2760 1823
Email: tellme@1823.gov.hk
SMS: 61631823 (For sending and receiving SMS only)

Service Disclaimer: www.1823.gov.hk/en/di.shtm

Attachments:

QRdNet23_v01.xls 1.3 MB

Dear Sir/Madam,

Thank you for providing the raw data for ATC 2023, as well as the explanation on how to apply it for calculating the minor/major road ratio.

I would like to make another inquiry regarding the methodology for calculating the “Proportion of Road with Potential Start”. As stated in my previous email, I aim to estimate the “Proportion of Road with Potential Start within Hong Kong”, where “Start” refers to vehicles starting their engines after parking. It is understood that roadside parking is generally provided along Local Distributors (LD) and Rural Roads (RR), while long-term parking is not anticipated along the roads of District Distributors (DD), Primary Distributors (PD), Trunk Roads (TR), and Expressways (Ex). Therefore, LD and RR are considered roads with potential starts.

I would like to seek TD's opinion on my calculation of the “Proportion of Road with Potential Start,” which has been calculated as follows:

Proportion of Road with Potential Start (2023, by VKT ratio)

= Sum[Segment Length x AADT] for LD & RR / Sum[Segment Length x AADT] for All Roads

= 12.10 %

The detailed calculation is also provided in the enclosed spreadsheet file.

I appreciate your guidance on this matter.

Thank you.

Best regards,

Colman Wong

Cinotech Consultants Limited

Tel: 2151 2068

Subject: Inquiry Regarding Raw Data for Annual Traffic Census (2023) (Case Ref: 3-8732713379)
From: <tdenq@1823.gov.hk>
Date: 29-May-25, 12:08 PM
To: <colman.wong@cinotech.com.hk>

29/05/2025

Dear Colman,

Subject: Inquiry Regarding Raw Data for Annual Traffic Census (2023) (Case Ref: 3-8732713379)

Regarding your above case, the substantive reply of the Transport Department is as follows –

"As previously stated, we are not in a position to comment on the methodology or calculations you have proposed."

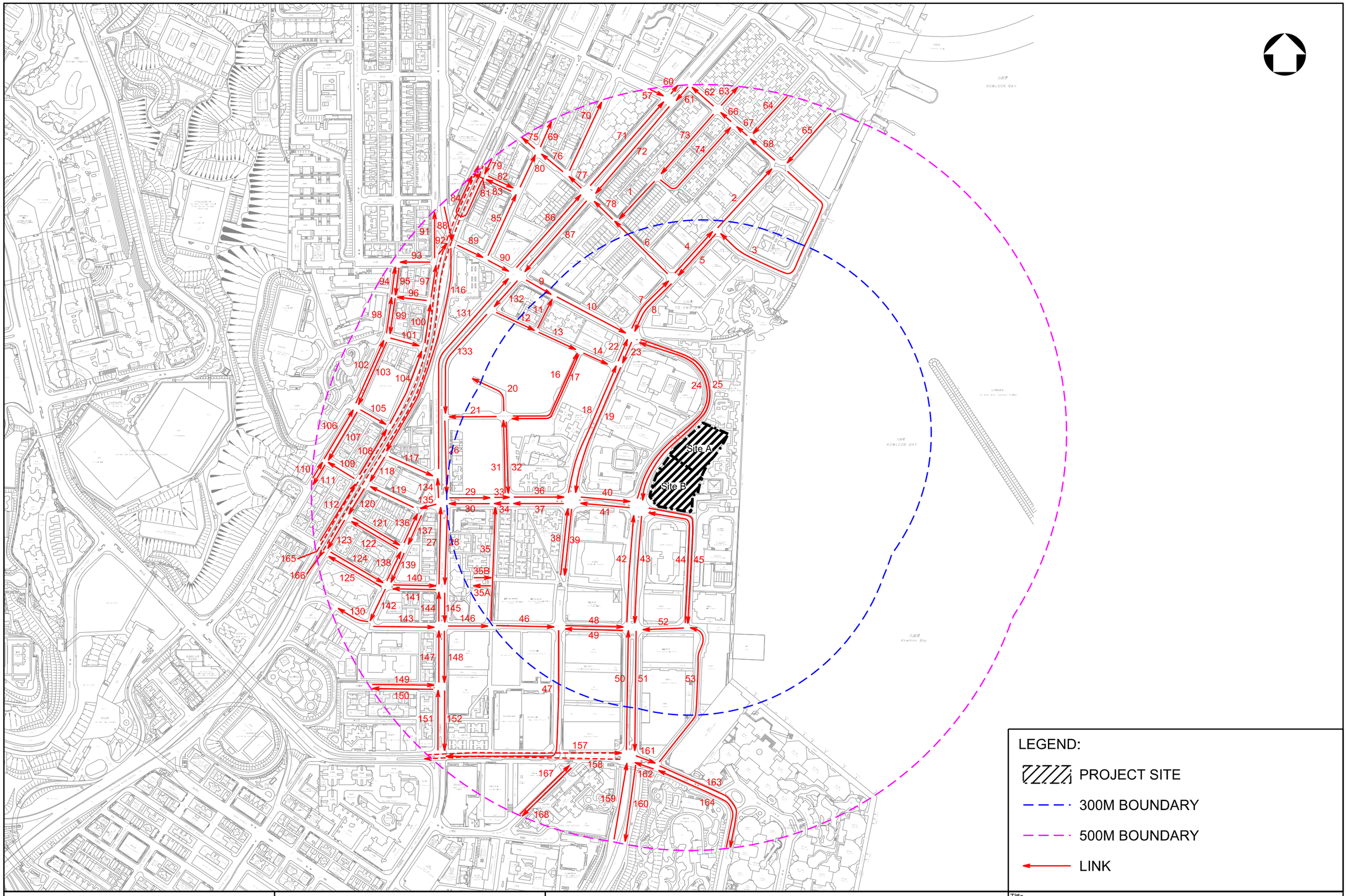
If you have any questions about this reply, please contact us.

Best regards,
Josephine Choi
Customer Service Officer
1823

Tel: 1823
Fax: 2760 1823
Email: tellme@1823.gov.hk
SMS: 61631823 (For sending and receiving SMS only)

Service Disclaimer: www.1823.gov.hk/en/di.shtm

APPENDIX 5-1
PREDICTED TRAFFIC FLOW AT PEAK HOUR IN YEAR 2047



LEGEND:

- PROJECT SITE
- 300M BOUNDARY
- 500M BOUNDARY
- LINK

URBAN RENEWAL AUTHORITY 市區重建局

AtkinsRéalis

PROPOSED ZONING AMENDMENTS
FOR PROPOSED RESIDENTIAL DEVELOPMENT
AT BAILEY STREET

Title: LINK INDEX PLAN

Scale at A3: 1 : 5,000 | Date: JUN 2025 | Figure No.: Figure 3.1E

PRINTED BY: CHEUI6310 2/6/2025 11:13:19 AM
FILENAME: \\watkins.com\Project\CN\CNHK\Project\5219646_URA_term2022\28.00 Working and Temporary\05 SO\06\NIA and AQIA\Figure 3.1E.dgn
MODEL_NAME: Default

Predicted Traffic Flow at Peak Hours of Year 2047

Road ID	Road	Direction	At grade / Flyover	Speed Limit (km/hr)	AM Peak		PM Peak	
					Traffic	% Heavy	Traffic	% Heavy
2	Yuk Yat Street	NB	At grade	50	110	15%	30	30%
3	Shun Fung Street	--	At grade	50	170	45%	70	30%
4	Yuk Yat Street	NB	At grade	50	90	15%	30	30%
5	Yuk Yat Street	SB	At grade	50	160	50%	70	30%
6	Lok Shan Road	WB	At grade	50	140	55%	140	15%
7	Yuk Yat Street	NB	At grade	50	440	40%	410	25%
8	Yuk Yat Street	SB	At grade	50	370	40%	310	30%
9	Chi Kiang Street	EB	At grade	50	390	40%	440	35%
10	Chi Kiang Street	EB	At grade	50	350	35%	410	25%
11	Lung Tak Street	NB	At grade	50	60	50%	80	40%
12	Ngan Hon Street	EB	At grade	50	330	40%	340	30%
13	Ngan Hon Street	EB	At grade	50	270	35%	260	25%
14	Ngan Hon Street	EB	At grade	50	40	40%	50	30%
16	Wing Kwong Street	NB	At grade	50	160	30%	130	20%
17	Wing Kwong Street	SB	At grade	50	380	30%	350	20%
18	Sung On Street	NB	At grade	50	160	40%	150	30%
19	Sung On Street	SB	At grade	50	230	40%	210	20%
20	Access Road	NB	At grade	50	30	40%	30	25%
21	Wing Kwong Street	WB	At grade	50	230	35%	260	20%
22	Sung On Street	NB	At grade	50	230	40%	210	30%
23	Sung On Street	SB	At grade	50	260	40%	230	25%
24	Chi Kiang Street	NB	At grade	50	150	40%	90	25%
25	Chi Kiang Street	SB	At grade	50	380	35%	380	35%
26	Ma Tau Wai Road	SB	At grade	50	940	50%	910	35%
28	Ma Tau Wai Road	SB	At grade	50	540	55%	510	40%
29	Bailey Street	EB	At grade	50	300	35%	280	20%
30	Bailey Street	WB	At grade	50	460	45%	550	25%
31	Wan On Street	NB	At grade	50	150	15%	130	15%
32	Wan On Street	SB	At grade	50	120	10%	60	15%
33	Bailey Street	EB	At grade	50	270	30%	230	25%
34	Bailey Street	WB	At grade	50	360	45%	410	25%
35	Sung Chi Street	NB	At grade	50	80	40%	110	40%
35A	Chun Tin Street	WB	At grade	50	30	5%	30	15%
35B	Chun Tin Street	EB	At grade	50	50	10%	20	5%
36	Bailey Street	EB	At grade	50	270	30%	220	25%
37	Bailey Street	WB	At grade	50	390	45%	470	20%
38	Sung On Street	NB	At grade	50	120	50%	120	25%
39	Sung On Street	SB	At grade	50	150	30%	130	30%
40	Bailey Street	EB	At grade	50	300	35%	290	20%
41	Bailey Street	WB	At grade	50	390	40%	480	25%
42	Hung Hom Road	NB	At grade	50	490	35%	500	25%
43	Hung Hom Road	SB	At grade	50	510	35%	550	25%
44	Bailey Street	NB	At grade	50	70	45%	90	15%
45	Bailey Street	SB	At grade	50	210	25%	150	35%
46	Hok Yuen Street	EB	At grade	50	50	70%	40	25%
47	Man Lok Street	SB	At grade	50	110	15%	30	55%
48	Hok Yuen Street East	EB	At grade	50	140	55%	210	25%
49	Hok Yuen Street East	WB	At grade	50	200	30%	200	30%
50	Hung Hom Road	NB	At grade	50	580	30%	550	30%
51	Hung Hom Road	SB	At grade	50	760	40%	880	25%
52	Hok Yuen Street East	WB	At grade	50	230	35%	280	20%
53	Hok Cheung Street	NB	At grade	50	100	70%	220	10%

From: Chun WONG <chunwong@td.gov.hk>
Sent: Wednesday, October 16, 2024 12:27 PM
To: Cheung, Enoch <Enoch.Cheung@atkinsrealis.com>
Cc: Lee, Jacky <Jacky.Lee@atkinsrealis.com>; La, Nicole <Nicole.La@atkinsrealis.com>; Wu, Peter <PWu@ura.org.hk>; Chow, Stanley <Stanley.Chow2@atkinsrealis.com>; Li, Yee Ting <YTLi@ura.org.hk>; Vincent Ka Lok CHOW <vincentklchow@td.gov.hk>
Subject: [EXTERNAL] Re: Technical Note of Traffic Forecast for Environmental Assessments - URA Term Traffic Consultancy SO06 - KCAA1-10-r1

CAUTION: This Email is from an EXTERNAL source. Ensure you trust this sender before clicking on any links or attachments.

Dear Enoch,

I refer to your email dated 2 Oct 2024 regarding the captioned. I have no adverse comment on the methodology as detailed in the Technical Note from traffic engineering point of view. Please be reminded that the traffic assessment done in the subject report shall only be applied for environmental assessment purpose. Thanks.

Regards,

Andy WONG
EK/HM, TEK, TD
Tel: 2399 2504

AtkinsRéalis

Transport Department
Urban Regional Office
Traffic Engineering (Kln.) Division
Kln. District Central Section
8/F, Mongkok Government Offices
30 Luen Wan Street
Mongkok, Kowloon

Attn: Mr. WONG Chun (Engr/Hung Hom)

OUR REFERENCE:
5219646/18.30/OC065/NL/SC/EC

YOUR REFERENCE:

DATE:
2 October 2024

Dear Sir,

Urban Renewal Authority
Term Traffic Consultancy Services
Service Order No. 06 for
Proposed Residential Development at Bailey Street

Technical Note of Traffic Forecast for Environmental Assessments

We are the Traffic Consultant commissioned by Urban Renewal Authority to undertake the captioned consultancy services.

We are pleased to submit herewith the Technical Note of Traffic Forecast for Environmental Assessments for your endorsement to suit Environmental Protection Department's requirement.

We shall be grateful if you could confirm your acceptance of the Technical Note on or before **23 October 2024**. Should you have any queries, please feel free to contact Mr. Enoch Cheung at 2972 1436 or email to enoch.cheung@atkinsrealis.com.

Yours faithfully
For and on behalf of
Atkins China Limited

Stanley CHOW
Associate Director

Encl.

c.c. URA Mr. Peter Wu (Manger, Planning and Design) By Email Only

APPENDIX 5-2
LOW NOISE ROAD SURFACING PLAN FROM HIGHWAY DEPARTMENT (YEAR 2022)



NOTES:

1. THIS DRAWING SUPERSEDES DRAWING NUMBER KHD10126-GL0001.
2. THIS DRAWING SHOWS THE N.R.H.S IN THE AREA UNDER HyD/URBAN REGION (KOWLOON)'S JURISDICTION.

LEGEND : -

- CARRIAGEWAY WITH N. R. H. S. USING POLYMER MODIFIED FRICTION COURSE
- CARRIAGEWAY WITH N. R. H. S. USING POROUS FRICTION COURSE
- CARRIAGEWAY WITH N. R. H. S. USING SMA SURFACING

drawing title

NOISE REDUCING HIGHWAY SURFACING(NRHS) IN URBAN REGION (KOWLOON)

map reference

drawing no.

HKHD10930-GL1001

scale 1 : 10000

office

URBAN REGION (KOWLOON)

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HIGHWAYS DEPARTMENT HONG KONG

Printed on 11. 01. 2022 Super 1342 x 841

Extracted from “Noise Reducing Highway Surfacing (NRHS) in Urban Region (Kowloon)” from Highway Department dated 2022.

APPENDIX 5-3
TRAFFIC NOISE ASSESSMENT RESULTS
(BASE SCENARIO)

Predicted Traffic Noise Level - Tower 1 in Base Scenario (L10, 1hr), dB(A)

Tower 1 (by assessment point)

NSR ID		T1-01-W1	T1-01-LB	T1-02-LB	T1-02-W1	T1-03-LB	T1-03-W1	T1-03-W2	T1-04-W1	T1-04-W2	T1-04-LB	T1-05-LB	T1-05-W1	T1-05-W2	T1-06-W1	T1-06-W2	T1-06-LB	T1-07-LB	T1-07-W1	T1-07-W2	T1-08-W1	T1-08-W2	T1-08-LB	T1-09-LB	T1-09-W1	T1-10-W1	T1-10-LB	T1-11-W1	T1-11-W2	T1-11-LB
Floor	mPD	L10, 1hr (dB(A))																												
25/F	107.88	52.3	61.3	62.9	63.1	63.0	63.0	62.9	62.8	62.8	62.7	62.6	62.5	62.4	54.2	53.7	53.2	52.8	52.3	51.9	51.3	50.7	49.9	48.5	46.9	44.0	41.7	40.8	<40.0	<40.0
24/F	104.56	52.4	61.4	63.0	63.2	63.1	63.1	63.0	62.9	62.8	62.7	62.6	62.5	62.4	54.3	53.8	53.2	52.8	52.4	52.0	51.4	50.7	50.0	48.6	47.0	44.0	41.6	40.7	<40.0	<40.0
23/F	101.24	52.5	61.5	63.1	63.2	63.2	63.1	63.0	62.9	62.9	62.8	62.7	62.6	62.5	54.4	53.9	53.4	52.9	52.5	52.1	51.5	50.8	50.1	48.7	47.1	44.1	41.6	40.7	<40.0	<40.0
22/F	97.92	52.6	61.5	63.1	63.3	63.2	63.2	63.1	63.0	62.9	62.8	62.7	62.7	62.6	54.4	54.0	53.5	53.0	52.6	52.2	51.6	50.9	50.2	48.8	47.1	44.1	41.6	40.7	<40.0	<40.0
21/F	94.60	52.7	61.6	63.2	63.4	63.3	63.2	63.1	63.1	63.0	62.9	62.8	62.7	62.6	54.5	54.1	53.6	53.2	52.7	52.3	51.7	51.1	50.3	48.9	47.2	44.2	41.6	40.7	<40.0	<40.0
20/F	91.28	52.8	61.7	63.3	63.4	63.4	63.3	63.2	63.1	63.0	62.9	62.8	62.8	62.7	54.6	54.2	53.7	53.3	52.8	52.4	51.9	51.2	50.4	49.0	47.3	44.2	41.7	40.7	<40.0	<40.0
19/F	87.96	52.8	61.8	63.3	63.5	63.4	63.4	63.3	63.2	63.1	63.0	62.9	62.8	62.7	54.8	54.3	53.8	53.4	52.9	52.5	52.0	51.3	50.6	49.1	47.4	44.2	41.7	40.8	<40.0	<40.0
18/F	84.64	52.9	61.9	63.4	63.5	63.5	63.4	63.3	63.2	63.1	63.0	62.9	62.8	62.7	54.9	54.4	53.9	53.5	53.1	52.6	52.1	51.4	50.7	49.2	47.5	44.3	41.7	40.8	<40.0	<40.0
17/F	81.32	53.0	62.0	63.5	63.5	63.5	63.4	63.3	63.2	63.1	63.0	62.9	62.8	62.7	55.0	54.5	54.0	53.6	53.2	52.8	52.2	51.6	50.8	49.4	47.6	44.4	41.7	40.8	<40.0	<40.0
16/F	78.00	53.2	62.1	63.5	63.6	63.5	63.4	63.3	63.2	63.1	63.0	62.9	62.8	62.7	55.1	54.6	54.1	53.7	53.3	52.9	52.4	51.7	50.9	49.5	47.7	44.4	41.8	40.8	<40.0	<40.0
15/F	74.85	53.3	62.1	63.5	63.5	63.5	63.4	63.3	63.2	63.1	63.0	62.9	62.8	62.7	55.2	54.7	54.2	53.8	53.4	53.0	52.5	51.8	51.1	49.6	47.8	44.5	41.8	40.9	<40.0	<40.0
14/F	71.70	53.4	62.2	63.5	63.5	63.4	63.3	63.2	63.1	63.0	63.0	62.8	62.7	62.6	55.3	54.8	54.3	54.0	53.5	53.1	52.5	52.0	51.3	49.8	47.9	44.5	41.8	40.9	<40.0	<40.0
13/F	68.55	53.5	62.2	63.4	63.4	63.3	63.2	63.1	63.0	63.0	62.9	62.8	62.7	62.6	55.4	54.9	54.4	54.1	53.7	53.2	52.7	52.1	51.4	49.9	48.0	44.6	41.8	40.9	<40.0	<40.0
12/F	65.40	53.6	62.2	63.4	63.3	63.2	63.1	63.0	63.0	62.9	62.8	62.8	62.7	62.6	55.5	55.0	54.5	54.2	53.8	53.4	52.8	52.3	51.6	50.0	48.1	44.6	41.9	41.0	<40.0	<40.0
11/F	62.25	53.8	62.2	63.3	63.2	63.1	63.1	63.0	62.9	62.9	62.8	62.7	62.8	62.8	55.6	55.2	54.7	54.3	53.9	53.5	53.0	52.5	51.8	50.2	48.2	44.7	41.9	41.0	<40.0	<40.0
10/F	59.10	53.9	62.3	63.2	63.1	63.0	63.0	62.9	62.9	62.9	62.9	62.9	63.0	62.9	55.7	55.3	54.8	54.4	54.0	53.7	53.2	52.6	51.9	50.3	48.3	44.7	41.9	41.0	<40.0	<40.0
9/F	55.95	54.0	62.3	63.1	63.0	63.0	63.0	63.0	62.9	63.0	63.1	63.0	63.0	62.8	55.9	55.4	54.9	54.6	54.2	53.9	53.3	52.8	52.1	50.5	48.4	44.7	41.9	41.0	<40.0	<40.0
8/F	52.80	54.2	62.2	62.9	62.9	62.9	63.0	63.1	63.2	63.2	63.1	63.0	62.9	62.7	56.0	55.6	55.1	54.7	54.4	54.0	53.5	53.0	52.3	50.6	48.4	44.7	42.0	41.1	<40.0	<40.0
7/F	49.65	54.4	62.2	62.8	62.8	62.9	63.1	63.1	63.0	63.0	62.9	62.8	62.8	62.7	56.1	55.7	55.2	54.9	54.5	54.2	53.7	53.2	52.5	50.7	48.5	44.7	42.0	41.1	<40.0	<40.0
6/F	46.50	55.0	62.1	62.7	62.9	62.9	62.9	62.9	62.8	62.8	62.8	62.7	62.7	62.5	56.3	55.9	55.4	55.1	54.7	54.4	53.9	53.4	52.6	50.8	48.5	44.7	42.0	41.1	<40.0	<40.0
5/F	43.35	55.2	62.1	62.4	62.6	62.6	62.6	62.6	62.6	62.7	62.6	62.5	62.4	62.3	56.4	56.0	55.6	55.3	54.9	54.6	54.0	53.5	52.8	50.8	48.4	44.5	42.0	41.1	<40.0	<40.0
4/F	40.20	55.3	61.7	61.9	62.1	62.1	62.2	62.2	62.2	62.3	62.2	62.2	62.1	62.0	56.6	56.2	55.7	55.4	55.1	54.7	54.1	53.5	52.7	50.7	48.3	44.3	42.0	41.1	<40.0	<40.0
3/F	37.05	55.4	61.0	61.2	61.3	61.4	61.5	61.4	61.5	61.6	61.6	61.5	61.5	61.4	56.8	56.4	55.9	55.6	55.2	54.8	53.9	53.0	52.1	50.1	47.9	43.9	41.8	40.9	<40.0	<40.0
2/F	33.90	55.2	60.1	60.2	60.2	60.2	60.3	60.2	60.3	60.4	60.4	60.3	60.3	60.2	56.9	56.5	56.1	55.8	55.2	54.4	53.1	51.8	50.6	48.6	46.8	43.0	41.2	40.1	<40.0	<40.0
1/F	30.75	53.6	58.6	58.6	58.6	58.6	58.6	58.5	58.6	58.6	58.6	58.6	58.6	58.5	57.1	56.7	56.2	55.4	53.8	52.3	50.4	48.7	47.0	45.1	44.0	40.8	<40.0	<40.0	<40.0	<40.0

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 1 in Base Scenario (L10, 1hr), dB(A)

Tower 1 (by assessment point)

NSR ID		T1-12-LB	T1-12-W1	T1-12-W2	T1-13-W1	T1-13-W2	T1-13-LB	T1-14-LB	T1-14-W1	T1-14-W2	T1-15-W1	T1-15-W2	T1-15-LB	T1-16-LB	T1-16-W1	T1-17-W1	T1-17-LB	T1-18-LB	T1-18-W1	T1-19-LB	T1-19-W1	T1-19-W2	T1-20-W1	T1-20-W2	T1-20-LB	T1-21-LB	T1-21-W1	T1-21-W2	T1-22-LB	T1-22-W1	T1-22-W2
Floor	mPD																														
25/F	107.88	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.0	67.3	67.3	67.2	67.0	66.9	67.0	66.9	66.9	66.9	66.9	66.8	66.8	66.8	66.8	66.7	66.7	66.7	66.6	66.6	66.6	66.6
24/F	104.56	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	49.9	67.4	67.4	67.3	67.1	67.0	67.0	67.0	67.0	66.9	66.9	66.9	66.9	66.9	66.8	66.8	66.8	66.7	66.7	66.7	66.7	66.6
23/F	101.24	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.0	67.4	67.4	67.3	67.1	67.0	67.1	67.1	67.0	67.0	67.0	67.0	67.0	66.9	66.9	66.9	66.8	66.8	66.8	66.8	66.7	66.7
22/F	97.92	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.0	67.5	67.5	67.4	67.2	67.1	67.1	67.1	67.1	67.1	67.0	67.0	67.0	67.0	67.0	66.9	66.9	66.9	66.8	66.8	66.8	66.8
21/F	94.60	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.1	67.5	67.5	67.4	67.2	67.1	67.2	67.1	67.1	67.1	67.1	67.1	67.0	67.0	67.0	66.9	66.9	66.9	66.9	66.9	66.9	66.8
20/F	91.28	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.1	67.6	67.6	67.4	67.3	67.2	67.2	67.2	67.2	67.1	67.1	67.1	67.1	67.1	67.0	67.0	67.0	67.0	67.0	67.0	66.9	66.9
19/F	87.96	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.2	67.6	67.6	67.5	67.3	67.2	67.2	67.2	67.2	67.2	67.1	67.1	67.1	67.1	67.1	67.1	67.1	67.0	67.0	67.0	67.0	67.0
18/F	84.64	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.2	67.7	67.7	67.5	67.3	67.2	67.3	67.2	67.2	67.2	67.2	67.2	67.2	67.1	67.1	67.1	67.1	67.1	67.1	67.1	67.1	67.1
17/F	81.32	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.3	67.7	67.7	67.6	67.4	67.3	67.3	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2
16/F	78.00	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.4	67.8	67.8	67.6	67.4	67.3	67.3	67.3	67.3	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.3	67.3	67.3	67.3
15/F	74.85	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.5	67.9	67.8	67.6	67.5	67.4	67.4	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3
14/F	71.70	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.6	67.9	67.9	67.7	67.5	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.3	67.3	67.3	67.4	67.4	67.4	67.4	67.4	67.4
13/F	68.55	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.7	68.0	68.0	67.8	67.6	67.5	67.5	67.5	67.5	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.5	67.5	67.5
12/F	65.40	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.8	68.1	68.0	67.9	67.7	67.6	67.6	67.6	67.6	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.6	67.6
11/F	62.25	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	50.9	68.2	68.2	68.0	67.8	67.7	67.8	67.7	67.7	67.7	67.7	67.7	67.6	67.6	67.6	67.6	67.6	67.6	67.6	67.6	67.6	67.6
10/F	59.10	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	51.0	68.3	68.3	68.1	68.0	67.9	67.9	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7
9/F	55.95	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	51.0	68.4	68.4	68.3	68.1	68.0	68.0	68.0	68.0	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9
8/F	52.80	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	51.0	68.6	68.6	68.4	68.3	68.2	68.2	68.1	68.1	68.1	68.1	68.1	68.1	68.1	68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
7/F	49.65	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	51.1	68.7	68.7	68.6	68.4	68.3	68.3	68.3	68.3	68.3	68.3	68.3	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2
6/F	46.50	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	51.6	68.9	68.9	68.7	68.6	68.5	68.5	68.5	68.5	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4
5/F	43.35	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	51.7	69.2	69.1	69.0	68.8	68.8	68.7	68.7	68.7	68.7	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6
4/F	40.20	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	51.9	69.7	69.6	69.5	69.4	69.3	69.3	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.3	69.3
3/F	37.05	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	52.0	70.1	70.0	69.9	69.7	69.7	69.7	69.6	69.6	69.6	69.6	69.6	69.6	69.7	69.7	69.7	69.7	69.7	69.7	69.7	69.7	69.7
2/F	33.90	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	52.1	70.3	70.2	70.1	70.0	69.9	69.9	69.8	69.8	69.8	69.8	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	70.0
1/F	30.75	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	51.9	70.4	70.3	70.1	70.0	69.9	69.9	69.9	69.9	69.9	69.9	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 1 in Base Scenario (L10, 1hr), dB(A)

Tower 1 (by flat)

NSR ID		T1-01		T1-03	T1-04	T1-05	T1-06	T1-07	T1-08	T1-09	T1-10	
Floor	mPD	L10, 1hr (dB(A))										
25/F	107.88	63.1		63.0	62.8	62.6	54.2	52.8	51.3	48.5	44.0	

NSR ID		T1-01	T1-02	T1-03	T1-04	T1-05	T1-06	T1-07	T1-08	T1-09	T1-10	T1-11
Floor	mPD	L10, 1hr (dB(A))										
24/F	104.56	61.4	63.2	63.1	62.9	62.6	54.3	52.8	51.4	48.6	44.0	40.7
23/F	101.24	61.5	63.2	63.2	62.9	62.7	54.4	52.9	51.5	48.7	44.1	40.7
22/F	97.92	61.5	63.3	63.2	63.0	62.7	54.4	53.0	51.6	48.8	44.1	40.7
21/F	94.60	61.6	63.4	63.3	63.1	62.8	54.5	53.2	51.7	48.9	44.2	40.7
20/F	91.28	61.7	63.4	63.4	63.1	62.8	54.6	53.3	51.9	49.0	44.2	40.7
19/F	87.96	61.8	63.5	63.4	63.2	62.9	54.8	53.4	52.0	49.1	44.2	40.8
18/F	84.64	61.9	63.5	63.5	63.2	62.9	54.9	53.5	52.1	49.2	44.3	40.8
17/F	81.32	62.0	63.5	63.5	63.2	62.9	55.0	53.6	52.2	49.4	44.4	40.8
16/F	78.00	62.1	63.6	63.5	63.2	62.9	55.1	53.7	52.4	49.5	44.4	40.8
15/F	74.85	62.1	63.5	63.5	63.2	62.9	55.2	53.8	52.5	49.6	44.5	40.9
14/F	71.70	62.2	63.5	63.4	63.1	62.8	55.3	54.0	52.5	49.8	44.5	40.9
13/F	68.55	62.2	63.4	63.3	63.0	62.8	55.4	54.1	52.7	49.9	44.6	40.9
12/F	65.40	62.2	63.4	63.2	63.0	62.8	55.5	54.2	52.8	50.0	44.6	41.0
11/F	62.25	62.2	63.3	63.1	62.9	62.8	55.6	54.3	53.0	50.2	44.7	41.0
10/F	59.10	62.3	63.2	63.0	62.9	63.0	55.7	54.4	53.2	50.3	44.7	41.0
9/F	55.95	62.3	63.1	63.0	63.1	63.0	55.9	54.6	53.3	50.5	44.7	41.0
8/F	52.80	62.2	62.9	63.1	63.2	63.0	56.0	54.7	53.5	50.6	44.7	41.1
7/F	49.65	62.2	62.8	63.1	63.0	62.8	56.1	54.9	53.7	50.7	44.7	41.1
6/F	46.50	62.1	62.9	62.9	62.8	62.7	56.3	55.1	53.9	50.8	44.7	41.1
5/F	43.35	62.1	62.6	62.6	62.7	62.5	56.4	55.3	54.0	50.8	44.5	41.1
4/F	40.20	61.7	62.1	62.2	62.3	62.2	56.6	55.4	54.1	50.7	44.3	41.1
3/F	37.05	61.0	61.3	61.5	61.6	61.5	56.8	55.6	53.9	50.1	43.9	40.9
2/F	33.90	60.1	60.2	60.3	60.4	60.3	56.9	55.8	53.1	48.6	43.0	40.1
1/F	30.75	58.6	58.6	58.6	58.6	58.6	57.1	55.4	50.4	45.1	40.8	<40.0

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 1 in Base Scenario (L10, 1hr), dB(A)

Tower 1 (by flat)

NSR ID		T1-12	T1-13	T1-14	T1-15	T1-16		T1-18	T1-19	T1-20	T1-21	T1-22
Floor	mPD											
25/F	107.88	<40.0	<40.0	50.0	67.3	67.0		66.9	66.9	66.8	66.7	66.6

NSR ID		T1-12	T1-13	T1-14	T1-15	T1-16	T1-17	T1-18	T1-19	T1-20	T1-21	T1-22
Floor	mPD											
24/F	104.56	<40.0	<40.0	49.9	67.4	67.1	67.0	67.0	66.9	66.9	66.8	66.7
23/F	101.24	<40.0	<40.0	50.0	67.4	67.1	67.1	67.0	67.0	66.9	66.8	66.8
22/F	97.92	<40.0	<40.0	50.0	67.5	67.2	67.1	67.1	67.0	67.0	66.9	66.8
21/F	94.6	<40.0	<40.0	50.1	67.5	67.2	67.2	67.1	67.1	67.0	66.9	66.9
20/F	91.28	<40.0	<40.0	50.1	67.6	67.3	67.2	67.2	67.1	67.1	67.0	67.0
19/F	87.96	<40.0	<40.0	50.2	67.6	67.3	67.2	67.2	67.1	67.1	67.1	67.0
18/F	84.64	<40.0	<40.0	50.2	67.7	67.3	67.3	67.2	67.2	67.1	67.1	67.1
17/F	81.32	<40.0	<40.0	50.3	67.7	67.4	67.3	67.2	67.2	67.2	67.2	67.2
16/F	78	<40.0	<40.0	50.4	67.8	67.4	67.3	67.3	67.2	67.2	67.3	67.3
15/F	74.85	<40.0	<40.0	50.5	67.9	67.5	67.4	67.3	67.3	67.3	67.3	67.3
14/F	71.7	<40.0	<40.0	50.6	67.9	67.5	67.4	67.4	67.4	67.3	67.4	67.4
13/F	68.55	<40.0	<40.0	50.7	68.0	67.6	67.5	67.5	67.4	67.4	67.4	67.5
12/F	65.4	<40.0	<40.0	50.8	68.1	67.7	67.6	67.6	67.5	67.5	67.5	67.6
11/F	62.25	<40.0	<40.0	50.9	68.2	67.8	67.8	67.7	67.7	67.6	67.6	67.6
10/F	59.1	<40.0	<40.0	51.0	68.3	68.0	67.9	67.8	67.8	67.8	67.7	67.7
9/F	55.95	<40.0	<40.0	51.0	68.4	68.1	68.0	68.0	67.9	67.9	67.9	67.9
8/F	52.8	<40.0	<40.0	51.0	68.6	68.3	68.2	68.1	68.1	68.1	68.0	68.0
7/F	49.65	<40.0	<40.0	51.1	68.7	68.4	68.3	68.3	68.3	68.2	68.2	68.2
6/F	46.5	<40.0	<40.0	51.6	68.9	68.6	68.5	68.5	68.4	68.4	68.4	68.4
5/F	43.35	<40.0	<40.0	51.7	69.2	68.8	68.7	68.7	68.6	68.6	68.6	68.6
4/F	40.2	<40.0	<40.0	51.9	69.7	69.4	69.3	69.2	69.2	69.2	69.2	69.3
3/F	37.05	<40.0	<40.0	52.0	70.1	69.7	69.7	69.6	69.6	69.7	69.7	69.7
2/F	33.9	<40.0	<40.0	52.1	70.3	70.0	69.9	69.8	69.9	69.9	69.9	70.0
1/F	30.75	<40.0	<40.0	51.9	70.4	70.0	69.9	69.9	70.0	70.0	70.0	70.0

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Base Scenario (L10, 1hr), dB(A)

Tower 2 (by assessment point)

NSR ID		T2-01-W1	T2-01-W2	T2-01-LB	T2-02-LB	T2-02-W1	T2-02-W2	T2-03-W1	T2-03-W2	T2-03-LB	T2-04-LB	T2-04-W1	T2-04-W2	T2-05-W1	T2-05-W2	T2-05-LB	T2-06-W1	T2-06-LB	T2-07-LB	T2-07-W1	T2-08-W1	T2-08-LB	T2-09-LB	T2-09-W1
Floor	mPD	L10, 1hr (dB(A))																						
25/F	107.88	49.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	42.2	48.7	52.4	52.1	51.4	51.6	53.1
24/F	104.56	48.9	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	42.0	48.6	52.4	52.0	51.2	51.6	53.0
23/F	101.24	48.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.9	48.6	52.3	51.8	51.1	51.5	53.0
22/F	97.92	48.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.8	48.6	52.3	51.7	50.9	51.5	53.0
21/F	94.60	48.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	52.2	51.5	50.7	51.5	53.0
20/F	91.28	48.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	52.1	51.3	50.6	51.5	53.0
19/F	87.96	48.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	51.9	51.1	50.5	51.6	52.9
18/F	84.64	48.7	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	51.7	50.9	50.4	51.6	52.9
17/F	81.32	48.7	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	51.5	50.6	50.3	51.6	52.8
16/F	78.00	48.6	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	51.3	50.3	50.3	51.6	52.7
15/F	74.85	48.4	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	50.8	50.0	50.3	51.6	52.6
14/F	71.70	48.4	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.6	48.5	50.5	49.7	50.3	51.6	52.5
13/F	68.55	48.2	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.6	48.4	50.2	49.4	50.4	51.5	52.3
12/F	65.40	48.1	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.6	48.2	49.8	49.3	50.4	51.4	52.1
11/F	62.25	47.9	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.4	47.9	49.4	49.2	50.4	51.3	51.9
10/F	59.10	47.7	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.2	47.5	49.2	49.2	50.4	51.3	51.8
9/F	55.95	47.4	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.9	46.8	49.1	49.3	50.5	51.3	52.1
8/F	52.80	47.1	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.3	46.2	48.9	49.1	50.7	51.3	51.6
7/F	49.65	46.5	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	45.3	48.4	48.9	50.1	50.8	51.3
6/F	46.50	45.5	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	43.8	46.9	47.6	49.1	49.7	50.2
5/F	43.35	43.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	44.3	45.0	47.0	48.1	48.7
4/F	40.20	42.4	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.0	42.1	42.4	44.2	45.5	46.7
3/F	37.05	40.6	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.6	40.8	42.0	42.9	44.1
2/F	33.90	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.4	41.1	42.0
1/F	30.75	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.4

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Base Scenario (L10, 1hr), dB(A)

Tower 2 (by assessment point)

NSR ID		T2-10-LB	T2-10-W1	T2-10-W2	T2-10-W3	T2-11-W1	T2-11-W2	T2-11-LB	T2-12-LB	T2-12-W1	T2-12-W2	T2-13-W1	T2-13-LB	T2-14-LB	T2-14-W1	T2-15-W1	T2-15-LB	T2-16-LB	T2-16-W1	T2-17-LB	T2-17-W1	T2-18-W1	T2-18-LB	T2-19-W1	T2-19-W2	T2-19-LB
Floor	mPD	L10, 1hr (dB(A))																								
25/F	107.88	53.4	53.6	53.7	53.5	65.5	65.7	65.9	66.2	66.4	66.6	66.8	67.0	67.2	67.4	67.5	67.7	67.8	68.0	68.1	68.2	68.3	68.4	68.4	68.5	68.5
24/F	104.56	53.4	53.6	53.7	53.5	65.5	65.7	66.0	66.2	66.5	66.7	66.9	67.1	67.3	67.5	67.6	67.8	67.9	68.1	68.2	68.4	68.4	68.5	68.6	68.7	68.7
23/F	101.24	53.4	53.6	53.7	53.5	65.6	65.8	66.0	66.3	66.5	66.7	66.9	67.2	67.4	67.6	67.7	67.9	68.0	68.2	68.3	68.5	68.5	68.6	68.7	68.8	68.9
22/F	97.92	53.4	53.6	53.7	53.5	65.6	65.8	66.1	66.3	66.6	66.8	67.0	67.2	67.4	67.7	67.8	68.0	68.1	68.3	68.4	68.6	68.6	68.8	68.8	68.9	69.0
21/F	94.60	53.4	53.6	53.7	53.5	65.7	65.9	66.2	66.4	66.7	66.8	67.0	67.3	67.5	67.8	67.9	68.1	68.2	68.4	68.5	68.7	68.8	68.9	69.0	69.1	69.2
20/F	91.28	53.4	53.6	53.7	53.5	65.8	66.0	66.2	66.5	66.7	66.9	67.1	67.4	67.6	67.8	68.0	68.2	68.3	68.5	68.7	68.8	68.9	69.0	69.1	69.2	69.3
19/F	87.96	53.4	53.6	53.7	53.5	65.9	66.1	66.3	66.6	66.8	67.0	67.2	67.4	67.6	67.9	68.1	68.3	68.4	68.6	68.8	68.9	69.0	69.1	69.3	69.3	69.5
18/F	84.64	53.4	53.6	53.6	53.4	65.9	66.1	66.4	66.7	66.9	67.1	67.3	67.5	67.7	68.0	68.1	68.4	68.5	68.7	68.9	69.0	69.1	69.3	69.4	69.5	69.6
17/F	81.32	53.3	53.5	53.6	53.4	66.0	66.2	66.5	66.8	67.0	67.2	67.4	67.6	67.8	68.1	68.2	68.4	68.6	68.8	69.0	69.2	69.3	69.4	69.5	69.6	69.8
16/F	78.00	53.2	53.4	53.5	53.3	66.2	66.4	66.6	66.9	67.1	67.3	67.5	67.7	67.9	68.2	68.3	68.5	68.7	68.9	69.1	69.3	69.4	69.6	69.7	69.8	69.9
15/F	74.85	53.1	53.3	53.4	53.2	66.3	66.5	66.7	67.0	67.2	67.4	67.6	67.8	68.0	68.3	68.4	68.6	68.8	69.0	69.2	69.4	69.5	69.7	69.8	70.0	70.1
14/F	71.70	53.0	53.2	53.2	53.0	66.4	66.6	66.9	67.1	67.4	67.5	67.7	68.0	68.2	68.4	68.5	68.7	68.9	69.1	69.3	69.5	69.6	69.8	70.0	70.1	70.2
13/F	68.55	52.8	53.0	53.0	52.8	66.5	66.7	67.0	67.2	67.5	67.7	67.9	68.1	68.3	68.5	68.6	68.8	69.0	69.2	69.4	69.6	69.8	70.0	70.1	70.3	70.4
12/F	65.40	52.6	52.8	52.8	52.5	66.6	66.8	67.1	67.4	67.6	67.8	68.0	68.2	68.4	68.6	68.8	69.0	69.1	69.3	69.5	69.7	69.9	70.1	70.3	70.4	**70.6**
11/F	62.25	52.4	52.6	52.5	52.3	66.7	66.9	67.2	67.5	67.8	67.9	68.1	68.4	68.6	68.8	68.9	69.1	69.3	69.5	69.7	69.9	70.0	70.2	70.4	**70.6**	**70.8**
10/F	59.10	52.4	52.4	52.5	52.3	66.9	67.1	67.4	67.6	67.9	68.1	68.3	68.5	68.7	68.9	69.1	69.3	69.4	69.6	69.9	70.1	70.2	70.4	**70.6**	**70.8**	**71.0**
9/F	55.95	52.5	52.3	52.2	52.0	67.0	67.2	67.5	67.8	68.0	68.2	68.4	68.7	68.9	69.1	69.2	69.4	69.6	69.8	70.0	70.2	70.4	**70.6**	**70.8**	**71.0**	**71.2**
8/F	52.80	52.1	52.1	51.9	51.8	67.1	67.3	67.6	67.9	68.2	68.4	68.6	68.8	69.0	69.2	69.4	69.6	69.8	70.0	70.2	70.4	**70.5**	**70.8**	**71.0**	**71.2**	**71.4**
7/F	49.65	51.5	51.6	51.3	51.2	67.3	67.5	67.8	68.1	68.4	68.5	68.7	69.0	69.2	69.4	69.5	69.7	69.9	70.1	70.4	**70.6**	**70.7**	**71.0**	**71.2**	**71.4**	**71.6**
6/F	46.50	50.7	50.8	50.6	50.4	67.5	67.7	68.0	68.3	68.6	68.8	69.0	69.2	69.4	69.6	69.7	69.9	70.1	70.3	**70.6**	**70.8**	**70.9**	**71.2**	**71.4**	**71.6**	**71.8**
5/F	43.35	49.6	49.7	49.8	49.5	67.7	67.9	68.3	68.5	68.8	69.0	69.2	69.4	69.6	69.8	69.9	70.2	70.3	**70.6**	**70.7**	**71.0**	**71.1**	**71.4**	**71.6**	**71.8**	**72.1**
4/F	40.20	48.1	48.4	48.4	48.6	67.8	68.1	68.4	68.7	69.0	69.2	69.4	69.7	69.9	70.1	70.3	70.4	**70.6**	**70.8**	**71.0**	**71.3**	**71.4**	**71.7**	**71.9**	**72.1**	**72.4**
3/F	37.05	45.9	46.5	46.9	47.0	68.0	68.2	68.6	68.8	69.1	69.3	69.6	69.8	70.0	70.3	70.4	**70.6**	**70.8**	**71.1**	**71.3**	**71.6**	**71.7**	**72.0**	**72.2**	**72.4**	**72.7**
2/F	33.90	43.4	44.5	44.9	45.4	68.1	68.4	68.7	69.0	69.3	69.5	69.7	70.0	70.2	70.4	**70.6**	**70.8**	**71.0**	**71.3**	**71.5**	**71.8**	**71.9**	**72.2**	**72.5**	**72.7**	**73.0**
1/F	30.75	41.4	42.1	42.8	43.4	68.3	68.5	68.9	69.2	69.5	69.7	69.9	70.1	70.3	**70.6**	**70.7**	**71.0**	**71.2**	**71.5**	**71.7**	**72.0**	**72.2**	**72.5**	**72.7**	**73.0**	**73.3**

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Base Scenario (L10, 1hr), dB(A)

Tower 2 (by assessment point)

NSR ID		T2-20-LB	T2-20-W1	T2-20-W2	T2-20-W3	T2-21-LB	T2-21-W1	T2-21-W2	T2-22-W1	T2-22-LB	T2-23-W1	T2-23-W2	T2-23-LB	T2-24-LB	T2-24-W1	T2-24-W2	T2-25-W1	T2-25-W2	T2-25-LB	T2-26-LB	T2-26-W1	T2-27-LB	T2-27-W1	T2-27-W2
Floor	mPD	L10, 1hr (dB(A))																						
25/F	107.88	68.6	68.7	68.8	69.1	68.1	68.5	68.7	63.1	65.4	66.3	66.8	67.3	67.6	67.9	68.3	67.5	67.5	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
24/F	104.56	68.8	68.9	69.0	69.3	68.2	68.6	68.8	63.1	65.5	66.3	66.9	67.4	67.7	68.0	68.4	67.6	67.6	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
23/F	101.24	69.0	69.0	69.2	69.5	68.3	68.7	68.9	63.1	65.5	66.4	67.0	67.5	67.8	68.1	68.5	67.6	67.6	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
22/F	97.92	69.1	69.3	69.4	69.7	68.5	68.9	69.0	63.2	65.6	66.5	67.0	67.6	67.9	68.2	68.6	67.7	67.7	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
21/F	94.60	69.3	69.4	69.5	69.8	68.6	69.0	69.1	63.2	65.7	66.6	67.1	67.7	68.0	68.3	68.7	67.8	67.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
20/F	91.28	69.4	69.5	69.7	69.9	68.7	69.1	69.2	63.3	65.8	66.7	67.2	67.8	68.1	68.4	68.8	67.9	67.9	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
19/F	87.96	69.6	69.7	69.8	70.1	68.8	69.2	69.4	63.3	65.8	66.8	67.3	67.9	68.2	68.5	68.9	68.0	67.9	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
18/F	84.64	69.7	69.8	70.0	70.2	68.9	69.3	69.5	63.4	65.9	66.9	67.4	68.0	68.3	68.6	69.0	68.0	68.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
17/F	81.32	69.9	70.0	70.1	70.4	69.1	69.5	69.6	63.4	66.0	67.0	67.5	68.1	68.4	68.7	69.1	68.1	68.1	68.1	<40.0	<40.0	<40.0	<40.0	<40.0
16/F	78.00	70.0	70.2	70.3	**70.6**	69.2	69.6	69.8	63.5	66.1	67.1	67.6	68.2	68.5	68.8	69.2	68.2	68.2	68.2	<40.0	<40.0	<40.0	<40.0	<40.0
15/F	74.85	70.2	70.3	**70.5**	**70.7**	69.4	69.8	69.9	63.5	66.2	67.2	67.7	68.3	68.6	68.9	69.3	68.3	68.3	68.3	68.2	68.2	68.1	68.1	68.1
14/F	71.70	70.4	**70.5**	**70.6**	**70.9**	69.5	69.9	70.1	63.6	66.3	67.3	67.9	68.4	68.7	69.0	69.4	68.4	68.4	68.4	68.3	68.3	68.2	68.2	68.2
13/F	68.55	**70.5**	**70.7**	**70.8**	**71.1**	69.7	70.1	70.2	63.6	66.4	67.4	68.0	68.5	68.8	69.1	69.5	68.5	68.5	68.4	68.4	68.4	68.3	68.3	68.2
12/F	65.40	**70.7**	**70.9**	**71.0**	**71.3**	69.8	70.2	70.4	63.7	66.5	67.5	68.1	68.7	68.9	69.2	69.6	68.6	68.6	68.5	68.5	68.5	68.4	68.3	68.3
11/F	62.25	**70.9**	**71.1**	**71.2**	**71.5**	70.0	70.4	**70.6**	63.8	66.7	67.7	68.2	68.8	69.1	69.3	69.7	68.7	68.7	68.6	68.6	68.5	68.4	68.4	68.4
10/F	59.10	**71.1**	**71.3**	**71.4**	**71.7**	70.2	**70.6**	**70.7**	63.8	66.7	67.8	68.3	68.9	69.2	69.5	69.9	68.8	68.8	68.7	68.7	68.6	68.5	68.5	68.4
9/F	55.95	**71.3**	**71.5**	**71.6**	**72.0**	70.4	**70.8**	**71.0**	63.7	66.8	67.8	68.4	69.0	69.3	69.6	70.0	68.9	68.9	68.8	68.8	68.7	68.6	68.6	68.5
8/F	52.80	**71.5**	**71.7**	**71.9**	**72.2**	**70.6**	**71.0**	**71.2**	63.6	66.8	67.9	68.5	69.1	69.5	69.7	70.2	69.0	68.9	68.9	68.8	68.8	68.7	68.7	68.7
7/F	49.65	**71.8**	**72.0**	**72.1**	**72.4**	**70.8**	**71.2**	**71.4**	63.4	66.9	68.1	68.7	69.3	69.6	69.9	70.3	69.1	69.0	69.0	69.0	68.9	68.9	68.8	68.8
6/F	46.50	**72.0**	**72.2**	**72.4**	**72.8**	**71.2**	**71.5**	**71.6**	62.8	66.7	68.0	68.7	69.4	69.8	70.1	**70.5**	69.3	69.3	69.2	69.2	69.1	69.0	69.0	69.0
5/F	43.35	**72.3**	**72.5**	**72.7**	**73.1**	**71.5**	**71.8**	**72.0**	62.0	66.2	67.7	68.6	69.5	69.9	70.2	**70.7**	69.5	69.5	69.4	69.4	69.3	69.3	69.2	69.2
4/F	40.20	**72.6**	**72.8**	**73.0**	**73.4**	**71.7**	**72.1**	**72.3**	60.6	65.5	67.2	68.2	69.3	69.9	70.4	**70.9**	69.8	69.8	69.7	69.7	69.7	69.6	69.6	69.6
3/F	37.05	**72.9**	**73.1**	**73.3**	**73.7**	**71.9**	**72.4**	**72.5**	58.7	64.4	66.3	67.4	68.6	69.7	**70.5**	**71.2**	70.1	70.1	70.0	70.0	70.0	69.9	69.9	69.9
2/F	33.90	**73.3**	**73.5**	**73.6**	**74.0**	**72.0**	**72.6**	**72.8**	57.1	63.3	65.0	65.8	67.2	68.8	70.4	**71.4**	70.3	70.3	70.3	70.2	70.2	70.0	70.0	70.0
1/F	30.75	**73.6**	**73.8**	**74.0**	**74.5**	**71.2**	**72.5**	**73.1**	56.0	61.9	63.0	63.5	64.4	66.0	69.4	**71.6**	70.3	70.3	70.2	70.2	70.1	69.7	69.7	69.7

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Base Scenario (L10, 1hr), dB(A)

Tower 2 (by flat)

NSR ID		T2-01	T2-02	T2-03	T2-04	T2-05	T2-06	T2-07	T2-08	T2-09
Floor	mPD	L10, 1hr (dB(A))								
25/F	107.88	49.0	<40.0	<40.0	<40.0	<40.0	42.2	52.4	52.1	53.1

NSR ID		T2-01	T2-02	T2-03	T2-04	T2-05	T2-06	T2-07	T2-08	T2-09
Floor	mPD	L10, 1hr (dB(A))								
24/F	104.56	48.9	<40.0	<40.0	<40.0	<40.0	42.0	52.4	52.0	53.0
23/F	101.24	48.8	<40.0	<40.0	<40.0	<40.0	41.9	52.3	51.8	53.0
22/F	97.92	48.8	<40.0	<40.0	<40.0	<40.0	41.8	52.3	51.7	53.0
21/F	94.60	48.8	<40.0	<40.0	<40.0	<40.0	41.7	52.2	51.5	53.0
20/F	91.28	48.8	<40.0	<40.0	<40.0	<40.0	41.7	52.1	51.3	53.0
19/F	87.96	48.8	<40.0	<40.0	<40.0	<40.0	41.7	51.9	51.1	52.9
18/F	84.64	48.7	<40.0	<40.0	<40.0	<40.0	41.7	51.7	50.9	52.9
17/F	81.32	48.7	<40.0	<40.0	<40.0	<40.0	41.7	51.5	50.6	52.8
16/F	78.00	48.6	<40.0	<40.0	<40.0	<40.0	41.7	51.3	50.3	52.7
15/F	74.85	48.4	<40.0	<40.0	<40.0	<40.0	41.7	50.8	50.3	52.6
14/F	71.70	48.4	<40.0	<40.0	<40.0	<40.0	41.6	50.5	50.3	52.5
13/F	68.55	48.2	<40.0	<40.0	<40.0	<40.0	41.6	50.2	50.4	52.3
12/F	65.40	48.1	<40.0	<40.0	<40.0	<40.0	41.6	49.8	50.4	52.1
11/F	62.25	47.9	<40.0	<40.0	<40.0	<40.0	41.4	49.4	50.4	51.9
10/F	59.10	47.7	<40.0	<40.0	<40.0	<40.0	41.2	49.2	50.4	51.8
9/F	55.95	47.4	<40.0	<40.0	<40.0	<40.0	40.9	49.1	50.5	52.1
8/F	52.80	47.1	<40.0	<40.0	<40.0	<40.0	40.3	48.9	50.7	51.6
7/F	49.65	46.5	<40.0	<40.0	<40.0	<40.0	<40.0	48.4	50.1	51.3
6/F	46.50	45.5	<40.0	<40.0	<40.0	<40.0	<40.0	46.9	49.1	50.2
5/F	43.35	43.8	<40.0	<40.0	<40.0	<40.0	<40.0	44.3	47.0	48.7
4/F	40.20	42.4	<40.0	<40.0	<40.0	<40.0	<40.0	42.1	44.2	46.7
3/F	37.05	40.6	<40.0	<40.0	<40.0	<40.0	<40.0	40.6	42.0	44.1
2/F	33.90	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.4	42.0
1/F	30.75	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.4

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Base Scenario (L10, 1hr), dB(A)

Tower 2 (by flat)

NSR ID		T2-10	T2-11	T2-12	T2-13		T2-15		T2-17		T2-19
Floor	mPD	L10, 1hr (dB(A))									
25/F	107.88	53.7	65.9	66.6	67.4		68.0		68.4		68.5

NSR ID		T2-10	T2-11	T2-12	T2-13	T2-14	T2-15	T2-16	T2-17	T2-18	T2-19
Floor	mPD	L10, 1hr (dB(A))									
24/F	104.56	53.7	66.0	66.7	67.1	67.5	67.8	68.1	68.4	68.5	68.7
23/F	101.24	53.7	66.0	66.7	67.2	67.6	67.9	68.2	68.5	68.6	68.9
22/F	97.92	53.7	66.1	66.8	67.2	67.7	68.0	68.3	68.6	68.8	69.0
21/F	94.60	53.7	66.2	66.8	67.3	67.8	68.1	68.4	68.7	68.9	69.2
20/F	91.28	53.7	66.2	66.9	67.4	67.8	68.2	68.5	68.8	69.0	69.3
19/F	87.96	53.7	66.3	67.0	67.4	67.9	68.3	68.6	68.9	69.1	69.5
18/F	84.64	53.6	66.4	67.1	67.5	68.0	68.4	68.7	69.0	69.3	69.6
17/F	81.32	53.6	66.5	67.2	67.6	68.1	68.4	68.8	69.2	69.4	69.8
16/F	78.00	53.5	66.6	67.3	67.7	68.2	68.5	68.9	69.3	69.6	69.9
15/F	74.85	53.4	66.7	67.4	67.8	68.3	68.6	69.0	69.4	69.7	70.1
14/F	71.70	53.2	66.9	67.5	68.0	68.4	68.7	69.1	69.5	69.8	70.2
13/F	68.55	53.0	67.0	67.7	68.1	68.5	68.8	69.2	69.6	70.0	70.4
12/F	65.40	52.8	67.1	67.8	68.2	68.6	69.0	69.3	69.7	70.1	**70.6**
11/F	62.25	52.6	67.2	67.9	68.4	68.8	69.1	69.5	69.9	70.2	**70.8**
10/F	59.10	52.5	67.4	68.1	68.5	68.9	69.3	69.6	70.1	70.4	**71.0**
9/F	55.95	52.5	67.5	68.2	68.7	69.1	69.4	69.8	70.2	**70.6**	**71.2**
8/F	52.80	52.1	67.6	68.4	68.8	69.2	69.6	70.0	70.4	**70.8**	**71.4**
7/F	49.65	51.6	67.8	68.5	69.0	69.4	69.7	70.1	**70.6**	**71.0**	**71.6**
6/F	46.50	50.8	68.0	68.8	69.2	69.6	69.9	70.3	**70.8**	**71.2**	**71.8**
5/F	43.35	49.8	68.3	69.0	69.4	69.8	70.2	**70.6**	**71.0**	**71.4**	**72.1**
4/F	40.20	48.6	68.4	69.2	69.7	70.1	70.4	**70.8**	**71.3**	**71.7**	**72.4**
3/F	37.05	47.0	68.6	69.3	69.8	70.3	**70.6**	**71.1**	**71.6**	**72.0**	**72.7**
2/F	33.90	45.4	68.7	69.5	70.0	70.4	**70.8**	**71.3**	**71.8**	**72.2**	**73.0**
1/F	30.75	43.4	68.9	69.7	70.1	**70.6**	**71.0**	**71.5**	**72.0**	**72.5**	**73.3**

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Base Scenario (L10, 1hr), dB(A)

Tower 2 (by flat)

NSR ID		T2-20	T2-21	T2-22		T2-24	T2-25	T2-26	T2-27
Floor	mPD	L10, 1hr (dB(A))							
25/F	107.88	69.1	68.7	67.3		68.3	67.5	<40.0	<40.0

NSR ID		T2-20	T2-21	T2-22	T2-23	T2-24	T2-25	T2-26	T2-27
Floor	mPD	L10, 1hr (dB(A))							
24/F	104.56	69.3	68.8	65.5	67.4	68.4	67.6	<40.0	<40.0
23/F	101.24	69.5	68.9	65.5	67.5	68.5	67.6	<40.0	<40.0
22/F	97.92	69.7	69.0	65.6	67.6	68.6	67.7	<40.0	<40.0
21/F	94.60	69.8	69.1	65.7	67.7	68.7	67.8	<40.0	<40.0
20/F	91.28	69.9	69.2	65.8	67.8	68.8	67.9	<40.0	<40.0
19/F	87.96	70.1	69.4	65.8	67.9	68.9	68.0	<40.0	<40.0
18/F	84.64	70.2	69.5	65.9	68.0	69.0	68.0	<40.0	<40.0
17/F	81.32	70.4	69.6	66.0	68.1	69.1	68.1	<40.0	<40.0
16/F	78.00	**70.6**	69.8	66.1	68.2	69.2	68.2	<40.0	<40.0
15/F	74.85	**70.7**	69.9	66.2	68.3	69.3	68.3	68.2	68.1
14/F	71.70	**70.9**	70.1	66.3	68.4	69.4	68.4	68.3	68.2
13/F	68.55	**71.1**	70.2	66.4	68.5	69.5	68.5	68.4	68.3
12/F	65.40	**71.3**	70.4	66.5	68.7	69.6	68.6	68.5	68.4
11/F	62.25	**71.5**	**70.6**	66.7	68.8	69.7	68.7	68.6	68.4
10/F	59.10	**71.7**	**70.7**	66.7	68.9	69.9	68.8	68.7	68.5
9/F	55.95	**72.0**	**71.0**	66.8	69.0	70.0	68.9	68.8	68.6
8/F	52.80	**72.2**	**71.2**	66.8	69.1	70.2	69.0	68.8	68.7
7/F	49.65	**72.4**	**71.4**	66.9	69.3	70.3	69.1	69.0	68.9
6/F	46.50	**72.8**	**71.6**	66.7	69.4	**70.5**	69.3	69.2	69.0
5/F	43.35	**73.1**	**72.0**	66.2	69.5	**70.7**	69.5	69.4	69.3
4/F	40.20	**73.4**	**72.3**	65.5	69.3	**70.9**	69.8	69.7	69.6
3/F	37.05	**73.7**	**72.5**	64.4	68.6	**71.2**	70.1	70.0	69.9
2/F	33.90	**74.0**	**72.8**	63.3	67.2	**71.4**	70.3	70.2	70.0
1/F	30.75	**74.5**	**73.1**	61.9	64.4	**71.6**	70.3	70.2	69.7

Bold underlined: Predicted Noise Exceedance

APPENDIX 5-4
PROPOSED MITIGATION MEASURES & TRAFFIC NOISE ASSESSMENT RESULTS (MITIGATED SCENARIO - WITH ACOUSTIC WINDOWS AND ACOUSTIC BALCONIES)

Proposed Mitigation Measures

Tower 2 (by assessment point)

NSR ID		T2-01-W1	T2-01-W2	T2-01-LB	T2-02-LB	T2-02-W1	T2-02-W2	T2-03-W1	T2-03-W2	T2-03-LB	T2-04-LB	T2-04-W1	T2-04-W2	T2-05-W1	T2-05-W2	T2-05-LB	T2-06-W1	T2-06-LB	T2-07-LB	T2-07-W1	T2-08-W1	T2-08-LB	T2-09-LB	T2-09-W1
Floor	mPD	L10, 1hr (dB(A))																						
25/F	107.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24/F	104.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23/F	101.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22/F	97.92	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21/F	94.60	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20/F	91.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19/F	87.96	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18/F	84.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/F	81.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/F	78.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15/F	74.85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/F	71.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/F	68.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/F	65.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/F	62.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/F	59.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/F	55.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/F	52.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/F	49.65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/F	46.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/F	43.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/F	40.20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/F	37.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/F	33.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/F	30.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

ID	Description	Correction
--	No Mitigation Measure	0 dB(A)
AW	Acoustic Window	-6.0 dB(A)
AB	Acoustic Balcony	-2.5 dB(A)

Proposed Mitigation Measures

Tower 2 (by assessment point)

NSR ID		T2-10-LB	T2-10-W1	T2-10-W2	T2-10-W3	T2-11-W1	T2-11-W2	T2-11-LB	T2-12-LB	T2-12-W1	T2-12-W2	T2-13-W1	T2-13-LB	T2-14-LB	T2-14-W1	T2-15-W1	T2-15-LB	T2-16-LB	T2-16-W1	T2-17-LB	T2-17-W1	T2-18-W1	T2-18-LB	T2-19-W1	T2-19-W2	T2-19-LB
Floor	mPD	L10, 1hr (dB(A))																								
25/F	107.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24/F	104.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23/F	101.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22/F	97.92	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21/F	94.60	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20/F	91.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19/F	87.96	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18/F	84.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/F	81.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/F	78.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15/F	74.85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/F	71.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/F	68.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/F	65.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	AB
11/F	62.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	AW	AB
10/F	59.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	AW	AW	AB
9/F	55.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	AB	AW	AW	AB
8/F	52.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	AW	AB	AB	AW	AW	AB
7/F	49.65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	AW	AW	AB	AB	AW	AW	AB
6/F	46.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	AB	AW	AW	AB	AB	AW	AW	AB
5/F	43.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	AW	AB	AW	AW	AB	AB	AW	AW	AB
4/F	40.20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	AB	AW	AB	AW	AW	AB	AB	AW	AW	AB
3/F	37.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	AB	AB	AW	AB	AW	AW	AB	AB	AW	AW	AB
2/F	33.90	--	--	--	--	--	--	--	--	--	--	--	--	--	AW	AB	AB	AW	AB	AW	AW	AB	AB	AW	AW	AB
1/F	30.75	--	--	--	--	--	--	--	--	--	--	--	--	--	AW	AB	AB	AW	AB	AW	AW	AB	AB	AW	AW	AB

ID	Description	Correction
--	No Mitigation Measure	0 dB(A)
AW	Acoustic Window	-6.0 dB(A)
AB	Acoustic Balcony	-2.5 dB(A)

Proposed Mitigation Measures

Tower 2 (by assessment point)

NSR ID		T2-20-LB	T2-20-W1	T2-20-W2	T2-20-W3	T2-21-LB	T2-21-W1	T2-21-W2	T2-22-W1	T2-22-LB	T2-23-W1	T2-23-W2	T2-23-LB	T2-24-LB	T2-24-W1	T2-24-W2	T2-25-W1	T2-25-W2	T2-25-LB	T2-26-LB	T2-26-W1	T2-27-LB	T2-27-W1	T2-27-W2
Floor	mPD	L10, 1hr (dB(A))																						
25/F	107.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24/F	104.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23/F	101.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22/F	97.92	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21/F	94.60	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20/F	91.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19/F	87.96	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18/F	84.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/F	81.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/F	78.00	--	--	--	AW	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15/F	74.85	--	--	AW	AW	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/F	71.70	--	AW	AW	AW	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/F	68.55	AB	AW	AW	AW	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/F	65.40	AB	AW	AW	AW	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/F	62.25	AB	AW	AW	AW	--	--	AW	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/F	59.10	AB	AW	AW	AW	--	AW	AW	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/F	55.95	AB	AW	AW	AW	--	AW	AW	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/F	52.80	AB	AW	AW	AW	AB	AW	AW	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/F	49.65	AB	AW	AW	AW	AB	AW	AW	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/F	46.50	AB	AW	AW	AW	AB	AW	AW	--	--	--	--	--	--	--	AW	--	--	--	--	--	--	--	--
5/F	43.35	AB	AW	AW	AW	AB	AW	AW	--	--	--	--	--	--	--	AW	--	--	--	--	--	--	--	--
4/F	40.20	AB	AW	AW	AW	AB	AW	AW	--	--	--	--	--	--	--	AW	--	--	--	--	--	--	--	--
3/F	37.05	AB	AW	AW	AW	AB	AW	AW	--	--	--	--	--	--	AW	AW	--	--	--	--	--	--	--	--
2/F	33.90	AB	AW	AW	AW	AB	AW	AW	--	--	--	--	--	--	--	AW	--	--	--	--	--	--	--	--
1/F	30.75	AB	AW	AW	AW	AB	AW	AW	--	--	--	--	--	--	--	AW	--	--	--	--	--	--	--	--

ID	Description	Correction
--	No Mitigation Measure	0 dB(A)
AW	Acoustic Window	-6.0 dB(A)
AB	Acoustic Balcony	-2.5 dB(A)

Predicted Traffic Noise Level - Tower 2 in Mitigated Scenario (L10, 1hr), dB(A)

Tower 2 (by assessment point)

NSR ID		T2-01-W1	T2-01-W2	T2-01-LB	T2-02-LB	T2-02-W1	T2-02-W2	T2-03-W1	T2-03-W2	T2-03-LB	T2-04-LB	T2-04-W1	T2-04-W2	T2-05-W1	T2-05-W2	T2-05-LB	T2-06-W1	T2-06-LB	T2-07-LB	T2-07-W1	T2-08-W1	T2-08-LB	T2-09-LB	T2-09-W1
Floor	mPD	L10, 1hr (dB(A))																						
25/F	107.88	49.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	42.2	48.7	52.4	52.1	51.4	51.6	53.1
24/F	104.56	48.9	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	42.0	48.6	52.4	52.0	51.2	51.6	53.0
23/F	101.24	48.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.9	48.6	52.3	51.8	51.1	51.5	53.0
22/F	97.92	48.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.8	48.6	52.3	51.7	50.9	51.5	53.0
21/F	94.60	48.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	52.2	51.5	50.7	51.5	53.0
20/F	91.28	48.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	52.1	51.3	50.6	51.5	53.0
19/F	87.96	48.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	51.9	51.1	50.5	51.6	52.9
18/F	84.64	48.7	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	51.7	50.9	50.4	51.6	52.9
17/F	81.32	48.7	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	51.5	50.6	50.3	51.6	52.8
16/F	78.00	48.6	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	51.3	50.3	50.3	51.6	52.7
15/F	74.85	48.4	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	48.6	50.8	50.0	50.3	51.6	52.6
14/F	71.70	48.4	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.6	48.5	50.5	49.7	50.3	51.6	52.5
13/F	68.55	48.2	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.6	48.4	50.2	49.4	50.4	51.5	52.3
12/F	65.40	48.1	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.6	48.2	49.8	49.3	50.4	51.4	52.1
11/F	62.25	47.9	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.4	47.9	49.4	49.2	50.4	51.3	51.9
10/F	59.10	47.7	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.2	47.5	49.2	49.2	50.4	51.3	51.8
9/F	55.95	47.4	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.9	46.8	49.1	49.3	50.5	51.3	52.1
8/F	52.80	47.1	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.3	46.2	48.9	49.1	50.7	51.3	51.6
7/F	49.65	46.5	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	45.3	48.4	48.9	50.1	50.8	51.3
6/F	46.50	45.5	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	43.8	46.9	47.6	49.1	49.7	50.2
5/F	43.35	43.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	41.7	44.3	45.0	47.0	48.1	48.7
4/F	40.20	42.4	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.0	42.1	42.4	44.2	45.5	46.7
3/F	37.05	40.6	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.6	40.8	42.0	42.9	44.1
2/F	33.90	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.4	41.1	42.0
1/F	30.75	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.4

ID	Description	Correction
AW	Acoustic Window	-6.0 dB(A)
AB	Acoustic Balcony	-2.5 dB(A)

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Mitigated Scenario (L10, 1hr), dB(A)

Tower 2 (by assessment point)

NSR ID		T2-10-LB	T2-10-W1	T2-10-W2	T2-10-W3	T2-11-W1	T2-11-W2	T2-11-LB	T2-12-LB	T2-12-W1	T2-12-W2	T2-13-W1	T2-13-LB	T2-14-LB	T2-14-W1	T2-15-W1	T2-15-LB	T2-16-LB	T2-16-W1	T2-17-LB	T2-17-W1	T2-18-W1	T2-18-LB	T2-19-W1	T2-19-W2	T2-19-LB
Floor	mPD	L10, 1hr (dB(A))																								
25/F	107.88	53.4	53.6	53.7	53.5	65.5	65.7	65.9	66.2	66.4	66.6	66.8	67.0	67.2	67.4	67.5	67.7	67.8	68.0	68.1	68.2	68.3	68.4	68.4	68.5	68.5
24/F	104.56	53.4	53.6	53.7	53.5	65.5	65.7	66.0	66.2	66.5	66.7	66.9	67.1	67.3	67.5	67.6	67.8	67.9	68.1	68.2	68.4	68.4	68.5	68.6	68.7	68.7
23/F	101.24	53.4	53.6	53.7	53.5	65.6	65.8	66.0	66.3	66.5	66.7	66.9	67.2	67.4	67.6	67.7	67.9	68.0	68.2	68.3	68.5	68.5	68.6	68.7	68.8	68.9
22/F	97.92	53.4	53.6	53.7	53.5	65.6	65.8	66.1	66.3	66.6	66.8	67.0	67.2	67.4	67.7	67.8	68.0	68.1	68.3	68.4	68.6	68.6	68.8	68.8	68.9	69.0
21/F	94.60	53.4	53.6	53.7	53.5	65.7	65.9	66.2	66.4	66.7	66.8	67.0	67.3	67.5	67.8	67.9	68.1	68.2	68.4	68.5	68.7	68.8	68.9	69.0	69.1	69.2
20/F	91.28	53.4	53.6	53.7	53.5	65.8	66.0	66.2	66.5	66.7	66.9	67.1	67.4	67.6	67.8	68.0	68.2	68.3	68.5	68.7	68.8	68.9	69.0	69.1	69.2	69.3
19/F	87.96	53.4	53.6	53.7	53.5	65.9	66.1	66.3	66.6	66.8	67.0	67.2	67.4	67.6	67.9	68.1	68.3	68.4	68.6	68.8	68.9	69.0	69.1	69.3	69.3	69.5
18/F	84.64	53.4	53.6	53.6	53.4	65.9	66.1	66.4	66.7	66.9	67.1	67.3	67.5	67.7	68.0	68.1	68.4	68.5	68.7	68.9	69.0	69.1	69.3	69.4	69.5	69.6
17/F	81.32	53.3	53.5	53.6	53.4	66.0	66.2	66.5	66.8	67.0	67.2	67.4	67.6	67.8	68.1	68.2	68.4	68.6	68.8	69.0	69.2	69.3	69.4	69.5	69.6	69.8
16/F	78.00	53.2	53.4	53.5	53.3	66.2	66.4	66.6	66.9	67.1	67.3	67.5	67.7	67.9	68.2	68.3	68.5	68.7	68.9	69.1	69.3	69.4	69.6	69.7	69.8	69.9
15/F	74.85	53.1	53.3	53.4	53.2	66.3	66.5	66.7	67.0	67.2	67.4	67.6	67.8	68.0	68.3	68.4	68.6	68.8	69.0	69.2	69.4	69.5	69.7	69.8	70.0	70.1
14/F	71.70	53.0	53.2	53.2	53.0	66.4	66.6	66.9	67.1	67.4	67.5	67.7	68.0	68.2	68.4	68.5	68.7	68.9	69.1	69.3	69.5	69.6	69.8	70.0	70.1	70.2
13/F	68.55	52.8	53.0	53.0	52.8	66.5	66.7	67.0	67.2	67.5	67.7	67.9	68.1	68.3	68.5	68.6	68.8	69.0	69.2	69.4	69.6	69.8	70.0	70.1	70.3	70.4
12/F	65.40	52.6	52.8	52.8	52.5	66.6	66.8	67.1	67.4	67.6	67.8	68.0	68.2	68.4	68.6	68.8	69.0	69.1	69.3	69.5	69.7	69.9	70.1	70.3	70.4	68.1
11/F	62.25	52.4	52.6	52.5	52.3	66.7	66.9	67.2	67.5	67.8	67.9	68.1	68.4	68.6	68.8	68.9	69.1	69.3	69.5	69.7	69.9	70.0	70.2	70.4	64.6	68.3
10/F	59.10	52.4	52.4	52.5	52.3	66.9	67.1	67.4	67.6	67.9	68.1	68.3	68.5	68.7	68.9	69.1	69.3	69.4	69.6	69.9	70.1	70.2	70.4	64.6	64.8	68.5
9/F	55.95	52.5	52.3	52.2	52.0	67.0	67.2	67.5	67.8	68.0	68.2	68.4	68.7	68.9	69.1	69.2	69.4	69.6	69.8	70.0	70.2	70.4	68.1	64.8	65.0	68.7
8/F	52.80	52.1	52.1	51.9	51.8	67.1	67.3	67.6	67.9	68.2	68.4	68.6	68.8	69.0	69.2	69.4	69.6	69.8	70.0	70.2	70.4	64.5	68.3	65.0	65.2	68.9
7/F	49.65	51.5	51.6	51.3	51.2	67.3	67.5	67.8	68.1	68.4	68.5	68.7	69.0	69.2	69.4	69.5	69.7	69.9	70.1	70.4	64.6	64.7	68.5	65.2	65.4	69.1
6/F	46.50	50.7	50.8	50.6	50.4	67.5	67.7	68.0	68.3	68.6	68.8	69.0	69.2	69.4	69.6	69.7	69.9	70.1	70.3	68.1	64.8	64.9	68.7	65.4	65.6	69.3
5/F	43.35	49.6	49.7	49.8	49.5	67.7	67.9	68.3	68.5	68.8	69.0	69.2	69.4	69.6	69.8	69.9	70.2	70.3	64.6	68.2	65.0	65.1	68.9	65.6	65.8	69.6
4/F	40.20	48.1	48.4	48.4	48.6	67.8	68.1	68.4	68.7	69.0	69.2	69.4	69.7	69.9	70.1	70.3	70.4	68.1	64.8	68.5	65.3	65.4	69.2	65.9	66.1	69.9
3/F	37.05	45.9	46.5	46.9	47.0	68.0	68.2	68.6	68.8	69.1	69.3	69.6	69.8	70.0	70.3	70.4	68.1	68.3	65.1	68.8	65.6	65.7	69.5	66.2	66.4	70.2
2/F	33.90	43.4	44.5	44.9	45.4	68.1	68.4	68.7	69.0	69.3	69.5	69.7	70.0	70.2	70.4	64.6	68.3	68.5	65.3	69.0	65.8	65.9	69.7	66.5	66.7	**70.5**
1/F	30.75	41.4	42.1	42.8	43.4	68.3	68.5	68.9	69.2	69.5	69.7	69.9	70.1	70.3	64.6	64.7	68.5	68.7	65.5	69.2	66.0	66.2	70.0	66.7	67.0	**70.8**

ID	Description	Correction
AW	Acoustic Window	-6.0 dB(A)
AB	Acoustic Balcony	-2.5 dB(A)

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Mitigated Scenario (L10, 1hr), dB(A)

Tower 2 (by assessment point)

NSR ID		T2-20-LB	T2-20-W1	T2-20-W2	T2-20-W3	T2-21-LB	T2-21-W1	T2-21-W2	T2-22-W1	T2-22-LB	T2-23-W1	T2-23-W2	T2-23-LB	T2-24-LB	T2-24-W1	T2-24-W2	T2-25-W1	T2-25-W2	T2-25-LB	T2-26-LB	T2-26-W1	T2-27-LB	T2-27-W1	T2-27-W2
Floor	mPD	L10, 1hr (dB(A))																						
25/F	107.88	68.6	68.7	68.8	69.1	68.1	68.5	68.7	63.1	65.4	66.3	66.8	67.3	67.6	67.9	68.3	67.5	67.5	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
24/F	104.56	68.8	68.9	69.0	69.3	68.2	68.6	68.8	63.1	65.5	66.3	66.9	67.4	67.7	68.0	68.4	67.6	67.6	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
23/F	101.24	69.0	69.0	69.2	69.5	68.3	68.7	68.9	63.1	65.5	66.4	67.0	67.5	67.8	68.1	68.5	67.6	67.6	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
22/F	97.92	69.1	69.3	69.4	69.7	68.5	68.9	69.0	63.2	65.6	66.5	67.0	67.6	67.9	68.2	68.6	67.7	67.7	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
21/F	94.60	69.3	69.4	69.5	69.8	68.6	69.0	69.1	63.2	65.7	66.6	67.1	67.7	68.0	68.3	68.7	67.8	67.8	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
20/F	91.28	69.4	69.5	69.7	69.9	68.7	69.1	69.2	63.3	65.8	66.7	67.2	67.8	68.1	68.4	68.8	67.9	67.9	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
19/F	87.96	69.6	69.7	69.8	70.1	68.8	69.2	69.4	63.3	65.8	66.8	67.3	67.9	68.2	68.5	68.9	68.0	67.9	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
18/F	84.64	69.7	69.8	70.0	70.2	68.9	69.3	69.5	63.4	65.9	66.9	67.4	68.0	68.3	68.6	69.0	68.0	68.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
17/F	81.32	69.9	70.0	70.1	70.4	69.1	69.5	69.6	63.4	66.0	67.0	67.5	68.1	68.4	68.7	69.1	68.1	68.1	68.1	<40.0	<40.0	<40.0	<40.0	<40.0
16/F	78.00	70.0	70.2	70.3	64.6	69.2	69.6	69.8	63.5	66.1	67.1	67.6	68.2	68.5	68.8	69.2	68.2	68.2	68.2	<40.0	<40.0	<40.0	<40.0	<40.0
15/F	74.85	70.2	70.3	64.5	64.7	69.4	69.8	69.9	63.5	66.2	67.2	67.7	68.3	68.6	68.9	69.3	68.3	68.3	68.3	68.2	68.2	68.1	68.1	68.1
14/F	71.70	70.4	64.5	64.6	64.9	69.5	69.9	70.1	63.6	66.3	67.3	67.9	68.4	68.7	69.0	69.4	68.4	68.4	68.4	68.3	68.3	68.2	68.2	68.2
13/F	68.55	68.0	64.7	64.8	65.1	69.7	70.1	70.2	63.6	66.4	67.4	68.0	68.5	68.8	69.1	69.5	68.5	68.5	68.4	68.4	68.4	68.3	68.3	68.2
12/F	65.40	68.2	64.9	65.0	65.3	69.8	70.2	70.4	63.7	66.5	67.5	68.1	68.7	68.9	69.2	69.6	68.6	68.6	68.5	68.5	68.5	68.4	68.3	68.3
11/F	62.25	68.4	65.1	65.2	65.5	70.0	70.4	64.6	63.8	66.7	67.7	68.2	68.8	69.1	69.3	69.7	68.7	68.7	68.6	68.6	68.5	68.4	68.4	68.4
10/F	59.10	68.6	65.3	65.4	65.7	70.2	64.6	64.7	63.8	66.7	67.8	68.3	68.9	69.2	69.5	69.9	68.8	68.8	68.7	68.7	68.6	68.5	68.5	68.4
9/F	55.95	68.8	65.5	65.6	66.0	70.4	64.8	65.0	63.7	66.8	67.8	68.4	69.0	69.3	69.6	70.0	68.9	68.9	68.8	68.8	68.7	68.6	68.6	68.5
8/F	52.80	69.0	65.7	65.9	66.2	68.1	65.0	65.2	63.6	66.8	67.9	68.5	69.1	69.5	69.7	70.2	69.0	68.9	68.9	68.8	68.8	68.7	68.7	68.7
7/F	49.65	69.3	66.0	66.1	66.4	68.3	65.2	65.4	63.4	66.9	68.1	68.7	69.3	69.6	69.9	70.3	69.1	69.0	69.0	69.0	68.9	68.9	68.8	68.8
6/F	46.50	69.5	66.2	66.4	66.8	68.7	65.5	65.6	62.8	66.7	68.0	68.7	69.4	69.8	70.1	64.5	69.3	69.3	69.2	69.2	69.1	69.0	69.0	69.0
5/F	43.35	69.8	66.5	66.7	67.1	69.0	65.8	66.0	62.0	66.2	67.7	68.6	69.5	69.9	70.2	64.7	69.5	69.5	69.4	69.4	69.3	69.3	69.2	69.2
4/F	40.20	70.1	66.8	67.0	67.4	69.2	66.1	66.3	60.6	65.5	67.2	68.2	69.3	69.9	70.4	64.9	69.8	69.8	69.7	69.7	69.7	69.6	69.6	69.6
3/F	37.05	70.4	67.1	67.3	67.7	69.4	66.4	66.5	58.7	64.4	66.3	67.4	68.6	69.7	64.5	65.2	70.1	70.1	70.0	70.0	70.0	69.9	69.9	69.9
2/F	33.90	**70.8**	67.5	67.6	68.0	69.5	66.6	66.8	57.1	63.3	65.0	65.8	67.2	68.8	70.4	65.4	70.3	70.3	70.3	70.2	70.2	70.0	70.0	70.0
1/F	30.75	**71.1**	67.8	68.0	68.5	68.7	66.5	67.1	56.0	61.9	63.0	63.5	64.4	66.0	69.4	65.6	70.3	70.3	70.2	70.2	70.1	69.7	69.7	69.7

ID	Description	Correction
AW	Acoustic Window	-6.0 dB(A)
AB	Acoustic Balcony	-2.5 dB(A)

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Mitigated Scenario (L10, 1hr), dB(A)

Tower 2 (by flat)

NSR ID		T2-01	T2-02	T2-03	T2-04	T2-05	T2-06	T2-07	T2-08	T2-09
Floor	mPD	L10, 1hr (dB(A))								
25/F	107.88	49	<40.0	<40.0	<40.0	<40.0	42.2	52.4	52.1	53.1

NSR ID		T2-01	T2-02	T2-03	T2-04	T2-05	T2-06	T2-07	T2-08	T2-09
Floor	mPD	L10, 1hr (dB(A))								
24/F	104.56	48.9	<40.0	<40.0	<40.0	<40.0	42	52.4	52	53
23/F	101.24	48.8	<40.0	<40.0	<40.0	<40.0	41.9	52.3	51.8	53
22/F	97.92	48.8	<40.0	<40.0	<40.0	<40.0	41.8	52.3	51.7	53
21/F	94.60	48.8	<40.0	<40.0	<40.0	<40.0	41.7	52.2	51.5	53
20/F	91.28	48.8	<40.0	<40.0	<40.0	<40.0	41.7	52.1	51.3	53
19/F	87.96	48.8	<40.0	<40.0	<40.0	<40.0	41.7	51.9	51.1	52.9
18/F	84.64	48.7	<40.0	<40.0	<40.0	<40.0	41.7	51.7	50.9	52.9
17/F	81.32	48.7	<40.0	<40.0	<40.0	<40.0	41.7	51.5	50.6	52.8
16/F	78.00	48.6	<40.0	<40.0	<40.0	<40.0	41.7	51.3	50.3	52.7
15/F	74.85	48.4	<40.0	<40.0	<40.0	<40.0	41.7	50.8	50.3	52.6
14/F	71.70	48.4	<40.0	<40.0	<40.0	<40.0	41.6	50.5	50.3	52.5
13/F	68.55	48.2	<40.0	<40.0	<40.0	<40.0	41.6	50.2	50.4	52.3
12/F	65.40	48.1	<40.0	<40.0	<40.0	<40.0	41.6	49.8	50.4	52.1
11/F	62.25	47.9	<40.0	<40.0	<40.0	<40.0	41.4	49.4	50.4	51.9
10/F	59.10	47.7	<40.0	<40.0	<40.0	<40.0	41.2	49.2	50.4	51.8
9/F	55.95	47.4	<40.0	<40.0	<40.0	<40.0	40.9	49.1	50.5	52.1
8/F	52.80	47.1	<40.0	<40.0	<40.0	<40.0	40.3	48.9	50.7	51.6
7/F	49.65	46.5	<40.0	<40.0	<40.0	<40.0	<40.0	48.4	50.1	51.3
6/F	46.50	45.5	<40.0	<40.0	<40.0	<40.0	<40.0	46.9	49.1	50.2
5/F	43.35	43.8	<40.0	<40.0	<40.0	<40.0	<40.0	44.3	47	48.7
4/F	40.20	42.4	<40.0	<40.0	<40.0	<40.0	<40.0	42.1	44.2	46.7
3/F	37.05	40.6	<40.0	<40.0	<40.0	<40.0	<40.0	40.6	42	44.1
2/F	33.90	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.4	42
1/F	30.75	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	40.4

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Mitigated Scenario (L10, 1hr), dB(A)

Tower 2 (by flat)

NSR ID		T2-10	T2-11	T2-12	T2-13		T2-15		T2-17		T2-19
Floor	mPD	L10, 1hr (dB(A))									
25/F	107.88	53.7	65.9	66.6	67.4		68		68.4		68.5

NSR ID		T2-10	T2-11	T2-12	T2-13	T2-14	T2-15	T2-16	T2-16	T2-18	T2-19
Floor	mPD	L10, 1hr (dB(A))									
24/F	104.56	53.7	66.0	66.7	67.1	67.5	67.8	68.1	68.4	68.5	68.7
23/F	101.24	53.7	66.0	66.7	67.2	67.6	67.9	68.2	68.5	68.6	68.9
22/F	97.92	53.7	66.1	66.8	67.2	67.7	68.0	68.3	68.6	68.8	69.0
21/F	94.60	53.7	66.2	66.8	67.3	67.8	68.1	68.4	68.7	68.9	69.2
20/F	91.28	53.7	66.2	66.9	67.4	67.8	68.2	68.5	68.8	69.0	69.3
19/F	87.96	53.7	66.3	67.0	67.4	67.9	68.3	68.6	68.9	69.1	69.5
18/F	84.64	53.6	66.4	67.1	67.5	68.0	68.4	68.7	69.0	69.3	69.6
17/F	81.32	53.6	66.5	67.2	67.6	68.1	68.4	68.8	69.2	69.4	69.8
16/F	78.00	53.5	66.6	67.3	67.7	68.2	68.5	68.9	69.3	69.6	69.9
15/F	74.85	53.4	66.7	67.4	67.8	68.3	68.6	69.0	69.4	69.7	70.1
14/F	71.70	53.2	66.9	67.5	68.0	68.4	68.7	69.1	69.5	69.8	70.2
13/F	68.55	53.0	67.0	67.7	68.1	68.5	68.8	69.2	69.6	70.0	70.4
12/F	65.40	52.8	67.1	67.8	68.2	68.6	69.0	69.3	69.7	70.1	70.4
11/F	62.25	52.6	67.2	67.9	68.4	68.8	69.1	69.5	69.9	70.2	70.4
10/F	59.10	52.5	67.4	68.1	68.5	68.9	69.3	69.6	70.1	70.4	68.5
9/F	55.95	52.5	67.5	68.2	68.7	69.1	69.4	69.8	70.2	70.4	68.7
8/F	52.80	52.1	67.6	68.4	68.8	69.2	69.6	70.0	70.4	68.3	68.9
7/F	49.65	51.6	67.8	68.5	69.0	69.4	69.7	70.1	70.4	68.5	69.1
6/F	46.50	50.8	68.0	68.8	69.2	69.6	69.9	70.3	68.1	68.7	69.3
5/F	43.35	49.8	68.3	69.0	69.4	69.8	70.2	70.3	68.2	68.9	69.6
4/F	40.20	48.6	68.4	69.2	69.7	70.1	70.4	68.1	68.5	69.2	69.9
3/F	37.05	47.0	68.6	69.3	69.8	70.3	70.4	68.3	68.8	69.5	70.2
2/F	33.90	45.4	68.7	69.5	70.0	70.4	68.3	68.5	69.0	69.7	**70.5**
1/F	30.75	43.4	68.9	69.7	70.1	70.3	68.5	68.7	69.2	70.0	**70.8**

Bold underlined: Predicted Noise Exceedance

Predicted Traffic Noise Level - Tower 2 in Mitigated Scenario (L10, 1hr), dB(A)

Tower 2 (by flat)

NSR ID		T2-20	T2-21	T2-22		T2-24	T2-25	T2-26	T2-27
Floor	mPD	L10, 1hr (dB(A))							
25/F	107.88	69.1	68.7	67.3		68.3	67.5	<40.0	<40.0

NSR ID		T2-20	T2-21	T2-22	T2-23	T2-24	T2-25	T2-26	T2-27
Floor	mPD	L10, 1hr (dB(A))							
24/F	104.56	69.3	68.8	65.5	67.4	68.4	67.6	<40.0	<40.0
23/F	101.24	69.5	68.9	65.5	67.5	68.5	67.6	<40.0	<40.0
22/F	97.92	69.7	69	65.6	67.6	68.6	67.7	<40.0	<40.0
21/F	94.60	69.8	69.1	65.7	67.7	68.7	67.8	<40.0	<40.0
20/F	91.28	69.9	69.2	65.8	67.8	68.8	67.9	<40.0	<40.0
19/F	87.96	70.1	69.4	65.8	67.9	68.9	68	<40.0	<40.0
18/F	84.64	70.2	69.5	65.9	68	69	68	<40.0	<40.0
17/F	81.32	70.4	69.6	66	68.1	69.1	68.1	<40.0	<40.0
16/F	78.00	70.3	69.8	66.1	68.2	69.2	68.2	<40.0	<40.0
15/F	74.85	70.3	69.9	66.2	68.3	69.3	68.3	68.2	68.1
14/F	71.70	70.4	70.1	66.3	68.4	69.4	68.4	68.3	68.2
13/F	68.55	68	70.2	66.4	68.5	69.5	68.5	68.4	68.3
12/F	65.40	68.2	70.4	66.5	68.7	69.6	68.6	68.5	68.4
11/F	62.25	68.4	70.4	66.7	68.8	69.7	68.7	68.6	68.4
10/F	59.10	68.6	70.2	66.7	68.9	69.9	68.8	68.7	68.5
9/F	55.95	68.8	70.4	66.8	69	70	68.9	68.8	68.6
8/F	52.80	69	68.1	66.8	69.1	70.2	69	68.8	68.7
7/F	49.65	69.3	68.3	66.9	69.3	70.3	69.1	69	68.9
6/F	46.50	69.5	68.7	66.7	69.4	70.1	69.3	69.2	69
5/F	43.35	69.8	69	66.2	69.5	70.2	69.5	69.4	69.3
4/F	40.20	70.1	69.2	65.5	69.3	70.4	69.8	69.7	69.6
3/F	37.05	70.4	69.4	64.4	68.6	69.7	70.1	70	69.9
2/F	33.90	**70.8**	69.5	63.3	67.2	70.4	70.3	70.2	70
1/F	30.75	**71.1**	68.7	61.9	64.4	69.4	70.3	70.2	69.7

Bold underlined: Predicted Noise Exceedance

APPENDIX 5-5
RECORD OF EXISTING FIXED NOISE SOURCES

App 5-5 Record of Existing Fixed Noise Source

Fixed Noise Source ID	Name	Description	Record
F-01	Chi Yun School	VRV	Site Visit (15 Mar 2024, 13:30 to 18:00)





Fixed Noise Source ID	Name	Description	Record
F-02 to F-06	Chi Yun School	VRF	Site Visit (15 Mar 2024, 13:30 to 18:00)



Fixed Noise Source ID	Name	Description	Record
F-07 to F-12	Anita L.L. Chan (Centenary) School	VRF	Site Visit (15 Mar 2024, 13:30 to 18:00)



App 5-5 Record of Existing Fixed Noise Source

Fixed Noise Source ID	Name	Description	Record
F-13 to F-16	Kei To Secondary School	VRV	Site Visit (15 Mar 2024, 13:30 to 18:00)

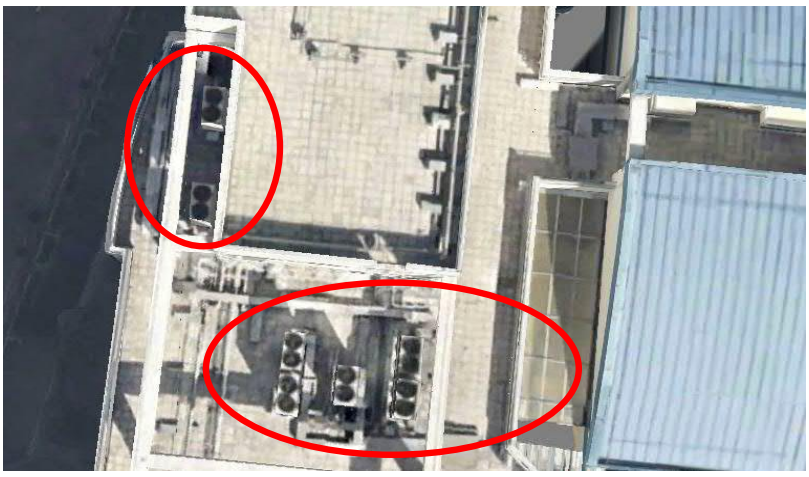




Fixed Noise Source ID	Name	Description	Record
F-17 to F-21	Kei To Secondary School	VRV	Site Visit (15 Mar 2024, 13:30 to 18:00)



Fixed Noise Source ID	Name	Description	Record
F-22 to F-28	Ngan Po Ling College	VRV	Open 3D Map (2024)

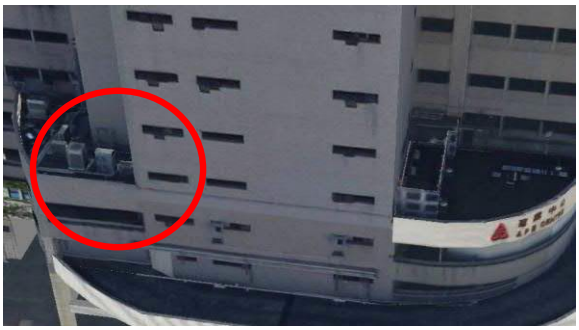


App 5-5 Record of Existing Fixed Noise Source

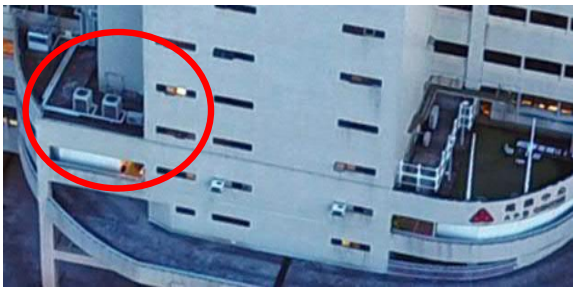
Fixed Noise Source ID	Name	Description	Record
F-29	Ngan Po Ling College	VRV	Open 3D Map (2024)



Fixed Noise Source ID	Name	Description	Record
F-30	APB Centre	VRV	Open 3D Map (2024) & Google Photo (July 2020)



Year 2024



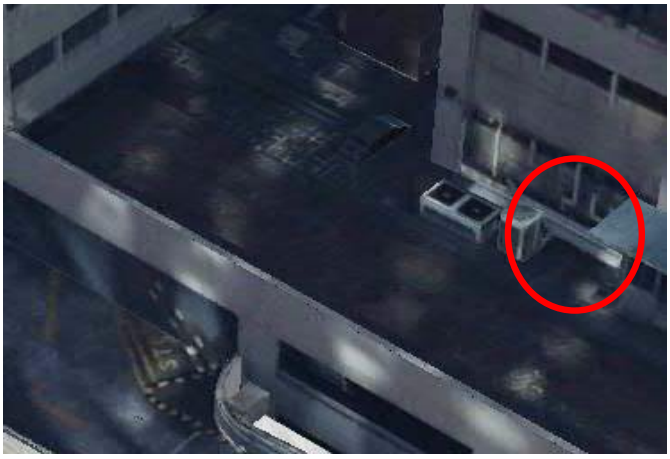
Year 2020

Fixed Noise Source ID	Name	Description	Record
F-31	APB Centre	VRV	Open 3D Map (2024)



App 5-5 Record of Existing Fixed Noise Source

Fixed Noise Source ID	Name	Description	Record
F-32	APB Centre	VRV	Open 3D Map (2024)



Fixed Noise Source ID	Name	Description	Record
F-33	APB Centre	VRV	Open 3D Map (2024)



Year 2024



Year 2020

Fixed Noise Source ID	Name	Description	Record
F-34	APB Centre	VRV	Open 3D Map (2024)

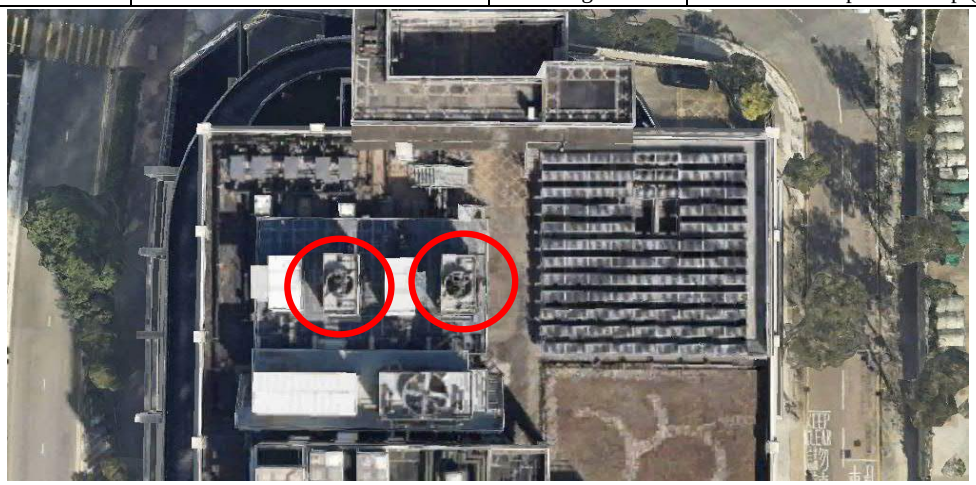


App 5-5 Record of Existing Fixed Noise Source

Fixed Noise Source ID	Name	Description	Record
F-35	APB Centre	VRV	Open 3D Map (2024)



Fixed Noise Source ID	Name	Description	Record
F-36	APB Centre	Cooling Tower	Open 3D Map (2024)

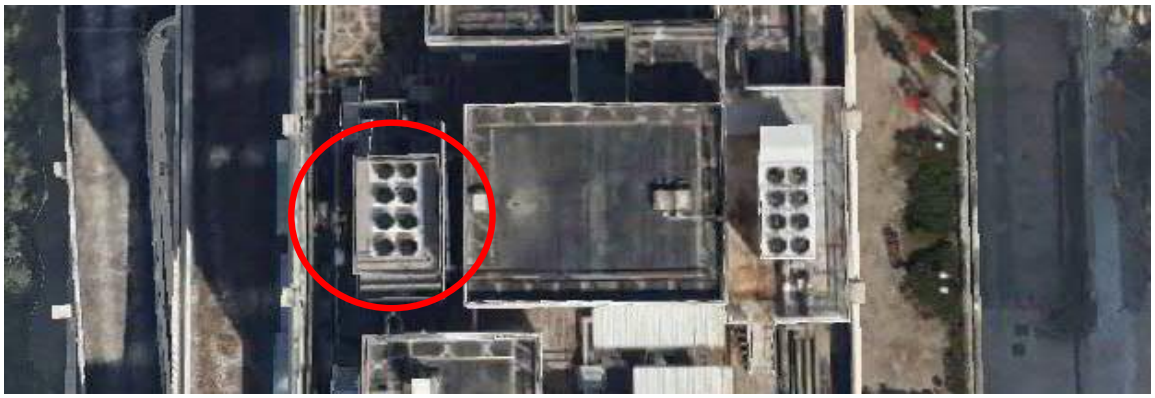


Fixed Noise Source ID	Name	Description	Record
F-37	APB Centre	Cooling Tower	Open 3D Map (2024)

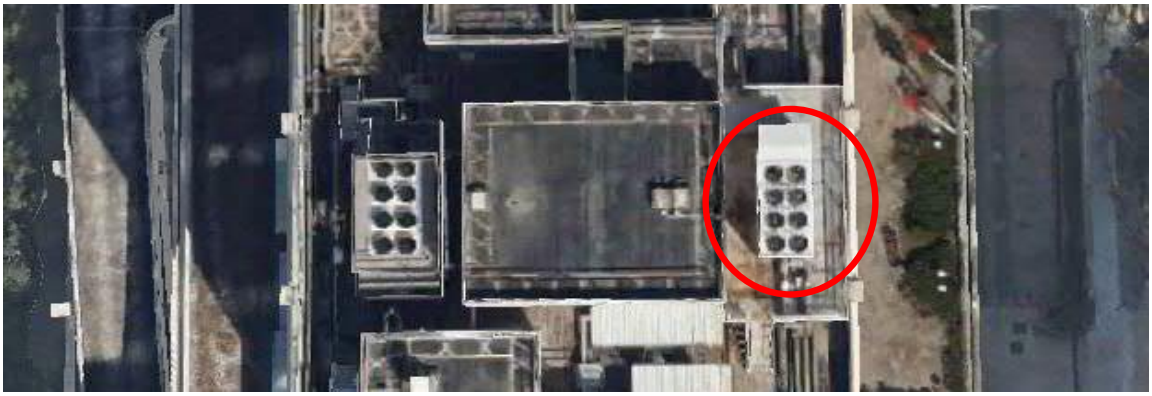


App 5-5 Record of Existing Fixed Noise Source

Fixed Noise Source ID	Name	Description	Record
F-38	APB Centre	Chiller	Open 3D Map (2024)



Fixed Noise Source ID	Name	Description	Record
F-39	APB Centre	Chiller	Open 3D Map (2024)



Fixed Noise Source ID	Name	Description	Record
F-40 to F-41	Guardforce Centre	Chiller	Open 3D Map (2024)



App 5-5 Record of Existing Fixed Noise Source

Fixed Noise Source ID	Name	Description	Record
F-42	Harbour Centre Tower 2	VRV	Open 3D Map (2024)



Fixed Noise Source ID	Name	Description	Record
F-43	Hung Hom Industrial Substation	VRV	Site Visit (15 Mar 2024, 13:30 to 18:00)

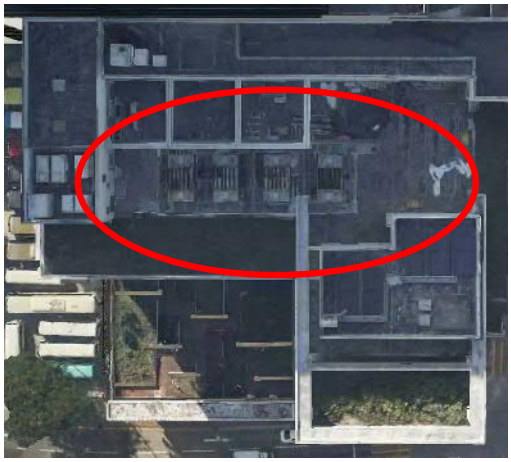


Fixed Noise Source ID	Name	Description	Record
F-44 to F-45	Penisula Square	Chiller	Open 3D Map (2024)



App 5-5 Record of Existing Fixed Noise Source

Fixed Noise Source ID	Name	Description	Record
F-46	Kowloon City Government Offices	Cooling Tower	Open 3D Map (2024)



Fixed Noise Source ID	Name	Description	Record
F-47 to F-49	Sunshine Plaza Block 3	Chiller	Open 3D Map (2024)



APPENDIX 5-6
PREDICTED FIXED NOISE LEVEL AT THE PROPOSED DEVELOPMENT

Appendix 5-6 Predicted Fixed Noise Level at the Proposed Development in Kowloon City District

Table 1 - List of Existing Potential Noise Source

Location	Noise Source	Source ID	Referenced Equipment Model No.	SPL, dB(A) [1]	Measured Distance of SPL, (m)	SWL, dB(A)[2,3]	No. of Unit
Chi Yun School	VRV	F-01	RJZQ6BAV	53	1	61.0	1
Chi Yun School	VRF	F-02 to F-06	U-18ME1H8	--	--	74.5	5
Anita L.L. Chan (Centenary) School	VRF	F-07 to F-12	U-18ME1H8	--	--	74.5	6
Kei To Secondary School	VRV	F-13 to F-21	RUXYQ10BA	57	1	65.0	9
Ngan Po Ling College	VRV-1	F-22 to F-28	RUXYQ28BA	60	1	68.0	7
Ngan Po Ling College	VRV-2	F-29	RUXYQ28BA	60	1	68.0	5
APB Centre	VRV-1	F-30 to F-32	U-18ME1H8	--	--	74.5	9
APB Centre	VRV-2	F-33 to F-34	RUXYQ28BA	60	1	68.0	4
APB Centre	VRV-3	F-35	RJZQ6BAV	53	1	61.0	2
APB Centre	Cooling Tower-1	F-36	FW-250SL	61	3.8	80.6	2
APB Centre	Cooling Tower-2	F-37	FW-600SL	63	6.2	86.8	1
APB Centre	Chiller	F-38 to F-39	UWAP100BY	65	1	73.0	2
Guardforce Centre	Chiller	F-40 to F-41	UWAP60BY	64	1	72.0	3
Harbour Centre Tower 2	VRV	F-42	RUXYQ10BA	57	1	65.0	4
Hung Hom Industrial Substation	VRV	F-43	RUXYQ10BA	57	1	65.0	2
Penisula Square	Chiller	F-44 to F-45	UWAP220BY	70	1	78.0	4
Kowloon City Government Offices	Cooling Tower	F-46	FW-250SL	61	3.8	80.6	4
Sunshine Plaza Block 3	Chiller	F-47 to F-49	UWAP60BY	64	1	72.0	3

Note:

[1] The SPLs provided in the market available product catalogues for fixed plant with similar make to the concerned chillers/water cooling towers are adopted. The product catalogues are attached in this Appendix for reference.

[2] The equation : SWL= 20*log(Measured distance from plant)+8+SPL has been adopted for conversion from SPL (from product catalogue) to SWL, unless the SWL for the plant is provided by the catalogue in which the SWL is adopted directly.

[3] SPL of F-02 to F-12 and F-30 to F-32 is directly extracted from the catelogue.

Fixed Noise Impact for Existing Noise Source (T1-01)

NSR (ID)	NSR (x)	NSR (y)	
T1-01	**837751.0**	**819361.5**	**Criteria: Day/Evening Time: 65 dB(A); Night Time: 55 dB(A)**

Noise Source (NS) ID	NS (x)	NS (y)	Description	SWL, dB(A)[1]	No. of Units	Overall SWL, dB(A)	Horizontal Distance from NSR to NS, m	Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)	Tonality Correction, dB(A)	Corrected Noise Level, dB(A)
F-01	837735.5	819425.1	Chi Yun School-VRV	61	1	61	65	-44	0	3	3	23
F-02	837702.6	819431.8	Chi Yun School-VRF	75	1	75	85	-47	0	3	3	34
F-03	837701.1	819428.1	Chi Yun School-VRF	75	1	75	83	-46	0	3	3	34
F-04	837697.6	819434.0	Chi Yun School-VRF	75	1	75	90	-47	0	3	3	33
F-05	837696.1	819430.3	Chi Yun School-VRF	75	1	75	88	-47	0	3	3	34
F-06	837694.5	819426.5	Chi Yun School-VRF	75	1	75	86	-47	0	3	3	34
F-07	837694.1	819436.9	Anita L.L. Chan (Centenary) School-VRF	75	1	75	94	-48	0	3	3	33
F-08	837692.6	819433.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	92	-47	0	3	3	33
F-09	837691.1	819429.4	Anita L.L. Chan (Centenary) School-VRF	75	1	75	91	-47	0	3	3	33
F-10	837688.5	819439.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	100	-48	0	3	3	33
F-11	837687.0	819435.5	Anita L.L. Chan (Centenary) School-VRF	75	1	75	98	-48	0	3	3	33
F-12	837685.4	819431.7	Anita L.L. Chan (Centenary) School-VRF	75	1	75	96	-48	0	3	3	33
F-13	837681.2	819397.5	Kei To Secondary School-VRV	65	1	65	79	-46	0	3	3	25
F-14	837679.6	819393.8	Kei To Secondary School-VRV	65	1	65	78	-46	0	3	3	25
F-15	837677.3	819399.0	Kei To Secondary School-VRV	65	1	65	83	-46	0	3	3	25
F-16	837675.8	819395.3	Kei To Secondary School-VRV	65	1	65	82	-46	0	3	3	25
F-17	837638.5	819378.8	Kei To Secondary School-VRV	65	1	65	114	-49	0	3	3	22
F-18	837634.5	819382.9	Kei To Secondary School-VRV	65	1	65	118	-49	0	3	3	22
F-19	837633.0	819379.2	Kei To Secondary School-VRV	65	1	65	119	-50	0	3	3	21
F-20	837630.1	819384.9	Kei To Secondary School-VRV	65	1	65	123	-50	0	3	3	21
F-21	837628.5	819381.2	Kei To Secondary School-VRV	65	1	65	124	-50	0	3	3	21
F-22	837598.2	819326.6	Ngan Po Ling College-VRV-1	68	1	68	157	-52	0	3	3	22
F-23	837597.8	819322.6	Ngan Po Ling College-VRV-1	68	1	68	158	-52	0	3	3	22
F-24	837605.3	819303.9	Ngan Po Ling College-VRV-1	68	1	68	157	-52	0	3	3	22
F-25	837601.6	819308.2	Ngan Po Ling College-VRV-1	68	1	68	159	-52	0	3	3	22
F-26	837601.2	819304.2	Ngan Po Ling College-VRV-1	68	1	68	160	-52	0	3	3	22
F-27	837597.5	819308.5	Ngan Po Ling College-VRV-1	68	1	68	162	-52	0	3	3	22
F-28	837597.2	819304.5	Ngan Po Ling College-VRV-1	68	1	68	164	-52	0	3	3	22
F-29	837633.9	819281.1	Ngan Po Ling College-VRV-2	68	5	75	142	-51	0	3	3	30
F-30	837717.7	819221.4	APB Centre-VRV-1	75	2	78	144	-51	-10	3	3	22
F-31	837721.9	819178.1	APB Centre-VRV-1	75	6	82	186	-53	-10	3	3	25
F-32	837692.2	819168.8	APB Centre-VRV-1	75	1	75	201	-54	-10	3	3	16
F-33	837713.6	819144.2	APB Centre-VRV-2	68	1	68	220	-55	-10	3	3	9
F-34	837721.0	819215.7	APB Centre-VRV-2	68	3	73	149	-51	-10	3	3	17
F-35	837711.6	819139.7	APB Centre-VRV-3	61	2	64	225	-55	-10	3	3	5
F-36	837702.3	819203.6	APB Centre-Cooling Tower-1	81	2	84	165	-52	-10	3	3	27
F-37	837702.1	819198.3	APB Centre-Cooling Tower-2	87	1	87	170	-53	-10	3	3	30
F-38	837696.1	819158.8	APB Centre-Chiller	73	1	73	210	-54	-10	3	3	15
F-39	837716.2	819158.1	APB Centre-Chiller	73	1	73	206	-54	-10	3	3	15
F-40	837709.8	819123.7	Guardforce Centre-Chiller	72	2	75	241	-56	-10	3	3	15
F-41	837705.8	819123.8	Guardforce Centre-Chiller	72	1	72	242	-56	-10	3	3	12
F-42	837772.7	819010.7	Harbour Centre Tower 2-VRV	65	4	71	351	-59	-10	3	3	8
F-43	837639.7	819112.6	Hung Hom Industrial Substation-VRV	65	2	68	273	-57	-10	3	3	7
F-44	837587.6	819168.5	Penisula Square-Chiller	78	2	81	253	-56	-10	3	3	21
F-45	837588.1	819180.7	Penisula Square-Chiller	78	2	81	243	-56	-10	3	3	21
F-46	837598.5	819212.3	Kowloon City Government Offices-Cooling Tower	81	4	87	213	-55	0	3	3	38
F-47	837526.9	819240.4	Sunshine Plaza Block 3-Chiller	72	1	72	255	-56	0	3	3	22
F-48	837520.3	819241.3	Sunshine Plaza Block 3-Chiller	72	1	72	260	-56	0	3	3	22
F-49	837513.9	819237.1	Sunshine Plaza Block 3-Chiller	72	1	72	268	-57	0	3	3	21
											Total	**46**

Fixed Noise Impact for Existing Noise Source (T1-02)

NSR (ID)	NSR (x)	NSR (y)	
T1-02	**837722.3**	**819335.6**	**Criteria: Day/Evening Time: 65 dB(A); Night Time: 55 dB(A)**

Noise Source (NS) ID	NS (x)	NS (y)	Description	SWL, dB(A)[1]	No. of Units	Overall SWL, dB(A)	Horizontal Distance from NSR to NS, m	Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)	Tonality Correction, dB(A)	Corrected Noise Level, dB(A)
F-01	837735.5	819425.1	Chi Yun School-VRV	61	1	61	90	-47	0	3	3	20
F-02	837702.6	819431.8	Chi Yun School-VRF	75	1	75	98	-48	0	3	3	33
F-03	837701.1	819428.1	Chi Yun School-VRF	75	1	75	95	-48	0	3	3	33
F-04	837697.6	819434.0	Chi Yun School-VRF	75	1	75	101	-48	0	3	3	32
F-05	837696.1	819430.3	Chi Yun School-VRF	75	1	75	98	-48	0	3	3	33
F-06	837694.5	819426.5	Chi Yun School-VRF	75	1	75	95	-48	0	3	3	33
F-07	837694.1	819436.9	Anita L.L. Chan (Centenary) School-VRF	75	1	75	105	-48	0	3	3	32
F-08	837692.6	819433.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	102	-48	0	3	3	32
F-09	837691.1	819429.4	Anita L.L. Chan (Centenary) School-VRF	75	1	75	99	-48	0	3	3	33
F-10	837688.5	819439.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	109	-49	0	3	3	32
F-11	837687.0	819435.5	Anita L.L. Chan (Centenary) School-VRF	75	1	75	106	-49	0	3	3	32
F-12	837685.4	819431.7	Anita L.L. Chan (Centenary) School-VRF	75	1	75	103	-48	0	3	3	32
F-13	837681.2	819397.5	Kei To Secondary School-VRV	65	1	65	74	-45	0	3	3	26
F-14	837679.6	819393.8	Kei To Secondary School-VRV	65	1	65	72	-45	0	3	3	26
F-15	837677.3	819399.0	Kei To Secondary School-VRV	65	1	65	78	-46	0	3	3	25
F-16	837675.8	819395.3	Kei To Secondary School-VRV	65	1	65	76	-46	0	3	3	25
F-17	837638.5	819378.8	Kei To Secondary School-VRV	65	1	65	94	-47	0	3	3	24
F-18	837634.5	819382.9	Kei To Secondary School-VRV	65	1	65	100	-48	0	3	3	23
F-19	837633.0	819379.2	Kei To Secondary School-VRV	65	1	65	99	-48	0	3	3	23
F-20	837630.1	819384.9	Kei To Secondary School-VRV	65	1	65	105	-48	0	3	3	23
F-21	837628.5	819381.2	Kei To Secondary School-VRV	65	1	65	104	-48	0	3	3	23
F-22	837598.2	819326.6	Ngan Po Ling College-VRV-1	68	1	68	124	-50	0	3	3	24
F-23	837597.8	819322.6	Ngan Po Ling College-VRV-1	68	1	68	125	-50	0	3	3	24
F-24	837605.3	819303.9	Ngan Po Ling College-VRV-1	68	1	68	121	-50	0	3	3	24
F-25	837601.6	819308.2	Ngan Po Ling College-VRV-1	68	1	68	124	-50	0	3	3	24
F-26	837601.2	819304.2	Ngan Po Ling College-VRV-1	68	1	68	125	-50	0	3	3	24
F-27	837597.5	819308.5	Ngan Po Ling College-VRV-1	68	1	68	128	-50	0	3	3	24
F-28	837597.2	819304.5	Ngan Po Ling College-VRV-1	68	1	68	129	-50	0	3	3	24
F-29	837633.9	819281.1	Ngan Po Ling College-VRV-2	68	5	75	104	-48	0	3	3	33
F-30	837717.7	819221.4	APB Centre-VRV-1	75	2	78	114	-49	-10	3	3	24
F-31	837721.9	819178.1	APB Centre-VRV-1	75	6	82	157	-52	-10	3	3	26
F-32	837692.2	819168.8	APB Centre-VRV-1	75	1	75	169	-53	-10	3	3	18
F-33	837713.6	819144.2	APB Centre-VRV-2	68	1	68	192	-54	-10	3	3	10
F-34	837721.0	819215.7	APB Centre-VRV-2	68	3	73	120	-50	-10	3	3	19
F-35	837711.6	819139.7	APB Centre-VRV-3	61	2	64	196	-54	-10	3	3	6
F-36	837702.3	819203.6	APB Centre-Cooling Tower-1	81	2	84	134	-51	-10	3	3	29
F-37	837702.1	819198.3	APB Centre-Cooling Tower-2	87	1	87	139	-51	-10	3	3	32
F-38	837696.1	819158.8	APB Centre-Chiller	73	1	73	179	-53	-10	3	3	16
F-39	837716.2	819158.1	APB Centre-Chiller	73	1	73	178	-53	-10	3	3	16
F-40	837709.8	819123.7	Guardforce Centre-Chiller	72	2	75	212	-55	-10	3	3	16
F-41	837705.8	819123.8	Guardforce Centre-Chiller	72	1	72	212	-55	-10	3	3	13
F-42	837772.7	819010.7	Harbour Centre Tower 2-VRV	65	4	71	329	-58	-10	3	3	9
F-43	837639.7	819112.6	Hung Hom Industrial Substation-VRV	65	2	68	238	-56	-10	3	3	8
F-44	837587.6	819168.5	Penisula Square-Chiller	78	2	81	215	-55	0	3	3	32
F-45	837588.1	819180.7	Penisula Square-Chiller	78	2	81	205	-54	0	3	3	33
F-46	837598.5	819212.3	Kowloon City Government Offices-Cooling Tower	81	4	87	175	-53	0	3	3	40
F-47	837526.9	819240.4	Sunshine Plaza Block 3-Chiller	72	1	72	217	-55	0	3	3	23
F-48	837520.3	819241.3	Sunshine Plaza Block 3-Chiller	72	1	72	223	-55	0	3	3	23
F-49	837513.9	819237.1	Sunshine Plaza Block 3-Chiller	72	1	72	231	-55	0	3	3	23
											Total	**46**

Fixed Noise Impact for Existing Noise Source (T2-01)

NSR (ID)	NSR (x)	NSR (y)	
T2-01	**837706.0**	**819314.0**	**Criteria: Day/Evening Time: 65 dB(A); Night Time: 55 dB(A)**

Noise Source (NS) ID	NS (x)	NS (y)	Description	SWL, dB(A)[1]	No. of Units	Overall SWL, dB(A)	Horizontal Distance from NSR to NS, m	Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)	Tonality Correction, dB(A)	Corrected Noise Level, dB(A)
F-01	837735.5	819425.1	Chi Yun School-VRV	61	1	61	115	-49	0	3	3	18
F-02	837702.6	819431.8	Chi Yun School-VRF	75	1	75	118	-49	0	3	3	31
F-03	837701.1	819428.1	Chi Yun School-VRF	75	1	75	114	-49	0	3	3	31
F-04	837697.6	819434.0	Chi Yun School-VRF	75	1	75	120	-50	0	3	3	31
F-05	837696.1	819430.3	Chi Yun School-VRF	75	1	75	117	-49	0	3	3	31
F-06	837694.5	819426.5	Chi Yun School-VRF	75	1	75	113	-49	0	3	3	31
F-07	837694.1	819436.9	Anita L.L. Chan (Centenary) School-VRF	75	1	75	124	-50	0	3	3	31
F-08	837692.6	819433.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	120	-50	0	3	3	31
F-09	837691.1	819429.4	Anita L.L. Chan (Centenary) School-VRF	75	1	75	116	-49	0	3	3	31
F-10	837688.5	819439.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	126	-50	0	3	3	30
F-11	837687.0	819435.5	Anita L.L. Chan (Centenary) School-VRF	75	1	75	123	-50	0	3	3	31
F-12	837685.4	819431.7	Anita L.L. Chan (Centenary) School-VRF	75	1	75	120	-50	0	3	3	31
F-13	837681.2	819397.5	Kei To Secondary School-VRV	65	1	65	87	-47	0	3	3	24
F-14	837679.6	819393.8	Kei To Secondary School-VRV	65	1	65	84	-46	0	3	3	25
F-15	837677.3	819399.0	Kei To Secondary School-VRV	65	1	65	90	-47	0	3	3	24
F-16	837675.8	819395.3	Kei To Secondary School-VRV	65	1	65	87	-47	0	3	3	24
F-17	837638.5	819378.8	Kei To Secondary School-VRV	65	1	65	94	-47	0	3	3	24
F-18	837634.5	819382.9	Kei To Secondary School-VRV	65	1	65	99	-48	0	3	3	23
F-19	837633.0	819379.2	Kei To Secondary School-VRV	65	1	65	98	-48	0	3	3	23
F-20	837630.1	819384.9	Kei To Secondary School-VRV	65	1	65	104	-48	0	3	3	23
F-21	837628.5	819381.2	Kei To Secondary School-VRV	65	1	65	103	-48	0	3	3	23
F-22	837598.2	819326.6	Ngan Po Ling College-VRV-1	68	1	68	109	-49	0	3	3	25
F-23	837597.8	819322.6	Ngan Po Ling College-VRV-1	68	1	68	109	-49	0	3	3	25
F-24	837605.3	819303.9	Ngan Po Ling College-VRV-1	68	1	68	101	-48	0	3	3	26
F-25	837601.6	819308.2	Ngan Po Ling College-VRV-1	68	1	68	105	-48	0	3	3	26
F-26	837601.2	819304.2	Ngan Po Ling College-VRV-1	68	1	68	105	-48	0	3	3	26
F-27	837597.5	819308.5	Ngan Po Ling College-VRV-1	68	1	68	109	-49	0	3	3	25
F-28	837597.2	819304.5	Ngan Po Ling College-VRV-1	68	1	68	109	-49	0	3	3	25
F-29	837633.9	819281.1	Ngan Po Ling College-VRV-2	68	5	75	79	-46	0	3	3	35
F-30	837717.7	819221.4	APB Centre-VRV-1	75	2	78	93	-47	-10	3	3	26
F-31	837721.9	819178.1	APB Centre-VRV-1	75	6	82	137	-51	-10	3	3	28
F-32	837692.2	819168.8	APB Centre-VRV-1	75	1	75	146	-51	-10	3	3	19
F-33	837713.6	819144.2	APB Centre-VRV-2	68	1	68	170	-53	-10	3	3	11
F-34	837721.0	819215.7	APB Centre-VRV-2	68	3	73	99	-48	-10	3	3	21
F-35	837711.6	819139.7	APB Centre-VRV-3	61	2	64	174	-53	-10	3	3	7
F-36	837702.3	819203.6	APB Centre-Cooling Tower-1	81	2	84	110	-49	-10	3	3	31
F-37	837702.1	819198.3	APB Centre-Cooling Tower-2	87	1	87	116	-49	-10	3	3	34
F-38	837696.1	819158.8	APB Centre-Chiller	73	1	73	156	-52	-10	3	3	17
F-39	837716.2	819158.1	APB Centre-Chiller	73	1	73	156	-52	-10	3	3	17
F-40	837709.8	819123.7	Guardforce Centre-Chiller	72	2	75	190	-54	-10	3	3	17
F-41	837705.8	819123.8	Guardforce Centre-Chiller	72	1	72	190	-54	-10	3	3	14
F-42	837772.7	819010.7	Harbour Centre Tower 2-VRV	65	4	71	311	-58	-10	3	3	9
F-43	837639.7	819112.6	Hung Hom Industrial Substation-VRV	65	2	68	212	-55	-10	3	3	9
F-44	837587.6	819168.5	Penisula Square-Chiller	78	2	81	188	-53	0	3	3	34
F-45	837588.1	819180.7	Penisula Square-Chiller	78	2	81	178	-53	0	3	3	34
F-46	837598.5	819212.3	Kowloon City Government Offices-Cooling Tower	81	4	87	148	-51	0	3	3	41
F-47	837526.9	819240.4	Sunshine Plaza Block 3-Chiller	72	1	72	194	-54	0	3	3	24
F-48	837520.3	819241.3	Sunshine Plaza Block 3-Chiller	72	1	72	199	-54	0	3	3	24
F-49	837513.9	819237.1	Sunshine Plaza Block 3-Chiller	72	1	72	207	-54	0	3	3	24
											Total	**47**

Fixed Noise Impact for Existing Noise Source (T2-02)

NSR (ID)	NSR (x)	NSR (y)	
T2-02	**837687.8**	**819280.3**	**Criteria: Day/Evening Time: 65 dB(A); Night Time: 55 dB(A)**

Noise Source (NS) ID	NS (x)	NS (y)	Description	SWL, dB(A)[1]	No. of Units	Overall SWL, dB(A)	Horizontal Distance from NSR to NS, m	Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)	Tonality Correction, dB(A)	Corrected Noise Level, dB(A)
F-01	837735.5	819425.1	Chi Yun School-VRV	61	1	61	152	-52	0	3	3	15
F-02	837702.6	819431.8	Chi Yun School-VRF	75	1	75	152	-52	0	3	3	29
F-03	837701.1	819428.1	Chi Yun School-VRF	75	1	75	148	-51	0	3	3	29
F-04	837697.6	819434.0	Chi Yun School-VRF	75	1	75	154	-52	0	3	3	29
F-05	837696.1	819430.3	Chi Yun School-VRF	75	1	75	150	-52	0	3	3	29
F-06	837694.5	819426.5	Chi Yun School-VRF	75	1	75	146	-51	0	3	3	29
F-07	837694.1	819436.9	Anita L.L. Chan (Centenary) School-VRF	75	1	75	157	-52	0	3	3	29
F-08	837692.6	819433.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	153	-52	0	3	3	29
F-09	837691.1	819429.4	Anita L.L. Chan (Centenary) School-VRF	75	1	75	149	-51	0	3	3	29
F-10	837688.5	819439.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	159	-52	0	3	3	28
F-11	837687.0	819435.5	Anita L.L. Chan (Centenary) School-VRF	75	1	75	155	-52	0	3	3	29
F-12	837685.4	819431.7	Anita L.L. Chan (Centenary) School-VRF	75	1	75	151	-52	0	3	3	29
F-13	837681.2	819397.5	Kei To Secondary School-VRV	65	1	65	117	-49	0	3	3	22
F-14	837679.6	819393.8	Kei To Secondary School-VRV	65	1	65	114	-49	0	3	3	22
F-15	837677.3	819399.0	Kei To Secondary School-VRV	65	1	65	119	-50	0	3	3	21
F-16	837675.8	819395.3	Kei To Secondary School-VRV	65	1	65	116	-49	0	3	3	22
F-17	837638.5	819378.8	Kei To Secondary School-VRV	65	1	65	110	-49	0	3	3	22
F-18	837634.5	819382.9	Kei To Secondary School-VRV	65	1	65	116	-49	0	3	3	22
F-19	837633.0	819379.2	Kei To Secondary School-VRV	65	1	65	113	-49	0	3	3	22
F-20	837630.1	819384.9	Kei To Secondary School-VRV	65	1	65	119	-50	0	3	3	21
F-21	837628.5	819381.2	Kei To Secondary School-VRV	65	1	65	117	-49	0	3	3	22
F-22	837598.2	819326.6	Ngan Po Ling College-VRV-1	68	1	68	101	-48	0	3	3	26
F-23	837597.8	819322.6	Ngan Po Ling College-VRV-1	68	1	68	99	-48	0	3	3	26
F-24	837605.3	819303.9	Ngan Po Ling College-VRV-1	68	1	68	86	-47	0	3	3	27
F-25	837601.6	819308.2	Ngan Po Ling College-VRV-1	68	1	68	91	-47	0	3	3	27
F-26	837601.2	819304.2	Ngan Po Ling College-VRV-1	68	1	68	90	-47	0	3	3	27
F-27	837597.5	819308.5	Ngan Po Ling College-VRV-1	68	1	68	95	-48	0	3	3	26
F-28	837597.2	819304.5	Ngan Po Ling College-VRV-1	68	1	68	94	-47	0	3	3	27
F-29	837633.9	819281.1	Ngan Po Ling College-VRV-2	68	5	75	54	-43	0	3	3	38
F-30	837717.7	819221.4	APB Centre-VRV-1	75	2	78	66	-44	-10	3	3	29
F-31	837721.9	819178.1	APB Centre-VRV-1	75	6	82	108	-49	-10	3	3	30
F-32	837692.2	819168.8	APB Centre-VRV-1	75	1	75	112	-49	-10	3	3	22
F-33	837713.6	819144.2	APB Centre-VRV-2	68	1	68	139	-51	-10	3	3	13
F-34	837721.0	819215.7	APB Centre-VRV-2	68	3	73	73	-45	-10	3	3	24
F-35	837711.6	819139.7	APB Centre-VRV-3	61	2	64	143	-51	-10	3	3	9
F-36	837702.3	819203.6	APB Centre-Cooling Tower-1	81	2	84	78	-46	-10	3	3	34
F-37	837702.1	819198.3	APB Centre-Cooling Tower-2	87	1	87	83	-46	-10	3	3	36
F-38	837696.1	819158.8	APB Centre-Chiller	73	1	73	122	-50	-10	3	3	19
F-39	837716.2	819158.1	APB Centre-Chiller	73	1	73	126	-50	-10	3	3	19
F-40	837709.8	819123.7	Guardforce Centre-Chiller	72	2	75	158	-52	-10	3	3	19
F-41	837705.8	819123.8	Guardforce Centre-Chiller	72	1	72	158	-52	-10	3	3	16
F-42	837772.7	819010.7	Harbour Centre Tower 2-VRV	65	4	71	283	-57	-10	3	3	10
F-43	837639.7	819112.6	Hung Hom Industrial Substation-VRV	65	2	68	175	-53	0	3	3	21
F-44	837587.6	819168.5	Penisula Square-Chiller	78	2	81	150	-52	0	3	3	35
F-45	837588.1	819180.7	Penisula Square-Chiller	78	2	81	141	-51	0	3	3	36
F-46	837598.5	819212.3	Kowloon City Government Offices-Cooling Tower	81	4	87	112	-49	0	3	3	44
F-47	837526.9	819240.4	Sunshine Plaza Block 3-Chiller	72	1	72	166	-52	0	3	3	26
F-48	837520.3	819241.3	Sunshine Plaza Block 3-Chiller	72	1	72	172	-53	0	3	3	25
F-49	837513.9	819237.1	Sunshine Plaza Block 3-Chiller	72	1	72	179	-53	0	3	3	25
											Total	**48**

Fixed Noise Impact for Existing Noise Source (T2-03)

NSR (ID)	NSR (x)	NSR (y)	
T2-03	**837685.4**	**819264.1**	**Criteria: Day/Evening Time: 65 dB(A); Night Time: 55 dB(A)**

Noise Source (NS) ID	NS (x)	NS (y)	Description	SWL, dB(A)[1]	No. of Units	Overall SWL, dB(A)	Horizontal Distance from NSR to NS, m	Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)	Tonality Correction, dB(A)	Corrected Noise Level, dB(A)
F-01	837735.5	819425.1	Chi Yun School-VRV	61	1	61	169	-53	-10	3	3	4
F-02	837702.6	819431.8	Chi Yun School-VRF	75	1	75	169	-53	-10	3	3	18
F-03	837701.1	819428.1	Chi Yun School-VRF	75	1	75	165	-52	-10	3	3	18
F-04	837697.6	819434.0	Chi Yun School-VRF	75	1	75	170	-53	-10	3	3	18
F-05	837696.1	819430.3	Chi Yun School-VRF	75	1	75	166	-52	-10	3	3	18
F-06	837694.5	819426.5	Chi Yun School-VRF	75	1	75	163	-52	-10	3	3	18
F-07	837694.1	819436.9	Anita L.L. Chan (Centenary) School-VRF	75	1	75	173	-53	-10	3	3	18
F-08	837692.6	819433.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	169	-53	-10	3	3	18
F-09	837691.1	819429.4	Anita L.L. Chan (Centenary) School-VRF	75	1	75	165	-52	-10	3	3	18
F-10	837688.5	819439.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	175	-53	-10	3	3	18
F-11	837687.0	819435.5	Anita L.L. Chan (Centenary) School-VRF	75	1	75	171	-53	-10	3	3	18
F-12	837685.4	819431.7	Anita L.L. Chan (Centenary) School-VRF	75	1	75	168	-52	-10	3	3	18
F-13	837681.2	819397.5	Kei To Secondary School-VRV	65	1	65	133	-51	-10	3	3	10
F-14	837679.6	819393.8	Kei To Secondary School-VRV	65	1	65	130	-50	-10	3	3	11
F-15	837677.3	819399.0	Kei To Secondary School-VRV	65	1	65	135	-51	-10	3	3	10
F-16	837675.8	819395.3	Kei To Secondary School-VRV	65	1	65	131	-50	-10	3	3	11
F-17	837638.5	819378.8	Kei To Secondary School-VRV	65	1	65	124	-50	-10	3	3	11
F-18	837634.5	819382.9	Kei To Secondary School-VRV	65	1	65	129	-50	-10	3	3	11
F-19	837633.0	819379.2	Kei To Secondary School-VRV	65	1	65	126	-50	-10	3	3	11
F-20	837630.1	819384.9	Kei To Secondary School-VRV	65	1	65	133	-50	-10	3	3	11
F-21	837628.5	819381.2	Kei To Secondary School-VRV	65	1	65	130	-50	-10	3	3	11
F-22	837598.2	819326.6	Ngan Po Ling College-VRV-1	68	1	68	107	-49	0	3	3	25
F-23	837597.8	819322.6	Ngan Po Ling College-VRV-1	68	1	68	105	-48	0	3	3	26
F-24	837605.3	819303.9	Ngan Po Ling College-VRV-1	68	1	68	89	-47	0	3	3	27
F-25	837601.6	819308.2	Ngan Po Ling College-VRV-1	68	1	68	95	-48	0	3	3	26
F-26	837601.2	819304.2	Ngan Po Ling College-VRV-1	68	1	68	93	-47	0	3	3	27
F-27	837597.5	819308.5	Ngan Po Ling College-VRV-1	68	1	68	98	-48	0	3	3	26
F-28	837597.2	819304.5	Ngan Po Ling College-VRV-1	68	1	68	97	-48	0	3	3	26
F-29	837633.9	819281.1	Ngan Po Ling College-VRV-2	68	5	75	54	-43	0	3	3	38
F-30	837717.7	819221.4	APB Centre-VRV-1	75	2	78	54	-43	0	3	3	41
F-31	837721.9	819178.1	APB Centre-VRV-1	75	6	82	93	-47	-10	3	3	31
F-32	837692.2	819168.8	APB Centre-VRV-1	75	1	75	96	-48	-10	3	3	23
F-33	837713.6	819144.2	APB Centre-VRV-2	68	1	68	123	-50	0	3	3	24
F-34	837721.0	819215.7	APB Centre-VRV-2	68	3	73	60	-44	-10	3	3	25
F-35	837711.6	819139.7	APB Centre-VRV-3	61	2	64	127	-50	-10	3	3	10
F-36	837702.3	819203.6	APB Centre-Cooling Tower-1	81	2	84	63	-44	0	3	3	46
F-37	837702.1	819198.3	APB Centre-Cooling Tower-2	87	1	87	68	-45	0	3	3	48
F-38	837696.1	819158.8	APB Centre-Chiller	73	1	73	106	-49	0	3	3	30
F-39	837716.2	819158.1	APB Centre-Chiller	73	1	73	110	-49	0	3	3	30
F-40	837709.8	819123.7	Guardforce Centre-Chiller	72	2	75	143	-51	-10	3	3	20
F-41	837705.8	819123.8	Guardforce Centre-Chiller	72	1	72	142	-51	-10	3	3	17
F-42	837772.7	819010.7	Harbour Centre Tower 2-VRV	65	4	71	268	-57	0	3	3	20
F-43	837639.7	819112.6	Hung Hom Industrial Substation-VRV	65	2	68	158	-52	0	3	3	22
F-44	837587.6	819168.5	Penisula Square-Chiller	78	2	81	137	-51	0	3	3	36
F-45	837588.1	819180.7	Penisula Square-Chiller	78	2	81	128	-50	0	3	3	37
F-46	837598.5	819212.3	Kowloon City Government Offices-Cooling Tower	81	4	87	101	-48	0	3	3	45
F-47	837526.9	819240.4	Sunshine Plaza Block 3-Chiller	72	1	72	160	-52	0	3	3	26
F-48	837520.3	819241.3	Sunshine Plaza Block 3-Chiller	72	1	72	167	-52	0	3	3	26
F-49	837513.9	819237.1	Sunshine Plaza Block 3-Chiller	72	1	72	174	-53	0	3	3	25
											Total	**52**

Fixed Noise Impact for Existing Noise Source (T2-04)

NSR (ID)	NSR (x)	NSR (y)	
T2-04	**837716.2**	**819265.4**	**Criteria: Day/Evening Time: 65 dB(A); Night Time: 55 dB(A)**

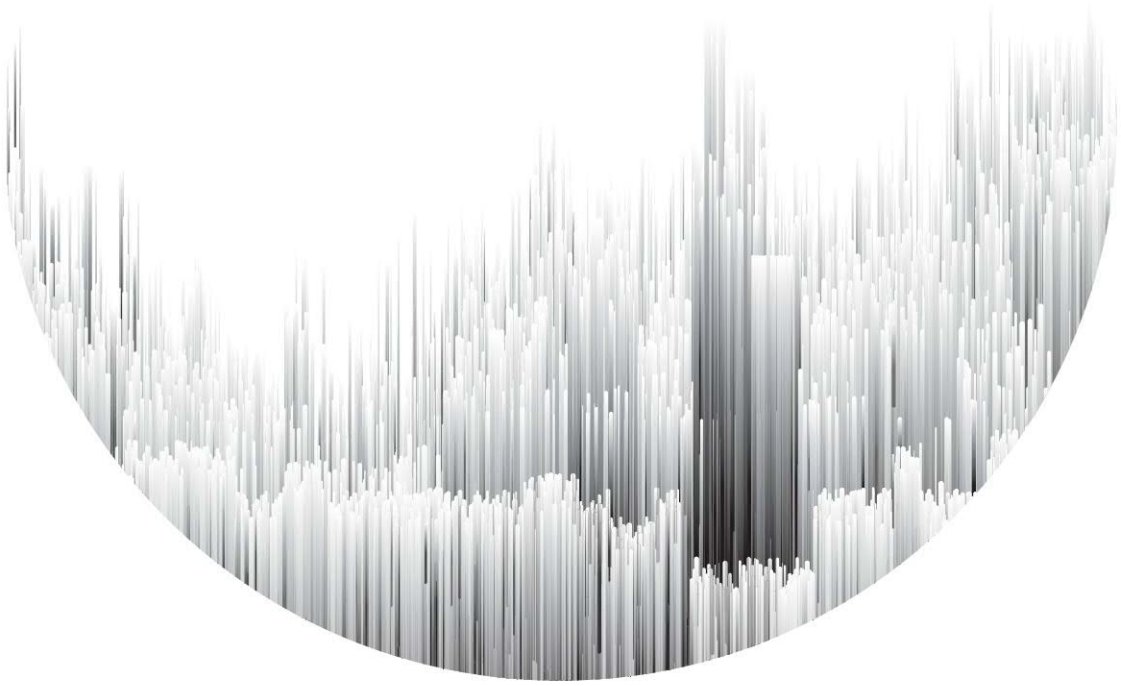
Noise Source (NS) ID	NS (x)	NS (y)	Description	SWL, dB(A)[1]	No. of Units	Overall SWL, dB(A)	Horizontal Distance from NSR to NS, m	Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)	Tonality Correction, dB(A)	Corrected Noise Level, dB(A)
F-01	837735.5	819425.1	Chi Yun School-VRV	61	1	61	161	-52	-10	3	3	5
F-02	837702.6	819431.8	Chi Yun School-VRF	75	1	75	167	-52	-10	3	3	18
F-03	837701.1	819428.1	Chi Yun School-VRF	75	1	75	163	-52	-10	3	3	18
F-04	837697.6	819434.0	Chi Yun School-VRF	75	1	75	170	-53	-10	3	3	18
F-05	837696.1	819430.3	Chi Yun School-VRF	75	1	75	166	-52	-10	3	3	18
F-06	837694.5	819426.5	Chi Yun School-VRF	75	1	75	163	-52	-10	3	3	18
F-07	837694.1	819436.9	Anita L.L. Chan (Centenary) School-VRF	75	1	75	173	-53	-10	3	3	18
F-08	837692.6	819433.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	169	-53	-10	3	3	18
F-09	837691.1	819429.4	Anita L.L. Chan (Centenary) School-VRF	75	1	75	166	-52	-10	3	3	18
F-10	837688.5	819439.2	Anita L.L. Chan (Centenary) School-VRF	75	1	75	176	-53	-10	3	3	18
F-11	837687.0	819435.5	Anita L.L. Chan (Centenary) School-VRF	75	1	75	173	-53	-10	3	3	18
F-12	837685.4	819431.7	Anita L.L. Chan (Centenary) School-VRF	75	1	75	169	-53	-10	3	3	18
F-13	837681.2	819397.5	Kei To Secondary School-VRV	65	1	65	137	-51	-10	3	3	10
F-14	837679.6	819393.8	Kei To Secondary School-VRV	65	1	65	134	-51	-10	3	3	10
F-15	837677.3	819399.0	Kei To Secondary School-VRV	65	1	65	139	-51	-10	3	3	10
F-16	837675.8	819395.3	Kei To Secondary School-VRV	65	1	65	136	-51	-10	3	3	10
F-17	837638.5	819378.8	Kei To Secondary School-VRV	65	1	65	137	-51	-10	3	3	10
F-18	837634.5	819382.9	Kei To Secondary School-VRV	65	1	65	143	-51	-10	3	3	10
F-19	837633.0	819379.2	Kei To Secondary School-VRV	65	1	65	141	-51	-10	3	3	10
F-20	837630.1	819384.9	Kei To Secondary School-VRV	65	1	65	147	-51	-10	3	3	10
F-21	837628.5	819381.2	Kei To Secondary School-VRV	65	1	65	145	-51	-10	3	3	10
F-22	837598.2	819326.6	Ngan Po Ling College-VRV-1	68	1	68	133	-50	-10	3	3	14
F-23	837597.8	819322.6	Ngan Po Ling College-VRV-1	68	1	68	131	-50	-10	3	3	14
F-24	837605.3	819303.9	Ngan Po Ling College-VRV-1	68	1	68	117	-49	-10	3	3	15
F-25	837601.6	819308.2	Ngan Po Ling College-VRV-1	68	1	68	122	-50	-10	3	3	14
F-26	837601.2	819304.2	Ngan Po Ling College-VRV-1	68	1	68	121	-50	-10	3	3	14
F-27	837597.5	819308.5	Ngan Po Ling College-VRV-1	68	1	68	126	-50	-10	3	3	14
F-28	837597.2	819304.5	Ngan Po Ling College-VRV-1	68	1	68	125	-50	-10	3	3	14
F-29	837633.9	819281.1	Ngan Po Ling College-VRV-2	68	5	75	84	-46	-10	3	3	25
F-30	837717.7	819221.4	APB Centre-VRV-1	75	2	78	44	-41	0	3	3	43
F-31	837721.9	819178.1	APB Centre-VRV-1	75	6	82	87	-47	-10	3	3	31
F-32	837692.2	819168.8	APB Centre-VRV-1	75	1	75	100	-48	-10	3	3	23
F-33	837713.6	819144.2	APB Centre-VRV-2	68	1	68	121	-50	0	3	3	24
F-34	837721.0	819215.7	APB Centre-VRV-2	68	3	73	50	-42	-10	3	3	27
F-35	837711.6	819139.7	APB Centre-VRV-3	61	2	64	126	-50	-10	3	3	10
F-36	837702.3	819203.6	APB Centre-Cooling Tower-1	81	2	84	63	-44	0	3	3	46
F-37	837702.1	819198.3	APB Centre-Cooling Tower-2	87	1	87	69	-45	0	3	3	48
F-38	837696.1	819158.8	APB Centre-Chiller	73	1	73	108	-49	0	3	3	30
F-39	837716.2	819158.1	APB Centre-Chiller	73	1	73	107	-49	0	3	3	30
F-40	837709.8	819123.7	Guardforce Centre-Chiller	72	2	75	142	-51	-10	3	3	20
F-41	837705.8	819123.8	Guardforce Centre-Chiller	72	1	72	142	-51	-10	3	3	17
F-42	837772.7	819010.7	Harbour Centre Tower 2-VRV	65	4	71	261	-56	0	3	3	21
F-43	837639.7	819112.6	Hung Hom Industrial Substation-VRV	65	2	68	171	-53	0	3	3	21
F-44	837587.6	819168.5	Penisula Square-Chiller	78	2	81	161	-52	0	3	3	35
F-45	837588.1	819180.7	Penisula Square-Chiller	78	2	81	154	-52	0	3	3	35
F-46	837598.5	819212.3	Kowloon City Government Offices-Cooling Tower	81	4	87	129	-50	0	3	3	42
F-47	837526.9	819240.4	Sunshine Plaza Block 3-Chiller	72	1	72	191	-54	0	3	3	24
F-48	837520.3	819241.3	Sunshine Plaza Block 3-Chiller	72	1	72	197	-54	0	3	3	24
F-49	837513.9	819237.1	Sunshine Plaza Block 3-Chiller	72	1	72	204	-54	0	3	3	24
											Total	**52**

DAIKIN

VRVSDHK2022-1

New Life Style

全心四季 • 全效空調



大金全效家用中央空調

DAIKIN RESIDENTIAL CENTRAL AIR CONDITIONING SYSTEM

VRV 住宅用S系列

室外機規格表

F1,35

室外機				RYZQ3 BAV	RYZQ4 BAV	RYZQ4 BAV	RJZ5 BA	RJZQ6 BAV	JZQ7 CAV	RJZQ8 CAV	RJZQ7 BAY	RJZQ8 BAY	RJZQ9 BAY	RJZQ10 CAY	RJZQ11 CAY	RJZQ12 CAY	RJZQ14 BAY	RJZQ16 BAY
電源				單相 220	50Hz						三相 380V 50Hz							
製冷量			kW	8.00	11.20	11.20	14	15.50	20.00	22.40	20.00	22.40	24.10	28.00	30.80	33.50	40.00	45.00
製暖量			kW	9.00	12.50	12.50	16	18.00	22.40	25.00	22.40	25.00	26.00	31.50	33.90	37.50	45.00	50.00
IPLV(C)				7.60						7.10	6.90	6.80			6.70		7.50	7.40
APF				5.50				5.		4.80					4.50			
運轉音量			dB(A)	50	51			53		56	55	56	57			58	61	
額定耗電量	製冷		kW	1.95	2.73		3.	4.19	5.22	5.80	5.22	6.00	6.89	7.20	8.30	9.10	10.70	12.70
	製暖		kW	2.07	2.87		3.	4.45	5.35	5.80	5.60	6.00	6.42	8.29	8.48	9.88	10.90	12.40
外形尺寸 (H×W×D)			mm	823×940(1030)*×460		990×940×3		1345× 900×320		1430×940×320				1615× 940×460			1657×1240×765	
風扇風量			m³/min	91		76		106		140				182			223	260
重量			kg	75		80		105	123	141	132	141		174		180	288	
壓縮機形式				全封閉雙擺動式						全封閉旋渦式								
連接喉管	液管/氣管		mm	Ø9.5/Ø15.9				Ø9.5/Ø19.1						Ø9.5/Ø22.2		Ø12.7/Ø25.4		Ø12.7/ Ø28.6
	高低壓管		mm	Ø12.7												Ø15.9		
運轉範圍（製冷/製暖）				-5~52°CDB/-20~15.5°CWB														
最小線路電流	MCA		A	19.8		29.1				34	18.5			22		24	27	31
最大保險絲電流	MFA		A	25		32				40	25					32		40

<全效型>
*連突起處

室外機				RJLQ5BAV	RJLQ6BAV
電源				單相 220V 50Hz	
製冷量			kW	14.00	15.50
製暖量			kW	16.00	18.00
IPLV(C)				7.10	7.00
APF				5.2	4.8
運轉音量			dB(A)	51	53
額定耗電量	製冷		kW	3.62	4.30
	製暖		kW	3.77	4.48
外形尺寸 (H×W×D)			mm	823×940×460	
風扇風量			m³/min	91	
重量			kg	88	
壓縮機形式				全封閉雙擺動式	
連接喉管	液管		mm	Ø9.5	
	氣管		mm	Ø15.9	Ø19.1
運轉範圍（製冷/製暖）				-5~52°CDB/-20~15.5°CWB	
最小線路電流	MCA		A	29.1	
最大保險絲電流	MFA		A	32	

<低矮型>

注：1. 上述室外機能力表示製冷時條件：室內回氣溫度27°CDB，19°CWB；室外溫度35°CDB。
2. 上述室外機能力表示制熱時條件：室內回氣溫度20°CDB，室外溫度7°CDB, 6°CWB。
3. 上述系統連接率是50~130%。
4. 上述室外機規格參數適用於2018年5月以後生產的產品。（機型和規格會因產品更新而變化，恕不另行通知）。
5. 本標本中記載的運轉音是在消音室內測得，在實際安裝狀態下，因受周圍噪音及反射聲的影響，一般要高於本標本的記載值。
6. 根據MFA來選擇熔絲或空氣開關，根據MCA來選擇電氣配線規格。

室內機規格表

室內機	標準型			FJTP 22CAP	FJTP 25CAP	FJTP 28CAP	FJTP 32CAP	FJTP 36CAP	FJTP 40CAP	FJTP 45CAP	FJTP 50CAP	FJTP 56CAP	FJTP 63CAP	FJTP 71CAP
電源				單相 220V 50Hz										
製冷量			kW	2.2	2.5	2.8	3.2	3.6	4.0	4.5	5.0	5.6	6.3	7.1
製暖量			kW	2.5	2.8	3.2	3.6	4	4.5	5.0	5.6	6.3	7.1	8.0
額定耗電量 (製冷/製暖)	標準型		W	17/13		21/17	23/19	26/22	38/34	45/41	50/46		52/48	54/50
機器尺寸 (H×W×D)			mm	200×828×350							200×1200×350			
面板	型號	標準型		BYTP45W1C							BYTP71W1C			
	尺寸 (H×W×D)		mm	169×1157×65							169×1523×65			
風扇風量			m³/min	7.0/6.6/ 6.2/5.9/5.6		8.2/7.8/ 7.4/6.9/6.4	8.9/8.3/ 7.7/7.2/6.7	9.6/9.0/ 8.4/7.9/7.4	10.7/9.9/ 9.1/8.3/7.5	11.7/10.7/ 9.7/8.6/7.6	18/16.2/ 14.3/12.4/10.5		18.5/16.7/ 14.8/12.9/11	19/17.1/ 15.3/13.4/11.5
運轉音量			dB(A)	27/26/ 25/25/24		30/29/ 28/27/26	32/31/ 30/28/26	33/32/ 31/30/28	37/35/ 33/32/30	39/37/ 35/32/31	39/37/ 35/34/32		40/38/ 36/34/32	43/41/ 39/37/35
機外靜壓（高/標準）			Pa	10/0										
喉管	液管		mm	Ø6.4									Ø9.5	
	氣管		mm	Ø12.7									Ø15.9	
	排水管		mm	PVC26(O.D.Ø26×I.D.Ø20)										
電量			kg	15							20			
最小線路電流	MCA		A	0.19		0.24	0.26	0.29	0.36	0.43	0.48		0.49	0.51
最大保險絲電流	MFA		A	16										
空氣過濾網				抗霉菌濾網										
遙控器	標準配件/供選配件			BRC1E631(有線)/BRC1H611(有線)、BRC4L621(無線)、BRC4H611(無線)										

燈槽專用室內機
標準型

標準配件
750mm
冷凝水提升泵
<自帶冷凝水提升泵>

1. Outdoor Unit

1-1. Specifications (Standard-COP mode) (continued)

■ **In 50Hz area**

F2-F12,30-32

Unit specifications (2)

OUTDOOR		MODEL	U-14ME1H8			U-16ME1H8			U-18ME1H8		
PERFORMANCE TEST CONDITION			EN14511			EN14511			EN14511		
POWER SUPPLY		ø, Hz	3ø 50Hz			3ø 50Hz			3ø 50Hz		
		V	380	400	415	380	400	415	380	400	415
COOLING	CAPACITY	kW	40.0	40.0	40.0	45.0	45.0	45.0	50.0	50.0	50.0
		BTU/h	136500	136500	136500	153600	153600	153600	170600	170600	170600
		kcal/h(Fri./h)	-	-	-	-	-	-	-	-	-
	CURRENT	A	18.00	17.10	16.50	21.80	20.70	19.90	24.00	22.80	22.00
	INPUT POWER	W	11.10k	11.10k	11.10k	13.40k	13.40k	13.40k	14.30k	14.30k	14.30k
	ANNUAL CONSUMPTION	W *4	-	-	-	-	-	-	-	-	-
	EER/EER CLASS	(W/W)*5/("A"~"G")	3.60	3.60	3.60	3.36	3.36	3.36	3.50	3.50	3.50
	EER	BTU/hW	-	-	-	-	-	-	-	-	-
	POWER FACTOR	%	94	94	94	93	93	94	91	91	90
	NOISE INDOOR (H/L)	dB-A	-			-			-		
		Power Level dB	-			-			-		
	NOISE OUTDOOR (H/L)	dB-A	62.0 / -			62.0 / -			60.0 / -		
		Power Level dB	76.5 / -			76.5 / -			74.5 / -		
HEATING	CAPACITY	kW	45.0	45.0	45.0	50.0	50.0	50.0	56.0	56.0	56.0
		BTU/h	153600	153600	153600	170600	170600	170600	191100	191100	191100
		kcal/h(Fri./h)	-	-	-	-	-	-	-	-	-
	CURRENT	A	17.40	16.50	15.90	21.10	20.10	19.30	24.30	23.10	22.30
	INPUT POWER	W	10.70k	10.70k	10.70k	13.00k	13.00k	13.00k	14.50k	14.50k	14.50k
	COP/COP CLASS	(W/W)*5/("A"~"G")	4.21	4.21	4.21	3.85	3.85	3.85	3.86	3.86	3.86
	COP	BTU/hW	-	-	-	-	-	-	-	-	-
	POWER FACTOR	%	93	94	94	94	93	94	91	91	90
	NOISE INDOOR (H/L)	dB-A	-			-			-		
		Power Level dB	-			-			-		
EXTRA LOW TEMP	CAPACITY(kW)/INPUT POWER(W)/COP		-			-			-		
	MAX CURRENT(A)/MAX INPUT POWER(W)		23.3 / 14.4k	23.3 / 15.1k	23.3 / 15.7k	28.4 / 17.5k	28.4 / 18.4k	28.4 / 19.1k	30.5 / 18.2k	30.5 / 19.1k	30.5 / 19.8k
STARTING CURRENT(A)/COMP OUTPUT(W)			74 / -	77 / -	80 / -	78 / -	81 / -	85 / -	91 / -	93 / -	96 / -
NETWORK IMPEDANCE (ΩMAX.) *3			-			-			-		
FM OUTPUT (I.D./O.D.) W			-	/	750	-	/	750	-	/	750×2
MOISTURE REMOVAL VOLUME		L/h(Pt/h)	-			-			-		
External static pressure		Pa (mmAq)	0 ~ 80		(0.00 ~ 8.16)	0 ~ 80		(0.00 ~ 8.16)	0 ~ 80		(0.00 ~ 8.16)
I.D. AIR FLOW	COOL	m^3/min (ft^3/min)	-			-			-		
	HEAT	m^3/min (ft^3/min)	-			-			-		
O.D. AIR FLOW		m^3/min (ft^3/min)	212		(7487)	212		(7487)	244		(8617)
REFRIGERANT TYPE, AMOUNT (O.D. Base / MAX) g(oz)			R410A	8.5k / 50.0k	(300 / 1764)	R410A	8.5k / 50.0k	(300 / 1764)	R410A	9.0k / 50.0k	(317 / 1764
PROD IM	HEIGHT : H mm(inch) O.D.		1758		(69-7/32)	1758		(69-7/32)	1758		(69-7/32)
	WIDTH : W mm(inch) O.D.		1000		(39-3/8)	1000		(39-3/8)	1540		(60-5/8)
	DEPTH : D mm(inch) O.D.		930		(36-39/64)	930		(36-39/64)	930		(36-39/64)
PAC DIM	HEIGHT : H mm(inch) O.D.		1873		(73-47/64)	1873		(73-47/64)	1873		(73-47/64)
	WIDTH : W mm(inch) O.D.		1108		(43-5/8)	1108		(43-5/8)	1695		(66-47/64)
	DEPTH : D mm(inch) O.D.		1030		(40-35/64)	1030		(40-35/64)	1030		(40-35/64)
MASS	(NET) kg(lb) O.D.		309		(681)	309		(681)	421		(928)
	(GROSS) kg(lb) O.D.		322		(710)	322		(710)	440		(970)
LAYERS LIMIT (actually)			1 (2)			1 (2)			1 (2)		
Operation Condition		Cool O.D. (DBT)	-10°C ~ 46°C			-10°C ~ 46°C			-10°C ~ 46°C		
		Heat O.D. (WBT)	-25°C ~ 15°C			-25°C ~ 15°C			-25°C ~ 15°C		
PIPING	MAIN PIPE DIAMETER (NORMAL) mm (inch) (OVER 90m FOR ULTIMATE I.D.) mm (inch)		(Liquid) ø12.7 (1/2) (Gas) ø25.4 (1 inch)*1 (Balance) ø6.35(1/4) (Liquid) ø15.88 (5/8) (Gas) ø28.58 (1-1/8)			(Liquid) ø12.7 (1/2) (Gas) ø28.58 (1-1/8)*1 (Balance) ø6.35(1/4) (Liquid) ø15.88 (5/8) (Gas) ø31.75 (1-1/4)			(Liquid) ø15.88 (5/8) (Gas) ø28.58 (1-1/8)*1 (Balance) ø6.35(1/4) (Liquid) ø19.05 (3/4) (Gas) ø31.75 (1-1/4)		
	CONNECT METHOD		flared(Liquid) ,brazing(Gas) ,flared(Balance)			flared(Liquid) ,brazing(Gas) ,flared(Balance)			lared(Liquid) ,brazing(Gas) ,flared(Balance		
	PIPE LENGTH RANGE m (ft)		7.5 ~ 1000		(24.6 ~ 3280.8)	7.5 ~ 1000		(24.6 ~ 3280.8)	7.5 ~ 1000		(24.6 ~ 3280.8)
	I.D.&O.D. HEIGHT DIFFERENCE (O.D. upper / O.D. Lower) m (ft)		50 / 40		(164.0 / 131.2)	50 / 40		(164.0 / 131.2)	50 / 40		(164.0 / 131.2)
	PIPE LENGTH FOR ADDITIONAL GAS m (ft)		0 ~		(0 ~) *2	0 ~		(0 ~) *2	0 ~		(0 ~) *2

*1: Main Pipe Diameter size-up apply to O.D. to first branch pipe
*2: It's necessary to add Gas corresponding to total liquid pipe length, even if installation condition is shortest pipe length.
*3: Network Impedance shall be applicable for EUROPE and CHINA models.



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室外机阵容

室外机			 F13-21,42-43															
型号			RUXYQ8BA	RUXYQ10BA	RUXYQ12BA	RUXYQ14BA	RUXYQ16BA	RUXYQ18BA	RUXYQ20BA	RUXYQ22BA	RUXYQ24BA	RUXYQ26BA	RUXYQ28BA	RUXYQ30BA	RUXYQ32BA	RUXYQ34BA	RUXYQ36BA	RUXYQ38BA
匹数		HP	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38
组合方式			——	——	——	——	——	——	——	——	RUXYQ10BA RUXYQ14BA	RUXYQ12BA RUXYQ14BA	RUXYQ8BA RUXYQ20BA	RUXYQ8BA RUXYQ22BA	RUXYQ10BA RUXYQ22BA	RUXYQ12BA RUXYQ22BA	RUXYQ14BA RUXYQ22BA	RUXYQ18BA RUXYQ20BA
电源			三相 50Hz 380V															
*1 额定制冷容量		kW	22.4	28.0	33.5	40.0	45.0	50.4	56.5	61.5	68.0	73.5	78.9	83.9	89.5	95.0	101.5	106.9
*2 额定制热容量		kW	25.0	31.5	37.5	45.0	50.0	56.5	63.0	69.0	76.5	82.5	88.0	94.0	100.5	106.5	114.0	119.5
额定耗电量	制冷	kW	4.70	6.71	8.10	9.88	11.80	12.80	14.70	17.30	16.6	18.0	19.4	22.0	24.0	25.4	27.2	27.5
	制热	kW	5.24	6.72	8.48	10.50	12.10	13.30	15.30	17.00	17.2	19.0	20.5	22.2	23.7	25.5	27.5	28.6
风扇风量		m³/min	162	175	185	223	280	271	271	271	175+223	185+223	162+271	162+271	175+271	185+271	223+271	271+271
机器尺寸(H×W×D)		mm	1657×930×765		1657×1240×765						1657×930×765+1657×1240×765						1657×1240×765+1657×1240×765	
*3 运转音	正面运转音	dB(A)	53	54	56		57	58	59	60	58	59	60	61		62		
	四面运转音	dB(A)	56	57	59		60	61	62	63	61	62	63	64		65		
夜间静音运转		dB(A)	40								43							
现场配管尺寸	液管	mm	Φ9.5(钎焊连接)		Φ12.7(钎焊连接)			Φ15.9(钎焊连接)			Φ19.1(钎焊连接)							
	气管	mm	Φ19.1 (钎焊连接)	Φ22.2 (钎焊连接)	Φ25.4(钎焊连接)		Φ28.6(钎焊连接)				Φ31.8(钎焊连接)						Φ38.1(钎焊连接)	
重量		kg	189		226	250	291	300			446		489		496		550	600
冷媒	名称		R410A															
	自带填充量	kg	8.4	8.6	8.7	11.1		15.6			8.6+11.1	8.7+11.1	8.4+15.6		8.6+15.6	8.7+15.6	11.1+15.6	15.6+15.6
运转范围	制冷	°CDB	-15~54°CDB*5															
	制热	°CWB	-25~15.5°CWB															
*4 最小线路电流	MCA	A	16.1	18.0	20.1	24.4	26.0	34.8	39.6	43.6	40.2	44.0	46.1	59.7	61.6	63.7	68.0	69.6
*4 最大熔丝电流	MFA	A	2		25	32		40		50			63		80			

室外机																		
型号			RUXYQ40BA	RUXYQ42BA	RUXYQ44BA	RUXYQ46BA	RUXYQ48BA	RUXYQ50BA	RUXYQ52BA	RUXYQ54BA	RUXYQ56BA	RUXYQ58BA	RUXYQ60BA	RUXYQ62BA	RUXYQ64BA	RUXYQ66BA		
匹数		HP	40	42	44	46	48	50	52	54	56	58	60	62	64	66		
组合方式			RUXYQ18BA RUXYQ22BA	RUXYQ20BA RUXYQ22BA	RUXYQ22BA RUXYQ22BA	RUXYQ10BA RUXYQ14BA RUXYQ22BA	RUXYQ12BA RUXYQ14BA RUXYQ22BA	RUXYQ8BA RUXYQ20BA RUXYQ22BA	RUXYQ10BA RUXYQ20BA RUXYQ22BA	RUXYQ10BA RUXYQ22BA RUXYQ22BA	RUXYQ12BA RUXYQ22BA RUXYQ22BA	RUXYQ14BA RUXYQ22BA RUXYQ22BA	RUXYQ20BA RUXYQ20BA RUXYQ20BA	RUXYQ18BA RUXYQ22BA RUXYQ22BA	RUXYQ20BA RUXYQ22BA RUXYQ22BA	RUXYQ22BA RUXYQ22BA RUXYQ22BA		
电源			三相 50Hz 380V															
*1 额定制冷容量		kW	111.9	118.0	123.0	129.5	135.0	140.4	146.0	151.0	156.5	163.0	169.5	173.4	179.5	184.5		
*2 额定制热容量		kW	125.5	132.0	138.0	145.5	151.5	157.0	163.5	169.5	175.5	183.0	189.0	194.5	201.0	207.0		
额定耗电量	制冷	kW	30.1	32.0	34.6	33.9	35.3	36.7	38.7	41.3	42.7	44.5	44.1	47.4	49.3	51.9		
	制热	kW	30.3	32.3	34.0	34.2	36.0	37.5	39.0	40.7	42.5	44.5	45.9	47.3	49.3	51.0		
风扇风量		m³/min	271+271	271+271	271+271	175+223+271	185+223+271	162+271+271	175+271+271	175+271+271	185+271+271	223+271+271	271+271+271	271+271+271	271+271+271	271+271+271		
机器尺寸(H×W×D)		mm	1657×1240×765+1657×1240×765			1657×930×765+		1657×1240×765+1657×1240×765				1657×1240×765+1657×1240×765+1657×1240×765						
*3 运转音	正面运转音	dB(A)	62	63		62	63		64						65	66		
	四面运转音	dB(A)	65	66		65	66		67						68	69		
夜间静音运转		dB(A)	43			45												
现场配管尺寸	液管	mm	Φ19.1(钎焊连接)															
	气管	mm	Φ38.1(钎焊连接)								Φ41.3(钎焊连接)							
重量		kg	600			746		789	796			850	900					
冷媒	名称		R410A															
	自带填充量	kg	15.6+15.6			8.6+11.1+15.6	8.7+11.1+15.6	8.4+15.6+15.6	8.6+15.6+15.6		8.7+15.6+15.6	11.1+15.6+15.6	15.6+15.6+15.6					
运转范围	制冷	°CDB	-15~54°CDB*5															
	制热	°CWB	-25~15.5°CWB															
*4 最小线路电流	MCA	A	78.4	83.2	87.2	85.7	87.6	89.7	101.2	105.2	107.3	111.6	113.2	122.0	126.8	130.8		
*4 最大熔丝电流	MFA	A	100						125					140		160		

*1 室内温度：27°CDB，19°CWB/室外温度：35°CDB。
*2 室内温度：20°CDB/室外温度：7°CDB，6°CWB。
*3 运转音是在半消音室测得的；四面运转音是按照GB18837最新进行四点测试得到的值；正面运转音为公司内部测量值。
*4 根据MFA来选择熔丝或空气开关，根据MCA来选择电气配线规格。
*5 -15°CDB ~ -5°CDB时制冷有前提条件，具体请咨询大金的专业工程师。

注：空调系统的连接率范围:50%~130%，如系统内连接大空间用风管式室内机时引入新风，室内机连接总容量不能超过室外机容量的115%，若大空间用风管式室内机未引入新风，连接总容量仍为不超过室外机容量的130%。

室外机阵容

室外机											 F22-29,33-34							
型号			RUXYQ8BA	RUXYQ10BA	RUXYQ12BA	RUXYQ14BA	RUXYQ16BA	RUXYQ18BA	RUXYQ20BA	RUXYQ22BA	RUXYQ24BA	RUXYQ26BA	RUXYQ28BA	RUXYQ30BA	RUXYQ32BA	RUXYQ34BA	RUXYQ36BA	RUXYQ38BA
匹数		HP	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38
组合方式			——	——	——	——	——	——	——	——	RUXYQ10BA RUXYQ14BA	RUXYQ12BA RUXYQ14BA	RUXYQ8BA RUXYQ20BA	RUXYQ8BA RUXYQ22BA	RUXYQ10BA RUXYQ22BA	RUXYQ12BA RUXYQ22BA	RUXYQ14BA RUXYQ22BA	RUXYQ16BA RUXYQ20BA
电源			三相 50Hz 380V															
*1 额定制冷容量		kW	22.4	28.0	33.5	40.0	45.0	50.4	56.5	61.5	68.0	73.5	78.9	83.9	89.5	95.0	101.5	106.9
*2 额定制热容量		kW	25.0	31.5	37.5	45.0	50.0	56.5	63.0	69.0	76.5	82.5	88.0	94.0	100.5	106.5	114.0	119.5
额定耗电量	制冷	kW	4.70	6.71	8.10	9.88	11.80	12.80	14.70	17.30	16.6	18.0	19.4	22.0	24.0	25.4	27.2	27.5
	制热	kW	5.24	6.72	8.48	10.50	12.10	13.30	15.30	17.00	17.2	19.0	20.5	22.2	23.7	25.5	27.5	28.6
风扇风量		m³/min	162	175	185	223	280	271	271	271	175+223	185+223	162+271	162+271	175+271	185+271	223+271	271+271
机器尺寸(H×W×D)		mm	1657×930×765			1657×1240×765							1657×930×765+1657×1240×765				1657×1240×765+1657×1240×765	
*3 运转音	正面运转音	dB(A)	53	54	56		57	58	59	60	58	59	60	61			62	
	四面运转音	dB(A)	56	57	59		60	61	62	63	61	62	63	64			65	
夜间静音运转		dB(A)	40											43				
现场配管尺寸	液管	mm	Φ9.5(钎焊连接)		Φ12.7(钎焊连接)			Φ15.9(钎焊连接)						Φ19.1(钎焊连接)				
	气管	mm	Φ19.1 (钎焊连接)	Φ22.2 (钎焊连接)	Φ25.4(钎焊连接)		Φ28.6(钎焊连接)							Φ31.8(钎焊连接)			Φ38.1(钎焊连接)	
重量		kg	189	196		250	291	300			446			459	496		550	600
冷媒	名称		R410A															
	自带填充量	kg	8.4	8.6	8.7	11.1		15.6			8.6+11.1	8.7+11.1	8.4+15.6	8.6+15.6	8.7+15.6		11.1+15.6	15.6+15.6
运转范围	制冷	°CDB	-15~54°CDB*5															
	制热	°CWB	-25~15.5°CWB															
*4 最小线路电流	MCA	A	16.1	18.0	20.1	24.4	26.0	34.8	39.6	43.6	40.2	44.0	46.1	59.7	61.6	63.7	68.0	69.6
*4 最大熔丝电流	MFA	A	20		25	32		40	50				63	80				

室外机																	
型号			RUXYQ40BA	RUXYQ42BA	RUXYQ44BA	RUXYQ46BA	RUXYQ48BA	RUXYQ50BA	RUXYQ52BA	RUXYQ54BA	RUXYQ56BA	RUXYQ58BA	RUXYQ60BA	RUXYQ62BA	RUXYQ64BA	RUXYQ66BA
匹数		HP	40	42	44	46	48	50	52	54	56	58	60	62	64	66
组合方式			RUXYQ18BA RUXYQ22BA	RUXYQ20BA RUXYQ22BA	RUXYQ22BA RUXYQ22BA	RUXYQ10BA RUXYQ14BA RUXYQ22BA	RUXYQ12BA RUXYQ14BA RUXYQ22BA	RUXYQ8BA RUXYQ20BA RUXYQ22BA	RUXYQ10BA RUXYQ20BA RUXYQ22BA	RUXYQ10BA RUXYQ22BA RUXYQ22BA	RUXYQ12BA RUXYQ22BA RUXYQ22BA	RUXYQ14BA RUXYQ22BA RUXYQ22BA	RUXYQ20BA RUXYQ20BA RUXYQ20BA	RUXYQ18BA RUXYQ22BA RUXYQ22BA	RUXYQ20BA RUXYQ22BA RUXYQ22BA	RUXYQ22BA RUXYQ22BA RUXYQ22BA
电源			三相 50Hz 380V													
*1 额定制冷容量		kW	111.9	118.0	123.0	129.5	135.0	140.4	146.0	151.0	156.5	163.0	169.5	173.4	179.5	184.5
*2 额定制热容量		kW	125.5	132.0	138.0	145.5	151.5	157.0	163.5	169.5	175.5	183.0	189.0	194.5	201.0	207.0
额定耗电量	制冷	kW	30.1	32.0	34.6	33.9	35.3	36.7	38.7	41.3	42.7	44.5	44.1	47.4	49.3	51.9
	制热	kW	30.3	32.3	34.0	34.2	36.0	37.5	39.0	40.7	42.5	44.5	45.9	47.3	49.3	51.0
风扇风量		m³/min	271+271	271+271	271+271	175+223+271	185+223+271	162+271+271	175+271+271	175+271+271	185+271+271	223+271+271	271+271+271	271+271+271	271+271+271	271+271+271
机器尺寸(H×W×D)		mm	1657×1240×765+1657×1240×765			1657×930×765+1657×1240×765+1657×1240×765						1657×1240×765+1657×1240×765+1657×1240×765				
*3 运转音	正面运转音	dB(A)	62	63		62	63		64						65	66
	四面运转音	dB(A)	65	66		65	66		67						68	69
夜间静音运转		dB(A)	43			45										
现场配管尺寸	液管	mm	Φ19.1(钎焊连接)													
	气管	mm	Φ38.1(钎焊连接)								Φ41.3(钎焊连接)					
重量		kg	600			746		789	796			850	900			
冷媒	名称		R410A													
	自带填充量	kg	15.6+15.6			8.6+11.1+15.6	8.7+11.1+15.6	8.4+15.6+15.6	8.6+15.6+15.6		8.7+15.6+15.6	11.1+15.6+15.6	15.6+15.6+15.6			
运转范围	制冷	°CDB	-15~54°CDB*5													
	制热	°CWB	-25~15.5°CWB													
*4 最小线路电流	MCA	A	78.4	83.2	87.2	85.7	87.6	89.7	101.2	105.2	107.3	111.6	113.2	122.0	126.8	130.8
*4 最大熔丝电流	MFA	A	100						125			140				160

*1 室内温度：27°CDB，19°CWB/室外温度：35°CDB。
*2 室内温度：20°CDB/室外温度：7°CDB，6°CWB。
*3 运转音是在半消音室测得的；四面运转音是按照GB18837最新进行四点测试得到的值；正面运转音为公司内部测量值。
*4 根据MFA来选择熔丝或空气开关，根据MCA来选择电气配线规格。
*5 -15°CDB ~ -5°CDB时制冷有前提条件，具体请咨询大金的专业工程师。

注：空调系统的连接率范围:50%~130%，如系统内连接大空间用风管式室内机时引入新风，室内机连接总容量不能超过室外机容量的115%，若大空间用风管式室内机未引入新风，连接总容量仍为不超过室外机容量的130%。

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FRP 玻璃鋼矩形冷卻塔

CROSS FLOW 橫流式 FW SERIES

COOLING TOWER

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FW LOW NOISE TYPE SPECIFICATION

Model 型號	Overall Dimension 外圍尺碼			Nominal Flow Rate 處理水量 (m³/hr)		Fan 風扇 Ø x Nos (mm)	Motor 馬達 kW x Nos	Piping 喉管						Weight 重量 (kg公斤)		Noise 噪音 SPL dB(A)
	L 長 (mm)	W 闊 (mm)	H 高 (mm)	28℃	27℃			Inlet 入水 (mm)	Outlet 出水 (mm)	Fv 浮波 (mm)	Mm 手動補充水 (mm)	Of 滿水 (mm)	Dr 排水 (mm)	Dry 淨重	Wet 運行重	
FW-125	4000	2000	4125	125	146	1600x1	2.2x1	100x2	150x1	25x1	25x1	50x1	50x1	1325	3140	61
FW-150	4000	2000	4125	150	176	1600x1	3.7x1	100x2	150x1	25x1	25x1	50x1	50x1	1335	3150	62
FW-175	4400	2300	4125	175	205	1800x1	3.7x1	100x2	150x1	25x1	25x1	50x1	50x1	1525	3650	63
FW-200	4400	2300	4125	200	234	1800x1	5.5x1	125x2	200x1	40x1	40x1	80x1	50x1	1570	3695	64
FW-225	4400	2600	4125	225	263	2000x1	5.5x1	125x2	200x1	40x1	40x1	80x1	50x1	1680	4040	64
FW-250	4400	2600	4125	250	293	2000x1	7.5x1	125x2	200x1	40x1	40x1	80x1	50x1	1690	4050	65
FW-300	4000	4000	4125	300	351	1600x2	3.7x2	100x4	200x1	40x1	40x1	80x1	50x1	2620	5805	65
FW-350	4400	4600	4125	350	410	1800x2	3.7x2	100x4	250x1	50x1	50x1	80x1	50x1	3000	6800	66
FW-400	4400	4600	4125	400	468	1800x2	5.5x2	125x4	250x1	50x1	50x1	80x1	50x1	3090	6890	66
FW-450	4400	5200	4125	450	527	2000x2	5.5x2	125x4	250x1	50x1	50x1	80x1	50x1	3310	7580	67
FW-500	4400	5200	4125	500	585	2000x2	7.5x2	125x4	250x1	50x1	50x1	80x1	50x1	3330	7600	68
FW-600	4400	6900	4125	600	702	1800x3	5.5x3	125x6	200x2	40x2	40x2	80x2	50x2	4660	10590	68
FW-675	4400	7800	4125	675	790	2000x3	5.5x3	125x6	200x2	40x2	40x2	80x2	50x2	4990	11625	69
FW-750	4400	7800	4125	750	878	2000x3	7.5x3	125x6	250x2	50x2	50x2	80x2	50x2	5020	11655	69
FW-800	4400	9200	4125	800	936	1800x4	5.5x4	125x8	250x2	50x2	50x2	80x2	50x2	6180	13785	70
FW-900	4400	10400	4125	900	1053	2000x4	5.5x4	125x8	250x2	50x2	50x2	80x2	50x2	6620	15165	71
FW-1000	4400	10400	4125	1000	1170	2000x4	7.5x4	125x8	250x2	50x2	50x2	80x2	50x2	6660	15205	71
FW-1250	4400	13000	4125	1250	1463	2000x5	7.5x5	125x10	250x3	40x3	40x3	80x3	50x3	8350	19255	73
FW-1500	4400	15600	4125	1500	1755	2000x6	7.5x6	125x12	250x3	40x3	40x3	80x3	50x3	9990	22805	74
FW-125SL	4000	2000	5125	125	146	1600x1	2.2x1	100x2	150x1	25x1	25x1	50x1	50x1	1375	3190	58
FW-150SL	4000	2000	5125	150	176	1600x1	3.7x1	100x2	200x1	25x1	25x1	50x1	50x1	1390	3205	58
FW-175SL	4400	2300	5125	175	205	1800x1	3.7x1	100x2	200x1	25x1	25x1	50x1	50x1	1590	3715	59
FW-200SL	4400	2300	5125	200	234	1800x1	5.5x1	125x2	200x1	40x1	40x1	80x1	50x1	1635	3760	60
FW-225SL	4400	2600	5125	225	263	2000x1	5.5x1	125x2	200x1	40x1	40x1	80x1	50x1	1750	4110	60
FW-250SL	4400	2600	5125	250	293	2000x1	7.5x1	125x2	200x1	40x1	40x1	80x1	50x1	1760	4120	61
FW-300SL	4000	4000	5125	300	351	1600x2	3.7x2	100x4	200x1	40x1	40x1	80x1	50x1	2730	5915	61
FW-350SL	4400	4600	5125	350	410	1800x2	3.7x2	100x4	250x1	50x1	50x1	80x1	50x1	3130	6930	61
FW-400SL	4400	4600	5125	400	468	1800x2	5.5x2	125x4	250x1	50x1	50x1	80x1	50x1	3220	7020	62
FW-450SL	4400	5200	5125	450	527	2000x2	5.5x2	125x4	250x1	50x1	50x1	80x1	50x1	3450	7720	62
FW-500SL	4400	5200	5125	500	585	2000x2	7.5x2	125x4	250x1	50x1	50x1	80x1	50x1	3470	7740	62
FW-600SL	4400	6900	5125	600	702	1800x3	5.5x3	125x6	200x2	40x2	40x2	80x2	50x2	4855	10780	63
FW-675SL	4400	7800	5125	675	790	2000x3	5.5x3	125x6	200x2	40x2	40x2	80x2	50x2	5200	11830	63
FW-750SL	4400	7800	5125	750	878	2000x3	7.5x3	125x6	250x2	50x2	50x2	80x2	50x2	5230	11860	64
FW-800SL	4400	9200	5125	800	936	1800x4	5.5x4	125x8	250x2	50x2	50x2	80x2	50x2	6440	14045	67
FW-900SL	4400	10400	5125	900	1053	2000x4	5.5x4	125x8	250x2	50x2	50x2	80x2	50x2	6900	15445	68
FW-1000SL	4400	10400	5125	1000	1170	2000x4	7.5x4	125x8	250x2	50x2	50x2	80x2	50x2	6940	15485	68
FW-1250SL	4400	13000	5125	1250	1463	2000x5	7.5x5	125x10	250x3	40x3	40x3	80x3	50x3	8700	19605	69
FW-1500SL	4400	15600	5125	1500	1755	2000x6	7.5x6	125x12	250x3	40x3	40x3	80x3	50x3	10410	23225	70

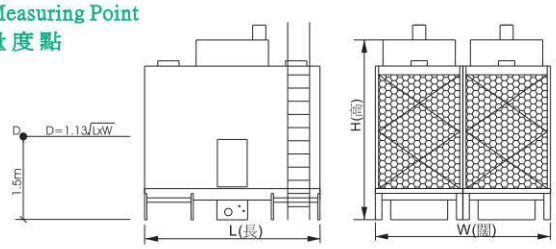
F-36,46

F-37

Note: Nominal cooling capacity is based on 1.0 m^3/hr/WT at 37°C hot water in, 32°C cold water out and 28°C ambient wet bulb.

備註： 標準冷卻性能爲 1.0 立方米/小時/噸 37°C入水溫，32°C出水溫，28°C室外濕球溫度設計

Noise Measuring Point
噪音量度點



GUARANTEE 保用

All components are guaranteed against defective material for a period of one (1) year. When return to RYOWO with transportation prepaid, all parts found by factory inspection to be defective will be repaired or replaced without charge, FOB HONG KONG or FOB SHENZHEN, PRC. No liability will be assumed for loss or damage resulting from misuse products.

菱和產品於正常運行使用下均可享有一年免費保用（於出廠之日起）。當損壞零件送回本公司或當地代理銷售商，經檢查證實符合上述條件，其維修或替換費用全免。

DAIKIN

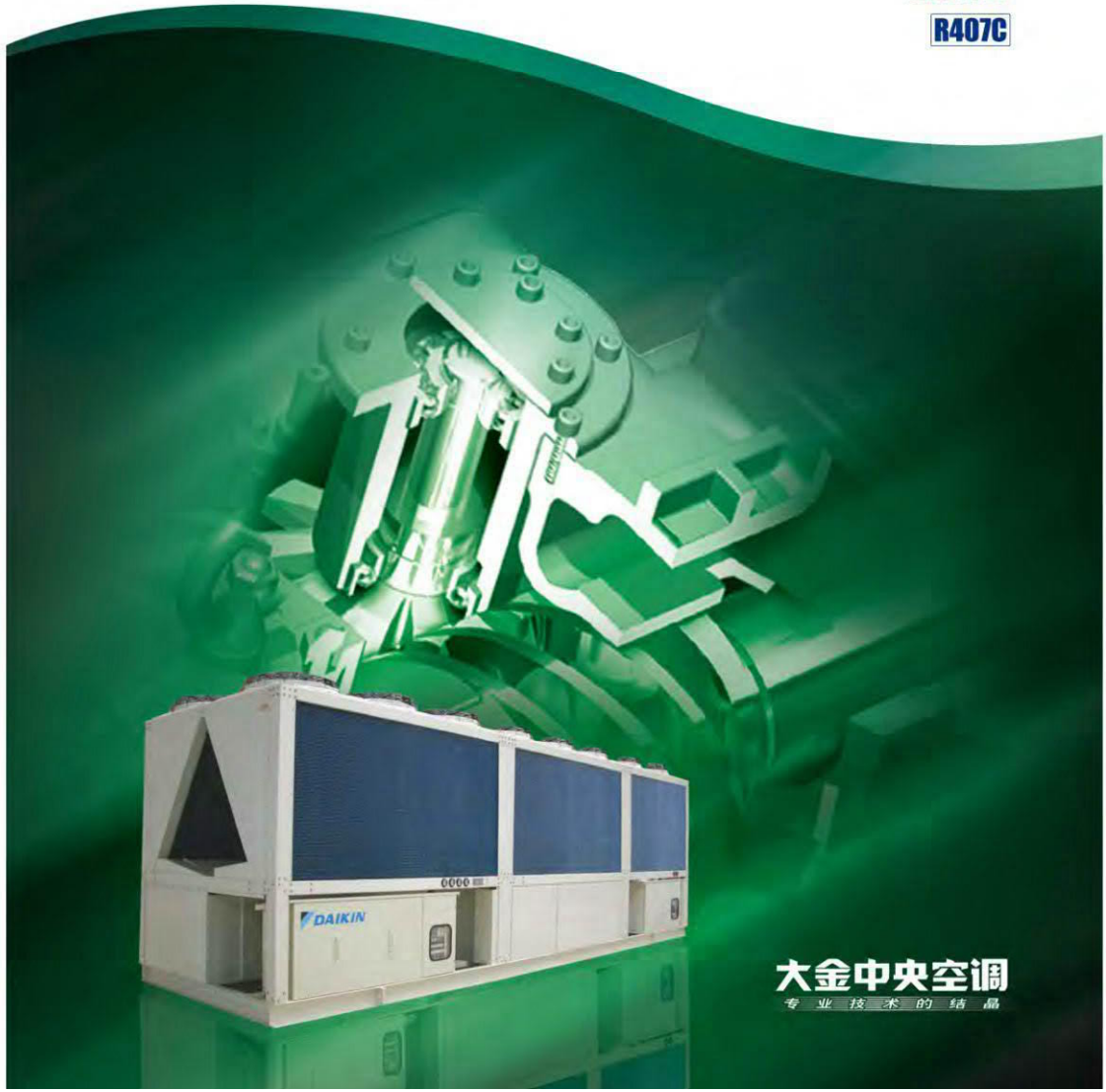
PCCNS2006-18A

WATER CHILLERS
WITH SINGLE SCREW COMPRESSOR

大金单螺杆冷水机组

风冷系列

R407C



大金中央空调
专 业 技 术 的 结 晶

使用注意事项

· 实际使用过程中，由于室外温度、房间大小、构造、朝向等因素的不同，会导致空调能力及耗电量发生变化。选购时，请与经销店仔细商谈，再选定购买机型。
· 作为热泵型空调机的特性，供暖能力将随室外温度降低而有所下降。
· 热泵型空调在室外温度降低时，为了除霜，供暖运转会暂停一段时间。大约5~10分钟后自动恢复停机前的供暖运转。

■安装条件

· 空调机不可装有下列各处：a.有机油或其他油类油雾之处 b.空气含盐量高的海边 c.硫化气体含量高的温泉周围 d.电压波动地区，如工厂等
e.车辆或船舶内 f.油雾或潮气大的厨房 g.发射电磁波的机器附近 h.有酸、碱蒸汽的地方
· 在使用环境比较特殊的场合，请与经销店详细商谈，选择合适的安装场所及方式。

■检测条件

· 本样本里记载的运转噪音为根据公司内部规格代表值，是在消音室换算时所得出的值。产品本体所显示的内容是在消音室换算时得出的。
另外，在实际运转状态下，因受周围的噪音及反射声的影响，一般要略高于本样本的记载值。

■其他注意事项：

· 本样本所记产品不能在电源电压及电源频率不同的地区使用。
· 请勿使用于食品、动植物，精密机械及美术品保存等特殊用途。可能会引起食品品质下降等不良后果。
· 受印刷条件的限制，本样本所示产品颜色与实际会略有偏差。
· 本目录刊载的机型和规格会因产品更新而变化，恕不另行通知。
· 本目录虽经多次校对，以求准确，但仅供参考之用，一切以实物及产品铭牌和说明书为准。

大金空调可靠的服务体制

- “快速、准确、亲切”是大金的宗旨。
- 免费实施安装质量的检查，并在空调旺季实行24小时的维修援助。
- 设有研究中心切实培养经销店的安装维修人员。
- 建立充分储备、及时供应的零部件管理体制。
- 全国免费服务热线：**800-820-1081**

ISO14001环境管理体系认证
SCEMS/04-2001-050
2001年11月19日取得

ISO14001是由ISO(国际标准化组织)制定，适用于环境管理的管理体系标准，以国家环境管理体系认证机构认可委员会认定的认证机构，针对环境管理体系的各项要求和相关实施内容的审核，本公司获得ISO14001认证。

ISO9001质量管理体系认证
CNA8002-Q
2003年11月11日取得

ISO9001是由ISO(国际标准化组织)，制定的品质保证工厂认定制度，针对工厂制造商品的设计和生产等方面进行品质保证的认证。本公司获得ISO9001认证。

质量安全

根据国家工业产品生产许可证条例规定，制冷量＞24.4kW的空调产品必须取得生产许可证(质量安全标志)才能生产和销售。本公司该系列产品已如期获证。

大金(中国)投资有限公司

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(邮编:510620)

大金空调(上海)有限公司

工　厂：上海市莘庄工业区申富路318号(邮编:201108)

*本目录刊载的机型和规格会因产品更新而变化，恕不另行通知。
*本目录为2006年12月版

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PCCNS2006-18A 12/06/003 S.K

欢迎光临大金主页：www.daikin-china.com.cn

F38-39

■主要技术参数

型号			UWAP40BY	UWAP50BY	UWAP60BY	UWAP80BY	UWAP100BY	UWAP120BY	UWAP140BY	UWAP160BY	UWAP180BY
电源			380V 50Hz 三相四线制								
制冷量	能力	USRT	30	38	46	60	75	91	105	119	137
		kW	106	132	160	210	265	320	370	420	480
		10^3kcal/h	91	114	138	181	228	275	318	361	413
	冷水流量	m^3/h	18.2	22.7	27.5	36.1	45.6	55.0	63.7	72.2	82.6
		ℓ/min	304	378	459	602	760	917	1,061	1,204	1,376
	水压损失	kPa	34	41	50	60	37	44	42	53	53
能量控制		%	100－10－0（连续能量控制）								
机组颜色			象牙白（5Y7.5/1）								
压缩机	型式		半封闭单螺杆式								
	型号×数量		ZHC3TLH1YE×1	ZHC3SLH1YE×1	ZHC3YLH1YE×1	ZHC5LMH1YE×1	ZHC3SLH1YE×2	ZHC3YLH1YE×2	ZHC5LMH1YE×1 +ZHC3YLH1YE×1	ZHC5LMH1YE×2	ZHC3YLH1YE×3
	电机输出功率	kW	30	37	45	60	37×2	45×2	60+45	60×2	45×3
	启动方式		人－△启动								
	冷冻机油		FVC68D								
	充注量	L	7.5					7.5×2			7.5×3
水热交换器			钎焊板式换热器								
空气热交换器			交叉翅片盘管式								
冷凝风机	型式		螺旋式轴流风机（直接驱动）								
	型号×数量		P70K11S×4			P70K11S×6	P70K11S×8		P70K11S×10	P70K11S×12	
	电机输出功率	kW	0.5×4	1.0×4	1.0×4	1.0×6	1.0×8	1.0×8	1.0×10	1.0×12	1.0×12
制冷剂	冷媒		R407C								
	回路数量		1					2			3
	控制		电子膨胀阀＋电磁阀								
保护装置			高压保护开关，低压保护开关，压缩机过热保护，冻结保护，过电流继电器（压缩机），过电流继电器（风机），欠相、反相保护，压缩机排气过热保护，可熔栓，安全阀								
水管连接形式	冷水进/出口		3B法兰（80A）					4B法兰（100A）			5B法兰（125A）
	排水管出口		RP1 1/4 内螺纹（32A）								
尺寸（长×宽×高）		mm	2,200×2,000×2,456			2,650×2,000×2,456	4,400×2,000×2,456		4,850×2,000×2,456	5,300×2,000×2,456	6,600×2,000×2,456
机组重量（约）		kg	1,690	1,810	1,870	2,375	3,500	3,605	4,125	4,590	5,500
运行重量（约）		kg	1,723	1,846	1,910	2,422	3,551	3,662	4,196	4,661	5,691
运转音		dB(A)	62	63	64	65	65	66	68	69	70
标准配件			使用说明书，安装说明书，保险丝，修补用油漆罐								
电气特性	制冷 运行电流	A	58	63	87	113	126	174	200	226	261
	制冷 额定耗电量	kW	31.2	36.2	48.2	64.7	72.4	96.4	112.9	129.4	144.6
	制冷 功率因素	%	82	87	84	87	87	84	86	87	84
	制冷 启动电流	A	161	187	237	398	265	342	505	535	447
机外配线要领	最小线径	mm^2	35×1	50×1	70×1	95×1	120×1	185×1	95×2	95×2	120×2
	允许线长	m	106	130	132	123	142	143	144	123	143
	断路器	A	125		200	225		400		500	
	最小接地线线径	mm^2	8		14		22				
最小保有水量		L	800	1,000	1,200	800	1,000	1,200	1,600	1,600	1,200

注：1.名义制冷量基于以下条件，机组出水温度：7℃，机组进水温度：12℃，环境温度：35℃DB。
2.机组中自带标准的水过滤器。
3.“允许线长”是指电压降不超过2%时的最大线长。
4.冷冻水最高使用水压的标准规格为0.7MPa，能够做到1.6MPa。
5.本表所列的运转音为在反射声影响较小场所测得，为无回声实验室的换算值。

■主要技术参数

型号			UWAP200BY	UWAP220BY	UWAP240BY	UWAP280BY	UWAP320BY	UWAP360BY	UWAP400BY	UWAP440BY	UWAP480BY
电源			380V 50Hz 三相四线制								
制冷量	能力	USRT	151	165	179	210	239	273	301	330	358
		kW	530	580	630	740	840	960	1,060	1,160	1,260
		10^3kcal/h	456	499	542	636	722	826	912	998	1,084
	冷水流量	m^3/h	91.2	99.8	108	63.7×2	72.2×2	82.6×2	91.2×2	99.8×2	108×2
		ℓ/min	1,519	1,663	1,806	1,060×2	1,204×2	1,376×2	1,519×2	1,663×2	1,806×2
	水压损失	kPa	54	65	69	42	53	53	54	65	69
能量控制		%	100－10－0（连续能量控制）								
机组颜色			象牙白（5Y7.5/1）								
压缩机	型式		半封闭单螺杆式								
	型号×数量		ZHC3YLH1YE×2 +ZHC5LMH1YE×1	ZHC5LMH1YE×2 +ZHC3YLH1YE×1	ZHC5LMH1YE×3	(ZHC5LMH1YE×1 +ZHC3YLH1YE×1)×2	(ZHC5LMH1YE×2)×2	(ZHC3YLH1YE×3)×2	(ZHC3YLH1YE×2+ ZHC5LMH1YE×1)×2	(ZHC5LMH1YE×2+ ZHC3YLH1YE×1)×2	(ZHC5LMH1YE×3)×2
	电机输出功率	kW	45×2+60	60×2+45	60×3	(60+45)×2	(60×2)×2	(45×3)×2	(45×2+60)×2	(60×2+45)×2	(60×3)×2
	启动方式		人－△启动								
	冷冻机油		FVC68D								
	充注量	L	7.5×3			(7.5×2)×2		(7.5×3)×2			
水热交换器			钎焊板式换热器								
空气热交换器			交叉翅片盘管式								
冷凝风机	型式		螺旋式轴流风机（直接驱动）								
	型号×数量		P70K11S×14	P70K11S×16	P70K11S×18	(P70K11S×10)×2	(P70K11S×12)×2	(P70K11S×12)×2	(P70K11S×14)×2	(P70K11S×16)×2	(P70K11S×18)×2
	电机输出功率	kW	1.0×14	1.0×16	1.0×18	(1.0×10)×2	(1.0×12)×2	(1.0×12)×2	(1.0×14)×2	(1.0×16)×2	(1.0×18)×2
制冷剂	冷媒		R407C								
	回路数量		3			2×2		3×2			
	控制		电子膨胀阀＋电磁阀								
保护装置			高压保护开关，低压保护开关，压缩机过热保护，冻结保护，过电流继电器（压缩机），过电流继电器（风机），欠相、反相保护，压缩机排气过热保护，可熔栓，安全阀								
水管连接形式	冷水进/出口		5B法兰（125A）			4B法兰（100A）		5B法兰（125A）			
	排水管出口		RP1 1/4 内螺纹（32A）								
尺寸（长×宽×高）		mm	7,050×2,000×2,456	7,500×2,000×2,456	7,950×2,000×2,456	(4,850×2,000×2,456)×2	(5,300×2,000×2,456)×2	(6,600×2,000×2,456)×2	(7,050×2,000×2,456)×2	(7,500×2,000×2,456)×2	(7,950×2,000×2,456)×2
机组重量（约）		kg	6,000	6,500	7,005	4,125×2	4,590×2	5,500×2	6,000×2	6,500×2	7,005×2
运行重量（约）		kg	6,198	6,719	7,245	4,196×2	4,661×2	5,691×2	6,198×2	6,719×2	7,245×2
运转音		dB(A)	70	70	70	70	71	72	72	72	72
标准配件			使用说明书，安装说明书，保险丝，修补用油漆罐								
电气特性	制冷 运行电流	A	287	313	339	200×2	226×2	261×2	287×2	313×2	339×2
	制冷 额定耗电量	kW	161.1	177.6	194.1	112.9×2	129.4×2	144.6×2	161.1×2	177.6×2	194.1×2
	制冷 功率因素	%	85	86	87	86	87	84	85	86	87
	制冷 启动电流	A	608	642	672	505×2	535×2	447×2	608×2	642×2	672×2
机外配线要领	最小线径	mm^2	150×2	150×2	185×2	(95×2)×2	(95×2)×2	(120×2)×2	(150×2)×2	(150×2)×2	(185×2)×2
	允许线长	m	144	129	137	144×2	123×2	143×2	144×2	129×2	137×2
	断路器	A	500	600	700	400×2	500×2			600×2	700×2
	最小接地线线径	mm^2	38			22×2			38×2		
最小保有水量		L	1,600			1,600×2		1,200×2	1,600×2		

注：1.名义制冷量基于以下条件，机组出水温度：7℃，机组进水温度：12℃，环境温度：35℃DB。
2.机组中自带标准的水过滤器。
3.“允许线长”是指电压降不超过2%时的最大线长。
4.冷冻水最高使用水压的标准规格为0.7MPa，能够做到1.6MPa。
5.本表所列的运转音为在反射声影响较小场所测得，为无回声实验室的换算值。

F40-41,47-49

■主要技术参数

型号			UWAP40BY	UWAP50BY	UWAP60BY	UWAP80BY	UWAP100BY	UWAP120BY	UWAP140BY	UWAP160BY	UWAP180BY
电源			380V 50Hz 三相四线制								
制冷量	能力	USRT	30	38	46	60	75	91	105	119	137
		kW	106	132	160	210	265	320	370	420	480
		10^3kcal/h	91	114	138	181	228	275	318	361	413
	冷水流量	m^3/h	18.2	22.7	27.5	36.1	45.6	55.0	63.7	72.2	82.6
		ℓ/min	304	378	459	602	760	917	1,061	1,204	1,376
	水压损失	kPa	34	41	50	60	37	44	42	53	53
能量控制		%	100－10－0（连续能量控制）								
机组颜色			象牙白（5Y7.5/1）								
压缩机	型式		半封闭单螺杆式								
	型号×数量		ZHC3TLH1YE×1	ZHC3SLH1YE×1	ZHC3YLH1YE×1	ZHC5LMH1YE×1	ZHC3SLH1YE×2	ZHC3YLH1YE×2	ZHC5LMH1YE×1 +ZHC3YLH1YE×1	ZHC5LMH1YE×2	ZHC3YLH1YE×3
	电机输出功率	kW	30	37	45	60	37×2	45×2	60+45	60×2	45×3
	启动方式		人－△启动								
	冷冻机油		FVC68D								
	充注量	L	7.5			7.5×2					7.5×3
水热交换器			钎焊板式换热器								
空气热交换器			交叉翅片盘管式								
冷凝风机	型式		螺旋式轴流风机（直接驱动）								
	型号×数量		P70K11S×4			P70K11S×6	P70K11S×8		P70K11S×10	P70K11S×12	
	电机输出功率	kW	0.5×4	1.0×4	1.0×4	1.0×6	1.0×8	1.0×8	1.0×10	1.0×12	1.0×12
制冷剂	冷媒		R407C								
	回路数量		1			2					3
	控制		电子膨胀阀＋电磁阀								
保护装置			高压保护开关，低压保护开关，压缩机过热保护，冻结保护，过电流继电器（压缩机），过电流继电器（风机），欠相、反相保护，压缩机排气过热保护，可熔栓，安全阀								
水管连接形式	冷水进/出口		3B法兰（80A）				4B法兰（100A）				5B法兰（125A）
	排水管出口		RP1 1/4 内螺纹（32A）								
尺寸（长×宽×高）		mm	2,200×2,000×2,456			2,650×2,000×2,456	4,400×2,000×2,456		4,850×2,000×2,456	5,300×2,000×2,456	6,600×2,000×2,456
机组重量（约）		kg	1,690	1,810	1,870	2,375	3,500	3,605	4,125	4,590	5,500
运行重量（约）		kg	1,723	1,846	1,910	2,422	3,551	3,662	4,196	4,661	5,691
运转音		dB(A)	62	63	64	65	65	66	68	69	70
标准配件			使用说明书，安装说明书，保险丝，修补用油漆罐								
电气特性	制冷 运行电流	A	58	63	87	113	126	174	200	226	261
	制冷 额定耗电量	kW	31.2	36.2	48.2	64.7	72.4	96.4	112.9	129.4	144.6
	制冷 功率因素	%	82	87	84	87	87	84	86	87	84
	制冷 启动电流	A	161	187	237	398	265	342	505	535	447
机外配线要领	最小线径	mm^2	35×1	50×1	70×1	95×1	120×1	185×1	95×2	95×2	120×2
	允许线长	m	106	130	132	123	142	143	144	123	143
	断路器	A	125		200	225		400		500	
	最小接地线线径	mm^2	8			14		22			
最小保有水量		L	800	1,000	1,200	800	1,000	1,200	1,600	1,600	1,200

注：1.名义制冷量基于以下条件：机组出水温度：7℃，机组进水温度：12℃，环境温度：35℃DB。
2.机组中自带标准的水过滤器。
3.“允许线长”是指电压降不超过2%时的最大线长。
4.冷冻水最高使用水压的标准规格为0.7MPa，能够做到1.6MPa。
5.本表所列的运转音为在反射声影响较小场所测得，为无回声实验室的换算值。

■主要技术参数

型号			UWAP200BY	UWAP220BY	UWAP240BY	UWAP280BY	UWAP320BY	UWAP360BY	UWAP400BY	UWAP440BY	UWAP480BY
电源			380V 50Hz 三相四线制								
制冷量	能力	USRT	151	165	179	210	239	273	301	330	358
		kW	530	580	630	740	840	960	1,060	1,160	1,260
		10^3kcal/h	456	499	542	636	722	826	912	998	1,084
	冷水流量	m^3/h	91.2	99.8	108	63.7×2	72.2×2	82.6×2	91.2×2	99.8×2	108×2
		ℓ/min	1,519	1,663	1,806	1,060×2	1,204×2	1,376×2	1,519×2	1,663×2	1,806×2
	水压损失	kPa	54	65	69	42	53	53	54	65	69
能量控制		%	100－10－0（连续能量控制）								
机组颜色			象牙白（5Y7.5/1）								
压缩机	型式		半封闭单螺杆式								
	型号×数量		ZHC3YLH1YE×2 +ZHC5LMH1YE×1	ZHC5LMH1YE×2 +ZHC3YLH1YE×1	ZHC5LMH1YE×3	(ZHC5LMH1YE×1 +ZHC3YLH1YE×1)×2	(ZHC5LMH1YE×2)×2	(ZHC3YLH1YE×3)×2	(ZHC3YLH1YE×2+ ZHC5LMH1YE×1)×2	(ZHC5LMH1YE×2+ ZHC3YLH1YE×1)×2	(ZHC5LMH1YE×3)×2
	电机输出功率	kW	45×2+60	60×2+45	60×3	(60+45)×2	(60×2)×2	(45×3)×2	(45×2+60)×2	(60×2+45)×2	(60×3)×2
	启动方式		人－△启动								
	冷冻机油		FVC68D								
	充注量	L	7.5×3			(7.5×2)×2		(7.5×3)×2			
水热交换器			钎焊板式换热器								
空气热交换器			交叉翅片盘管式								
冷凝风机	型式		螺旋式轴流风机（直接驱动）								
	型号×数量		P70K11S×14	P70K11S×16	P70K11S×18	(P70K11S×10)×2	(P70K11S×12)×2	(P70K11S×12)×2	(P70K11S×14)×2	(P70K11S×16)×2	(P70K11S×18)×2
	电机输出功率	kW	1.0×14	1.0×16	1.0×18	(1.0×10)×2	(1.0×12)×2	(1.0×12)×2	(1.0×14)×2	(1.0×16)×2	(1.0×18)×2
制冷剂	冷媒		R407C								
	回路数量		3			2×2		3×2			
	控制		电子膨胀阀＋电磁阀								
保护装置			高压保护开关，低压保护开关，压缩机过热保护，冻结保护，过电流继电器（压缩机），过电流继电器（风机），欠相、反相保护，压缩机排气过热保护，可熔栓，安全阀								
水管连接形式	冷水进/出口		5B法兰（125A）			4B法兰（100A）		5B法兰（125A）			
	排水管出口		RP1 1/4 内螺纹（32A）								
尺寸（长×宽×高）		mm	7,050×2,000×2,456	7,500×2,000×2,456	7,950×2,000×2,456	(4,850×2,000×2,456)×2	(5,300×2,000×2,456)×2	(6,600×2,000×2,456)×2	(7,050×2,000×2,456)×2	(7,500×2,000×2,456)×2	(7,950×2,000×2,456)×2
机组重量（约）		kg	6,000	6,500	7,005	4,125×2	4,590×2	5,500×2	6,000×2	6,500×2	7,005×2
运行重量（约）		kg	6,198	6,719	7,245	4,196×2	4,661×2	5,691×2	6,198×2	6,719×2	7,245×2
运转音		dB(A)	70	70	70	70	71	72	72	72	72
标准配件			使用说明书，安装说明书，保险丝，修补用油漆罐								
电气特性	制冷 运行电流	A	287	313	339	200×2	226×2	261×2	287×2	313×2	339×2
	制冷 额定耗电量	kW	161.1	177.6	194.1	112.9×2	129.4×2	144.6×2	161.1×2	177.6×2	194.1×2
	制冷 功率因素	%	85	86	87	86	87	84	85	86	87
	制冷 启动电流	A	608	642	672	505×2	535×2	447×2	608×2	642×2	672×2
机外配线要领	最小线径	mm^2	150×2	150×2	185×2	(95×2)×2	(95×2)×2	(120×2)×2	(150×2)×2	(150×2)×2	(185×2)×2
	允许线长	m	144	129	137	144×2	123×2	143×2	144×2	129×2	137×2
	断路器	A	500	600	700	400×2	500×2			600×2	700×2
	最小接地线线径	mm^2	38			22×2			38×2		
最小保有水量		L	1,600			1,600×2		1,200×2	1,600×2		

注：1.名义制冷量基于以下条件：机组出水温度：7℃，机组进水温度：12℃，环境温度：35℃DB。
2.机组中自带标准的水过滤器。
3.“允许线长”是指电压降不超过2%时的最大线长。
4.冷冻水最高使用水压的标准规格为0.7MPa，能够做到1.6MPa。
5.本表所列的运转音为在反射声影响较小场所测得，为无回声实验室的换算值。

■主要技术参数

型号			UWAP40BY	UWAP50BY	UWAP60BY	UWAP80BY	UWAP100BY	UWAP120BY	UWAP140BY	UWAP160BY	UWAP180BY
电源			380V 50Hz 三相四线制								
制冷量	能力	USRT	30	38	46	60	75	91	105	119	137
		kW	106	132	160	210	265	320	370	420	480
		10^3kcal/h	91	114	138	181	228	275	318	361	413
	冷水流量	m^3/h	18.2	22.7	27.5	36.1	45.6	55.0	63.7	72.2	82.6
		ℓ/min	304	378	459	602	760	917	1,061	1,204	1,376
	水压损失	kPa	34	41	50	60	37	44	42	53	53
能量控制		%	100－10－0（连续能量控制）								
机组颜色			象牙白（5Y7.5/1）								
压缩机	型式		半封闭单螺杆式								
	型号×数量		ZHC3TLH1YE×1	ZHC3SLH1YE×1	ZHC3YLH1YE×1	ZHC5LMH1YE×1	ZHC3SLH1YE×2	ZHC3YLH1YE×2	ZHC5LMH1YE×1 +ZHC3YLH1YE×1	ZHC5LMH1YE×2	ZHC3YLH1YE×3
	电机输出功率	kW	30	37	45	60	37×2	45×2	60+45	60×2	45×3
	启动方式		人－△启动								
	冷冻机油		FVC68D								
	充注量	L	7.5				7.5×2				7.5×3
水热交换器			钎焊板式换热器								
空气热交换器			交叉翅片盘管式								
冷凝风机	型式		螺旋式轴流风机（直接驱动）								
	型号×数量		P70K11S×4			P70K11S×6	P70K11S×8		P70K11S×10	P70K11S×12	
	电机输出功率	kW	0.5×4	1.0×4	1.0×4	1.0×6	1.0×8	1.0×8	1.0×10	1.0×12	1.0×12
制冷剂	冷媒		R407C								
	回路数量		1				2				3
	控制		电子膨胀阀＋电磁阀								
保护装置			高压保护开关，低压保护开关，压缩机过热保护，冻结保护，过电流继电器（压缩机），过电流继电器（风机），欠相、反相保护，压缩机排气过热保护，可熔栓，安全阀								
水管连接形式	冷水进/出口		3B法兰（80A）				4B法兰（100A）				5B法兰（125A）
	排水管出口		RP1 1/4 内螺纹（32A）								
尺寸（长×宽×高）		mm	2,200×2,000×2,456			2,650×2,000×2,456	4,400×2,000×2,456		4,850×2,000×2,456	5,300×2,000×2,456	6,600×2,000×2,456
机组重量（约）		kg	1,690	1,810	1,870	2,375	3,500	3,605	4,125	4,590	5,500
运行重量（约）		kg	1,723	1,846	1,910	2,422	3,551	3,662	4,196	4,661	5,691
运转音		dB(A)	62	63	64	65	65	66	68	69	70
标准配件			使用说明书，安装说明书，保险丝，修补用油漆罐								
电气特性	制冷 运行电流	A	58	63	87	113	126	174	200	226	261
	制冷 额定耗电量	kW	31.2	36.2	48.2	64.7	72.4	96.4	112.9	129.4	144.6
	制冷 功率因素	%	82	87	84	87	87	84	86	87	84
	制冷 启动电流	A	161	187	237	398	265	342	505	535	447
机外配线要领	最小线径	mm^2	35×1	50×1	70×1	95×1	120×1	185×1	95×2	95×2	120×2
	允许线长	m	106	130	132	123	142	143	144	123	143
	断路器	A	125		200	225		400		500	
	最小接地线线径	mm^2	8		14		22				
最小保有水量		L	800	1,000	1,200	800	1,000	1,200	1,600	1,600	1,200

注：1.名义制冷量基于以下条件，机组出水温度：7℃，机组进水温度：12℃，环境温度：35℃DB。
2.机组中自带标准的水过滤器。
3.“允许线长”是指电压降不超过2%时的最大线长。
4.冷冻水最高使用水压的标准规格为0.7MPa，能够做到1.6MPa。
5.本表所列的运转音为在反射声影响较小场所测得，为无回声实验室的换算值。

F44-45

■主要技术参数

型号			UWAP200BY	UWAP220BY	UWAP240BY	UWAP280BY	UWAP320BY	UWAP360BY	UWAP400BY	UWAP440BY	UWAP480BY
电源			380V 50Hz 三相四线制								
制冷量	能力	USRT	151	165	179	210	239	273	301	330	358
		kW	530	580	630	740	840	960	1,060	1,160	1,260
		10^3kcal/h	456	499	542	636	722	826	912	998	1,084
	冷水流量	m^3/h	91.2	99.8	108	63.7×2	72.2×2	82.6×2	91.2×2	99.8×2	108×2
		ℓ/min	1,519	1,663	1,806	1,060×2	1,204×2	1,376×2	1,519×2	1,663×2	1,806×2
	水压损失	kPa	54	65	69	42	53	53	54	65	69
能量控制		%	100－10－0（连续能量控制）								
机组颜色			象牙白（5Y7.5/1）								
压缩机	型式		半封闭单螺杆式								
	型号×数量		ZHC3YLH1YE×2 +ZHC5LMH1YE×1	ZHC5LMH1YE×2 +ZHC3YLH1YE×1	ZHC5LMH1YE×3	(ZHC5LMH1YE×1 +ZHC3YLH1YE×1)×2	ZHC5LMH1YE×2)×2	(ZHC3YLH1YE×3)×2	(ZHC3YLH1YE×2+ ZHC5LMH1YE×1)×2	(ZHC5LMH1YE×2+ ZHC3YLH1YE×1)×2	ZHC5LMH1YE×3)×2
	电机输出功率	kW	45×2+60	60×2+45	60×3	(60+45)×2	(60×2)×2	(45×3)×2	(45×2+60)×2	(60×2+45)×2	(60×3)×2
	启动方式		人－△启动								
	冷冻机油		FVC68D								
	充注量	L	7.5×3			(7.5×2)×2		(7.5×3)×2			
水热交换器			钎焊板式换热器								
空气热交换器			交叉翅片盘管式								
冷凝风机	型式		螺旋式轴流风机（直接驱动）								
	型号×数量		P70K11S×14	P70K11S×16	P70K11S×18	(P70K11S×10)×2	(P70K11S×12)×2	(P70K11S×12)×2	(P70K11S×14)×2	(P70K11S×16)×2	(P70K11S×18)×2
	电机输出功率	kW	1.0×14	1.0×16	1.0×18	(1.0×10)×2	(1.0×12)×2	(1.0×12)×2	(1.0×14)×2	(1.0×16)×2	(1.0×18)×2
制冷剂	冷媒		R407C								
	回路数量		3			2×2		3×2			
	控制		电子膨胀阀＋电磁阀								
保护装置			高压保护开关，低压保护开关，压缩机过热保护，冻结保护，过电流继电器（压缩机），过电流继电器（风机），欠相、反相保护，压缩机排气过热保护，可熔栓，安全阀								
水管连接形式	冷水进/出口		5B法兰（125A）			4B法兰（100A）		5B法兰（125A）			
	排水管出口		RP1 1/4 内螺纹（32A）								
尺寸（长×宽×高）		mm	7,050×2,000×2,456	7,500×2,000×2,456	7,950×2,000×2,456	(4,850×2,000×2,456)×2	(5,300×2,000×2,456)×2	(6,600×2,000×2,456)×2	(7,050×2,000×2,456)×2	(7,500×2,000×2,456)×2	(7,950×2,000×2,456)×2
机组重量（约）		kg	6,000	6,500	7,005	4,125×2	4,590×2	5,500×2	6,000×2	6,500×2	7,005×2
运行重量（约）		kg	6,198	6,719	7,245	4,196×2	4,661×2	5,691×2	6,198×2	6,719×2	7,245×2
运转音		dB(A)	70	70	70	70	71	72	72	72	72
标准配件			使用说明书，安装说明书，保险丝，修补用油漆罐								
电气特性	制冷 运行电流	A	287	313	339	200×2	226×2	261×2	287×2	313×2	339×2
	制冷 额定耗电量	kW	161.1	177.6	194.1	112.9×2	129.4×2	144.6×2	161.1×2	177.6×2	194.1×2
	制冷 功率因素	%	85	86	87	86	87	84	85	86	87
	制冷 启动电流	A	608	642	672	505×2	535×2	447×2	608×2	642×2	672×2
机外配线要领	最小线径	mm^2	150×2	150×2	185×2	(95×2)×2	(95×2)×2	(120×2)×2	(150×2)×2	(150×2)×2	(185×2)×2
	允许线长	m	144	129	137	144×2	123×2	143×2	144×2	129×2	137×2
	断路器	A	500	600	700	400×2	500×2			600×2	700×2
	最小接地线线径	mm^2	38			22×2			38×2		
最小保有水量		L	1,600			1,600×2		1,200×2	1,600×2		

注：1.名义制冷量基于以下条件，机组出水温度：7℃，机组进水温度：12℃，环境温度：35℃DB。
2.机组中自带标准的水过滤器。
3.“允许线长”是指电压降不超过2%时的最大线长。
4.冷冻水最高使用水压的标准规格为0.7MPa，能够做到1.6MPa。
5.本表所列的运转音为在反射声影响较小场所测得，为无回声实验室的换算值。

APPENDIX 8-1
HISTORICAL AERIAL PHOTOS



CINOTECH
Cinotech Consultants Limited

Planned Development in Kowloon City

Aerial Photo for Land Contamination (1945)

SCALE	1:3000 @ A3	DATE	5 Nov 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No. 1	REV -



CINOTECH
Cinotech Consultants Limited

Planned Development in Kowloon City

Aerial Photo for Land Contamination (1954)

SCALE	1:2000 @ A3	DATE	14 Aug 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No. 2	REV -



Cinotech Consultants Limited

Planned Development in Kowloon City

Aerial Photo for Land Contamination (1967)

SCALE	1:2000 @ A3	DATE	14 Aug 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No. 3	REV -

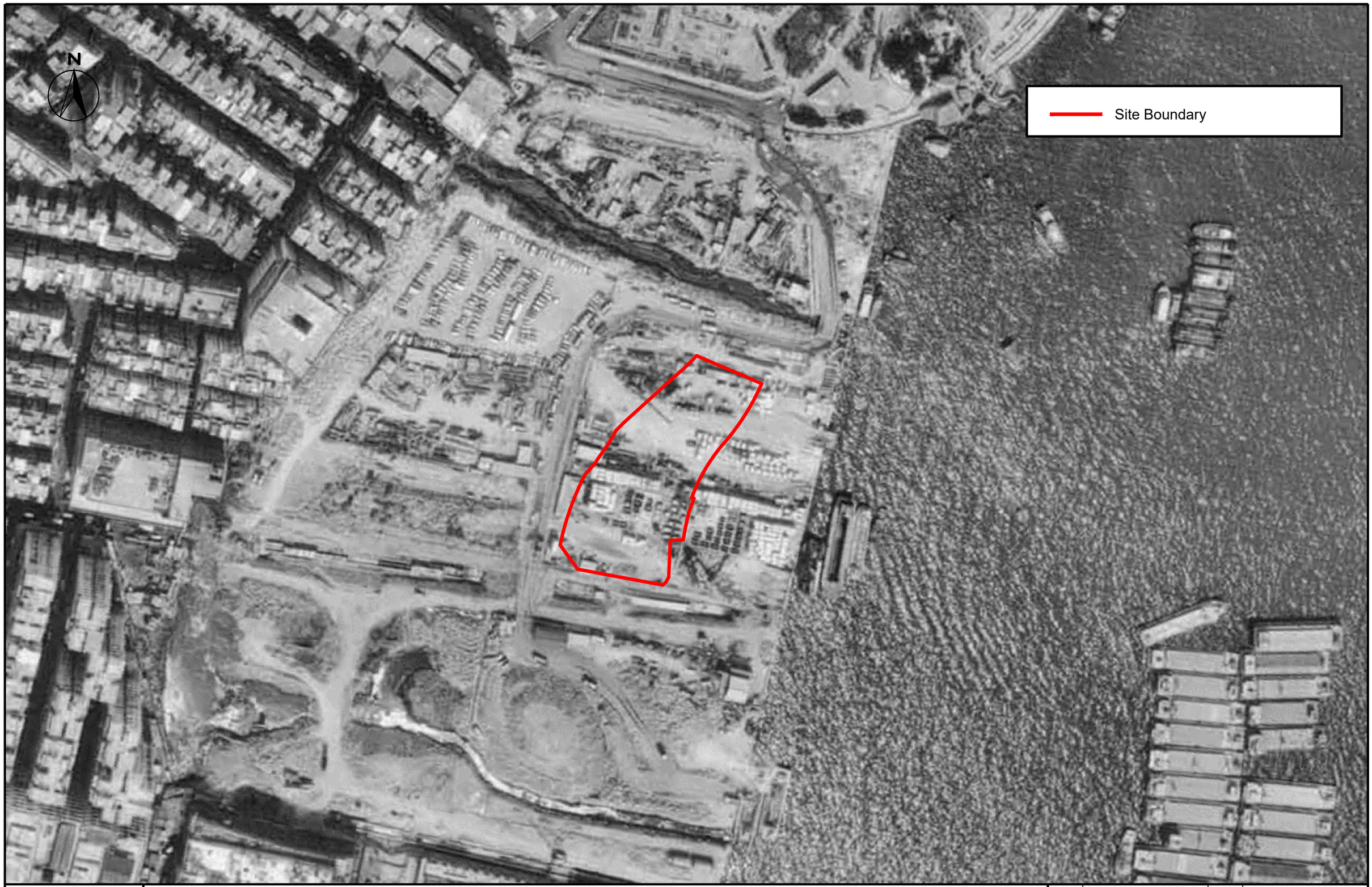


CINOTECH
Cinotech Consultants Limited

Planned Development in Kowloon City

Aerial Photo for Land Contamination (1980)

SCALE	1:2000 @ A3	DATE	14 Aug 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No. 4	REV -



CINOTECH
Cinotech Consultants Limited

Planned Development in Kowloon City

Aerial Photo for Land Contamination (1984)

SCALE	1:2000 @ A3	DATE	14 Aug 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No. 5	REV -



CINOTECH
Cinotech Consultants Limited

Planned Development in Kowloon City

Aerial Photo for Land Contamination (1991)

SCALE	1:1500 @ A3	DATE	14 Aug 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No. 6	REV -



Cinotech Consultants Limited

Planned Development in Kowloon City

Aerial Photo for Land Contamination (2001)

SCALE	1:1000 @ A3	DATE	14 Aug 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No. 7	REV -



CINOTECH
Cinotech Consultants Limited

Planned Development in Kowloon City

Aerial Photo for Land Contamination (2015)

SCALE	1:1000 @ A3	DATE	14 Aug 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No. 8	REV -



CINOTECH
Cinotech Consultants Limited

Planned Development in Kowloon City

Aerial Photo for Land Contamination (2018)

SCALE	1:1000 @ A3	DATE	14 Aug 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No.	9
		REV	-



CINOTECH
Cinotech Consultants Limited

Planned Development in Kowloon City

Aerial Photo for Land Contamination (2022)

SCALE	1:1000 @ A3	DATE	14 Aug 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No. 10	REV -

APPENDIX 8-2
CORRESPONDENCES FROM EPD AND FSD REGARDING FOR LAND CONTAMINATION ENQUIRES

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Our Ref: CCL/IA21009/KCAA1-10/corr/out/LC/eh240318

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
Kowloon City

5th floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay, Kowloon

By E-Mail
18 March 2024

Attn.: Mr. TAM Yiu Man, Jason

Dear Mr. TAM,

Enquiry on Record of Land Contamination

We, Cinotech Consultants Ltd., are the appointed consultant for the investigation of the environmental acceptability which covers a study area shown in the attached location plan.

According to the brief of this contract, land contamination assessment shall be included in an Environmental Assessment Report. I am writing to enquire if there are any past record of registered chemical waste producers and reported accidents of chemical leakage or spillage within or in the vicinity of the proposed works.

Your reply by 25 Mar 2024 will be much appreciated. If you need any further clarification, please contact our Ms. Karina Chan at 2157 3880 or the undersigned at 2151 2083.

Yours faithfully,
Cinotech Consultants Ltd.

KS LEE
Technical Director

Encl. Appointment Letter and Location Plan

Our Ref.: URA240103826

市區重建局
URBAN RENEWAL AUTHORITY

By Email and By Post
(Email: ks.lee@cinotech.com.hk)

8th January 2024

Cinotech Consultants Limited
Room 1710, 17/F.,
Technology Park,
18 On Lai Street,
Shatin, New Territories

Attn: Mr. Lee Kin Sing

Dear Mr. Lee,

Term Environmental Consultancy Services
Service Order No. 25 for
A Proposed Development in Kowloon City District (KCAA1-10-r1)

Pursuant to the Clause 2.2.3 of the conditions of the captioned Term Environmental Consultancy contract, we issue herewith a Service Order No. 25 for your retention. You are hereby instructed to commence your consultancy work in accordance with the attached scope of services accordingly.

Your attention is drawn to that payment of the fee shall only be made upon completion of actual work done and by stages as in accordance with the payment schedule under the Fee Enquiry Form as attached (**Appendix 1** refers).

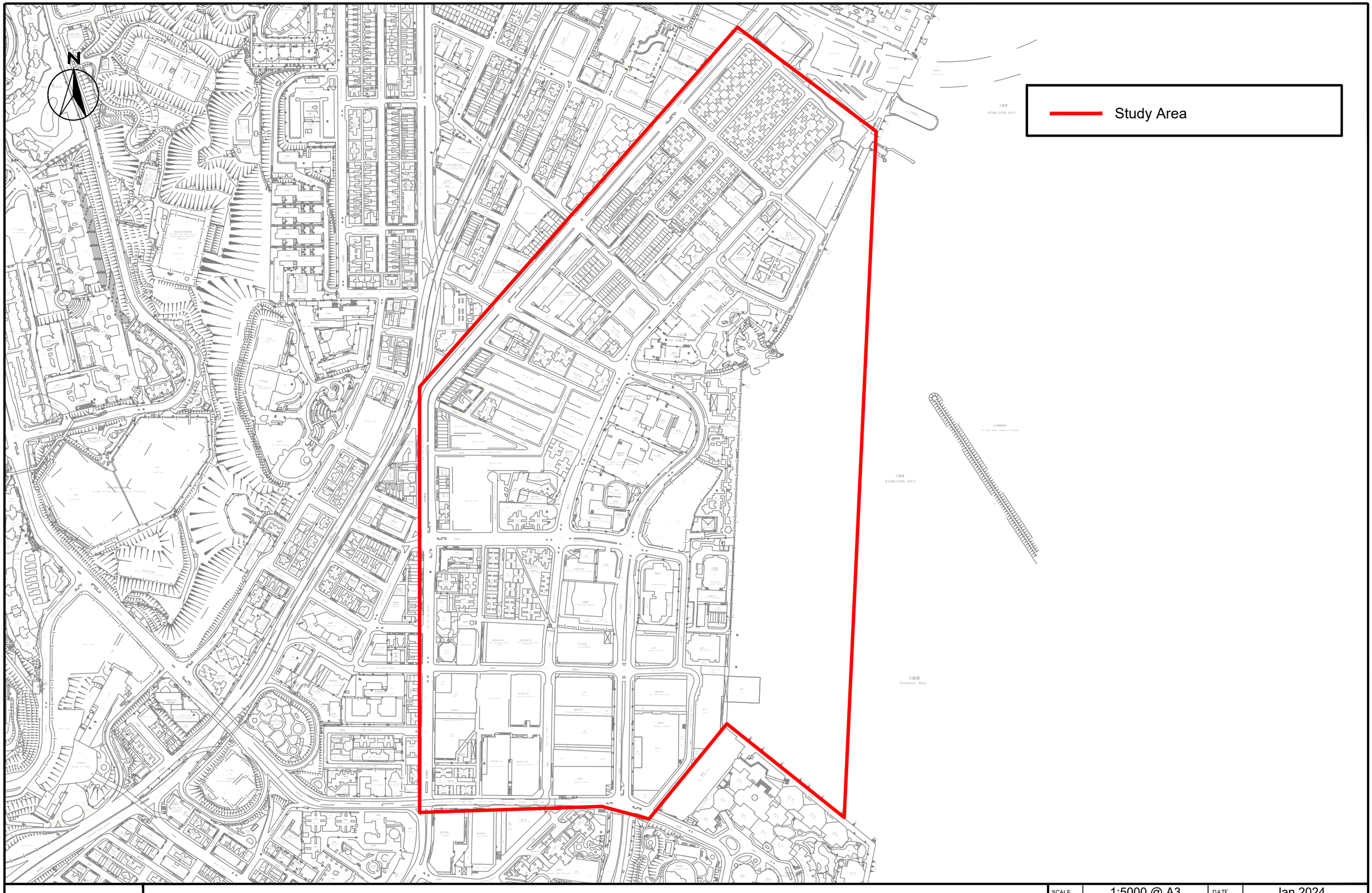
Please return the duly signed declaration of no conflict of interest and confidentiality undertaking (**Appendix 2** refers) to us by **10 January 2024**.

Should you have any queries, please do not hesitate to contact our Mr. Peter Wu at 2588 2757. Thank you for your kind attention.

Yours sincerely,
For and on behalf of
URBAN RENEWAL AUTHORITY

Lawrence Mak
Director
Planning and Design

Encl.



CINOTECH
Cinotech Consultants Limited

Planned Development in Kowloon City

Study Area for Land Contamination

SCALE	1:5000 @ A3	DATE	Jan 2024
CHECK	CC	DRAWN	DC
JOB No.	--	DRAWING No. --	REV -

From: tschow@epd.gov.hk
To: Eric.Hung <eric.hung@cinotech.com.hk>
Date: 3/21/2024 5:21:11 AM
Subject: Re: Enquiry on Records of Land Contamination

Dear Eric,

I refer to your preceding email on the subject.

A registry of chemical waste producers is available in the Territorial Control Office of this department. Please contact Mr. Paul Tsang at 2835 1017 or at cktsang@epd.gov.hk for making an appointment to view the records.

As far as this office is concerned, we are not aware of any record of chemical spillage/leakage at the concerned location. However, please be reminded that this information may not be exhaustive. You may wish to check with the Fire Services Department or other relevant parties / departments for such information as appropriate for record of chemical spillage/leakage accident.

Thank you.

Regards,
CHOW Tsz-shan
E(RE)51 / EPD
Tel: 2117 7560

From: "Eric.Hung" <eric.hung@cinotech.com.hk>
To: "jasontam@epd.gov.hk" <jasontam@epd.gov.hk>, "tschow@epd.gov.hk" <tschow@epd.gov.hk>
Cc: "Karina Chan" <karina.chan@cinotech.com.hk>, "Dave Chan" <dave.chan@cinotech.com.hk>
Date: 18/03/2024 12:06
Subject: Enquiry on Records of Land Contamination

Dear Mr. TAM,

I am writing to enquire if there are
1). Any past record of registered chemical waste producers; and
2). Any reported accidents of chemical leakage or spillage
at Assessment Area, in support of a land contamination assessment.

Please find attached herewith the formal enquiry letter, appointment letter and location of the Assessment Area for your reference.

Should you have any queries, please do not hesitate to contact Ms. Karina Chan at 2157-3880 or Mr. Eric Hung at 2151-2079. Thanks.

Yours faithfully,
Eric Hung

Eric Hung
Cinotech Consultants Ltd.
Contact: 2151 2079

CINOTECH 漢臻
consultants limited

Room 1710, 17/F., Technology Park
18 On Lai Street, Shatin, Hong Kong
Tel: 852-21512083 Fax: 852-31071388
Website: http://www.cinotech.com.hk
General E-mail: info@cinotech.com.hk

Our Ref: CCL/IA21009/KCAA1-10/dc240201fsd

Fire Services Department
Fire Services Headquarters Command
Management Group (MG)
9th Floor, Fire Services Headquarters Building
1 Hong Chong Road, Tsim Sha Tsui East, Kowloon

By Post and E-mail
1 February 2024

Dear Sir/Madam,

Enquiry on Record of Land Contamination

We, Cinotech Consultants Ltd., are the appointed consultant for the investigation of the environmental acceptability which covers a study area shown in the attached map.

I am writing to enquire if there is any past record of dangerous goods license and reported accidents of dangerous goods leakage or spillage within or in the vicinity of the proposed works. A location plan covering the areas of concern is attached for reference.

Should you have any queries, please do not hesitate to contact the undersigned at 2151 2091, our Colman Wong at 2151 2068, or our Mr. Dave Chan at 2151 2097. Thank you.

Yours sincerely,
Cinotech Consultants Ltd.

KS LEE
Technical Director

Encl. Annex 1 - Study Area

Our Ref.: URA240103826

市區重建局
URBAN RENEWAL AUTHORITY

By Email and By Post
(Email: ks.lee@cinotech.com.hk)

8th January 2024

Cinotech Consultants Limited
Room 1710, 17/F.,
Technology Park,
18 On Lai Street,
Shatin, New Territories

Attn: Mr. Lee Kin Sing

Dear Mr. Lee,

Term Environmental Consultancy Services
Service Order No. 25 for
A Proposed Development in Kowloon City District (KCAA1-10-r1)

Pursuant to the Clause 2.2.3 of the conditions of the captioned Term Environmental Consultancy contract, we issue herewith a Service Order No. 25 for your retention. You are hereby instructed to commence your consultancy work in accordance with the attached scope of services accordingly.

Your attention is drawn to that payment of the fee shall only be made upon completion of actual work done and by stages as in accordance with the payment schedule under the Fee Enquiry Form as attached (**Appendix 1** refers).

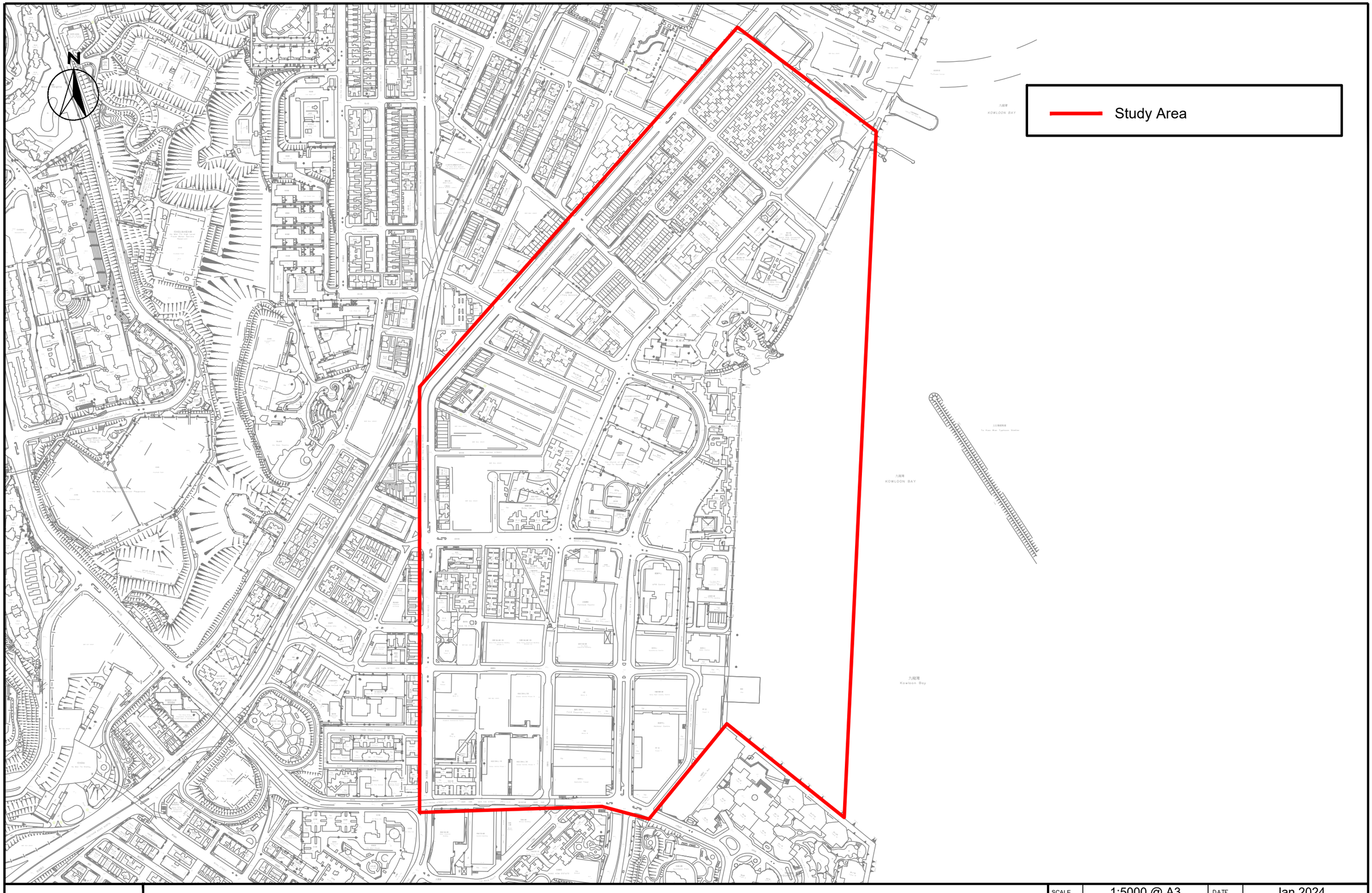
Please return the duly signed declaration of no conflict of interest and confidentiality undertaking (**Appendix 2** refers) to us by **10 January 2024**.

Should you have any queries, please do not hesitate to contact our Mr. Peter Wu at 2588 2757. Thank you for your kind attention.

Yours sincerely,
For and on behalf of
URBAN RENEWAL AUTHORITY

Lawrence Mak
Director
Planning and Design

Encl.



CINOTECH
Cinotech Consultants Limited

Planned Development in Kowloon City

Study Area for Land Contamination

SCALE	1:5000 @ A3	DATE	Jan 2024
CHECK	CC	DRAWN	DC
JOB No.	--	DRAWING No. --	REV -

消 防 處
香港九龍尖沙咀東部康莊道 1 號
消防處總部大廈

FIRE SERVICES DEPARTMENT
FIRE SERVICES HEADQUARTERS BUILDING,
No.1 Hong Chong Road,
Tsim Sha Tsui East, Kowloon,
Hong Kong.

本處檔號 **OUR REF.** : (204) in FSD GR 6-5/4 R Pt. 51
來函檔號 **YOUR REF.** : CCL/IA21009/KCAA1-10/dc240201fsd
電子郵件 **E-mail** : hkfsdenq@hkfsd.gov.hk
圖文傳真 **FAX NO.** : 2988 1196
電 話 **TEL NO.** : 2733 5848

5 March 2024

CINOTECH Consultants Limited
Room 1710, 17/F, Technology Park,
18 On Lai Street, Shatin, N.T.
(Attn: Mr. K S LEE, Technical Director)

Dear Mr. LEE,

Land Contamination at Kowloon City
Request for Information of Dangerous Goods & Incident Records

I refer to your letter of 1.2.2024 regarding the captioned request and reply below in response to your questions:-

According to our record, from the year of 1990 to present moment, dangerous goods licenses have been issued by this department to the subject address, with details as shown in **Appendix A**. No incident record involving spillage / leakage of dangerous goods was found at the aforesaid location with your given conditions.

If you have further questions, please feel free to contact the undersigned.

Yours sincerely,

(TSANG Chun-hei)
for Director of Fire Services

Appendix A

Land Contamination at Kowloon City
Request for Information of Dangerous Goods & Incident Records

Item	Type of DG	Quantity	Storage Location	Cancel (Y / N)
1.	Acetylene	10 cylinders	No. 18-24 Wan On Street, Hung Hom	Y
2.	Oxygen	10 cylinders		Y
3.	Kerosene	400 litres	No. 38 Wing Kwong Street, Hung Hom	Y
4.	Thinner	338 litres	No. 3 Hok Yuen Street East, Hung Hom	Y
	Rubber Solution	338 litres		
	Petroleum Spirit	338 litres		
	Lacquer	338 litres		

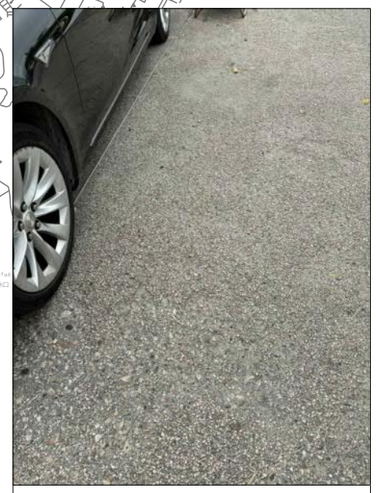
APPENDIX 8-3
PHOTO RECORDS FOR LAND CONTAMINATION ASSESSMENT



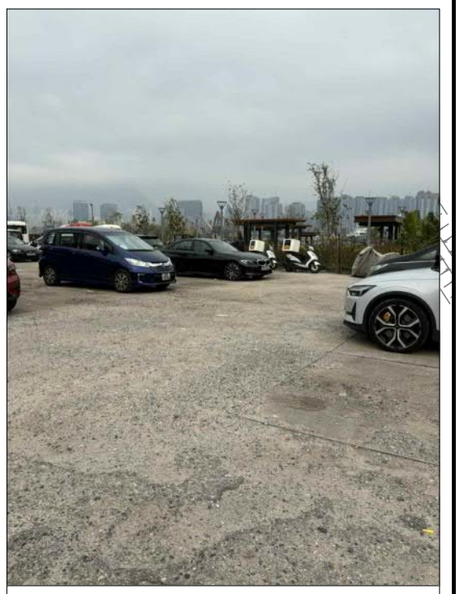
1_Entrance of Parking Lot



2_View to the West of Parking Lot



3_Fully Paved Ground with No Identified Oil Stains



4_View to the East of Parking Lot



5_View to the North of Parking Lot



9_Sewage Treatment Plant (South East of Parking Lot)



6_Pigging Station (East of Parking Lot)



7_Ground Condition between Proposed Development, Pigging Station and Sewage Treatment Plant



10_Fully Paved Ground inside Sewage Treatment Plant



8_Back of Pigging Station (East of Parking Lot)



11_Residential Land and Educational Institute (West of Parking Lot)

Scheme Boundary

Direction of line of sight

Photo's Point of View

Photo ID

Planned Development in Kowloon City

Photo Records of Site Walkover for Land Contamination Assessment

SCALE	1:2000 @ A3	DATE	19 Aug 2024
CHECK	KC	DRAWN	EH
JOB No.	--	DRAWING No.	Appendix 8-3
		REV	-

Cinotech Consultants Limited

APPENDIX 8-4
SITE WALKOVER CHECKLIST

Site Walkover Checklist (Questionnaire)

GENERAL SITE DETAILS

Site Owner: Goldway Parking (Bailey Street)

Property Address: N/A

Person Conducting the Questionnaire

Name: N/A

Position: N/A

Authorized Owner/Client Representative (If Applicable)

Name: N/A

Position: N/A

Telephone: N/A

SITE ACTIVITIES

Briefly describe activities carried out on site, including types of products/chemicals/materials handled. **Obtain a flow schematic if possible.**

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	N/A
Electricity	Y
Coal	N/A
Oil	N/A
Other	N/A

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: 7,610 m^2

What area of the site is covered by buildings (%): 0%

Please list all current and previous owners/occupiers if possible.

Unknown

Is a site plan (with indication of the site boundary) available? If yes, please attach. ~~Yes~~/No

Are there any other parties on site as tenants or sub-tenants? ~~Yes~~/No

If yes, identify those parties: _____

OBSERVATIONS / OTHERS

		Yes/No	**Notes**
1.	Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?	No	No, chemical storage area was identified.
2.	What are the conditions of the bund walls and floors?	N/A	N/A
3.	Are any surface water drains located near to drum storage and unloading areas?	No	N/A
4.	Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	No	N/A
5.	Is there a storage site for the wastes?	No	N/A
6.	Is there an on-site landfill?	No	N/A
7.	Were any stressed vegetation noted on site during the site reconnaissance? (If yes, please indicate location and approximate size.)	No	N/A

		Yes/No	Notes
8.	Were any stained surfaces noted on-site during the site reconnaissance? (If yes, please provide details.)	No	N/A
9.	Are there any potential off-site sources of contamination?	No	N/A
10.	Does the site have any equipment (e.g. Transformers) which might contain polychlorinated biphenyls (PCBs)?	No	N/A
11.	Are there any sumps, effluent pits, interceptors or lagoons on site?	No	N/A
12.	Any noticeable odours during site walkover?	No	N/A
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	N/A

Appendix 7

Drainage and Sewerage Impact Assessment Report

Urban Renewal Authority
Proposed Residential Development in
Bailey Street, Kowloon City District

Drainage Impact Assessment

(V3.0)

June 2025

Approved By _____
(Project Manager: K.S. Lee)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

CINOTECH CONSULTANTS LIMITED
Room 1710, Technology Park
18 On Lai Street
Shatin, NT, Hong Kong
Tel: (852) 2151 2083 Fax: (852) 3107 1388
Email: info@cinotech.com.hk

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2.1 EXISTING ENVIRONMENT 2
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Appendix II Stormwater Discharge from Catchment Zone
Appendix III Detailed Calculation of Pipe Utilization

1 INTRODUCTION

1.1 Background

1.1.1 Cinotech Consultants Limited is commissioned by the Urban Renewal Authority (URA) to conduct a Drainage Impact Assessment (DIA) in support to a proposed comprehensive high-density residential development (the Proposed Development) at Bailey Street, Kowloon City District (the "Site"). URA, in collaboration with the Planning Department, proposed to rezone the Site from "Government, Institution or Community" ("G/IC") zone and a small strip of land zoned "Other Specified Uses" annotated "Sewage Treatment Plant" ("OU(STP)") to "Residential (Group A)9" ("R(A)9") for comprehensive high-density residential development. Planning submission with relevant technical assessments will be prepared in support of the proposed rezoning under Section 5 of the Town Planning Ordinance.

1.1.2 The DIA is conducted to assess the drainage impact of the Proposed Development at the Site.

2 DESCRIPTION OF THE ENVIRONMENT

2.1 Existing Environment

2.1.1 The Site, with a gross area of about 7,610 m², is located in the Kowloon City District, in proximity to the waterfront. It is bounded by Chi Kiang Street to the west, Bailey Street to the south, Hoi Sham Park Extension to the north and east, and To Kwa Wan Pigging Station to the east, with To Kwa Wan Preliminary Treatment Works to the southeast. A location plan of the Site is shown in **Figure 2-1**.

2.1.2 The Site falls within an area mainly zoned "G/IC," and a small strip of land zoned "OU(STP)" on the Approved Hung Hom Outline Zoning Plan (OZP) No. S/K9/28 with a building height restriction (BHR) of 8 storeys. According to the OZP, the Site is planned for school development.

2.1.3 The majority of the Site is currently occupied by a temporary fee-paying public car park, with a small portion used as a planter area and hard-paved land serving as a passageway. Based on a site survey conducted in March 2024 and reviewed in June 2025, the public car park is paved and does not have a stormwater system, such as a U-channel. However, there is an existing U-channel runs along the western and southern boundaries of the adjacent Pigging Station, extending from the car park boundary to the east.

2.2 The Proposed Development

2.2.1 The Site is proposed to be rezoned to "(R(A)9)" for comprehensive high-density residential development. The "R(A)9" zone is also subject to a maximum building height restriction of 110mPD, a maximum Gross Floor Area (GFA) of 68,490 sq.m., with domestic GFA not exceeding 60,880 sq.m..

Notional Design and Development Parameters

2.2.2 To visualize the proposed planning parameters and support technical assessment considerations, an indicative layout is shown in **Appendix I**, and the overall development parameters are presented in **Table 2-1**.

2.2.3 As shown in the indicative layout, the Proposed Development is designed for a two-phases development scenario, with each phase (namely Site A and Site B) featuring one residential tower with a maximum building height of 110mPD atop of a four-storeys podium and two levels of basement carpark. Under a conservative approach, the DIA will be conducted under this two-phased development scenario. It is worth noting that the layout, development parameters and phasing boundary for Site A and B are intended solely for relevant technical assessments in support of the Proposed Rezoning, which is for indicative purposes only and subject to change at detailed design stage.

Table 2-1 Development Parameters of the Proposed Development

	Overall	**Site A** [3]	**Site B** [3]
Zoning	"R(A)9"	"R(A)9"	"R(A)9"
Site Area (Subject to survey)	About 7,610 m^2	About 3,417 m^2	About 4,193 m^2
Domestic GFA	About 60,880 m^2	About 27,336 m^2	About 33,544 m^2
Commercial GFA	About 7,610 m^2	About 2,045 m^2	About 5,565 m^2
GIC GFA (to be exempted from GFA calculation)	About 3,100 m^2	About 3,100 m^2	N/A
No. of building blocks [1]	2	1	1
Building Height	110 mPD	110 mPD	110 mPD
No. of Flats [1]	1,218	547	671
Average Flat Size [1]	About 50 m^2	About 50 m^2	About 50 m^2
Harbourfront At-Grade Communal Space	About 760 m^2	N/A	About 760 m^2
Car Parking Spaces [2]	Private Car: 343 Coach: 15	Private Car: 143 Coach: 15	Private Car: 200 Coach: 0
Tentative Project Completion Year	2032	2032	2032

Note
[1] Number of building blocks, number of flats and average flat size are indicative only and subject to detailed design.
[2] Subject to liaison with Transport Department.
[3] The development parameters of Site A and Site B are for technical assessment and indicative purposes only, subject to change in detailed design.

3 DRAINAGE IMPACT ASSESSMENT

3.1 Methodology

3.1.1 Stormwater Drainage Manual – Planning, Design and Management", fifth edition, January 2018, (hereafter called "the SDM") prepared by Drainage Services Department (DSD) provides guidelines for the design of the drainage system. "Corrigendum No. 1/2022 of the Stormwater Drainage Manual" (hereafter called "SDM Corrigendum 1/2022"), has been made by the DSD in 2022 for updating the design requirement of rainfall increase and extreme sea level rise in 21st century. "Corrigendum No. 1/2024 of the Stormwater Drainage Manual" (hereafter called "SDM Corrigendum 1/2024"), has been made by the DSD in 2024 for updating the maximum rainfall intensity.

3.1.2 This report adopts the rational method for the assessment, where the peak runoff is estimated by runoff coefficient, rainfall intensity and catchment area as stated in Section 7.5.2 of the DSD Manual.

3.1.3 The adopted runoff coefficients are referred to Section 7.5.2(b) of the DSD Manual and summarized in **Table 3-1**.

Table 3-1 Runoff Coefficients

Type of Area	Run-off Coefficient [1]
Grass	0.19
Paved/Concrete	0.90

Note:
[1] The runoff coefficients are extracted from Section 7.5.2(b) of "Stormwater Drainage Manual – Planning, Design and Management", fifth edition, January 2018.

3.1.4 According to Table 10 of the SDM, the recommended design return period based on flood levels is 50 years ("Urban Drainage Branch Systems[1]") for conservative purpose. The rainfall intensities are calculated by Intensity-Duration-Frequency (IDF) Relationship (Section 4.3.3 of SDM Corrigendum 1/2024) with storm constants of HKO Headquarters's rainfall zone (Figure 4a & Table 3a of the SDM Corrigendum 1/2024).

3.1.5 As stated in Section 6.8 of the SDM Corrigendum 1/2022, drainage provision in new development areas should consider the climate change effects up to end of 21st century. Therefore, the increase of 16.0% in rainfall and 12.1% design allowance for end of 21st century (Tables 28 & 31 of SDM Corrigendum 1/2022) is incorporated into the calculation.

3.1.6 The capacities of the public stormwater pipes are calculated by Colebrook-White Equation. All existing public stormwater pipes in the assessment are assumed to be slimed concrete pipes under poor condition for conservative assessment.

3.2 Stormwater Discharge from the Proposed Development

3.2.1 The existing stormwater system and the stormwater catchments in the vicinity are illustrated in **Figures 3-1**.

3.2.2 Under existing conditions, stormwater from the Site is collected by the stormwater systems of Chi Kiang Street and Hoi Sham Park, ultimately discharging to the sea via the existing 2400 x 1800 mm box culvert. It should be noted that there is a 750 mm x 2 sewage pipe

[1] This Project do not intend altern or upgrade any trunk drains, which are equal to or larger than 1.8 m in diameter according to Section 6.6.2 of the SDM. Therefore, return period of "Urban Drainage Branch Systems" has been adopted.

between the Site and the 750 mm stormwater pipe along Chi Kiang Street, making the connection of new stormwater pipes from the Site to the public stormwater manhole along Chi Kiang Street very difficult.

3.2.3 After the completion of the development, stormwater from the both Site A and B will be directly discharged into the existing 2400mm x 1800mm box culvert section located at the southern portion of Site B. Given that the existing Site is already fully paved, the Proposed Development is not expected to increase the load on the box culvert. This box culvert is an infrastructure that was designed to handle stormwater flow under extrema condition, and the anticipated stormwater flow of the Proposed Development (residential use) will be the same as the existing use and the originally planned used (school development). It is expected that the 2400mm x 1800mm box culvert will be accommodate peak stormwater flow under a 50-year return period.

3.2.4 A fully paved scenario for Site has been adopted.

3.2.5 The peak stormwater discharge from the Site, calculated as per **Section 3.1**, is summarised in **Table 3-2**. The detailed calculations are shown in **Appendix II.**

Table 3-2 Peak Stormwater Discharge from the Sites

Catchments	Description	Total Drainage Discharge (L/s)
Site A	The Site A	285.0
Site B	The Site B	351.7

Note:
[1] Detailed calculations are shown in **Appendix II**.
[2] Assume a fully paved scenario

3.3 Proposed New Stormwater Pipe

3.3.1 The stormwater discharge from the Site A is proposed to be collected by terminal manhole STMH-01 and discharged via the proposed pipes PP-01 to PP-05, which has a diameter of 600mm and slope of 1:100.

3.3.2 The stormwater discharge from the Site B is proposed to be collected by terminal manhole STMH-02 and discharged via the proposed pipe PP-06, which has a diameter of 600mm and slope of 1:100.

3.3.3 The pipe will be connected to the box culvert as shown in **Figure 3-2**.

3.3.4 The proposed new pipes are presented in **Table 3-3** below. The exact location of the new manhole and invert levels will be subject to detailed design. The proposed new pipes will be able to cater the expected peak stormwater flow, thus no adverse drainage impact arising from the Proposed Development is anticipated.

Table 3-3 Proportion of Peak Flow to Full Capacity (Proposed New Pipe)

Pipe Section	Upstream Manhole	Downstream Manhole	Diameter (m)	Full Capacity (L/s)	Peak Flow (L/s)	Utilization (%)
PP-01	STMH-01	SMH-01	0.600	500.2	285.0	57%
PP-02	SMH-01	SMH-02	0.600	500.2	285.0	57%
PP-03	SMH-02	SMH-03	0.600	500.2	285.0	57%
PP-04	SMH-03	SMH-04	0.600	500.2	285.0	57%
PP-05	SMH-04	to Box Culvert	0.600	500.2	285.0	57%
PP-06	STMH-02	to Box Culvert	0.600	500.2	351.7	70%

Note:
[1] The calculation is detailed in **Appendix III**.

3.4 Potential Flooding Risk

3.4.1 According to the Stormwater Drainage Manual Corrigendum No. 1/2022, the extreme sea level projected for the end of the 21st century, with a return period of 50 years at, to reach 4.51mPD during extreme storm surge events. It is worth noting that the playgrounds in Hoi Sham Park adjoining the Site are situated at 4.9mPD, and the roads surrounding the Site fall within the range of 4.9mPD to 5.5mPD, and the Proposed Development itself will be built on a ground level of 5.7mPD.

3.4.2 Consequently, the extreme sea level anticipated for 21st century is not expected to reach the ground level of the Proposed Development or its vicinity, thus flooding and/or backwater effects during extreme storm surge are not anticipated. The use of one-way valve at the discharge pipe is proposed to further mitigate the risk of potential backwater.

4 CONCLUSION

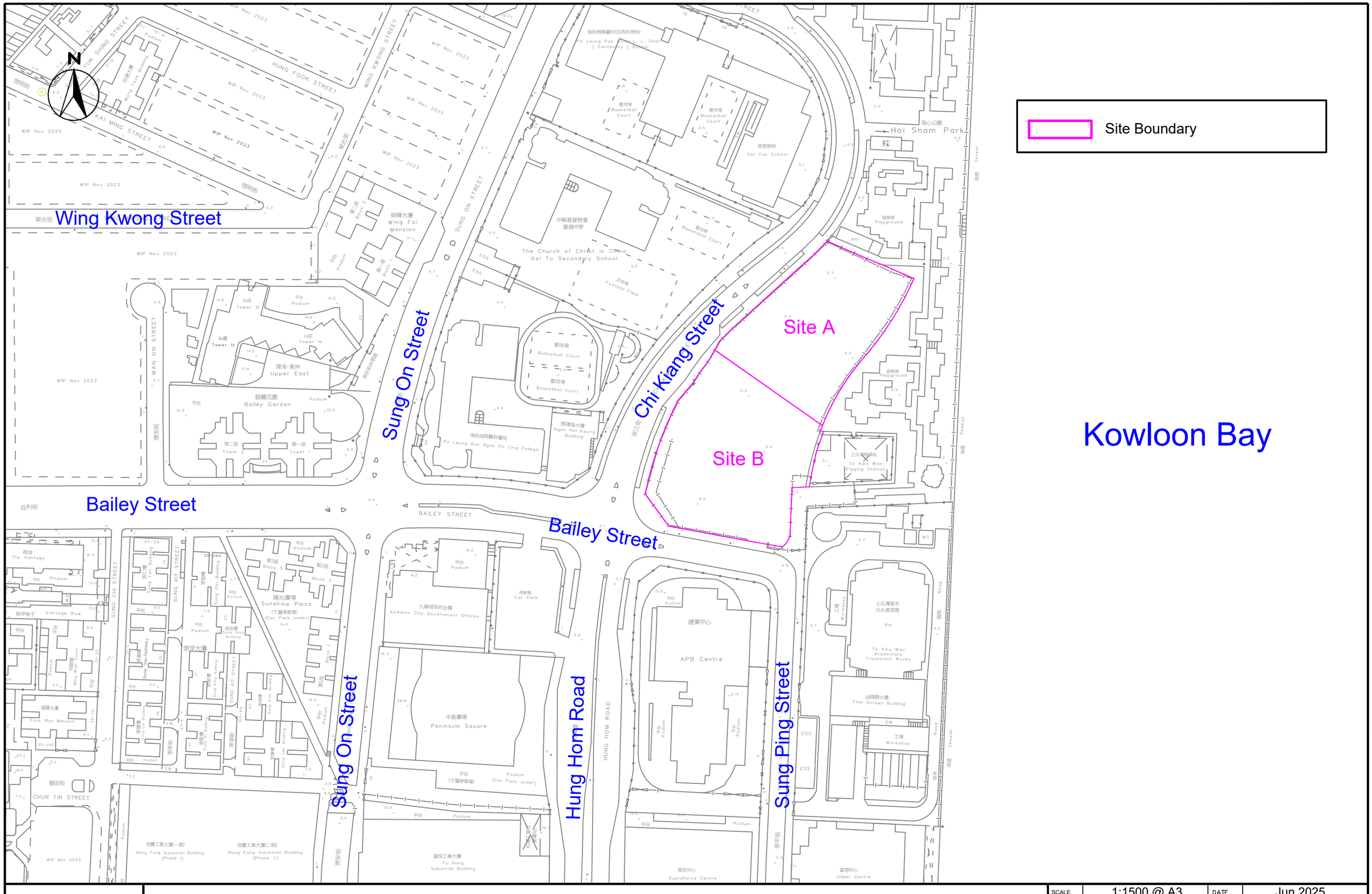
4.1.1 The Site is proposed to be rezoned to "Residential (Group A)9" which is intended primary for comprehensive high-density residential development. A Drainage Impact Assessment has been undertaken to assess the potential drainage impact of the Proposed Development.

4.1.2 As discussed in **Section 3.3**, the stormwater discharge from the Site A is proposed to be collected by terminal manhole STMH-01 and discharged via the proposed pipes PP-01 to PP-05, which has a diameter of 600mm and slope of 1:100; while the stormwater discharge from the Site B is proposed to be collected by terminal manhole STMH-02 and discharged via the proposed pipe PP-06, which has a diameter of 600mm and slope of 1:100.

4.1.3 The proposed new pipes will be able to cater the expected peak stormwater flow, thus no adverse drainage impact arising from the Proposed Development is anticipated.

4.1.4 Based on the above conclusions, the drainage assessment confirms the feasibility and acceptability of the Site from a drainage point of view.

FIGURES

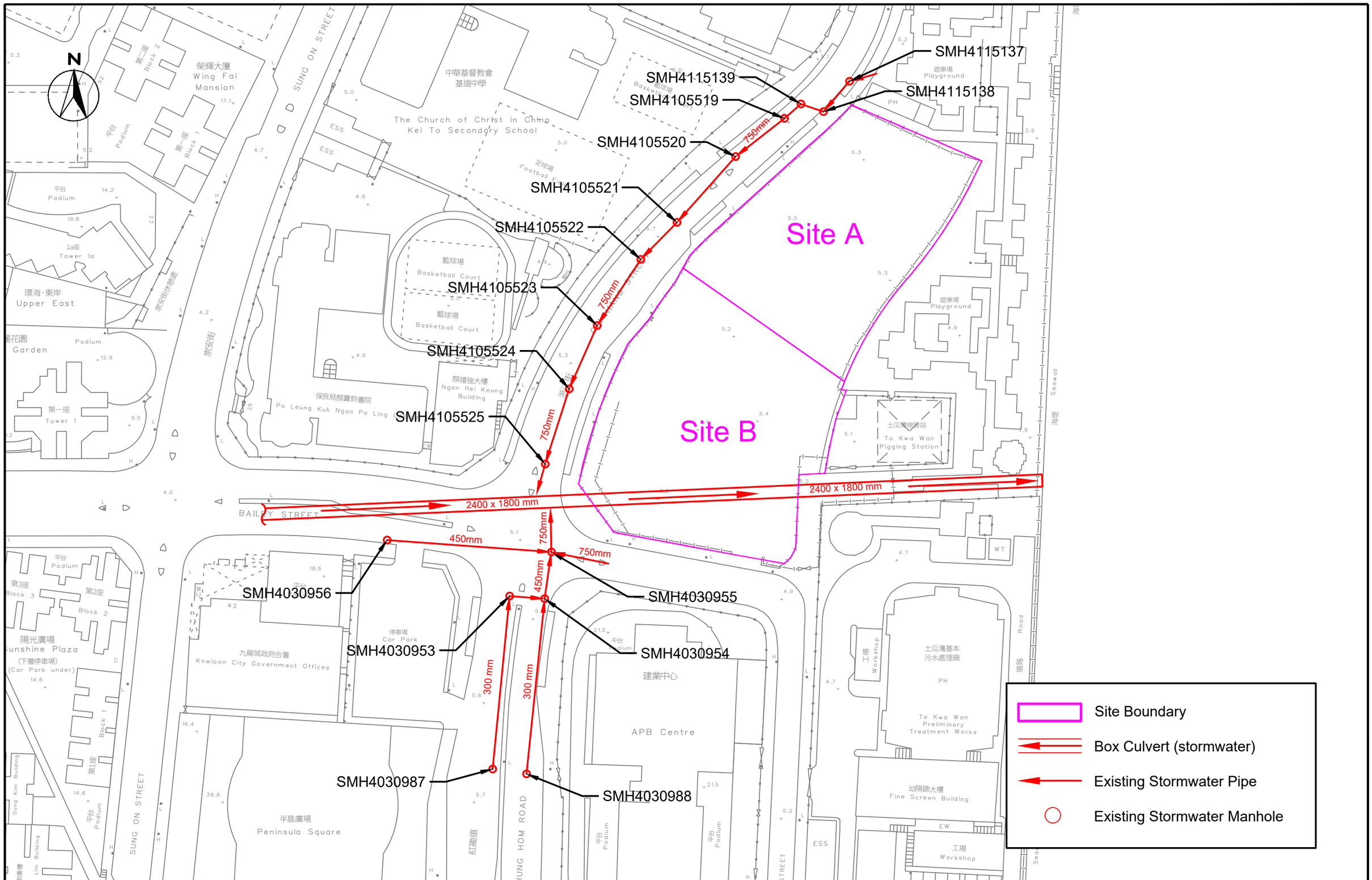


CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Site Location Plan

SCALE	1:1500 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 2-1
		REV	-

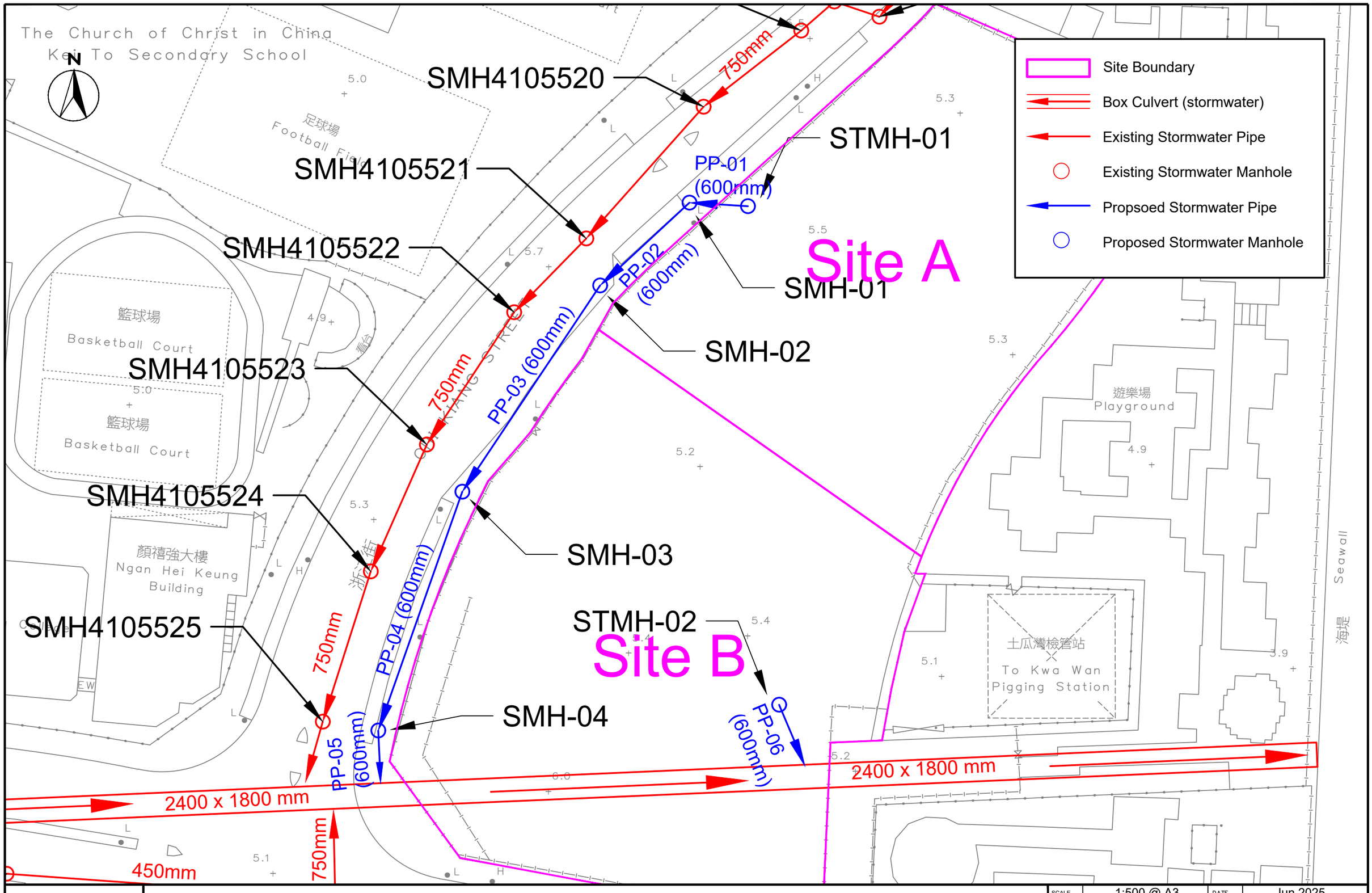


CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Existing Stormwater System in the Vicinity

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 3-1
		REV	-



CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Proposed Stormwater Pipe and Manhole

SCALE	1:500 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 3-2
		REV	-

APPENDIX I
NOTIONAL BLOCK PLAN OF THE PROPOSED DEVELOPMENT



(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 1**	**Block Plan**	Not to scale June 2025

APPENDIX II
STORMWATER DISCHARGE FROM CATCHMENT ZONE

Appendix II - Stormwater Discharge from Catchment Zone

Catchment Zone	Site A	Site B
Description	The Site A	The Site B
Catchment Area (m^2)	3417	4193
Slope (m per 100m)[1]	2.50	2.50
L (m)	60.0	60.0
TOC (min) [3]	3.2	3.1
Runoff intensity (mm/hr)[2]	260.2	261.7
Paved area (m^2)	3417	4193
Runoff coefficient (paved)	0.9	0.9
Drainage discharge (L/s)	222.5	274.5
Unpaved area (m^2)[3]	0	0
Runoff coefficient (unpaved)	0.19	0.19
Stormwater discharge (L/s)	0.0	0.0
Total Stormwater discharge (L/s)	222.5	274.5
Rainfall increased and design allowance for end of 21st century	28.1%	28.1%
Total Stormwater discharge with Rainfall increased (L/s)	285.0	351.7

Note:

[1] A slope of 1:40 is assumed for flat catchment area.

[2] The run-off intensity is calculated by the equation in Section 4.3.3 of the CORRIGENDUM No. 1/2024:

$$i = \frac{a}{(t_d + b)^c}$$

where Table 3a - Storm Constants for 50years return period of HKO Headquarters are adopted.

a = 505.5

b = 3.29

c = 0.355

[3] The time of Concentration (TOC) has been capped to 5 minutes.

APPENDIX III
DETAILED CALCULATION OF PIPE UTILIZATION

Appendix III - Detailed Calculation of Pipe Utilization

Table A - Proposed Pipe

Pipe No.	Upstream Manhole No.	Downstream Manhole No.	Upstream invert level (mP.D.)	Downstream invert level (mP.D.)	Length (m)	Diameter (m)	Area (m^2)[2]	Hydraulic Radius (m)	Slope	Kinematic Viscosity (m^2/s)	Hydraulic Pipeline Roughness (m) [1]	Velocity (m/s)	Full Capacity (L/s)	Catchment	Peak Flow (L/s)	% of full capacity
Proposed New Pipe [3]																
PP-01	STMH-01	SMH-01	2.20	2.12	8.40	0.600	0.254	0.150	0.010	1.14E-06	0.003	1.97	500.2	Site A	285.0	57%
PP-02	SMH-01	SMH-02	2.12	1.95	17.52	0.600	0.254	0.150	0.010	1.14E-06	0.003	1.97	500.2	Site A	285.0	57%
PP-03	SMH-02	SMH-03	1.95	1.59	35.65	0.600	0.254	0.150	0.010	1.14E-06	0.003	1.97	500.2	Site A	285.0	57%
PP-04	SMH-03	SMH-04	1.59	1.23	36.37	0.600	0.254	0.150	0.010	1.14E-06	0.003	1.97	500.2	Site A	285.0	57%
PP-05	SMH-04	to Box Culvert	1.23	1.15	7.55	0.600	0.254	0.150	0.010	1.14E-06	0.003	1.97	500.2	Site A	285.0	57%
PP-06	STMH-02	to Box Culvert	1.25	1.15	9.60	0.600	0.254	0.150	0.010	1.14E-06	0.003	1.97	500.2	Site B	351.7	70%

Note:
[1] The roughness coefficient for slime concrete sewer under poor condition is adopted; the ks values are 3mm for velocities greater than 1.2m/s, otherwise 6mm.
[2] According to Section 9.3 of Stormwater Drainage Manual (Fifth Edition), the effect of sedimentation should be estimated by 10% reduction in flow area.
[3] The details of the Proposed Pipe subject to change.

Urban Renewal Authority
Proposed Residential Development in Bailey Street, Kowloon City District

Sewerage Impact Assessment
(V4.0)

June 2025

Approved By _____
(Project Manager: K.S. Lee)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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1 INTRODUCTION

1.1 Background

1.1.1 Cinotech Consultants Limited is commissioned by the Urban Renewal Authority (URA) to conduct a Sewage Impact Assessment (SIA) in support to a proposed comprehensive high-density residential development (the Proposed Development) at Bailey Street, Kowloon City District (the "Site"). URA, in collaboration with the Planning Department, proposed to rezone the site from "Government, Institution or Community" ("G/IC") zone and a small strip of land zoned "Other Specified Uses" annotated "Sewage Treatment Plant" ("OU(STP)") to "Residential (Group A)9" ("R(A)9") for comprehensive high-density residential development. Planning submission with relevant technical assessments will be prepared in support of the proposed rezoning under Section 5 of the Town Planning Ordinance.

1.1.2 The SIA is conducted to assess the sewerage impact of the Proposed Development at the Site.

2 DESCRIPTION OF THE ENVIRONMENT

2.1 Existing Environment

2.1.1 The Site, with a gross site area of about 7,610 m^2, is situated in the Kowloon City District, is in proximity to the waterfront. It is bounded by Chi Kiang Street to the west, Bailey Street to the south, Hoi Sham Park Extension to north and east and To Kwa Wan Pigging Station to the east and To Kwa Wan Preliminary Treatment Works to the southeast. A location plan of the Site is shown on **Figure 2-1**.

2.1.2 The Site falls within an area mainly zoned "G/IC", and a small strip of land zoned "OU(STP)" under the Approved Hung Hom Outline Zoning Plan ("OZP") No. S/K9/28 with a building height restriction ("BHR") of 8 storeys. According to the OZP, the Site is planned for school development.

2.1.3 The majority of the Site is currently occupied by a temporary fee-paying public carpark, with a small portion of the site occupied as planter area and hard paved land serving as a passageway.

2.2 The Proposed Development

2.2.1 The Site is proposed to be rezoned to "(R(A)9)" for comprehensive high-density residential development. The "R(A)9" zone is also subject to a maximum building height restriction of 110mPD, a maximum Gross Floor Area (GFA) of 68,490 m^2, with domestic GFA not exceeding 60,880 m^2.

Notional Design & Development Parameters

2.2.2 To visualise the proposed planning parameters and support technical assessment considerations, an indicative layout is shown in **Appendix 2-1**, and the overall development parameters for Site A and B are presented in **Table 2-1**.

2.2.3 As shown in the indicative layout, the Proposed Development is designed for a two-phases development scenario, with each phase (namely Site A and Site B) featuring one residential tower with a maximum building height of 110mPD atop of a four-storeys podium and two levels of basement carpark. Under a conservative approach, the SIA will be conducted under this two-phased development scenario. It is worth noting that the indicative layout, development parameters and phasing boundary for Site A and B are intended solely for use of relevant technical assessments in support of the Proposed Rezoning, which is for indicative purposes only and subject to change at detailed design stage.

Table 2-1 Development Parameters of the Proposed Development

	Overall	Site A [3]	Site B [3]
Zoning	"R(A)9"	"R(A)9"	"R(A)9"
Site Area (Subject to survey)	About 7,610 m^2	About 3,417 m^2	About 4,193 m^2
Domestic GFA	About 60,880 m^2	About 27,336 m^2	About 33,544 m^2
Commercial GFA	About 7,610 m^2	About 2,045 m^2	About 5,565 m^2
GIC GFA (to be exempted from GFA calculation)	About 3,100 m^2	About 3,100 m^2	N/A
No. of building blocks [1]	2	1	1
Building Height	110 mPD	110 mPD	110 mPD
No. of Flats [1]	1,218	547	671
Average Flat Size [1]	About 50 m^2	About 50 m^2	About 50 m^2
Harbourfront At-Grade Communal Space	About 760 m^2	N/A	About 760 m^2
Car Parking Spaces [2]	Private Car: 343 Coach: 15	Private Car: 143 Coach: 15	Private Car: 200 Coach: 0
Tentative Project Completion Year	2032	2032	2032

Note
[1] Number of building blocks, number of flats and average flat size are indicative only and subject to detailed design.
[2] Subject to liaison with Transport Department.
[3] The development parameters of Site A and Site B are for technical assessment and indicative purposes only, subject to change in detailed design.

3 SEWERAGE IMPACT ASSESSMENT

3.1 Sewage Discharge from the Proposed Development

3.1.1 The estimated number of flats for Site A and Site B are about 547 units and 671 units respectively. Based on persons per flat of 2.4, the design population for residential portion of Site A and Site B is about 1,532 persons and 1,879 persons respectively. The persons per flat of 2.4 is assumed with reference to the 2021 Population Census Statistic by District Council Constituency Area including To Kwa Wan South, To Kwa Wan North, and Hok Yuen Laguna Verde, with average domestic household size of 2.1, 2.4 and 2.8 respectively. Additionally, reference was also made to the planned population under URA's redevelopment projects in Kowloon City Action Area 1 (KCAA1) Core Area which is in close proximity to the Site, with an average household size of 2.4 persons per flat. To ensure a conservative assessment, a worst-case scenario using 2.8 persons per flat reflecting the upper range of the aforementioned census data has been applied for this sewerage impact assessment. This precautionary approach accounts for potential peak demand and safeguards system capacity under maximum load condition. Apart from residential portion, the population of non-residential area such as restaurant, retail, and G/IC are estimated according to the usable floor area per person and the worker density from Figure 9 of Commercial and Industrial Floor Space Utilization, published by Planning Department. **Table 3-1** and **Table 3-2** indicates the population calculation of the Site A and Site B.

Table 3-1 Estimation of Population (Site A)

Site A			
Residential Section	**Number of Units**	**Population Density [1]**	**Population (Residential)[1]**
Total			**1,532**
-- Residential Flat	547	2.8	1,532
Non-Residential Section	**Estimated GFA (m^2) [1]**	**Staff Density (per 100m^2) [2]**	**No. of Employees**
Total			**234**
-- Club House & Lobby	1,250	3.3	42
-- G/IC	3,100	3.3	103
-- Retail	1,022.5	3.5	36
-- Restaurant	1,022.5	5.1	53

Note:
[1] Since the Proposed Development is located at the Hok Yuen Laguna Verde District Council Constituency Area, the average domestic household size of 2.8 has been adopted according to the 2021 Population Census.
[2] According to Figure 9. Worker Density by Industrial Group of "Commercial and Industrial Floor Space Utilization Survey by Planning Department, the staff densities are: -
-- 3.3 staff per 100m^2 GFA for G/IC and Clubhouse (Community, Social & Personal Services)
-- 3.5 staff per 100m^2 GFA for Retails and Shops
-- 5.1 staff per 100m^2 GFA for Restaurants

Table 3-2 Estimation of Population (Site B)

Site B			
Residential Section	**Number of Units**	**Population Density [1]**	**Population (Residential)[1]**
Total			**1,879**
-- Residential Flat	671	2.8	1,879
Non-Residential Section	**Estimated GFA (m^2) [1]**	**Staff Density (per 100m^2) [2]**	**No. of Employees**
Total			**290**
-- Club House & Lobby	1,509	3.3	50
-- Retail	2,782.5	3.5	98
-- Restaurant	2,782.5	5.1	142

Note:
[1] Since the Proposed Development is located at the Hok Yuen Laguna Verde District Council Constituency Area, the average domestic household size of 2.8 has been adopted according to the 2021 Population Census.
[2] According to Figure 9. Worker Density by Industrial Group of "Commercial and Industrial Floor Space Utilization Survey by Planning Department, the staff densities are: -
-- 3.3 staff per 100m^2 GFA for Clubhouse (Community, Social & Personal Services)
-- 3.5 staff per 100m^2 GFA for Retails and Shops
-- 5.1 staff per 100m^2 GFA for Restaurants

3.1.2 A Catchment Inflow Factor (P_{cif}) of 1.00 for Central Kowloon is adopted in the sewage calculations for the Proposed Development. The estimated sewage flow rates from Site A and Site B are summarized in **Table 3-3** and **Table 3-4**, respectively. A swimming pool of the same size is provided in both Site A and Site B, and the calculation of backwash water discharged from a swimming pool is tabulated in **Table 3-5**. The total flow rates for Site A and Site B, excluding the backwash flow from the swimming pools, are 630.3 m^3/day and 889.1 m^3/day, respectively. For the swimming pools, the total backwash flow rate is approximately 2.1 L/s each.

Table 3-3 Calculation of Sewage Discharge of Site A

Site A			
Occupant Type	**Unit Flow Factors (m^3/day/person)**	**No. of Occupants / Employees**	**Flow Rate (m^3/day)**
-- Residential Flat	0.27	1,532	413.6
-- Club House & Lobby	0.28	42	11.8
-- G/IC	0.28	103	28.8
-- Retail	0.28	36	10.1
-- Restaurant	1.58	53	83.7
Total Flow Rate (m^3/day)			548.1
Total Flow Rate (m^3/day) with P_{cif}			548.1
Total Flow Rate (m^3/day) with P_{cif} (+15%)			**630.3**
Facility	**Volume of the Pool (m^3)**	**Backwash Flow Volume [3]**	**Backwash Flowrate (Backwashing) (L/s) [3]**
Swimming Pool	125	6.4	1.8
Total	--	--	**1.8**
Total (+15%)	--	--	**2.1**

Note
[1] According to EPD's Guidelines for Estimating Sewage Flows for Infrastructure Planning, the Unit Flow Factor are:
-- 0.27 m3/day/person for Residential flat (R2);
-- 0.28 m3/day/staff for Clubhouse & Lobby, Retail as well as G/IC;
-- 1.58 m3/day/staff for Restaurant
[2] Additional of 15% total flow rate has been adopted for conservative assessment.
*[3] Backwash flowrate from swimming pool is detailed in **Table 3-5**.*

Table 3-4 Calculation of Sewage Discharge of Site B

Site B			
Occupant Type	**Unit Flow Factors (m^3/day/person)**	**No. of Occupants / Employees**	**Flow Rate (m^3/day)**
-- Residential Flat	0.27	1,879	507.3
-- Club House & Lobby	0.28	50	14.0
-- Retail	0.28	98	27.4
-- Restaurant	1.58	142	224.4
Total Flow Rate (m^3/day)			773.1
Total Flow Rate (m^3/day) with P_{cif}			773.1
Total Flow Rate (m^3/day) with P_{cif} (+15%)			**889.1**
Facility	**Volume of the Pool (m^3)**	**Backwash Flow Volume [3]**	**Backwash Flowrate (Backwashing) (L/s) [3]**
Swimming Pool	125	6.4	1.8
Total	--	--	**1.8**
Total (+15%)	--	--	**2.1**

Note
[1] According to EPD's Guidelines for Estimating Sewage Flows for Infrastructure Planning, the Unit Flow Factor are:
-- 0.27 m3/day/person for Residential flat (R2);
-- 0.28 m3/day/staff for Clubhouse & Lobby, Retail;
-- 1.58 m3/day/staff for Restaurant
[2] Additional of 15% total flow rate has been adopted for conservative assessment.
*[3] Backwash flowrate from swimming pool is detailed in **Table 3-5**.*

Table 3-5 Calculation of Backwash Flow Rate from a Swimming Pool

	Swimming Pool		**Unit**
Pool Data			
Gross floor area of Swimming Pool, A	125		m^2
Average depth of Swimming Pool, D	1		m^2
Volume of water for swimming Pool, V = A x D	125		m^3
Turnover Period, T	6		hr
Design Flow Rate, Q = V/T	20.83		m^3/hr
Calculation of Sand Filter Area			
Filter Design flowrate, Q_f	48		$m^3/hr/m^2$
Filter Area Required, $A_r = Q_f/Q$	0.43		m^2
Filter area for the adopted Filter, A_f	0.40		m^2
Number of Filter, n	2		--
Actual Filter Area = A_f x n	0.80		m^2
Calculation of Backwash Flow Rate			
Backwash flow rate of Sand Filter, Q_s	32		$m^3/hr/m^2$
Backwash Duration, t_s	15		minute
Backwash flow volume q = Q_s x A_f x n x (t_s/60)	6.4		m^3
Backwash water discharge rate [1]	1.8		L/s

[1] The discharge of the backwash water will spend over one hour period.
[2] Retention tank with volume >6.4m^3 will be provided for swimming pool.

3.2 Sewage Discharge from the Vicinity

Site A

3.2.1 Full capacity of upstream sewer, US-A-01, has been adopted to estimate the sewage flow from upstream catchments. The location of US-A-01 is illustrated in **Figure 3-1a**. US-A-01 is 630mm twin rising mains connected to the manhole FMH4088680. The rising mains, unlike gravity sewers, are controlled by the pumping system with maximum velocity limited to 3 m/s, in accordance with the "*Sewage Manual, Part 2 – Pumping Stations and Rising Mains*" published by Drainage Services Department. For conservative approach, maximum velocity of 3 m/s has been adopted to estimate the peak sewage flow from all upstream catchments. The full capacity of US-A-01 is 1,870.3 L/s and the detailed calculation of flow rate is presented in **Appendix 3-1**.

3.2.2 Public toilet in Hoi Sham Park has been identified as shown in **Figure 3-1a**. It is estimated that the total sewage generated from the public toilet is ~10.6 m^3/day and detailed calculation is presented in **Appendix 3-3**.

Site B

3.2.3 US-B-01 has been adopted to estimate the sewage flow from upstream catchment. The location of US-B-01 is illustrated in **Figure 3-1b**. Full capacity of US-B-01 has been adopted to represent all sewage from the upstream catchment of assessed sewer (PS-B-01). The full capacity of US-B-01 is 3,147.6 L/s and the detailed calculation of flow rate is presented in **Appendix 3-1**.

3.3 Assessment of Existing Sewerage System and Proposed New Sewers

Review of Existing Sewerage System under the Proposed Development

3.3.1 The sewage discharge from the Site is expected to increase after the implementation of the proposed development, therefore, the utilization of the downstream or concerned sewers shall be assessed. The existing sewerage system is illustrated in **Figures 3-1a & 3-1b**.

3.3.2 The capacities of the concerned downstream sewers for Site A (PS-A-01 to PS-A-05) and Site B (PS-B-01) are calculated by Colebrook-White Equation and listed in **Table 3-6**. The detailed calculation is shown in **Appendix 3-1**. Slimed concrete under poor condition has been adopted for existing public sewers.

Table 3-6 Capacity of the Downstream Sewers

Pipe Section	Upstream Manhole	Downstream Manhole	Full Capacity (L/s)
Existing Downstream Sewer (Site A)			
PS-A-01	FMH4088683	FMH4088684	2769.1
PS-A-02	FMH4088684	FMH4088685	2758.8
PS-A-03	FMH4088685	FMH4088686	2771.0
PS-A-04	FMH4088686	FMH4088687	3061.6
PS-A-05	FMH4088687	FMH4088688	4491.2
Existing Downstream Sewer (Site B)			
PS-B-01	FMH4025955	FMH4025980	4247.0

Note:
[1] The full capacity of the US-A-01 and US-B-01 have been adopted as upstream flow volume.
[2] The calculation is detailed in Table A of Appendix 3-1.

3.3.3 A summary of the utilization of the sewers are shown in **Table 3-7**. Detailed calculation is shown in **Tables B of Appendix 3-1**. The results indicate that the existing downstream sewers are able to cater for the expected sewer flow and therefore, no upgrading sewer works and sewerage impact to the existing sewerage system is anticipated.

Table 3-7 Proportion of Peak Flow to Full Capacity (Existing Pipes)

Pipe Section	Full Capacity (L/s)	Peak Flow (L/s)	Utilization (%)
Existing Downstream Sewer (Site A)			
PS-A-01	2769.1	1917.0	69%
PS-A-02	2758.8	1917.0	69%
PS-A-03	2771.0	1917.0	69%
PS-A-04	3061.6	1917.0	63%
PS-A-05	4491.2	1917.0	43%
Existing Downstream Sewer (Site B)			
PS-B-01	4247.0	3211.4	76%

Note:
*[1] The calculation is detailed in **Table B of Appendix 3-1**.*

Terminal Manholes and Discharge Sewers of the Site

3.3.4 The sewage discharge from the Site A is proposed to be collected by proposed terminal manhole FTMH-A-01 and discharged via a proposed PE sewer PP-A-01, with diameter of 300mm and slope of 1:50, connected to existing manhole FMH4088683. Similarly, the sewage discharged from Site B is proposed to be collected by proposed terminal manhole FTMH-B-01 and discharged via a proposed PE sewer PP-B-01, with diameter of 300mm and slope of 1:50, connected to existing manhole FMH402955. The proposed new sewers and sewer manhole for Site A and Site B are illustrated in **Figure 3-2a & 3-2b** respectively.

3.3.5 The proposed new pipes are summarised in **Table 3-8** below and detailed calculation is presented in **Appendix 3-2**. The exact location of the new manholes and invert levels will subject to detailed design. With the proposed new sewers and manholes, no adverse sewerage impact arising from the Proposed Development is anticipated.

Table 3-8 Proportion of Peak Flow to Full Capacity (Proposed New Sewers)

Pipe Section	Upstream Manhole	Downstream Manhole	Full Capacity (L/s)	Peak Flow (L/s)	Utilization (%)
PP-A-01	FTMH-A-01	FMH4088683	171.0	45.9	27
PP-B-01	FTMH-B-01	FMH4025955	171.0	63.8	37

4 CONCLUSION

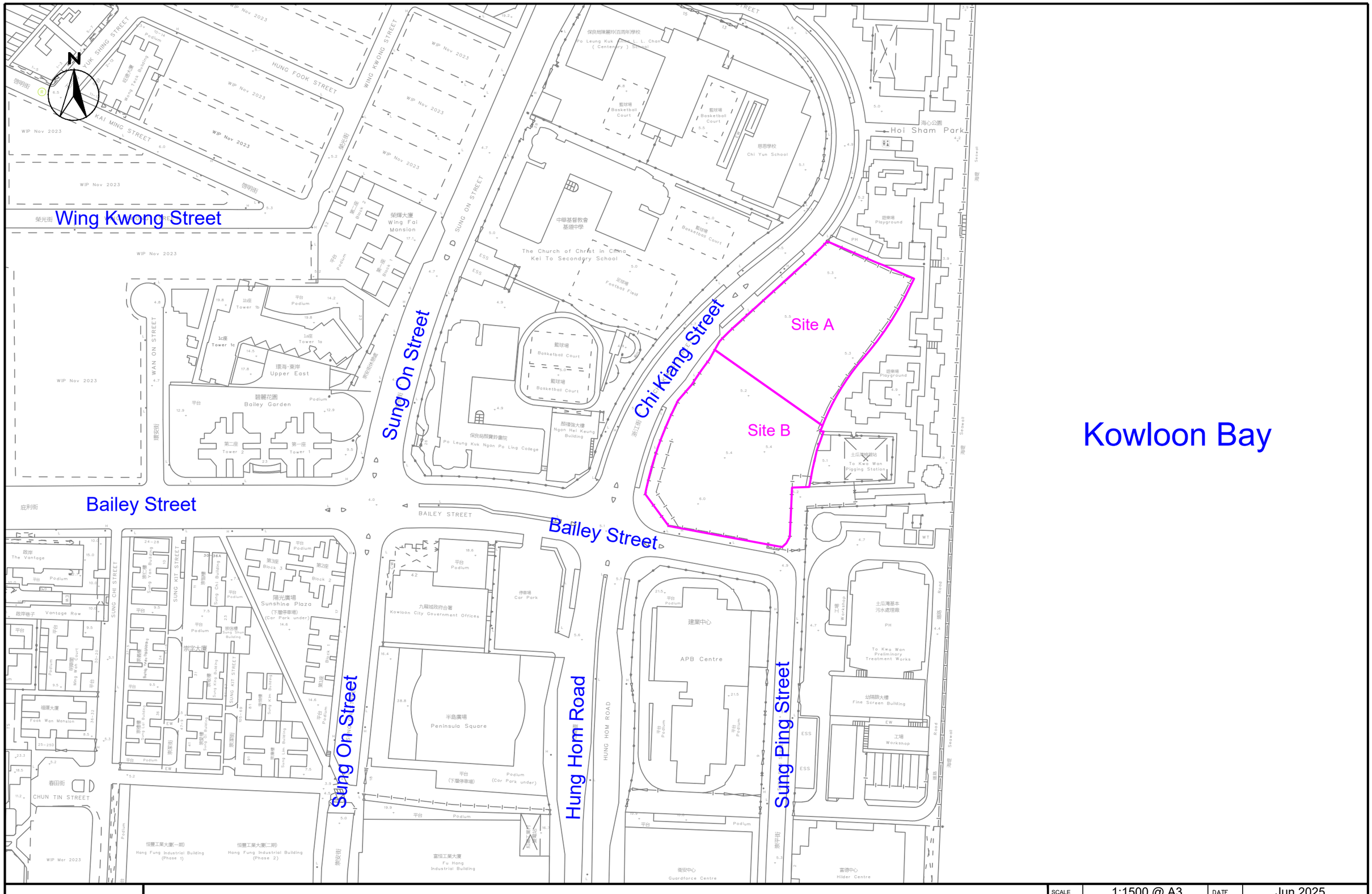
4.1.1 The Site is proposed to be zoned to "Residential (Group A)9" which is intended primary for comprehensive high-density residential development. This Sewerage Impact Assessment has been undertaken to assess the potential sewerage impact of the proposed development

4.1.2 The estimated daily sewage discharge from the Site A and Site B, excluding the swimming pool, is ~630.3 m^3/day and 889.1 m^3/day. For each swimming pool, the total backwash flowrate is 2.1 L/s.

4.1.3 The sewage discharge from the Site A and Site B is proposed to be collected by terminal manhole FTMH-A-01 & FTMH-B-01 and discharged via proposed 300mm PE sewer PP-A-01 and PP-B-01 to existing manhole FMH4088683 and FMH4025955 respectively.

4.1.4 All downstream existing sewers are able to cater for the expected peak sewage flow from Site A and Site B, thus no adverse sewerage impact arising from the proposed development is anticipated.

FIGURES

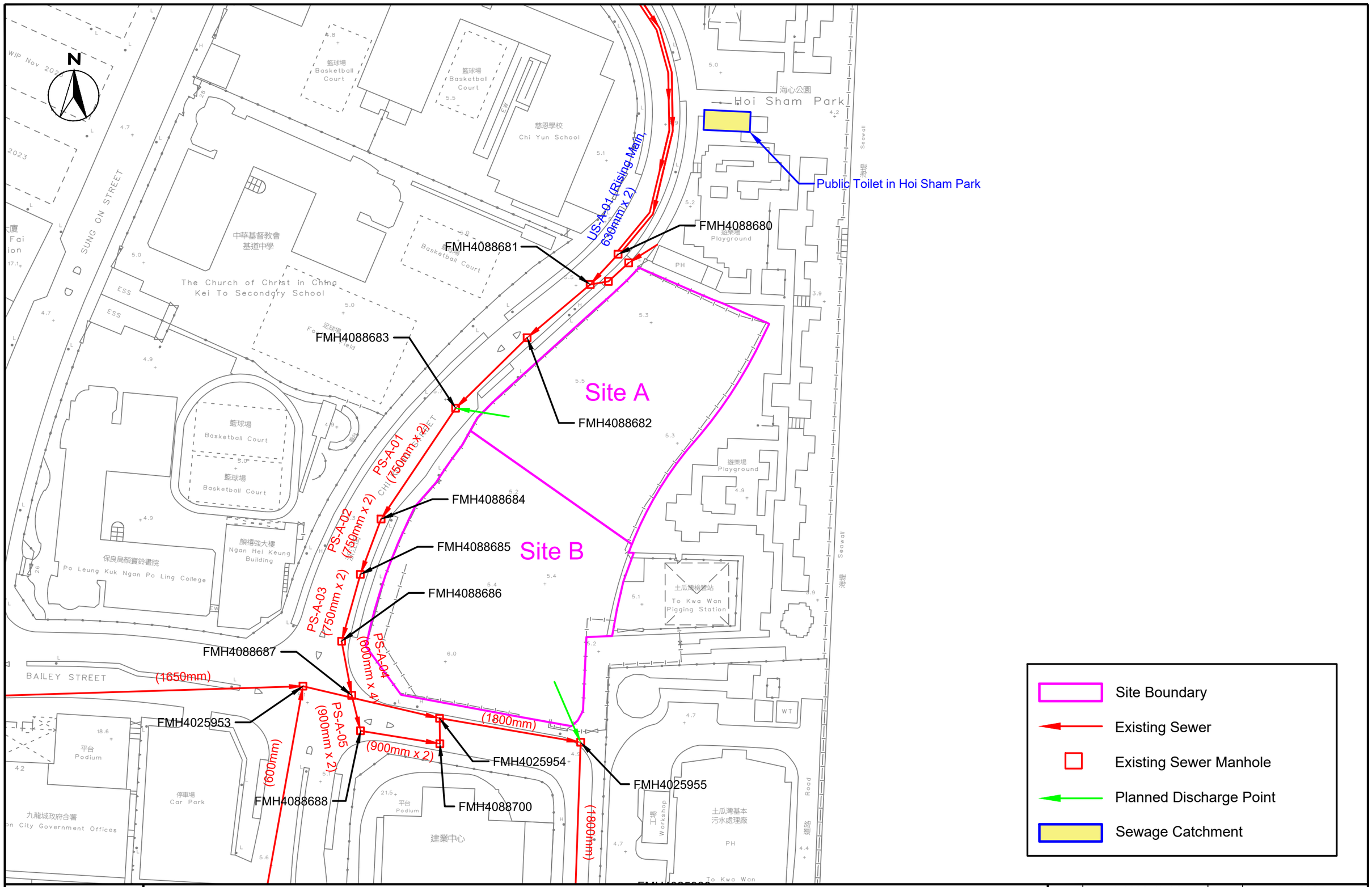


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Proposed Residential Development in Bailey Street, Kowloon City District

Site Location Plan

SCALE	1:1500 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 2-1
		REV	-

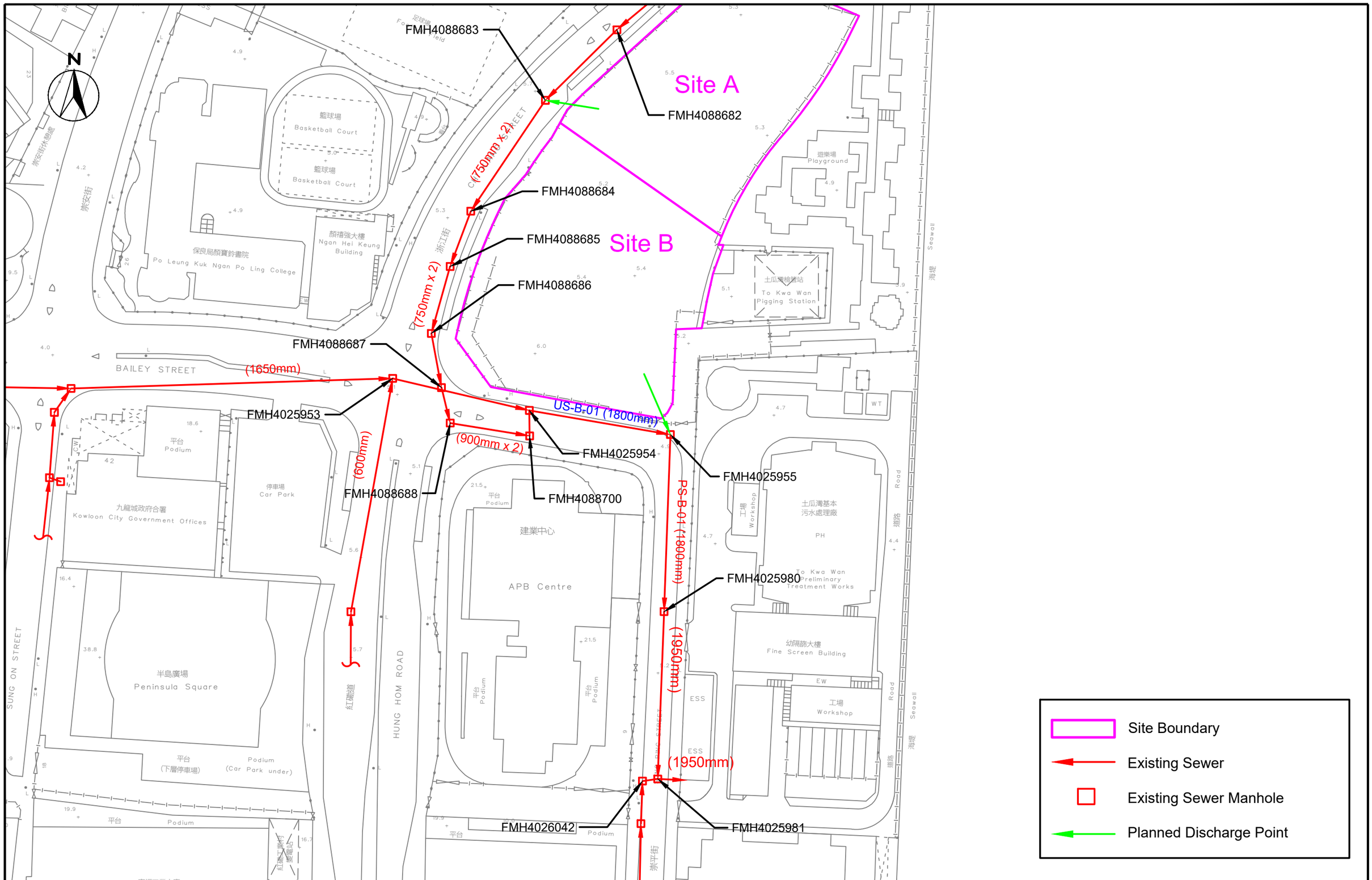


CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Existing Sewerage System in the Vicinity (Site A)

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 3-1a
		REV	-

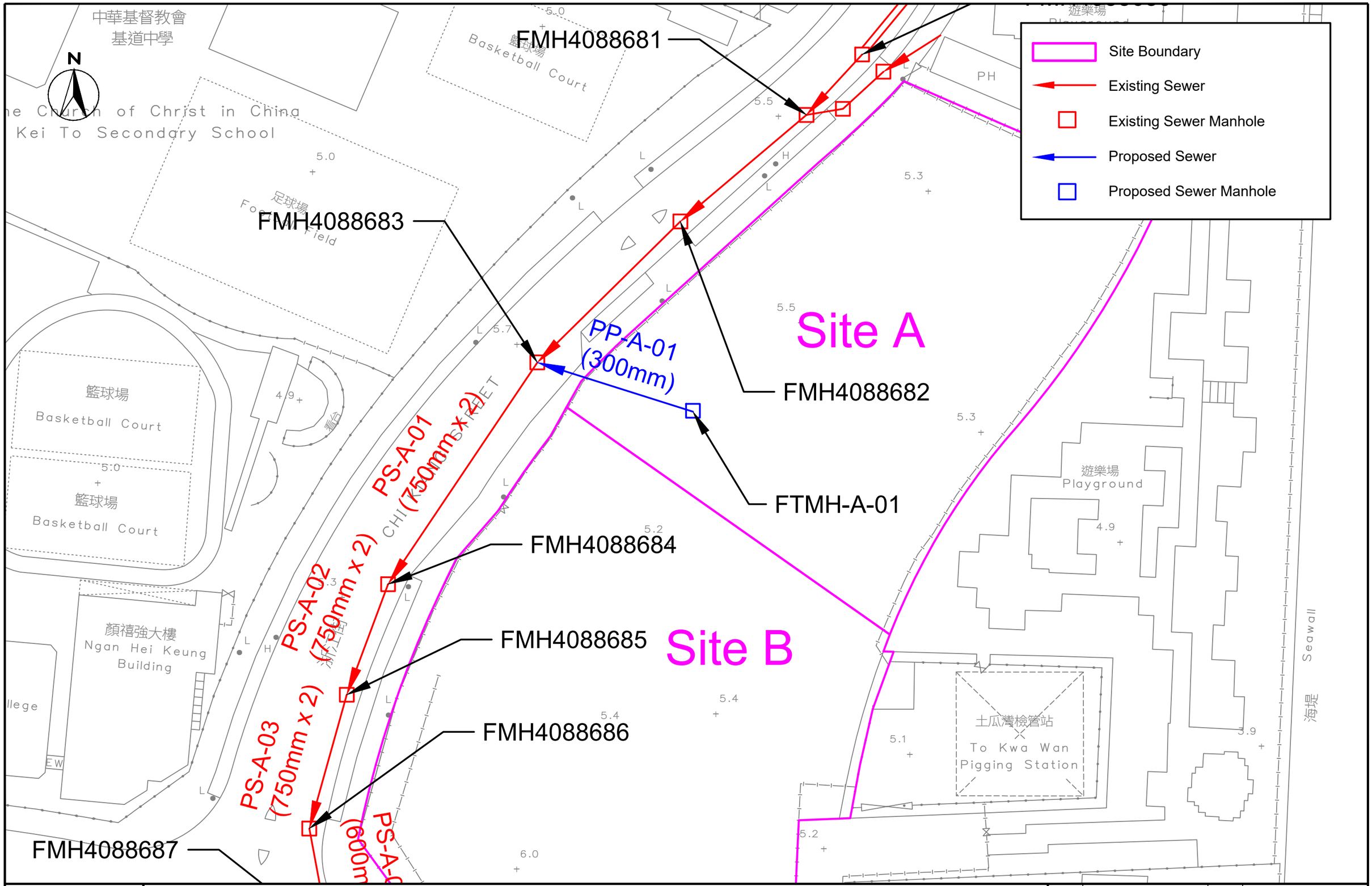


CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Existing Sewerage System in the Vicinity (Site B)

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 3-1b
		REV	-

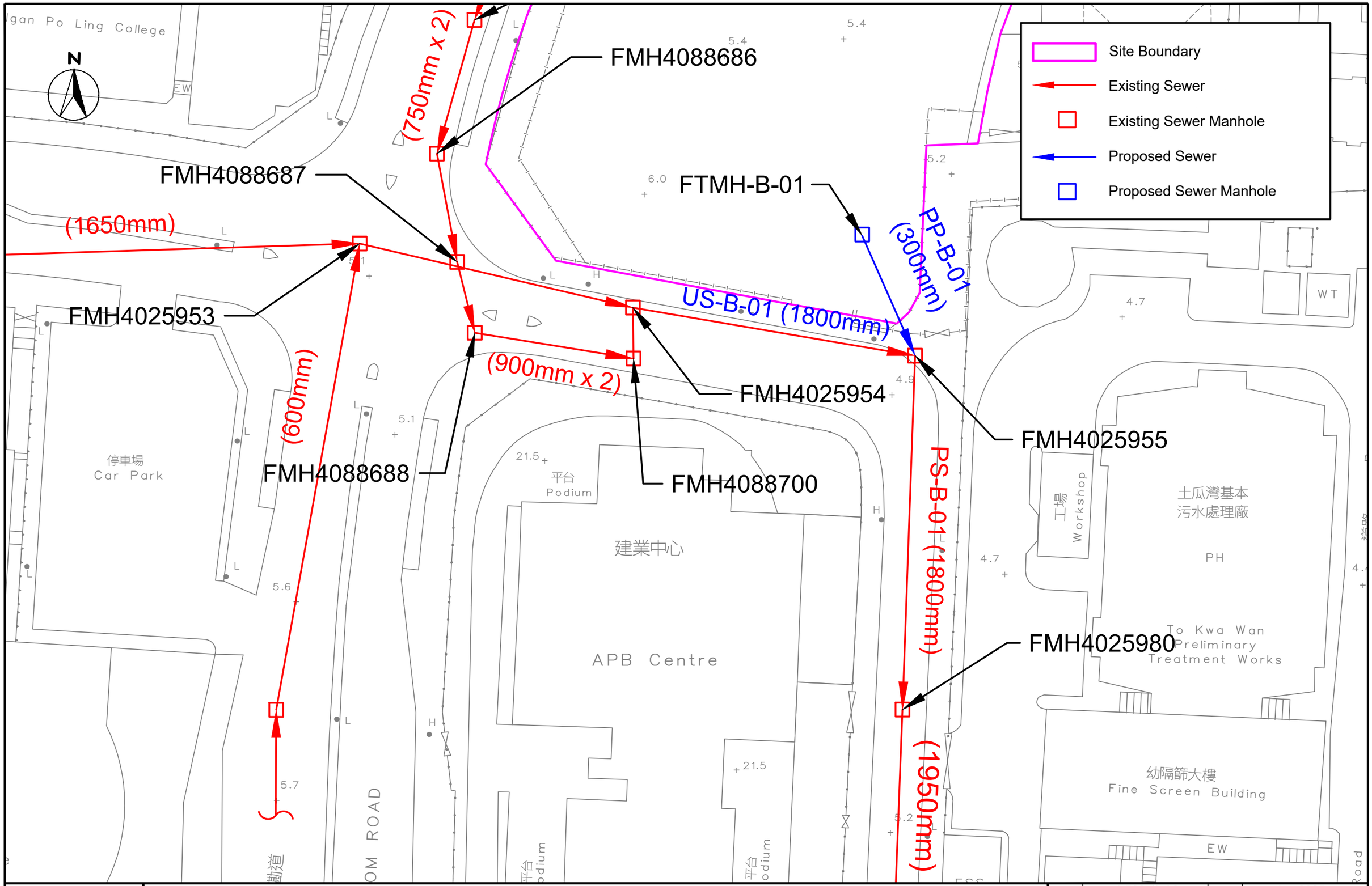


CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Proposed New Sewer and Sewer Manhole (Site A)

SCALE	1:500 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 3-2a
		REV	-



CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Proposed New Sewer and Sewer Manhole (Site B)

SCALE	1:500 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	Fig. 3-2b
		REV	-

APPENDIX 2-1
NOTIONAL BLOCK PLAN OF THE PROPOSED DEVELOPMENT



(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 1**	**Block Plan**	Not to scale June 2025

APPENDIX 3-1
DETAILED CALCULATION OF EXISTING SEWERS

Appendix 3-1: Detailed Calculation of Existing Sewers

Table A: Calculation of Existing Sewers Capacity

Sewer	Upstream Manhole	Downstream Manhole	Upstream Invert Level (mPD)	Downstream Invert Level (mPD)	Length (m)	No. of Pipe	Diameter (mm)	Diameter (m)	Area (m^2)	Hydraulic Radius (m)	Slope	Kinematic Viscosity (m^2/s)	Pipe material	Hydraulic Pipeline Roughness (m) [1]	Velocity (m/s)	Full Capacity (L/s)
Existing Downstream Sewer (Site A)																
PS-A-01	FMH4088683	FMH4088684	2.53	1.80	38.4	2	750	0.75	0.442	0.1875	0.019	0.00000114	Concrete	0.003	3.13	2769.1
PS-A-02	FMH4088684	FMH4088685	1.80	1.48	17.0	2	750	0.75	0.442	0.1875	0.019	0.00000114	Concrete	0.003	3.12	2758.8
PS-A-03	FMH4088685	FMH4088686	1.48	1.10	20.0	2	750	0.75	0.442	0.1875	0.019	0.00000114	Concrete	0.003	3.14	2771.0
PS-A-04	FMH4088686	FMH4088687	1.10	0.80	15.8	4	600	0.6	0.283	0.15	0.019	0.00000114	Concrete	0.003	2.71	3061.6
PS-A-05	FMH4088687	FMH4088688	0.80	0.60	10.5	2	900	0.9	0.636	0.225	0.019	0.00000114	Concrete	0.003	3.53	4491.2
Existing Downstream Sewer (Site B)																
PS-B-01	FMH4025955	FMH4025980	-2.01	-2.10	50.9	1	1800	1.8	2.545	0.45	0.0018	0.00000114	Concrete	0.003	1.67	4247.0
Existing Upstream Sewer																
US-A-01	--	FMH4088680	--	--	--	2	630	0.63	0.312	--	--	--	--	--	3.00	1870.3
US-B-01	FMH4025954	FMH4025955	-1.97	-2.01	41.2	1	1800	1.8	2.545	0.45	0.0010	0.00000114	Concrete	0.003	1.24	3147.6

Note:

[1] The roughness coefficient for slimed concrete sewer under poor condition has been adopted; the ks values are 3mm for velocities greater than 1.2m/s, otherwise 6mm.

[2] The full capacity of US01 represents all sewage from upstream catchment of PS01.

[3] The invert level of sewers from manhole FMH4088683 to FMH4088688 is unknown (orange highlighted cells). The invert levels are estimated based on the average slope along the upstream invert level of FMD4005020 (3.54mPD) to downstream invert level of FWD4109020 (0.01mPD).

Appendix 3-1: Detailed Calculation of Existing Sewers

Table B: Calculation of Existing Sewers Utilization

Sewer	Upstream Manhole	Downstream Manhole	Full Capacity (L/s)	Catchment	Total Flowrate with P_{cif} (Exclude Upstream Sewer and Swimming Pool) (m^3/day)	Contributing Population[1]	Peaking Factor[2]	Peak Flow (Exclude Upstream Sewers and Swimming Pool) [4] (L/s)	Total Peak Flow [5] (L/s)	% of full capacity
Existing Downstream Sewer (Site A)										
PS-A-01	FMH4088683	FMH4088684	2769.1	Site A + Public Toilet in Hoi Sham Park + US-A-01	641	2374	6	44.5	1917.0	69%
PS-A-02	FMH4088684	FMH4088685	2758.8	Site A + Public Toilet in Hoi Sham Park + US-A-01	641	2374	6	44.5	1917.0	69%
PS-A-03	FMH4088685	FMH4088686	2771.0	Site A + Public Toilet in Hoi Sham Park + US-A-01	641	2374	6	44.5	1917.0	69%
PS-A-04	FMH4088686	FMH4088687	3061.6	Site A + Public Toilet in Hoi Sham Park + US-A-01	641	2374	6	44.5	1917.0	63%
PS-A-05	FMH4088687	FMH4088688	4491.2	Site A + Public Toilet in Hoi Sham Park + US-A-01	641	2374	6	44.5	1917.0	43%
Existing Downstream Sewer (Site B)										
PS-B-01	FMH4025955	FMH4025980	4247.0	Site B + US-B-01	889	3293	6	61.7	3211.4	76%

Note:

[1] The contributing population = total catchment discharge (m^3/day) / 0.27(m^3/day/person)

[2] Peaking Factor of 8 for contribution population <1,000, 6 for contribution population of 1000 - 5000, and 5 for contribution population of 5000 - 10000.

[3] Peak Flow = Total Flow Rate × Catchment Inflow Factor × Peaking Factor (including stormwater allowance) / 24 / 3600, the operation hour is assumed to be 24 hours.

[4] Total Peak Flow = Peak Flow (Exclude Upstream Sewers and Swimming Pool) + discharge of Upstream Sewers & swimming pool.

APPENDIX 3-2
DETAILED CALCULATION OF PROPOSED SEWERS

Appendix 3-2: Detailed Calculation of Proposed Sewers

Table A: Calculation of Existing Sewers Capacity

Sewer	Upstream Manhole	Downstream Manhole	Upstream Invert Level (mPD)	Downstream Invert Level (mPD)	Length (m)	Diameter (mm)	Diameter (m)	Area (m^2)	Hydraulic Radius (m)	Slope	Kinematic Viscosity (m^2/s)	Pipe material	Hydraulic Pipeline Roughness (m) [1]	Velocity (m/s)	Full Capacity (L/s)
Proposed New Sewer															
PP-A-01	FTMH-A-01	FMH4088683	--	--	--	300	0.3	0.071	0.075	0.0200	0.00000114	PE	0.0003	2.42	171.0
PP-B-01	FTMH-B-01	FMH4025955	--	--	--	300	0.3	0.071	0.075	0.0200	0.00000114	PE	0.0003	2.42	171.0

Note:
[1] The roughness coefficient for Slimed uPVC sewer under poor condition has been adopted for PE sewer; the ks values are 0.3mm for velocities greater than 1.2m/s, otherwise 1.5mm.
[2] All proposed new/upgrade sewer manhole and pipes are subject to change during detail design stage.

Appendix 3-2: Detailed Calculation of Proposed Sewers

Table B: Calculation of Propsoed Sewers Utilization

Sewer	Upstream Manhole	Downstream Manhole	Full Capacity (L/s)	Catchment	Total Flowrate with P_{cif} (Exclude Upstream Sewer and Swimming Pool) (m^3/day)	Contributing Population[1]	Peaking Factor[2]	Peak Flow (Exclude Swimming Pool) [4] (L/s)	Total Peak Flow [5] (L/s)	% of full capacity
Proposed New Sewer										
PP-A-01	FTMH-A-01	FMH4088683	171.0	Site A	630.3	2334	6	43.8	45.9	27%
PP-B-01	FTMH-B-01	FMH4025955	171.0	Site B	889.1	3293	6	61.7	63.8	37%

Note:

[1] The contributing population = total catchment discharge (m^3/day) / 0.27(m^3/day/person)

[2] Peaking Factor of 8 for contribution population <1,000, 6 for contribution population of 1000 - 5000, and 5 for contribution population of 5000 - 10000.

[3] Peak Flow = Total Flow Rate × Catchment Inflow Factor × Peaking Factor (including stormwater allowance) / 24 / 3600, the operation hour is assumed to be 24 hours.

[4] Total Peak Flow = Peak Flow (Exclude Swimming Pool) + Swimming Pool.

APPENDIX 3-3
CALCULATION OF SEWAGE FLOW FROM THE PUBLIC TOILET IN HOI SHAM PARK

Appendix 3-3: Calculation of Sewage Flow from the Public Toilet in Hoi Sham Park

	Unit	Female W. C.	Male W. C.	Male Urinal	Accessible / Unisex W.C
Number of W.C./Urinal [4]	nos	5	2	1	3
Volume of flushing water per use [5]	Litre	6.5	6.5	2.5	6.5
Volume of washing water used per minute [6]	Litre/Minute	4	4	4	4
Operation time for washing [6]	Second	20	20	20	20
Volume of washing water per use	Litre/Use	1.4	1.4	1.4	1.4
Number of daily user [1,2,3]	nos	1650			
		758	152	606	134
Total volume of sewage generated	Litre/day	5988.2	1200.8	2363.4	1058.6
	Litre/day	10611			
	m^3/Day	**10.6**			

Notes:

[1] Ratio of users with disability (8.1%) has made reference to the Hong Kong Monthly Digest of Statistics (January 2015) Feature Article – Persons with Disabilities and Chronic Diseases in Hong Kong.
Available at: http://www.statistics.gov.hk/pub/B71501FB2015XXXXB0100.pdf. [Accessed June 2025].

[2] With reference to "Chapter 1 of Planning, provision and management of public toilets by the Food and Environmental Hygiene Department", the public toilet shall be considered as high utilization rate("300 to 3,000 daily users") and average daily users between 300 and 3,000 (~1,650) has been assumed in the calculation.
Available at: https://www.legco.gov.hk/yr19-20/english/counmtg/papers/cm20191127-sp058-e.pdf [Assessed June 2025]

[3] For users without disablity, ratio of male to female has been assumed to be 1:1, and the ratio of Male W.C. & Male Urinal has been assumed as 1:4 in accordance with the Credit WU 7 in BEAM Plus New Building (v2.0).

[4] The number of WC/Urinal is based on site visit dated 3 June 2025.

[5] The volume of flushing water per use has made reference to the Credit WU 7 in BEAM Plus New Building (v2.0). The flushing water per flush for Single Flush WC and Urinal in baseline case has been adopted in the calculation.

[6] The Volume of washing water used per minute (4 L/min) and operation time per use (20 sec) has made reference to the Credit WU P1 in BEAM Plus New Building (v2.0). The volume of washing water per use (4 L/min x 20 sec /60 sec = ~1.4 L) for Non-mixing Type Water Taps in baseline case has been adopted in the calculation.

Appendix 8

Water Supply Impact Assessment Report

Urban Renewal Authority
Proposed Residential Development in
Bailey Street, Kowloon City District

Water Supply Impact Assessment
(V3.0)

June 2025

Approved By 
(Project Manager: K.S. Lee)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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1 INTRODUCTION

1.1 Background

1.1.1 Cinotech Consultants Limited is commissioned by the Urban Renewal Authority (URA) to conduct a Water Supply Impact Assessment (WSIA) in support to a proposed comprehensive high-density residential development (the Proposed Development) at Bailey Street, Kowloon City District (the "Site"). URA, in collaboration with the Planning Department, proposed to rezone the Site from "Government, Institution or Community" ("G/IC") zone and a small strip of land zoned "Other Specified Uses" annotated "Sewage Treatment Plant" ("OU(STP)") to "Residential (Group A)9" ("R(A)9") for comprehensive high-density residential development. Planning submission with relevant technical assessments will be prepared in support of the proposed rezoning under Section 5 of the Town Planning Ordinance.

1.1.2 The WSIA is conducted to assess the water supply impact of the Proposed Development at the Site.

2 DESCRIPTION OF THE ENVIRONMENT

2.1 Existing Environment

2.1.1 The Site, with gross site area of about 7,610 m^2, is situated in the Kowloon City District, is in proximity to the waterfront. It is bounded by Chi Kiang Street to the west, Bailey Street to the south, Hoi Sham Park Extension to north and east and To Kwa Wan Pigging Station to the east and To Kwa Wan Preliminary Treatment Works to the southeast. A location plan of the Site is shown on **Figure 2-1**.

2.1.2 The Site falls within an area mainly zoned as "G/IC" and a small strip of land zoned "OU(STP)" on the Approved Hung Hom Outline Zoning Plan ("OZP") No. S/K9/28, with a building height restriction ("BHR") of 8 storeys. According to the OZP, the Site is planned for school development.

2.1.3 The majority of the Site is currently occupied by a temporary fee-paying public carpark with a small portion of the Site occupied as planter area and hard paved land serving as a passageway.

2.2 The Proposed Development

2.2.1 The Site is proposed to be rezoned to "(R(A)9)" for comprehensive high-density residential development. The "R(A)9" zone is also subject to a maximum building height restriction of 110mPD, a maximum Gross Floor Area (GFA) of 68,490 sq.m., with domestic GFA not exceeding 60,880 sq.m..

Notional Design & Development Parameters

2.2.2 To visualise the proposed planning parameters and support technical assessment, an indicative layout is shown in **Appendix I**, and the overall development parameters of Site A and B for scenario testing purpose are presented in **Table 2-1**.

2.2.3 As shown in the indicative layout, the Proposed Development is designed for a two-phases development scenario, with each phase (namely Site A and Site B) featuring one residential tower with a maximum building height of 110mPD atop of a four-storeys podium and two levels of basement carpark. Under a conservative approach, the WSIA will be conducted under this two-phased development scenario. It is worth noting that the indicative layout, development parameters and phasing boundary for Site A and B are intended solely for use of relevant technical assessments in support of the Proposed Rezoning, which is for indicative purposes only and subject to change at detailed design stage.

Table 2-1 Development Parameters of the Proposed Development

	Overall	Site A [3]	Site B [3]
Zoning	"R(A)9"	"R(A)9"	"R(A)9"
Site Area (Subject to survey)	About 7,610 m^2	About 3,417 m^2	About 4,193 m^2
Domestic GFA	About 60,880 m^2	About 27,336 m^2	About 33,544 m^2
Commercial GFA	About 7,610 m^2	About 2,045 m^2	About 5,565 m^2
GIC GFA (to be exempted from GFA calculation)	About 3,100 m^2	About 3,100 m^2	N/A
No. of building blocks [1]	2	1	1
Building Height	110 mPD	110 mPD	110 mPD
No. of Flats [1]	1,218	547	671
Average Flat Size [1]	About 50 m^2	About 50 m^2	About 50 m^2
Harbourfront At-Grade Communal Space	About 760 m^2	N/A	About 760 m^2
Car Parking Spaces [2]	Private Car: 343 Coach: 15	Private Car: 143 Coach: 15	Private Car: 200 Coach: 0
Tentative Project Completion Year	2032	2032	2032

Note
[1] Number of building blocks, number of flats and average flat size are indicative only and subject to detailed design.
[2] Subject to liaison with Transport Department.
[3] The development parameters of Site A and Site B are for technical assessment and indicative purposes only, subject to change in detailed design.

3 WATER SUPPLY IMPACT ASSESSMENT – FRESH WATER

3.1 Existing Fresh Water Supply

3.1.1 The Site and its surrounding area are currently served by Ma Tau Wai FWSR (Capacity: 24,140 m^3), Ho Man Tin East FWSR (Capacity: 152,411 m^3) & Ho Man Tin West FWSR (Capacity: 67,434 m^3).

3.1.2 There is an existing 300mm fresh water main running along Sung Ping Street and Bailey Street, providing fresh water to the region. Additionally, there is an existing 200mm fresh water main connected to the aforementioned 300mm mains, located along Chi Kiang Street to the west of the Site, supplies fresh water to the nearby school developments and park.

3.1.3 The core area of the Site currently does not rely on the public fresh water system. However, it is important to note that there are existing 40/80mm fresh water mains within the southern portion of the Site, near the southern boundary. These fresh water mains are connected to the 300mm fresh water mains along Bailey Street and serve the planting areas along the southern boundary of the Site, as well as the existing developments to the east of the Site.

3.1.4 The simplified fresh water mains records are illustrated in **Figure 3-1.** The Water Supplies Department ("WSD") Fresh Water Mains Record Plan is provided in **Appendix II**.

3.2 Fresh Water Demand

3.2.1 The calculations for the water demand for the existing and proposed scenarios detailed in **Appendix IV** and summarized in **Table 3-1**. For a conservative assessment, 15% of additional water demand has been accounted for on top of the conservative unit demand factors to estimate the water demand for a reasonable worst scenario.

3.2.2 The existing fresh water demand for the Site is very small. The fresh water demand for the Proposed Development is expected to be 1157.1 m^3/day (1.157 MLD).

Table 3-1 Summary of Fresh Water Demand

	Daily Demand - Fresh Water (m^3/day)		
	Existing [1]	***Proposed [2]***	***Net Increase***
Site A	0.0	505.8	158.5
Site B	0.0	651.2	194.5
Total	**0.0**	**1,157.1**	**353.1**

Note:
[1] The existing fresh water demand is assumed to be 0.
[2] 15% additional demand have been included for conservative assessment.

3.3 Fresh Water Supply Impact - Fresh water service reservoirs

3.3.1 As shown in **Table C of Appendix IV**, there is substantially greater spare capacity (124.8 MLD) in Ma Tau Wai FWSR, Ho Man Tin East FWSR & Ho Man Tin West FWSR. The expected increase in demand (1.157 MLD) can therefore be accommodated by the existing Fresh Water Service Reservoirs. No adverse impact to the fresh water service reservoirs is anticipated.

3.4 Fresh Water Supply Impact – Fresh Water Mains

3.4.1 Although some existing fresh water mains are within the southern portion of the Site as shown in **Figure 3-1**, that area is designed for the Harbourfront At-Grade Communal Space (**Appendix I**) thus the existing fresh water mains there could be retained, when necessary, subject to detailed design.

3.4.2 According to Departmental Instruction (DI) No. 1309 "Design Criteria," the peak flow rate in the distribution mains for fresh water should be three times the daily demand. Based on this criterion, the estimated peak daily fresh water demand for the Proposed Development at Site A & Site B are approximately 1,517.5 m^3/day & 1,953.7 m^3/day, respectively. By following the maximum sustained flow velocity as suggested in Departmental Instruction (DI) No. 1309 "Design Criteria" (**Table A2 of Appendix IV**), the capacities of the 150mm 200mm and 300mm fresh water mains are determined to be 2,290 m^3/day, 4,072 m^3/day and 9,161 m^3/day, respectively.

3.4.3 Taking into account the freshwater consumption of the Proposed Development, it has been determined that the existing 200mm freshwater mains along Chi Kiang Street are suitable for supplying freshwater to Site A, and the existing 300mm freshwater mains along Bailey Street are suitable for supplying freshwater to Site B. As a result, the proposal includes the addition of new 150mm freshwater mains for both Site A and Site B, which will connect to the existing 150mm branch of the 200mm mains along Chi Kiang Street and the 300mm main along Bailey Street, as indicated in **Figure 3-1**. The specific alignment and connection points of the proposed new water pipes will be determined during the detailed design phase of the project.

4 WATER SUPPLY IMPACT ASSESSMENT – SALT WATER

4.1 Existing Salt Water Supply

4.1.1 The Site is currently served by Tai Wan SWPS (Design Pumping Capacity: 112.74 MLD).

4.1.2 There is an existing 80mm salt water main along Chi Kiang Street and an existing 200mm salt water main along Sung Ping Street and Bailey Street. These salt water mains supply salt water to the surrounding region.

4.1.3 The Site, however, does not currently utilize any salt water from the public salt water system.

4.1.4 The simplified salt water main records are illustrated in **Figure 3-2.** The WSD Salt Water Mains Record Plan is provided in **Appendix III**.

4.2 Salt Water Demand

4.2.1 The calculations for the salt water demand for the existing and proposed scenarios detailed in **Appendix IV** and summarized in **Table 4-1.** For a conservative assessment, 15% of additional salt water demand has been accounted for on top of the conservative unit demand factors to estimate the salt water demand for a reasonable worst scenario.

4.2.2 The salt water demand for the Proposed Development is expected to be 353.1 m^3/d (or 0.353 MLD).

Table 4-1 Summary of Salt Water Demand

	Daily Demand - Fresh Water (m^3/day)		
	Existing [1]	***Proposed [2]***	***Net Increase***
Site A	0.0	158.5	158.5
Site B	0.0	194.5	194.5
Total	**0.0**	**353.1**	**353.1**

Note:
[1] The existing salt water demand is 0.
[2] 15% additional demand have been included for conservative assessment.

4.3 Saltwater Supply Impact – Salt Water Pumping Station

4.3.1 As shown in **Appendix IV**, there is substantially greater spare capacity (24.2 MDL) in Tai Wan SWPS. The expected increase in demand (0.353 MLD) can therefore be accommodated by the existing SWPS. No adverse impact to the salt water pumping stations is anticipated.

4.4 Saltwater Supply Impact – Salt Water Mains

4.4.1 According to Departmental Instruction (DI) No. 1309 "Design Criteria," the peak flow rate in the distribution mains for salt water should be two times the daily demand. Based on this criterion, the estimated peak daily salt water demand for the Proposed Development at Site A & Site B are approximately 317.1 m3/day & 389.1 m3/day, respectively. By following the maximum sustained flow velocity as suggested in Departmental Instruction (DI) No. 1309 "Design Criteria" (**Table A2 of Appendix IV**), the capacities of the 80mm and 200mm salt water mains are determined to be 651 m^3/day and 4,072 m^3/day, respectively.

4.4.2 Taking into consideration the salt water consumption of the Proposed Development, it has been determined that the existing 80mm saltwater main along Chi Kiang Street and the existing 200mm salt water main along Bailey Street are suitable for supplying salt water to Site A and Site B, respectively. As a result, the proposal includes the addition of new 80mm saltwater mains for both Site A and Site B, which will connect to the existing 80mm saltwater main along Chi Kiang Street and the existing 200mm salt water main along Bailey Street, as indicated in **Figure 3-2**. The specific alignment and connection points of the proposed new water pipes will be determined during the detailed design phase of the project.

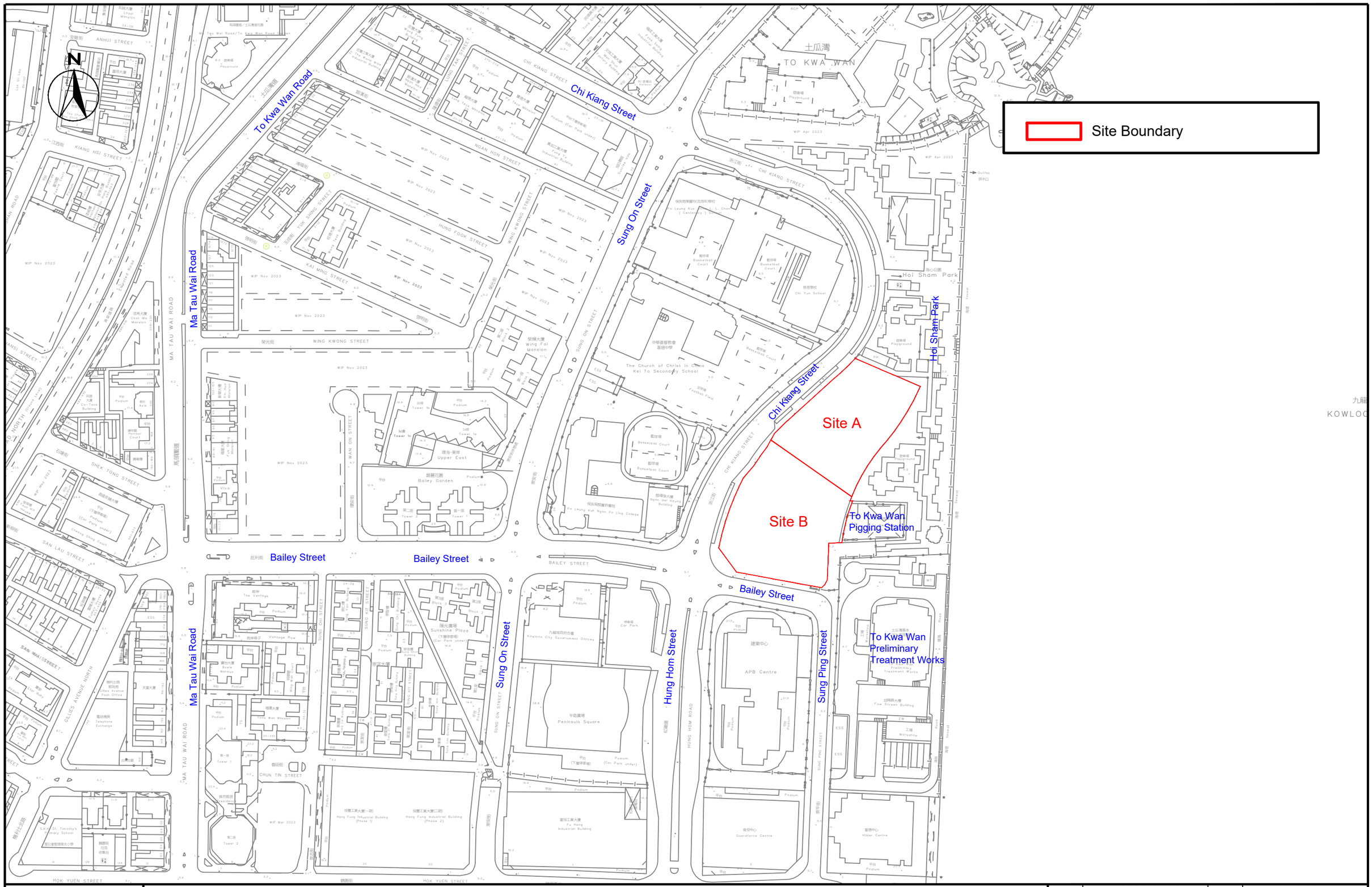
5 CONSTRUCTION AND MAINTENANCE

5.1.1 The detailed connection arrangements, responsibilities for the investigation, design, construction, repair and maintenance of the internal water supply facilities and connection to the main water system(s) will be discussed among URA/its joint venture partners/its assignees and relevant Government departments in detailed design stage.

6 CONCLUSION

6.1.1 The potential water supply impact under the worst-case scenario of the Proposed Development has been reviewed. The assessment conducted concludes that no upgrading works on the water supply infrastructure will be required. For the local water supply network, although the Proposed Development at the Site will result in additional fresh and salt water demands, the increases can be accommodated by the existing main supply facilities and the proposed new pipes. Therefore, no adverse water supply impact is anticipated from the Proposed Development.

FIGURES

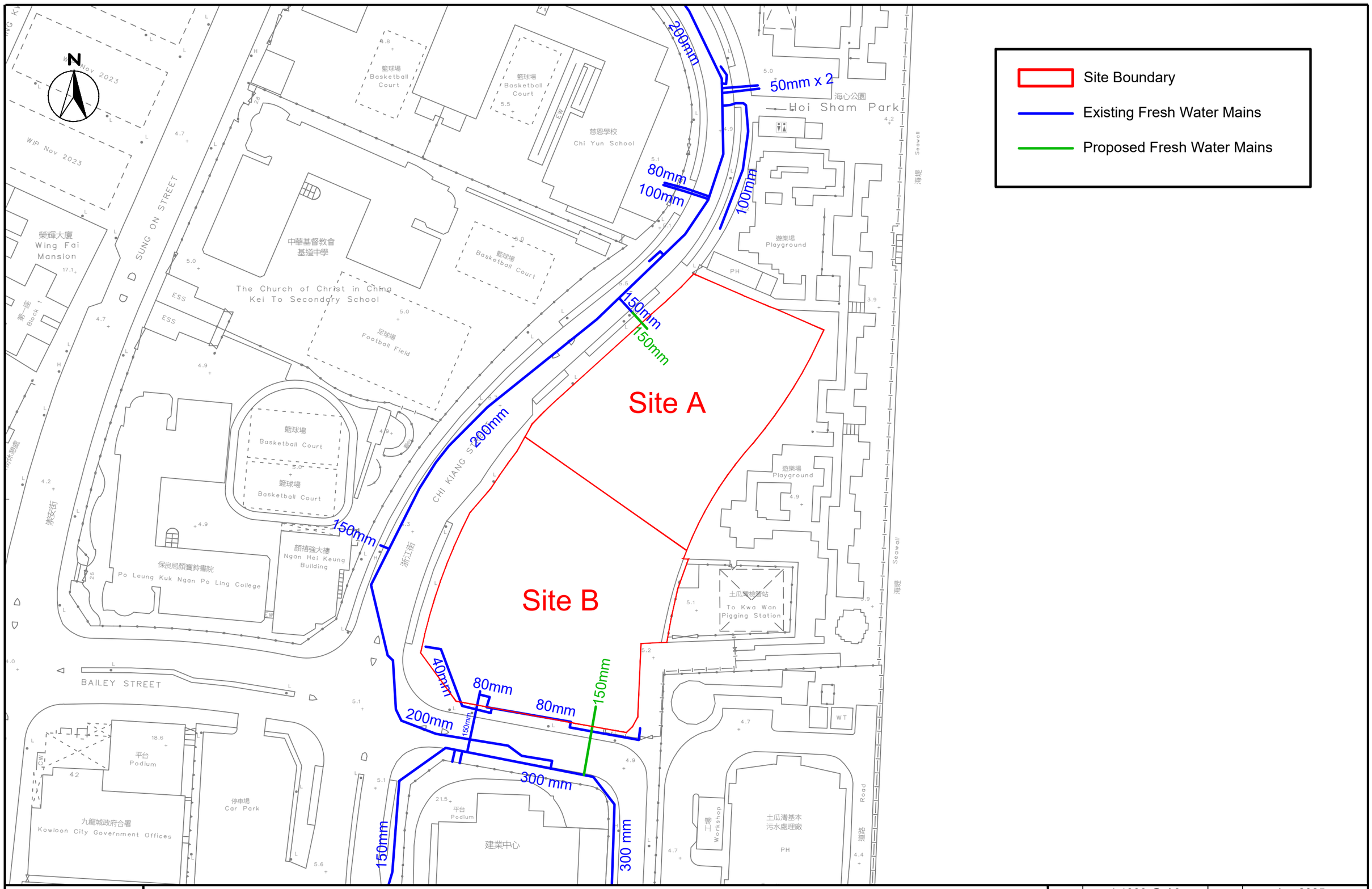


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Proposed Residential Development in Bailey Street, Kowloon City District

Location Plan

SCALE	1:2000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	2-1
		REV	-

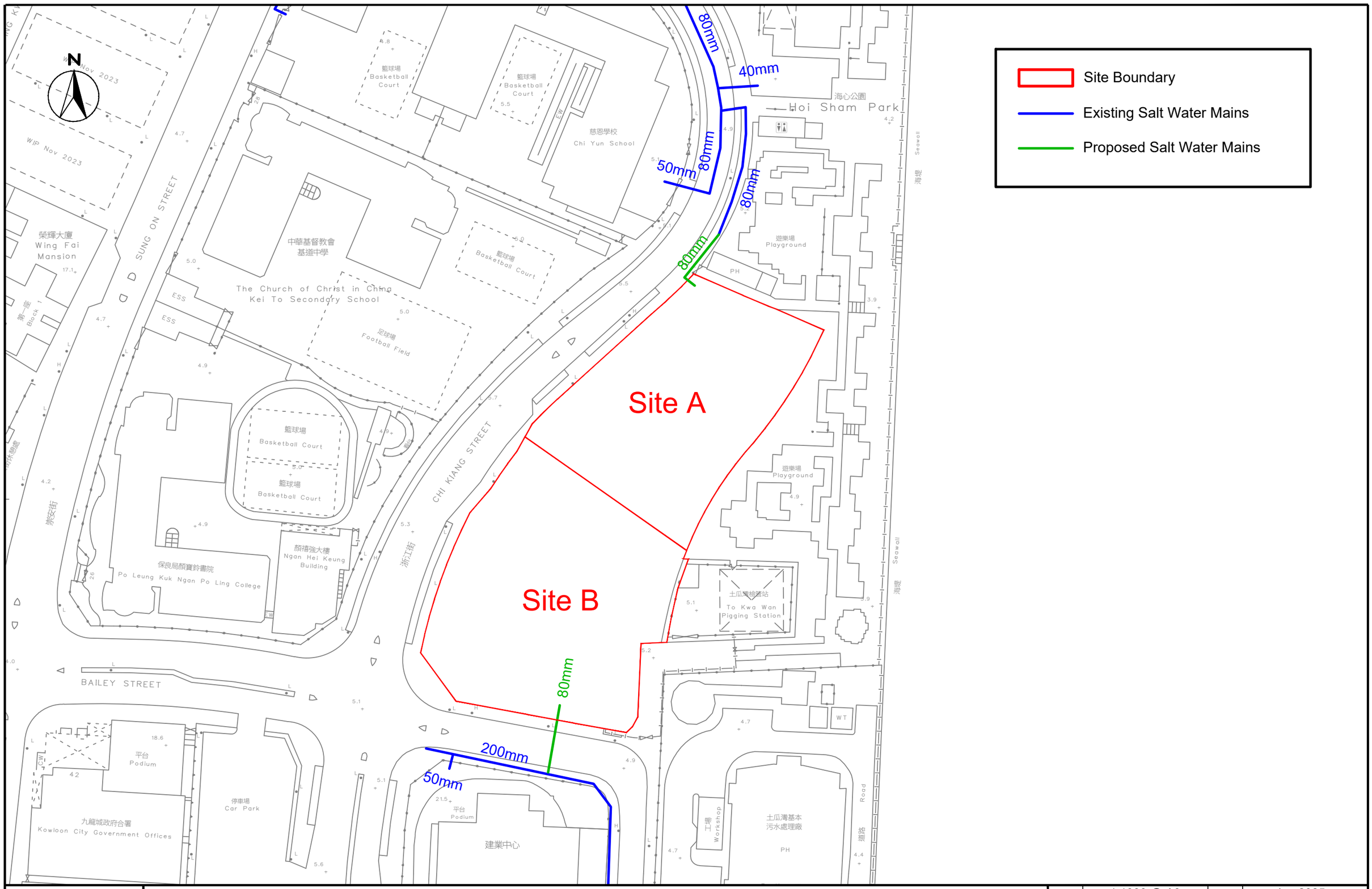


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Proposed Residential Development in Bailey Street, Kowloon City District

Fresh Water Mains in the Vicinity

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-1
		REV	-



CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Salt Water Mains in the Vicinity

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-2
		REV	-

APPENDIX I
NOTIONAL BLOCK PLAN OF THE PROPOSED DEVELOPMENT



(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 1**	**Block Plan**	Not to scale June 2025

APPENDIX II
FRESH WATER MAINS RECORD PLAN


TO KWA WAN
Hoi Sham Park
King Wan Street Playground
S.K.H. Holy Carpenter Primary School
Wing Tai Mansion
Wing Tai Building
Wing Tai Garden
Wing Tai Court
Wing Tai Villa
Wing Tai Lodge
Wing Tai Terrace
Wing Tai Tower
Wing Tai Heights
Wing Tai Plaza
Wing Tai Square
Wing Tai Centre
Wing Tai Residence
Wing Tai Apartments
Wing Tai Complex
Wing Tai Estate
Wing Tai Gardens
Wing Tai Manor
Wing Tai Park
Wing Tai Place
Wing Tai Point
Wing Tai Ridge
Wing Tai Shore
Wing Tai Vale
Wing Tai View
Wing Tai Way
Wing Tai Wood
Wing Tai Yard
Wing Tai Zone
Wing Tai Alley
Wing Tai Arcade
Wing Tai Avenue
Wing Tai Boulevard
Wing Tai Circle
Wing Tai Close
Wing Tai Crescent
Wing Tai Drive
Wing Tai Gate
Wing Tai Grove
Wing Tai Hill
Wing Tai Lane
Wing Tai Mall
Wing Tai Mews
Wing Tai Path
Wing Tai Road
Wing Tai Row
Wing Tai Square
Wing Tai Street
Wing Tai Terrace
Wing Tai Walk
Wing Tai Way
Wing Tai Yard
Wing Tai Zone
Wing Tai Alley
Wing Tai Arcade
Wing Tai Avenue
Wing Tai Boulevard
Wing Tai Circle
Wing Tai Close
Wing Tai Crescent
Wing Tai Drive
Wing Tai Gate
Wing Tai Grove
Wing Tai Hill
Wing Tai Lane
Wing Tai Mall
Wing Tai Mews
Wing Tai Path
Wing Tai Road
Wing Tai Row
Wing Tai Square
Wing Tai Street
Wing Tai Terrace
Wing Tai Walk
Wing Tai Way
Wing Tai Yard
Wing Tai Zone
Wing Tai Alley
Wing Tai Arcade
Wing Tai Avenue
Wing Tai Boulevard
Wing Tai Circle
Wing Tai Close
Wing Tai Crescent
Wing Tai Drive
Wing Tai Gate
Wing Tai Grove
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Wing Tai Lane
Wing Tai Mall
Wing Tai Mews
Wing Tai Path
Wing Tai Road
Wing Tai Row
Wing Tai Square
Wing Tai Street
Wing Tai Terrace
Wing Tai Walk
Wing Tai Way
Wing Tai Yard
Wing Tai Zone
Wing Tai Alley
Wing Tai Arcade
Wing Tai Avenue
Wing Tai Boulevard
Wing Tai Circle
Wing Tai Close
Wing Tai Crescent
Wing Tai Drive
Wing Tai Gate
Wing Tai Grove
Wing Tai Hill
Wing Tai Lane
Wing Tai Mall
Wing Tai Mews
Wing Tai Path
Wing Tai Road
Wing Tai Row
Wing Tai Square
Wing Tai Street
Wing Tai Terrace
Wing Tai Walk
Wing Tai Way
Wing Tai Yard
Wing Tai Zone


BAILEY STREET
HOK STREET
Sunshine Plaza
APB Centre
Peninsula Square
Upper Base
Bailey Garden
Facet Industrial Centre
150PE18
80SV
80PE18F
80PE18
80MDPE07
100PE08
80GIL05
80PE09
150PE09
150PE17
100PE17
80PE17
150DI91
450DI91
300DI90
150DI90
100DI90
200DI90
100DI13F
100DI13
PH3499
100PE22
80PE22F
PH3478
PH3477
80PE16
PH3479
25GIL13
40GI90
80GIF
80DI
PH2978
PH29069
12"ACRB16(260)
300DI16
300DI
150WOV
3"GV
300SV
25GV
25GI87
80GV
150SV
200SV
100SV
PH3130
PH3140
PH3497
PH3498
PH1930
PH1998
PH2133
PH3496
PH3487
PH3210
PH3211
200DI11(E)
200DI16(E)
150DAV
100DAV
80GIL
40PE17
40GIL01
40GV
100GV
80GV
150SV
100SV
200SV
300SV
25GV
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150DI
100DI
80DI
40GI
80GIF
150DI13
150DI90
100DI90
200DI90
300DI90
450DI91
150PE17
100PE17
80PE17
150PE16
300DI16
12"ACRB16(260)

APPENDIX III
SALT WATER MAINS RECORD PLAN


TO KWA WAN ROAD
TO KWA WAN
Wearbest Building
Hoi Sham Park
Kwong Wan Street Playground
S.K.K. Holy Carpenter Primary School
Oblate Primary School
The Church of Christ in China Kei To Secondary School
Wing Fai Mansion
Connected To Existing 200DI93 By Others
WING KWONG STREET
WING FOOK STREET
KAI MING STREET
KING WAN STREET
HA HEUNG ROAD
40UPVC05
40UPVC09
40UPVC07
40UPVC17
50UPVC09
50UPVC07(W18132.01)
50UPVC03
50PE16
50PE17(E)
50WOV
40PE16(E)
80PE16(E)
80PE22
80PE17
80PE13
80PE14
80PE15
80PE16
80PE18
80PE03
100PE09
100PE09(W18212.01)
100PE14
100PE16
100PE07
100PE02
150PE07
150PE09
150PE17
150PE17(E)
150PE16(E)
150PE15
150PE14
150PE13
150PE02
200PE13
200PE14
200PE17(E)
200PE18
200PE08(W18212.01)
200DI14
200DI07
200DI93
200DI98
100DI09
100DI99
150DI98
150DI99
150DI07
600DI99
600DI98(W10630.01)
600DI96(W10630.01)
900S99
600S07
609S07
300WOV
300WOV
150WOV
50WOV
6"ACRB15(194)
6"ACRB14(145)
6"ACR69(NW18132.01)
6"ACRE11
Pit1139
Pit1140
Pit1141
Pit1142
Pit1143
Pit1144
Pit1145
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Pit1169
Pit1170
Pit1171
Pit1172
Pit1173
Pit1174
Pit1175
Pit1176
Pit1177
Pit1178


100SV
100DI98
100PE18
100DI18
80GV
80UPVC98
80PE17
80SV
80PE14
600DI96 (W10630/1)
600DI96 (W10630/1) 200AC
150WOV
600DI98(W10630/1)
600DI99 (W10672/8A)
900S99 (W10672/8A)
800S07
150DAV
25SAV
300WOV
200DI90
150PE15
150SV
600IT
150PRV
150FM
150PE16
800S98(W10672/8A)
LNC
40GV
40UPVC90
PH7129
PH7388
PH13155
PH13146
PH2679
12"CIRB17(300)
300DI
300DI01(W10602/8A)
300DI (DRY)
900S
800S07 (PIPE IN TUNNEL)
Sunshine Plaza
Peninsula Square
APB Centre
BAILEY STREET
HUNG HOM ROAD
HUNG HOM STREET EAST
QUEEN'S PIER STREET
MAN ON STREET
SUNG KIT STREET
SUNG ON STREET
SUNG YUEN STREET
Bailey Garden

APPENDIX IV
DETAILED WATER DEMAND CALCULATION

Table A1 - Unit Daily Demand

Zone Type		Unit Demand Fresh Water [1]	Unit Demand Salt Water [2]	(unit)
Residential	R	0.335	0.105	m^3/head/day
Commercial	C	300	100	m^3/ha/day
Government, Institution/Community	G/IC	300	100	m^3/ha/day
Park (Irrigation)	IRR	700	0	m^3/ha/day

[1] Unit Demand Fresh Water*:*

- Residential - 0.335 m^3/head/day, including service trade allowance of 0.035 m^3/head/day for Kwun Tong .
- Commerical & G/IC - 300 m^3/ha/day, only applies to site without any residential development atop.
- Irrigation Area - 70 litre / sq. meters of irrigation area / day.

[2] Unit Demand Salt Water*:*

- Residential - 0.105 m^3/head/day, including service trade allowance of 0.035 m^3/head/day for Kwun Tong .
- Commerical & G/IC - 100 m^3/ha/day, only applies to site without any residential development atop.

Table A2 - Flow Velocity Limit

Pipe Diameter	Fresh Water Distribution Mains	Salt Water Distribution Mains	(unit)
≥ DN1000		≤ 3.0	m/s
DN900 - DN800		≤ 2.5	m/s
> DN700	≤ 3		m/s
DN700 - DN525	≤ 2.5	≤ 2	m/s
DN450 - DN375	≤ 2		m/s
DN450 - DN300		≤ 1.5	m/s
DN300 - DN200	≤ 1.5		m/s
< DN300		≤ 1.5	m/s
< DN200	≤ 1.5		m/s

[1] Refer to ***WSD Departmental Instruction 1309***

Table B1 - Proposed Development

Site A

	Units [1]	PPF [2]	Popn. (Persons)
Residential Accommodation (R)	**547**	**2.4**	**1,313**

Non-Residential Area

	GFA/Area (m^2) [1]	GFA (ha)
Retails/Restaurant	2,045	**0.205**
G/IC	3,100	**0.310**
Harbourfront At-Grade Communal Space	0	**0**

Site B

Proposed Residential Flats

	Units [1]	PPF [2]	Popn. (Persons)
Residential Accommodation (R)	**671**	**2.4**	**1,611**

Non-Residential Area

	GFA/Area (m^2) [1]	GFA (ha)
Retails/Restaurant	5,565	**0.557**
G/IC	0	**0.000**
Harbourfront At-Grade Communal Space	760	**0.076**

Note:
[1] The development parameters are provided by Project Proponent
[2] According to the Design Specification provided by Project Proponent

Table B2 - Water Demands under the Proposed Scheme

Site A

Proposed Residential Flats

	Category	Population	Unit Demand Fresh Water (m^3/head/day)	Unit Demand Salt Water (m^3/head/day)	Daily Demand Fresh Water (m^3/day)	Daily Demand Salt Water (m^3/day)
Residential Accommodation	R	1,313	0.335	0.105	439.9	137.9

Non-Residential Area

	Category	GFA/Area (ha)	Unit Demand Fresh Water (m^3/ha/day)	Unit Demand Salt Water (m^3/ha/day)	Daily Demand Fresh Water (m^3/day)	Daily Demand Salt Water (m^3/day)
Retails/Restaurant [2]	N/A	0.205	0.000	0.000	0.0	0.0
G/IC [2]	N/A	0.310	0.000	0.000	0.0	0.0
Harbourfront At-Grade Communal Space [1]	IRR	0.000	700.000	0.000	0.0	0.0

Site B

Proposed Residential Flats

	Category	Population	Unit Demand Fresh Water (m^3/head/day)	Unit Demand Salt Water (m^3/head/day)	Daily Demand Fresh Water (m^3/day)	Daily Demand Salt Water (m^3/day)
Residential Accommodation	R	1,611	0.335	0.105	539.7	169.2

Non-Residential Area

	Category	GFA/Area (ha)	Unit Demand Fresh Water (m^3/ha/day)	Unit Demand Salt Water (m^3/ha/day)	Daily Demand Fresh Water (m^3/day)	Daily Demand Salt Water (m^3/day)
Retails/Restaurant [2]	N/A	0.56	0.000	0.000	0.0	0.0
G/IC [2]	N/A	0.00	0.000	0.000	0.0	0.0
Harbourfront At-Grade Communal Space [1]	IRR	0.04	700.000	0.000	26.6	0.0

Summary

	Daily Demand Fresh Water (m^3/day)	Daily Demand Salt Water (m^3/day)
Site A (+15%) [3]	505.8	158.5
Site B (+15%) [3]	651.2	194.5
Total (+15%) [3]	**1157.1**	**353.1**

Note:
[1] It is anticipated that around 50% of the Harbourfront At-Grade Communal Space is planting area in the worst case scenario.
[2] The commerical and G/IC areas are having residential development atop, thus the unit fresh/salt water demands are not applicable.
[3] 15% additional demand have been included for conservative assessment.

Table C - Summary of Water Demands

Fresh Water Demand

Site	Daily Demand - Fresh Water (m^3/d)		
	Existing	Proposed [1]	Net Increase
Site A	**0.0**	**505.8**	**505.8**
Site B	**0.0**	**651.2**	**651.2**
Total	**0.0**	**1157.1**	**1157.1**

Note:
[1] 15% additional demand have been included for conservative assessment.

Salt Water Demand

Site	Daily Demand - Salt Water (m^3/d)		
	Existing	Proposed [1]	Net Increase
Site A	**0.0**	**158.5**	**158.5**
Site B	**0.0**	**194.5**	**194.5**
Total	**0.0**	**353.1**	**353.1**

Note:
[1] 15% additional demand have been included for conservative assessment.

Fresh Water Reservoir Capacity

Reservoir	Capacity (x 1,000 m^3)	Supply Capacity @ Capacity Factor = 0.8 (MLD) [1]	Existing Daily Consumption (MLD) [2]	Spare Capacity (MLD)	Remarks
Ma Tau Wai FWSR	24.1	30.2	39.6	**124.8**	The spare capacity of 124.8 MLD >> net increase of 1.157 MLD from the Propsoed Development
Ho Man Tin East FWSR	152.4	190.5	118.3		
Ho Man Tin West FWSR	67.4	84.3	22.3		

Salt Water Pumping Capacity

Pumping Station	Design Pumping Capacity (MLD)	Existing Daily Consumption (MLD) [2]	Spare Capacity (MLD)	Remarks
Tai Wan SWPS	112.74	88.5	**24.2**	The spare capacity of 24.2 MLD >> net increase of 0.353 MLD from the Propsoed Development

[1] For interconnected supply zone with critical consumers, the capacity of the Reservior should be (75% + 5%) = 80% of the mean daily demend.
[2] Average daily Consumptions in Feb 2024 have been adopted.

Appendix 9

Air Ventilation Assessment Report

Part I

Air Ventilation Assessment – Computational Fluid Dynamics

Urban Renewal Authority
Proposed Residential Development in Bailey Street, Kowloon City District

Air Ventilation Assessment Report (v2.2)

June 2025

Approved By 

(Project Manager: K.S. Lee)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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1 INTRODUCTION

1.1 Project Background

1.1.1 Cinotech Consultants Limited is commissioned by the Urban Renewal Authority (URA) to conduct an Air Ventilation Assessment (AVA) in support to a proposed comprehensive high-density residential development (the Proposed Development) at Bailey Street, Kowloon City District (the "Site"). URA, in collaboration with the Planning Department (PlanD), proposed to rezone the site from "Government, Institution or Community" zone ("G/IC") and a small strip of land zoned "Other Specified Uses" annotated "Sewage Treatment Plant" ("OU(STP)") to "Residential (Group A)9" ("R(A)9") for comprehensive high-density residential development (the "Proposed Rezoning"). Planning submission with relevant technical assessments will be prepared in support of the proposed rezoning under Section 5 of the Town Planning Ordinance.

1.2 The Proposed Development

Location

1.2.1 The Site, with a gross site area of about 7,610 m^2, is situated in the Kowloon City District, is in proximity to the waterfront (the "Subject Site"). It is bounded by Chi Kiang Street to the west, Bailey Street to the south, Hoi Sham Park Extension to north and east, To Kwa Wan Pigging Station to the east and To Kwa Wan Preliminary Treatment Works to the southeast. A location plan of the Site is shown on **Figure 1-1**.

Existing Condition

1.2.2 The Site a piece of Government land, the majority of which is currently occupied by a temporary carpark with a small portion of the site occupied as planter area and hard paved land serving as a passageway.

Planning Context

1.2.3 The Subject Site falls within the Approved Hung Hom Outline Zoning Plan ("OZP") No. S/K9/28, and currently zoned as "G/IC" and a small strip of land zoned "OU(STP)" with building height restriction ("BHR") of 8 storeys and is planned for school development. The current zoning of the Site and its surrounding is illustrated in **Figure 1-2**.

1.2.4 The proposal is to rezone the Subject Site from current zoning of "G/IC" and "OU(STP)" to "(R(A)9)" for a comprehensive high-density residential development.

Proposed Development and the Testing Scheme

1.2.5 To visualise the proposed planning parameters and for technical assessment considerations, an indicative layout is prepared (see **Figure 1-5**). As shown in the indicative layout, the Proposed Development comprises of two residential towers on a podium structure, each with maximum building height of 100mPD. An Harbour front at-grade communal open space is also provided at the southern portion of the Site. The notional layout plan is solely for use of relevant technical assessment in support of the Proposed Rezoning, which is for indicative purpose only and subject to change at detailed design stage.

1.2.6 This assessment is prepared based on the following development parameters in **Table 1-1**.

Table 1-1 Design Parameters of the Testing Scheme

Zoning	"R(A)9"
Site Area (subject to survey)	About 7,610 m^2
Domestic GFA (PR)	About 60,880 m^2 (8.0)
Commercial GFA (PR)	About 7,610 m^2 (1.0)
GIC GFA (to be exempted from GFA calculation)	About 3,100 m^2
No. of building blocks	2
Building Height	100 mPD
No. of Flats	1,218
Average Flat Size	About 50 m^2
Harbourfront At-Grade Communal Space	About 760 m^2
Car Parking Spaces	Private Car: 343 Coach: 10

Note: Subject to detailed design.

1.3 The Surrounding Environment

1.3.1 The Site is located near the waterfront of the Kowloon City District, surrounded by a mix of school development, residential, commercial, and infrastructural uses.

1.3.2 Hoi Sham Park and its Extension, as well as the To Kwa Wan Pigging Station, are adjoining the east and north boundaries of the Site, allowing the sea breeze from Kowloon Bay to enter the Site and the downstream region.

1.3.3 To the north of the Site, aside from the nearby school development, the existing developments are relatively far from the Site, thus the wind from the north can also reach the Site and the downstream region without much obstacle.

1.3.4 The first row of developments to the west of the Site are mid-rise school developments of ~20-35 mPD. Behind the row of schools, there are a group of existing and planned residential developments (please refer to **Section 1.7**) with building heights of ~100 mPD. To the south and southwest of the Site, there is a mix of industrial and residential developments with building heights in the range of ~50-120 mPD. Considering the building density to the south and west of the Site, the wind from the south to west directions mostly flows along the existing streets.

1.3.5 The overview of building heights in the vicinity is provided in **Appendix 3-1** for reference.

1.3.6 The Major Prevailing Winds of the Site are illustrated in **Figure 1-3** (Please refer to **Section 2.3** for details**)**. The major at-grade air pathways within the Site under the existing configuration are illustrated in **Figure 1-4**.

1.3.7 Making use of the natural wind to and from the sea is a key consideration for providing good ventilation at pedestrian level.

1.4 Design Consideration

1.4.1 As the small southern portion of the Site serves as an existing air pathway for the E wind connecting to Bailey Street, no obstacle should be placed along this air pathway. In addition, to avoid excessive blockage of the prevailing wind, building separation of 15m shall be provided between the residential towers.

1.5 The Proposed Scheme (The Testing Scheme)

1.5.1 As mentioned in **Section 1.2.5** above, the Testing Scheme comprises of two residential towers on a podium structure, each with maximum building height of 100mPD (see **Figure 1-5**). This Testing Scheme will be adopted in the AVA study as the Proposed Scheme.

1.5.2 The design incorporates few good design features to preserve the existing at-grade air pathway within the Sites.

a) The podium is setback from the southern boundary (min 10m) to maintain the crucial air pathway, which runs in a E-W direction.

b) A 15m building separation between the residential towers will be upheld to maintain appropriate spacing.

1.5.3 Although the podium and towers of the Proposed Scheme also have the potential to induce the downwash flow and enhance the air ventilation of the nearby area, it is not considered as a good design feature since the relatively large structures will also block the at-grade flow thus the potential net improvement and/or degradation is depended on the wind direction.

1.6 The Baseline Scheme (OZP Compliant Scheme)

1.6.1 To compare the ventilation performance of the Proposed Scheme, a Baseline Scheme has been prepared, which complies with the BHR under OZP and reference to the secondary school layout requirement as specified under the Hong Kong Planning Standards and Guidelines while respecting the existing Box culvert has been prepared. The Baseline Scheme share the same Site of the Proposed Scheme. A notional layout plan of the Baseline Scheme is presented in **Figure 1-6**.

1.6.2 It should be noted, due to the presence of an existing box culvert in the southern portion of the Site, above-ground usage in that area is restricted. As a result, the orientation of the school structure has been slightly adjusted to a southwest-northeast direction. Additionally, the southern portion of the Site can only be utilized for car parking spaces and cannot accommodate underground structures. As a result, the school is also setback from the southern boundary to maintain a crucial air pathway. However, as the façade of the Baseline Scheme is not aligned with the E-W air pathway, the flow can freely turn and recirculated under easterly wind and may not flow smoothly along the setback area.

1.6.3 A summary of the Baseline and Proposed Schemes is listed in **Table 1-2** and illustrated in **Figure 1-7**.

Table 1-2 Summary of the Baseline Scheme and Proposed Scheme

	Baseline Scheme (OZP Compliant Scheme)	Proposed Scheme (The Testing Scheme)
Development Type	School Development	Composite Development
Building Height	• School Building: about 30mPD	• Residential Towers atop podium: maximum building height at 100mPD (Podium: 21.55mPD)
Air Ventilation Consideration	• Setback from the south boundary to maintain the important air pathway running in a E-W direction.	• Setback from the south boundary to maintain the important air pathway running in a E-W direction. • A 15m wide building separation between the residential towers

Remarks:
* Proposed Scheme is subject to changes at detailed design stage.

1.7 KCAA1 Core Area

1.7.1 To the west of the Site is the URA's KCAA1 Core Area, which comprises 8 URA redevelopment projects currently in different stages of implementation. The objective is to enhance walkability and connectivity through restructuring and replanning of the land uses. Existing buildings will be demolished and replaced with high-rise residential buildings. The redevelopment will include residential developments on top of commercial/retail podium, as permitted under the "R(A)" zoning of the current OZP/ the respective Development Scheme Plans (DSPs). A summary of these projects is listed in **Table 1-3** and illustrated in **Figure 1-8**. These planned developments will be incorporated into the present AVA study.

Table 1-3 Building Height of development within KCAA1 Core Area

URA Projects	Building Height
1. KC-009 (Bailey Street/ Wing Kwong Street)	100mPD
2. KC-010 (Hung Fook Street/ Ngan Hon Street)	100mPD
3. KC-011 and DL-8: KC (Hung Fook Street/ Kai Ming Street)	100mPD
4. KC-012 and KC-013 (Kai Ming Street/ Wing Kwong Street)	100mPD
5. KC-014 (Wing Kwong Street/ Sung On Street)	100mPD
6. KC-016 (To Kwa Wan Road/ Wing Kwong Street)	140mPD

1.8 Objective

1.8.1 The objective of this AVA study is to compare the air ventilation performance on the surrounding area at the pedestrian level between the Proposed Scheme and the Baseline Scheme. The Baseline Scheme follows the BHR as outlined in the OZP. To conduct this comparison, Computational Fluid Dynamics (CFD) models will be adopted to compute the Velocity Ratio (VR) for both schemes.

1.8.2 It should be noted that the Proposed Scheme in this study is a Testing Scheme which is for illustrative purpose and will be subject to changes. The purpose of this report is to compare the air ventilation performance between a feasible design that comply to the current OZP and the notional design under the proposed planning parameters of the Proposed Scheme. The results and conclusions outlined in this report serve to facilitate this comparison.

2 SITE WIND AVAILABILITY

2.1 Introduction

2.1.1 The selection and evaluation of the wind availability data for the upstream wind conditions are described in this section. The following sources of wind data have been reviewed for this AVA study as follows:

- Measurement from Hong Kong Observatory (HKO) weather station.
- Measurement from Wind Tunnel Test in Experimental Site Wind Availability Study[1].
- Simulated results from Meso-Scale Model Regional Atmospheric System (RAMS)[2] in PlanD's website.

2.2 Selection of Wind Data Source

2.2.1 Simulated result of RAMS from PlanD's website is adopted in this AVA study. The reason for the selection of this wind data source is explained in the following paragraphs.

2.2.2 HKO weather stations provided reliable wind data in Hong Kong. There are four HKO weather stations within 3km from the Site, including:

- King's Park Automatic Weather Station, ~1.85km away from the Site
- Kowloon City Automatic Weather Station, ~2.5km away from the Site
- Kai Tak Automatic Weather Station, ~2.3km away from the Site.
- Kai Tak Runway Park Automatic Weather Station, ~2.7km away from the Site.

2.2.3 Since the measurement locations are normally within 3-10m above ground level, the measured wind directions are likely affected by the nearby high-rise developments. With the large horizontal distance, the measured wind direction distribution at the Automatic Weather Stations may not represent the site wind condition. Therefore, the data from aforementioned weather stations should only be adopted when no other alternatives are preferred.

2.2.4 Besides, the Waglan Island Automatic Weather Station is located in an undisturbed area and its measured wind data can describe the overall wind condition for Hong Kong well. Therefore, the wind data from Waglan Island Automatic Weather Station could be adopted in AVA study when no more suitable data is available.

2.2.5 A series of experimental site wind availability studies for various regions in Hong Kong using wind tunnel experiment have been conducted and some of the reports are available to the public. The closest location can be found in "*Experimental Site Wind Availability Study for San Po Kong, Hong Kong - Investigation Report WWTF012-2009*". However, the Site is more than 1.5 km from the study area of the San Po Kong experimental site, thus the wind data from WWTF012-2009 is not suitable for this study.

2.2.6 In order to provide a comprehensive set of standardized and reasonably representative site wind availability data for both qualitative and quantitative AVA, a consultancy study was commissioned by PlanD. The study adopted meso-scale model RAMS to simulated 10-year wind climate at horizontal resolution of 0.5km x 0.5km, covering the whole Hong Kong.

[1] https://www.pland.gov.hk/pland_en/resources/info_serv/site_wind/index.html
[2] https://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/index.html

Three levels of nested domains with realistic boundary conditions were adopted to provide reasonable approaching wind condition to the finest level of nesting. To refine the model results, the wind data from various wind stations have been used in RAMS.

2.2.7 When comparing the RAMS to the wind tunnel experiments in the experimental site wind availability studies, the RAMS have the following advantages:

- RAMS covers a much larger upwind area, with terrain height and land surface type, compare to those wind tunnel experiments;
- RAMS considers the atmospheric stability where those wind tunnel experiments do not consider thermal effect;
- RAMS provides wind data for every single grid at various elevation, unlike those wind tunnel experiments that can only provide data at predetermined locations, and HKO's measurements that only provide surface data.

2.2.8 The Scheme and assessment area of this study is fall within grid [84,41]. Considering that the grids from RAMS can cover every part of Hong Kong and the advantages of the RAMS over those wind tunnel experiments, the data of grid [84,41] from RAMS is best suited for this AVA study. The Major Prevailing Winds of the Scheme area are illustrated in **Figure 1-3**.

2.3 Adopted Wind Conditions

2.3.1 The wind roses and the vertical wind profiles of grid [84,41] from RAMS[3] has been adopted in order to provide a realistic flow condition.

2.3.2 The wind direction at 500m elevation has been adopted in the analysis of general wind condition of the site, while the vertical wind profiles has been adopted as the inlet boundary conditions of the numerical analysis.

2.3.3 It should be noted that the wind profiles from RAMS are grouped into four range of wind directions, therefore, all wind directions within the same 90-degree segment share the same profiles. The boundary layer height is assumed to be 500m, thus the flow velocity at 500m is the free stream flow velocity and the flow above 500m is uniform.

2.3.4 The wind rose at 500m elevation of grid [84,41] and the wind profile from RAMS are illustrated in **Figure 2-1a & Figure 2-1b**. The top 75% of wind directions, which shall be assessed by CFD models, are presented in **Table 2-1 & Table 2-2**. Detailed occurrence probability for each wind direction and wind speed at 500m elevation are listed in **Appendix 2-1**. The adopted wind profile from 10-500m were extracted from the wind profile curve provided by PlanD (**Figure 2-1b**). The wind profiles for different wind directions, in term of ratio to the free stream flow velocity at different heights, are summarised in **Table 2-3**.

2.3.5 Under annual condition, the major wind direction is East. For ~47% of the time, the wind comes from ENE, E, or ESE (67.5-112.5 deg). Around 14% of the wind comes from NNE or NE (22.5-45 deg). Around 12% of the wind comes from SSW, or SW (202.5-225 deg). The occurrence chances for the rest of wind directions are all at or below 6% each.

2.3.6 Under summer condition, the major wind direction shifted to South-Western. For around 38% of the time, the wind comes from SSW, SW, or WSW (202.5-247.5 deg). Around 25%

[3] https://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/084041.html

of the wind comes from S, SE, or SSE (135-180 deg). Around 19% of the wind comes from E or ESE (90-112.5 deg). The occurrence chance for the rest of wind directions is all below 6% each.

2.3.7 Generally, the major wind directions of concern are the ENE to ESE for the whole year and SSW to WSW for summer. A good designer should have considered those two major wind directions to reduce the impact of air ventilation to the surrounding area.

Table 2-1 Occurrence Probability for Each Wind Directions at 500m Elevation (Annual)

Wind Direction	Wind Direction (degree)	Occurrence Probability at 500m elevation
E	90	21.8%
ENE	67.5	13.7%
ESE	112.5	11.7%
NE	45	7.2%
NNE	22.5	6.4%
SSW	202.5	6.0%
SW	225	6.0%
SE	135	5.8%
Sum		**78.6%**

Table 2-2 Occurrence Probability for Each Wind Directions at 500m Elevation (Summer)

Wind Direction	Wind Direction (degree)	Occurrence Probability at 500m elevation
SW	225	14.6%
SSW	202.5	13.5%
WSW	247.5	10.0%
ESE	112.5	9.8%
S	180	9.3%
E	90	9.2%
SE	135	7.9%
SSE	157.5	7.5%
Sum		**81.8%**

Table 2-3 Vertical Wind Profiles for Different Wind Directions

Heights (m)	Wind Speed (m/s) for different Wind directions (degree from North)			
	22.5- 112.4^{o}	112.5-202.4^{o}	202.5-292.4^{o}	292.5-22.4^{o}
10	3.7	2.1	2.0	2.1
50	3.8	2.2	2.1	2.2
100	3.9	2.2	2.2	2.2
150	4.0	2.3	2.2	2.4
200	4.3	2.5	2.3	2.5
250	4.9	2.9	2.6	3.0
300	5.5	3.4	2.9	3.3
350	6.0	3.8	3.2	3.7
400	6.5	4.2	3.5	4.2
450	7.0	4.6	3.8	4.6
500 and above	7.2	5.0	3.9	4.7

3 ASSESSMENT METHODOLOGY

3.1 Assessment Tool

3.1.1 The microclimate around the Site for the two Schemes has been assessed by CFD. Commercial CFD software, Ansys Fluent, has been utilized for calculating the local wind speed. The model solves the algebraic equations by applying the conservation laws of physics to finite volumes of space and time. Realisable k-epsilon with wall model is adopted to handle the flow turbulence.

3.2 Assessment Area and Surrounding Area

3.2.1 According to the "Technical Circular No. 1/06 on Air Ventilation Assessments" by HPLB & ETWB (the Technical Circular), the Assessment Area of the Scheme should include the Scheme's surrounding up to a perpendicular distance H from the Site boundary, H being the height of the tallest building on site. Surrounding Area of up to a perpendicular distance of 2H from the DSP boundary must be included.

3.2.2 The height of the proposed development is 100mPD. With ground elevation of around 5.7mPD, the building height is 95m (100 – 5.7 = 94.3 → 95m).

3.2.3 Although the scale of the Proposed Scheme is relatively small, it is located at coastal location with relatively tall towers such that the Project will be the first layer of obstacles for the easterly wind.

3.2.4 From preliminary assessment, it is found that under easterly wind, the proposed development has the potential to impact or improve the air ventilation at two specific locations, (1) the intersection of Bailey Street and Sung On Street; and (2) the Sung On Street section adjoining the The Church of Christ in China Kei To Secondary School.

3.2.5 On the other hand, under south-west wind, the potential impact of the Proposed development is considered insignificant. This is due to the limited wind availability of the Site caused by the surrounding buildings, and the fact that the sea in the north-east is not considered an air sensitive area.

3.2.6 Since easterly wind is a major wind direction throughout the year, the assessment boundary has been extended to 150m to cover the potential affected areas. The surrounding boundary is also extended to 300m accordingly.

3.2.7 It should be noted that the URA's KCAA1 Core Area is located within the surrounding boundary. For the planned development in KCAA1 Core Area, the building heights and general block plans based on the the current OZP/ DSPs and the latest public information available. In addition, URA Project KC-008(A)[4] and approved planning application No. A/K9/274[5] are located to the south of KCAAA1 Core Area, are also included in the AVA study. The planned developments are shown in **Figure 1-8**. The layout extracted from the available document for URA Project KC-008(A) and A/K9/274 are provided in **Appendix 3-2**.

[4] Also called "eResidence Tower 3"
https://www.ura.org.hk/en/self-developed-residential-projects/eresidence-tower-three
[5] https://www.tpb.gov.hk/tc/plan_application/Attachment/20190305/s16_A_K9_274_0_gist.pdf

3.3 Test Points

3.3.1 A total of 39 perimeter test points (P001-P039) has been used to examine the air ventilation around the Site. The perimeter test points are evenly spread, with around 10m separation, along the boundary of the Site. As the Site is adjacent to the neighbourhood development, specifically the To Kwa Wan Pigging Station, which has solid wall of ~3maG, the perimeter test points near the Pigging Station have been relocated within the Site Boundary. The locations of the perimeter test points are illustrated in **Figure 3-2**.

3.3.2 A total of 289 overall test points (Road Surface: O001-O141; Open Area: O142-O289) have been used to examine the air ventilation of the local area with public assess. The overall test points are evenly spread on road side pedestrian within the Assessment Area with around 15m separation. For open area other than road surface, test points with similar density have been provided. Please noted that the waterfront area of Hoi Sham Park is considered a special area and no overall test point has been provided. The locations of the overall test points are illustrated in **Figure 3-3**.

3.3.3 The overall ventilation performance between the Baseline Scheme and Proposed Scheme in the neighbourhood can be quantified using the predicted wind speed at the perimeter test points and overall test points.

3.3.4 The effectiveness of the design considerations listed in **Table 1-2** can be quantified using the predicted wind speed at the downwind area of the good design features. Both Baseline Scheme and Proposed Scheme are setback from the south boundary to maintain the important air pathway running in a E-W direction. Since westerly wind is not occurring frequently and only small area to the east of the Site is considered sensitive to air ventilation, the target wind directions of this design feature are ENE to ESE winds. In general, the effectiveness of the setback can be demonstrated by assessing the annual averaged ventilation performance of the air pathway within the Site and the downstream street. To examine the flow of the air pathway within the site,15 special test points (D001-D015) have been designated in focus area Z1. For the downstream street, considering that pedestrian areas are the primary focus, the flow along the road centre is more representative for the air pathway. Therefore, 10 special test points (D033-D042,) have been established in focus area Z3 to examine the air flow in that area.

3.3.5 Similarly, the averaged ventilation performance of the downstream open areas of the 15m wide building separation between the proposed residential towers, i.e.: The Church of Christ in China Kei To Secondary School and Po Leung Kuk Ngan Po Ling College can be used to quantify the effectiveness of the building separation. Therefore, no additional test points are required.

3.3.6 As mentioned previously, the waterfront area of Hoi Sham Park is considered special area. 17 special test points (D016-D032, focus area Z2) have been provided to illustrate the flow there.

3.3.7 The locations of the special test points are illustrated in **Figures 3-4a & 3-4b**.

3.3.8 In order to examine the localised ventilation, the spatial averaged VRs are broken into individual focus zones for road sections and open areas for demonstrating the localised ventilation performance. The focus areas are illustrated in **Figures 3-5a & 3-5b** and listed in **Table 3-1**.

3.3.9 The vertical locations of all test points are 2m above ground or slab.

Table 3-1 List of Focus Areas

Road Section	
R1	Chi Kiang Street (O001 – O045)
R2	Hung Hom Road (O046 – O063)
R3	Bailey Street (From Sung On Street to the west) (O064 – O078)
R4	Bailey Street (From Chi Kiang Street to Sung Ping Street) (O079 – O086)
R5	Sung Ping Street (O087 – O105)
R6	Sung On Street (O106 – O141)
Open Area	
A1	Hoi Sham Park (O142 – O199)
A2	Chi Yun School & Po Leung Kuk Anita L. L. Chan (Centenary) School (O200 – O226)
A3	The Church of Christ in China Kei To Secondary School (O227 – O251)
A4	Po Leung Kuk Ngan Po Ling College (O252 – O286)
A5	Sung On Street Sitting-out Area (O287 – O289)
Open Area within the Site	
Z1	Open Space near south boundary (D001 – D015)
Z2	Waterfront area of Hoi Sham Park (D016 – D032)
Z3	The E-W Air Pathway downstream of the Site (D033 – D042)

3.4 Assessed Parameters

3.4.1 According to the Technical Circular, Wind VR should be used as an indicator of wind performance for the AVA. It is defined as

$$\boldsymbol{VR = V_P / V_g}$$

Where V_g is the wind velocity at the top of boundary layer (at 500m in this AVA) and V_P is the wind velocity at pedestrian level (2m above ground or slab).

Wind Direction-Weighted Average VR at Individual Test Point

3.4.2 In the assessment, the wind direction-weighted averaged VR at each individual test point has been calculated using the following equation:

$$Average\ VR_i = \frac{\sum_{all\ adopted\ wind\ direction} VR_{i,w} \times P_w}{\sum_{all\ adopted\ wind\ direction} P_w}$$

where

$\boldsymbol{Average\ VR_i}$	is the wind direction-weighted averaged VR at individual test point
$\boldsymbol{VR_{(i,w)}}$	is the VR at test point ***i*** and wind direction ***w***.
$\boldsymbol{P_w}$	is the occurrence probability of wind direction ***w***.

3.4.3 Please note that the adopted wind direction and their corresponding occurrence probabilities are different for the annual and summer conditions. In each scenario, there are two average VR values at each test point, one for the annual condition and another for the summer condition.

Spatial Averaged VR

3.4.4 According to the Technical Circular, Site spatial average Velocity Ratio (SVR) and the Local spatial average velocity ratio (LVR) shall be used for quantifying the air ventilation performance of the Assessment Area. The SVR is calculated by taking the average of the VRs for the perimeter test points. On the other hand, the LVR is determined by averaging the VR for both the perimeter test points and the overall test points.

3.4.5 Spatial averaged VRs for the focus areas are used to quantify the effect of the Project to air ventilation of individual regions within the Assessment Area. The spatial averaged VRs for the focus areas are calculated by averaging the VRs of all the test points within each respective focus area.

3.4.6 In the assessment, the spatial average VRs have been calculated using the following equations:

$$SVR = \frac{\sum_{all\ perimeter\ test\ points} Average\ VR_i}{Number\ of\ Perimeter\ test\ points}$$

$$LVR = \frac{\sum_{all\ perimeter\ and\ overall\ test\ points} Average\ VR_i}{Number\ of\ Perimeter\ \&\ Overall\ test\ points}$$

$$Spatial\ Averaged\ VR\ for\ Focus\ Area\ = \frac{\sum_{all\ test\ points\ in\ the\ focus\ area} Average\ VR_i}{Number\ of\ test\ points\ in\ the\ focus\ area}$$

where

Average VR$_i$	Is the wind direction-weighted averaged VR at individual test point
SVR	Site spatial average Velocity Ratio
LVR	Local spatial average Velocity Ratio

3.4.7 It should be noted that the VRs and the spatial average VRs should only be compared between the Baseline Scheme and the Proposed Scheme of the study which have applied identical setting for each parameter, and should not be directly compared with on-site measurement and/or wind tunnel experiment.

3.5 Studied Scenarios

3.5.1 Two scenarios have been considered in this study. The first scenario is the Baseline Scheme and the other is the Proposed Scheme as mentioned below. The results of the scenarios will be compared to draw the conclusion.

3.5.2 In both scenarios, all buildings in the surrounding area and the terrain are included. The terrain information of the surrounding is extracted from - Digital Terrain Model (DTM)[6] of Hong Kong provided by Lands Department and illustrated in **Figure 3-6a**. The buildings included in the CFD (under Baseline Scheme) are illustrated in **Figure 3-6b**.

3.5.3 It should be noted that some buildings have been simplified, especially for the buildings outside of the assessment area, while more details have been retained for the buildings near the Proposed Development in order to focus the computation resources on the Proposed

[6] Lands Department - Digital Terrain Model (DTM) - https://data.gov.hk/en-data/dataset/hk-landsd-openmap-5m-grid-dtm

Development and its surrounding. However, the key features, such as the at-grade footprints of the buildings, have been retained as far as practicable to maintain the accuracy of the simulation results. In addition, the same building layout has been applied to both Schemes, thus the potential effect of the simplification will be cancelled out in the comparison of the Schemes.

3.5.4 The difference between the two scenarios are the buildings within the Site, which are descripted in **Sections 1.5 to 1.6** as shown in **Figure 1-7**. The simplified 3D model of the development adopted in both scenarios are illustrated in Figures **3-7a & 3-7b** for Baseline Scheme and Proposed Scheme, respectively.

3.5.5 Both scenarios share the identical boundary conditions and other modelling parameters to have a fair comparison focused on the design between the Proposed Scheme and Baseline Scheme only. The details models' settings are explained in later paragraphs.

3.6 Computational Domain and Boundary Condition

3.6.1 The global domain size is 2000m (length) x 2000m (width) x 1000m (height) centred at 837740m (E), 819310m (N). The terrain and buildings within the surrounding area have been included in the model. The distance between the side boundaries of the domain and the buildings are more than 5 times the building height of the Proposed Scheme. The Blockage ratio is less than 3% for all wind directions. **Figure 3-8** shows the computation domain of the Baseline Scheme as an example.

3.6.2 The computation domains have been discretized by triangle and tetrahedral meshes for 2D surfaces and 3D volumes, respectively. The 2D triangle meshes on the surface of buildings are mostly in the range of 0.6m – 6m. The 2D triangle meshes on the ground are mostly in the range of 0.6m – 20m. The 3D tetrahedral meshes with size of 0.6m - 100m are being used in the discretization of the computation domain. In order to resolve the near ground flow velocity, as the data sampling point is 2m above ground, 6 prism layers with a total thickness of 3.0m has been applied on the Ground and building surfaces (including the sea surface). The difference in size of neighbourhood grids, also known as the grid expansion ratio, are less than 30% for the whole domain. Generally, smaller grids are be placed near the building surfaces and ground to properly resolve the near-surface flow. The 2D and 3D meshes of the model are illustrated in **Figures 3-9 & 3-10** respectively.

3.7 Model Setting

3.7.1 The Realisable k-epsilon model has been used in this study as it can provide better results compared to the standard k-epsilon model. Wall functions have been applied to the solid boundaries, i.e. ground and building facades, to account for the turbulence generated by flow over these surfaces.

3.7.2 SIMPLE algorithm has been adopted to handle the velocity-pressure coupling.

3.7.3 Convergence criterion of < 1.0E-4 has been adopted to control when the iteration stops. The solution is also regarded as converged when the flows at the position of interest are constant or oscillate around a constant value.

3.7.4 A summary of the model setting can be found in **Table 3-2**.

Table 3-2 Summary of Model Settings

Software	Pre-processing	Ansys Fluent Mesh
	Processing	Ansys Fluent CFD
	Post- Processing (Contour Plot)	Ansys CFD-Post
Domain Size	2000m x 2000m x 1000m (Width x Length x Height)	
Assessment Area	150m from Site Boundary	
Surrounding Area	300m from Site Boundary	
Boundary Conditions	Inflow boundary	Velocity Inlet with velocity profiles as listed in **Table 2-3**
	Outflow Boundary	Pressure Outlet
	Ground and Building Surfaces	No Slip Condition with Wall Function
Grid Expansion Ratio [1]	< 30%	
Blockage Ratio [1]	< 3%	
Prismatic Layer [1]	6 prism layers with a total thickness of 3.0m (~0.5m each in average)	
Turbulence Model	Realisable k-ε turbulence model	
Solving Algorithms	SIMPLE algorithm for momentum and pressure coupling	
Convergence Criteria [1]	< 1.0E-4, or the flows at the position of interest are constant or oscillate around a constant value.	
Number of 3D Elements	Baseline: ~8 million; Proposed: ~9 million	

Note:
[1] According to Proceedings paper of 4th International Symposium on Computational Wind Engineering (CWE 2006) "Recommendations of the COST action C14 on the use of CFD in predicting pedestrian wind environment" by Jörg Franke, the followings item had been recommended:
- Blockage Ratio of below 3%;
- Maximum expansion ratio of 1.3;
- Prismatic cells should be used at the wall with tetrahedral cells away from the wall; &
- Residual of at least four orders of magnitude (i.e.: < 1e-4). In addition, if the flows at the position of interest are constant or oscillate around a constant value, the solution can be regarded as converged.

3.8 List of Models

3.8.1 The wind environment of the site has been discussed in **Section 2.3**. The top 75% wind directions for both annual and summer condition has been adopted in this study (**Table 2-1** & **Table 2-2**). As most of the wind directions in annual and summer are overlapped, only 11 wind directions with two scenarios in a total of 22 configurations have been conducted for this study (**Table 3-3**).

Table 3-3 List of Wind Conditions Included in the AVA Study

Wind Direction		Occurrence Probability (Annual)	Occurrence Probability (Summer)
NNE	22.5	6.4%	
NE	45	7.2%	
ENE	67.5	13.7%	
E	90	21.8%	9.2%
ESE	112.5	11.7%	9.8%
SE	135	5.8%	7.9%
SSE	157.5		7.5%
S	180		9.3%
SSW	202.5	6.0%	13.5%
SW	225	6.0%	14.6%
WSW	247.5		10.0%
Total		**78.6%**	**81.8%**

4 ASSESSMENT RESULT

4.1 Model Results - Spatial Averaged Velocity Ratios

4.1.1 Two scenarios, namely Baseline and Proposed, have been conducted for the Baseline Scheme and Proposed Scheme, respectively. Each scenario consists of 11 wind directions, as stated in **Table 3-3**, and was conducted based on the methodology outlined in **Section 3**. **Table 4-1** presents a summary of the predicted spatially averaged VRs of the test points, including the average SVR for all perimeter test points (P Points) and the average LVR for all perimeter and overall test points (P & O Points). Additionally, **Table 4-2** & **Table 4-3** present the averaged VRs for each focus area for road and open area, respectively, as shown in **Figures 3-5a & 3-5b**.

Table 4-1 Summary of Spatial Averaged Velocity Ratios – Overall

ID	Location	Baseline		Proposed	
		Annual	Summer	Annual	Summer
SVR	Site Air Ventilation Assessment (SVR) (All P Points)	0.18	0.13	0.25	0.17
LVR	Local Air Ventilation Assessment (LVR) (All P & O Points)	0.19	0.14	0.22	0.17

Spatial Averaged Velocity Ratios
Increase – Cell coloured in Green
Decrease – Cell coloured in Orange

Table 4-2 Summary of Spatial Averaged Velocity Ratios – Road Sections

ID	Location	Baseline		Proposed	
Road Section		Annual	Summer	Annual	Summer
R1	Chi Kiang Street (O001 – O045)	0.17	0.12	0.22	0.16
R2	Hung Hom Road (O046 – O063)	0.20	0.22	0.18	0.22
R3	Bailey Street (From Sung On Street to the west) (O064 – O078)	0.17	0.16	0.23	0.22
R4	Bailey Street (From Chi Kiang Street to Sung Ping Street) (O079 – O086)	0.25	0.14	0.30	0.20
R5	Sung Ping Street (O087 – O105)	0.21	0.11	0.22	0.14
R6	Sung On Street (O106 – O141)	0.18	0.12	0.21	0.14

Spatial Averaged Velocity Ratios
Increase – Cell coloured in Green
Decrease – Cell coloured in Orange

Table 4-3 Summary of Spatial Averaged Velocity Ratios – Open Areas

ID	Location	Baseline		Proposed	
Open Area		**Annual**	**Summer**	**Annual**	**Summer**
A1	**Hoi Sham Park (O142 – O199)**	0.17	0.12	0.20	0.14
A2	**Chi Yun School & Po Leung Kuk Anita L. L. Chan (Centenary) School (O200 – O226)**	0.13	0.07	0.14	0.08
A3	**The Church of Christ in China Kei To Secondary School (O227 – O251)**	0.15	0.10	0.17	0.11
A4	**Po Leung Kuk Ngan Po Ling College (O252 – O286)**	0.12	0.09	0.14	0.12
A5	**Sung On Street Sitting-out Area (O287 – O289)**	0.18	0.09	0.19	0.09
Special Open Area		**Annual**	**Summer**	**Annual**	**Summer**
Z1	**Open Space near south boundary (D001 – D015)**	0.19	0.14	0.30	0.21
Z2	**Waterfront area of Hoi Sham Park (D016 – D032)**	0.25	0.20	0.24	0.18
Z3	**The E-W Air Pathway downstream of the Site (D033 – D042)**	0.20	0.19	0.28	0.26

Spatial Averaged Velocity Ratios
Increase – Cell coloured in Green
Decrease – Cell coloured in Orange

4.1.2 The detailed simulated VRs at individual test points can be found in **Appendix 4-1**, along with bar charts comparing the two scenarios. The contours and vectors of VRs at 2m above ground level are illustrated in **Figures 4-1a to 4-1k** and **Figures 4-2a to 4-2k**, respectively, for the Assessment Area and the full extent of the domain. For Podium and Roof of Surrounding Buildings, the contours and vectors of VRs at 2m above slab level are illustrated in **Figures 4-4a to 4-4k**. Additionally, the contours of the annual and summer weighted averaged VRs at 2m above ground level are illustrated in **Figures 4-3a and 4-3b**, respectively. Similarly, the contours of the annual and summer weighted averaged VRs at 2m above slab level of Podium and Roof of Surrounding Buildings are illustrated in **Figures 4-5a and 4-5b**, respectively.

4.2 Overall Spatial and Wind Directions Averaged VRs

4.2.1 The SVRs and LVRs are used in this study to quantify the change in air ventilation performance of the sites and the local area. It is important to note that the SVR and LVR values used in this study are only valid for comparing different schemes within this study and are not applicable for comparing with other studies.

4.2.2 It is noted that the SVRs and LVRs are generally exhibit better performance under the annual condition compared to summer conditions. This is attributed to the presence of open areas (i.e.: Hoi Sham Park and Kowloon Bay) in NE to E directions of the Assessment Are, which favour the prevailing wind direction under annual condition.

4.2.3 Under annual wind conditions, the overall SVRs for the Baseline Scheme and Proposed Scheme are 0.18 and 0.25, respectively. During the summer, the SVRs are 0.13 and 0.17 for the Baseline Scheme and Proposed Scheme, respectively. The Proposed Scheme demonstrates superior SVRs compared to the Baseline Scheme, with improvements of 0.07 and 0.04 for annual and summer conditions, respectively.

4.2.4 While general improvements are found along the site boundaries, individual test points reveal localized reductions in VRs can be identified along the southern portion of the west boundary

of the Site (near P012 to P017) under summer conditions. The result is likely due to the large podium footprint under south-west winds as shown in **Figure 4-1i to 4-1k & 4-3b**.

4.2.5 The LVRs for the Baseline Scheme and Proposed Scheme are 0.19 and 0.22, respectively, under annual wind condition. During summer, the LVRs are 0.14 and 0.17 for the Baseline Scheme and Proposed Scheme, respectively. The Proposed Scheme demonstrates better LVRs compared to the Baseline Scheme, with improvements of 0.03 for both annual and summer conditions.

4.2.6 The increase in SVR and LVR under the Proposed Scheme suggests that the current notional design's incorporation of air ventilation considerations is effective in general.

4.3 Effectiveness of the Design Consideration

4.3.1 In general, bulky structures tend to block the flow of wind and generate a low wind speed flow recirculation region (wake) on the leeward side of the façade. As the Site is located in a coastal area with Kowloon Bay in the east, the focus shall be on the easterly wind, which is the key wind direction under annual conditions.

4.3.2 The design elements listed in **Section 1.5.2** are expected to play a significant role in mitigating the potential adverse ventilation impact and further improving the air ventilation in general. The design elements that contribute to the observed flow patterns are briefly explained in the following sections.

Podium Setback from The Southern Boundary

4.3.3 Both Schemes feature setbacks from the south boundary to preserve the existing air pathway connecting to Bailey Street. The key difference lies in the alignment of the podium façade in the Proposed Scheme, it is aligned with the east-west air pathway, while more space has been provided in the Baseline Scheme, allowing the flow freely turn and recirculate under easterly winds and may not flow as smoothly along the setback area.

4.3.4 From the vector of VR under 67.5-degree to 112.5-degree winds (**Figure 4-1c to 4-1e**), it is found that the podium façade in the Proposed Scheme is guiding the wind along the setback area, while various flow directions can be identified under the Baseline Scheme.

4.3.5 Under Annual Conditions, the averaged VRs at the setback area (Z1), and the Bailey Street in the west (R3 & Z3) are expected to be significantly increased. Although the increases in VRs are not only contributed by the setback, the guided setback should play an important role in the improvement, so the setback is considered effective.

15m building separation between the residential towers

4.3.6 A 15m building separation has been provided between the residential towers in the Proposed Scheme. From the flow pattern on the Podium, it is found that the flow is flowing to the north-west along the building separation under 67.5 to 180 degree wind directions (**Figure 4-4c to 4-4h**).

4.3.7 As the flow pattern in the downstream areas, i.e. the schools in the west, are affected by the whole Proposed Scheme, especially the podium footprint, rather than the building separation alone, the effect of the building separation is not obvious. At the very least, the average VRs of the School (A2, A3 & A4) have been increased under annual conditions. Therefore, the building separation is considered effective.

4.4 Directional Analysis

4.4.1 The overall spatial and wind directions averaged VRs have been presented in **Section 4.2**, and it is concluded that the Proposed Scheme will induce a general improvement in overall SVR and LVR for both annual and summer conditions.

4.4.2 This section presents the air ventilation performance under different wind directions and explores the relationship between the design features of the Proposed Scheme.

4.4.3 In general, the overall ventilation performance in the assessment area under most of the wind directions has been improved. However, worse situations have been identified under 22.5 & 202.5 degree wind directions, where the good design features stated in **Section 1.5.2** are aligned.

NNE (22.5 deg) wind direction (**Figure 4-1a**)

4.4.4 The wind direction at 22.5-degrees is considered one of the worst wind directions for the Proposed Scheme. Although the prevailing wind from the open space in the north can reach the Site without much blockage, in both Schemes, the at-grade wind is not expected to penetrate the Site due to the building block of the Schemes. Instead, the downwash wind is expected to play a key role for the at-grade flow in the downstream region.

4.4.5 In the Baseline Scheme, a pattern of downwash wind is observed at the north façade of the building in the south of the Site (APB Centre), enhancing the at-grade wind near the building block. The downwash wind also pushes the south-going flow along Chi Kiang Street to the west. As a consequence, the at-grade flow along Bailey Street (R3 & R4), Hung Hom Road (R2), and Sung Ping Street (R5) are enhanced. Although a wake has been formed at the core of the Site, its effect is mainly contained within the Site.

4.4.6 In the Proposed Scheme, due to the presence of the high-rise developments at the Site, the downwash wind in the downstream location has been shifted from the APB Centre to the corner between the Peninsula Square and Kowloon City Government Offices in the southwest of the Site. Due to its location and orientation, not only has the south-going flow exiting the Chi Kiang Street (R1) been blocked, but the at-grade flow along Bailey Street (R3 & R4) and Hung Hom Road (R2) has also been reduced. In addition, a low-flow recirculation zone (i.e., a wake region) has been formed at the south of the podium, further reducing the at-grade flow within the Site (Z1) and Sung Ping Street (R5) in the downstream location. On the other hand, the downwash wind induced by the Proposed Scheme further enhances the at-grade wind at Chi Kiang Street (R1) and the southern portion of Hoi Sham Park (A1), where the prevailing wind is not obstructed.

NE (45 deg) wind direction (**Figure 4-1b**)

4.4.7 Under 45-degree wind, the prevailing wind from the open space in the northeast can reach the Site without much blockage. In both Schemes, the at-grade wind is not expected to penetrate the Site due to the building block of the Schemes.

4.4.8 In both Schemes, patterns of downwash wind are observed at the north façade of the building in the south of the Site (APB Centre) and the east façade of the school in the west (The Church of Christ in China Kei To Secondary School, A3).

4.4.9 In the Baseline Scheme, wakes have been formed at the core of the Site and at the south of the development block, which negatively affect the open area within the Site (Z1).

4.4.10 In the Proposed Scheme, due to the presence of a larger podium, less at-grade flow can reach Hung Hom Road in the south (R2) and Bailey Street Section in the west (R3). On the other hand, the downwash wind induced by the Proposed Scheme enhances the at-grade wind at Chi Kiang Street (R1) and the southern portion of Hoi Sham Park (A1). It should also be noted that the flow pattern within the schools in the west (A2 & A3) has been positively affected by the Proposed Scheme.

ENE (67.5 deg) wind direction (**Figure 4-1c**)

4.4.11 Under 67.5-degree wind, the prevailing wind from the open space in the northeast can reach the Site without much blockage. In both Schemes, the at-grade wind is expected to penetrate the southern portion of the Site.

4.4.12 Under this wind direction, the podium footprint of the Proposed Scheme plays a key role in the air ventilation in the assessment area. The setback of the podium not only preserved the existing air pathway but also allowed the flow to go smoothly to the west. As a result, not only the setback area within the Site (Z1), but also the VRs at the Bailey Street Section in the west (R3 & Z3) have been improved. The downwash wind induced by the Proposed Scheme enhances the at-grade wind at Chi Kiang Street (R1) and the southern portion of Hoi Sham Park (A1). Similar to the 45-degree wind direction, the flow pattern within the schools in the west has been affected. The increased VRs at the Sung On Street Section (R6) near the schools are likely a consequence of this.

4.4.13 On the other hand, as a consequence of a smooth west-going flow air pathway along Bailey Street (R3 & R4), the south-going flow exiting Chi Kiang Street (R1) has been blocked, thus less at-grade flow can reach Hung Hom Road in the south (R2).

4.4.14 It should be noted that the at-grade flow speed at the nearby upstream location of the Site has been reduced with the Proposed Scheme. In fact, this phenomenon is also observed under 45-degree wind but to a lesser extent. Under 67.5-degree wind, the affected region covers a large area of the core region of the Hoi Sham Park (A1). However, the reduction in average VR has been offset by the increased VR due to the downwash wind induced by the Proposed Scheme in the southern portion of the park. As a result, the average VR of the park under both Schemes are similar.

E (90 deg) wind direction (**Figure 4-1d**)

4.4.15 In both Schemes, the at-grade wind is expected to penetrate the southern portion of the Site. The situation of 90-degree wind is very similar to that of the 67.5-degree wind. The setback of the podium not only preserved the existing air pathway but also allowed the flow to go smoothly to the west. As a result, not only the setback area within the Site (Z1), but also the VRs at the Bailey Street Section in the west (R3 & Z3) have been improved. The downwash wind induced by the Proposed Scheme enhanced the at-grade wind at the Chi Kiang Street (R1) and the southern portion of Hoi Sham Park (A1). The flow pattern within the schools in the west has been affected. The increase in VRs at the Sung On Street Section (R6) near the school is likely a consequence of this.

4.4.16 Different from the case of 67.5-degree wind, the increase of VRs at the Sung On Street Section (R6) is only limited to the north of Bailey Street. For the Sung On Street Section (R6) to the south of Bailey Street, a reduction of VRs is anticipated.

4.4.17 On the other hand, due to the smoother flow along the Bailey Street Section (R3, R4 & Z3), much less flow is entering Hung Hom Road (R2) via the junction. Due to the orientation of

Hung Hom Road (R2) being perpendicular to the prevailing wind, without the flow via the junction of Bailey Street, the prevailing wind can only reach the street via building gaps, resulting in slow flow recirculation within the Hung Hom Road (R2).

ESE (112.5 deg) wind direction (**Figure 4-1e**)

4.4.18 In both Schemes, the at-grade wind is expected to penetrate the southern portion of the Site. The setback of the podium not only preserved the existing air pathway but also allowed the flow to go smoothly to the west. As a result, not only the setback area within the Site (Z1), but also the VRs at the Bailey Street Section in the west (R3 & Z3) have been improved. The downwash wind induced by the Proposed Scheme enhanced the at-grade wind at the Chi Kiang Street (R1), but to a lesser extent compared to the 22.5-degree to 90-degree winds.

4.4.19 The flow pattern within the schools in the west has been affected. The increase in VRs at the Sung On Street Section (R6) near the school is likely a consequence of this.

4.4.20 Similar to the case of 90-degree wind, the increase of VRs at the Sung On Street Section (R6) is only limited to the north of Bailey Street. For the Sung On Street Section (R6) to the south of Bailey Street, a reduction of VRs is anticipated.

SE (135 deg) wind direction (**Figure 4-1f**)

4.4.21 In both Schemes, the at-grade wind is expected to penetrate the southern portion of the Site. The setback of the podium not only preserved the existing air pathway but also allowed the flow to go smoothly to the west. As a result, not only the setback area within the Site (Z1), but also the VRs at the Bailey Street Section in the west (R3 & Z3) have been improved. The flow along the Hung Hom Road (R2) and Sung Ping Street (R5) are also smoother under the Proposed Scheme. The downwash wind induced by the Proposed Scheme mainly enhanced the at-grade wind at a nearby portion of the Hoi Sham Park (A1).

4.4.22 Since the schools in the west (A2, A3 & A4) are shadowed by the developments of the Site, the ventilation of the schools is expected to be affected by the Site to a certain extent under both Schemes. An obvious reduction of VR has been observed in The Church of Christ in China Kei To Secondary School (A3) while a significant improvement of VR has been found at Po Leung Kuk Ngan Po Ling College (A4). The increase in VRs at the Sung On Street Section (R6) near the school is likely a consequence of this.

SSE (157.5 deg) wind direction (**Figure 4-1g**)

4.4.23 In the Baseline Scheme, the at-grade wind is expected to penetrate the southern portion of the Site. On the other hand, in the Proposed Scheme, the flow at the southern portion of the Site is likely dominated by downwash flow.

4.4.24 The downwash flow at the south façade of the Proposed Scheme significantly enhances the ventilation in the area to the south of the Site, including the setback area within the Site (Z1), the Bailey Street Section in the west (R3 & Z3) and Sung Ping Street (R5). On the other hand, the exit of the north-going flow along Hung Hom Road (R2) has been countered by the increased flow along Bailey Street and has resulted in a slight reduction.

4.4.25 Since the schools in the west (A2, A3 & A4) are shadowed by the developments of the Site, the ventilation of the schools is expected to be affected by the Site to a certain extent under both Schemes. A significant change (improvement) of VR has been found at Po Leung Kuk Ngan Po Ling College (A4), while the spatial average VR of the other schools shall be similar

in both Schemes. The increase in VRs at the Sung On Street Section (R6) near the school is likely a consequence of this.

S (180 deg) wind direction (**Figure 4-1h**)

4.4.26 Similar to the case of 157.5-degree wind, the at-grade wind is expected to penetrate the southern portion of the Site in the Baseline Scheme. On the other hand, in the Proposed Scheme, the flow at the southern portion of the Site is likely dominated by downwash flow.

4.4.27 The downwash flow at the south façade of the Proposed Scheme significantly enhances the ventilation in the area to the south of the Site, including the setback area within the Site (Z1), the Bailey Street Section in the west (R3 & Z3) and Sung Ping Street (R5). As a consequence, the flow entering Chi Kiang Street (R1) via the junction of Bailey Street is also increased.

4.4.28 The ventilation of the schools in the west (A2, A3 & A4) is expected to be affected by the Site to a certain extent under both Schemes. Improvement of VR has been found at some of the schools (A3 & A4). Despite the flow direction along the Sung On Street Section (R6) near the school having been reversed, the spatial average VR along the road is similar. However, at the Sung On Street Sitting-out Area (A5), a reduction of VR is anticipated.

SSW (202.5 deg) wind direction (**Figure 4-1i**)

4.4.29 Similar to the case of 22.5-degree wind, the 202.5-degree wind is considered another worst wind direction for the Proposed Scheme.

4.4.30 In the Baseline Scheme, the north-going flow along Hung Hom Road (R2) can reach the southern portion of Chi Siang Street without obstruction. However, in the Proposed Scheme, the north-going flow along Hung Hom Road (R2) is not only partially blocked by the podium but also countered by the downwash flow due to the development. As a result, the VR along Hung Hom Road (R2) and the schools to the north-west of the Site (A2, A3 & A4) are affected negatively. In addition, wake has been formed near the north façade of the Proposed Scheme, which reduce the VR at Hoi Sham Park (A1).

4.4.31 On the other hand, the downwash flow in the Proposed Scheme enhances the VRs at the setback area within the Site (Z1) and the nearby Bailey Street Section (R4).

SW (225 deg) wind direction (**Figure 4-1j**)

4.4.32 Under the 225-degree wind, the overall ventilation performance in most of the focus area is similar in both Schemes. Despite the development in the Proposed Scheme being larger, the podium guides the flow along its facades and avoids the formation of a wake. Since a wake has been formed in the setback area within the Site (Z1) under the Baseline Scheme but not the Proposed Scheme, the VR at the setback area has been improved.

4.4.33 It should be noted that the flow direction at the adjoining portion of Hoi Sham Park (A1) has been reversed under Proposed Scheme thus the VR there have been negatively affected.

WSW (247.5 deg) wind direction (**Figure 4-1k**)

4.4.34 The case of the 247.5-degree wind is similar to that of the 225-degree wind. The overall ventilation performance in most of the focus area is similar in both Schemes. Despite the development in the Proposed Scheme being larger, the podium guides the flow along its facades. Although a wake has been formed at the north-east of the Site in both Schemes, the wake in the Proposed Scheme has been shifted toward the sea, thus a less sensitive area has

been affected. Since a wake has been formed in the setback area within the Site (Z1) under the Baseline Scheme but not the Proposed Scheme, the VR at the setback area has been improved. In addition, the at-grade flow along Chi Kiang Street (R1) and the schools in the west (especially A3) has been improved, which is likely the result of the downwash flow due to the development.

4.5 Localised Spatial and Wind Directions Averaged VRs (Road Section)

4.5.1 In general, the spatially averaged VRs for the roads under the Proposed Scheme are improved, besides the Hung Hom Road section (R2) to the south-west of the Site.

4.5.2 It should be noted that not all of the at-grade flow along the roads are following the prevailing wind direction. For example, under the 135-degree wind (**Figure 4-1f**), the flow along the Sung Ping Street section (R5) and Sung On Street section (R6) is mostly south-going in both Schemes.

Chi Kiang Street (R1)

4.5.3 The spatially averaged VR of Chi Kiang Street (R1) is expected to increase by 0.07 and 0.04 for the annual and summer conditions, respectively.

4.5.4 Under the 22.5-degree to 112.5-degree winds, 167.5-degree to 180-degree winds, and 247.5-degree wind, the flow along the Chi Kiang Street (R1) section adjacent to the Site has been enhanced by the downwash flow and guided by the podium of the Proposed Scheme. For the 135-degree wind (**Figure 4-1f**), the Proposed Scheme limits the scale of the wakes compared to the Baseline Scheme, resulting in better VRs along the road section.

4.5.5 The 202.5-degree wind (**Figure 4-1i**) is considered the worst wind direction for Chi Kiang Street (R1) under the Proposed Scheme. This is because the north-going flow along Hung Hom Road (R2) is not only partially blocked by the podium but also countered by the downwash flow due to the development.

Hung Hom Road (R2)

4.5.6 Hung Hom Road (R2) is the only road section in the assessment that does not have an overall improvement in VR. The spatially averaged VR of Hung Hom Road (R2) is expected to reduce by 0.02 under the annual condition and remain unchanged under the summer condition. Significant reductions of VRs have been identified for the 22.5-degree to 90-degree winds.

4.5.7 Under the 22.5-degree wind (**Figure 4-1a**), the south-going flow exiting Chi Kiang Street (R1) has been countered by the downwash wind near the corner between the Peninsula Square and Kowloon City Government Offices in the southwest of the Site.

4.5.8 Under the 45-degree to 90-degree winds (**Figures 4-1b to 4-1d**), the south-going flow exiting Chi Kiang Street (R1) has been blocked by the increased west-going flow along Bailey Street (R3 & R4).

Bailey Street (R3, R4 & Z3)

4.5.9 The spatially averaged VR of Bailey Street (From Sung On Street to the west) (R3) is expected to increase by 0.06 for both the annual and summer conditions. The spatially averaged VR of Bailey Street (From Chi Kiang Street to Sung Ping Street) (R4) is expected to increase by 0.05 and 0.06 for the annual and summer conditions respectively. The spatially

averaged VR of Bailey Street at the road center downstream of the Site (Z3) is expected to increase by 0.08 and 0.07 for the annual and summer conditions respectively.

4.5.10 Significant improvements of VR have been identified for the 67.5-degree to 180-degree winds (**Figures 4-1c to 4-1h**), while a reduction of VR has been identified for the 22.5-degree wind (**Figure 4-1a**).

4.5.11 Under the 22.5-degree wind (**Figure 4-1a**), a wake has been formed at the setback area of the Site, directly reducing the VRs at the nearby road section (R4). For the road section to the west (R3 & Z3), as stated in **Sections 4.4.5 & 4.4.6**, the location of the downwash wind has been shifted to an unfavourable location, thus the flow along the road section has been negatively affected.

4.5.12 Under the 67.5-degree to 135-degree winds (**Figures 4-1c to 4-1f**), the setback of the podium not only preserved the existing air pathway but also allowed the flow to go smoothly to the west. As a result, the VRs at the Bailey Street section in the west (R3 & Z3) have been improved. Under the 157.5-degree to 180-degree winds (**Figures 4-1g to 4-1h**), the downwash flow at the south façade of the Proposed Scheme significantly enhances the ventilation in the area.

Sung Ping Street (R5)

4.5.13 The spatially averaged VR of Sung Ping Street (R5) is expected to increase by 0.01 and 0.03 for the annual and summer conditions respectively. Significant improvements of VR have been identified for the 135-degree to 180-degree winds (**Figures 4-1f to 4-1h**), while a reduction of VR has been identified for the 22.5-degree wind (**Figure 4-1a**).

4.5.14 Under the 22.5-degree wind (**Figure 4-1a**), a wake has been formed at the setback area of the Site, directly reducing the VRs at the road section in the downstream area.

4.5.15 Under the 135-degree to 180-degree winds (**Figures 4-1f to 4-1h**), as reflected by the at-grade flow direction along the road section, the at-grade flow is unlikely to be a direct result of the prevailing wind direction. Instead, the south-going flow direction implies that the recirculation and downwash flow play an important role in the at-grade ventilation. In the Proposed Scheme, the downwash flow at the south façade of the development pushes the flow away from the Site, resulting in a stronger south-going wind along the road section.

Sung On Street (R6)

4.5.16 The spatially averaged VR of Sung On Street (R6) is expected to increase by 0.03 and 0.02 for the annual and summer conditions respectively. Significant improvements of VR have been identified for the 67.5-degree, 135-degree and 157.5-degree winds (**Figures 4-1c, 4-1f & 4-1g**).

4.5.17 Under 67.5-degree, 135-degree wind, and 157.5-degree winds, the flow pattern at the schools to the west of the Site has been significantly changed. The increase in VRs at the Sung On Street section (R6) near the school is likely a consequence of this.

4.6 Localised Spatial and Wind Directions Averaged VRs (Open Area)

4.6.1 In general, the spatially averaged VRs for the Open Areas are either improved or remain unchanged under both annual and summer conditions. The exception is the waterfront area of Hoi Sham Park, where a reduction of VRs is anticipated.

Hoi Sham Park (A1 & Z2)

4.6.2 The spatially averaged VR of Hoi Sham Park (A1) is expected to increase by 0.03 and 0.02 for the annual and summer conditions respectively. On the other hand, the spatially averaged VR of the waterfront area of Hoi Sham Park (Z2) is expected to reduce by 0.01 and 0.02 for the annual and summer conditions respectively.

4.6.3 It should be noted that if the Hoi Sham Park (A1) and its waterfront area (Z2) are considered as a whole, overall improvement in both annual and summer conditions is anticipated. Significant improvements of VR have been identified for the 112.5-degree to 157.5-degree winds (Figures 4-1f to 4-1g), while a reduction of VR has been identified for the 202.5-degree to 225-degree winds (**Figures 4-1i & 4-1j**). Reduction of VR is only anticipated when the waterfront area (Z2) is assessed separately.

4.6.4 Under 22.5-degree to 67.5-degree winds (**Figures 4-1a to 4-1c**), the VRs at the portion of Hoi Sham Park (A1) adjoining the Site have been enhanced by the downwash flow of the Proposed Scheme. Localised reduction of VRs is observed in the core region of the park, but the overall VRs show a net improvement.

4.6.5 Under 90-degree to 180-degree winds (**Figures 4-1d to 4-1h**), the VRs at the portion of Hoi Sham Park (A1) to the north-east of the Site have been enhanced by the downwash flow of the Proposed Scheme.

4.6.6 Under 202.5-degree wind (**Figure 4-1i**), a wake has been formed near the north façade of the Proposed Scheme, which reduces the VR at Hoi Sham Park (A1) and the waterfront area (Z2).

4.6.7 Under 225-degree wind (**Figure 4-1j**), the flow direction at the adjoining portion of Hoi Sham Park (A1) has been reversed under the Proposed Scheme, thus the VR at Hoi Sham Park (A1) and the waterfront area (Z2) have been negatively affected.

The schools in the west of the Site (A2, A3 & A4)

4.6.8 The spatially averaged VR of Chi Yun School & Po Leung Kuk Anita L. L. Chan (Centenary) School (A2) is expected to increase by 0.01 for both annual and summer conditions. The spatially averaged VR of The Church of Christ in China Kei To Secondary School (A3) is expected to increase by 0.02 and 0.01 for annual and summer conditions respectively. The spatially averaged VR of Po Leung Kuk Ngan Po Ling College (A4) is expected to increase by 0.02 and 0.03 for annual and summer conditions respectively.

4.6.9 The flow pattern on the schools' grounds is strongly affected by the Proposed Scheme, in a generally positive way.

4.6.10 The worst-case is identified under the 202.5-degree wind (**Figure 4-1i**). The north-going flow along Hung Hom Road (R2) is not only partially blocked by the podium, but also countered by the downwash flow due to the development of the Proposed Scheme. As a

result, the at-grade flow that can reach Chi Kiang Street (R1) has been reduced, and this has reduced the VRs at the schools (A2, A3 & A4).

Sung On Street Sitting-out Area (A5)

4.6.11 The spatially averaged VR of Sung On Street Sitting-out Area (A5) is expected to increase by 0.01 for the annual condition. The spatially averaged VR is expected to remain unchanged for the summer condition.

4.6.12 As a small-scale roadside facility, its VRs are more strongly related to the ventilation along the nearby street section. Therefore, under 67.5-degree and 157.5-degree winds (**Figures 4-1c & 4-1g**), the VRs of the Sitting-out Area (A5) have been increased together with the nearby road section (R6).

4.6.13 On the other hand, under 180-degree wind, the VR at the Sitting-out Area (A5) has been reduced together with the nearby road section (R6).

Open Space near South Boundary (Z1)

4.6.14 The setback area within the Site (Z1) is designed to preserve the existing air pathway. The spatially averaged VR of the setback area (Z1) is expected to increase by 0.11 and 0.07 for annual and summer conditions respectively.

4.6.15 The VR of the setback area is expected to increase for 45-degree to 247.5-degree winds. The increases in VRs are the result of both the guided air pathway and the downwash flow due to the Proposed Development.

4.6.16 Reduction of VR is expected for the 22.5-degree wind. Under the 22.5-degree wind, a wake has been formed to the south of the podium, reducing the at-grade flow of the setback area (Z1).

5 CONCLUSION

5.1.1 An Air Ventilation Assessment (AVA) has been conducted in accordance with the recommendations of "Feasibility Study for Establishment of Air Ventilation Assessment System – Final Report" by PlanD, and "Technical Circular No. 1/06 on Air Ventilation Assessments" by HPLB & ETWB to support the planning proposal to the Town Planning Board for consideration.

5.1.2 The pedestrian wind environment around the Site for the two scenarios, i.e. the Baseline Scheme (i.e. OZP Compliant Scheme) and the Proposed Schemes (the Testing Scheme), have been assessed by CFD using well proven CFD code. The model settings have been compared to similar studies to ensure the reliability of the model results.

5.1.3 The model results suggest that the averaged air ventilation performance of the Proposed Scheme is generally better than the Baseline Scheme under both annual and summer conditions.

5.1.4 Improvements compared to the Baseline Scheme can be observed in most focus areas. Justified the assessment results, the key reasons are as follows:

- Firstly, the podium setback from the southern boundary not only preserved the existing air pathway but also allowed the flow to go smoothly to the west;
- Secondly, being a high-rise development in a low-rise to mid-rise region near coastal area, the Proposed Development is expected to carry the flow from the high elevation down to the pedestrian level, improving the at-grade air ventilation in the nearby area;
- Thirdly, the block disposition and building separation also play a role to avoid certain locations to be negatively affected by the Proposed Development in general.

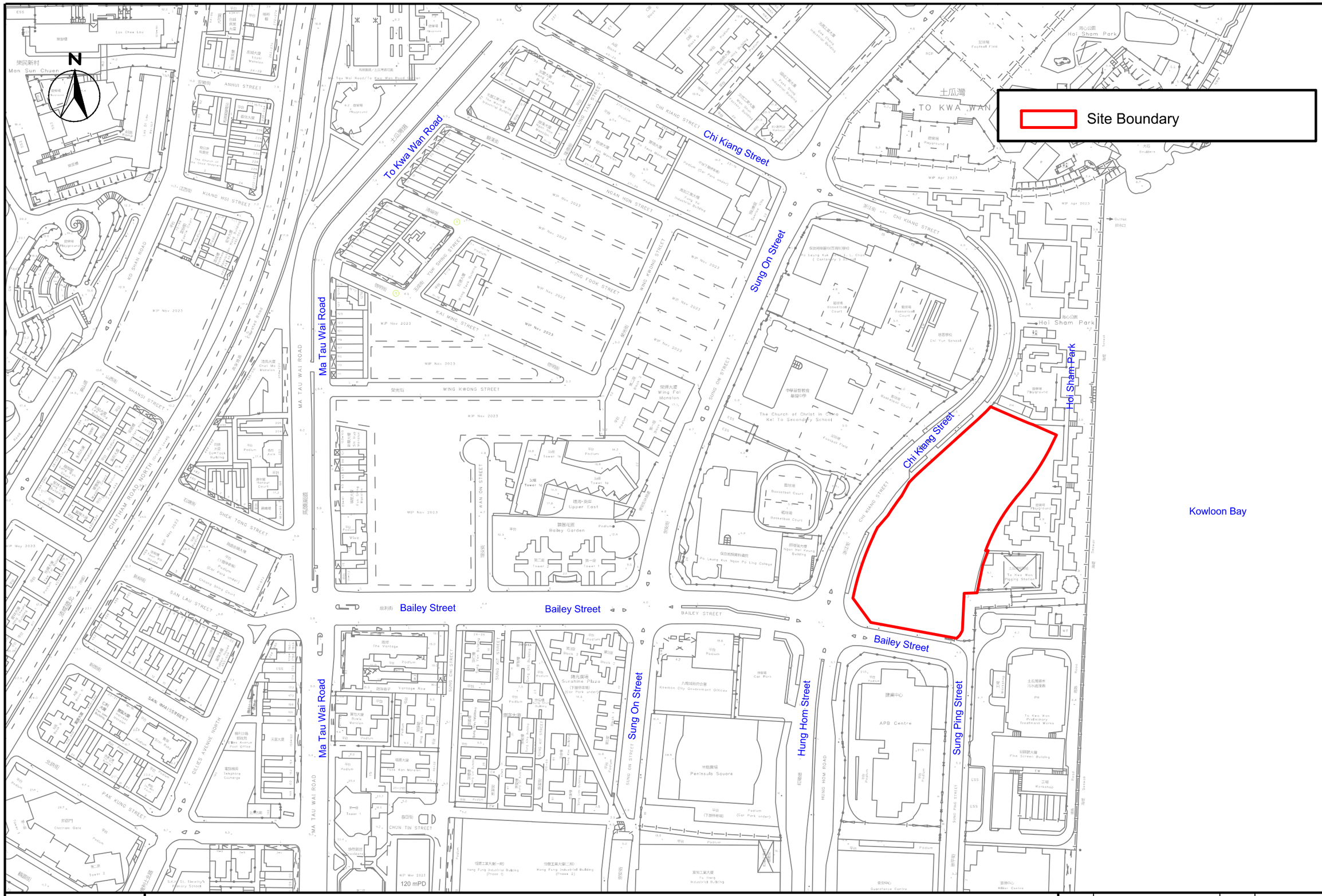
5.1.5 In specific wind directions, Hung Hom Road (R2) and the waterfront area of Hoi Sham Park (Z2) may experience a degradation in ventilation performance. However, the ventilation performance of Hung Hom Road (R2) is expected to remains unchanged during summer conditions, and overall improvement in Hoi Sham Park and its waterfront area (A1 & Z2) is anticipated. The improved and affected areas under Proposed Scheme is summarised in the following table.

Table 5-1 Summary of Improved and Affected Areas under the Testing Scheme

Wind Condition	Improved Area	Affected Area
Annual	All areas except the followings: • Hung Hom Road (R2), • Waterfront area of Hoi Sham Park (Z2)	• Hung Hom Road (R2), • Waterfront area of Hoi Sham Park (Z2)
Summer	All areas except the followings: • Hung Hom Road (R2), • Sung On Street Sitting-out Area (A5), • Waterfront area of Hoi Sham Park (Z2)	• Waterfront area of Hoi Sham Park (Z2)

5.1.6 In conclusion, no adverse air ventilation impact is anticipated for the Testing Scheme as compared to the OZP Compliant Scheme.

FIGURES

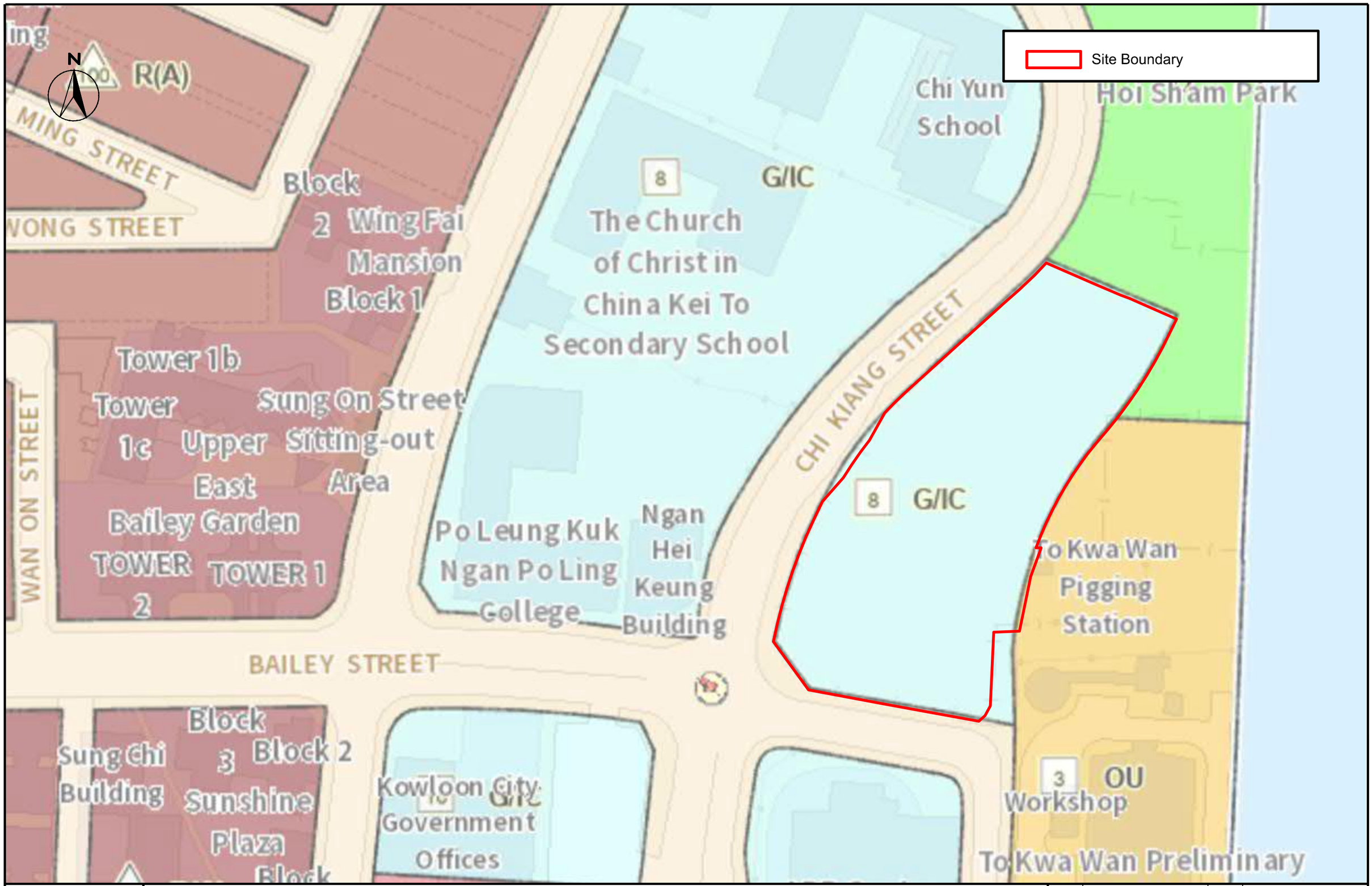


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Proposed Residential Development in Bailey Street, Kowloon City District

Location Plan

SCALE	1:2000 @ A3	DATE	Jun 2024
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JOB No.	IA21009\KCAA110	DRAWING No.	1-1
		REV	-

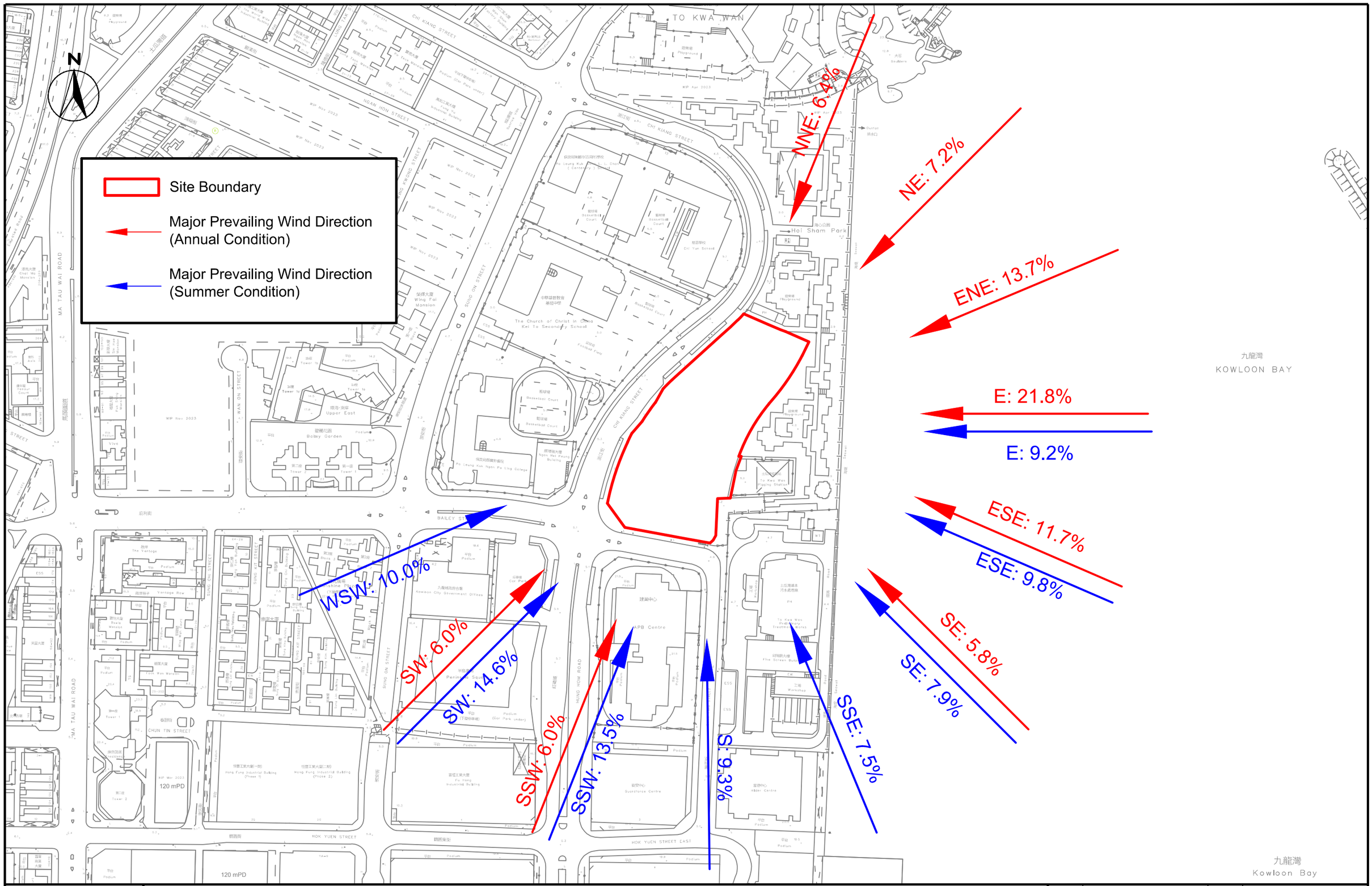


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Proposed Residential Development in Bailey Street, Kowloon City District

Outline Zoning Plan

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JOB No.	IA21009\KCAA110	DRAWING No. 1-2	REV -

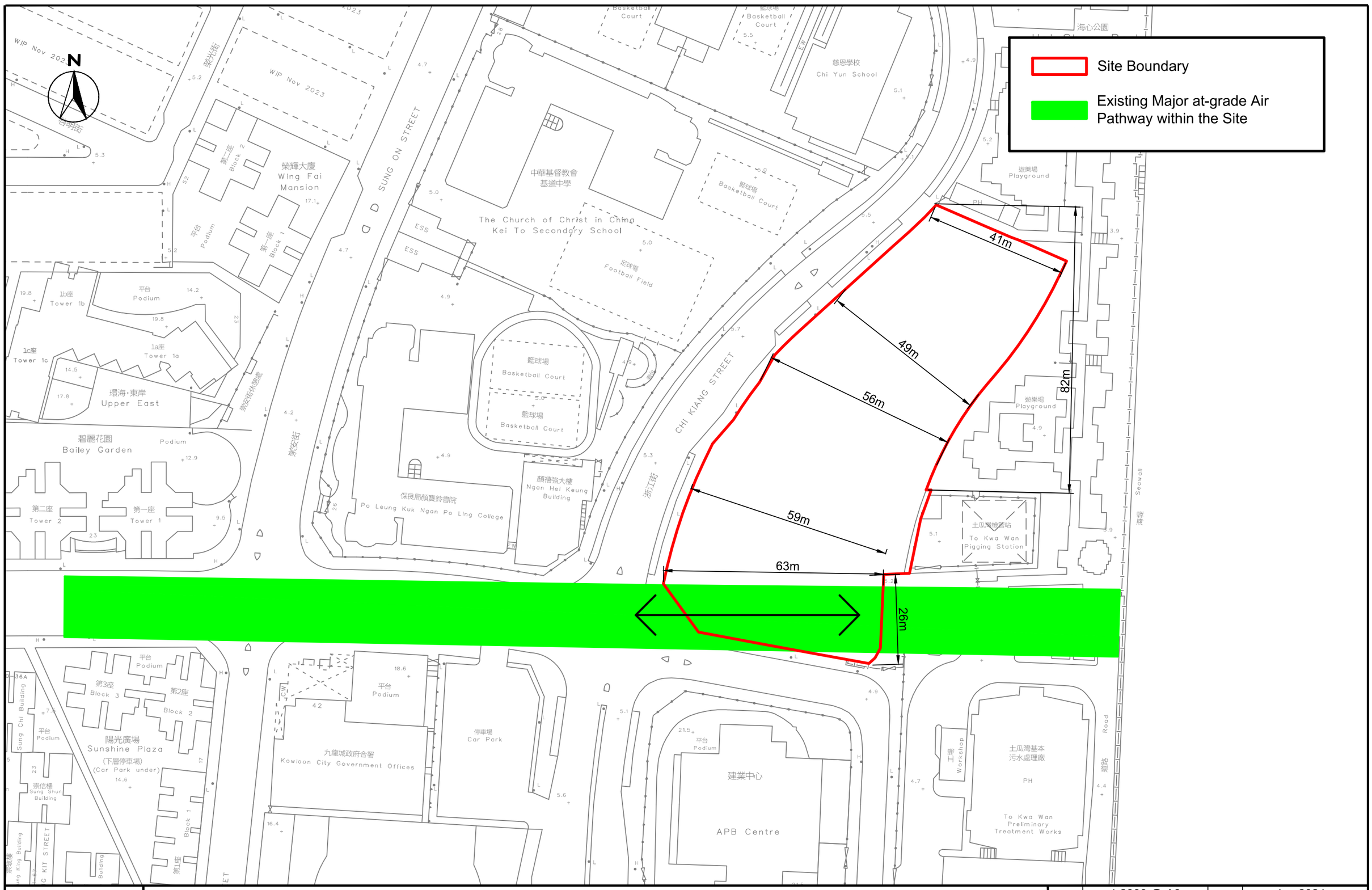


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Proposed Residential Development in Bailey Street, Kowloon City District

Major Prevailing Winds for the Site

SCALE	1:2000 @ A3	DATE	Jun 2024
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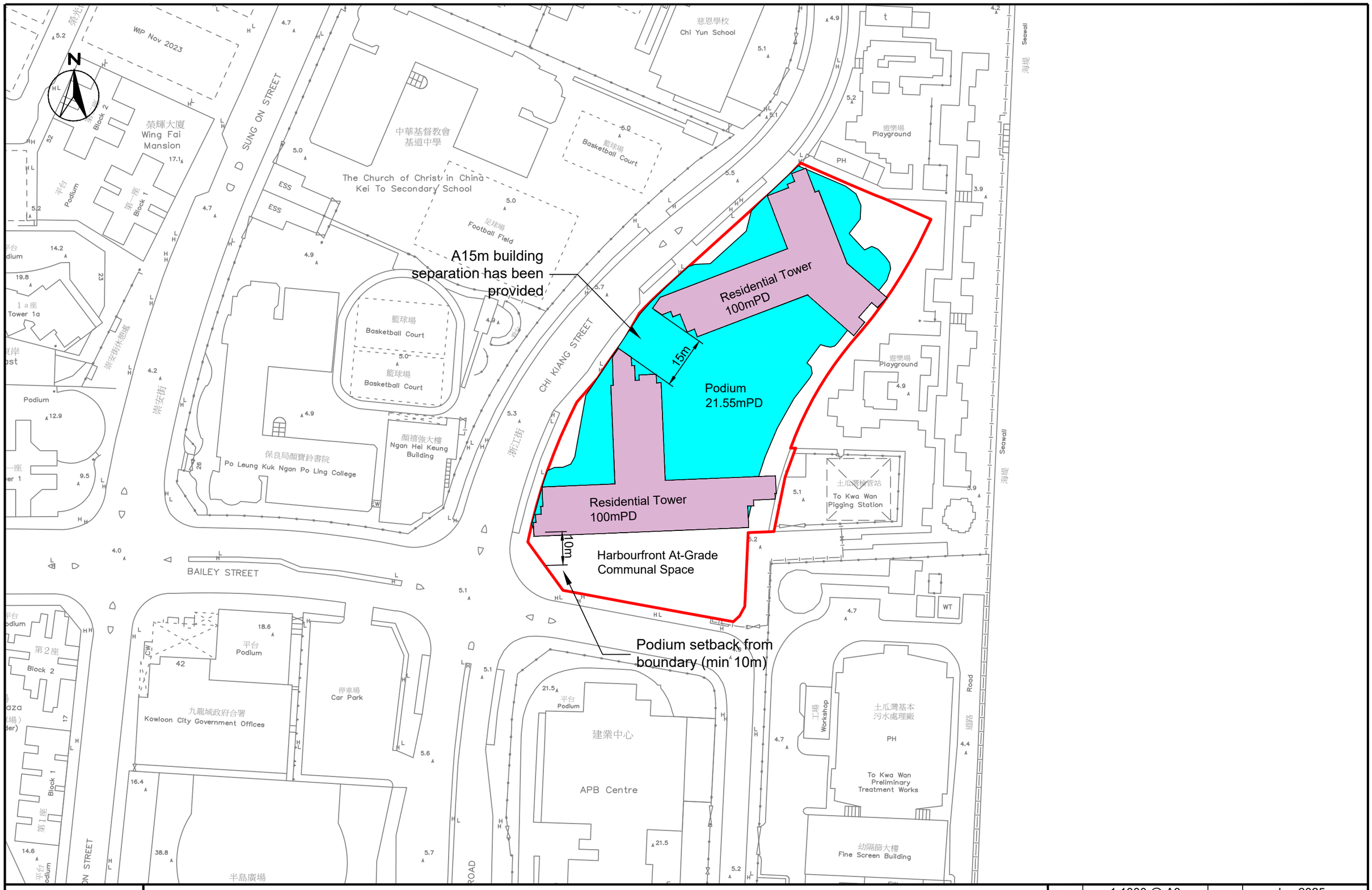


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Proposed Residential Development in Bailey Street, Kowloon City District

Existing Major at-grade Air Pathway within the Site

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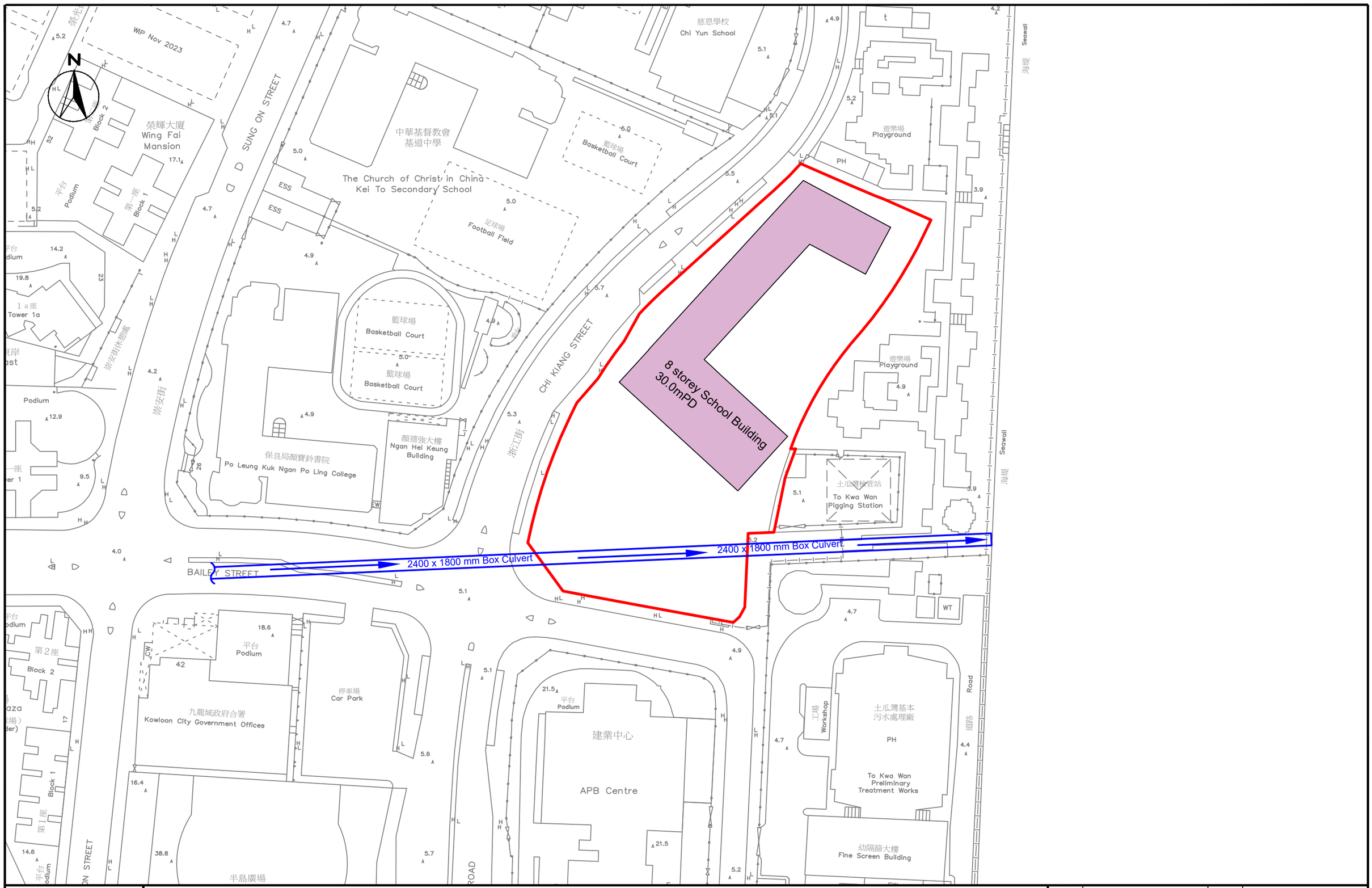


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Proposed Residential Development in Bailey Street, Kowloon City District

The Proposed Scheme (The Testing Scheme)

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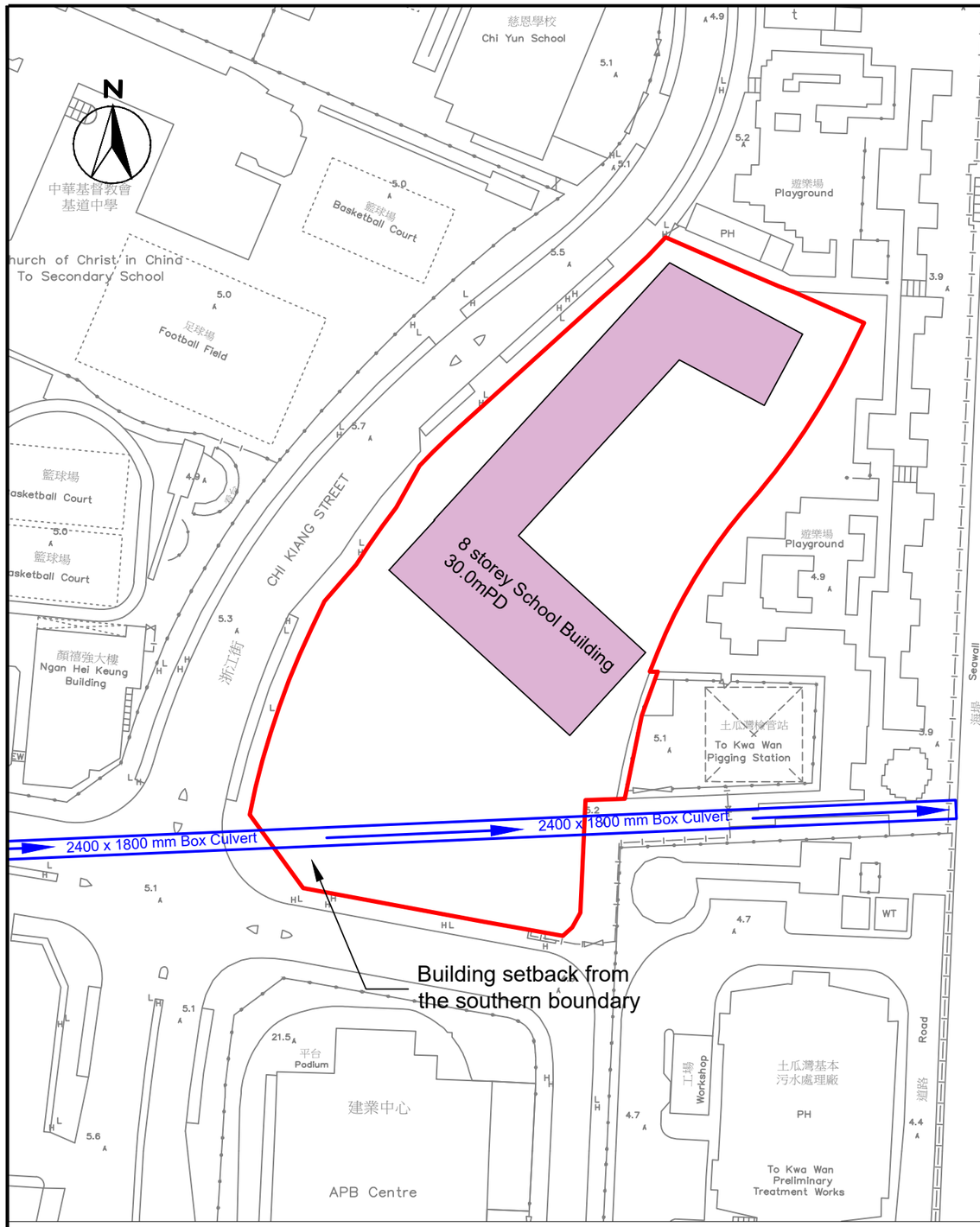


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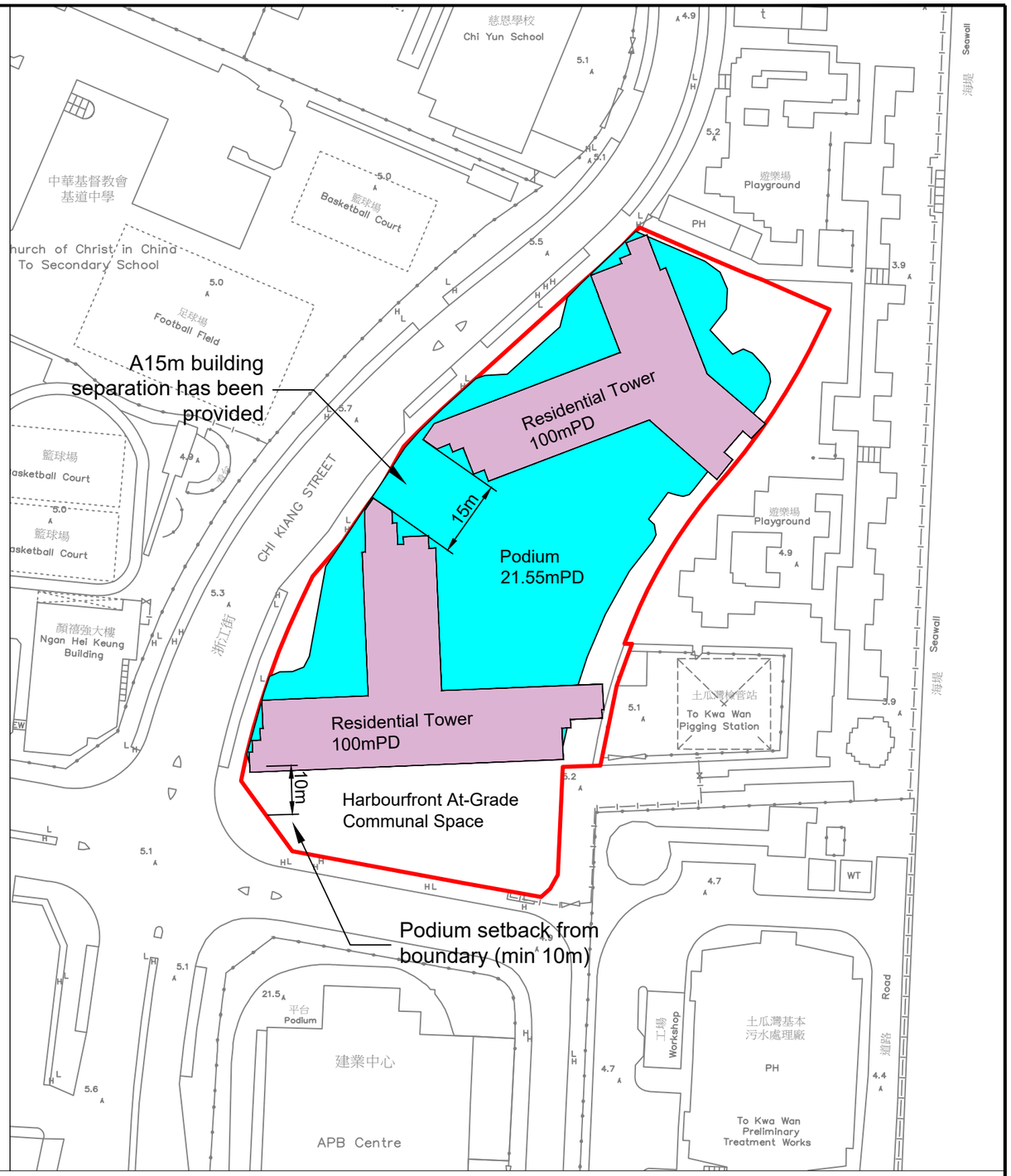
Proposed Residential Development in Bailey Street, Kowloon City District

The Baseline Scheme (OZP Compliant Scheme)

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		REV	-



Baseline Scheme



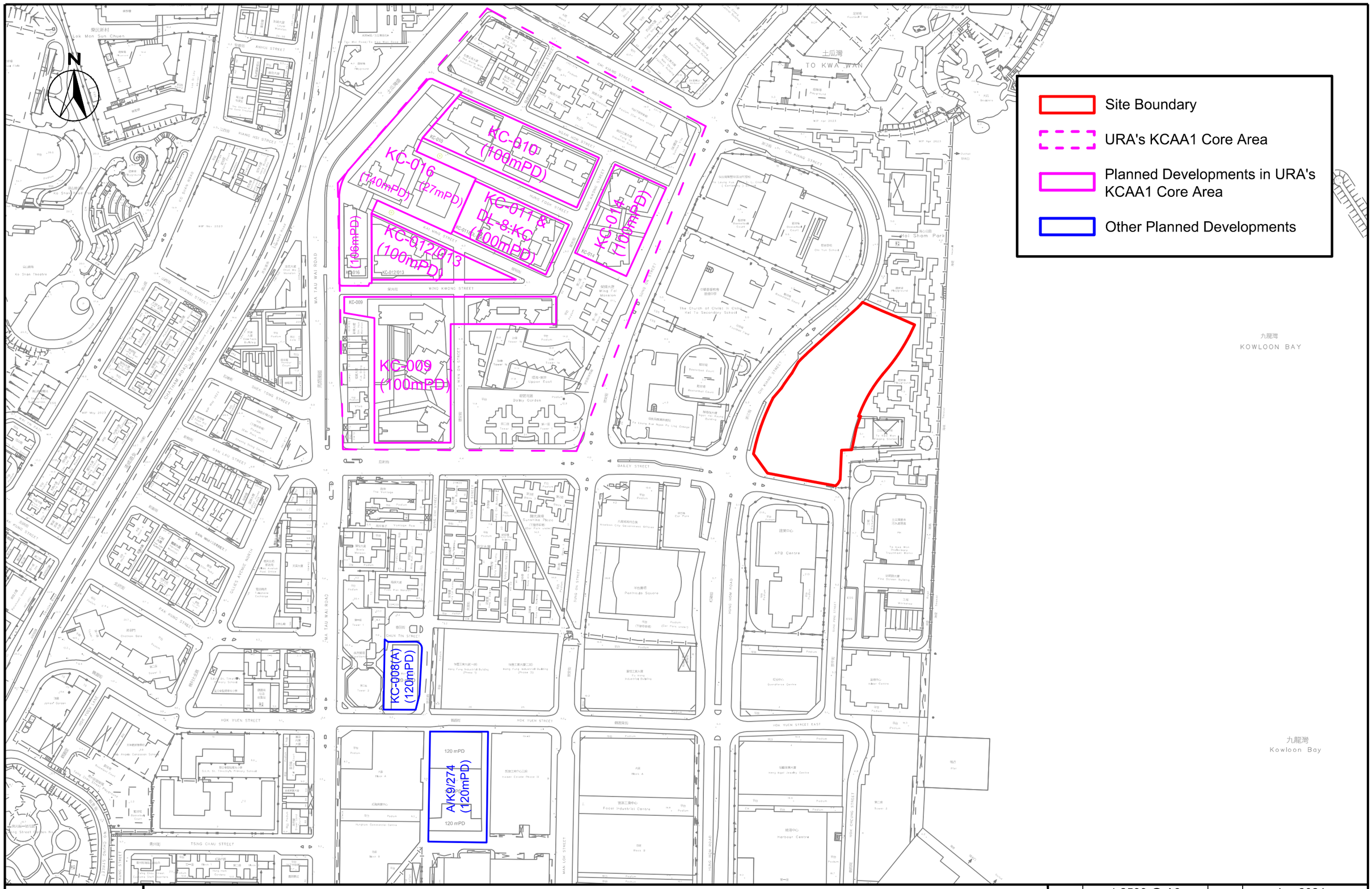
Proposed Scheme

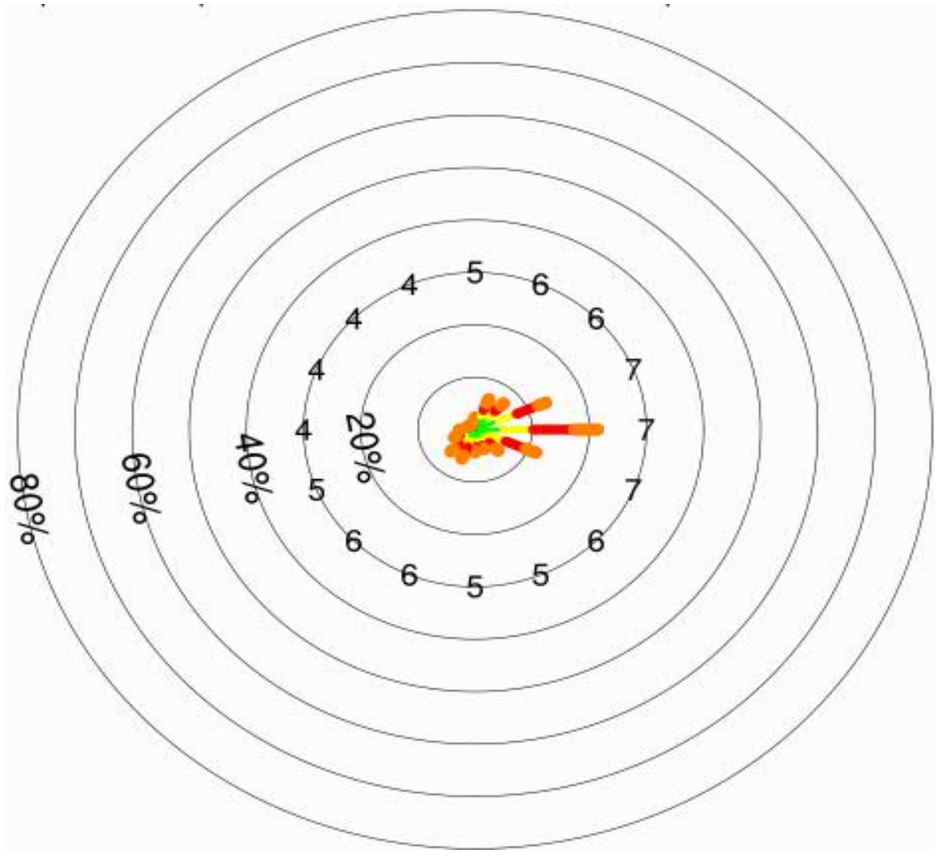
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Proposed Residential Development in Bailey Street, Kowloon City District

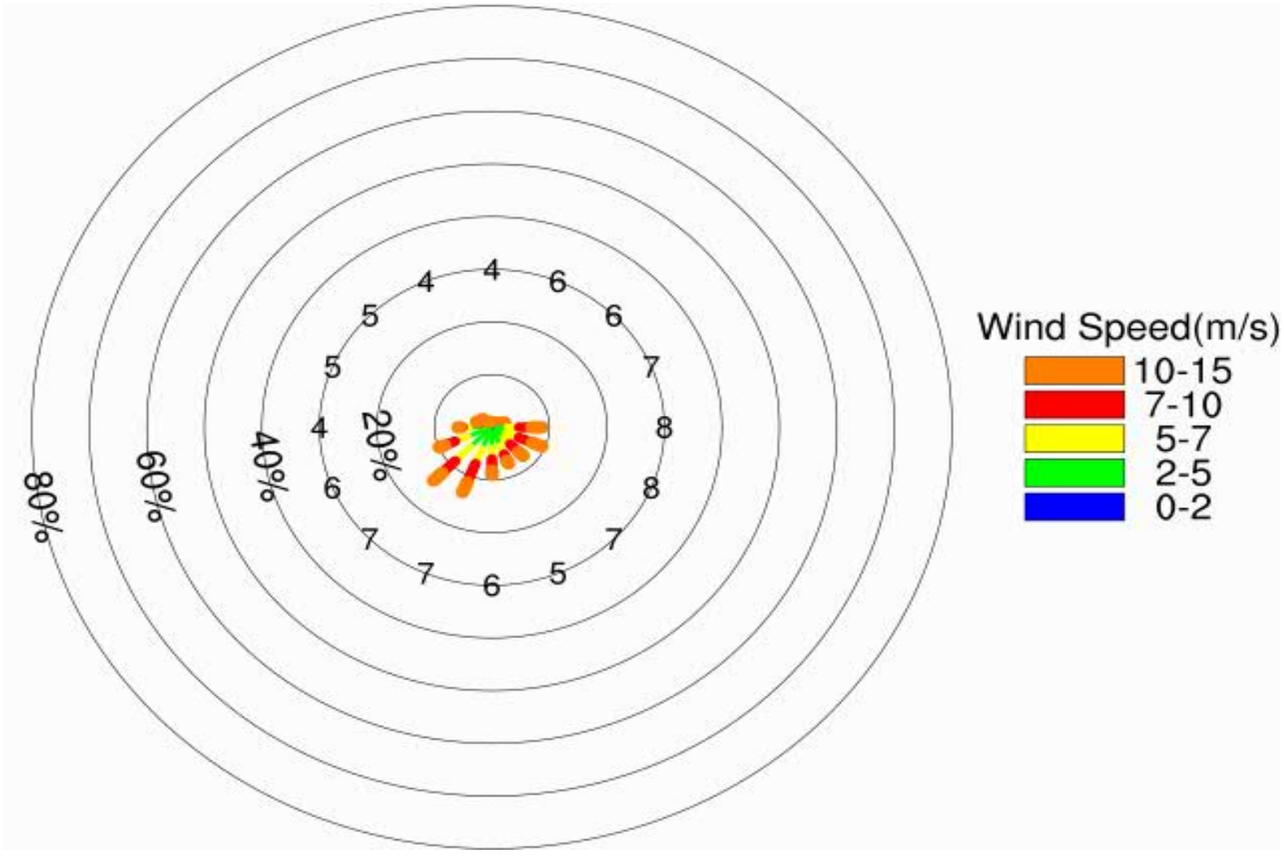
Comparison of the Schemes

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CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	1-7
		REV	-


N
Site Boundary
URA's KCAA1 Core Area
Planned Developments in URA's KCAA1 Core Area
Other Planned Developments
KC-010 (100mPD)
KC-016 (140mPD)
(27mPD)
KC-011 & DL 8-KC (100mPD)
KC-014 (100mPD)
(106mPD)
KC-012/013 (100mPD)
KC-009 (100mPD)
KC-008(A) (120mPD)
A/K9/274 (120mPD)
120 mPD
120 mPD
土瓜灣
TO KWA WAN
九龍灣
KOWLOON BAY
九龍灣
Kowloon Bay
CHI KIANG STREET
HUNG HOM STREET
WING KWONG STREET
WING ON STREET
BAILEY STREET
MA TAU WAI ROAD
HUNG HOM ROAD
HOK YUEN STREET
HOK YUEN STREET EAST
CHUN TIN STREET
TSING CHAU STREET
MAN LOK STREET
HOK CHEUNG STREET
Hoi Sham Park
Peninsula Square
APB Centre
Focal Industrial Centre
Harbour Centre
Kowloon City Government Offices
Sunshine Plaza
Hung Fung Industrial Building
Fu Hung Industrial Building
Hung Hom Industrial Centre
Hung Hom Jewelry Centre
Quantitative Centre
Motor Centre
Tai Kwok Wan Preliminary Treatment Works
Fine Screen Building
Workshop
Hoi Sham Park
Podium
Car Park
Tower 1
Tower 2
Tower 3
Block A
Block B
Upper Foot
Bailey Garden
Hyatt Regency Hotel
Kowloon Shangri-La
The Church of Christ in China Hall To Secondary School
Wing Tai Mansion
Kowloon City Government Offices
Kowloon Bay Government Offices
Kowloon Bay Government Offices Annex
Kowloon City Government Offices Annex
Kowloon Bay Government Offices Annex Building
Po Leung Kuk Nam Po Ling College
Po Leung Kuk Yeung Chak Hung College
Kowloon City Government Offices (Lecture Hall)
Kowloon City Government Offices (Car Park Under)
Kowloon City Government Offices (Car Park Upper)
Kowloon City Government Offices (Car Park Podium)
Kowloon City Government Offices (Car Park Roof)
Kowloon City Government Offices (Car Park Basement)
Kowloon City Government Offices (Car Park Ground)
Kowloon City Government Offices (Car Park Level 1)
Kowloon City Government Offices (Car Park Level 2)
Kowloon City Government Offices (Car Park Level 3)
Kowloon City Government Offices (Car Park Level 4)
Kowloon City Government Offices (Car Park Level 5)
Kowloon City Government Offices (Car Park Level



Annual



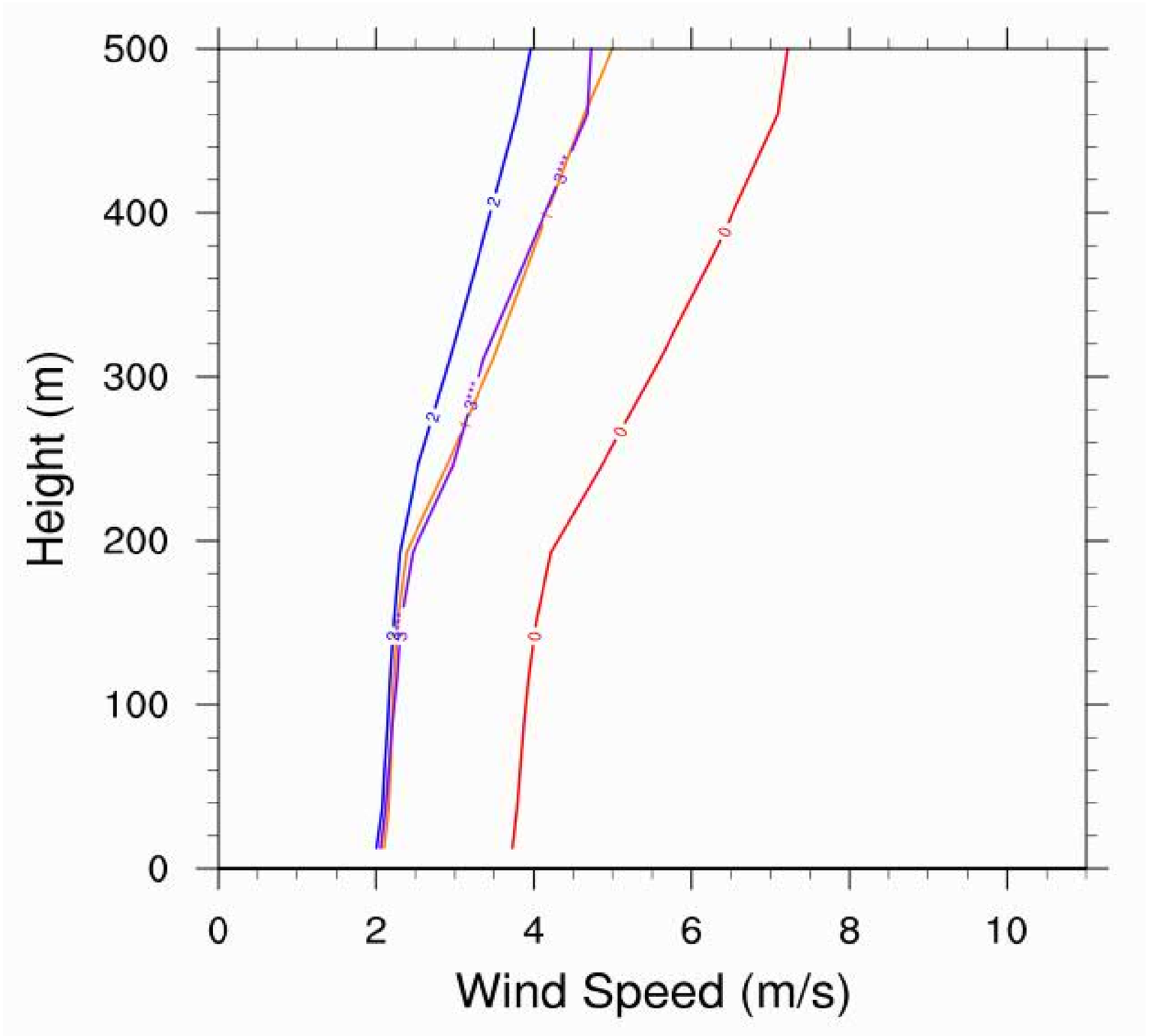
Summer

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Proposed Residential Development in Bailey Street, Kowloon City District

The Wind Roses at grid [084,041] from RAMS

SCALE	N.T.S.	DATE	Jun-24	
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JOB NO.	IA21009/KCAA110	FIGURE NO.	2-1a	REV.
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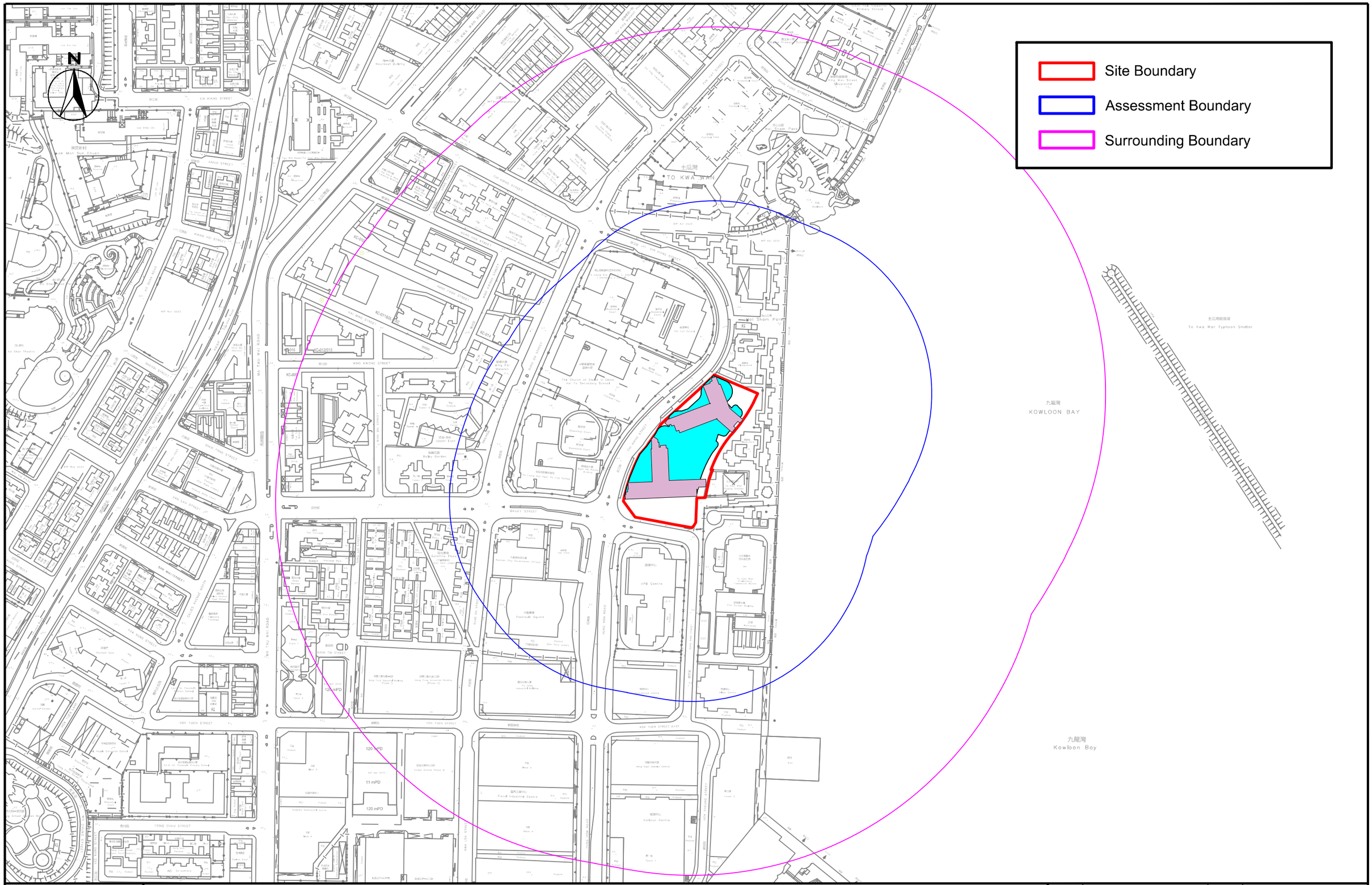


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Proposed Residential Development in Bailey Street, Kowloon City District

The Wind Profile at grid [084,041] from RAMS

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JOB NO.	IA21009\KCAA110	FIGURE NO.	2-1b	REV.
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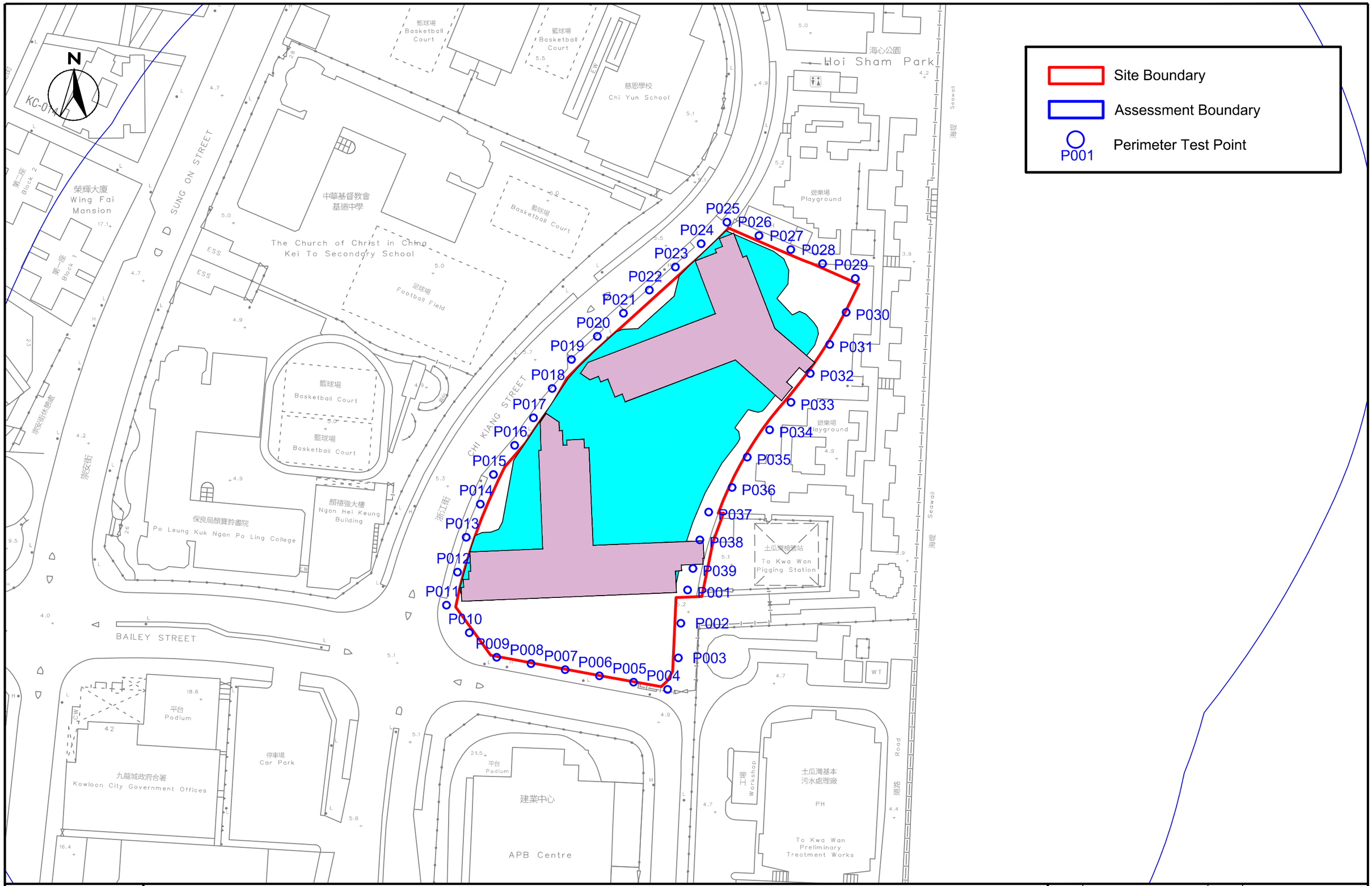


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Proposed Residential Development in Bailey Street, Kowloon City District

Assessment Area and Surrounding Area

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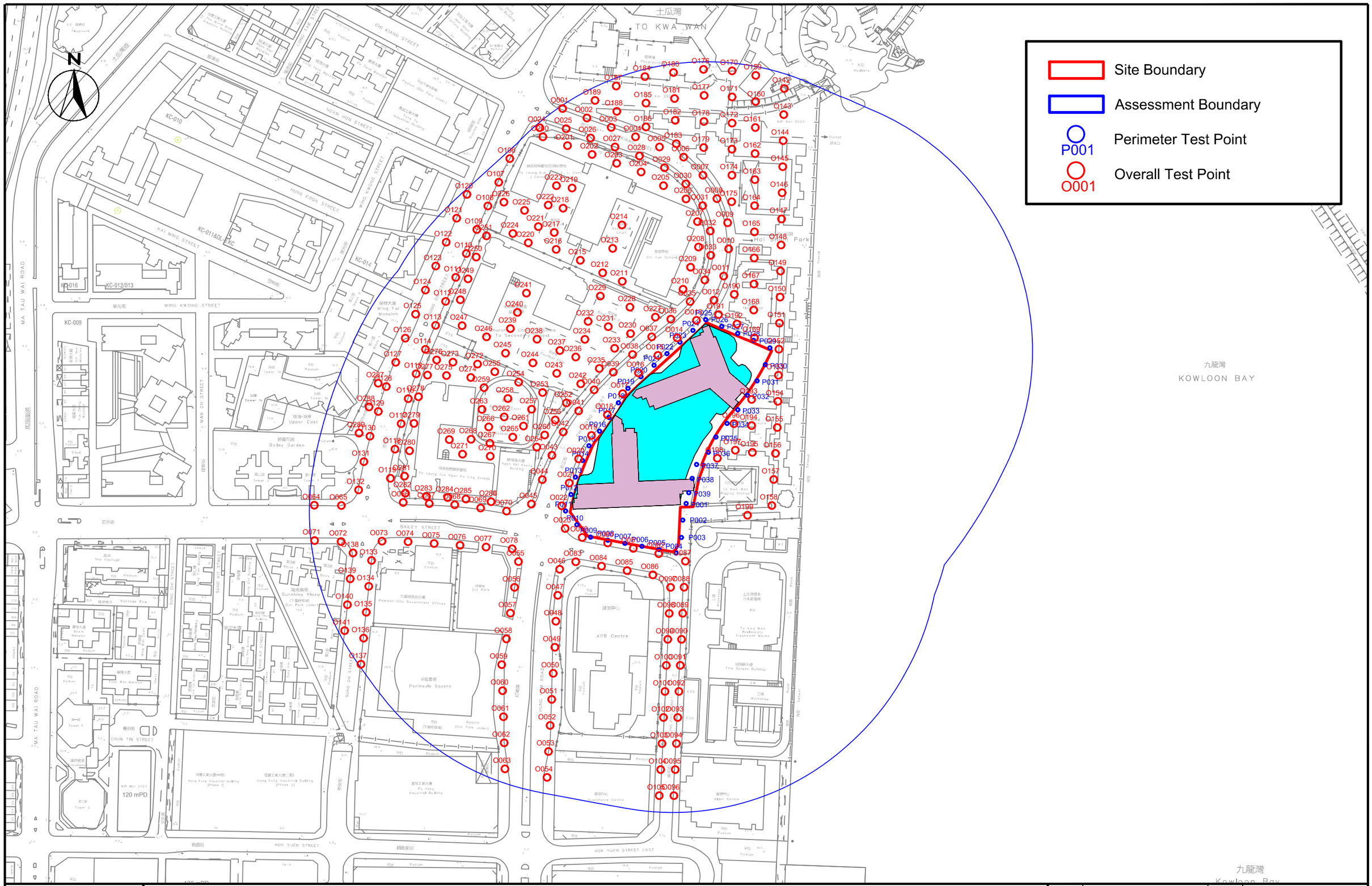


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Proposed Residential Development in Bailey Street, Kowloon City District

Perimeter Test Points

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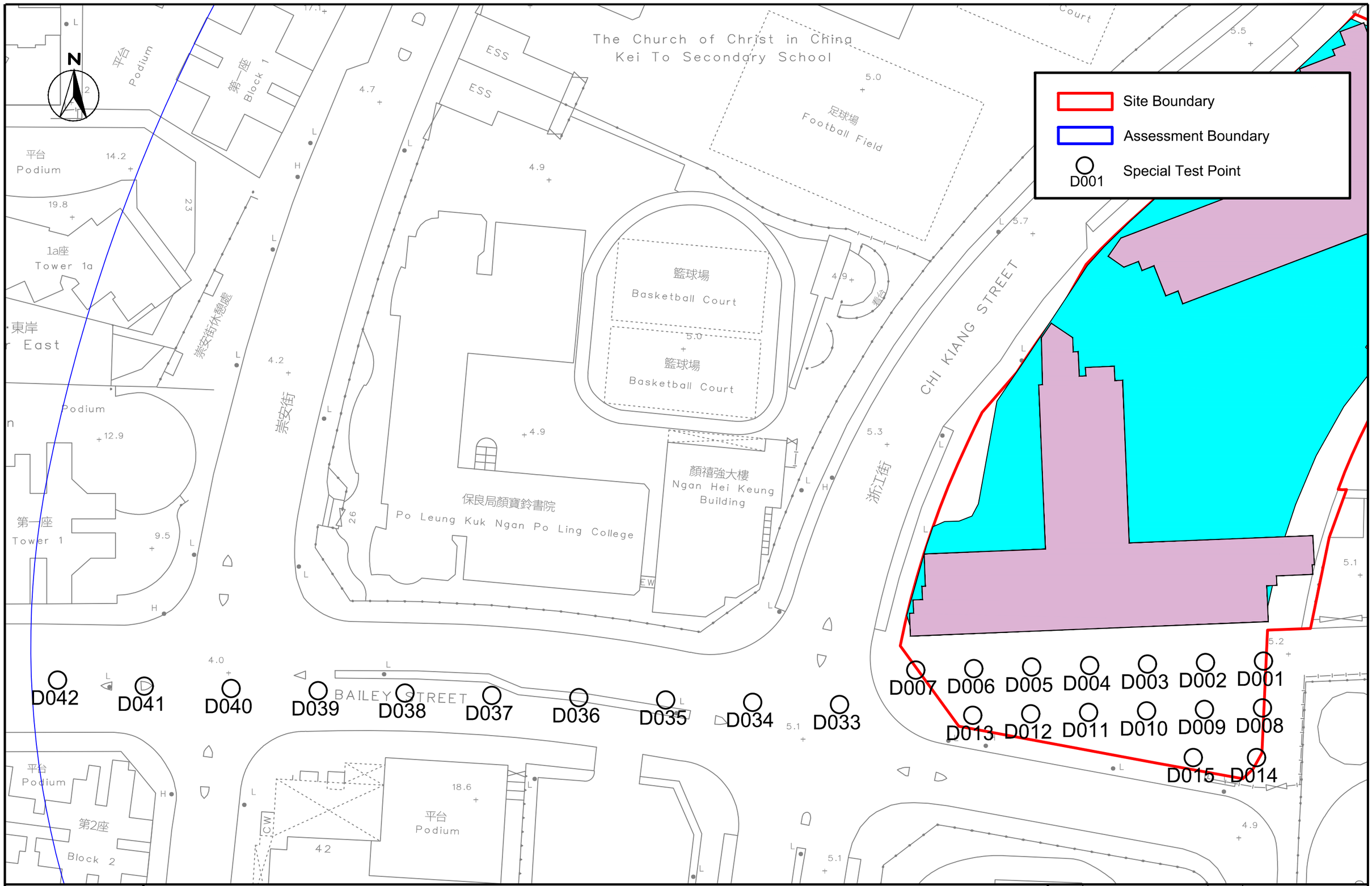


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Proposed Residential Development in Bailey Street, Kowloon City District

Overall Test Points

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JOB No.	IA21009\KCAA110	DRAWING No.	3-3
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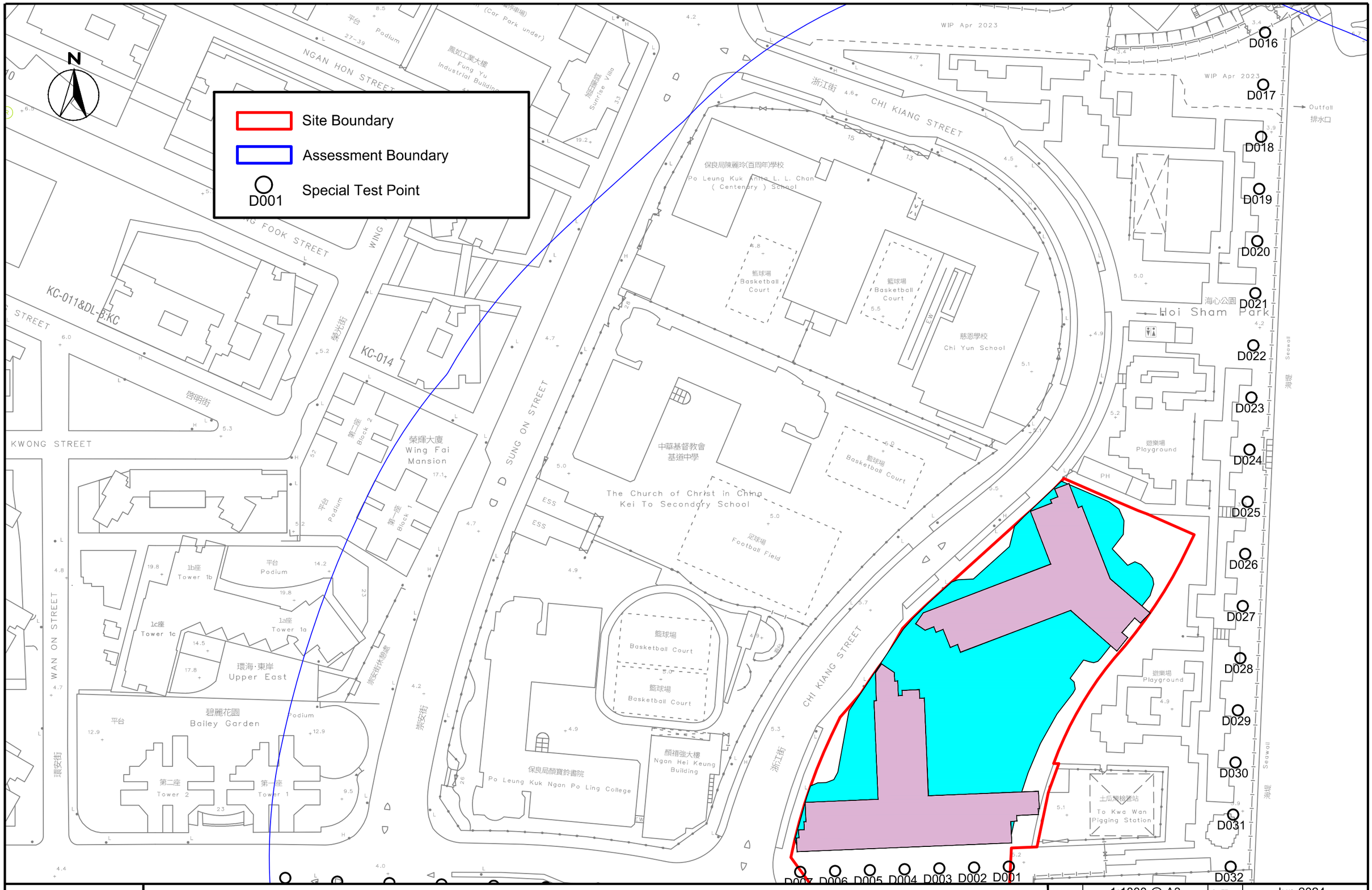


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Proposed Residential Development in Bailey Street, Kowloon City District

Special Test Points - 1

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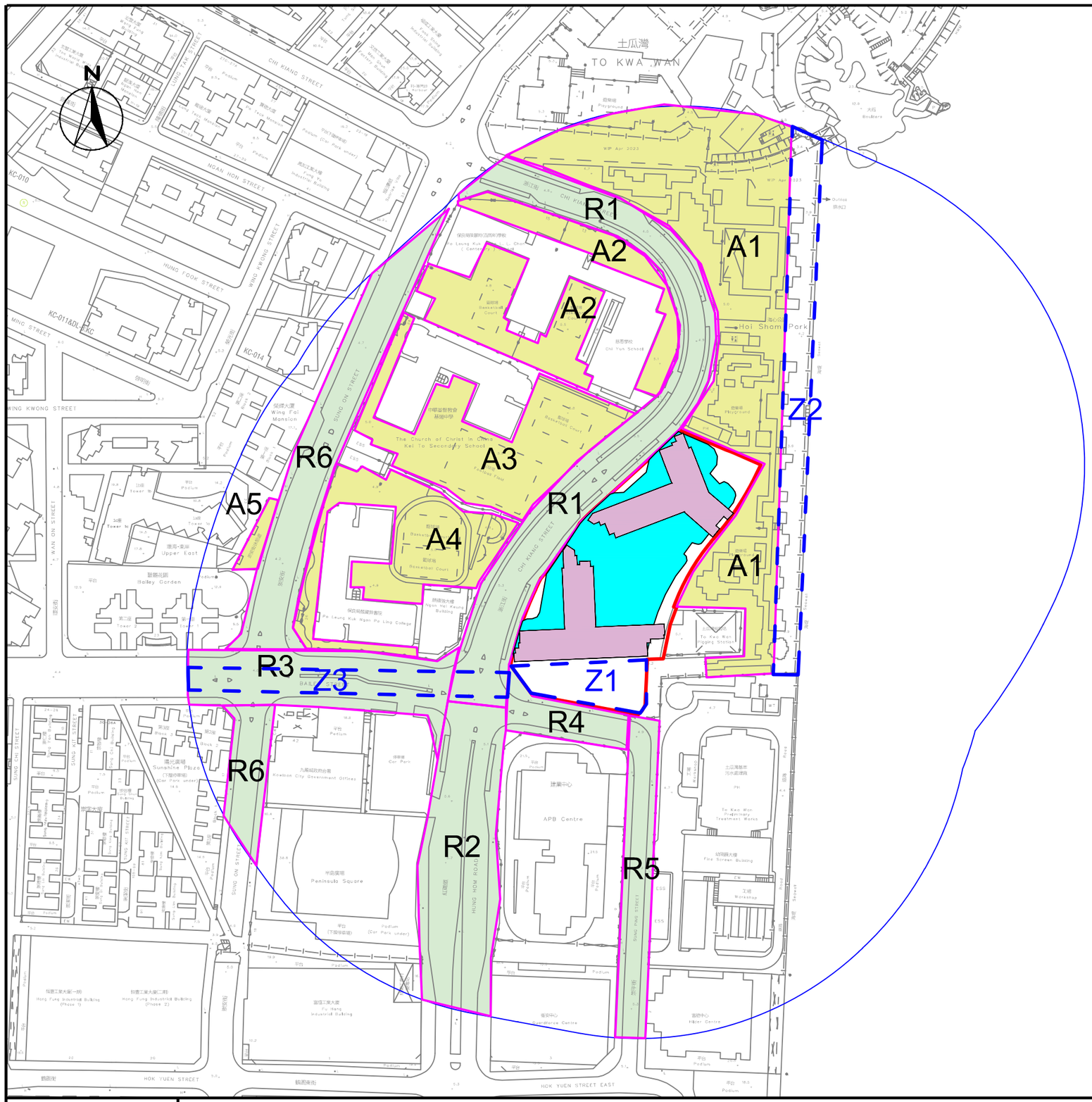


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Proposed Residential Development in Bailey Street, Kowloon City District

Special Test Points - 2

SCALE	1:1000 @ A3	DATE	Jun 2024
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	3-4b
		REV	-



- Site Boundary
- Assessment Boundary

Focus Area

- R1 -- Road Surface
- A1 -- Open Area
- Z1 -- Special Area

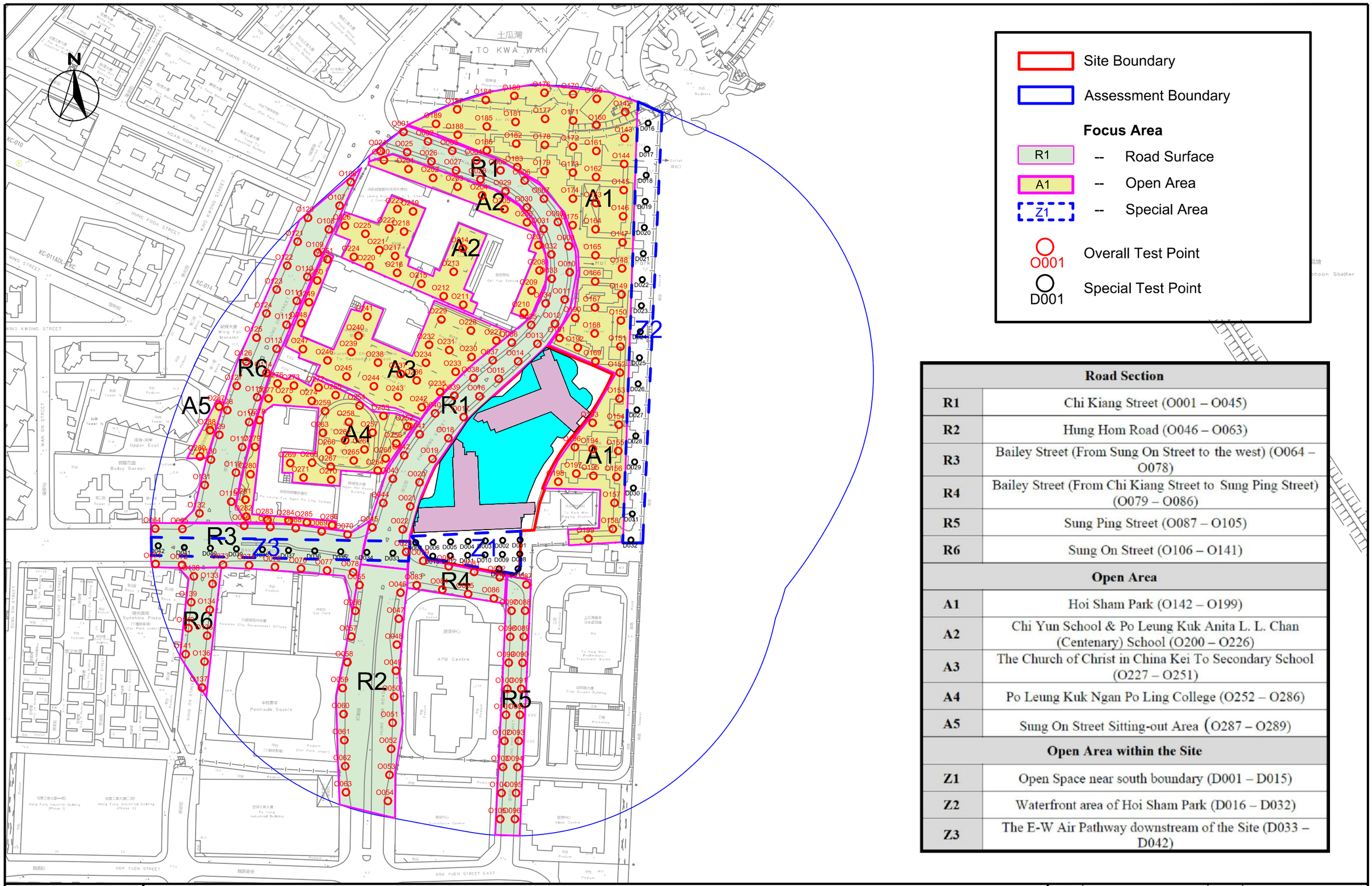
Road Section	
R1	Chi Kiang Street (O001 – O045)
R2	Hung Hom Road (O046 – O063)
R3	Bailey Street (From Sung On Street to the west) (O064 – O078)
R4	Bailey Street (From Chi Kiang Street to Sung Ping Street) (O079 – O086)
R5	Sung Ping Street (O087 – O105)
R6	Sung On Street (O106 – O141)
Open Area	
A1	Hoi Sham Park (O142 – O199)
A2	Chi Yun School & Po Leung Kuk Anita L. L. Chan (Centenary) School (O200 – O226)
A3	The Church of Christ in China Kei To Secondary School (O227 – O251)
A4	Po Leung Kuk Ngan Po Ling College (O252 – O286)
A5	Sung On Street Sitting-out Area (O287 – O289)
Open Area within the Site	
Z1	Open Space near south boundary (D001 – D015)
Z2	Waterfront area of Hoi Sham Park (D016 – D032)
Z3	The E-W Air Pathway downstream of the Site (D033 – D042)

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Proposed Residential Development in Bailey Street, Kowloon City District

Focus Areas

SCALE	1:1500 @ A3	DATE	Jun 2024
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JOB No.	IA21009\KCAA110	DRAWING No.	3-5a
		REV	-



Road Section	
R1	Chi Kiang Street (O001 – O045)
R2	Hung Hom Road (O046 – O063)
R3	Bailey Street (From Sung On Street to the west) (O064 – O078)
R4	Bailey Street (From Chi Kiang Street to Sung Ping Street) (O079 – O086)
R5	Sung Ping Street (O087 – O105)
R6	Sung On Street (O106 – O141)
Open Area	
A1	Hoi Sham Park (O142 – O199)
A2	Chi Yun School & Po Leung Kuk Anita L. L. Chan (Centenary) School (O200 – O226)
A3	The Church of Christ in China Kei To Secondary School (O227 – O251)
A4	Po Leung Kuk Ngan Po Ling College (O252 – O286)
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Open Area within the Site	
Z1	Open Space near south boundary (D001 – D015)
Z2	Waterfront area of Hoi Sham Park (D016 – D032)
Z3	The E-W Air Pathway downstream of the Site (D033 – D042)

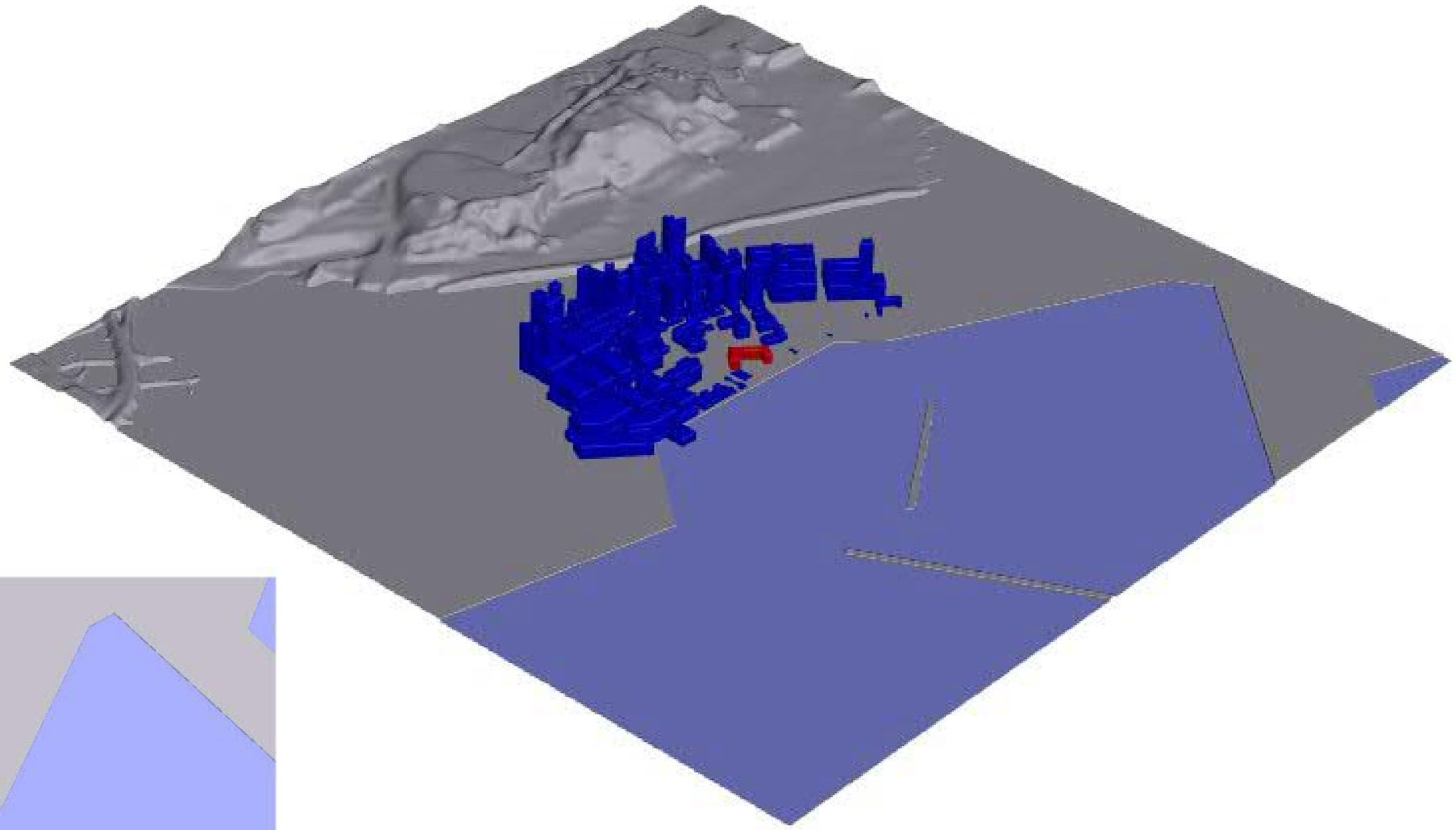
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Proposed Residential Development in Bailey Street, Kowloon City District

Focus Areas (With Test Points)

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JOB No.	IA21009\KCAA110	DRAWING No.	3-5b
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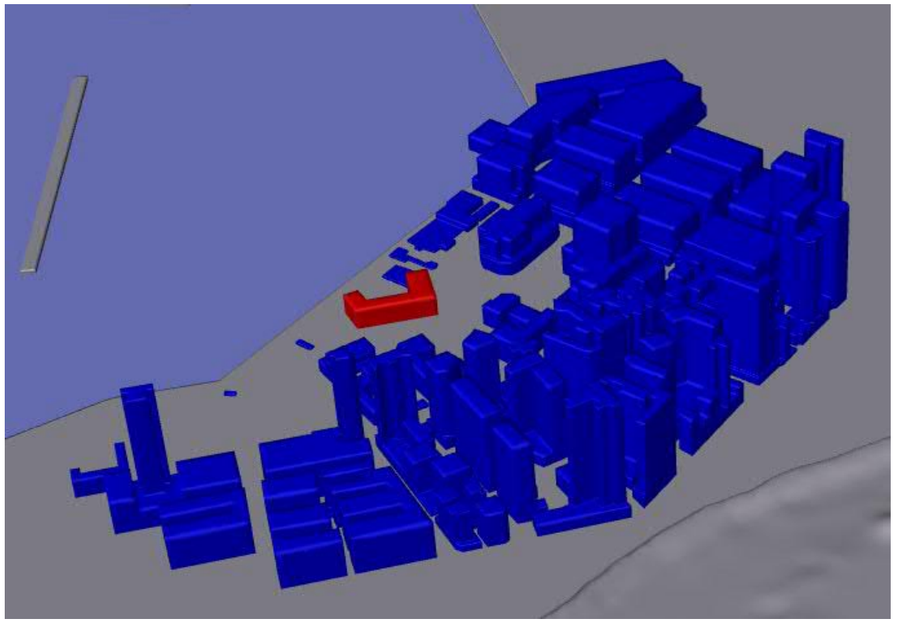


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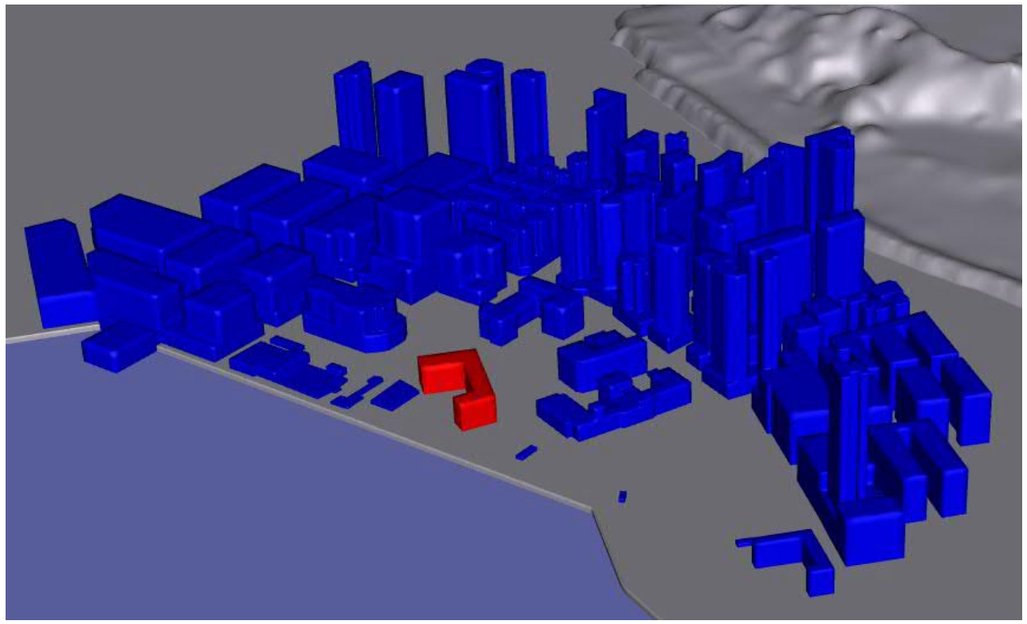
Proposed Residential Development in Bailey Street, Kowloon City District

Terrain Included in the CFD Models

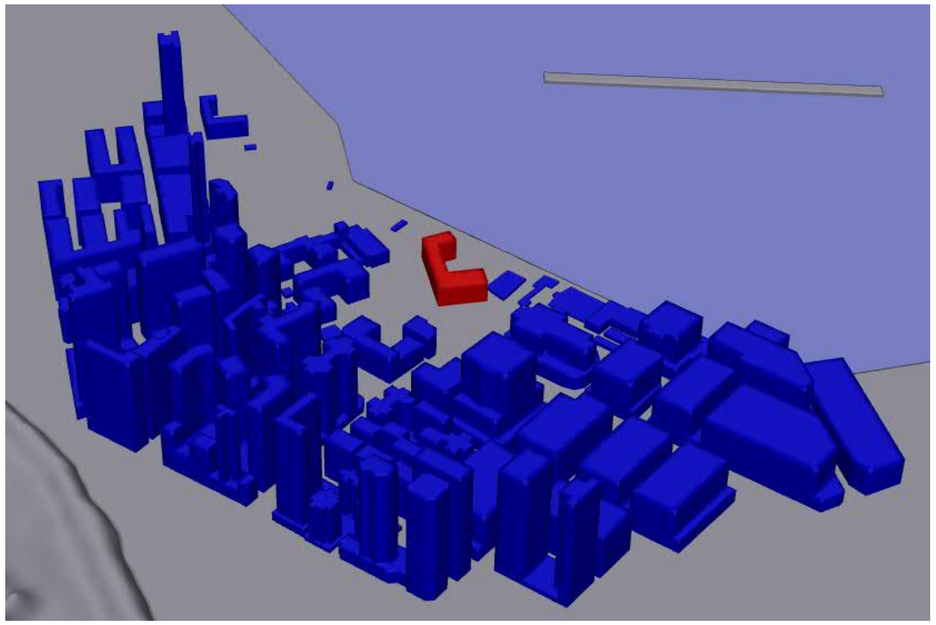
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JOB NO.	IA21009/KCAA110	FIGURE NO.	3-6a	REV.
				-



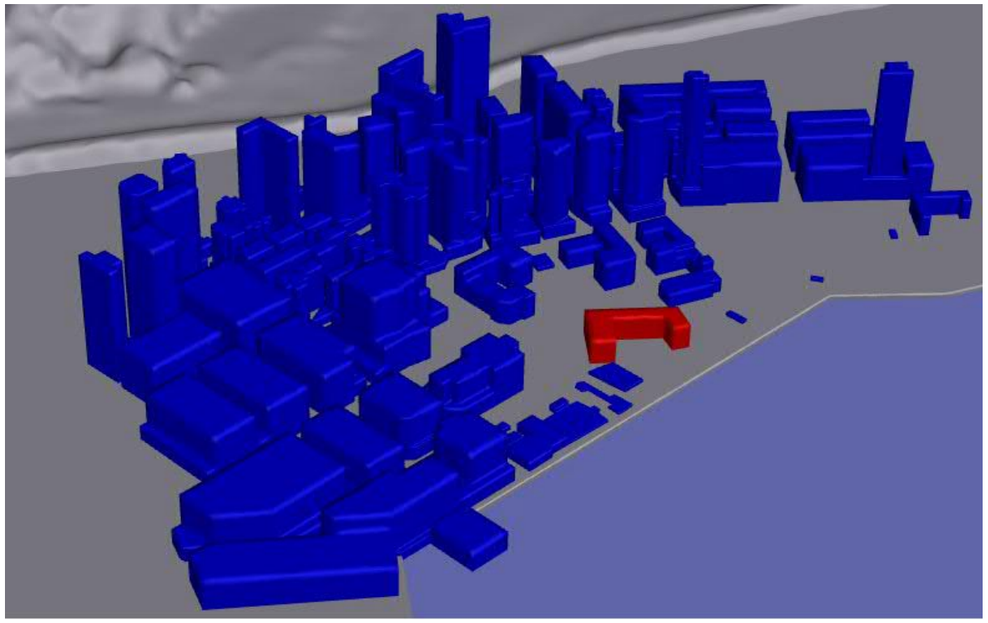
View from NW



View from NE



View from SW



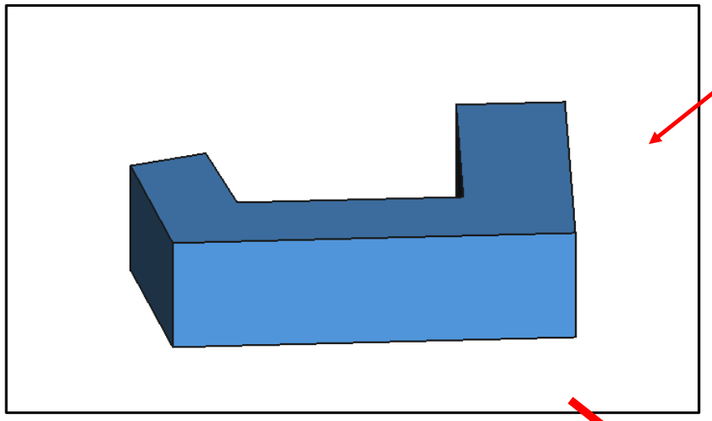
View from SE

CINOTECH 漢驊 consultants limited

Urban Renewal Authority Bailey Street Development

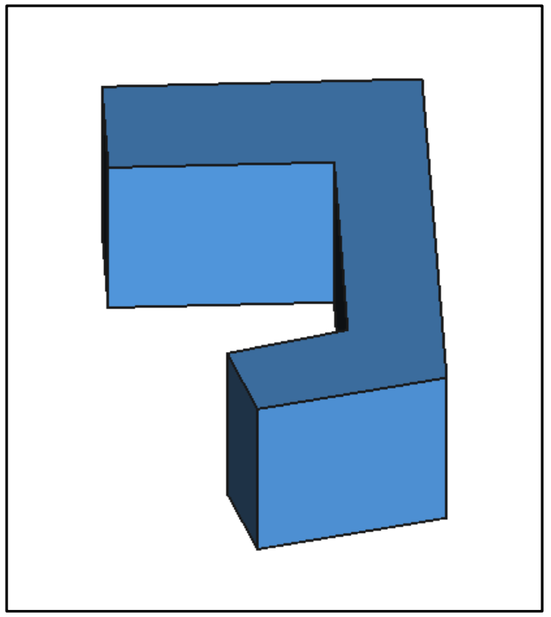
Buildings Included in the CFD Models (Baseline Scheme)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009/KCAA110	FIGURE NO.	3-6b	REV.
				-

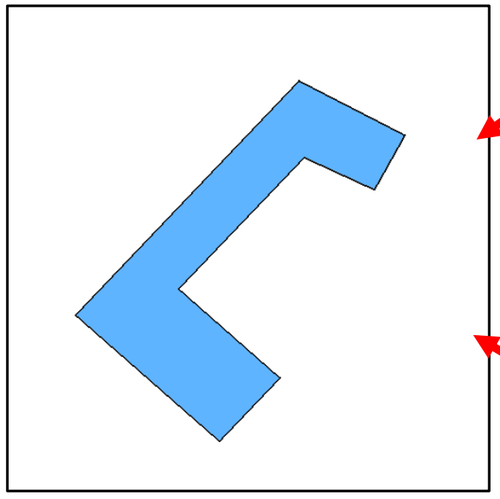


Low-rise structure of 30 mPD

View from NW

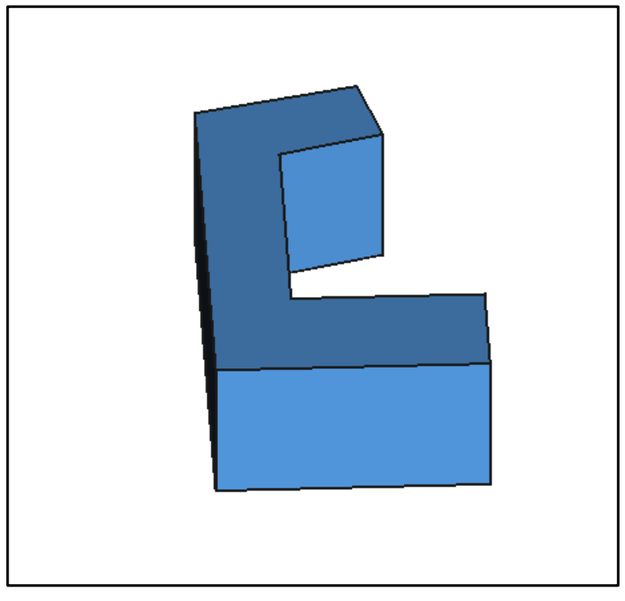


View from NE

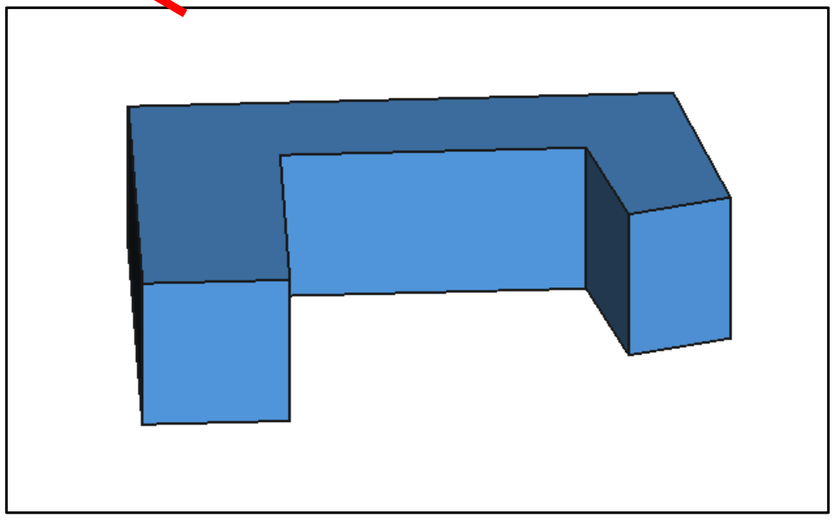


View from Top

View from SW



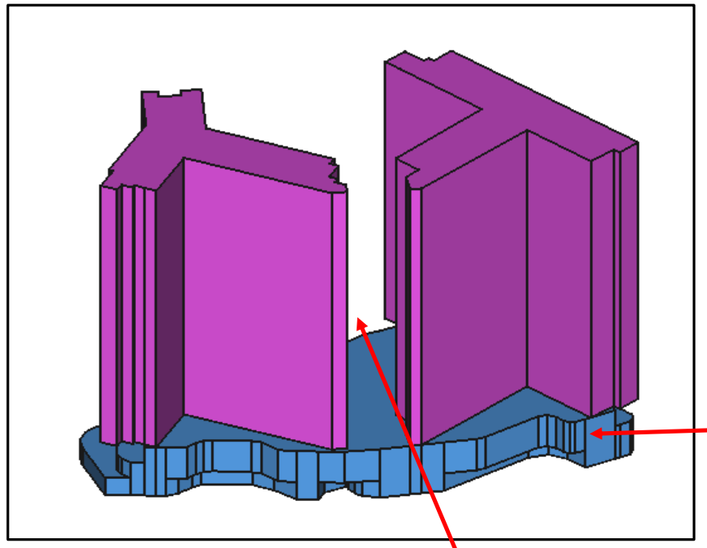
View from SE



Proposed Residential Development in Bailey Street, Kowloon City District

3D Model of the Baseline Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009/KCAA110	FIGURE NO.	3-7a	REV.
				-

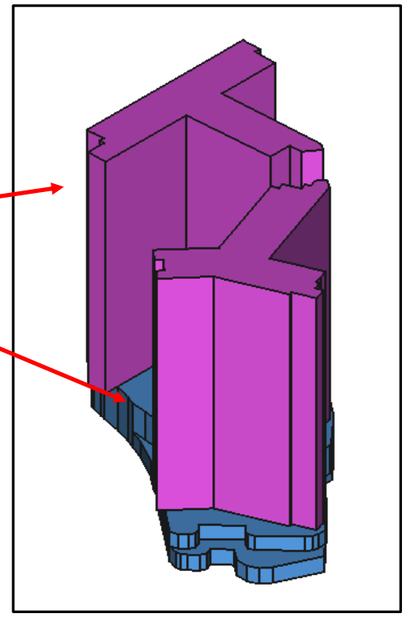


View from NW

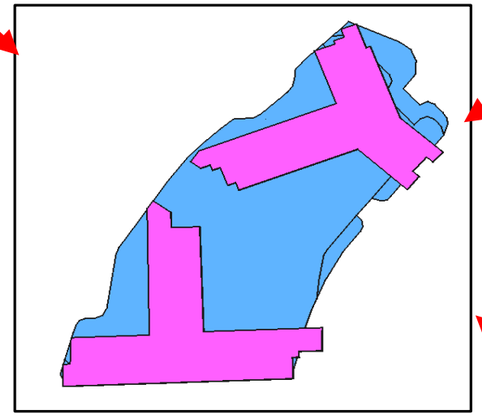
Residential Towers of 100 mPD

Podium of 21.55mPD

15m building separation

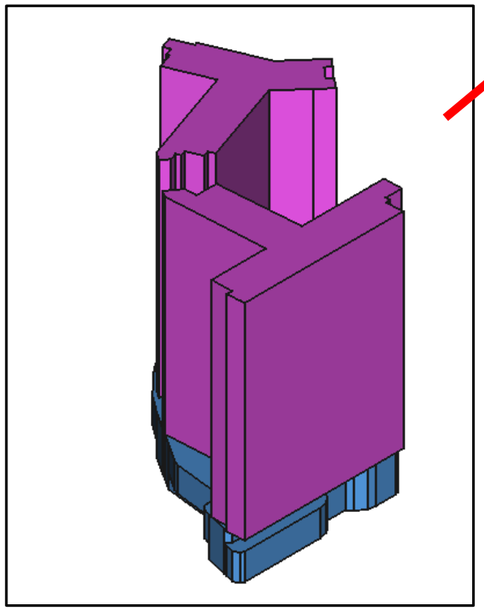


View from NE

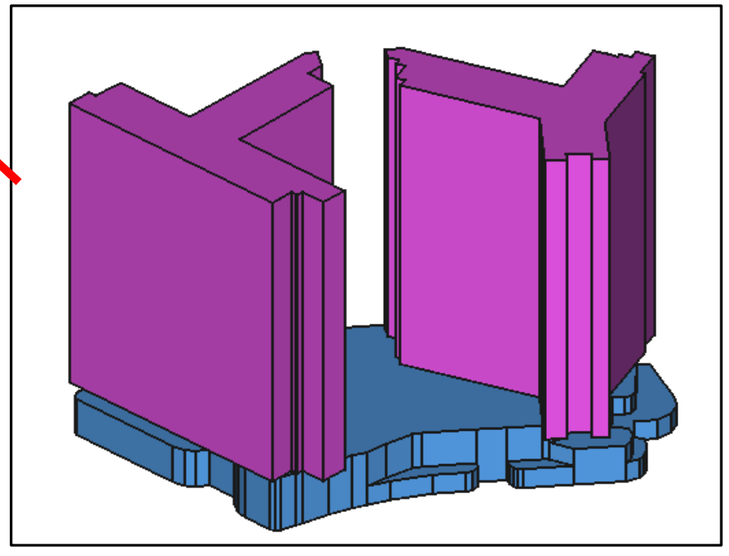


View from Top

View from SW



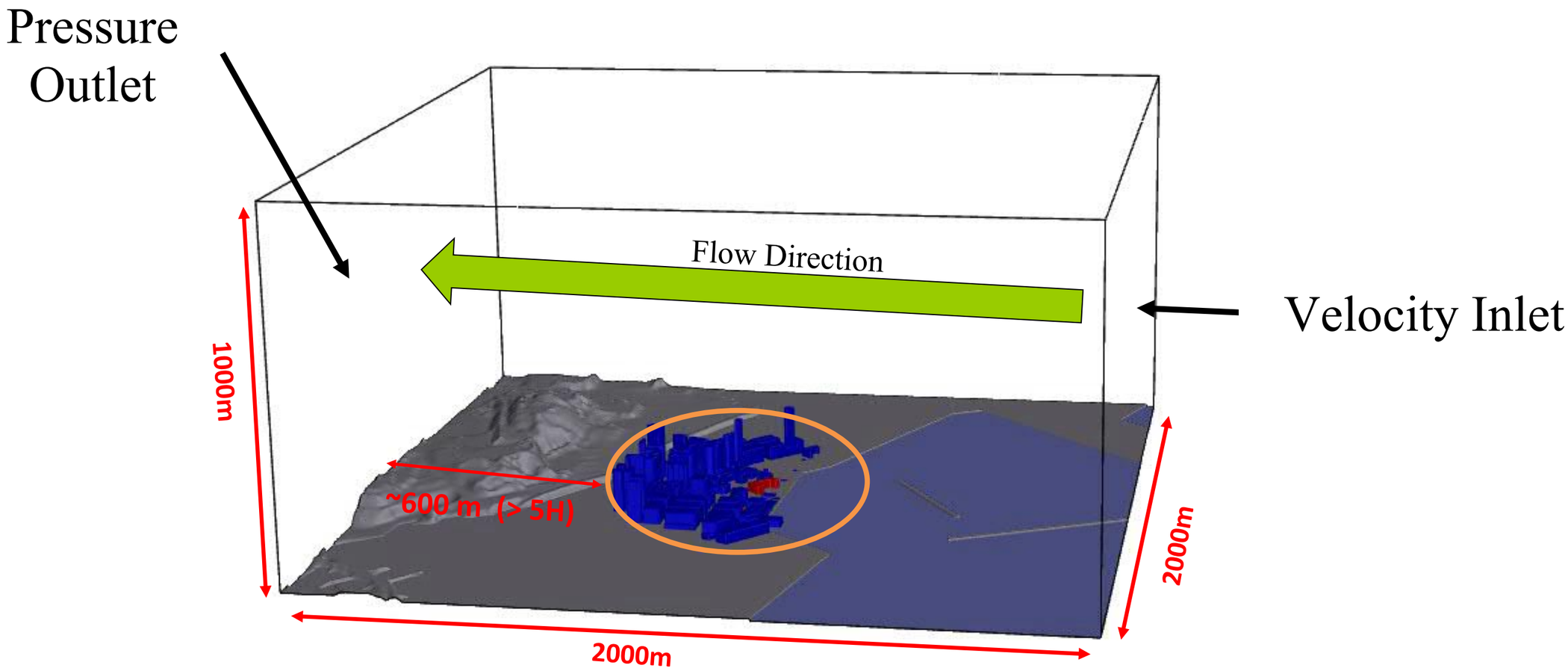
View from SE



Proposed Residential Development in Bailey Street, Kowloon City District

3D Model of the Proposed Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009/KCAA110	FIGURE NO.	3-7b	REV.
				-



Ground & Building Walls: Solid Wall

* Setting for 90 deg Wind is adopted in this example

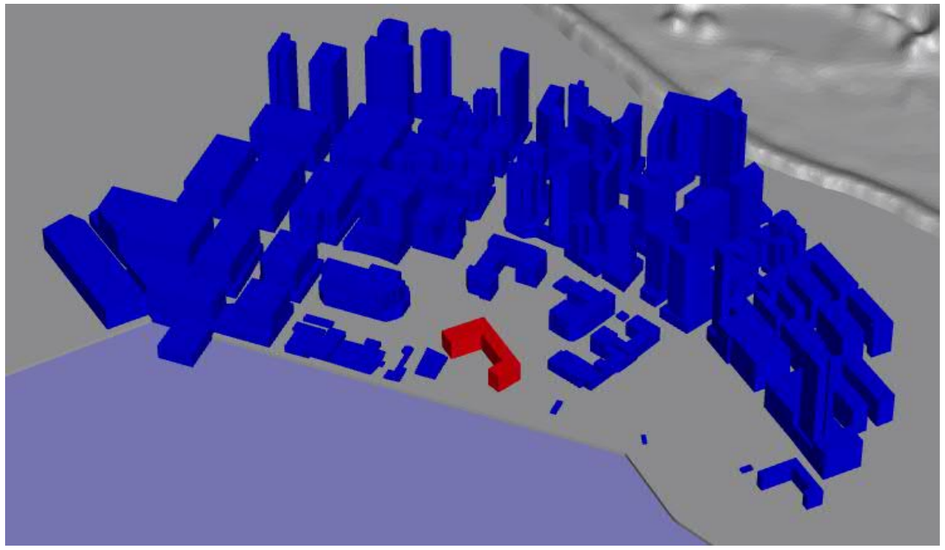
CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

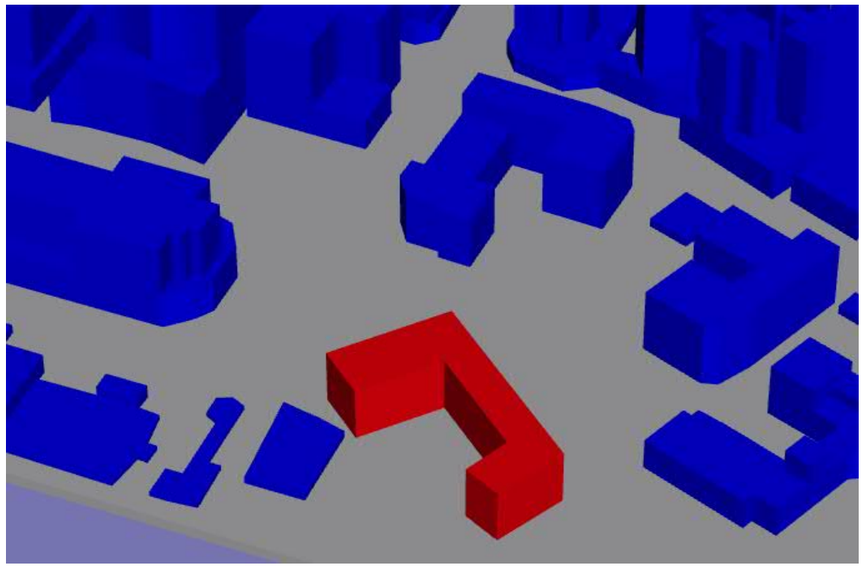
Computational Domain

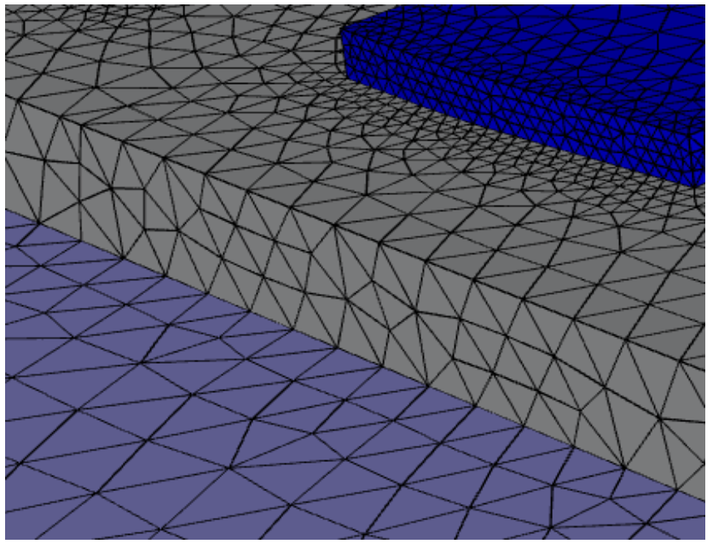
SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009/KCAA110	FIGURE NO.	3-8	REV.
				-

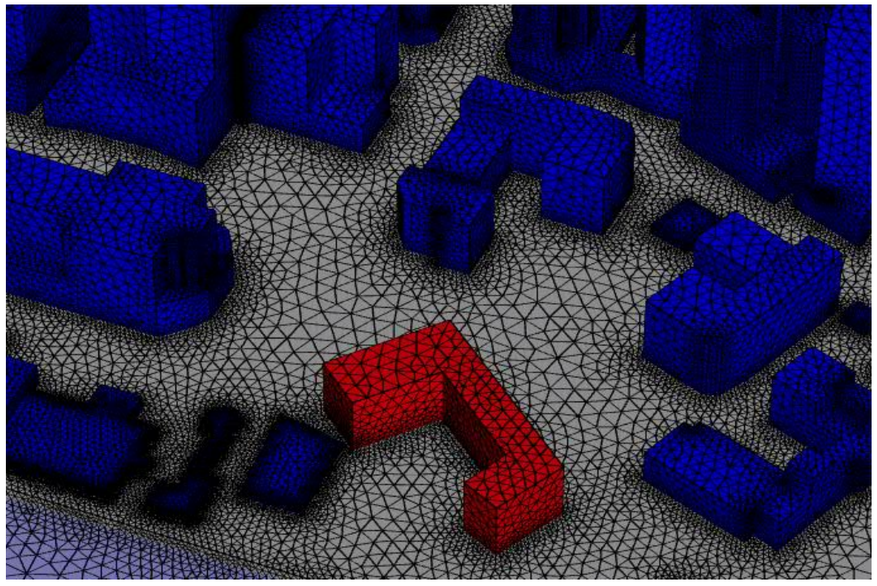
All building in the Baseline Scheme



Near Baseline Building







2D Meshes of the Coastline

2D Meshes Near Baseline Building

Screen capurted from the Baseline Scheme

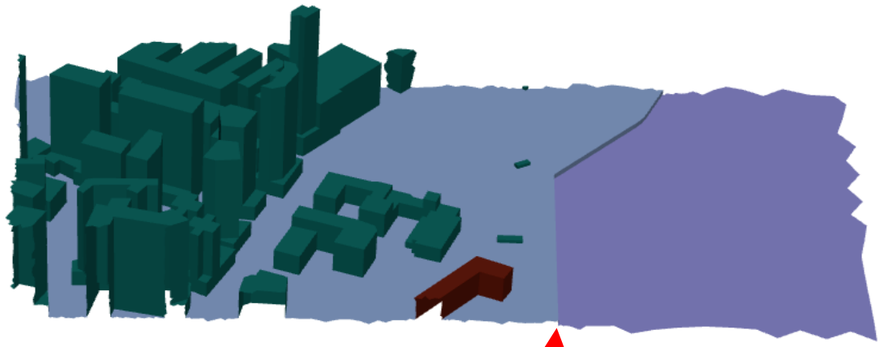
CINOTECH 漢驊 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

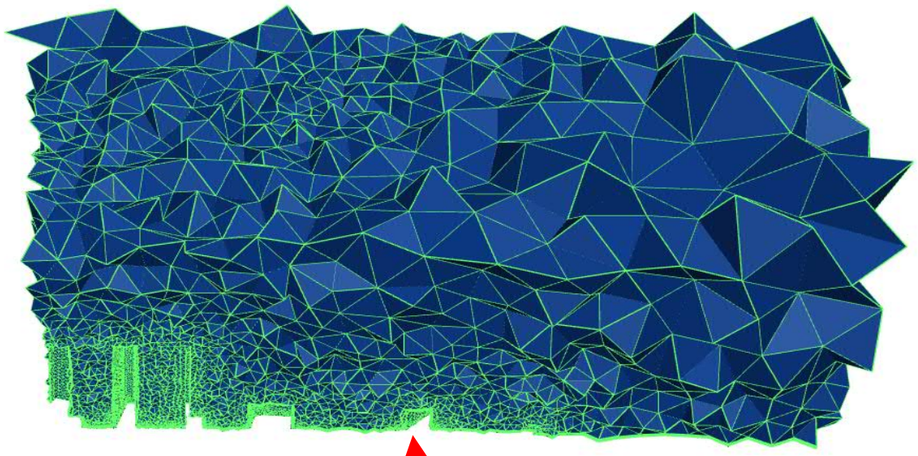
Meshes on 2D Surfaces

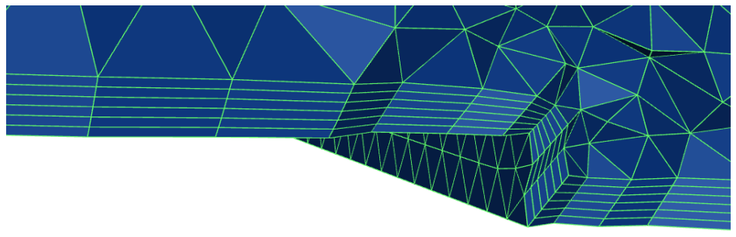
SCALE	N.T.S.	DATE	Jun-24
CHECK	KC	DRAWN	CC
JOB NO.	IA21009/KCAA110	FIGURE NO.	3-9
			REV. -

Portion of the Domain

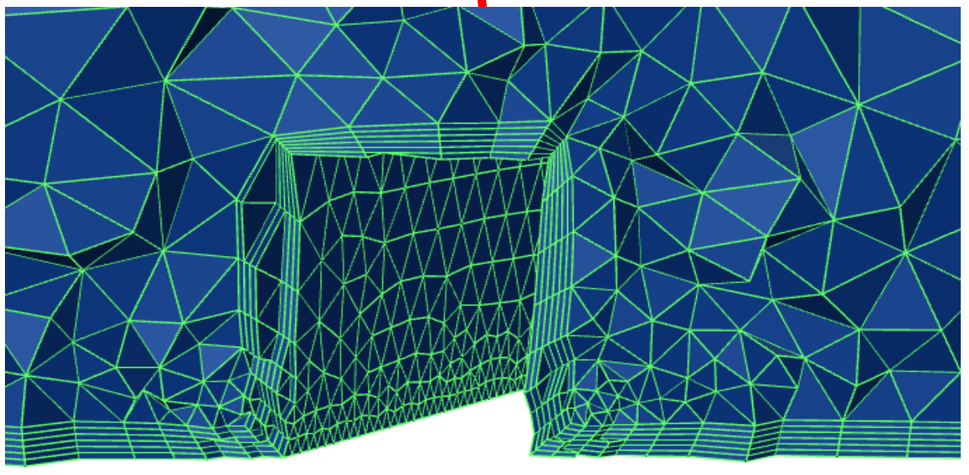


3D Meshes of the Portion





Prism Layers near the coastline (6 layers)



Prism Layers on ground and building facades (6 layers)

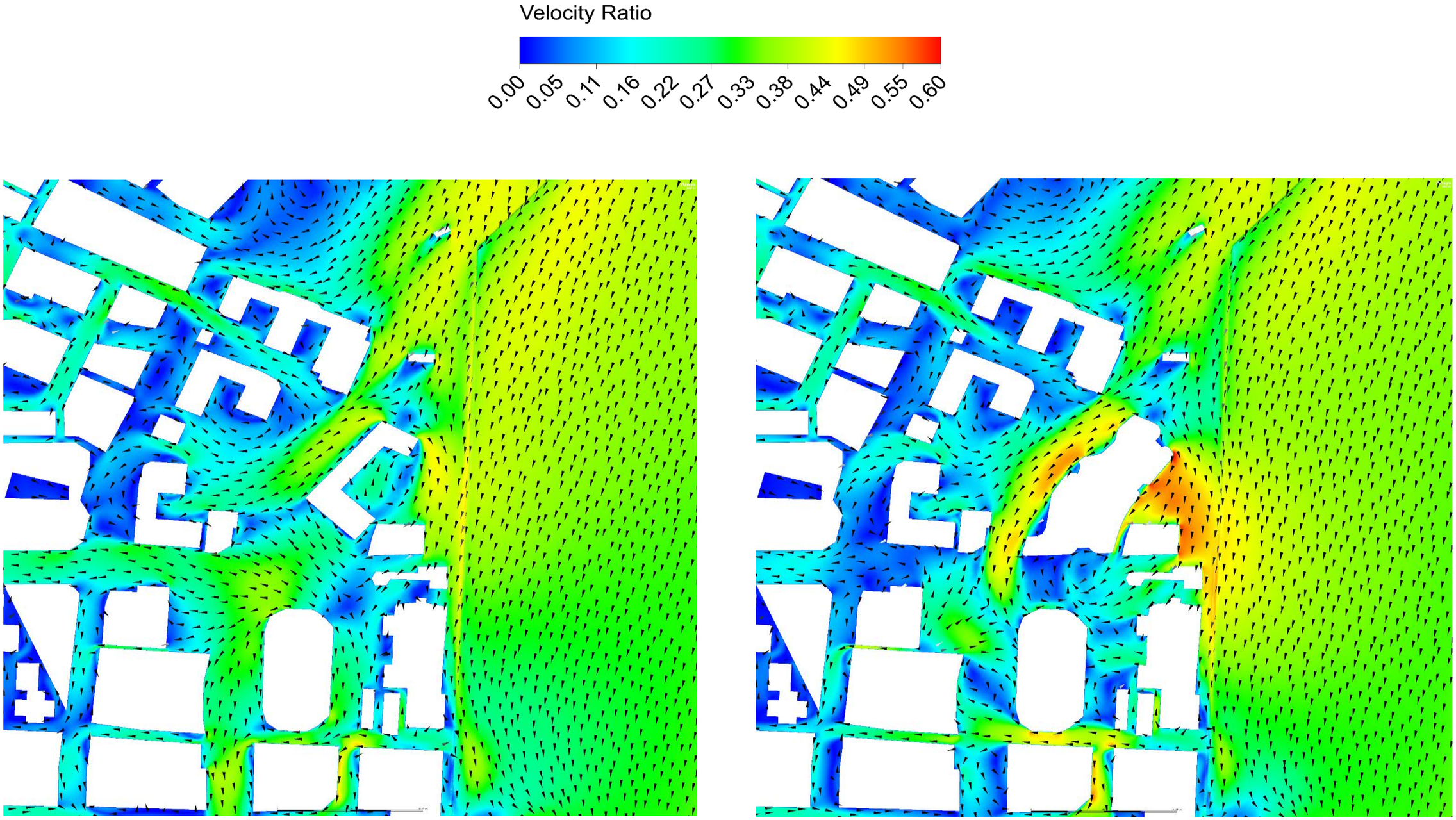
Screen capurted from the Baseline Scheme

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Proposed Residential Development in Bailey Street, Kowloon City District

Meshes on 3D Space

SCALE	N.T.S.	DATE	Jun-24
CHECK	KC	DRAWN	CC
JOB NO.	IA21009\KCAA110	FIGURE NO. 3-10	REV. -



Baseline Scheme

Proposed Scheme

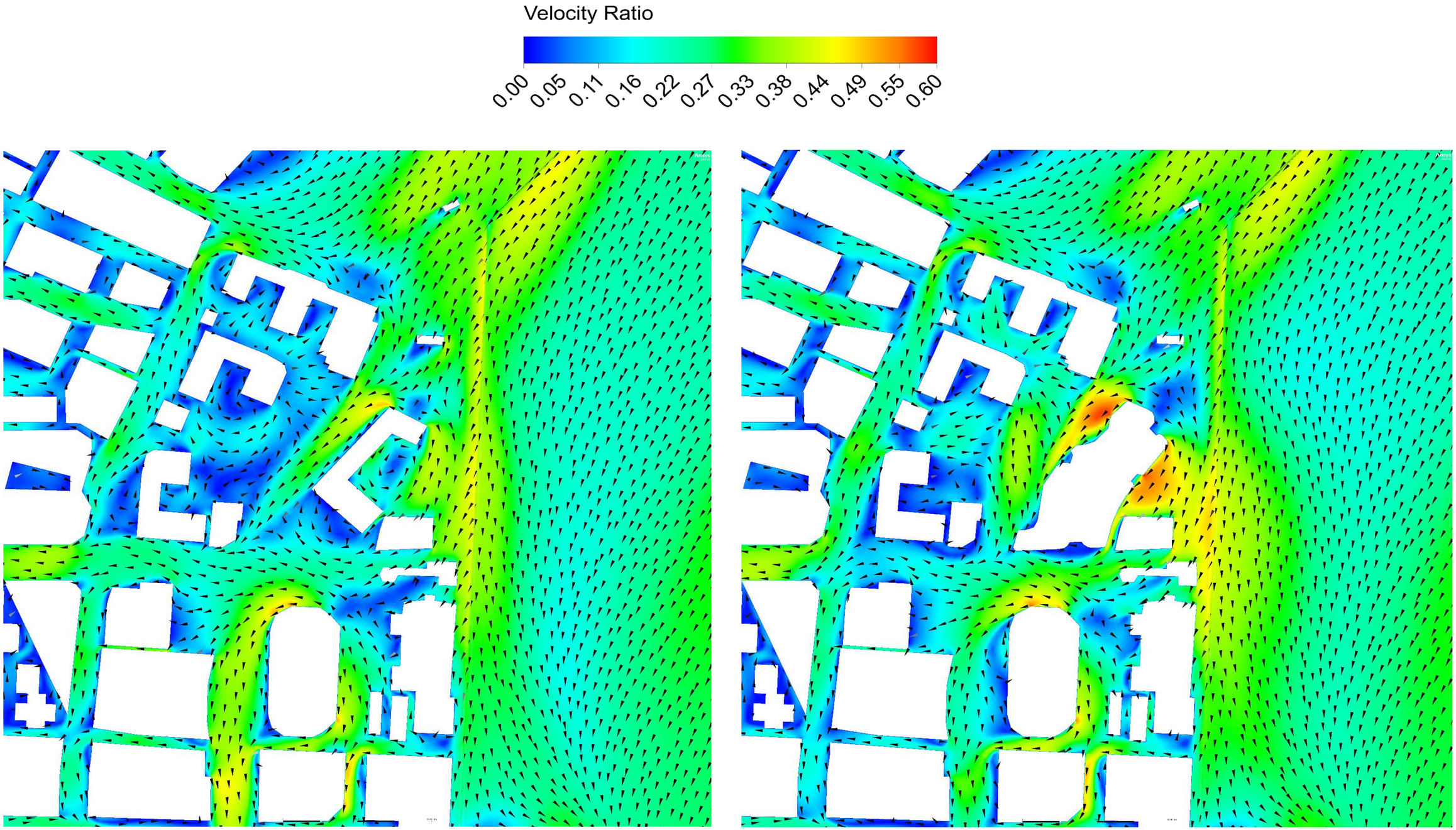
022.5 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1a	REV.
				-



Baseline Scheme

Proposed Scheme

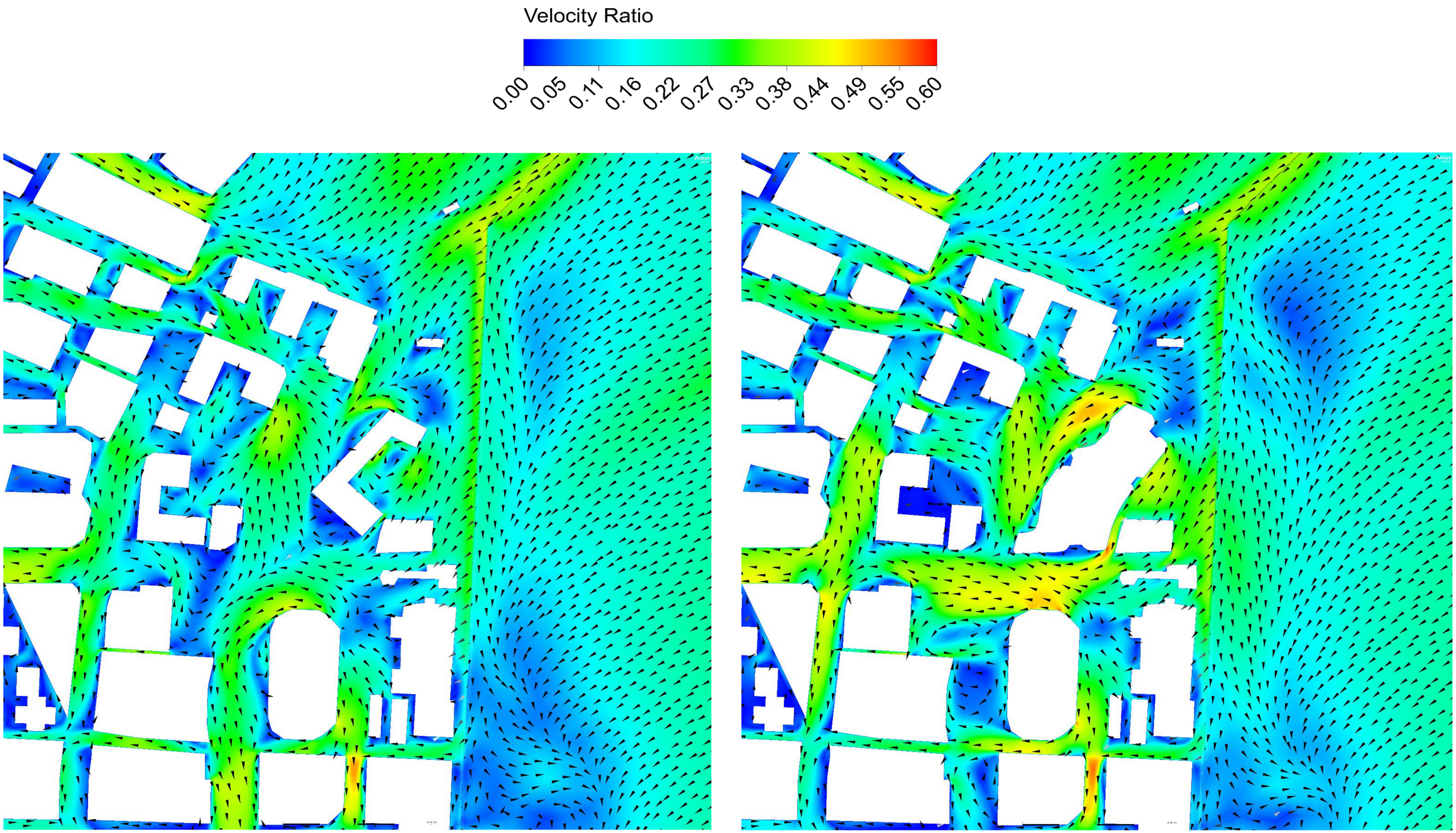
045 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1b	REV.
				-



Baseline Scheme

Proposed Scheme

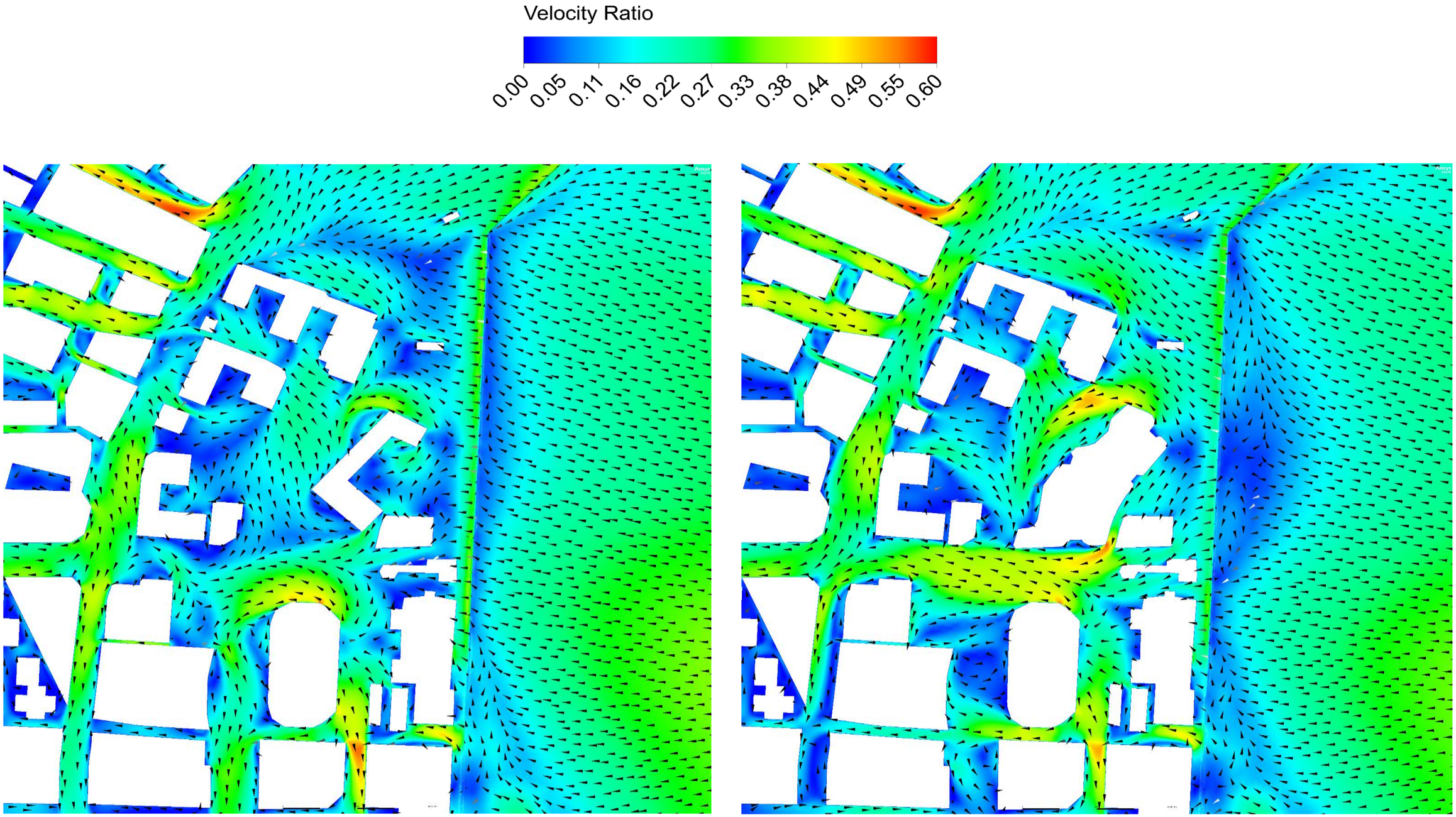
067.5 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1c	REV.
				-



Baseline Scheme

Proposed Scheme

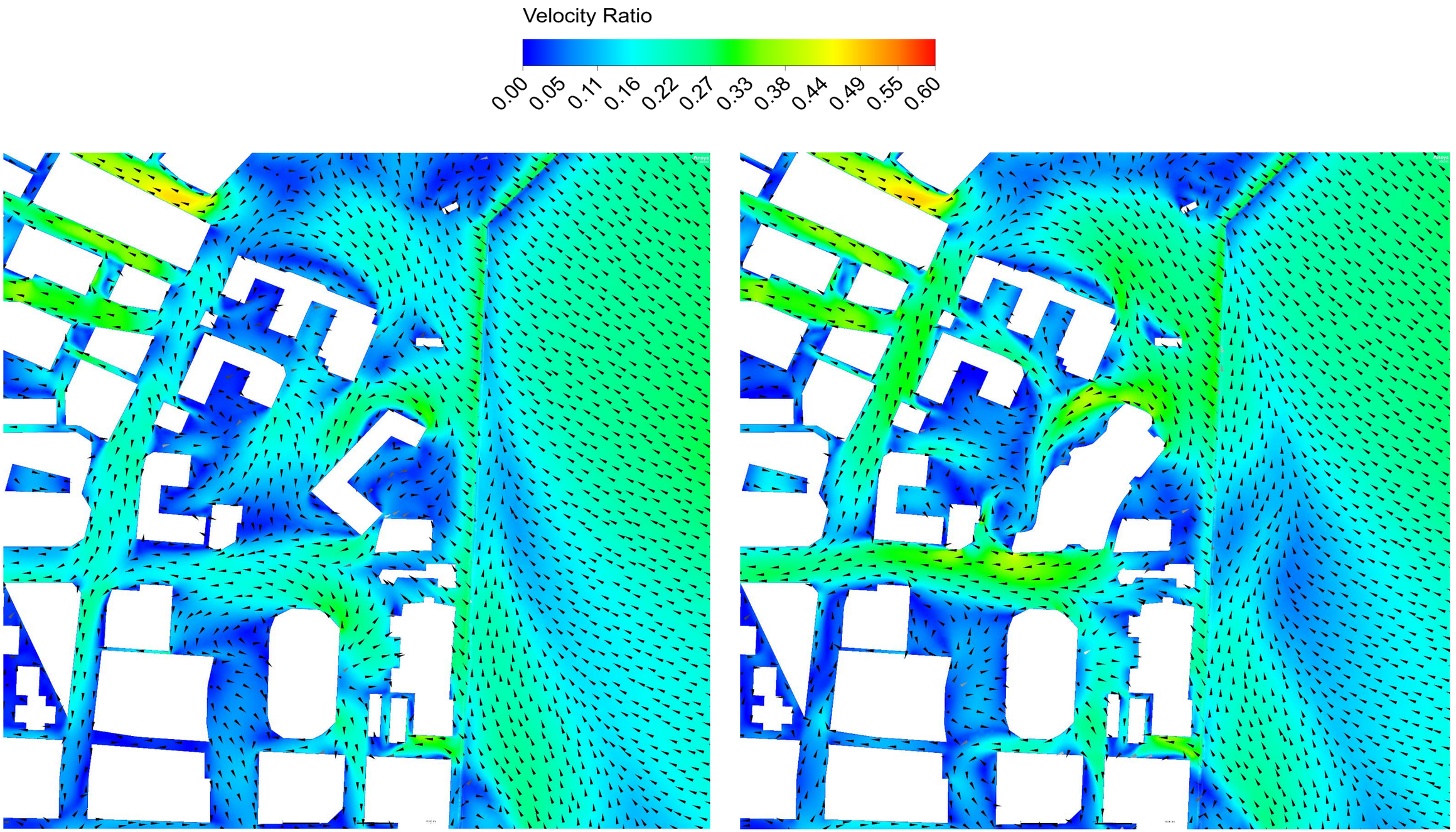
090 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1d	REV.
				-



Baseline Scheme

Proposed Scheme

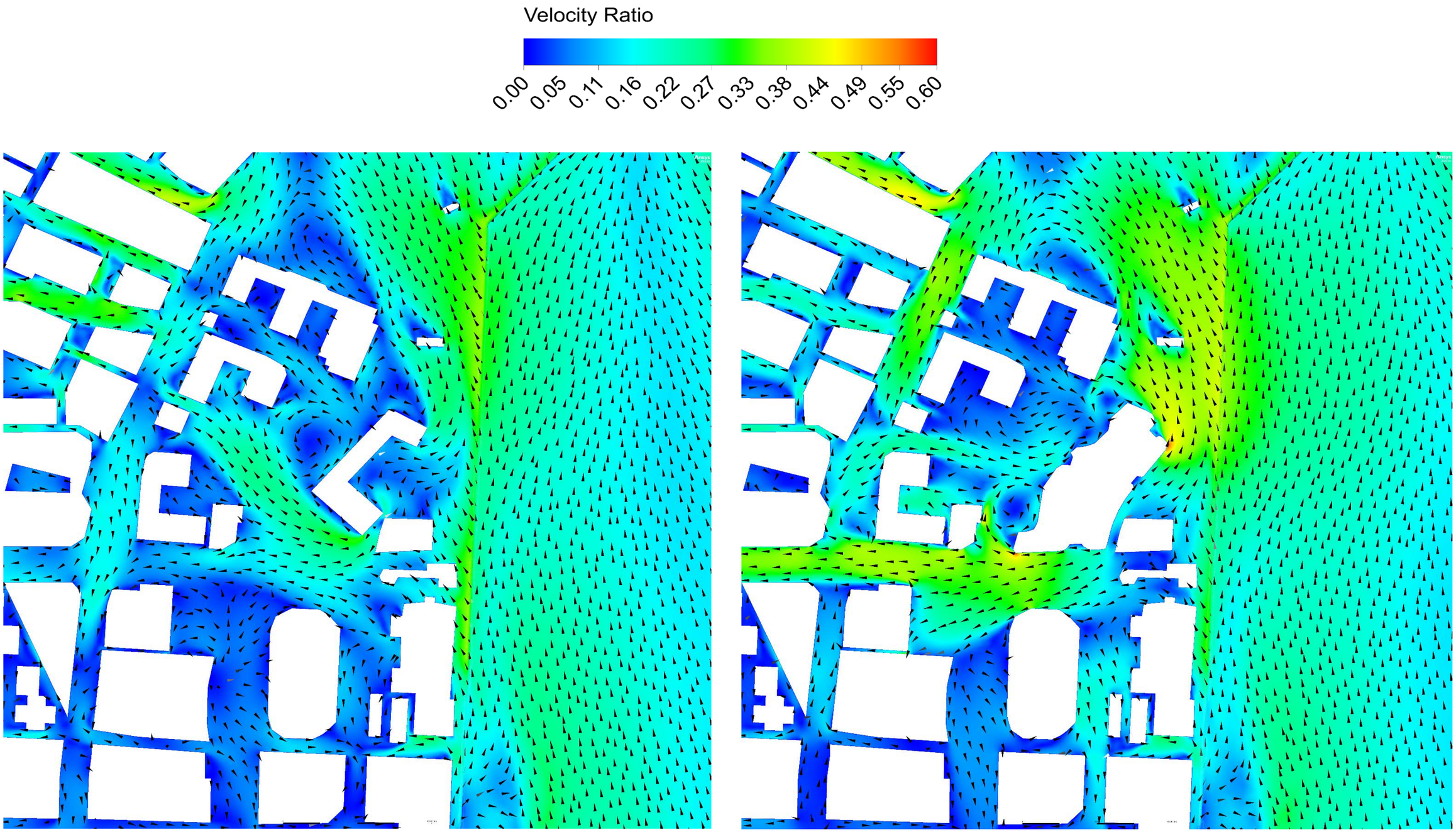
112.5 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1e	REV.
				-



Baseline Scheme

Proposed Scheme

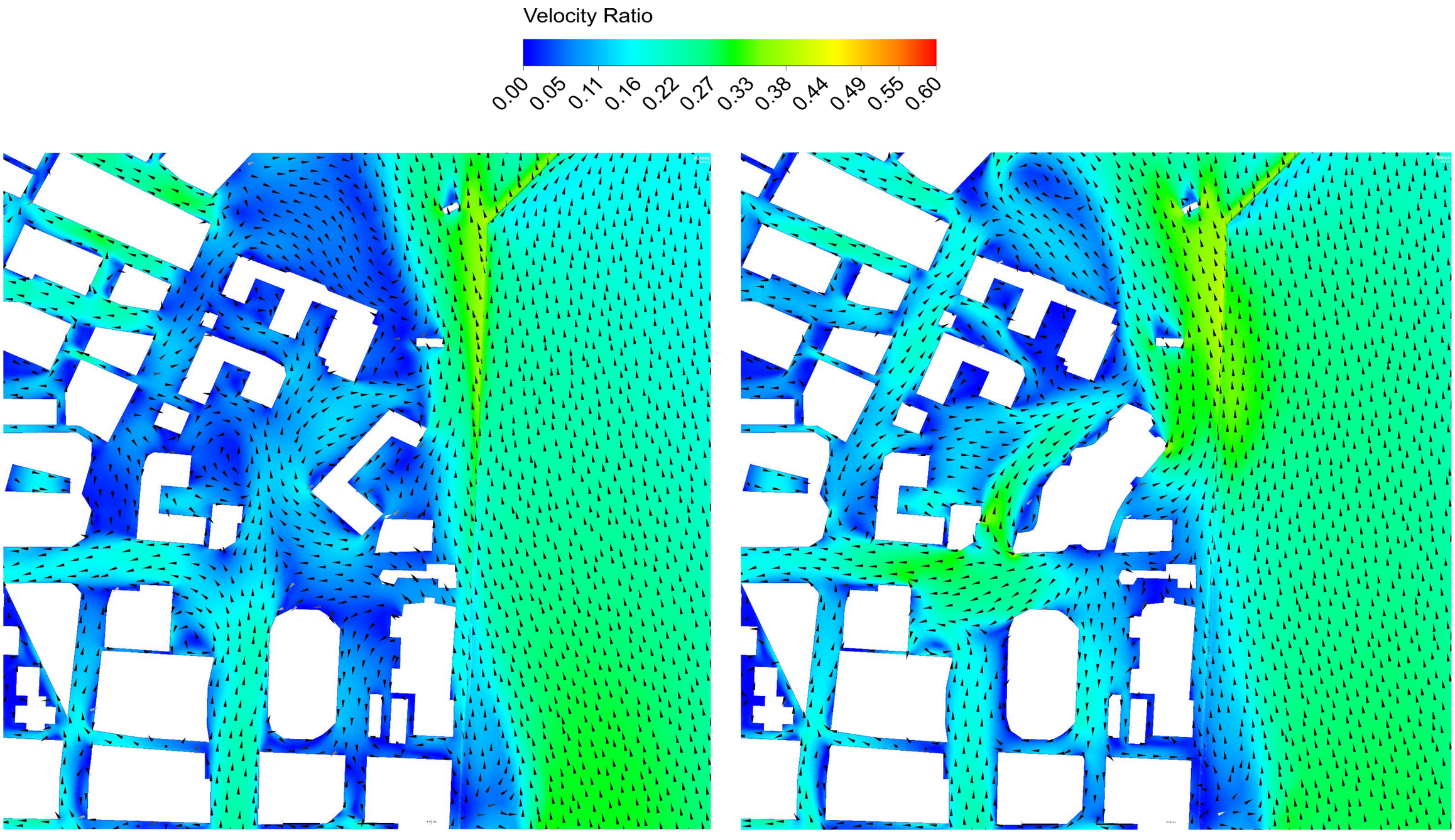
135 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1f	REV.
				-



Baseline Scheme

Proposed Scheme

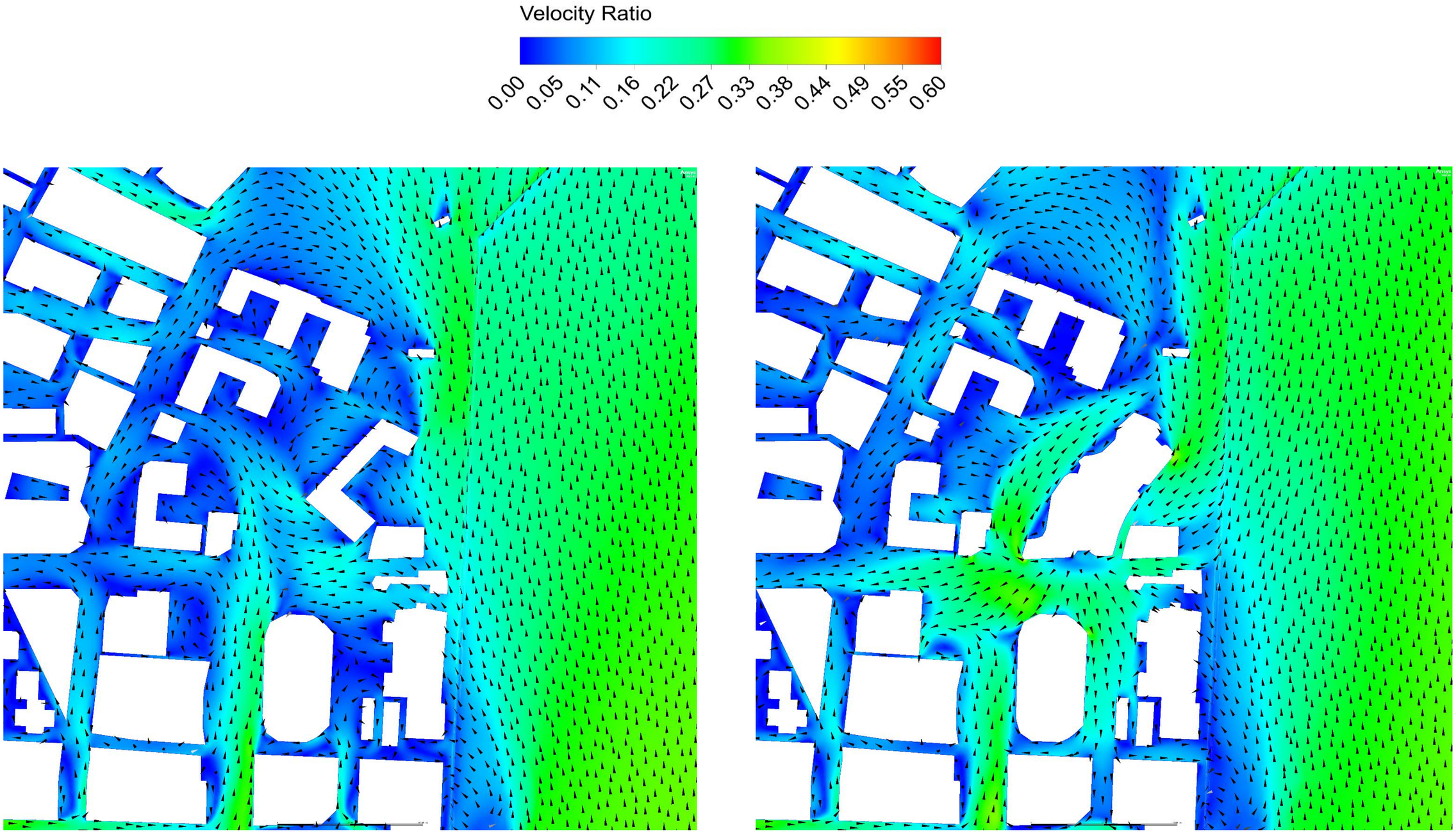
157.5 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1g	REV.
				-



Baseline Scheme

Proposed Scheme

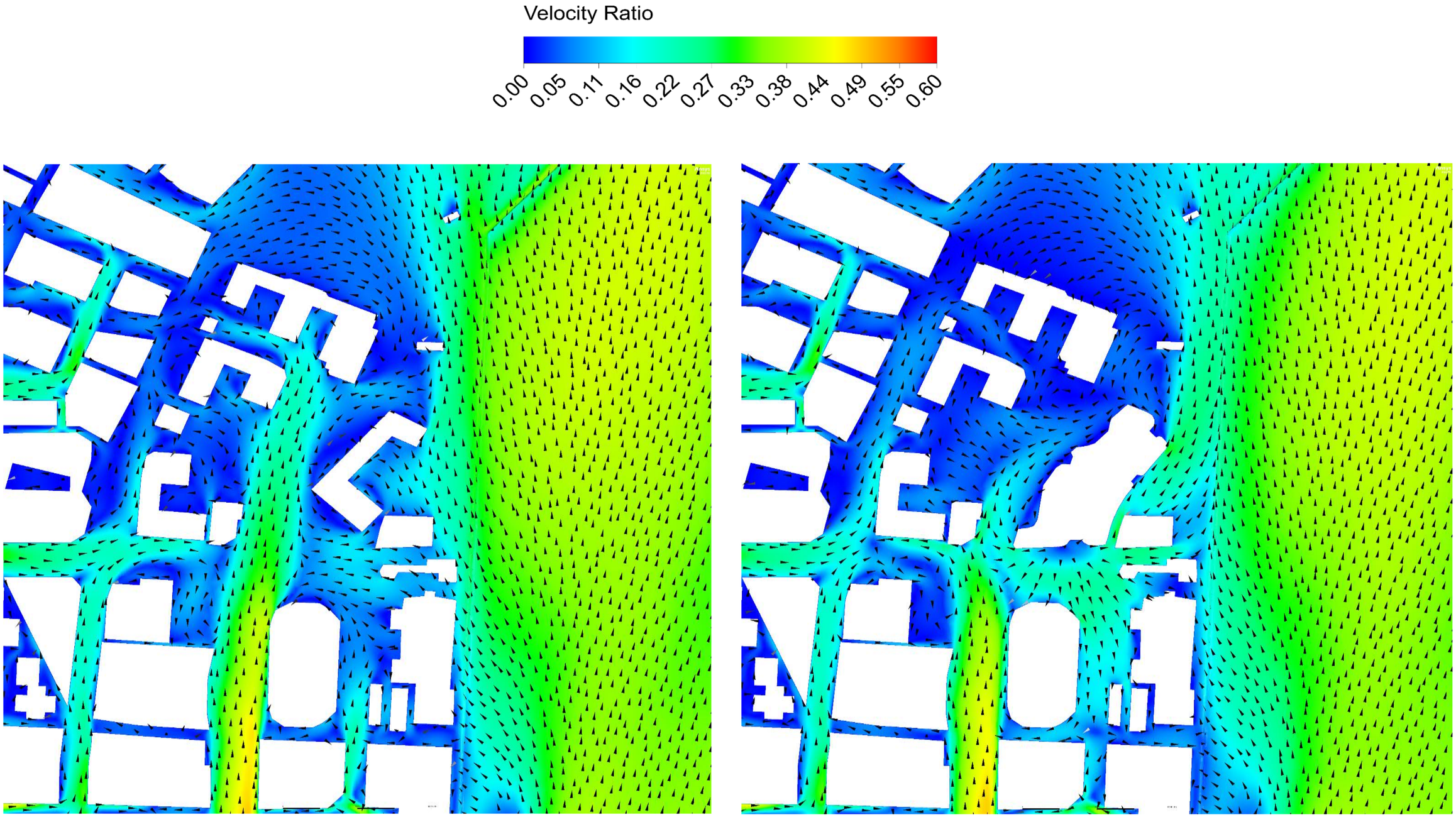
180 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1h	REV.
				-



Baseline Scheme

Proposed Scheme

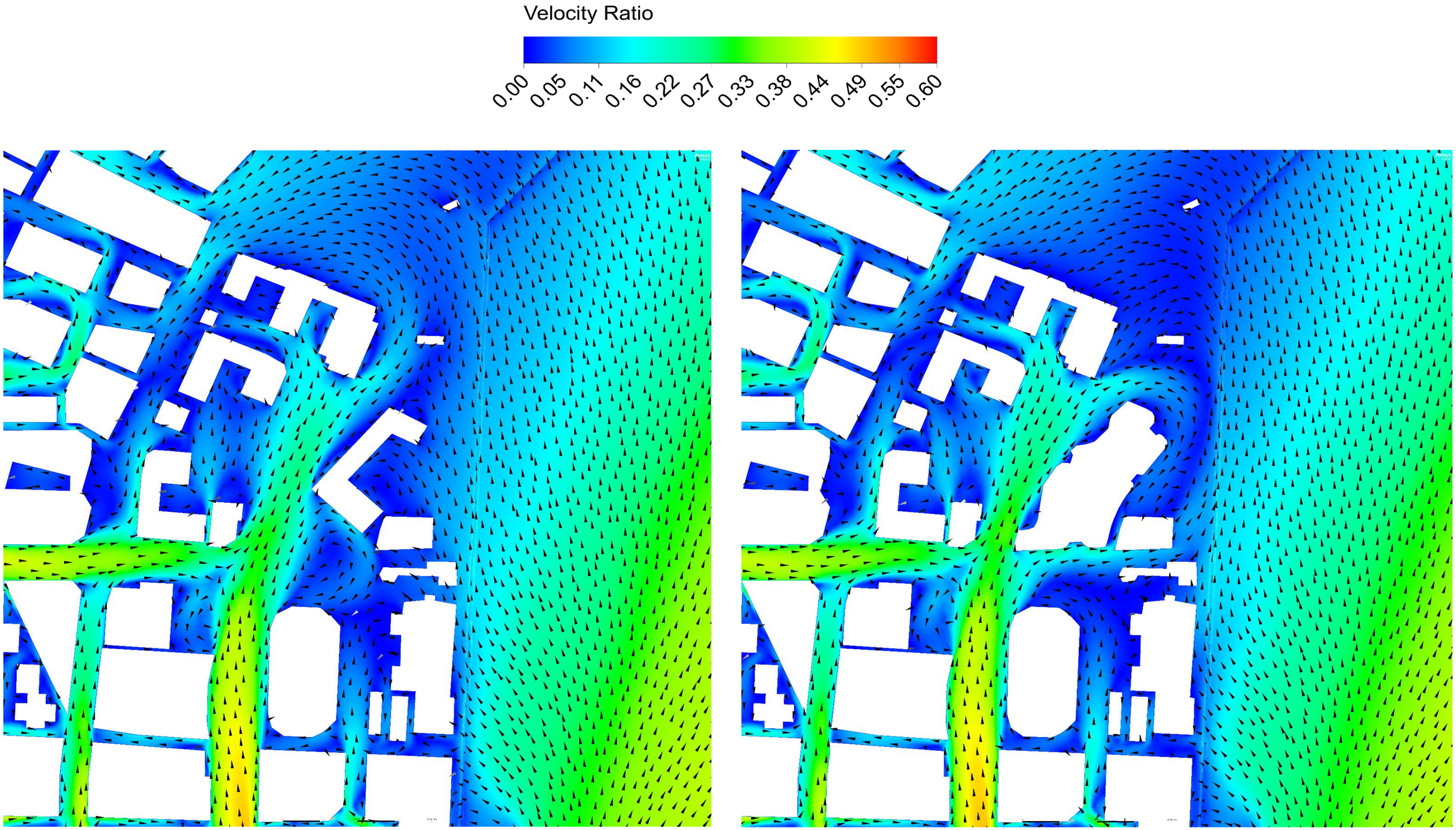
202.5 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1i	REV.
				-



Baseline Scheme

Proposed Scheme

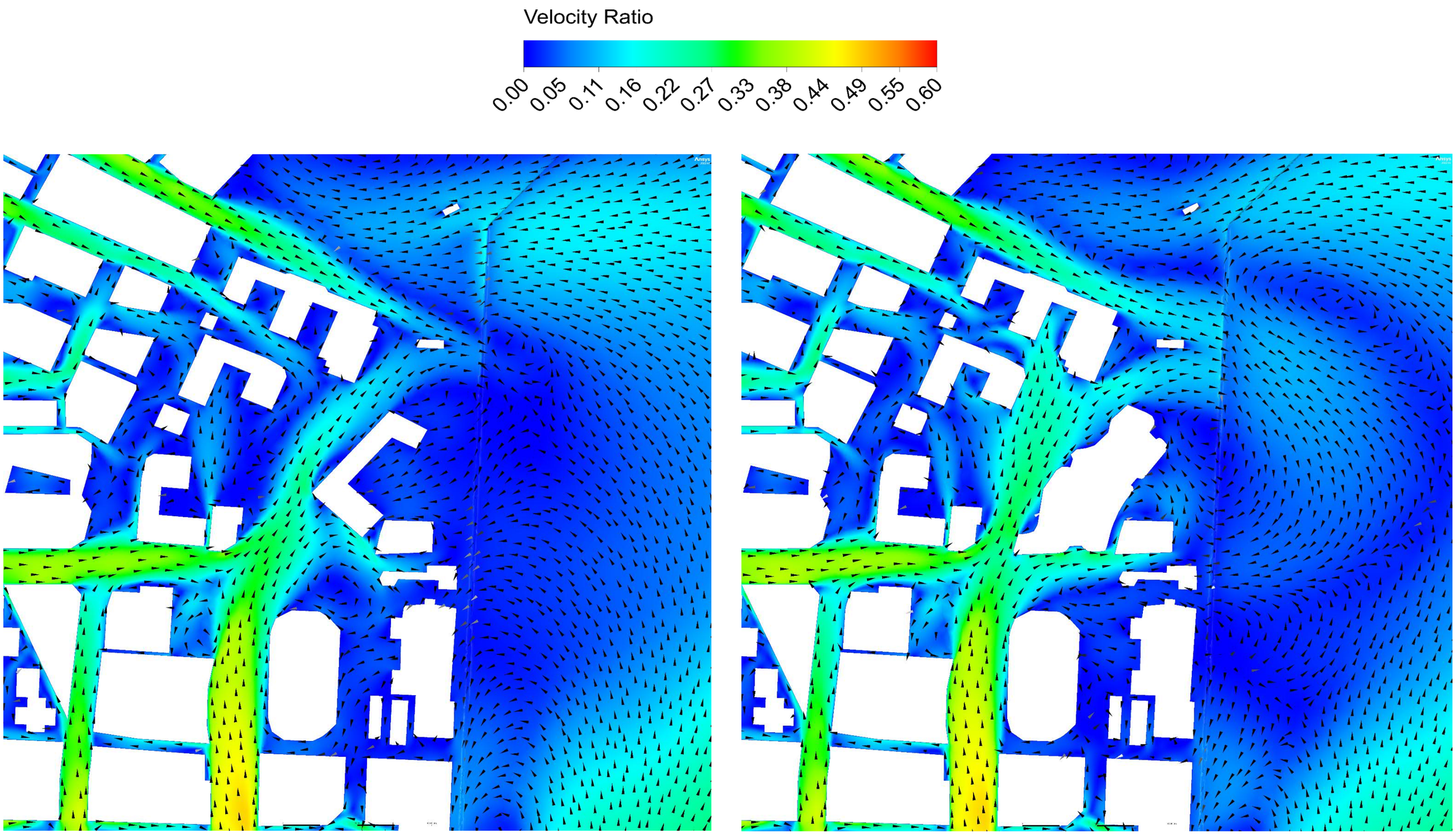
225 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1j	REV.
				-



Baseline Scheme

Proposed Scheme

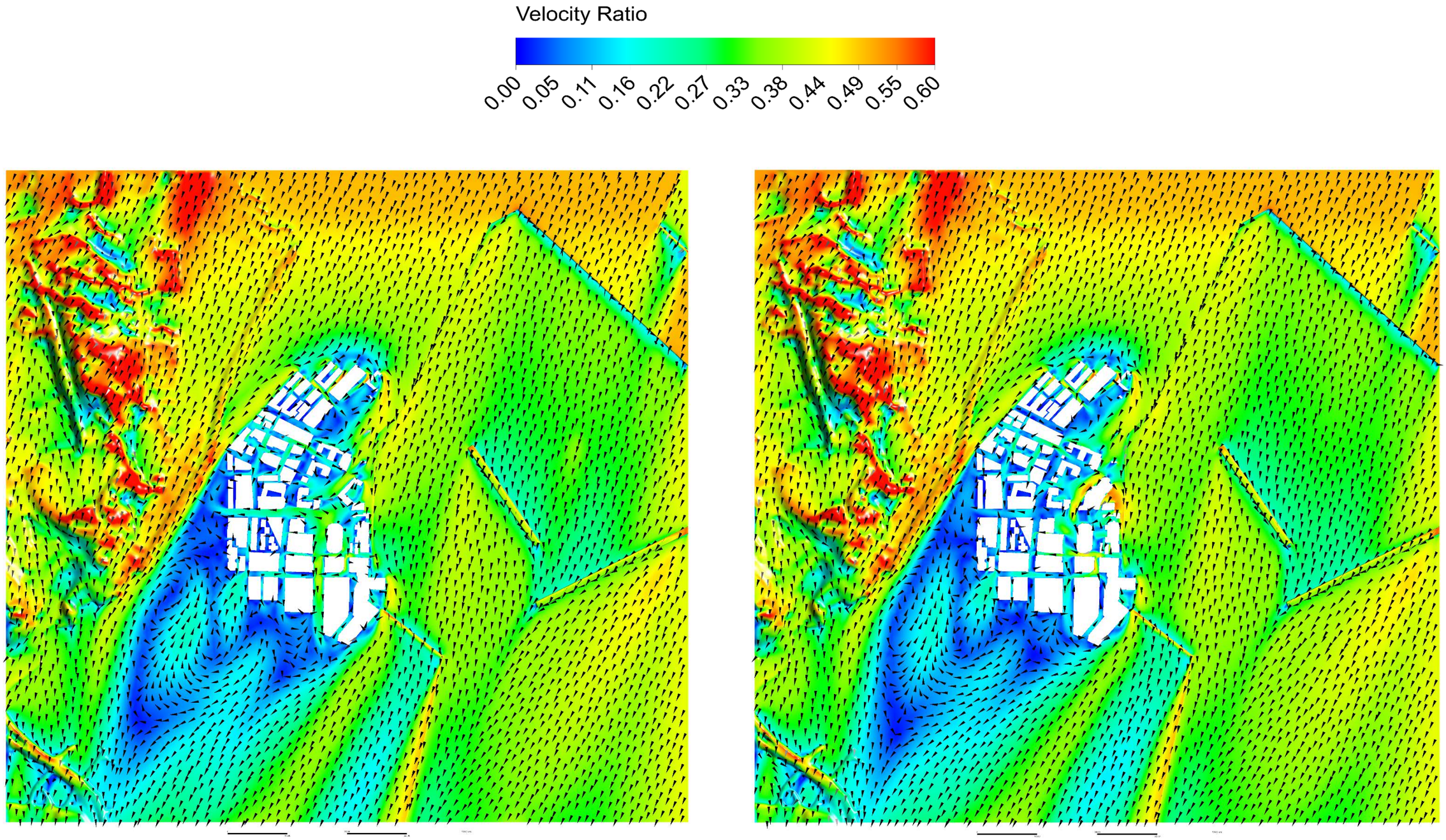
247.5 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Assessment Area)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-1k	REV.
				-



Baseline Scheme

Proposed Scheme

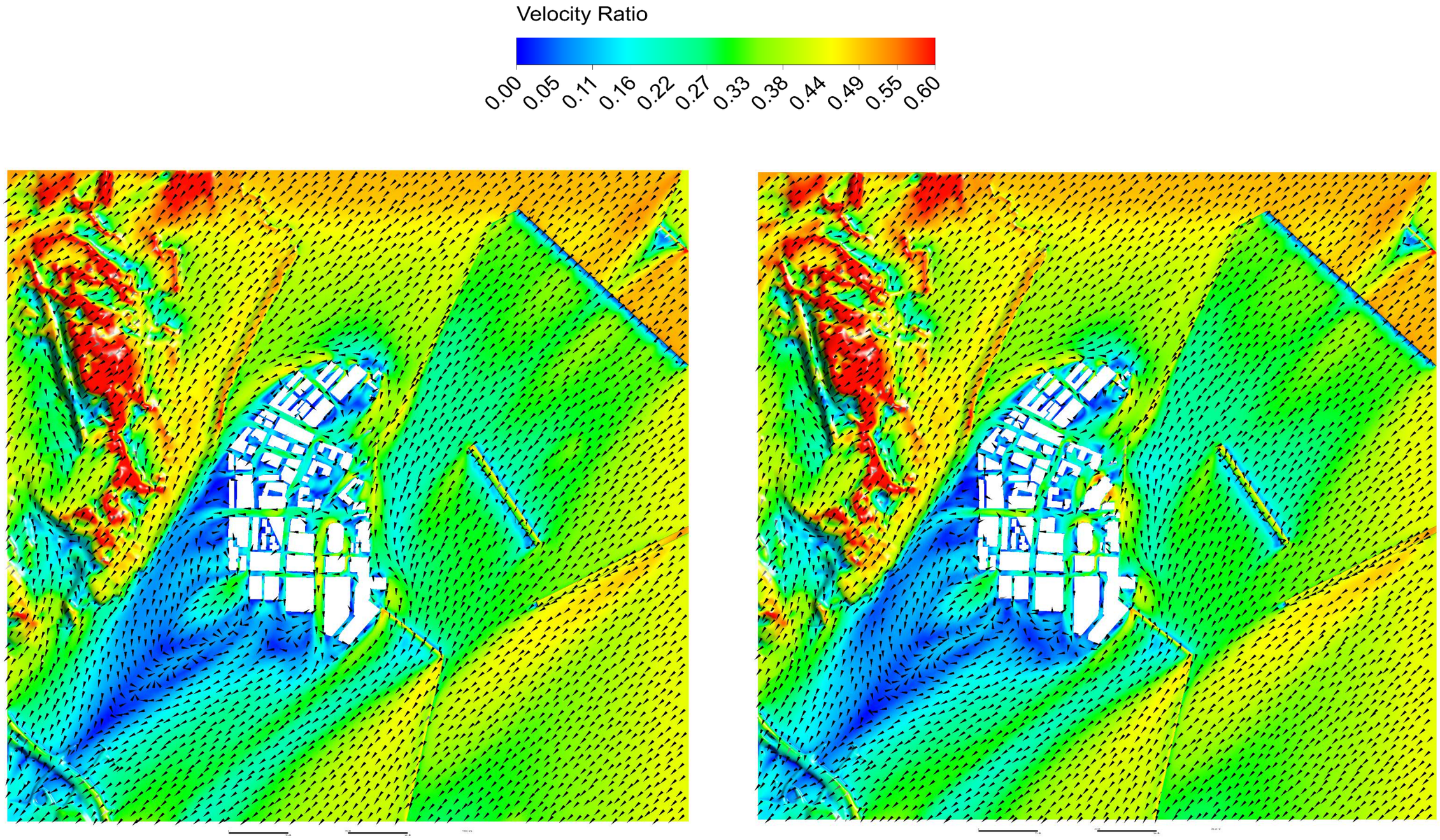
022.5 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2a	REV.
				-



Baseline Scheme

Proposed Scheme

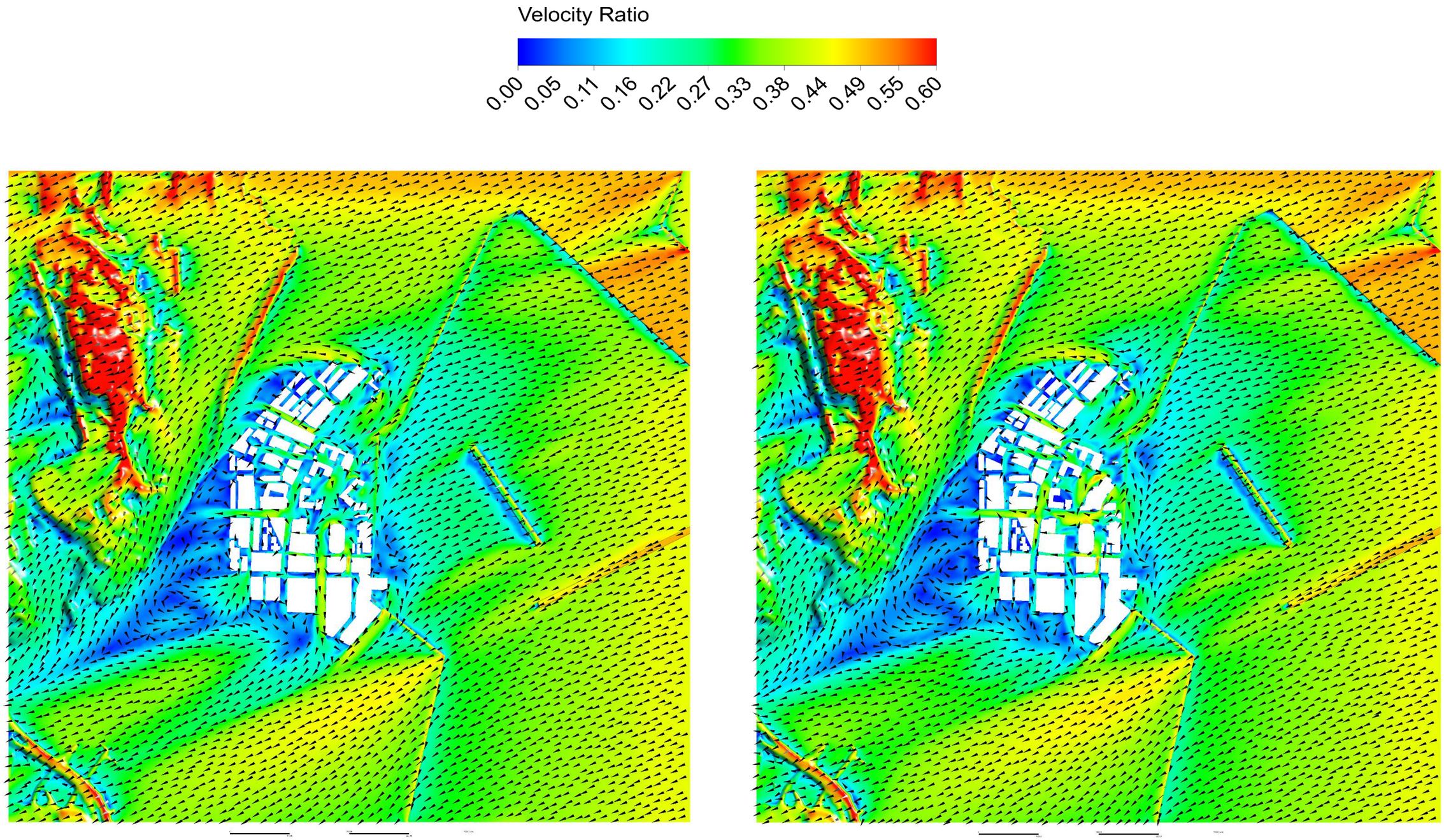
045 deg Wind Direction

CINOTECH 漢霖 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2b	REV.
				-



Baseline Scheme

Proposed Scheme

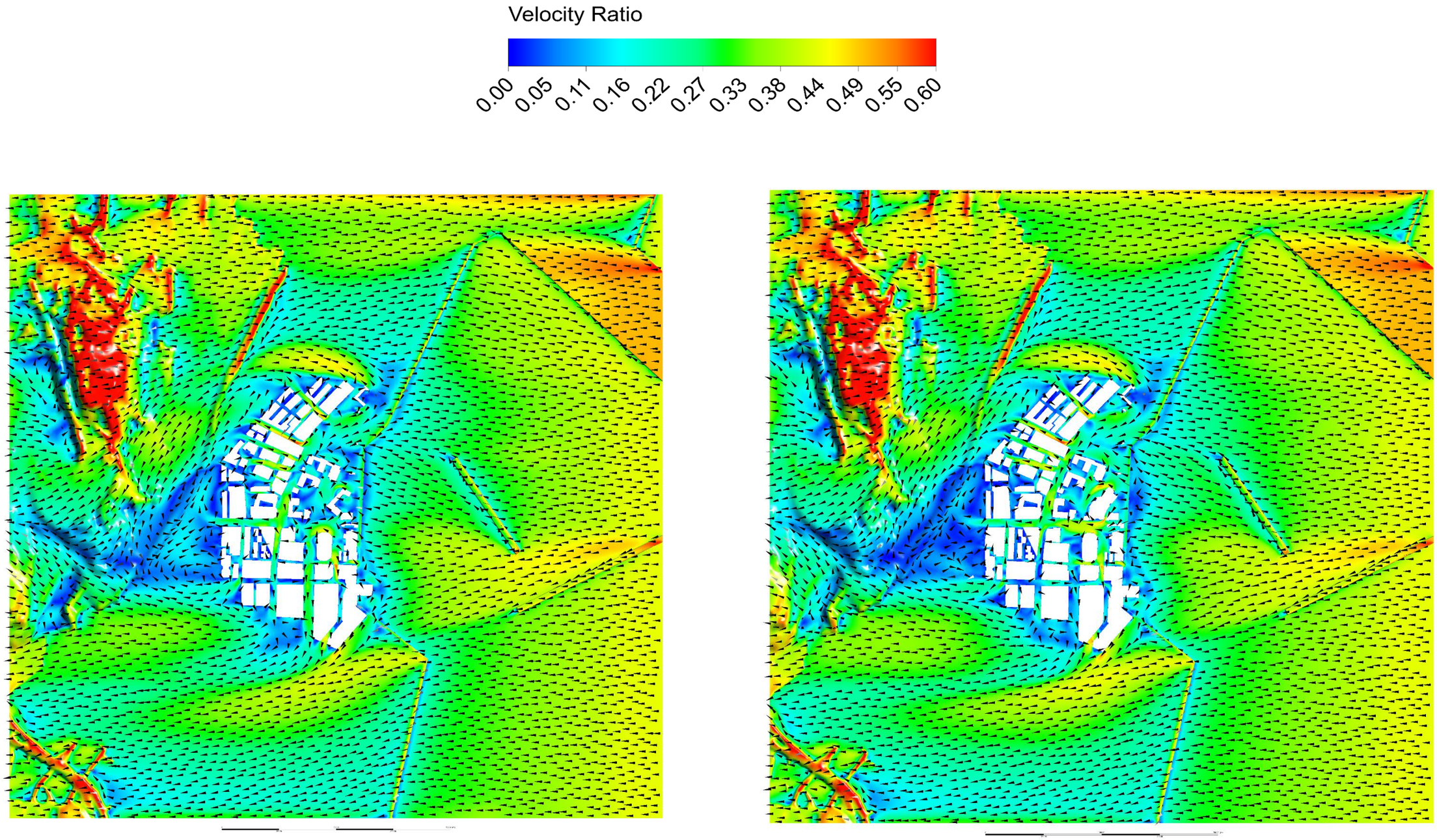
067.5 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2c	REV.
				-



Baseline Scheme

Proposed Scheme

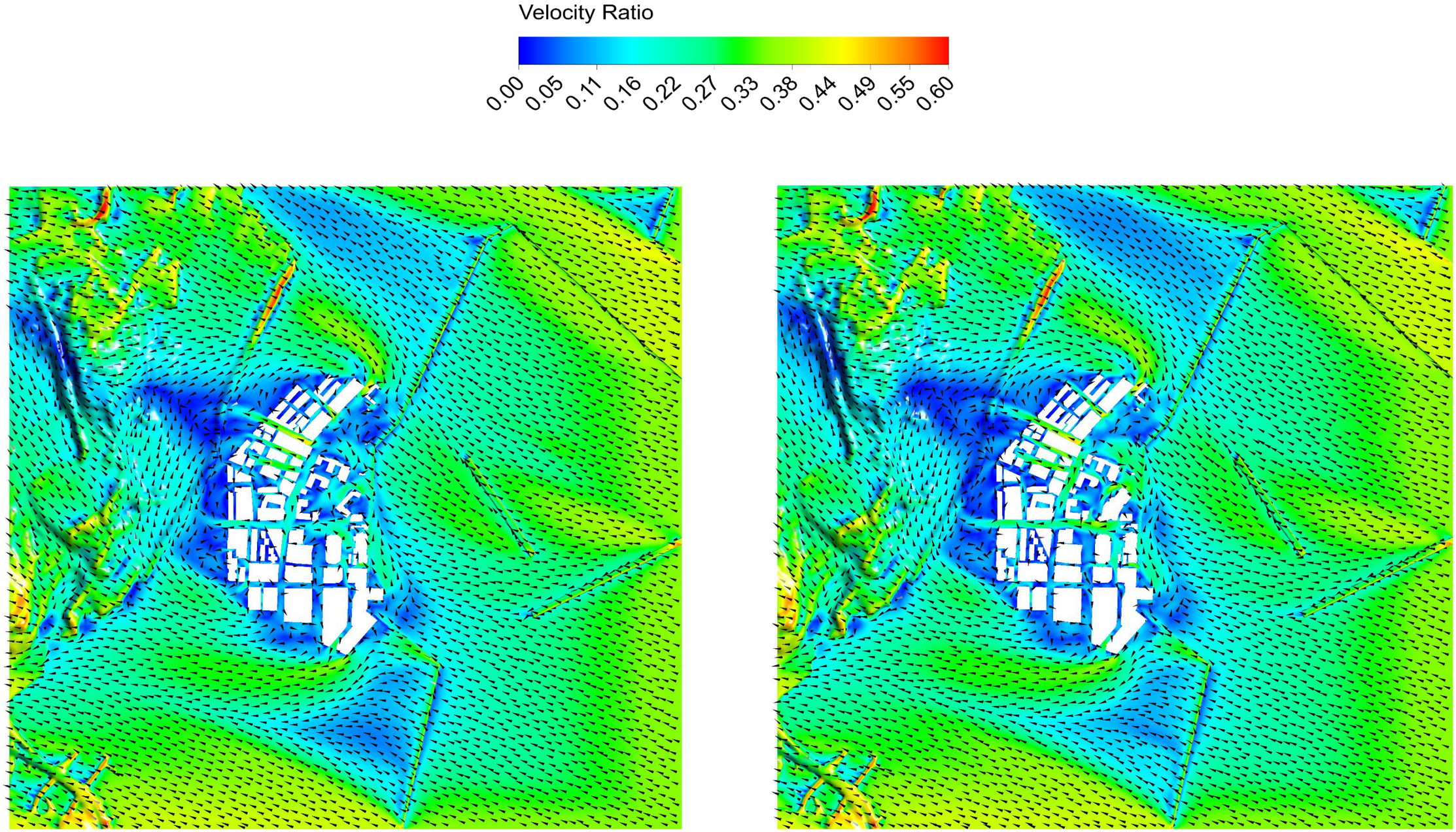
090 deg Wind Direction

CINOTECH 漢霖 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2d	REV.
				-



Baseline Scheme

Proposed Scheme

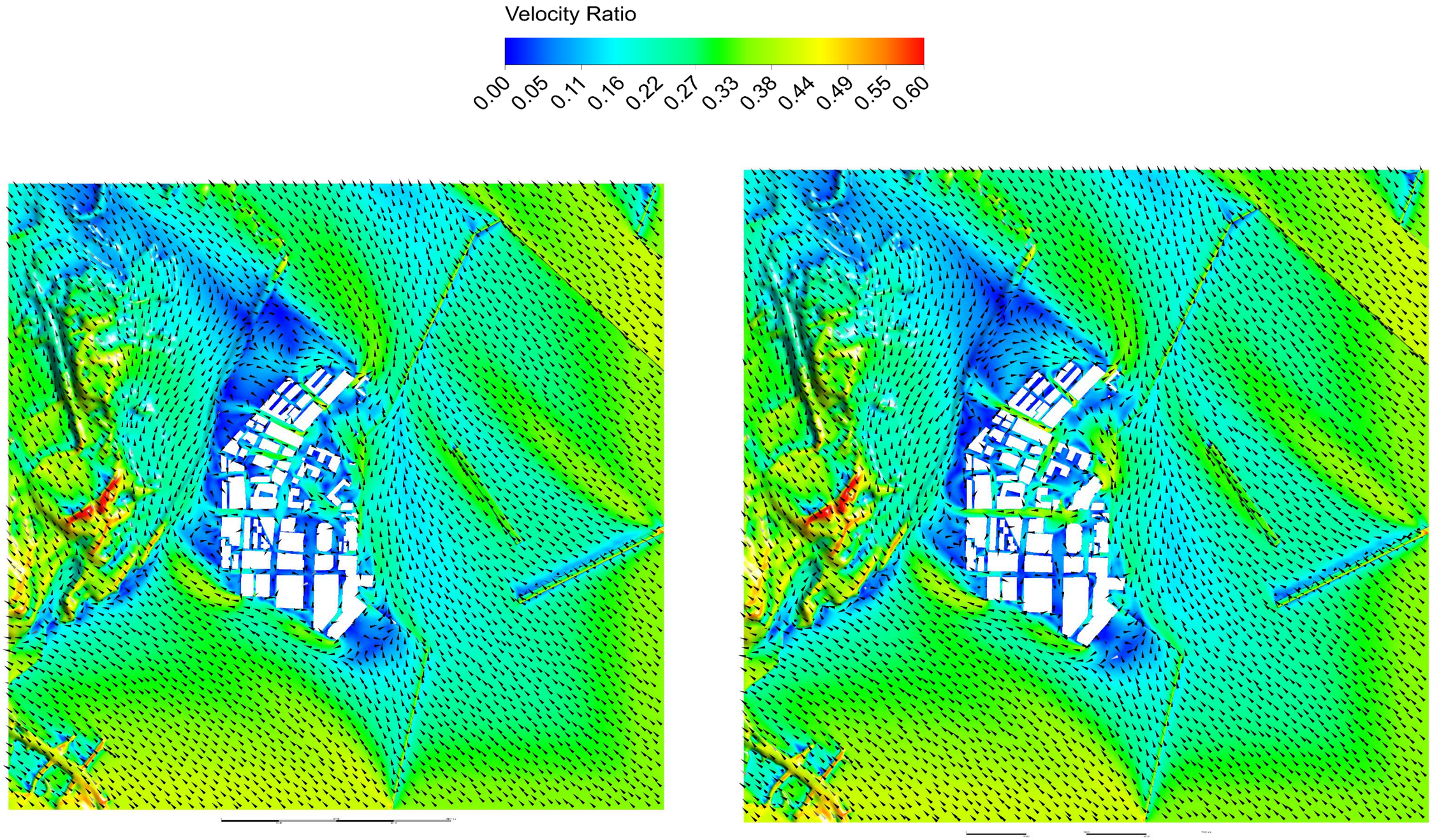
112.5 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2e	REV.
				-



Baseline Scheme

Proposed Scheme

135 deg Wind Direction

CINOTECH 漢蘇 consultants limited

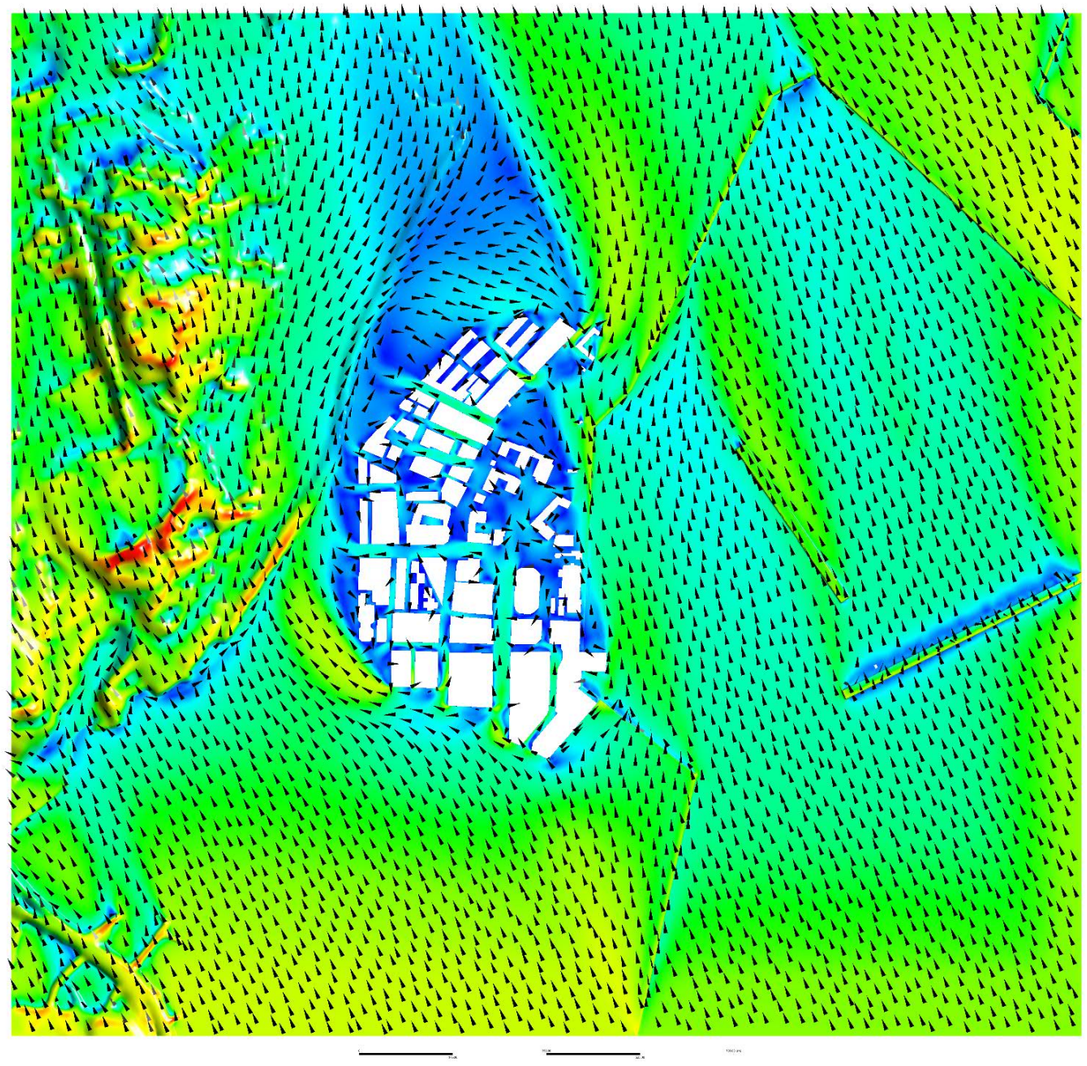
Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

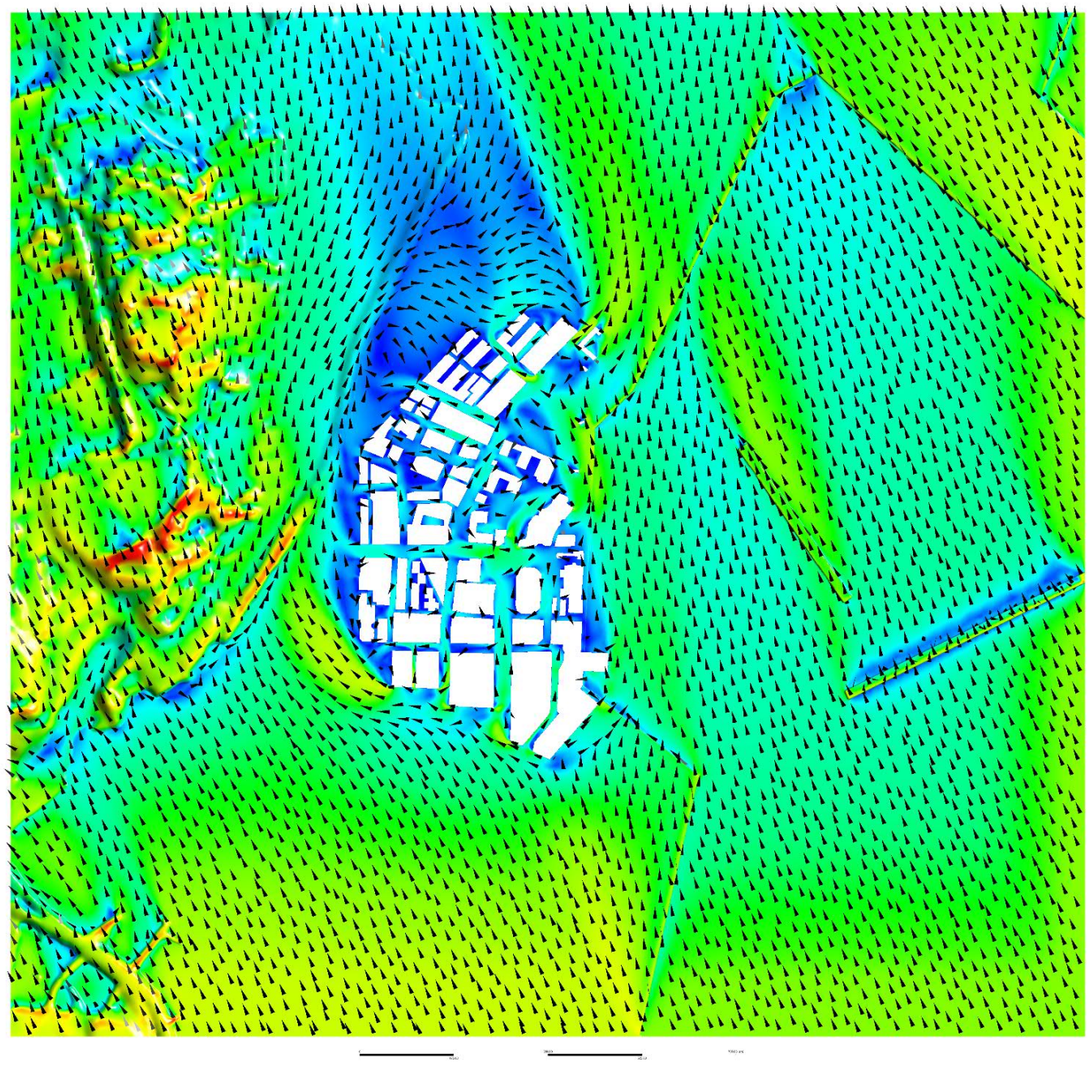
SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2f	REV.
				-

Velocity Ratio

0.00 0.05 0.11 0.16 0.22 0.27 0.33 0.38 0.44 0.49 0.55 0.60



Baseline Scheme



Proposed Scheme

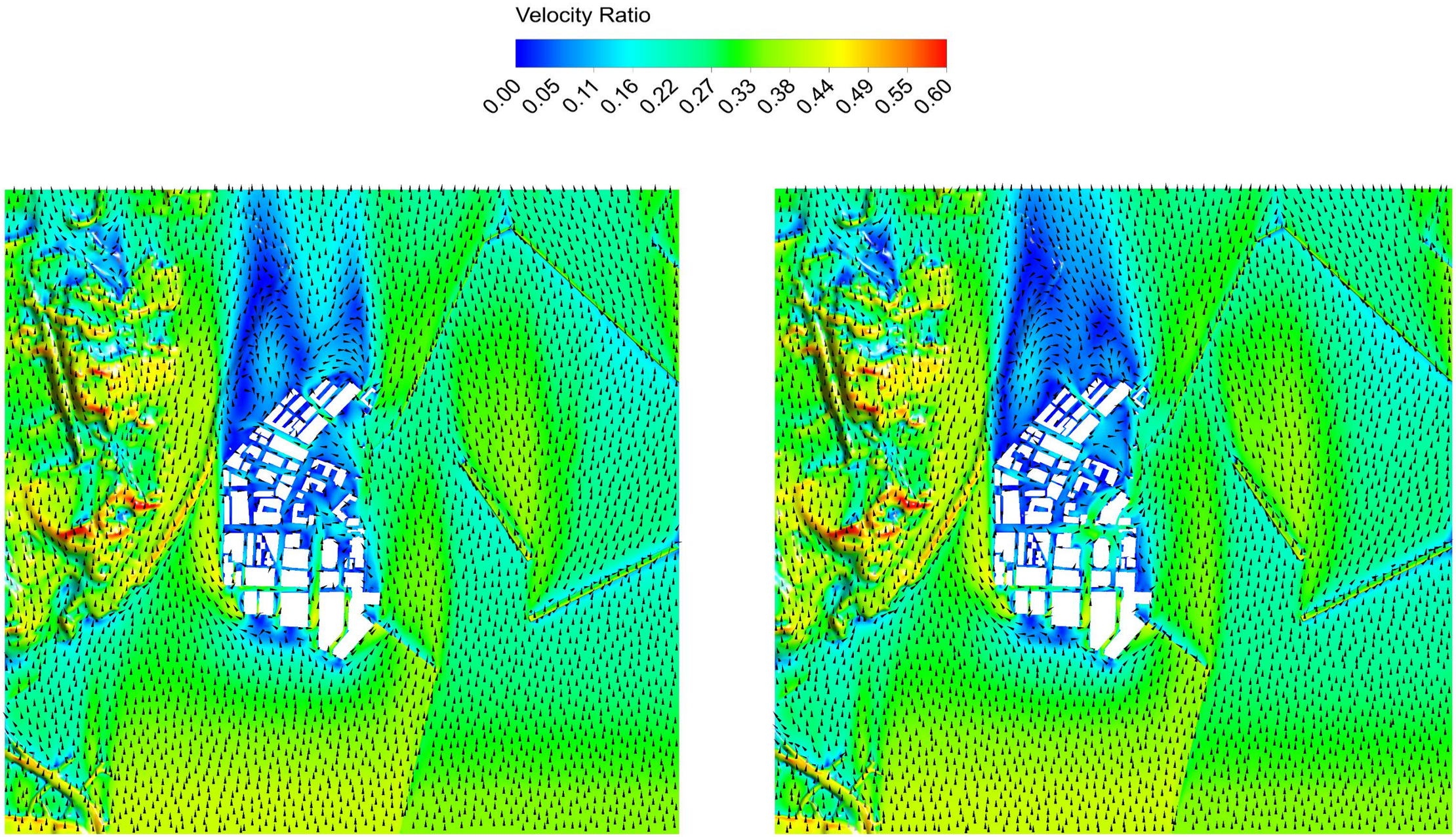
157.5 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2g	REV.
				-



Baseline Scheme

Proposed Scheme

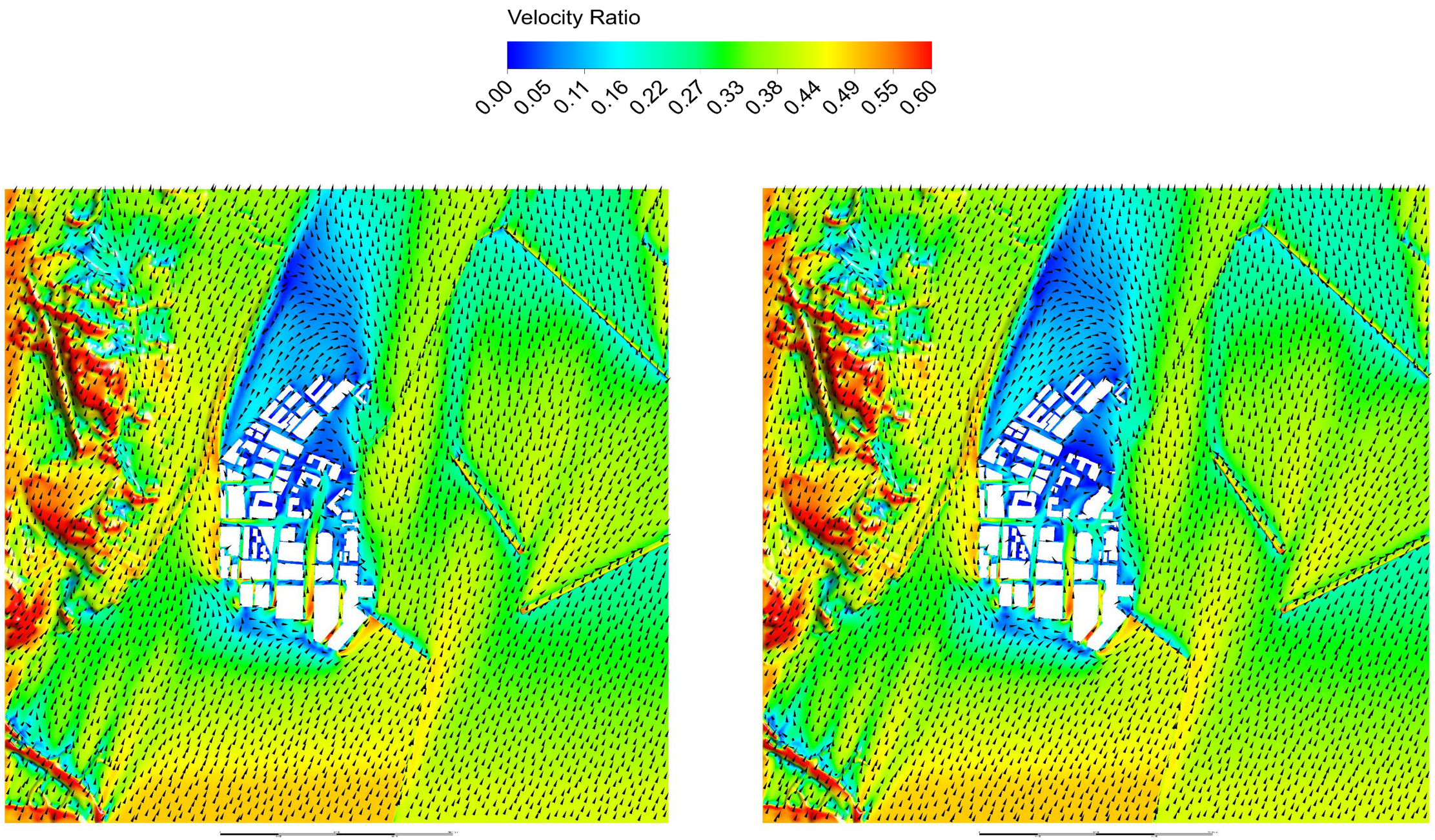
180 deg Wind Direction

CINOTECH consultants limited 漢蘇

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2h	REV.
				-



Baseline Scheme

Proposed Scheme

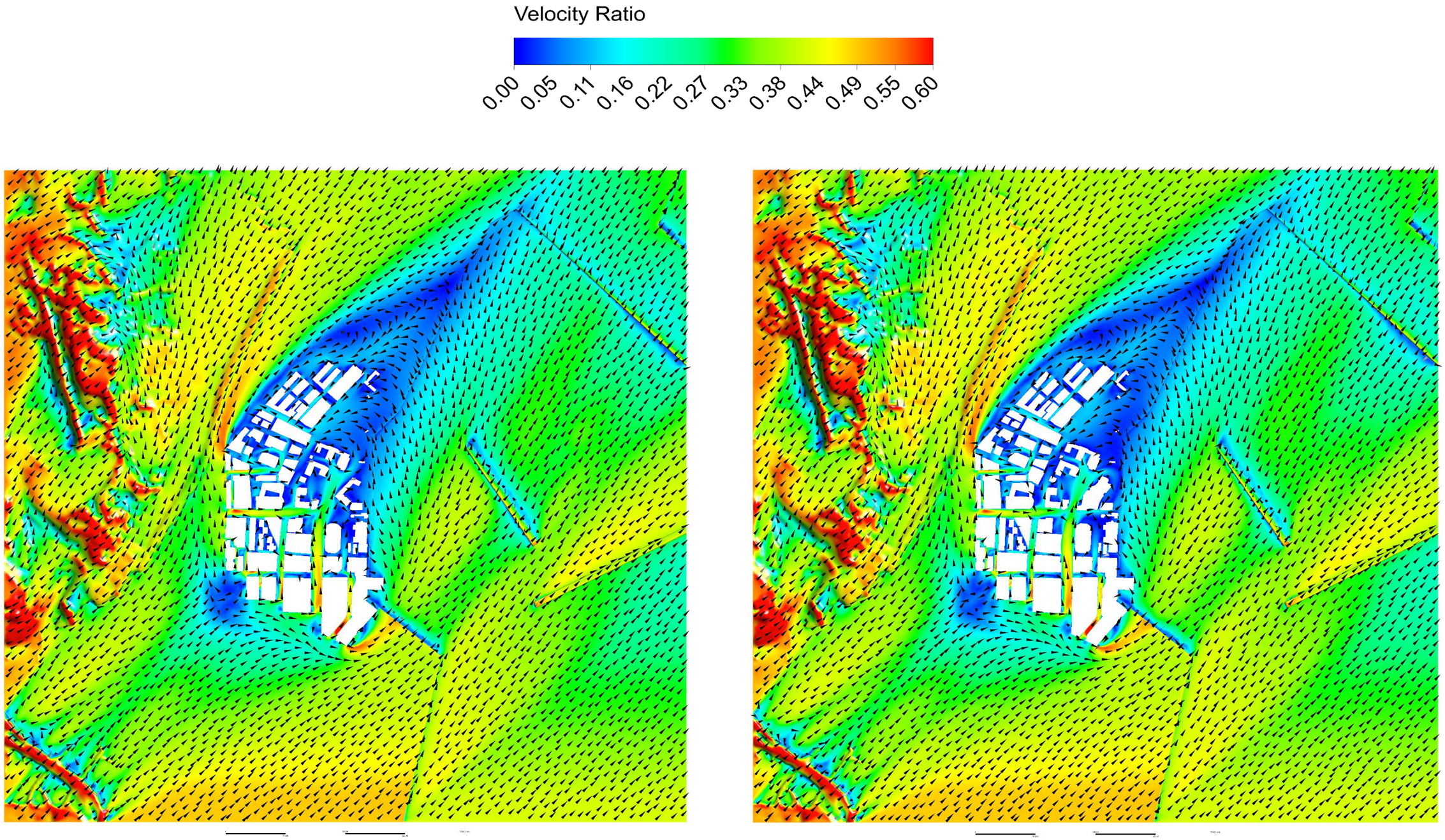
202.5 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2i	REV.
				-



Baseline Scheme

Proposed Scheme

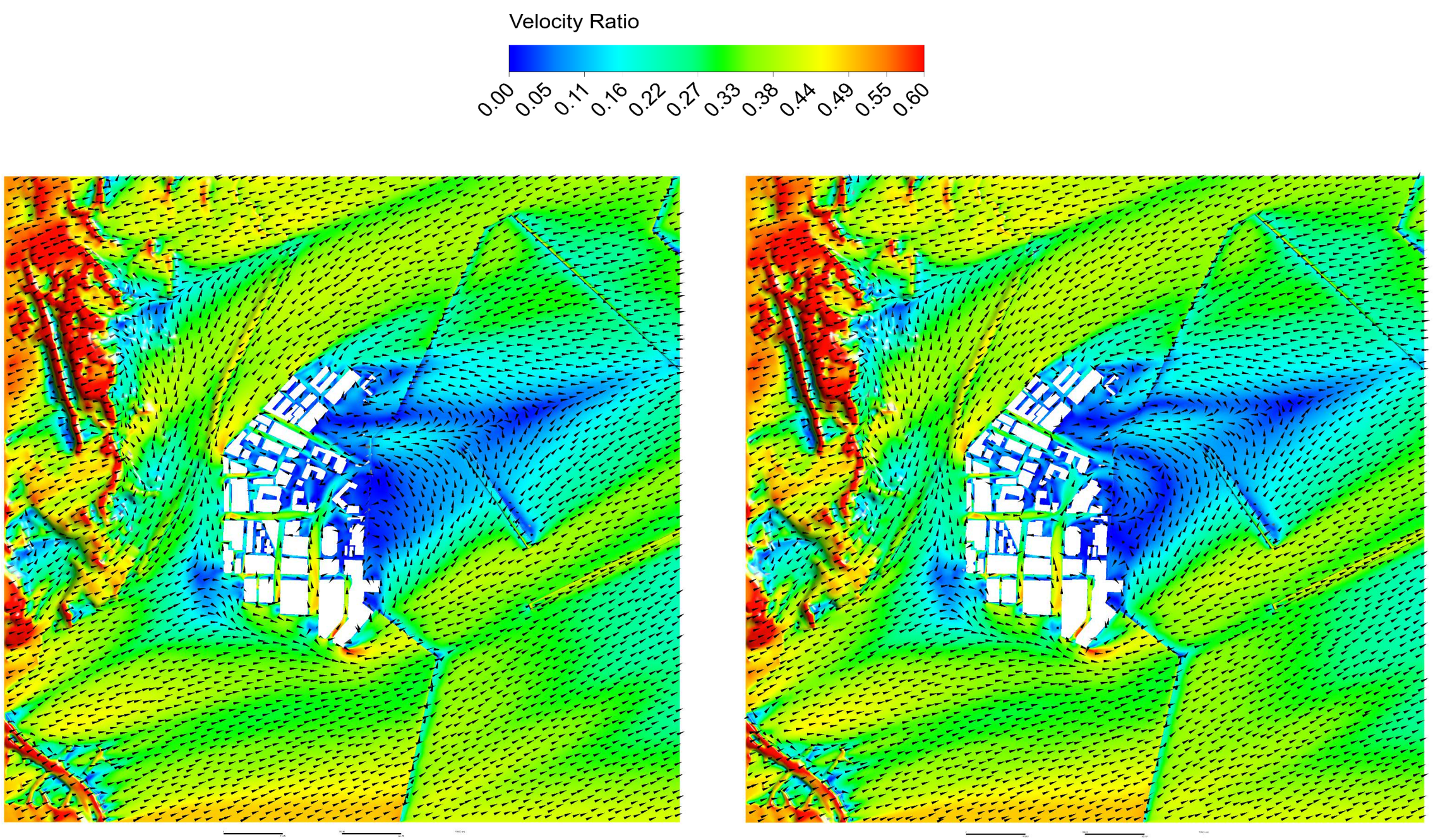
225 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2j	REV.
				-



Baseline Scheme

Proposed Scheme

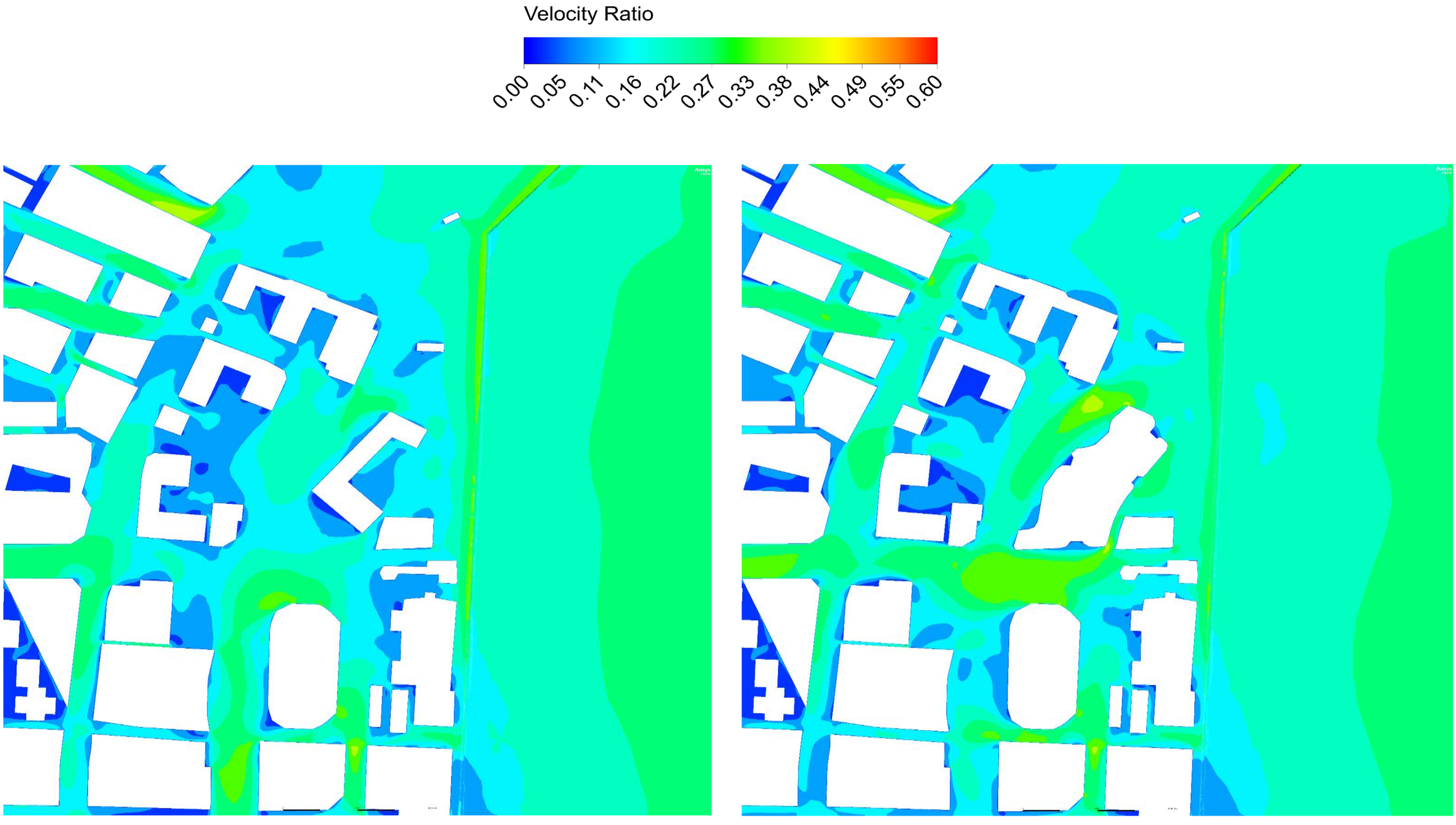
247.5 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2mAG (Computation Domain)

SCALE	N.T.S.	DATE	Apr-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-2k	REV.
				-



Baseline Scheme

Proposed Scheme

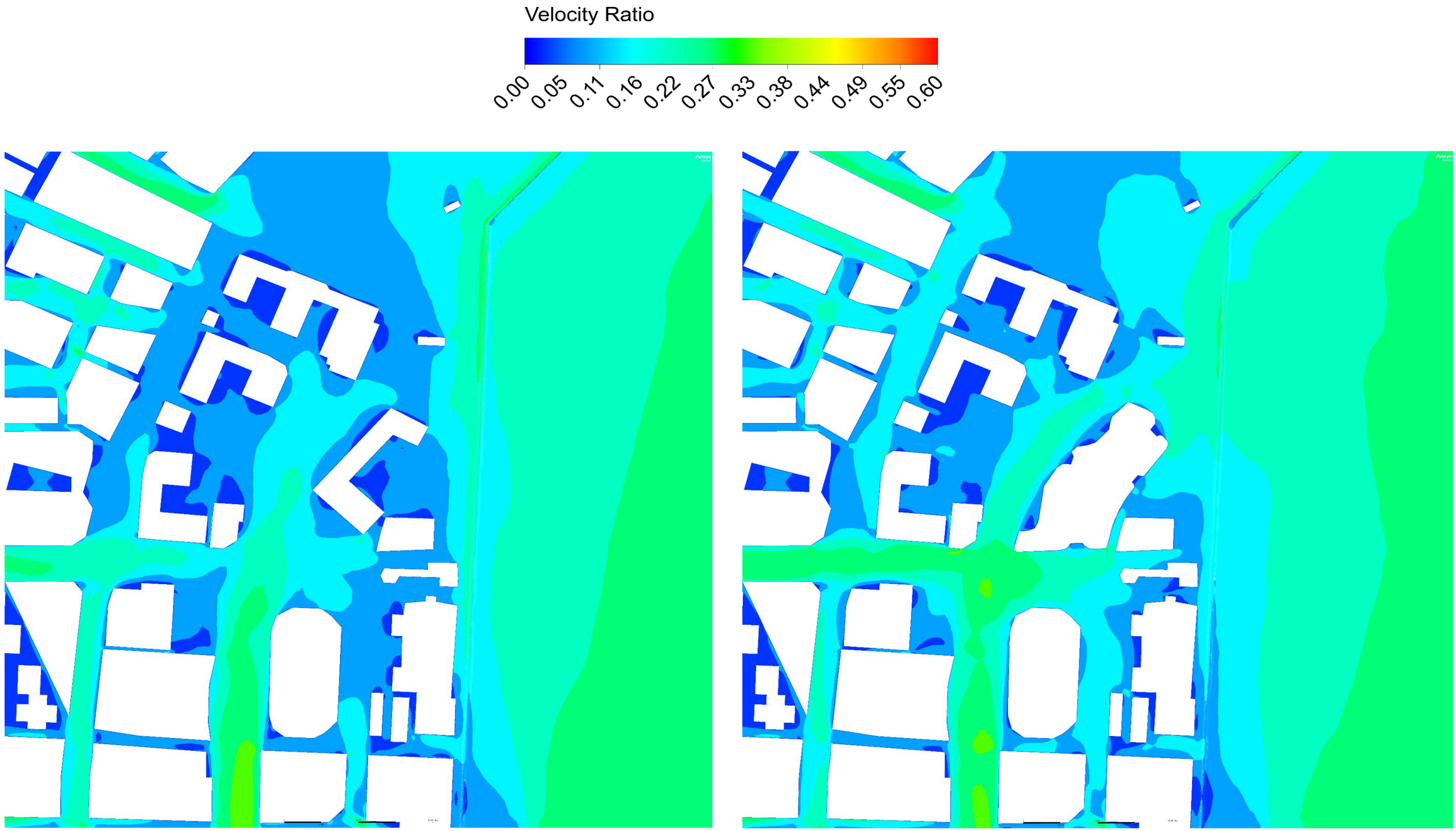
Annual

CINOTECH 漢謙 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours of Wind Velocity Ratio at 2mAG (Annual Condition)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-3a	REV.
				-



Baseline Scheme

Proposed Scheme

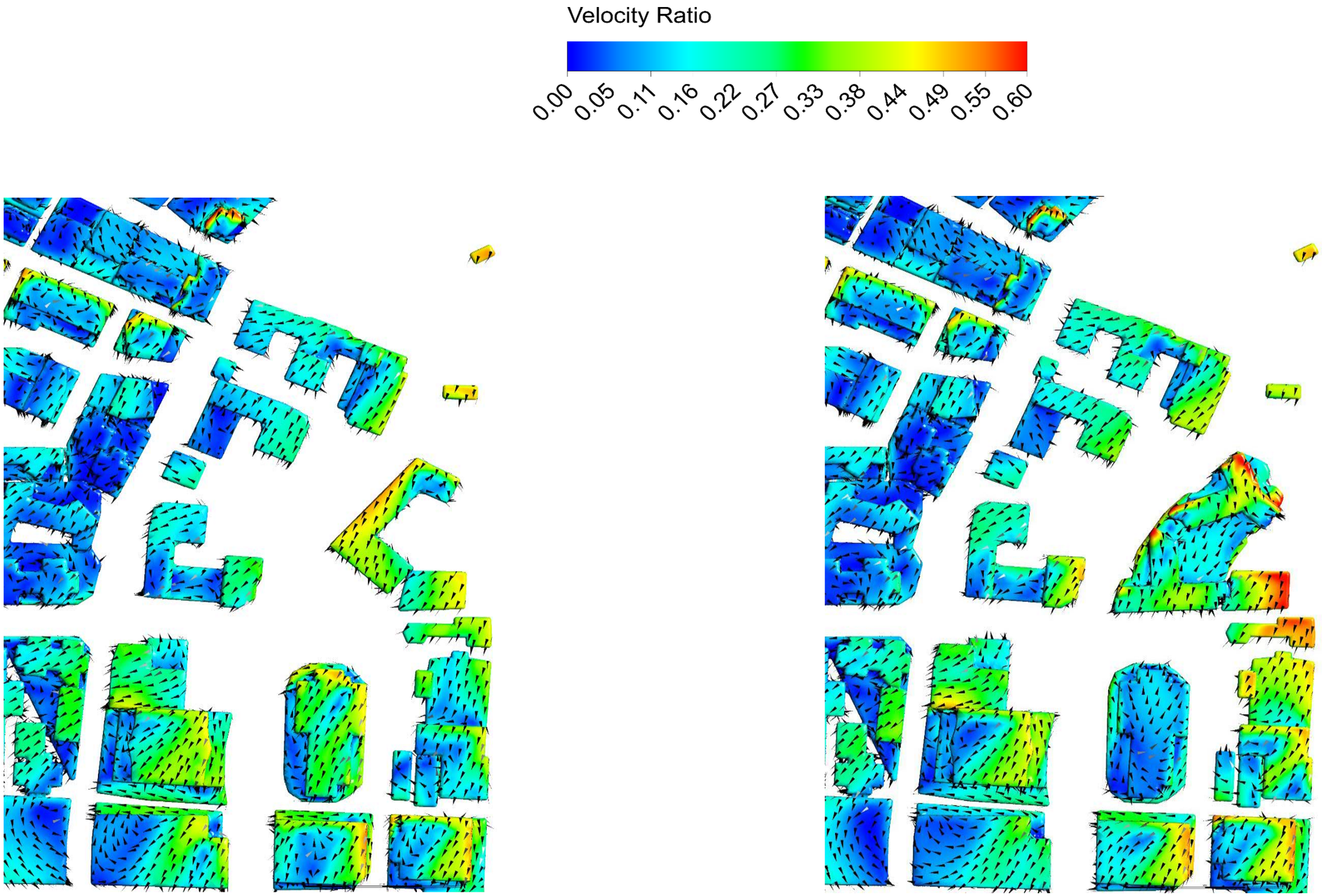
Summer

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours of Wind Velocity Ratio at 2mAG (Summer Condition)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-3b	REV.
				-



Baseline Scheme

Proposed Scheme

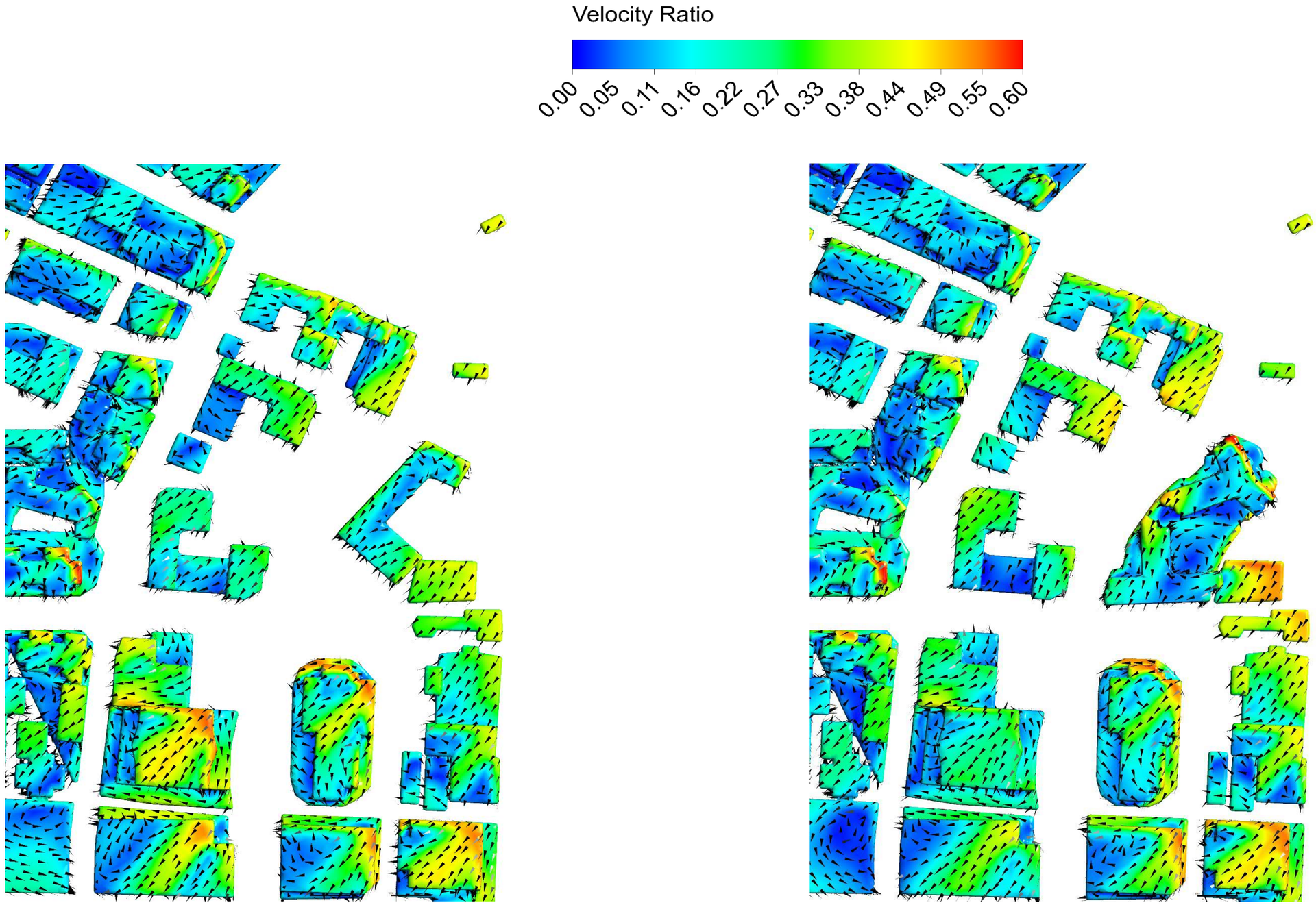
022.5 deg Wind Direction

CINOTECH 漢蘇 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

SCALE	N.T.S.	DATE	Jun-24
CHECK	KC	DRAWN	CC
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4a
			REV. -



Baseline Scheme

Proposed Scheme

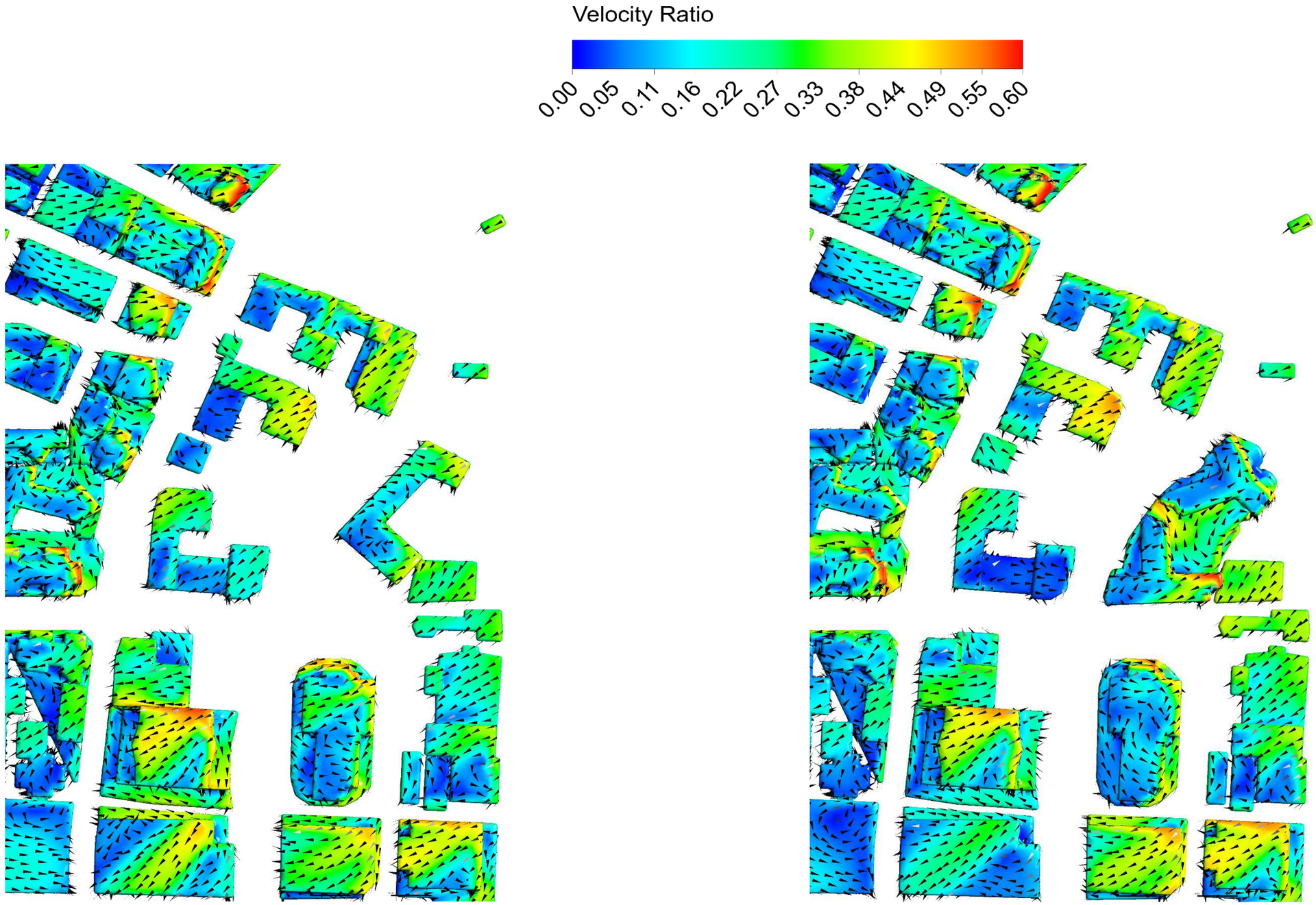
045 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4b	REV.
				-



Baseline Scheme

Proposed Scheme

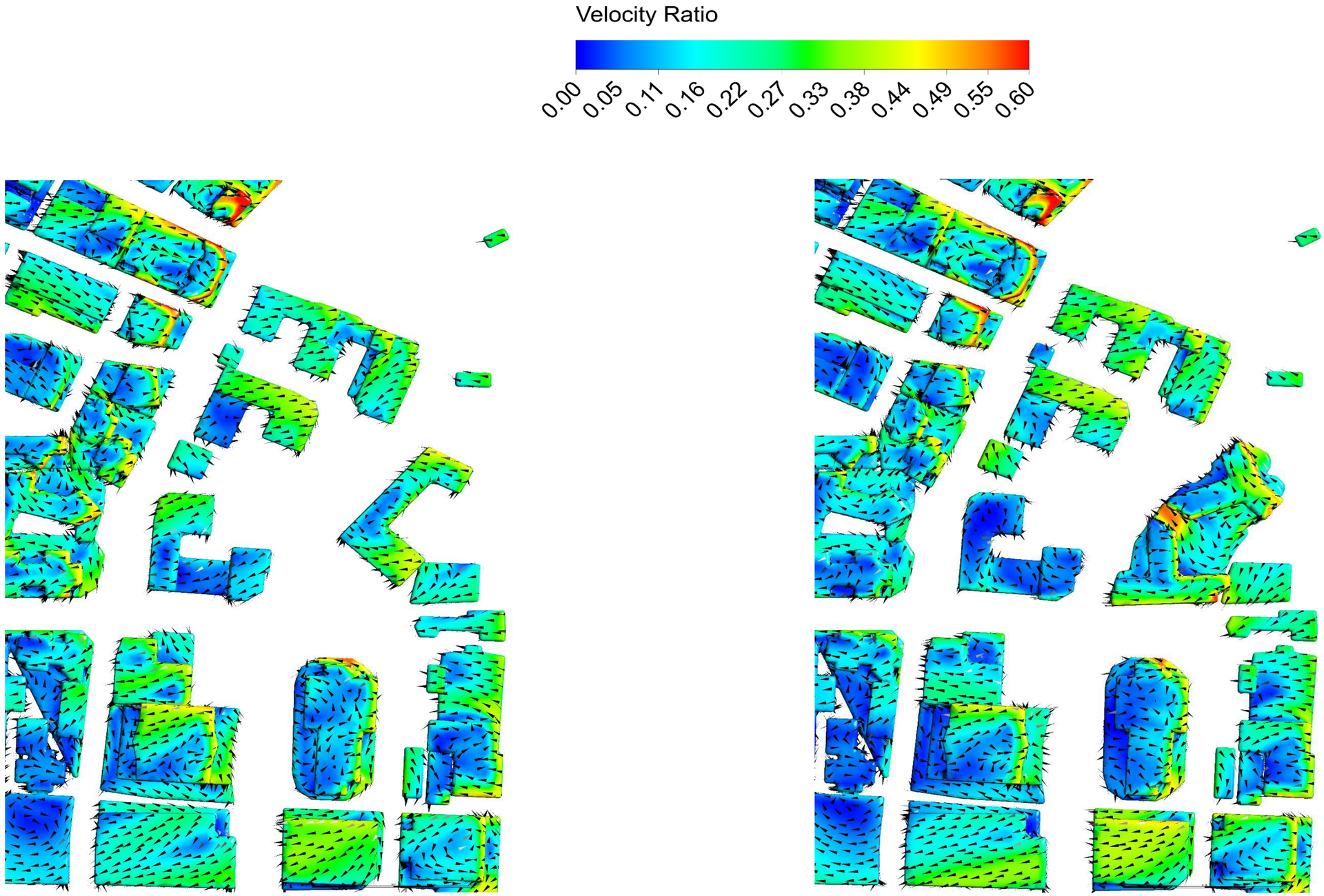
067.5 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4c	REV.
				-



Baseline Scheme

Proposed Scheme

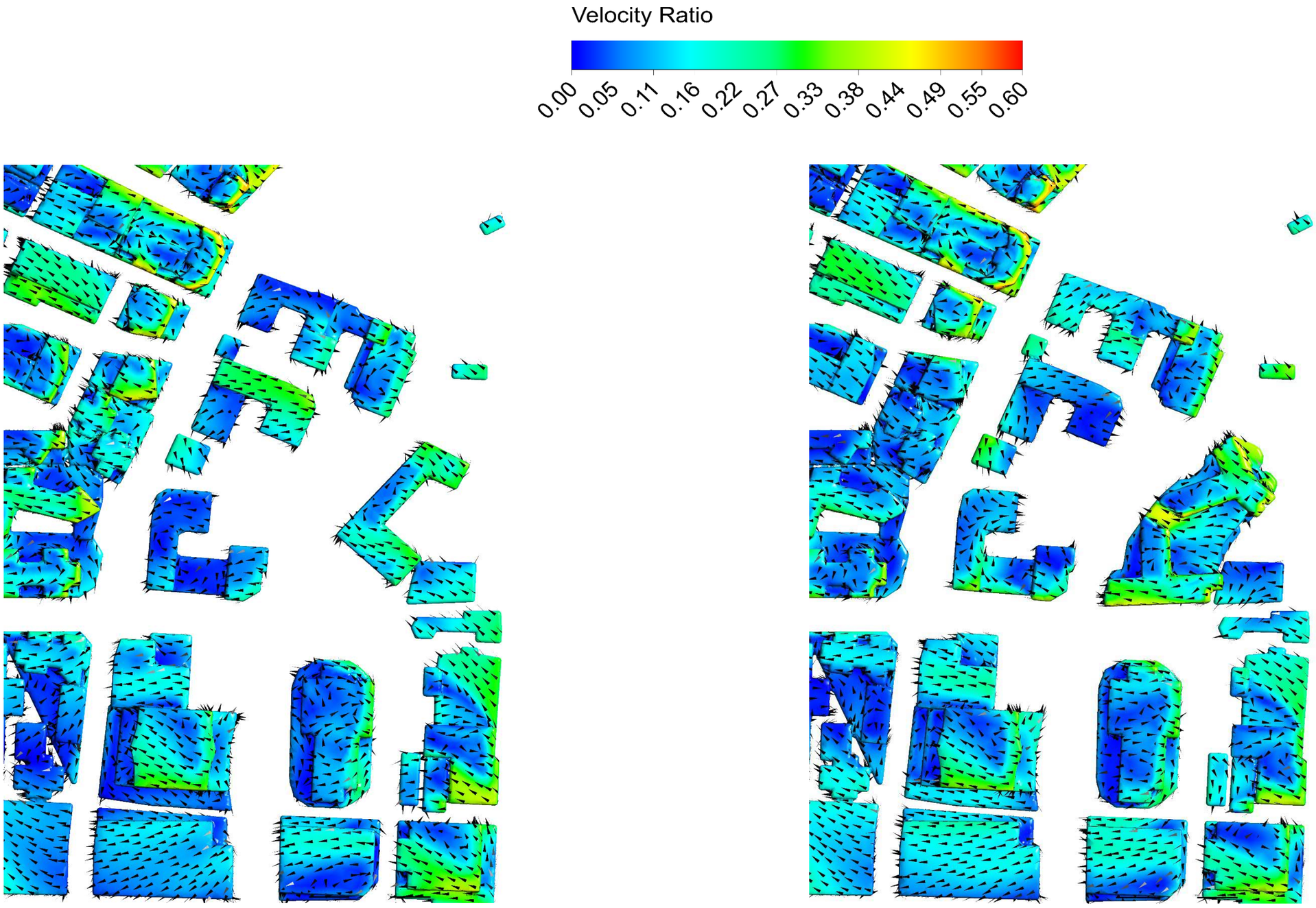
090 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4d	REV.
				-



Baseline Scheme

Proposed Scheme

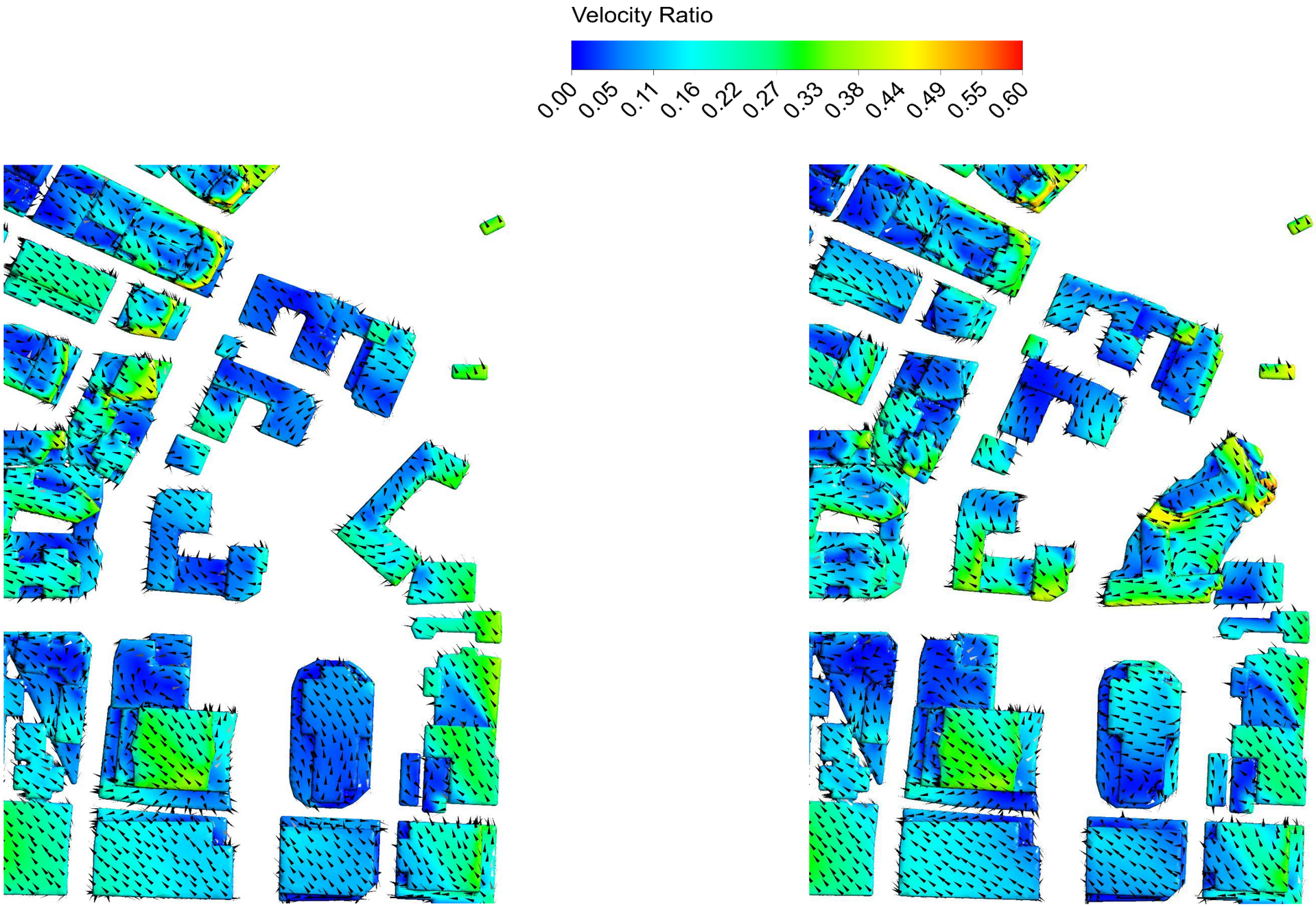
112.5 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4e	REV.
				-



Baseline Scheme

Proposed Scheme

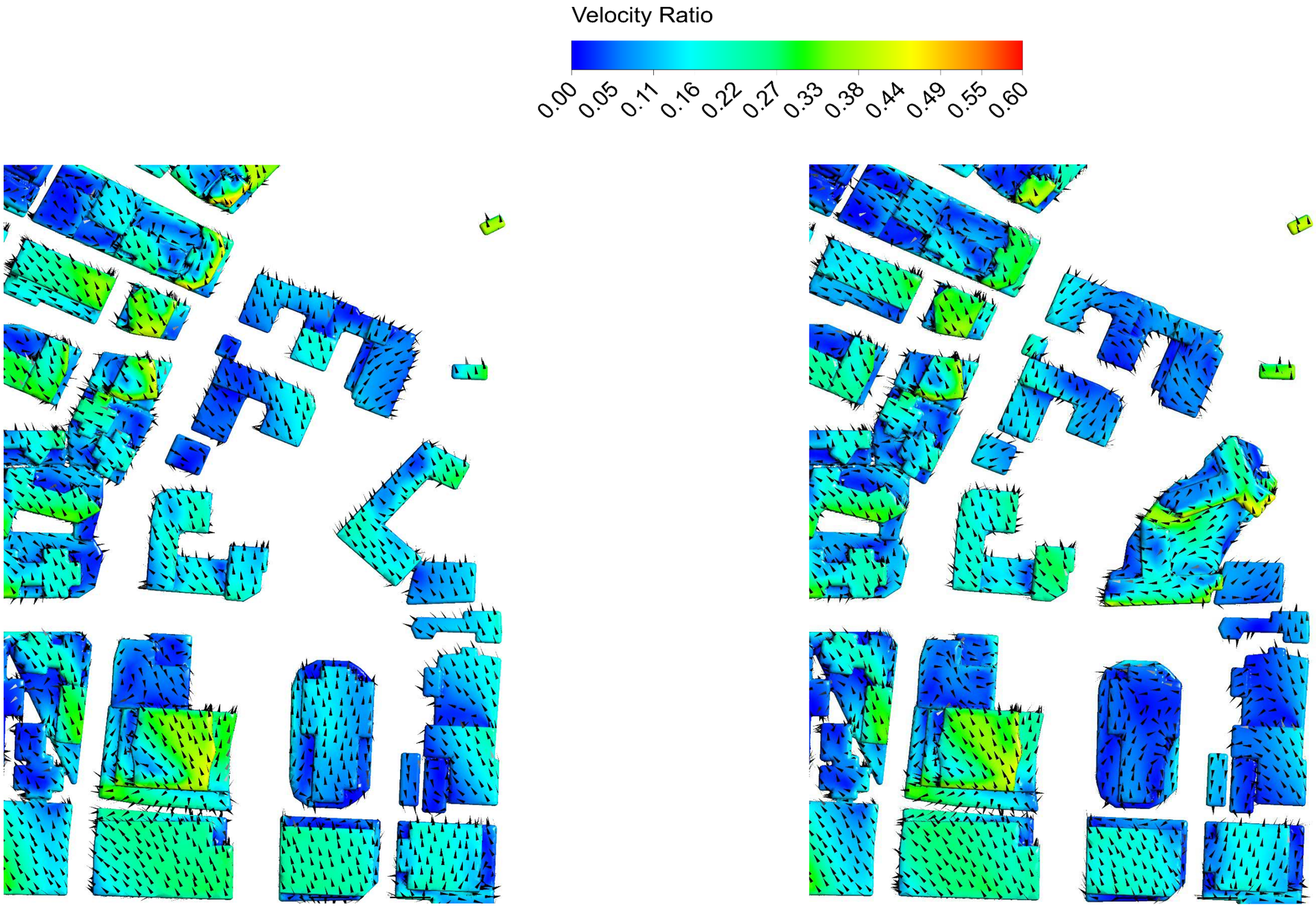
135 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4f	REV.
				-



Baseline Scheme

Proposed Scheme

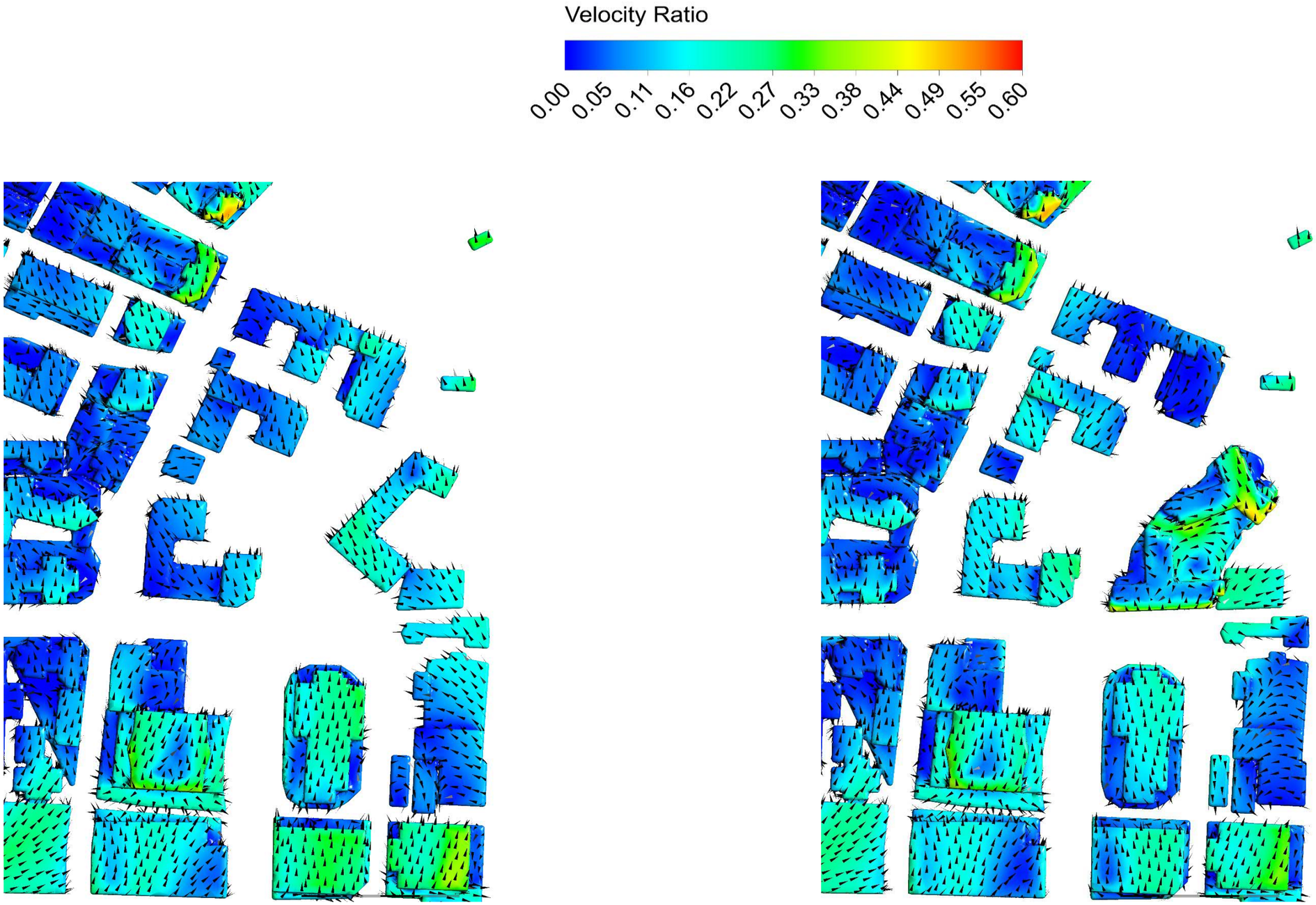
157.5 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4g	REV.
				-



Baseline Scheme

Proposed Scheme

180 deg Wind Direction

CINOTECH 漢臻 consultants limited

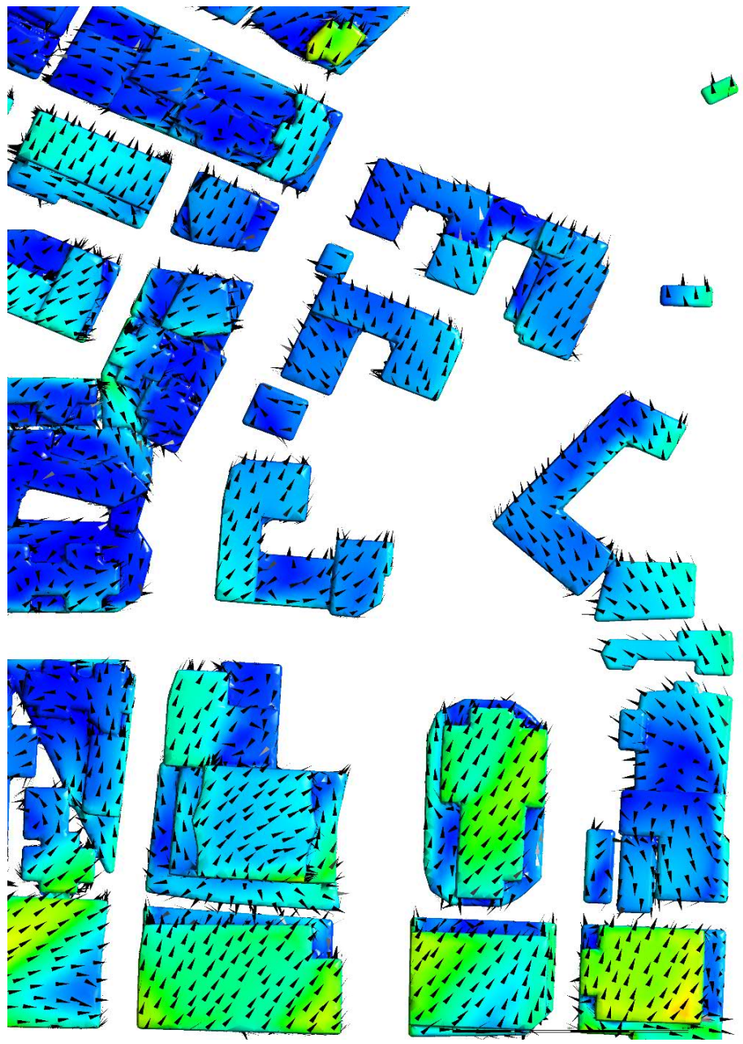
Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

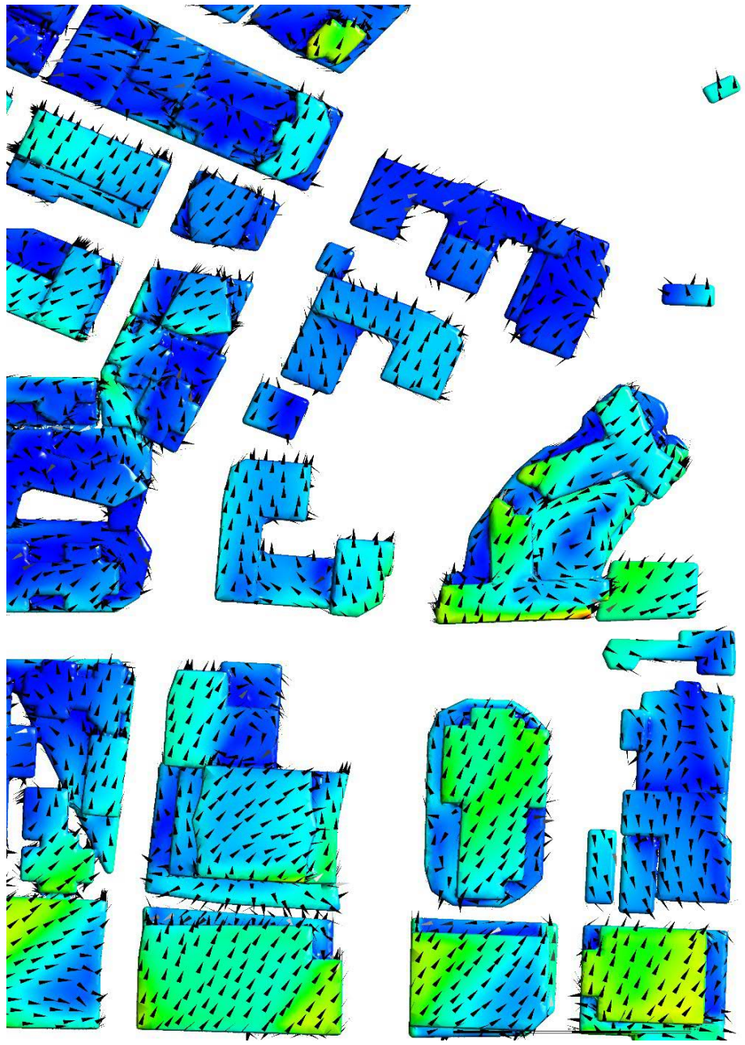
SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4h	REV.
				-

Velocity Ratio

0.00 0.05 0.11 0.16 0.22 0.27 0.33 0.38 0.44 0.49 0.55 0.60



Baseline Scheme



Proposed Scheme

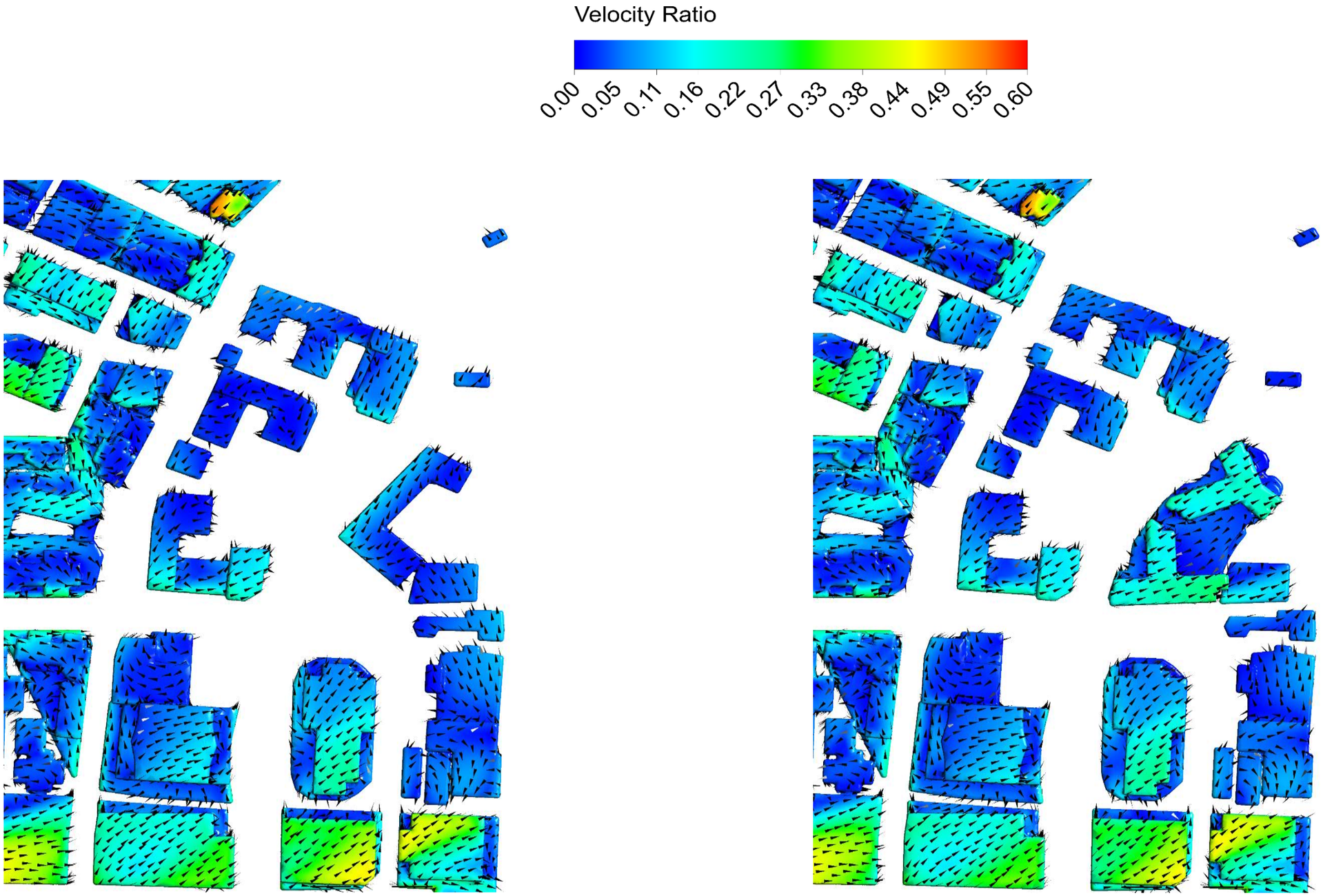
202.5 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4i	REV.
				-



Baseline Scheme

Proposed Scheme

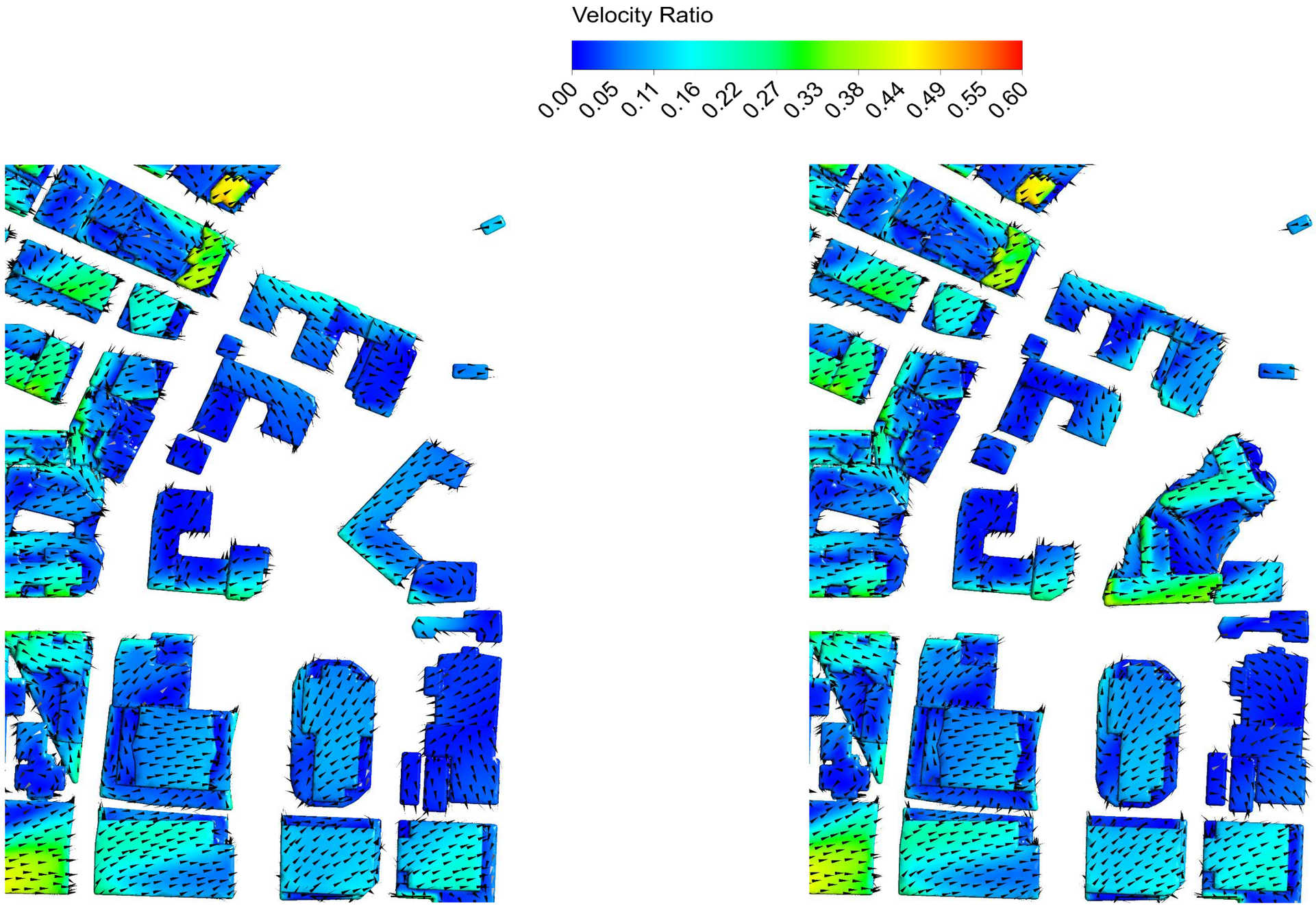
225 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4j	REV.
				-



Baseline Scheme

Proposed Scheme

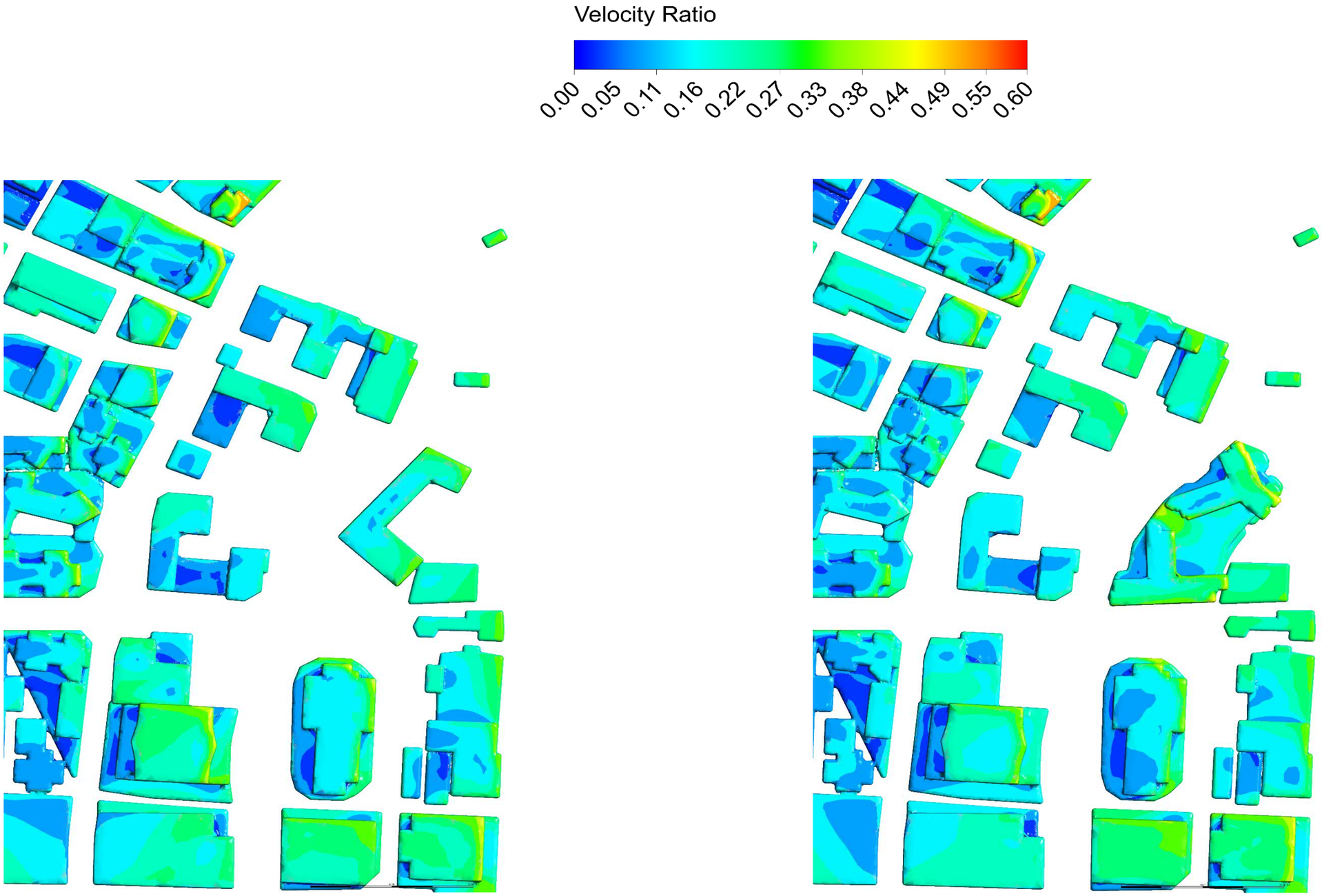
247.5 deg Wind Direction

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours and Vectors of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-4k	REV.
				-



Baseline Scheme

Proposed Scheme

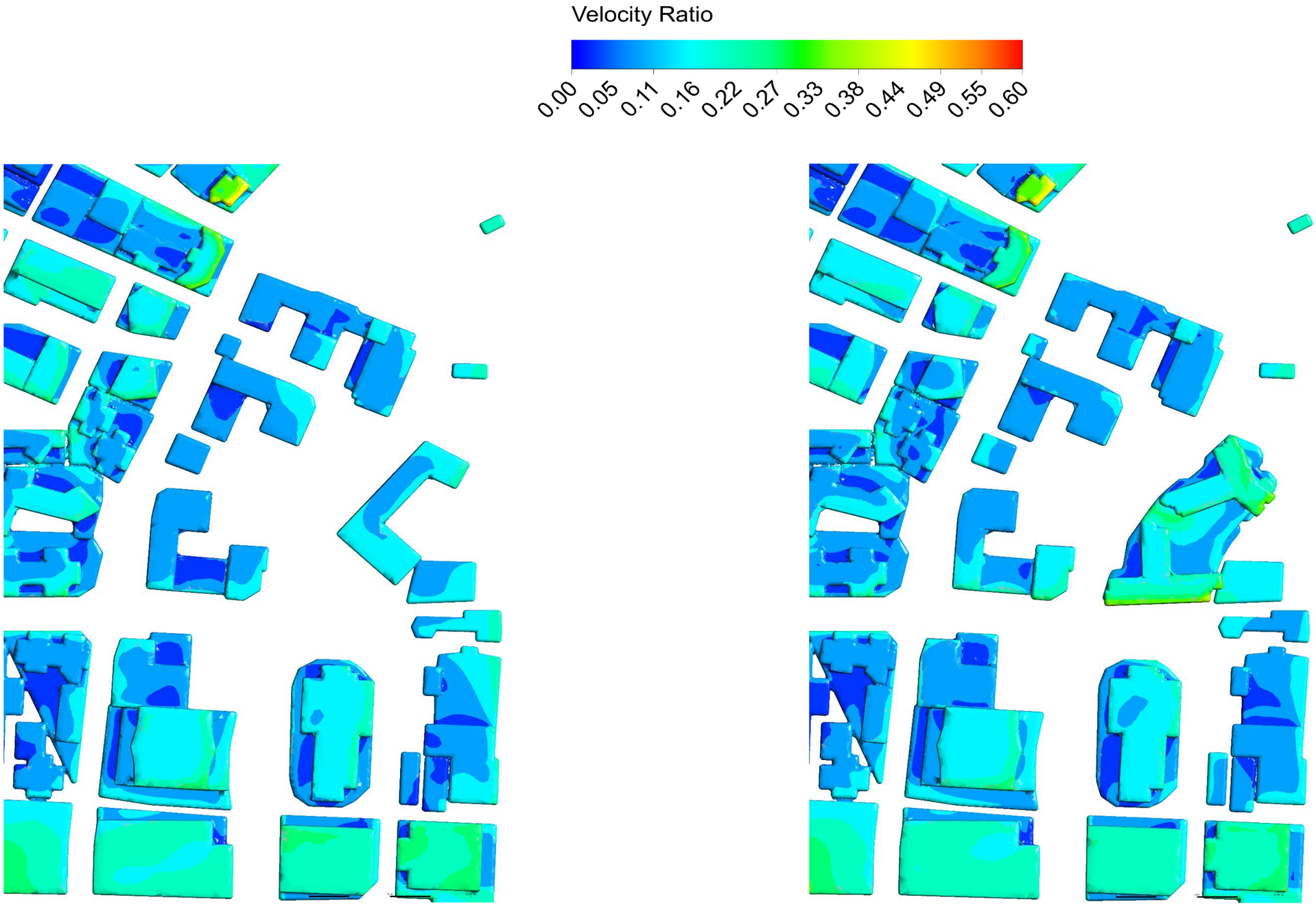
Annual

CINOTECH 漢謙 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings (Annual Condition)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-5a	REV.
				-



Baseline Scheme

Proposed Scheme

Summer

CINOTECH 漢臻 consultants limited

Proposed Residential Development in Bailey Street, Kowloon City District

Contours of Wind Velocity Ratio at 2m above Podium and Roof of Surrounding Buildings (Summer Condition)

SCALE	N.T.S.	DATE	Jun-24	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009\KCAA110	FIGURE NO.	4-5b	REV.
				-

APPENDIX 2-1
WIND DATA AT GRID [84,41] FORM RAMS

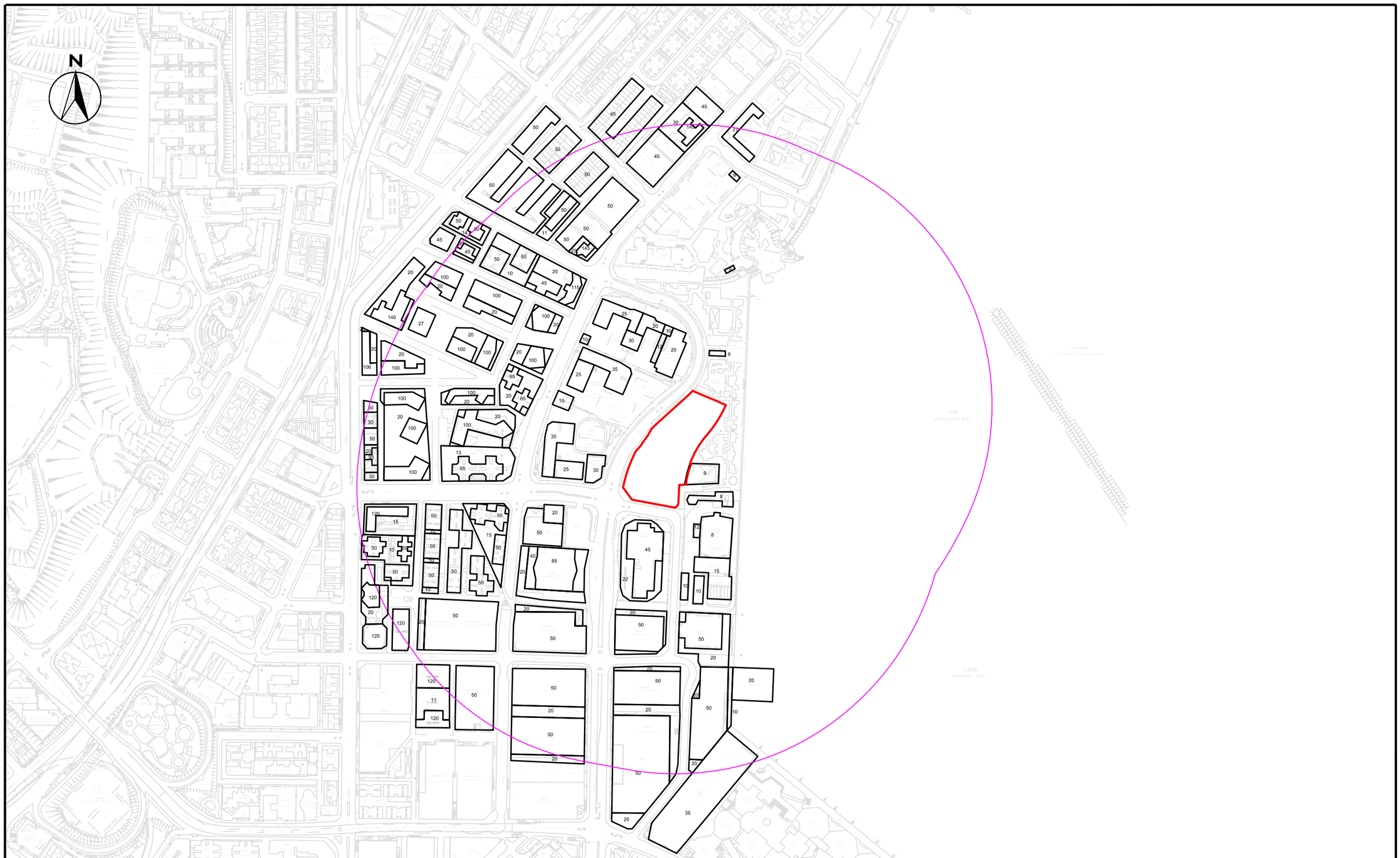
Occurrence Probability at 500m elevation (Annual)

e_01542	Wind_direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
V_infinity(m/s)	Sum	0.023	0.064	0.072	0.137	0.218	0.117	0.058	0.041	0.044	0.06	0.06	0.039	0.028	0.014	0.012	0.012
00_to_01	0.021	0.001	0.001	0.001	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.001	0.001	0.001
01_to_02	0.053	0.003	0.004	0.005	0.005	0.006	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.002	0.002	0.002
02_to_03	0.085	0.003	0.007	0.008	0.009	0.01	0.005	0.005	0.005	0.005	0.005	0.006	0.005	0.004	0.002	0.002	0.002
03_to_04	0.1	0.004	0.007	0.009	0.013	0.013	0.007	0.005	0.007	0.006	0.006	0.006	0.006	0.005	0.002	0.002	0.002
04_to_05	0.111	0.003	0.008	0.009	0.015	0.018	0.011	0.006	0.006	0.006	0.006	0.007	0.005	0.005	0.002	0.002	0.002
05_to_06	0.12	0.002	0.007	0.009	0.018	0.024	0.015	0.008	0.005	0.005	0.007	0.008	0.005	0.003	0.002	0.002	0.001
06_to_07	0.12	0.002	0.006	0.008	0.018	0.028	0.017	0.007	0.004	0.005	0.007	0.008	0.004	0.002	0.001	0.001	0.001
07_to_08	0.108	0.002	0.005	0.007	0.017	0.027	0.016	0.007	0.003	0.004	0.007	0.006	0.003	0.001	0.001	0.001	0
08_to_09	0.089	0.001	0.005	0.006	0.014	0.026	0.013	0.005	0.002	0.003	0.006	0.004	0.003	0.001	0.001	0	0
09_to_10	0.065	0.001	0.004	0.003	0.01	0.02	0.01	0.004	0.001	0.001	0.004	0.004	0.002	0	0	0	0
10_to_11	0.048	0.001	0.003	0.002	0.006	0.016	0.008	0.003	0.001	0.001	0.003	0.003	0.001	0	0	0	0
11_to_12	0.029	0.001	0.002	0.001	0.003	0.011	0.004	0.001	0.001	0.001	0.002	0.002	0.001	0	0	0	0
12_to_13	0.018	0	0.001	0.001	0.002	0.006	0.003	0.001	0	0	0.001	0.001	0	0	0	0	0
13_to_14	0.012	0	0.001	0.001	0.001	0.004	0.002	0.001	0	0	0.001	0.001	0	0	0	0	0
14_to_15	0.006	0	0.001	0	0.001	0.002	0.001	0	0	0	0	0	0	0	0	0	0
15_to_16	0.005	0	0	0	0.001	0.002	0.001	0	0	0	0	0	0	0	0	0	0
16_to_17	0.003	0	0	0	0	0.001	0	0	0	0	0	0	0	0	0	0	0
17_to_18	0.002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18_to_19	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19_to_20	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20_to_21	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21_to_22	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22_to_23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23_to_24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Occurrence Probability at 500m elevation (Summer)

e_01542	Wind_direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
V_infinity(m/s)	Sum	0.008	0.011	0.014	0.027	0.092	0.098	0.079	0.075	0.093	0.135	0.146	0.1	0.059	0.029	0.022	0.012
00_to_01	0.024	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.003	0.001	0.001	0.001
01_to_02	0.059	0.001	0.002	0.002	0.002	0.004	0.004	0.005	0.006	0.005	0.006	0.006	0.005	0.007	0.002	0.001	0.001
02_to_03	0.098	0.002	0.002	0.002	0.003	0.006	0.006	0.007	0.01	0.009	0.011	0.013	0.012	0.009	0.003	0.002	0.002
03_to_04	0.107	0.001	0.001	0.001	0.002	0.006	0.006	0.008	0.01	0.011	0.013	0.015	0.015	0.01	0.004	0.003	0.002
04_to_05	0.118	0.001	0.001	0.001	0.003	0.009	0.011	0.008	0.01	0.012	0.013	0.017	0.012	0.011	0.005	0.004	0.002
05_to_06	0.118	0	0	0.001	0.002	0.01	0.012	0.008	0.009	0.01	0.015	0.019	0.013	0.008	0.004	0.004	0.001
06_to_07	0.108	0.001	0	0.001	0.002	0.01	0.012	0.008	0.008	0.01	0.016	0.019	0.011	0.004	0.003	0.003	0.001
07_to_08	0.096	0	0	0.001	0.002	0.008	0.012	0.009	0.006	0.01	0.016	0.014	0.009	0.002	0.002	0.002	0.001
08_to_09	0.073	0	0	0.001	0.002	0.007	0.008	0.007	0.004	0.008	0.013	0.01	0.007	0.002	0.002	0.001	0
09_to_10	0.052	0	0.001	0	0.001	0.007	0.005	0.005	0.003	0.004	0.01	0.008	0.004	0.001	0.001	0.001	0
10_to_11	0.044	0	0	0	0.001	0.006	0.006	0.004	0.003	0.003	0.008	0.007	0.003	0.001	0	0	0
11_to_12	0.03	0	0.001	0	0.001	0.004	0.004	0.002	0.002	0.002	0.004	0.006	0.003	0.001	0.001	0	0
12_to_13	0.019	0	0	0	0.001	0.003	0.003	0.002	0.001	0.001	0.003	0.003	0.001	0	0	0	0
13_to_14	0.017	0	0	0.001	0.001	0.002	0.004	0.001	0	0.001	0.003	0.002	0.001	0	0	0	0
14_to_15	0.01	0	0	0	0	0.002	0.002	0.001	0	0.001	0.001	0.001	0.001	0	0	0	0
15_to_16	0.008	0	0	0	0.001	0.003	0.001	0.001	0	0.001	0	0.001	0	0	0	0	0
16_to_17	0.006	0	0	0	0	0.001	0.001	0.001	0	0.001	0	0.001	0	0	0	0	0
17_to_18	0.003	0	0	0	0	0.001	0.001	0	0	0	0	0	0	0	0	0	0
18_to_19	0.002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19_to_20	0.002	0	0	0	0	0	0.001	0	0	0	0	0	0	0	0	0	0
20_to_21	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21_to_22	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22_to_23	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23_to_24	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 3-1
ADOPTED BUILDING HEIGHT IN THE SURROUNDING AREA



CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District (KCAA1-10)

Overview of Adopted Building Height in the Surrounding Area

SCALE	1:4000 @ A3	DATE	Mar 2024
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	--
		REV	-



CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District (KCAA1-10)

Adopted Building Height in the Surrounding Area - 1

SCALE	1:2000 @ A3	DATE	Mar 2024
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No. --	REV -



CINOTECH
Cinotech Consultants Limited

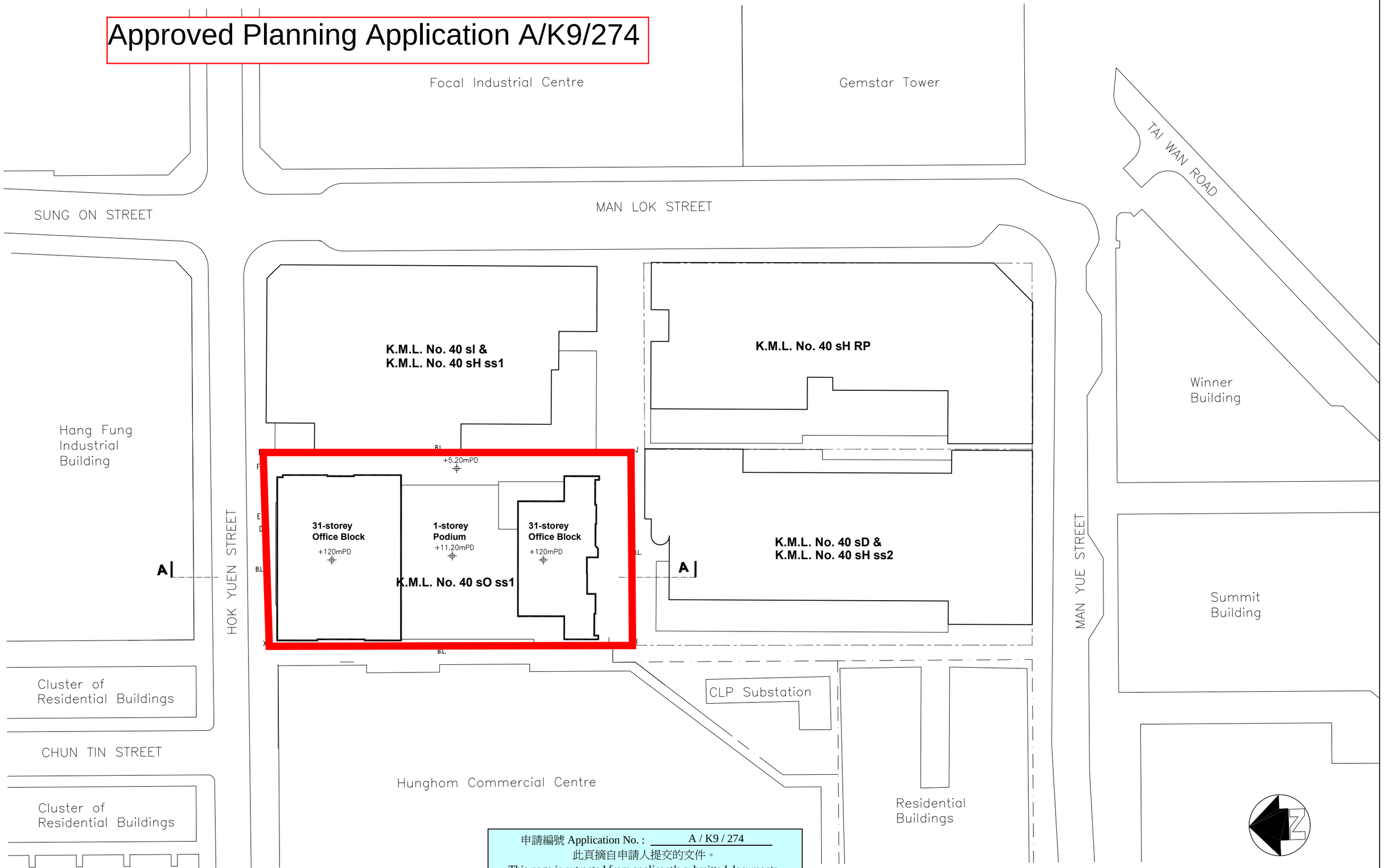
Proposed Residential Development in Bailey Street, Kowloon City District (KCAA1-10)

Adopted Building Height in the Surrounding Area - 2

SCALE	1:2000 @ A3	DATE	Mar 2024
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	--
		REV	-

APPENDIX 3-2
EXTRACTED LAYOUT PLAN OF THE PLANNED DEVELOPMENTS

Approved Planning Application A/K9/274



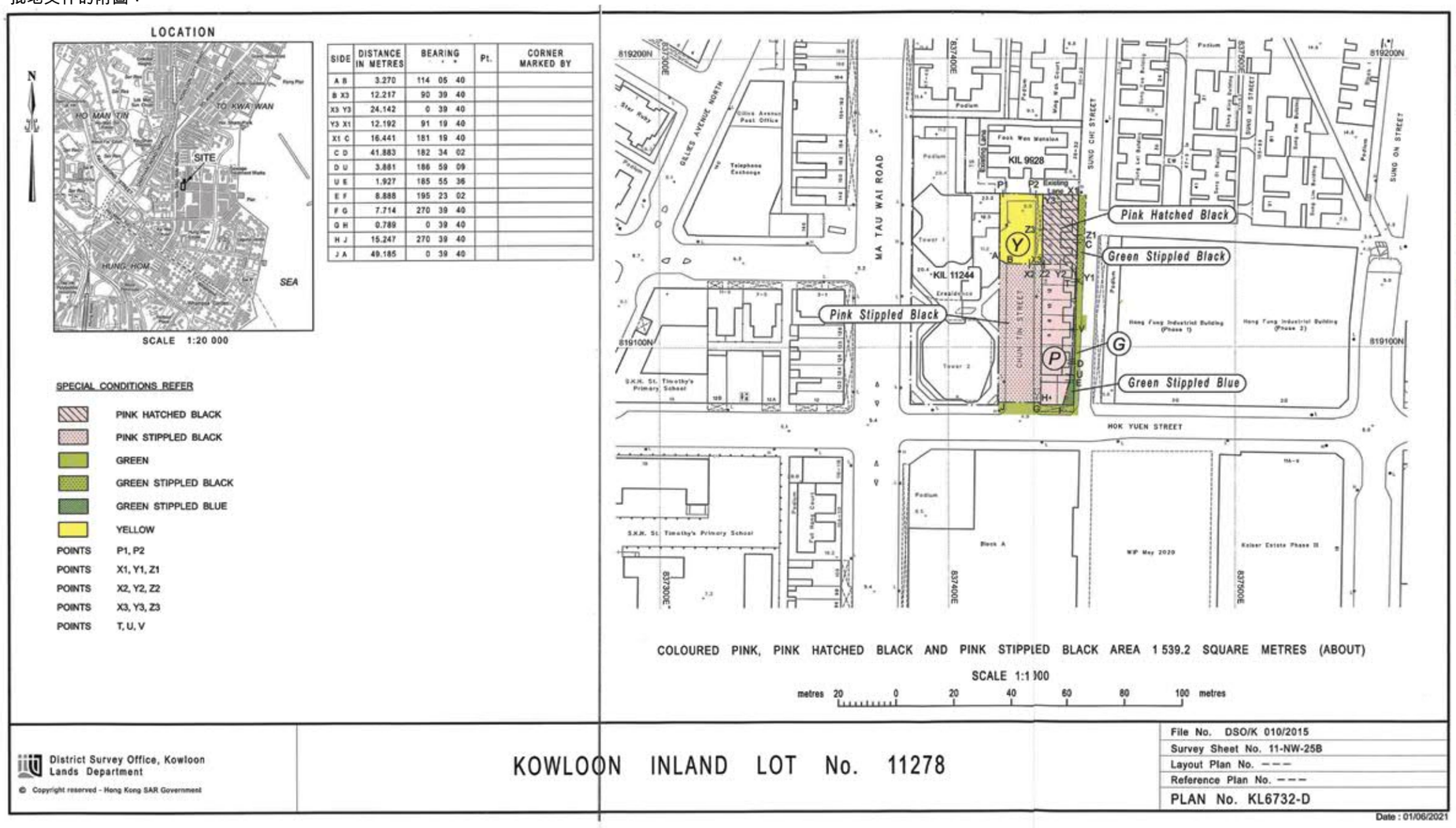
申請編號 Application No. : A / K9 / 274
此頁摘自申請人提交的文件。
This page is extracted from applicant's submitted documents.

PROJECT PROPOSED OFFICE & COMMERCIAL DEVELOPMENT 13 HOK YUEN STREET, HUNG HOM (K.M.L. No. 40 s0 ss1)	TITLE MASTER LAYOUT PLAN	REV. / DATE	DWG. NO. PD–01 SCALE 1 : 800 DATE 17.12.2018

INFORMATION ON PUBLIC FACILITIES AND PUBLIC OPEN SPACES
公共設施及公眾休憩用地的資料

URA Project KC-008(A)

The plan annexed to the Land Grant :
批地文件的附圖：



Legend 圖例：

- Pink Hatched Black 粉紅色間黑斜線
- Pink Stippled Black 粉紅色加黑點
- Green 綠色
- Green Stippled Black 綠色加黑點
- Green Stippled Blue 綠色加藍點
- Yellow 黃色

District Survey Office, Kowloon
Lands Department

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KOWLOON INLAND LOT No. 11278

File No. DSO/K 010/2015
Survey Sheet No. 11-NW-25B
Layout Plan No. ---
Reference Plan No. ---
PLAN No. KL6732-D

Date : 01/06/2021

WARNING TO PURCHASERS
對買方的警告

URA Project KC-008(A)

1. The purchaser is hereby recommended to instruct a separate firm of solicitors (other than that acting for the owner) to act for the purchaser in relation to the transaction.

2. If the purchaser instructs such separate firm of solicitors to act for the purchaser in relation to the transaction, that firm will be able to give independent advice to the purchaser.

3. If the purchaser instructs the firm of solicitors acting for the owner to act for the purchaser as well, and a conflict of interest arises between the owner and the purchaser –

   (i) that firm may not be able to protect the purchaser's interests; and

   (ii) the purchaser may have to instruct a separate firm of solicitors; and

4. In the case of paragraph 3 (ii), the total solicitors' fees payable by the purchaser may be higher than the fees that would have been payable if the purchaser had instructed a separate firm of solicitors in the first place.

1. 現特此建議買方聘用一間獨立的律師事務所(代表擁有人行事者除外)，以在交易中代表買方行事。

2. 如買方聘用上述的獨立的律師事務所，以在交易中代表買方行事，該律師事務所將會能夠向買方提供獨立意見。

3. 如買方聘用代表擁有人行事的律師事務所同時代表買方行事，而擁有人與買方之間出現利益衝突 —

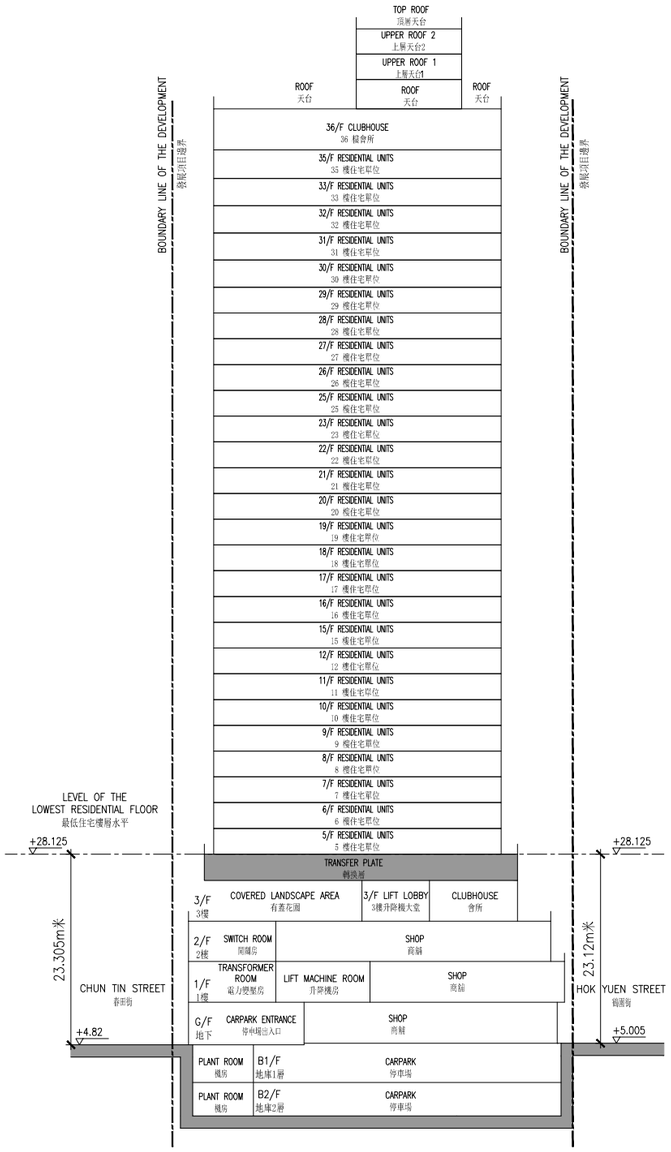
   (i) 該律師事務所可能不能夠保障買方的利益；及

   (ii) 買方可能要聘用一間獨立的律師事務所；及

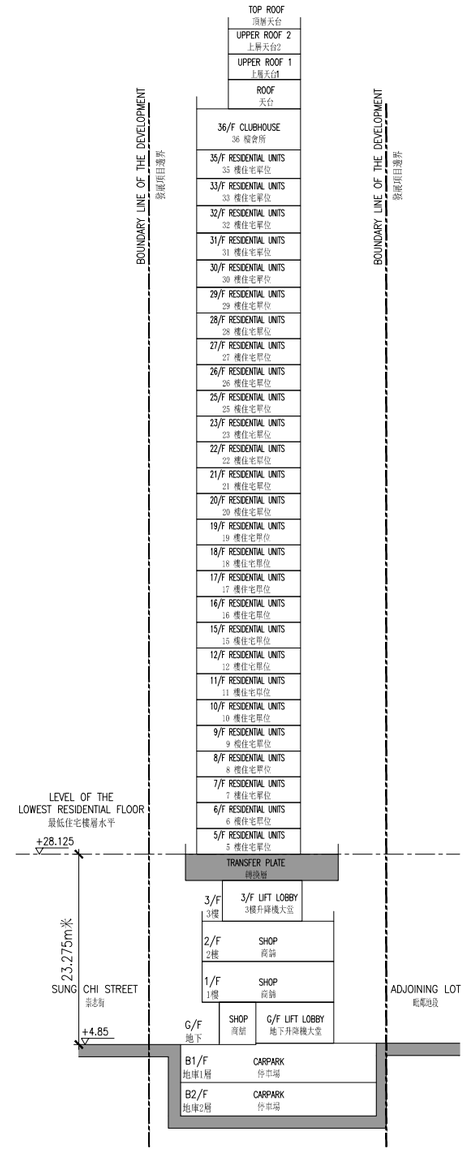
4. 如屬3(ii)段的情況，買方須支付的律師費用總數，可能高於如買方自一開始即聘用一間獨立的律師事務所便須支付的費用。

CROSS-SECTION PLAN OF BUILDING IN THE DEVELOPMENT
發展項目中的建築物的橫截面圖

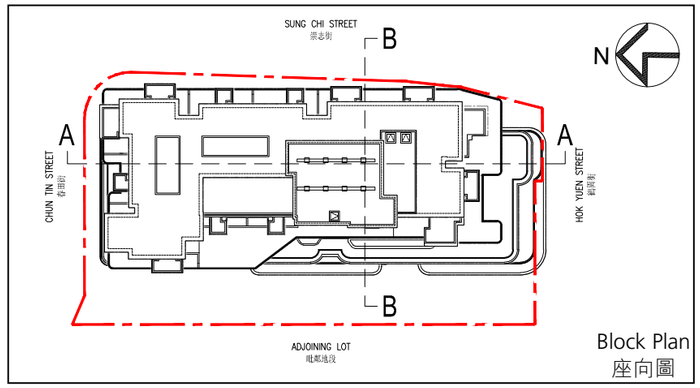
URA Project KC-008(A)



CROSS-SECTION A
橫截面圖 A



CROSS-SECTION B
橫截面圖 B



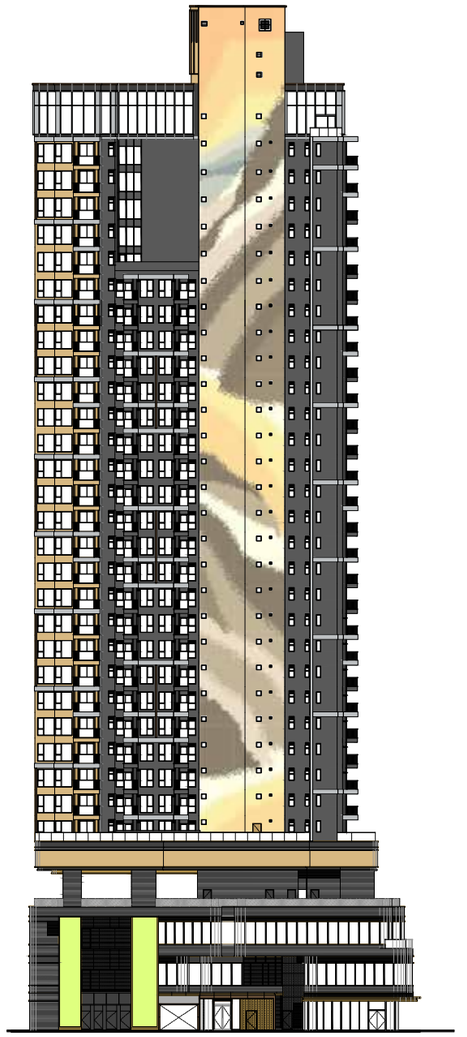
Boundary line of the Development
發展項目邊界

1. ▽ denotes height (in metres) above the Hong Kong Principal Datum (HKPD).
2. - — - — Dotted line denotes the lowest residential floor of the building.
3. The part of Chun Tin Street adjacent to the building is 4.820 metres above the Hong Kong Principal Datum (HKPD).
4. The part of Hok Yuen Street adjacent to the building is 5.005 metres above the Hong Kong Principal Datum (HKPD).
5. The part of Sung Chi Street adjacent to the building is 4.850 metres above the Hong Kong Principal Datum (HKPD).

1. ▽ 代表香港主水平基準以上的高度(米)。
2. - — - — 虛線代表期數中建築物之最低住宅樓層水平。
3. 毗連建築物的一段春田街為香港主水平基準以上4.820米。
4. 毗連建築物的一段鶴園街為香港主水平基準以上5.005米。
5. 毗連建築物的一段崇志街為香港主水平基準以上4.850米。

ELEVATION PLAN
立面圖

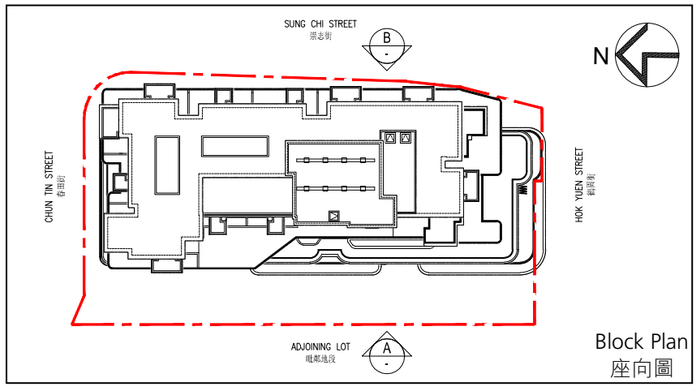
URA Project KC-008(A)



ELEVATION A
立面圖 A



ELEVATION B
立面圖 B



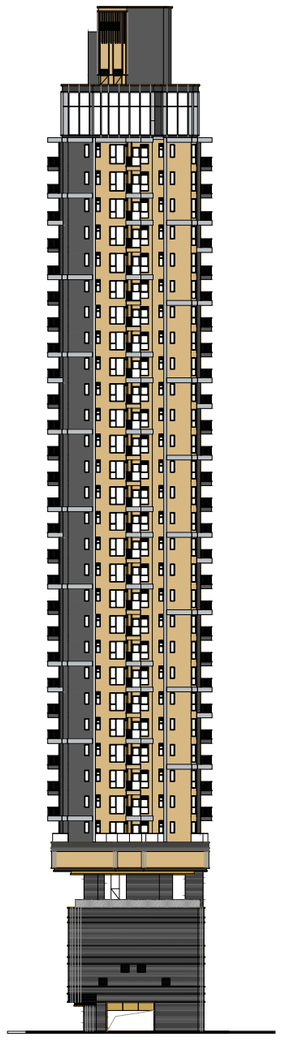
Boundary line of the Development
發展項目邊界

It has been certified by the Authorized Person for the Development that the above elevations:
(a) are prepared on the basis of the approved building plans for the Development as of 6 September 2023; and
(b) are in general accordance with the outward appearance of the Development.

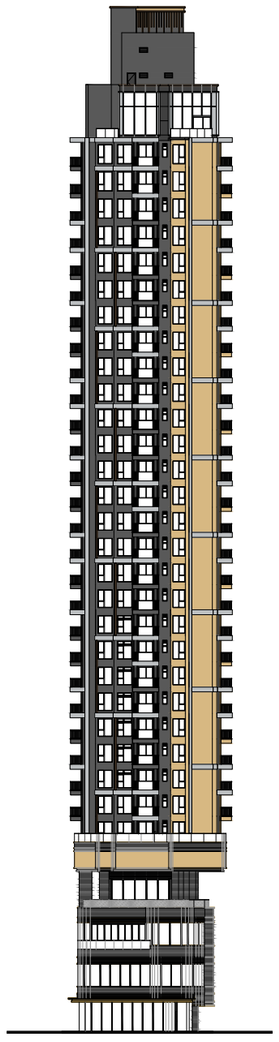
發展項目的認可人士已經證明該等立面：
(a) 以2023年9月6日的情況為準的發展項目的經批准的建築圖則為基礎擬備；及
(b) 大致上與發展項目的外觀一致。

ELEVATION PLAN
立面圖

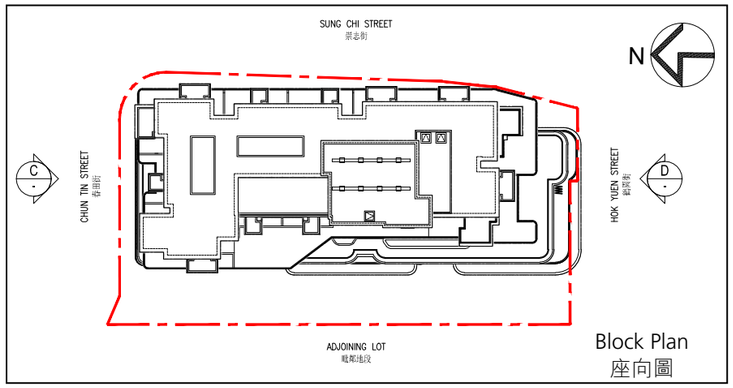
URA Project KC-008(A)



ELEVATION C
立面圖 C



ELEVATION D
立面圖 D

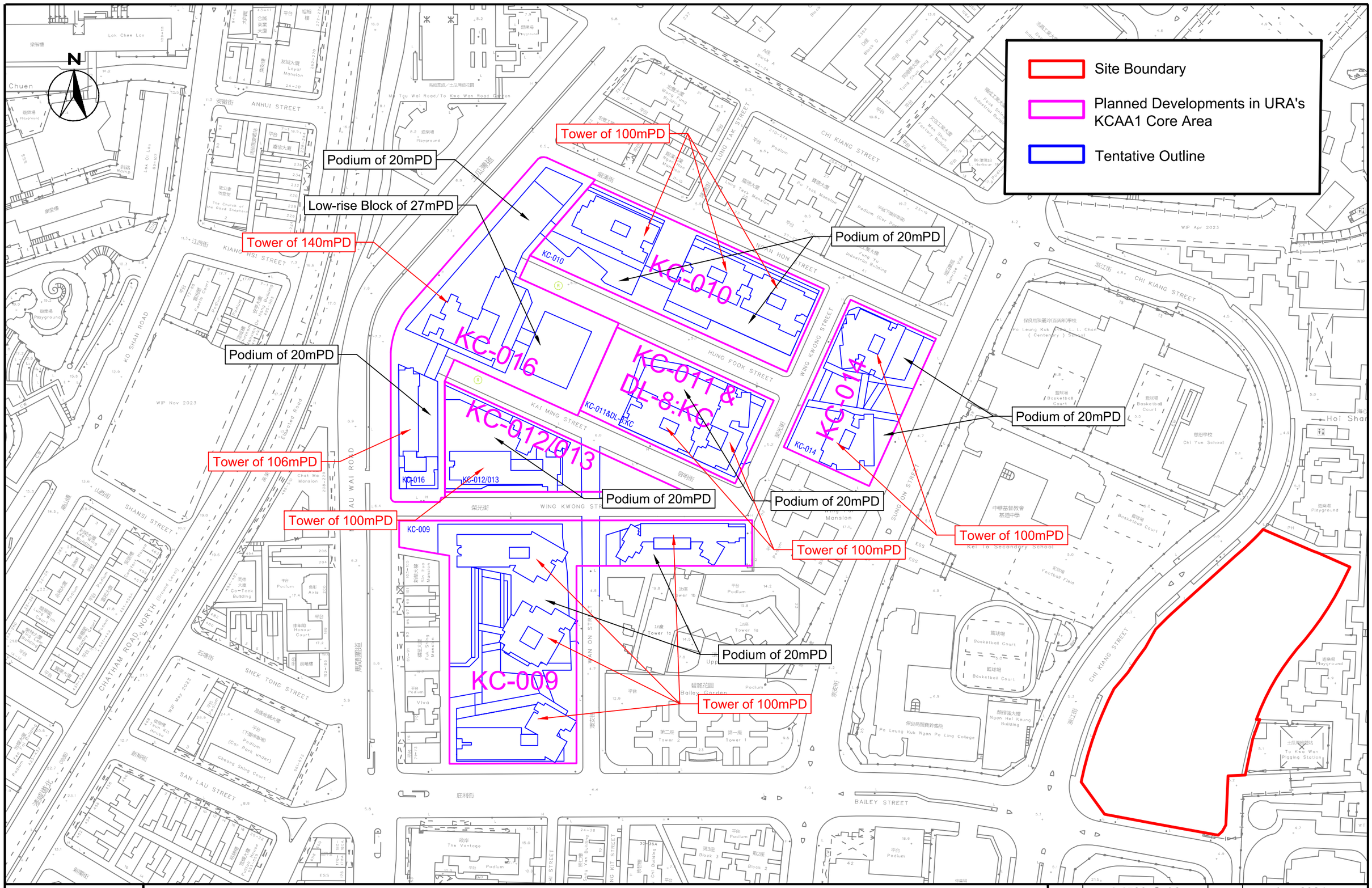


Block Plan
座向圖

Boundary line of the Development
發展項目邊界

It has been certified by the Authorized Person for the Development that the above elevations:
(a) are prepared on the basis of the approved building plans for the Development as of 6 September 2023; and
(b) are in general accordance with the outward appearance of the Development.

發展項目的認可人士已經證明該等立面：
(a) 以2023年9月6日的情況為準的發展項目的經批准的建築圖則為基礎擬備；及
(b) 大致上與發展項目的外觀一致。



CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Tentative Layout Plan of URA's KCAA1 Core Area

SCALE	1:1500 @ A3	DATE	Aug 2024
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	App 3-2
		REV	-

APPENDIX 4-1
DETAILED SIMULATED RESULTS

Wind Velocity Ratio, Baseline Scheme

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.4%	7.2%	13.7%	21.8%	11.7%	5.8%			6.0%	6.0%		78.6%		
			Probability (Summer)				9.2%	9.8%	7.9%	7.5%	9.3%	13.5%	14.6%	10.0%	81.8%		
P001	837749.46	819268.36		0.094	0.105	0.113	0.158	0.183	0.214	0.074	0.086	0.067	0.067	0.158		**0.13**	**0.12**
P002	837747.54	819258.82		0.131	0.196	0.197	0.208	0.133	0.170	0.081	0.148	0.134	0.078	0.136		**0.17**	**0.13**
P003	837746.79	819248.85		0.094	0.214	0.176	0.118	0.116	0.116	0.072	0.124	0.123	0.069	0.074		**0.13**	**0.10**
P004	837743.72	819239.81		0.068	0.147	0.102	0.174	0.181	0.100	0.065	0.138	0.129	0.060	0.037		**0.13**	**0.11**
P005	837733.94	819241.89		0.103	0.163	0.158	0.240	0.211	0.128	0.070	0.143	0.120	0.062	0.017		**0.17**	**0.12**
P006	837724.10	819243.71		0.172	0.205	0.212	0.293	0.229	0.157	0.073	0.144	0.107	0.049	0.011		**0.21**	**0.13**
P007	837714.26	819245.47		0.239	0.252	0.255	0.326	0.230	0.166	0.071	0.132	0.091	0.037	0.025		**0.23**	**0.13**
P008	837704.41	819247.23		0.300	0.269	0.267	0.328	0.217	0.164	0.056	0.099	0.071	0.042	0.089		**0.24**	**0.13**
P009	837694.57	819249.01		0.339	0.270	0.252	0.309	0.199	0.156	0.047	0.079	0.192	0.141	0.176		**0.25**	**0.17**
P010	837686.70	819256.09		0.341	0.233	0.173	0.233	0.177	0.162	0.086	0.126	0.288	0.235	0.257		**0.22**	**0.21**
P011	837680.15	819264.03		0.304	0.192	0.179	0.119	0.154	0.159	0.113	0.150	0.307	0.294	0.290		**0.19**	**0.21**
P012	837683.32	819273.51		0.238	0.122	0.200	0.087	0.120	0.170	0.091	0.123	0.296	0.293	0.285		**0.16**	**0.20**
P013	837685.82	819283.55		0.167	0.096	0.224	0.103	0.044	0.191	0.085	0.106	0.282	0.284	0.271		**0.15**	**0.19**
P014	837689.85	819293.07		0.118	0.136	0.241	0.120	0.046	0.234	0.097	0.103	0.263	0.272	0.253		**0.16**	**0.19**
P015	837693.63	819301.57		0.156	0.212	0.250	0.140	0.077	0.254	0.116	0.131	0.241	0.257	0.229		**0.18**	**0.19**
P016	837699.72	819309.97		0.275	0.259	0.248	0.169	0.103	0.187	0.142	0.168	0.196	0.254	0.244		**0.20**	**0.19**
P017	837705.15	819317.85		0.304	0.282	0.228	0.181	0.108	0.071	0.129	0.090	0.130	0.258	0.266		**0.19**	**0.16**
P018	837710.52	819326.29		0.332	0.312	0.215	0.195	0.132	0.067	0.088	0.054	0.035	0.217	0.203		**0.19**	**0.13**
P019	837716.05	819334.62		0.352	0.334	0.201	0.208	0.181	0.063	0.107	0.082	0.020	0.171	0.160		**0.20**	**0.12**
P020	837723.52	819341.26		0.361	0.353	0.181	0.214	0.231	0.073	0.116	0.085	0.014	0.111	0.121		**0.20**	**0.12**
P021	837730.99	819347.91		0.367	0.373	0.162	0.255	0.256	0.080	0.114	0.075	0.022	0.078	0.106		**0.21**	**0.12**
P022	837738.46	819354.56		0.373	0.396	0.071	0.102	0.247	0.078	0.106	0.063	0.029	0.062	0.102		**0.16**	**0.09**
P023	837745.94	819361.20		0.385	0.426	0.089	0.115	0.188	0.058	0.097	0.056	0.038	0.059	0.100		**0.16**	**0.09**
P024	837753.35	819367.92		0.420	0.474	0.261	0.178	0.176	0.056	0.097	0.077	0.053	0.061	0.099		**0.21**	**0.10**
P025	837760.76	819374.10		0.331	0.376	0.323	0.370	0.239	0.059	0.116	0.081	0.077	0.062	0.097		**0.27**	**0.13**
P026	837769.97	819370.22		0.159	0.197	0.231	0.325	0.223	0.086	0.070	0.088	0.056	0.011	0.017		**0.21**	**0.10**
P027	837779.13	819366.20		0.084	0.065	0.123	0.285	0.258	0.053	0.053	0.059	0.048	0.014	0.027		**0.16**	**0.09**
P028	837788.29	819362.18		0.233	0.171	0.057	0.242	0.323	0.183	0.125	0.126	0.105	0.043	0.028		**0.18**	**0.14**
P029	837797.66	819357.91		0.346	0.282	0.111	0.126	0.225	0.251	0.213	0.263	0.241	0.066	0.027		**0.18**	**0.17**
P030	837795.04	819348.19		0.461	0.379	0.196	0.070	0.152	0.204	0.168	0.228	0.212	0.060	0.023		**0.18**	**0.14**
P031	837790.30	819338.93		0.315	0.382	0.255	0.106	0.052	0.169	0.110	0.184	0.177	0.054	0.020		**0.17**	**0.11**
P032	837784.74	819330.62		0.146	0.341	0.311	0.181	0.033	0.109	0.063	0.149	0.156	0.057	0.026		**0.18**	**0.10**
P033	837779.18	819322.31		0.092	0.307	0.332	0.174	0.029	0.081	0.049	0.125	0.146	0.053	0.037		**0.17**	**0.09**
P034	837773.05	819314.41		0.105	0.268	0.300	0.128	0.055	0.059	0.062	0.109	0.136	0.041	0.044		**0.15**	**0.08**
P035	837766.62	819306.54		0.123	0.229	0.226	0.107	0.075	0.107	0.087	0.084	0.120	0.020	0.044		**0.13**	**0.08**
P036	837762.25	819297.82		0.101	0.196	0.177	0.181	0.089	0.150	0.092	0.048	0.087	0.018	0.035		**0.14**	**0.08**
P037	837755.51	819290.77		0.189	0.315	0.223	0.051	0.097	0.146	0.059	0.036	0.049	0.014	0.040		**0.13**	**0.06**
P038	837752.97	819282.78		0.107	0.053	0.179	0.161	0.117	0.127	0.047	0.068	0.039	0.019	0.033		**0.12**	**0.07**
P039	837751.00	819274.56		0.078	0.092	0.104	0.187	0.185	0.223	0.086	0.094	0.067	0.015	0.091		**0.14**	**0.11**
O001	837678.43	819495.54		0.071	0.242	0.136	0.196	0.099	0.148	0.060	0.072	0.054	0.090	0.241		**0.14**	**0.12**
O002	837692.41	819490.11		0.108	0.220	0.137	0.148	0.106	0.081	0.070	0.067	0.051	0.074	0.204		**0.13**	**0.10**
O003	837706.39	819484.68		0.124	0.198	0.139	0.128	0.113	0.041	0.063	0.073	0.051	0.066	0.155		**0.12**	**0.09**
O004	837720.38	819479.25		0.152	0.179	0.137	0.156	0.128	0.043	0.061	0.082	0.055	0.063	0.096		**0.13**	**0.08**
O005	837734.20	819473.43		0.210	0.176	0.117	0.170	0.152	0.051	0.057	0.092	0.059	0.063	0.052		**0.14**	**0.09**
O006	837748.02	819467.60		0.262	0.150	0.096	0.170	0.178	0.141	0.040	0.099	0.060	0.063	0.043		**0.15**	**0.10**
O007	837759.16	819457.15		0.270	0.126	0.134	0.173	0.184	0.186	0.026	0.095	0.057	0.066	0.030		**0.16**	**0.10**
O008	837767.16	819443.71		0.320	0.211	0.177	0.144	0.153	0.155	0.029	0.085	0.053	0.075	0.099		**0.16**	**0.10**
O009	837773.40	819429.87		0.384	0.278	0.213	0.121	0.107	0.091	0.023	0.063	0.041	0.086	0.105		**0.16**	**0.08**
O010	837773.98	819414.86		0.403	0.311	0.225	0.019	0.091	0.226	0.051	0.084	0.035	0.100	0.056		**0.15**	**0.08**
O011	837771.05	819399.20		0.130	0.154	0.146	0.036	0.126	0.125	0.014	0.046	0.033	0.098	0.102		**0.10**	**0.07**
O012	837765.50	819385.26		0.211	0.245	0.144	0.215	0.204	0.022	0.067	0.061	0.083	0.088	0.108		**0.17**	**0.11**
O013	837755.45	819373.67		0.375	0.416	0.352	0.380	0.237	0.052	0.112	0.091	0.076	0.084	0.109		**0.29**	**0.14**
O014	837744.33	819363.60		0.407	0.444	0.204	0.113	0.244	0.072	0.106	0.072	0.049	0.083	0.115		**0.19**	**0.10**
O015	837733.19	819353.56		0.385	0.395	0.193	0.236	0.267	0.087	0.118	0.078	0.035	0.103	0.126		**0.22**	**0.13**
O016	837722.06	819343.51		0.373	0.362	0.188	0.221	0.231	0.060	0.122	0.091	0.024	0.154	0.153		**0.21**	**0.13**
O017	837712.99	819331.56		0.347	0.328	0.212	0.207	0.157	0.059	0.102	0.074	0.025	0.204	0.189		**0.20**	**0.13**
O018	837704.18	819319.42		0.311	0.294	0.234	0.185	0.112	0.078	0.130	0.093	0.146	0.263	0.262		**0.20**	**0.17**
O019	837695.09	819307.49		0.251	0.258	0.253	0.154	0.093	0.236	0.128	0.151	0.233	0.259	0.224		**0.20**	**0.19**
O020	837687.65	819294.00		0.111	0.170	0.244	0.121	0.046	0.229	0.096	0.102	0.271	0.276	0.243		**0.17**	**0.19**
O021	837682.27	819280.19		0.182	0.087	0.223	0.103	0.062	0.169	0.097	0.123	0.293	0.297	0.282		**0.16**	**0.19**
O022	837677.98	819266.98		0.282	0.172	0.196	0.101	0.144	0.155	0.117	0.152	0.304	0.304	0.291		**0.18**	**0.21**
O023	837679.94	819254.02		0.345	0.240	0.179	0.236	0.175	0.145	0.124	0.165	0.316	0.278	0.283		**0.23**	**0.23**
O024	837665.28	819484.56		0.145	0.309	0.238	0.201	0.088	0.130	0.083	0.063	0.051	0.085	0.171		**0.17**	**0.10**
O025	837680.48	819483.95		0.134	0.263	0.187	0.142	0.081	0.110	0.076	0.056	0.048	0.066	0.275		**0.14**	**0.10**
O026	837694.51	819478.63		0.150	0.230	0.174	0.148	0.047	0.060	0.070	0.052	0.046	0.054	0.262		**0.12**	**0.09**
O027	837708.59	819473.45		0.161	0.190	0.165	0.192	0.036	0.057	0.055	0.061	0.046	0.052	0.231		**0.13**	**0.09**
O028	837722.67	819468.27		0.179	0.143	0.153	0.206	0.040	0.067	0.056	0.072	0.050	0.055	0.184		**0.13**	**0.09**
O029	837737.03	819461.50		0.204	0.079	0.126	0.210	0.068	0.048	0.053	0.088	0.058	0.060	0.127		**0.13**	**0.09**
O030	837749.29	819452.19		0.175	0.070	0.085	0.210	0.099	0.072	0.043	0.095	0.061	0.061	0.130		**0.12**	**0.09**
O031	837758.97	819439.70		0.254	0.202	0.098	0.168	0.166	0.165	0.041	0.081	0.060	0.068	0.171		**0.15**	**0.11**
O032	837763.39	819425.12		0.381	0.287	0.219	0.040	0.130	0.144	0.027	0.040	0.039	0.079	0.027		**0.15**	**0.06**
O033	837763.64	819411.11		0.389	0.287	0.246	0.094	0.085	0.107	0.035	0.052	0.022	0.106	0.065		**0.16**	**0.07**
O034	837760.20	819396.90		0.298	0.242	0.224	0.083	0.066	0.057	0.036	0.072	0.029	0.132	0.114		**0.13**	**0.08**
O035	837751.74	819384.52		0.287	0.273	0.239	0.205	0.155	0.087	0.086	0.061	0.105	0.150	0.133		**0.20**	**0.13**
O036	837740.71	819374.36		0.364	0.370	0.329	0.331	0.248	0.092	0.122	0.107	0.082	0.141	0.139		**0.27**	**0.15**
O037	837729.68	819364.20		0.366	0.347	0.246	0.254	0.249	0.112	0.128	0.096	0.071	0.166	0.154		**0.24**	**0.15**
O038	837718.65	819354.03		0.352	0.280	0.205	0.221	0.208	0.063	0.127	0.089	0.093	0.207	0.173		**0.21**	**0.15**
O039	837707.62	819343.87		0.334	0.213	0.255	0.232	0.171	0.016	0.109	0.064	0.155	0.236	0.181		**0.21**	**0.16**
O040	837696.59	819333.70		0.311	0.169	0.285	0.212	0.148	0.093	0.114	0.078	0.226	0.237	0.144		**0.21**	**0.17**
O041	837687.69	819321.63		0.294	0.150	0.284	0.172	0.124	0.217	0.123	0.134	0.254	0.221	0.099		**0.21**	**0.18**
O042	837678.78	819309.56		0.259	0.126	0.257	0.136	0.091	0.248	0.122	0.125	0.262	0.186	0.045		**0.18**	**0.16**
O043	837672.28	819296.04		0.093	0.127	0.255	0.145	0.043	0.166	0.131	0.160	0.259	0.168	0.031		**0.16**	**0.14**
O044	837666.79	819282.08		0.095	0.162	0.232	0.101	0.026	0.079	0.126	0.138	0.235	0.236	0.116		**0.14**	**0.14**
O045	837660.49	819268.06		0.260	0.194	0.163	0.102	0.140	0.147	0.088	0.088	0.180	0.271	0.298		**0.16**	**0.18**
O046	837676.73	819230.54		0.351	0.377	0.339	0.377	0.157	0.039	0.165	0.214	0.357	0.278	0.264		**0.30**	**0.25**
O047	837675.66	819215.57		0.330	0.419	0.307	0.148	0.029	0.051	0.196	0.257	0.398	0.293	0.266		**0.22**	**0.22**
O048	837674.59	819200.61		0.331	0.358	0.125	0.137	0.021	0.045	0.208	0.268	0.404	0.291	0.258		**0.18**	**0.22**
O049	837673.97	819185.62		0.309	0.311	0.101	0.063	0.048	0.041	0.202	0.270	0.403	0.289	0.258		**0.15**	**0.22**
O050	837673.07	819170.65		0.275	0.280	0.113	0.140	0.064	0.050	0.194	0.274	0.406	0.300	0.275		**0.17**	**0.23**
O051	837672.16	819155.68		0.242	0.267	0.188	0.165	0.073	0.068	0.188	0.280	0.409	0.315	0.299		**0.19**	**0.24**
O052	837671.26	819140.71		0.181	0.221	0.195	0.124	0.057	0.082	0.203	0.308	0.440	0.355	0.338		**0.18**	**0.26**
O053	837670.35	819125.73		0.364	0.393	0.343	0.309	0.114	0.047	0.209	0.323	0.466	0.395	0.394		**0.30**	**0.30**
O054	837669.45	819110.76		0.204	0.260	0.325	0.172	0.101	0.061	0.200	0.317	0.461	0.417	0.425		**0.23**	**0.29**
O055	837653.07	819234.91		0.291	0.237	0.174	0.243	0.160	0.030	0.138	0.106	0.184	0.253	0.236		**0.20**	**0.18**
O056	837650.74	819220.09		0.263	0.243	0.219	0.216	0.092	0.050	0.163	0.094	0.193	0.280	0.269		**0.20**	**0.18**
O057	837648.42	819205.28		0.247	0.251	0.219	0.196	0.046	0.065	0.175	0.084	0.203	0.312	0.325		**0.19**	**0.19**
O058	837646.10	819190.46		0.257	0.344	0.279	0.180	0.033	0.058	0.139	0.064	0.212	0.335	0.371		**0.20**	**0.19**
O059	837643.42	819175.70		0.262	0.303	0.143	0.060	0.021	0.011	0.087	0.062	0.207	0.307	0.356		**0.13**	**0.16**
O060	837643.94	819160.71		0.266	0.321	0.192	0.069	0.051	0.034	0.104	0.094	0.249	0.348	0.390		**0.16**	**0.19**
O061	837644.40	819145.71		0.270	0.334	0.249	0.152	0.075	0.062	0.136	0.121	0.269	0.363	0.403		**0.20**	**0.22**
O062	837644.86	819130.72		0.323	0.386	0.320	0.236	0.092	0.076	0.148	0.103	0.246	0.362	0.407		**0.25**	**0.23**
O063	837645.32	819115.73		0.260	0.325	0.263	0.225	0.082	0.020	0.171	0.014	0.259	0.375	0.429		**0.22**	**0.22**
O064	837535.64	819267.39		0.290	0.361	0.342	0.270	0.106	0.064	0.120	0.075	0.226	0.333	0.315		**0.25**	**0.20**
O065	837551.25	819267.19		0.260	0.318	0.327	0.312	0.170	0.118	0.145	0.062	0.223	0.345	0.332		**0.27**	**0.23**
O066	837586.81	819268.97		0.294	0.264	0.119	0.222	0.117	0.117	0.180	0.096	0.188	0.313	0.325		**0.19**	**0.20**
O067	837601.79	819268.27		0.292	0.254	0.169	0.134	0.038	0.080	0.184	0.108	0.203	0.322	0.334		**0.17**	**0.19**
O068	837616.44	819267.59		0.272	0.211	0.144	0.097	0.042	0.107	0.162	0.116	0.198	0.316	0.330		**0.15**	**0.18**
O069	837631.34	819265.79		0.271	0.195	0.078	0.013	0.100	0.131	0.113	0.125	0.153	0.286	0.307		**0.12**	**0.16**
O070	837646.23	819264.00		0.309	0.212	0.026	0.018	0.168	0.173	0.049	0.107	0.079	0.271	0.314		**0.12**	**0.16**
O071	837535.84	819247.05		0.189	0.298	0.296	0.290	0.197	0.124	0.125	0.010	0.181	0.352	0.350		**0.25**	**0.22**
O072	837551.05	819246.46		0.127	0.184	0.128	0.145	0.091	0.064	0.108	0.079	0.097	0.277	0.252		**0.14**	**0.15**
O073	837574.56	819246.66		0.184	0.250	0.230	0.300	0.187	0.152	0.106	0.016	0.206	0.250	0.246		**0.24**	**0.19**
O074	837589.56	819246.35		0.189	0.222	0.137	0.126	0.144	0.066	0.118	0.019	0.051	0.140	0.117		**0.14**	**0.10**
O075	837604.52	819245.35		0.080	0.091	0.022	0.072	0.102	0.042	0.093	0.023	0.053	0.059	0.015		**0.07**	**0.06**
O076	837619.49	819244.34		0.256	0.236	0.252	0.269	0.124	0.056	0.139	0.038	0.032	0.072	0.062		**0.19**	**0.09**
O077	837634.46	819243.33		0.246	0.185	0.056	0.163	0.150	0.048	0.130	0.040	0.103	0.109	0.104		**0.13**	**0.11**
O078	837649.42	819242.33		0.285	0.217	0.116	0.211	0.171	0.029	0.120	0.087	0.105	0.138	0.134		**0.17**	**0.13**
O079	837689.74	819248.83		0.350	0.273	0.241	0.303	0.194	0.147	0.067	0.104	0.260	0.189	0.211		**0.25**	**0.19**
O080	837704.40	819245.66		0.299	0.277	0.274	0.341	0.221	0.158	0.054	0.097	0.071	0.041	0.079		**0.25**	**0.12**
O081	837719.06	819242.51		0.202	0.229	0.238	0.328	0.242	0.158	0.068	0.135	0.096	0.046	0.018		**0.23**	**0.13**
O082	837733.75	819239.46		0.093	0.142	0.148	0.255	0.225	0.126	0.065	0.139	0.116	0.062	0.016		**0.17**	**0.12**
O083	837685.98	819234.81		0.355	0.387	0.349	0.398	0.181	0.031	0.121	0.180	0.298	0.192	0.189		**0.30**	**0.21**
O084	837700.77	819232.30		0.297	0.401	0.375	0.453	0.201	0.077	0.031	0.056	0.056	0.037	0.016		**0.29**	**0.11**
O085	837715.56	819229.79		0.192	0.293	0.323	0.476	0.280	0.128	0.026	0.079	0.035	0.055	0.054		**0.29**	**0.13**
O086	837730.35	819227.27		0.062	0.071	0.151	0.337	0.288	0.136	0.038	0.091	0.075	0.038	0.035		**0.19**	**0.12**
O087	837749.06	819235.16		0.083	0.096	0.087	0.157	0.175	0.071	0.054	0.125	0.124	0.036	0.043		**0.12**	**0.10**
O088	837748.29	819220.18		0.114	0.081	0.051	0.206	0.230	0.100	0.027	0.055	0.065	0.009	0.049		**0.13**	**0.09**
O089	837747.56	819205.19		0.179	0.167	0.127	0.138	0.230	0.089	0.045	0.048	0.071	0.017	0.036		**0.14**	**0.08**
O090	837746.83	819190.21		0.221	0.236	0.204	0.155	0.207	0.058	0.072	0.014	0.073	0.036	0.041		**0.16**	**0.08**
O091	837746.10	819175.23		0.242	0.278	0.253	0.263	0.141	0.063	0.083	0.041	0.113	0.057	0.031		**0.20**	**0.10**
O092	837745.37	819160.25		0.242	0.297	0.276	0.308	0.106	0.068	0.087	0.035	0.140	0.070	0.015		**0.22**	**0.10**
O093	837744.64	819145.27		0.176	0.274	0.311	0.374	0.175	0.056	0.081	0.024	0.164	0.095	0.019		**0.25**	**0.12**
O094	837743.91	819130.28		0.382	0.282	0.280	0.380	0.184	0.028	0.058	0.069	0.163	0.116	0.018		**0.26**	**0.13**
O095	837743.18	819115.30		0.089	0.099	0.278	0.521	0.186	0.046	0.025	0.046	0.142	0.106	0.009		**0.26**	**0.14**
O096	837742.45	819100.32		0.205	0.104	0.304	0.483	0.171	0.027	0.030	0.019	0.089	0.061	0.033		**0.25**	**0.11**

Wind Velocity Ratio, Baseline Scheme

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.4%	7.2%	13.7%	21.8%	11.7%	5.8%			6.0%	6.0%		78.6%		
			Probability (Summer)				9.2%	9.8%	7.9%	7.5%	9.3%	13.5%	14.6%	10.0%	81.8%		
O097	837740.52	819220.15		0.093	0.096	0.068	0.254	0.261	0.119	0.036	0.065	0.072	0.010	0.043		**0.15**	**0.10**
O098	837739.75	819205.17		0.197	0.200	0.119	0.176	0.233	0.062	0.059	0.041	0.076	0.033	0.032		**0.15**	**0.09**
O099	837738.92	819190.19		0.246	0.270	0.209	0.169	0.182	0.074	0.085	0.019	0.081	0.054	0.034		**0.17**	**0.09**
O100	837738.10	819175.21		0.274	0.322	0.277	0.264	0.117	0.092	0.099	0.040	0.104	0.077	0.034		**0.21**	**0.10**
O101	837737.28	819160.23		0.286	0.351	0.319	0.351	0.147	0.096	0.105	0.062	0.142	0.100	0.027		**0.26**	**0.13**
O102	837736.46	819145.26		0.270	0.353	0.350	0.416	0.207	0.076	0.097	0.092	0.184	0.128	0.028		**0.29**	**0.15**
O103	837735.63	819130.28		0.313	0.284	0.330	0.411	0.186	0.053	0.064	0.149	0.223	0.166	0.027		**0.28**	**0.17**
O104	837734.81	819115.30		0.444	0.480	0.483	0.354	0.124	0.015	0.009	0.160	0.229	0.178	0.019		**0.31**	**0.15**
O105	837733.99	819100.32		0.422	0.445	0.433	0.234	0.085	0.014	0.064	0.187	0.240	0.195	0.037		**0.26**	**0.14**
O106	837648.05	819466.73		0.034	0.071	0.055	0.240	0.149	0.086	0.070	0.066	0.012	0.060	0.038		**0.12**	**0.08**
O107	837641.69	819453.15		0.244	0.111	0.183	0.174	0.183	0.067	0.064	0.081	0.016	0.034	0.156		**0.15**	**0.09**
O108	837635.44	819439.51		0.136	0.170	0.036	0.063	0.157	0.131	0.058	0.082	0.046	0.031	0.026		**0.09**	**0.07**
O109	837629.07	819425.93		0.072	0.199	0.269	0.188	0.164	0.157	0.079	0.073	0.023	0.035	0.066		**0.16**	**0.09**
O110	837623.13	819412.16		0.079	0.183	0.087	0.136	0.153	0.167	0.105	0.048	0.020	0.016	0.067		**0.11**	**0.08**
O111	837617.04	819398.45		0.069	0.172	0.107	0.166	0.142	0.138	0.108	0.040	0.010	0.023	0.033		**0.12**	**0.07**
O112	837611.17	819384.65		0.066	0.172	0.133	0.233	0.176	0.145	0.100	0.020	0.051	0.030	0.033		**0.15**	**0.09**
O113	837605.38	819370.81		0.039	0.176	0.127	0.194	0.179	0.059	0.052	0.051	0.040	0.064	0.024		**0.13**	**0.08**
O114	837599.54	819356.99		0.123	0.165	0.157	0.266	0.211	0.104	0.081	0.059	0.081	0.095	0.025		**0.18**	**0.11**
O115	837594.24	819342.96		0.094	0.191	0.223	0.317	0.196	0.128	0.080	0.070	0.094	0.117	0.045		**0.21**	**0.13**
O116	837589.70	819328.66		0.059	0.156	0.270	0.370	0.222	0.150	0.064	0.050	0.103	0.126	0.041		**0.23**	**0.14**
O117	837585.59	819314.24		0.040	0.035	0.238	0.355	0.204	0.156	0.041	0.014	0.085	0.092	0.017		**0.20**	**0.12**
O118	837582.07	819299.65		0.069	0.037	0.235	0.340	0.191	0.160	0.027	0.011	0.076	0.061	0.021		**0.20**	**0.11**
O119	837579.37	819282.87		0.042	0.057	0.216	0.314	0.177	0.156	0.026	0.029	0.133	0.150	0.116		**0.19**	**0.14**
O120	837623.48	819446.19		0.064	0.250	0.081	0.213	0.130	0.117	0.048	0.085	0.031	0.102	0.028		**0.14**	**0.09**
O121	837617.50	819432.44		0.057	0.214	0.218	0.184	0.146	0.165	0.066	0.091	0.037	0.089	0.087		**0.16**	**0.10**
O122	837611.51	819418.68		0.077	0.162	0.055	0.047	0.099	0.203	0.122	0.076	0.037	0.070	0.079		**0.08**	**0.08**
O123	837605.52	819404.93		0.030	0.171	0.060	0.076	0.085	0.157	0.097	0.058	0.055	0.056	0.021		**0.08**	**0.07**
O124	837599.54	819391.18		0.044	0.203	0.117	0.138	0.145	0.088	0.074	0.052	0.061	0.030	0.022		**0.12**	**0.07**
O125	837593.86	819377.29		0.031	0.206	0.153	0.176	0.168	0.049	0.018	0.039	0.046	0.018	0.024		**0.13**	**0.06**
O126	837588.00	819363.48		0.024	0.229	0.216	0.221	0.188	0.099	0.050	0.067	0.026	0.029	0.041		**0.16**	**0.08**
O127	837582.49	819349.53		0.108	0.277	0.277	0.290	0.210	0.139	0.071	0.090	0.013	0.036	0.042		**0.21**	**0.10**
O128	837577.01	819335.57		0.111	0.287	0.293	0.295	0.206	0.151	0.059	0.094	0.014	0.025	0.081		**0.21**	**0.11**
O129	837572.47	819321.27		0.086	0.222	0.264	0.286	0.184	0.147	0.035	0.079	0.013	0.028	0.034		**0.19**	**0.09**
O130	837567.62	819307.08		0.046	0.176	0.243	0.284	0.170	0.144	0.022	0.069	0.020	0.015	0.034		**0.18**	**0.09**
O131	837564.14	819292.40		0.095	0.197	0.281	0.338	0.192	0.169	0.013	0.059	0.027	0.028	0.040		**0.21**	**0.10**
O132	837561.10	819276.16		0.175	0.161	0.316	0.346	0.202	0.167	0.075	0.037	0.143	0.165	0.147		**0.25**	**0.16**
O133	837568.61	819235.64		0.079	0.198	0.277	0.389	0.202	0.175	0.031	0.067	0.195	0.161	0.156		**0.25**	**0.18**
O134	837566.94	819220.73		0.077	0.167	0.218	0.336	0.092	0.092	0.068	0.085	0.191	0.178	0.158		**0.20**	**0.16**
O135	837565.49	819205.80		0.076	0.154	0.163	0.262	0.073	0.026	0.082	0.096	0.185	0.200	0.178		**0.16**	**0.15**
O136	837563.99	819190.88		0.074	0.244	0.226	0.276	0.096	0.033	0.105	0.099	0.169	0.217	0.195		**0.19**	**0.16**
O137	837562.48	819175.95		0.096	0.191	0.147	0.226	0.087	0.032	0.091	0.106	0.156	0.227	0.205		**0.16**	**0.15**
O138	837557.88	819239.93		0.099	0.166	0.272	0.341	0.188	0.154	0.041	0.103	0.160	0.081	0.134		**0.22**	**0.15**
O139	837556.29	819225.01		0.153	0.283	0.338	0.367	0.240	0.156	0.071	0.104	0.209	0.186	0.224		**0.28**	**0.20**
O140	837554.70	819210.10		0.144	0.274	0.309	0.326	0.218	0.119	0.093	0.110	0.209	0.219	0.253		**0.25**	**0.20**
O141	837553.11	819195.18		0.174	0.299	0.326	0.341	0.205	0.063	0.112	0.116	0.200	0.235	0.274		**0.26**	**0.20**
O142	837805.92	819507.07		0.186	0.164	0.193	0.226	0.057	0.146	0.173	0.157	0.154	0.028	0.109		**0.16**	**0.12**
O143	837805.62	819492.07		0.413	0.344	0.343	0.100	0.120	0.292	0.300	0.266	0.257	0.058	0.091		**0.22**	**0.18**
O144	837805.31	819477.07		0.424	0.329	0.314	0.084	0.137	0.304	0.301	0.273	0.259	0.057	0.063		**0.21**	**0.17**
O145	837805.00	819462.07		0.416	0.329	0.254	0.108	0.145	0.306	0.292	0.275	0.258	0.055	0.057		**0.21**	**0.18**
O146	837804.70	819447.08		0.398	0.332	0.205	0.123	0.150	0.305	0.282	0.277	0.258	0.052	0.046		**0.20**	**0.18**
O147	837804.39	819432.08		0.377	0.318	0.177	0.139	0.154	0.300	0.272	0.278	0.257	0.050	0.023		**0.20**	**0.17**
O148	837804.08	819417.08		0.378	0.319	0.178	0.138	0.163	0.292	0.273	0.291	0.265	0.049	0.075		**0.20**	**0.18**
O149	837803.77	819402.09		0.373	0.303	0.202	0.123	0.174	0.257	0.248	0.280	0.256	0.047	0.071		**0.20**	**0.17**
O150	837803.47	819387.09		0.328	0.250	0.168	0.152	0.209	0.269	0.242	0.284	0.255	0.057	0.022		**0.20**	**0.18**
O151	837803.16	819372.09		0.296	0.209	0.126	0.162	0.222	0.269	0.236	0.284	0.260	0.068	0.019		**0.19**	**0.18**
O152	837802.85	819357.10		0.353	0.278	0.137	0.113	0.188	0.244	0.213	0.267	0.251	0.074	0.024		**0.18**	**0.17**
O153	837802.55	819342.10		0.434	0.342	0.191	0.049	0.106	0.183	0.173	0.237	0.231	0.078	0.018		**0.17**	**0.13**
O154	837802.24	819327.10		0.449	0.354	0.229	0.092	0.067	0.125	0.153	0.220	0.223	0.086	0.016		**0.18**	**0.12**
O155	837801.93	819312.11		0.431	0.357	0.242	0.087	0.068	0.114	0.153	0.209	0.219	0.093	0.023		**0.18**	**0.12**
O156	837800.88	819297.14		0.399	0.339	0.233	0.054	0.062	0.160	0.150	0.200	0.213	0.096	0.025		**0.16**	**0.12**
O157	837799.82	819282.18		0.379	0.353	0.237	0.085	0.088	0.190	0.132	0.179	0.195	0.094	0.019		**0.18**	**0.12**
O158	837798.77	819267.22		0.332	0.342	0.232	0.107	0.130	0.196	0.100	0.140	0.149	0.075	0.019		**0.18**	**0.11**
O159	837789.54	819514.62		0.396	0.379	0.282	0.220	0.045	0.274	0.280	0.247	0.203	0.040	0.093		**0.22**	**0.16**
O160	837789.41	819499.62		0.300	0.236	0.187	0.157	0.110	0.288	0.262	0.238	0.187	0.054	0.101		**0.18**	**0.16**
O161	837789.28	819484.62		0.336	0.322	0.287	0.071	0.140	0.284	0.241	0.228	0.171	0.050	0.085		**0.19**	**0.15**
O162	837789.15	819469.63		0.392	0.318	0.291	0.038	0.155	0.285	0.222	0.219	0.159	0.048	0.066		**0.18**	**0.14**
O163	837789.02	819454.63		0.406	0.301	0.258	0.075	0.158	0.281	0.195	0.203	0.138	0.047	0.052		**0.18**	**0.13**
O164	837788.89	819439.63		0.399	0.295	0.206	0.090	0.150	0.263	0.150	0.165	0.105	0.044	0.031		**0.17**	**0.11**
O165	837788.76	819424.63		0.326	0.252	0.146	0.155	0.090	0.139	0.055	0.052	0.050	0.025	0.094		**0.15**	**0.08**
O166	837788.63	819409.63		0.042	0.059	0.064	0.062	0.107	0.170	0.126	0.147	0.087	0.045	0.080		**0.08**	**0.10**
O167	837788.50	819394.63		0.274	0.307	0.147	0.101	0.174	0.253	0.148	0.173	0.097	0.024	0.066		**0.16**	**0.12**
O168	837788.37	819379.63		0.223	0.208	0.050	0.169	0.245	0.234	0.120	0.146	0.093	0.030	0.018		**0.16**	**0.12**
O169	837788.77	819363.67		0.213	0.161	0.058	0.230	0.317	0.197	0.133	0.143	0.119	0.045	0.029		**0.18**	**0.14**
O170	837775.93	819517.20		0.333	0.368	0.294	0.199	0.072	0.265	0.219	0.199	0.137	0.054	0.081		**0.21**	**0.14**
O171	837775.90	819502.20		0.369	0.360	0.252	0.160	0.124	0.276	0.201	0.193	0.125	0.052	0.096		**0.20**	**0.14**
O172	837775.88	819487.20		0.351	0.286	0.219	0.081	0.159	0.279	0.170	0.180	0.111	0.050	0.094		**0.17**	**0.13**
O173	837775.85	819472.20		0.333	0.270	0.243	0.052	0.173	0.273	0.136	0.161	0.093	0.050	0.070		**0.17**	**0.12**
O174	837775.82	819457.20		0.354	0.266	0.238	0.104	0.169	0.249	0.096	0.134	0.074	0.056	0.047		**0.18**	**0.11**
O175	837775.63	819441.96		0.376	0.266	0.218	0.109	0.139	0.176	0.052	0.097	0.054	0.070	0.065		**0.17**	**0.09**
O176	837759.50	819518.10		0.240	0.311	0.283	0.170	0.116	0.250	0.113	0.153	0.090	0.062	0.073		**0.19**	**0.12**
O177	837759.80	819503.10		0.284	0.329	0.266	0.148	0.163	0.257	0.085	0.143	0.081	0.057	0.093		**0.19**	**0.12**
O178	837759.70	819488.10		0.317	0.309	0.209	0.083	0.183	0.246	0.062	0.131	0.073	0.055	0.091		**0.17**	**0.11**
O179	837759.60	819473.10		0.316	0.231	0.159	0.105	0.190	0.222	0.037	0.114	0.063	0.057	0.066		**0.16**	**0.10**
O180	837742.17	819516.31		0.162	0.265	0.254	0.147	0.142	0.213	0.035	0.122	0.066	0.071	0.072		**0.17**	**0.10**
O181	837742.80	819501.32		0.199	0.278	0.245	0.116	0.173	0.203	0.042	0.114	0.064	0.064	0.088		**0.17**	**0.10**
O182	837743.23	819488.80		0.228	0.269	0.215	0.084	0.187	0.185	0.046	0.107	0.062	0.062	0.083		**0.15**	**0.10**
O183	837743.82	819475.33		0.252	0.213	0.133	0.138	0.184	0.141	0.047	0.100	0.060	0.063	0.053		**0.15**	**0.09**
O184	837725.75	819513.92		0.106	0.235	0.218	0.147	0.129	0.143	0.056	0.104	0.057	0.079	0.072		**0.15**	**0.10**
O185	837726.34	819498.69		0.137	0.235	0.209	0.096	0.159	0.113	0.062	0.099	0.057	0.071	0.070		**0.14**	**0.09**
O186	837726.34	819484.95		0.159	0.209	0.174	0.105	0.163	0.052	0.063	0.093	0.058	0.066	0.058		**0.13**	**0.08**
O187	837709.32	819508.54		0.076	0.214	0.173	0.170	0.107	0.072	0.063	0.090	0.052	0.085	0.058		**0.13**	**0.09**
O188	837709.62	819493.91		0.108	0.208	0.168	0.116	0.138	0.043	0.064	0.083	0.053	0.074	0.066		**0.12**	**0.08**
O189	837697.07	819500.18		0.080	0.214	0.143	0.191	0.108	0.073	0.063	0.076	0.051	0.085	0.069		**0.14**	**0.09**
O190	837777.18	819388.66		0.184	0.251	0.110	0.145	0.210	0.124	0.047	0.033	0.052	0.037	0.079		**0.14**	**0.09**
O191	837768.15	819377.02		0.201	0.248	0.213	0.300	0.259	0.041	0.113	0.062	0.076	0.037	0.074		**0.21**	**0.11**
O192	837778.66	819371.57		0.058	0.074	0.132	0.271	0.294	0.038	0.064	0.044	0.055	0.019	0.022		**0.16**	**0.10**
O193	837787.19	819328.21		0.268	0.387	0.299	0.157	0.046	0.098	0.074	0.166	0.172	0.063	0.025		**0.18**	**0.10**
O194	837787.19	819313.16		0.350	0.388	0.269	0.098	0.055	0.079	0.074	0.160	0.175	0.069	0.034		**0.17**	**0.10**
O195	837787.57	819297.74		0.335	0.315	0.201	0.032	0.041	0.049	0.052	0.122	0.139	0.059	0.039		**0.12**	**0.07**
O196	837777.03	819314.29		0.148	0.323	0.303	0.125	0.051	0.064	0.061	0.121	0.146	0.048	0.041		**0.16**	**0.08**
O197	837777.78	819299.05		0.249	0.319	0.232	0.095	0.062	0.070	0.056	0.092	0.111	0.033	0.046		**0.14**	**0.07**
O198	837767.43	819294.35		0.190	0.248	0.187	0.182	0.066	0.075	0.063	0.047	0.063	0.011	0.043		**0.14**	**0.06**
O199	837784.75	819261.59		0.226	0.250	0.232	0.103	0.110	0.114	0.044	0.105	0.086	0.042	0.062		**0.14**	**0.08**
O200	837667.14	819479.27		0.203	0.321	0.224	0.156	0.064	0.085	0.034	0.046	0.044	0.063	0.030		**0.15**	**0.06**
O201	837681.26	819474.21		0.214	0.264	0.182	0.123	0.043	0.075	0.053	0.031	0.038	0.034	0.134		**0.12**	**0.06**
O202	837695.38	819469.15		0.238	0.222	0.195	0.172	0.052	0.069	0.049	0.029	0.034	0.030	0.190		**0.14**	**0.07**
O203	837709.50	819464.09		0.233	0.172	0.215	0.191	0.075	0.085	0.045	0.039	0.031	0.031	0.217		**0.15**	**0.08**
O204	837723.62	819459.02		0.195	0.135	0.197	0.202	0.085	0.088	0.051	0.058	0.042	0.041	0.217		**0.14**	**0.09**
O205	837736.48	819451.18		0.154	0.095	0.162	0.197	0.076	0.066	0.049	0.074	0.049	0.041	0.190		**0.13**	**0.09**
O206	837749.40	819443.58		0.058	0.090	0.088	0.192	0.035	0.029	0.048	0.084	0.053	0.037	0.179		**0.10**	**0.08**
O207	837756.05	819430.48		0.285	0.200	0.153	0.080	0.117	0.078	0.027	0.031	0.038	0.039	0.034		**0.12**	**0.05**
O208	837756.62	819415.87		0.363	0.306	0.270	0.114	0.104	0.044	0.041	0.043	0.017	0.044	0.018		**0.16**	**0.05**
O209	837752.06	819404.29		0.327	0.291	0.284	0.171	0.072	0.104	0.050	0.079	0.018	0.038	0.023		**0.17**	**0.06**
O210	837747.69	819391.57		0.325	0.300	0.304	0.181	0.107	0.130	0.035	0.070	0.025	0.130	0.111		**0.19**	**0.10**
O211	837712.73	819396.12		0.150	0.115	0.261	0.225	0.140	0.104	0.079	0.051	0.152	0.163	0.032		**0.18**	**0.12**
O212	837701.52	819401.06		0.167	0.134	0.180	0.195	0.120	0.115	0.104	0.076	0.184	0.145	0.083		**0.16**	**0.13**
O213	837707.22	819415.11		0.103	0.160	0.144	0.166	0.125	0.046	0.081	0.041	0.145	0.125	0.014		**0.14**	**0.10**
O214	837712.54	819428.59		0.047	0.063	0.150	0.104	0.110	0.056	0.061	0.035	0.096	0.067	0.018		**0.10**	**0.07**
O215	837688.61	819408.27		0.174	0.151	0.195	0.094	0.075	0.115	0.072	0.101	0.091	0.064	0.102		**0.12**	**0.09**
O216	837674.74	819414.54		0.155	0.140	0.261	0.191	0.073	0.082	0.073	0.088	0.058	0.020	0.083		**0.15**	**0.08**
O217	837673.60	819424.22		0.190	0.142	0.285	0.158	0.035	0.082	0.099	0.073	0.145	0.110	0.118		**0.15**	**0.11**
O218	837678.73	819438.27		0.067	0.112	0.066	0.031	0.040	0.029	0.041	0.029	0.043	0.025	0.039		**0.05**	**0.03**
O219	837683.86	819449.85		0.030	0.064	0.064	0.045	0.025	0.023	0.038	0.029	0.032	0.018	0.043		**0.04**	**0.03**
O220	837658.78	819418.33		0.104	0.097	0.292	0.203	0.075	0.021	0.046	0.075	0.055	0.020	0.028		**0.14**	**0.06**
O221	837664.48	819427.64		0.195	0.150	0.296	0.173	0.056	0.065	0.082	0.059	0.122	0.082	0.115		**0.16**	**0.10**
O222	837670.18	819439.98		0.067	0.125	0.269	0.114	0.071	0.048	0.041	0.032	0.042	0.024	0.030		**0.11**	**0.05**
O223	837674.93	819451.18		0.035	0.043	0.173	0.055	0.010	0.016	0.031	0.030	0.035	0.021	0.024		**0.06**	**0.03**
O224	837649.85	819423.65		0.059	0.111	0.272	0.174	0.047	0.017	0.036	0.061	0.077	0.049	0.025		**0.13**	**0.06**
O225	837656.50	819436.94		0.255	0.126	0.268	0.151	0.058	0.097	0.048	0.021	0.023	0.013	0.158		**0.14**	**0.07**
O226	837644.72	819441.69		0.265	0.136	0.230	0.125	0.158	0.112	0.046	0.048	0.046	0.022	0.149		**0.15**	**0.08**
O227	837731.78	819375.54		0.293	0.238	0.185	0.178	0.196	0.098	0.121	0.096	0.084	0.150	0.133		**0.18**	**0.13**
O228	837717.16	819381.32		0.119	0.130	0.226	0.209	0.108	0.121	0.099	0.045	0.137	0.153	0.044		**0.17**	**0.12**
O229	837700.12	819387.70		0.112	0.115	0.217	0.220	0.154	0.095	0.112	0.050	0.208	0.151	0.059		**0.18**	**0.14**
O230	837717.47	819366.11		0.220	0.116	0.205	0.201	0.145	0.114	0.120	0.075	0.134	0.198	0.130		**0.18**	**0.14**
O231	837704.68	819370.06		0.066	0.114	0.289	0.244	0.150	0.123	0.104	0.042	0.200	0.181	0.037		**0.19**	**0.14**

Wind Velocity Ratio, Baseline Scheme

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.4%	7.2%	13.7%	21.8%	11.7%	5.8%			6.0%	6.0%		78.6%		
			Probability (Summer)				9.2%	9.8%	7.9%	7.5%	9.3%	13.5%	14.6%	10.0%	81.8%		
O232	837693.11	819373.10		0.057	0.098	0.311	0.215	0.168	0.088	0.089	0.022	0.212	0.142	0.048		**0.19**	**0.13**
O233	837708.34	819357.59		0.234	0.069	0.273	0.237	0.160	0.066	0.108	0.056	0.176	0.212	0.122		**0.20**	**0.15**
O234	837691.29	819362.76		0.071	0.113	0.359	0.235	0.185	0.142	0.080	0.019	0.211	0.150	0.023		**0.21**	**0.14**
O235	837699.51	819346.03		0.271	0.073	0.304	0.233	0.168	0.047	0.098	0.041	0.211	0.218	0.114		**0.21**	**0.15**
O236	837686.03	819352.61		0.124	0.134	0.379	0.204	0.191	0.130	0.083	0.042	0.203	0.143	0.019		**0.21**	**0.13**
O237	837676.86	819356.37		0.115	0.166	0.291	0.098	0.161	0.140	0.070	0.048	0.141	0.088	0.035		**0.15**	**0.10**
O238	837663.70	819362.85		0.101	0.046	0.089	0.120	0.044	0.139	0.064	0.057	0.074	0.041	0.018		**0.09**	**0.07**
O239	837648.45	819368.95		0.106	0.058	0.201	0.130	0.035	0.120	0.055	0.056	0.062	0.046	0.067		**0.11**	**0.07**
O240	837652.45	819378.29		0.045	0.019	0.171	0.053	0.033	0.126	0.067	0.045	0.093	0.040	0.048		**0.07**	**0.06**
O241	837657.60	819389.34		0.022	0.020	0.102	0.033	0.025	0.117	0.020	0.025	0.024	0.017	0.024		**0.05**	**0.03**
O242	837688.85	819337.20		0.260	0.072	0.327	0.201	0.161	0.159	0.108	0.089	0.234	0.190	0.058		**0.21**	**0.16**
O243	837675.12	819343.23		0.157	0.155	0.339	0.143	0.170	0.208	0.095	0.094	0.172	0.105	0.014		**0.19**	**0.12**
O244	837661.38	819349.26		0.136	0.150	0.122	0.052	0.083	0.207	0.047	0.092	0.064	0.057	0.022		**0.10**	**0.07**
O245	837645.59	819354.85		0.156	0.120	0.156	0.126	0.043	0.184	0.043	0.069	0.047	0.067	0.079		**0.11**	**0.08**
O246	837634.72	819364.18		0.143	0.121	0.169	0.193	0.065	0.166	0.052	0.075	0.080	0.047	0.067		**0.14**	**0.09**
O247	837620.61	819370.66		0.039	0.069	0.136	0.291	0.167	0.187	0.075	0.069	0.075	0.012	0.009		**0.16**	**0.10**
O248	837619.65	819385.53		0.078	0.127	0.065	0.136	0.152	0.069	0.055	0.012	0.018	0.016	0.060		**0.10**	**0.06**
O249	837624.04	819397.57		0.111	0.124	0.082	0.099	0.116	0.065	0.081	0.016	0.018	0.033	0.070		**0.09**	**0.06**
O250	837628.80	819410.14		0.108	0.125	0.088	0.128	0.087	0.131	0.089	0.007	0.013	0.033	0.057		**0.10**	**0.06**
O251	837634.72	819422.34		0.054	0.042	0.173	0.113	0.108	0.138	0.069	0.057	0.026	0.026	0.050		**0.10**	**0.07**
O252	837680.67	819326.22		0.264	0.038	0.297	0.167	0.139	0.237	0.119	0.126	0.235	0.161	0.034		**0.19**	**0.16**
O253	837666.91	819332.19		0.189	0.103	0.277	0.127	0.142	0.249	0.065	0.119	0.117	0.074	0.008		**0.16**	**0.11**
O254	837653.15	819338.17		0.159	0.128	0.142	0.049	0.063	0.224	0.021	0.061	0.029	0.065	0.049		**0.10**	**0.07**
O255	837639.40	819344.15		0.185	0.151	0.145	0.065	0.093	0.180	0.045	0.033	0.041	0.089	0.093		**0.11**	**0.08**
O256	837674.26	819316.37		0.252	0.046	0.262	0.141	0.114	0.256	0.121	0.135	0.223	0.123	0.016		**0.17**	**0.14**
O257	837660.61	819322.58		0.207	0.039	0.233	0.121	0.128	0.241	0.029	0.089	0.041	0.037	0.010		**0.14**	**0.08**
O258	837646.95	819328.78		0.163	0.076	0.125	0.064	0.063	0.151	0.038	0.021	0.024	0.085	0.073		**0.09**	**0.06**
O259	837633.29	819334.98		0.192	0.144	0.131	0.034	0.092	0.028	0.049	0.024	0.045	0.095	0.076		**0.09**	**0.06**
O260	837668.16	819307.73		0.230	0.057	0.228	0.120	0.085	0.229	0.096	0.161	0.181	0.054	0.011		**0.14**	**0.11**
O261	837655.98	819312.94		0.229	0.038	0.184	0.093	0.109	0.120	0.051	0.039	0.030	0.015	0.008		**0.11**	**0.05**
O262	837644.87	819318.18		0.195	0.034	0.153	0.089	0.094	0.052	0.054	0.042	0.043	0.096	0.080		**0.10**	**0.07**
O263	837632.04	819322.46		0.097	0.039	0.042	0.079	0.036	0.051	0.025	0.017	0.036	0.089	0.037		**0.06**	**0.05**
O264	837663.60	819300.78		0.184	0.079	0.194	0.120	0.041	0.138	0.046	0.092	0.083	0.012	0.016		**0.11**	**0.06**
O265	837649.76	819306.57		0.249	0.032	0.143	0.063	0.101	0.069	0.073	0.045	0.023	0.030	0.014		**0.09**	**0.05**
O266	837635.93	819312.37		0.198	0.075	0.125	0.111	0.079	0.068	0.081	0.039	0.048	0.100	0.060		**0.10**	**0.07**
O267	837636.61	819303.05		0.273	0.093	0.187	0.128	0.124	0.063	0.109	0.049	0.037	0.068	0.044		**0.13**	**0.07**
O268	837625.84	819305.33		0.232	0.138	0.161	0.145	0.067	0.059	0.133	0.052	0.030	0.044	0.007		**0.12**	**0.06**
O269	837613.25	819305.09		0.145	0.091	0.103	0.080	0.029	0.046	0.123	0.039	0.026	0.032	0.002		**0.07**	**0.04**
O270	837636.85	819295.59		0.061	0.085	0.151	0.086	0.026	0.049	0.094	0.045	0.014	0.021	0.019		**0.07**	**0.04**
O271	837620.92	819296.71		0.117	0.100	0.134	0.125	0.059	0.051	0.116	0.049	0.019	0.027	0.005		**0.09**	**0.05**
O272	837629.53	819348.57		0.208	0.176	0.154	0.060	0.069	0.135	0.066	0.051	0.046	0.043	0.054		**0.10**	**0.06**
O273	837615.43	819349.67		0.234	0.142	0.113	0.021	0.040	0.025	0.012	0.040	0.035	0.068	0.026		**0.07**	**0.04**
O274	837625.61	819340.85		0.231	0.135	0.092	0.032	0.114	0.041	0.043	0.061	0.044	0.025	0.012		**0.08**	**0.05**
O275	837611.63	819341.95		0.040	0.106	0.116	0.011	0.057	0.059	0.018	0.065	0.027	0.009	0.008		**0.05**	**0.03**
O276	837605.99	819350.89		0.189	0.121	0.099	0.048	0.029	0.047	0.048	0.034	0.048	0.080	0.037		**0.07**	**0.05**
O277	837600.72	819342.19		0.081	0.171	0.189	0.240	0.134	0.099	0.062	0.065	0.086	0.119	0.064		**0.16**	**0.11**
O278	837595.61	819329.79		0.026	0.083	0.203	0.345	0.205	0.128	0.069	0.011	0.151	0.180	0.088		**0.21**	**0.15**
O279	837592.96	819314.42		0.035	0.076	0.119	0.342	0.192	0.142	0.063	0.029	0.167	0.190	0.105		**0.19**	**0.16**
O280	837590.45	819298.73		0.026	0.078	0.093	0.328	0.184	0.149	0.047	0.037	0.165	0.193	0.115		**0.18**	**0.16**
O281	837587.56	819284.09		0.049	0.052	0.078	0.297	0.170	0.146	0.032	0.025	0.129	0.168	0.144		**0.16**	**0.14**
O282	837588.01	819274.34		0.272	0.226	0.089	0.240	0.139	0.124	0.147	0.085	0.147	0.227	0.235		**0.18**	**0.17**
O283	837600.17	819272.36		0.299	0.239	0.162	0.099	0.016	0.061	0.181	0.105	0.199	0.290	0.293		**0.15**	**0.17**
O284	837612.33	819271.75		0.277	0.197	0.123	0.051	0.025	0.084	0.169	0.108	0.210	0.298	0.301		**0.12**	**0.17**
O285	837622.81	819270.91		0.246	0.153	0.062	0.041	0.024	0.081	0.135	0.105	0.192	0.288	0.294		**0.10**	**0.16**
O286	837637.32	819269.35		0.215	0.112	0.042	0.040	0.031	0.076	0.075	0.095	0.125	0.231	0.247		**0.08**	**0.13**
O287	837572.41	819337.55		0.126	0.308	0.286	0.272	0.211	0.142	0.051	0.099	0.038	0.037	0.091		**0.21**	**0.11**
O288	837567.12	819323.92		0.100	0.245	0.219	0.203	0.171	0.129	0.033	0.080	0.027	0.019	0.030		**0.16**	**0.08**
O289	837561.42	819308.86		0.057	0.194	0.179	0.236	0.137	0.116	0.021	0.062	0.022	0.012	0.024		**0.15**	**0.07**
D001	837745.43	819260.85		0.143	0.185	0.191	0.199	0.176	0.204	0.090	0.153	0.139	0.079	0.138		**0.18**	**0.14**
D002	837735.43	819260.59		0.180	0.203	0.220	0.243	0.198	0.229	0.110	0.171	0.140	0.046	0.087		**0.20**	**0.14**
D003	837725.43	819260.34		0.221	0.207	0.231	0.250	0.202	0.226	0.112	0.174	0.128	0.023	0.058		**0.20**	**0.14**
D004	837715.43	819260.08		0.263	0.216	0.226	0.242	0.194	0.212	0.101	0.161	0.095	0.028	0.086		**0.20**	**0.13**
D005	837705.44	819259.82		0.296	0.218	0.193	0.222	0.191	0.198	0.080	0.128	0.080	0.075	0.145		**0.19**	**0.13**
D006	837695.44	819259.57		0.322	0.217	0.163	0.211	0.177	0.183	0.051	0.092	0.194	0.166	0.212		**0.20**	**0.17**
D007	837685.44	819259.31		0.332	0.217	0.151	0.195	0.169	0.166	0.090	0.131	0.298	0.254	0.272		**0.21**	**0.21**
D008	837745.26	819252.78		0.106	0.217	0.205	0.171	0.103	0.145	0.077	0.137	0.123	0.073	0.087		**0.15**	**0.11**
D009	837735.26	819252.52		0.144	0.218	0.215	0.201	0.140	0.182	0.090	0.159	0.130	0.053	0.048		**0.17**	**0.12**
D010	837725.26	819252.27		0.195	0.230	0.233	0.242	0.179	0.194	0.093	0.162	0.120	0.036	0.023		**0.20**	**0.12**
D011	837715.27	819252.01		0.246	0.240	0.244	0.277	0.201	0.190	0.086	0.149	0.095	0.027	0.046		**0.21**	**0.12**
D012	837705.27	819251.75		0.297	0.250	0.246	0.294	0.203	0.179	0.066	0.113	0.072	0.049	0.108		**0.22**	**0.13**
D013	837695.27	819251.49		0.337	0.257	0.235	0.289	0.194	0.165	0.044	0.079	0.185	0.143	0.181		**0.24**	**0.16**
D014	837744.25	819244.22		0.084	0.186	0.133	0.144	0.154	0.110	0.071	0.137	0.132	0.066	0.050		**0.13**	**0.11**
D015	837733.33	819244.22		0.117	0.186	0.169	0.228	0.199	0.136	0.075	0.148	0.123	0.060	0.017		**0.17**	**0.12**
D016	837819.09	819500.60		0.430	0.339	0.383	0.170	0.138	0.317	0.356	0.282	0.312	0.065	0.119		**0.25**	**0.21**
D017	837818.53	819485.61		0.406	0.330	0.347	0.197	0.212	0.322	0.347	0.278	0.301	0.069	0.089		**0.26**	**0.21**
D018	837817.97	819470.62		0.361	0.347	0.306	0.231	0.205	0.324	0.347	0.283	0.302	0.070	0.089		**0.26**	**0.22**
D019	837817.41	819455.63		0.349	0.343	0.289	0.236	0.209	0.331	0.345	0.288	0.304	0.071	0.071		**0.26**	**0.22**
D020	837816.85	819440.64		0.345	0.337	0.284	0.242	0.216	0.337	0.341	0.291	0.305	0.071	0.050		**0.26**	**0.22**
D021	837816.29	819425.65		0.342	0.330	0.287	0.245	0.217	0.337	0.332	0.295	0.306	0.070	0.020		**0.26**	**0.22**
D022	837815.74	819410.67		0.340	0.340	0.288	0.249	0.215	0.332	0.315	0.297	0.303	0.071	0.073		**0.26**	**0.22**
D023	837815.18	819395.68		0.329	0.346	0.272	0.250	0.232	0.323	0.296	0.296	0.300	0.076	0.052		**0.26**	**0.22**
D024	837814.62	819380.69		0.320	0.337	0.258	0.246	0.243	0.296	0.275	0.293	0.296	0.083	0.008		**0.26**	**0.21**
D025	837814.06	819365.70		0.317	0.324	0.245	0.233	0.240	0.253	0.252	0.283	0.290	0.089	0.014		**0.25**	**0.20**
D026	837813.37	819350.71		0.356	0.337	0.245	0.206	0.207	0.209	0.233	0.266	0.280	0.095	0.013		**0.23**	**0.18**
D027	837812.68	819335.73		0.392	0.372	0.270	0.196	0.178	0.172	0.218	0.246	0.269	0.100	0.011		**0.23**	**0.17**
D028	837811.98	819320.74		0.408	0.401	0.279	0.209	0.164	0.184	0.212	0.232	0.261	0.105	0.016		**0.24**	**0.17**
D029	837811.29	819305.76		0.406	0.416	0.283	0.214	0.159	0.214	0.208	0.220	0.252	0.109	0.021		**0.25**	**0.17**
D030	837810.60	819290.78		0.401	0.410	0.269	0.195	0.158	0.245	0.203	0.206	0.243	0.113	0.021		**0.24**	**0.17**
D031	837809.91	819275.79		0.386	0.394	0.267	0.204	0.177	0.275	0.193	0.191	0.231	0.115	0.015		**0.24**	**0.17**
D032	837809.21	819260.81		0.344	0.352	0.238	0.209	0.223	0.305	0.182	0.183	0.219	0.120	0.017		**0.24**	**0.18**
D033	837672.29	819253.35		0.340	0.239	0.181	0.223	0.172	0.126	0.133	0.166	0.308	0.310	0.299		**0.23**	**0.23**
D034	837657.30	819253.75		0.316	0.224	0.156	0.158	0.175	0.105	0.096	0.107	0.173	0.192	0.194		**0.18**	**0.16**
D035	837642.30	819254.14		0.286	0.203	0.035	0.087	0.175	0.103	0.094	0.082	0.074	0.171	0.190		**0.12**	**0.12**
D036	837627.31	819254.54		0.263	0.211	0.140	0.143	0.156	0.094	0.141	0.080	0.086	0.250	0.258		**0.16**	**0.16**
D037	837612.31	819254.94		0.283	0.261	0.194	0.206	0.156	0.091	0.179	0.074	0.045	0.288	0.288		**0.19**	**0.17**
D038	837597.32	819255.34		0.262	0.254	0.129	0.104	0.140	0.083	0.179	0.070	0.062	0.318	0.316		**0.15**	**0.17**
D039	837582.32	819255.73		0.241	0.253	0.162	0.232	0.133	0.124	0.165	0.055	0.203	0.346	0.343		**0.21**	**0.21**
D040	837567.33	819256.13		0.219	0.257	0.243	0.321	0.186	0.165	0.154	0.039	0.195	0.361	0.351		**0.26**	**0.23**
D041	837552.33	819256.53		0.219	0.287	0.269	0.264	0.174	0.121	0.159	0.073	0.206	0.371	0.350		**0.24**	**0.23**
D042	837537.37	819257.58		0.258	0.362	0.322	0.286	0.150	0.090	0.160	0.071	0.243	0.396	0.371		**0.27**	**0.24**

Wind Velocity Ratio, Proposed Scheme

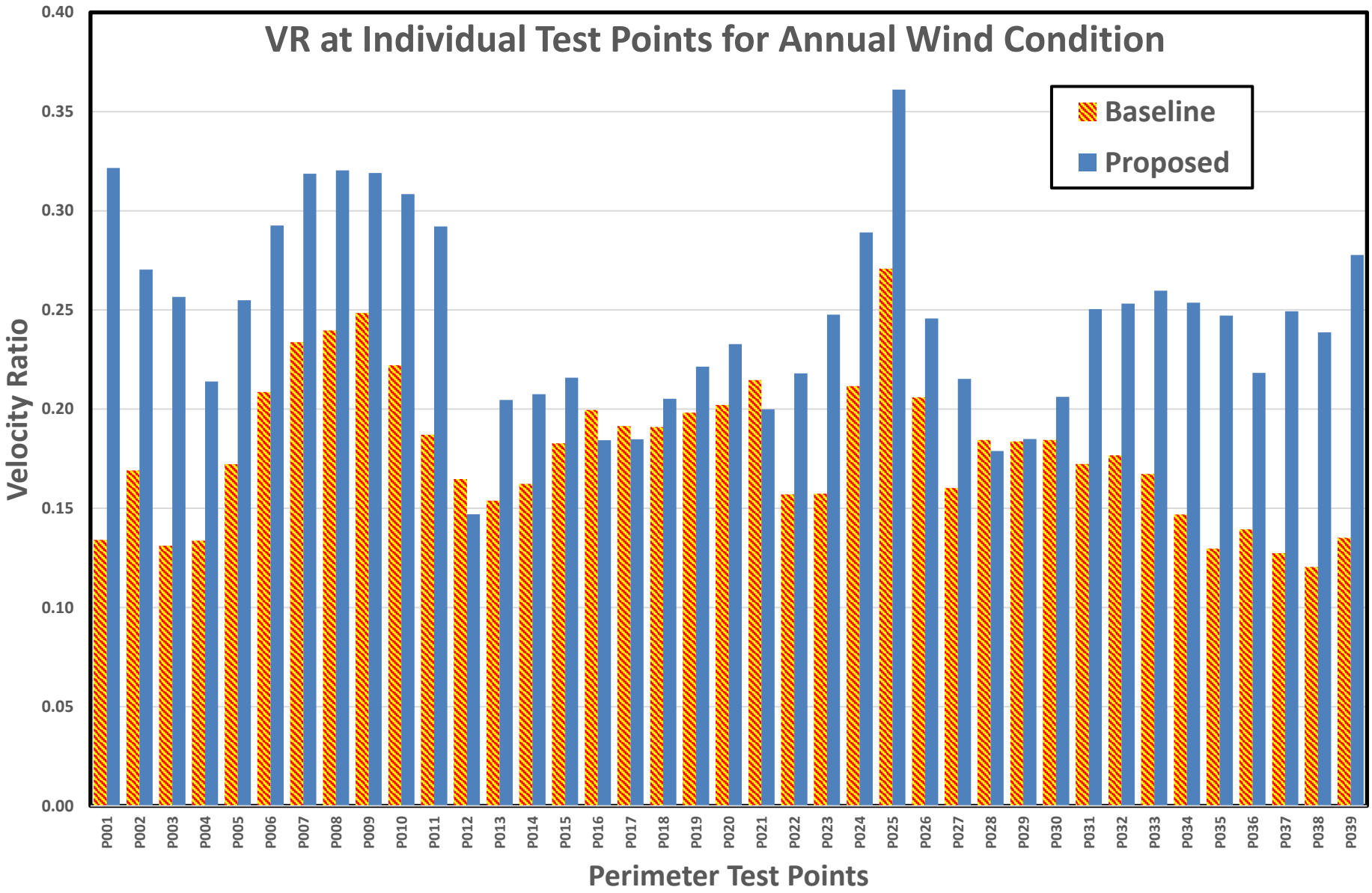
Tes Point			Wind direction (Degree)	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.4%	7.2%	13.7%	21.8%	11.7%	5.8%			6.0%	6.0%		78.6%		
			Probability (Summer)				9.2%	9.8%	7.9%	7.5%	9.3%	13.5%	14.6%	10.0%	81.8%		
P001	837749.46	819268.36		0.155	0.269	0.460	0.474	0.233	0.127	0.048	0.200	0.225	0.148	0.204		**0.32**	**0.21**
P002	837747.54	819258.82		0.161	0.270	0.345	0.370	0.229	0.154	0.096	0.187	0.208	0.111	0.174		**0.27**	**0.19**
P003	837746.79	819248.85		0.183	0.322	0.344	0.326	0.202	0.149	0.115	0.235	0.228	0.044	0.061		**0.26**	**0.17**
P004	837743.72	819239.81		0.164	0.228	0.255	0.278	0.182	0.162	0.121	0.253	0.236	0.012	0.025		**0.21**	**0.15**
P005	837733.94	819241.89		0.143	0.286	0.329	0.331	0.227	0.205	0.134	0.261	0.236	0.011	0.026		**0.25**	**0.17**
P006	837724.10	819243.71		0.118	0.321	0.406	0.382	0.271	0.246	0.150	0.259	0.227	0.014	0.054		**0.29**	**0.19**
P007	837714.26	819245.47		0.137	0.341	0.450	0.409	0.302	0.288	0.175	0.256	0.218	0.021	0.104		**0.32**	**0.21**
P008	837704.41	819247.23		0.051	0.334	0.447	0.408	0.322	0.323	0.204	0.265	0.213	0.083	0.153		**0.32**	**0.23**
P009	837694.57	819249.01		0.065	0.303	0.416	0.400	0.332	0.348	0.231	0.281	0.208	0.153	0.190		**0.32**	**0.26**
P010	837686.70	819256.09		0.067	0.235	0.337	0.398	0.365	0.385	0.255	0.270	0.200	0.184	0.210		**0.31**	**0.27**
P011	837680.15	819264.03		0.343	0.113	0.210	0.339	0.375	0.425	0.292	0.283	0.213	0.256	0.224		**0.29**	**0.29**
P012	837683.32	819273.51		0.317	0.219	0.220	0.086	0.032	0.030	0.152	0.261	0.121	0.297	0.262		**0.15**	**0.17**
P013	837685.82	819283.55		0.394	0.268	0.288	0.130	0.142	0.145	0.085	0.245	0.100	0.292	0.282		**0.20**	**0.18**
P014	837689.85	819293.07		0.382	0.268	0.360	0.166	0.097	0.053	0.046	0.220	0.084	0.238	0.242		**0.21**	**0.15**
P015	837693.63	819301.57		0.417	0.285	0.354	0.173	0.117	0.078	0.050	0.218	0.073	0.228	0.239		**0.22**	**0.15**
P016	837699.72	819309.97		0.428	0.293	0.343	0.062	0.132	0.102	0.028	0.165	0.044	0.200	0.228		**0.18**	**0.12**
P017	837705.15	819317.85		0.426	0.345	0.323	0.089	0.110	0.069	0.032	0.148	0.028	0.183	0.209		**0.18**	**0.11**
P018	837710.52	819326.29		0.459	0.398	0.294	0.161	0.044	0.175	0.136	0.184	0.021	0.190	0.202		**0.21**	**0.14**
P019	837716.05	819334.62		0.502	0.447	0.294	0.185	0.058	0.163	0.179	0.190	0.047	0.167	0.168		**0.22**	**0.14**
P020	837723.52	819341.26		0.515	0.465	0.321	0.224	0.059	0.099	0.176	0.172	0.055	0.130	0.138		**0.23**	**0.13**
P021	837730.99	819347.91		0.413	0.423	0.276	0.182	0.104	0.035	0.135	0.117	0.053	0.088	0.106		**0.20**	**0.10**
P022	837738.46	819354.56		0.433	0.514	0.309	0.174	0.126	0.071	0.129	0.104	0.046	0.077	0.099		**0.22**	**0.10**
P023	837745.94	819361.20		0.473	0.562	0.389	0.216	0.107	0.072	0.108	0.100	0.043	0.071	0.102		**0.25**	**0.10**
P024	837753.35	819367.92		0.417	0.502	0.414	0.328	0.178	0.134	0.129	0.122	0.041	0.083	0.116		**0.29**	**0.13**
P025	837760.76	819374.10		0.325	0.443	0.456	0.492	0.379	0.132	0.118	0.127	0.051	0.105	0.132		**0.36**	**0.18**
P026	837769.97	819370.22		0.088	0.196	0.263	0.376	0.328	0.217	0.041	0.034	0.057	0.017	0.020		**0.25**	**0.12**
P027	837779.13	819366.20		0.143	0.055	0.138	0.320	0.349	0.379	0.188	0.126	0.058	0.019	0.012		**0.22**	**0.16**
P028	837788.29	819362.18		0.212	0.082	0.054	0.201	0.298	0.425	0.279	0.236	0.123	0.048	0.018		**0.18**	**0.18**
P029	837797.66	819357.91		0.281	0.173	0.078	0.136	0.267	0.416	0.308	0.289	0.264	0.055	0.022		**0.18**	**0.20**
P030	837795.04	819348.19		0.375	0.274	0.166	0.092	0.263	0.434	0.314	0.300	0.274	0.051	0.035		**0.21**	**0.21**
P031	837790.30	819338.93		0.548	0.453	0.316	0.042	0.244	0.461	0.333	0.335	0.293	0.061	0.043		**0.25**	**0.21**
P032	837784.74	819330.62		0.525	0.496	0.393	0.108	0.128	0.323	0.246	0.284	0.245	0.061	0.020		**0.25**	**0.17**
P033	837779.18	819322.31		0.545	0.527	0.418	0.173	0.066	0.224	0.172	0.235	0.199	0.062	0.038		**0.26**	**0.14**
P034	837773.05	819314.41		0.534	0.536	0.395	0.187	0.076	0.157	0.109	0.187	0.170	0.060	0.060		**0.25**	**0.12**
P035	837766.62	819306.54		0.502	0.518	0.357	0.198	0.097	0.143	0.079	0.169	0.164	0.055	0.070		**0.25**	**0.12**
P036	837762.25	819297.82		0.432	0.451	0.303	0.188	0.069	0.147	0.087	0.157	0.167	0.041	0.043		**0.22**	**0.11**
P037	837755.51	819290.77		0.479	0.452	0.355	0.243	0.030	0.167	0.127	0.230	0.257	0.043	0.051		**0.25**	**0.14**
P038	837752.97	819282.78		0.283	0.349	0.376	0.288	0.041	0.107	0.119	0.245	0.272	0.045	0.078		**0.24**	**0.15**
P039	837751.00	819274.56		0.184	0.304	0.440	0.397	0.136	0.051	0.058	0.248	0.270	0.046	0.079		**0.28**	**0.16**
O001	837678.43	819495.54		0.157	0.250	0.137	0.192	0.121	0.231	0.099	0.087	0.021	0.089	0.228		**0.16**	**0.12**
O002	837692.41	819490.11		0.166	0.229	0.148	0.165	0.142	0.190	0.118	0.078	0.019	0.074	0.185		**0.15**	**0.11**
O003	837706.39	819484.68		0.184	0.208	0.161	0.216	0.172	0.117	0.125	0.080	0.021	0.060	0.135		**0.16**	**0.11**
O004	837720.38	819479.25		0.217	0.187	0.143	0.250	0.203	0.089	0.120	0.081	0.023	0.049	0.090		**0.17**	**0.10**
O005	837734.20	819473.43		0.252	0.162	0.125	0.273	0.242	0.137	0.096	0.089	0.027	0.043	0.066		**0.18**	**0.11**
O006	837748.02	819467.60		0.252	0.124	0.161	0.286	0.279	0.251	0.070	0.105	0.033	0.038	0.059		**0.20**	**0.13**
O007	837759.16	819457.15		0.227	0.127	0.182	0.291	0.289	0.309	0.160	0.114	0.033	0.031	0.105		**0.21**	**0.15**
O008	837767.16	819443.71		0.286	0.191	0.146	0.252	0.241	0.261	0.185	0.107	0.029	0.025	0.157		**0.20**	**0.14**
O009	837773.40	819429.87		0.332	0.223	0.081	0.167	0.128	0.153	0.188	0.050	0.027	0.028	0.121		**0.14**	**0.10**
O010	837773.98	819414.86		0.332	0.235	0.032	0.153	0.234	0.340	0.284	0.105	0.028	0.031	0.030		**0.16**	**0.13**
O011	837771.05	819399.20		0.097	0.185	0.132	0.256	0.256	0.348	0.205	0.086	0.047	0.026	0.112		**0.19**	**0.15**
O012	837765.50	819385.26		0.195	0.266	0.266	0.333	0.297	0.333	0.091	0.126	0.053	0.138	0.147		**0.26**	**0.18**
O013	837755.45	819373.67		0.382	0.488	0.463	0.457	0.337	0.084	0.141	0.155	0.037	0.114	0.134		**0.35**	**0.17**
O014	837744.33	819363.60		0.474	0.575	0.445	0.281	0.166	0.098	0.144	0.150	0.048	0.097	0.115		**0.29**	**0.13**
O015	837733.19	819353.56		0.444	0.508	0.361	0.196	0.151	0.054	0.180	0.175	0.057	0.116	0.123		**0.24**	**0.13**
O016	837722.06	819343.51		0.514	0.473	0.327	0.204	0.066	0.131	0.208	0.210	0.071	0.164	0.163		**0.24**	**0.15**
O017	837712.99	819331.56		0.496	0.428	0.298	0.175	0.047	0.182	0.177	0.197	0.042	0.184	0.187		**0.22**	**0.14**
O018	837704.18	819319.42		0.478	0.336	0.361	0.135	0.127	0.097	0.064	0.181	0.046	0.209	0.226		**0.22**	**0.14**
O019	837695.09	819307.49		0.456	0.300	0.367	0.189	0.116	0.100	0.077	0.236	0.080	0.251	0.258		**0.23**	**0.17**
O020	837687.65	819294.00		0.420	0.288	0.359	0.178	0.087	0.028	0.113	0.273	0.107	0.286	0.270		**0.22**	**0.18**
O021	837682.27	819280.19		0.467	0.295	0.294	0.141	0.117	0.101	0.204	0.313	0.130	0.323	0.285		**0.21**	**0.21**
O022	837677.98	819266.98		0.443	0.171	0.166	0.233	0.330	0.407	0.285	0.280	0.199	0.294	0.242		**0.26**	**0.28**
O023	837679.94	819254.02		0.277	0.222	0.345	0.393	0.347	0.368	0.257	0.295	0.174	0.252	0.249		**0.32**	**0.28**
O024	837665.28	819484.56		0.235	0.315	0.237	0.208	0.138	0.237	0.101	0.103	0.008	0.083	0.174		**0.19**	**0.12**
O025	837680.48	819483.95		0.199	0.267	0.174	0.169	0.132	0.219	0.067	0.051	0.013	0.065	0.274		**0.16**	**0.12**
O026	837694.51	819478.63		0.209	0.231	0.169	0.222	0.134	0.148	0.099	0.061	0.013	0.050	0.247		**0.16**	**0.11**
O027	837708.59	819473.45		0.226	0.195	0.164	0.247	0.137	0.074	0.112	0.060	0.016	0.039	0.217		**0.16**	**0.10**
O028	837722.67	819468.27		0.228	0.154	0.148	0.268	0.154	0.038	0.117	0.064	0.018	0.035	0.186		**0.16**	**0.10**
O029	837737.03	819461.50		0.195	0.095	0.139	0.290	0.164	0.051	0.101	0.075	0.022	0.032	0.162		**0.16**	**0.10**
O030	837749.29	819452.19		0.119	0.046	0.115	0.313	0.213	0.132	0.053	0.088	0.020	0.026	0.175		**0.17**	**0.12**
O031	837758.97	819439.70		0.208	0.149	0.104	0.281	0.298	0.330	0.142	0.114	0.028	0.024	0.170		**0.20**	**0.15**
O032	837763.39	819425.12		0.322	0.234	0.152	0.170	0.230	0.291	0.193	0.090	0.044	0.033	0.047		**0.18**	**0.12**
O033	837763.64	819411.11		0.324	0.228	0.115	0.188	0.193	0.273	0.173	0.047	0.052	0.041	0.033		**0.18**	**0.11**
O034	837760.20	819396.90		0.217	0.211	0.164	0.236	0.199	0.282	0.088	0.043	0.056	0.038	0.092		**0.19**	**0.12**
O035	837751.74	819384.52		0.291	0.358	0.329	0.329	0.260	0.196	0.097	0.132	0.037	0.165	0.175		**0.27**	**0.17**
O036	837740.71	819374.36		0.412	0.479	0.461	0.487	0.372	0.118	0.144	0.178	0.018	0.151	0.148		**0.37**	**0.19**
O037	837729.68	819364.20		0.434	0.470	0.499	0.408	0.328	0.067	0.185	0.210	0.044	0.172	0.162		**0.35**	**0.19**
O038	837718.65	819354.03		0.445	0.342	0.445	0.326	0.275	0.103	0.218	0.230	0.072	0.208	0.195		**0.31**	**0.20**
O039	837707.62	819343.87		0.460	0.260	0.369	0.295	0.239	0.156	0.230	0.237	0.095	0.241	0.229		**0.28**	**0.21**
O040	837696.59	819333.70		0.443	0.340	0.358	0.292	0.123	0.165	0.222	0.239	0.116	0.262	0.255		**0.27**	**0.21**
O041	837687.69	819321.63		0.417	0.364	0.373	0.261	0.069	0.168	0.244	0.257	0.132	0.266	0.259		**0.26**	**0.21**
O042	837678.78	819309.56		0.364	0.321	0.337	0.192	0.109	0.144	0.292	0.283	0.150	0.253	0.231		**0.23**	**0.21**
O043	837672.28	819296.04		0.372	0.262	0.277	0.138	0.093	0.160	0.329	0.299	0.179	0.249	0.195		**0.20**	**0.20**
O044	837666.79	819282.08		0.410	0.170	0.149	0.022	0.213	0.320	0.268	0.247	0.209	0.265	0.237		**0.17**	**0.22**
O045	837660.49	819268.06		0.323	0.088	0.188	0.270	0.237	0.251	0.174	0.234	0.207	0.257	0.299		**0.23**	**0.24**
O046	837676.73	819230.54		0.280	0.362	0.427	0.374	0.167	0.299	0.239	0.306	0.184	0.278	0.267		**0.32**	**0.26**
O047	837675.66	819215.57		0.159	0.242	0.093	0.058	0.056	0.152	0.103	0.161	0.289	0.290	0.270		**0.13**	**0.19**
O048	837674.59	819200.61		0.165	0.127	0.122	0.067	0.065	0.028	0.056	0.154	0.339	0.286	0.261		**0.12**	**0.18**
O049	837673.97	819185.62		0.171	0.082	0.111	0.043	0.063	0.042	0.076	0.220	0.347	0.279	0.256		**0.11**	**0.19**
O050	837673.07	819170.65		0.120	0.075	0.098	0.045	0.071	0.065	0.087	0.248	0.358	0.288	0.270		**0.11**	**0.20**
O051	837672.16	819155.68		0.057	0.110	0.097	0.042	0.083	0.088	0.096	0.267	0.379	0.309	0.301		**0.11**	**0.22**
O052	837671.26	819140.71		0.329	0.078	0.230	0.282	0.063	0.086	0.103	0.268	0.389	0.339	0.332		**0.22**	**0.25**
O053	837670.35	819125.73		0.180	0.337	0.195	0.178	0.102	0.085	0.107	0.287	0.430	0.388	0.397		**0.21**	**0.27**
O054	837669.45	819110.76		0.059	0.108	0.083	0.100	0.053	0.085	0.135	0.304	0.448	0.409	0.432		**0.14**	**0.27**
O055	837653.07	819234.91		0.154	0.231	0.435	0.366	0.153	0.291	0.253	0.276	0.275	0.258	0.234		**0.30**	**0.26**
O056	837650.74	819220.09		0.258	0.246	0.281	0.200	0.069	0.248	0.197	0.233	0.252	0.294	0.291		**0.22**	**0.23**
O057	837648.42	819205.28		0.343	0.253	0.140	0.080	0.097	0.164	0.175	0.175	0.251	0.311	0.325		**0.17**	**0.21**
O058	837646.10	819190.46		0.103	0.266	0.096	0.091	0.090	0.043	0.161	0.129	0.253	0.333	0.368		**0.14**	**0.20**
O059	837643.42	819175.70		0.150	0.239	0.128	0.122	0.054	0.056	0.124	0.104	0.236	0.302	0.351		**0.14**	**0.18**
O060	837643.94	819160.71		0.187	0.229	0.127	0.152	0.042	0.072	0.139	0.129	0.280	0.344	0.388		**0.16**	**0.21**
O061	837644.40	819145.71		0.209	0.225	0.157	0.174	0.062	0.082	0.152	0.140	0.295	0.358	0.399		**0.18**	**0.23**
O062	837644.86	819130.72		0.271	0.263	0.271	0.229	0.027	0.089	0.160	0.101	0.273	0.362	0.408		**0.22**	**0.22**
O063	837645.32	819115.73		0.142	0.220	0.172	0.144	0.076	0.072	0.178	0.039	0.283	0.363	0.425		**0.17**	**0.22**
O064	837535.64	819267.39		0.162	0.341	0.371	0.263	0.198	0.360	0.165	0.041	0.219	0.328	0.319		**0.28**	**0.24**
O065	837551.25	819267.19		0.138	0.340	0.383	0.293	0.201	0.306	0.160	0.050	0.220	0.341	0.337		**0.29**	**0.25**
O066	837586.81	819268.97		0.075	0.104	0.157	0.148	0.262	0.381	0.225	0.104	0.078	0.307	0.332		**0.18**	**0.23**
O067	837601.79	819268.27		0.052	0.128	0.225	0.232	0.297	0.370	0.234	0.127	0.115	0.318	0.343		**0.22**	**0.25**
O068	837616.44	819267.59		0.063	0.112	0.262	0.293	0.308	0.358	0.246	0.167	0.175	0.313	0.336		**0.25**	**0.27**
O069	837631.34	819265.79		0.087	0.049	0.284	0.348	0.331	0.364	0.271	0.232	0.195	0.280	0.314		**0.27**	**0.29**
O070	837646.23	819264.00		0.124	0.042	0.304	0.374	0.357	0.386	0.305	0.299	0.178	0.254	0.324		**0.29**	**0.30**
O071	837535.84	819247.05		0.132	0.275	0.329	0.313	0.240	0.210	0.074	0.096	0.170	0.347	0.370		**0.27**	**0.24**
O072	837551.05	819246.46		0.097	0.103	0.170	0.156	0.146	0.172	0.120	0.117	0.088	0.270	0.265		**0.15**	**0.17**
O073	837574.56	819246.66		0.041	0.165	0.300	0.325	0.155	0.201	0.109	0.157	0.174	0.230	0.242		**0.23**	**0.20**
O074	837589.56	819246.35		0.047	0.113	0.140	0.231	0.122	0.206	0.165	0.185	0.049	0.087	0.107		**0.15**	**0.13**
O075	837604.52	819245.35		0.050	0.048	0.058	0.129	0.060	0.185	0.181	0.194	0.084	0.033	0.028		**0.09**	**0.10**
O076	837619.49	819244.34		0.211	0.162	0.317	0.292	0.166	0.284	0.233	0.189	0.107	0.050	0.081		**0.23**	**0.16**
O077	837634.46	819243.33		0.208	0.169	0.371	0.357	0.188	0.303	0.257	0.242	0.044	0.098	0.112		**0.26**	**0.18**
O078	837649.42	819242.33		0.170	0.209	0.425	0.394	0.216	0.309	0.267	0.280	0.233	0.152	0.128		**0.30**	**0.24**
O079	837689.74	819248.83		0.077	0.288	0.404	0.397	0.331	0.352	0.242	0.295	0.203	0.180	0.209		**0.32**	**0.27**
O080	837704.40	819245.66		0.052	0.344	0.452	0.407	0.313	0.322	0.205	0.273	0.217	0.068	0.145		**0.32**	**0.23**
O081	837719.06	819242.51		0.157	0.339	0.427	0.389	0.276	0.267	0.161	0.263	0.227	0.013	0.057		**0.31**	**0.19**
O082	837733.75	819239.46		0.137	0.267	0.309	0.306	0.207	0.201	0.133	0.267	0.239	0.010	0.026		**0.24**	**0.17**
O083	837685.98	819234.81		0.159	0.389	0.446	0.399	0.226	0.325	0.248	0.331	0.134	0.194	0.201		**0.32**	**0.25**
O084	837700.77	819232.30		0.135	0.466	0.488	0.430	0.254	0.315	0.190	0.237	0.149	0.024	0.043		**0.33**	**0.19**
O085	837715.56	819229.79		0.122	0.429	0.467	0.468	0.285	0.254	0.101	0.185	0.159	0.033	0.044		**0.34**	**0.18**
O086	837730.35	819227.27		0.152	0.181	0.220	0.285	0.193	0.156	0.119	0.272	0.235	0.027	0.042		**0.21**	**0.16**
O087	837749.06	819235.16		0.210	0.162	0.218	0.243	0.160	0.134	0.114	0.248	0.232	0.007	0.041		**0.19**	**0.14**
O088	837748.29	819220.18		0.196	0.101	0.103	0.107	0.091	0.077	0.117	0.229	0.211	0.020	0.032		**0.11**	**0.11**
O089	837747.56	819205.19		0.110	0.110	0.114	0.219	0.166	0.084	0.128	0.210	0.189	0.040	0.036		**0.15**	**0.13**
O090	837746.83	819190.21		0.254	0.202	0.211	0.272	0.190	0.148	0.142	0.194	0.168	0.058	0.029		**0.21**	**0.14**
O091	837746.10	819175.23		0.047	0.265	0.268	0.306	0.209	0.174	0.149	0.178	0.149	0.079	0.014		**0.22**	**0.15**
O092	837745.37	819160.25		0.063	0.287	0.298	0.294	0.186	0.176	0.155	0.176	0.151	0.097	0.003		**0.22**	**0.15**
O093	837744.64	819145.27		0.033	0.255	0.326	0.349	0.240	0.171	0.143	0.157	0.128	0.117	0.012		**0.25**	**0.16**
O094	837743.91	819130.28		0.429	0.302	0.284	0.348	0.226	0.143	0.114	0.117	0.056	0.127	0.016		**0.27**	**0.14**
O095	837743.18	819115.30		0.076	0.088	0.165	0.480	0.245	0.157	0.100	0.081	0.089	0.103	0.005		**0.24**	**0.15**
O096	837742.45	819100.32		0.274	0.069	0.162	0.424	0.181	0.144	0.084	0.070	0.070	0.047	0.036		**0.22**	**0.12**

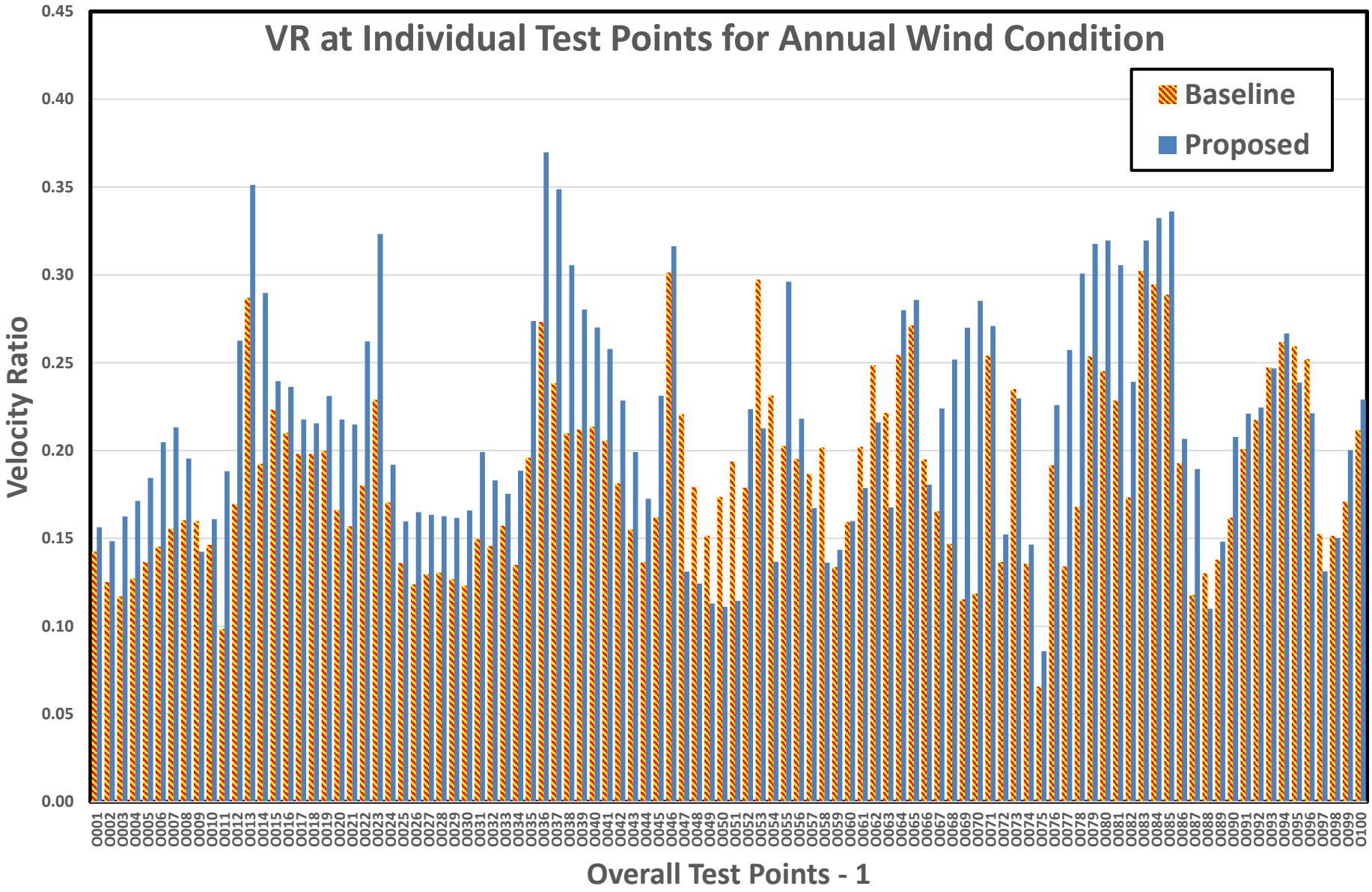
Wind Velocity Ratio, Proposed Scheme

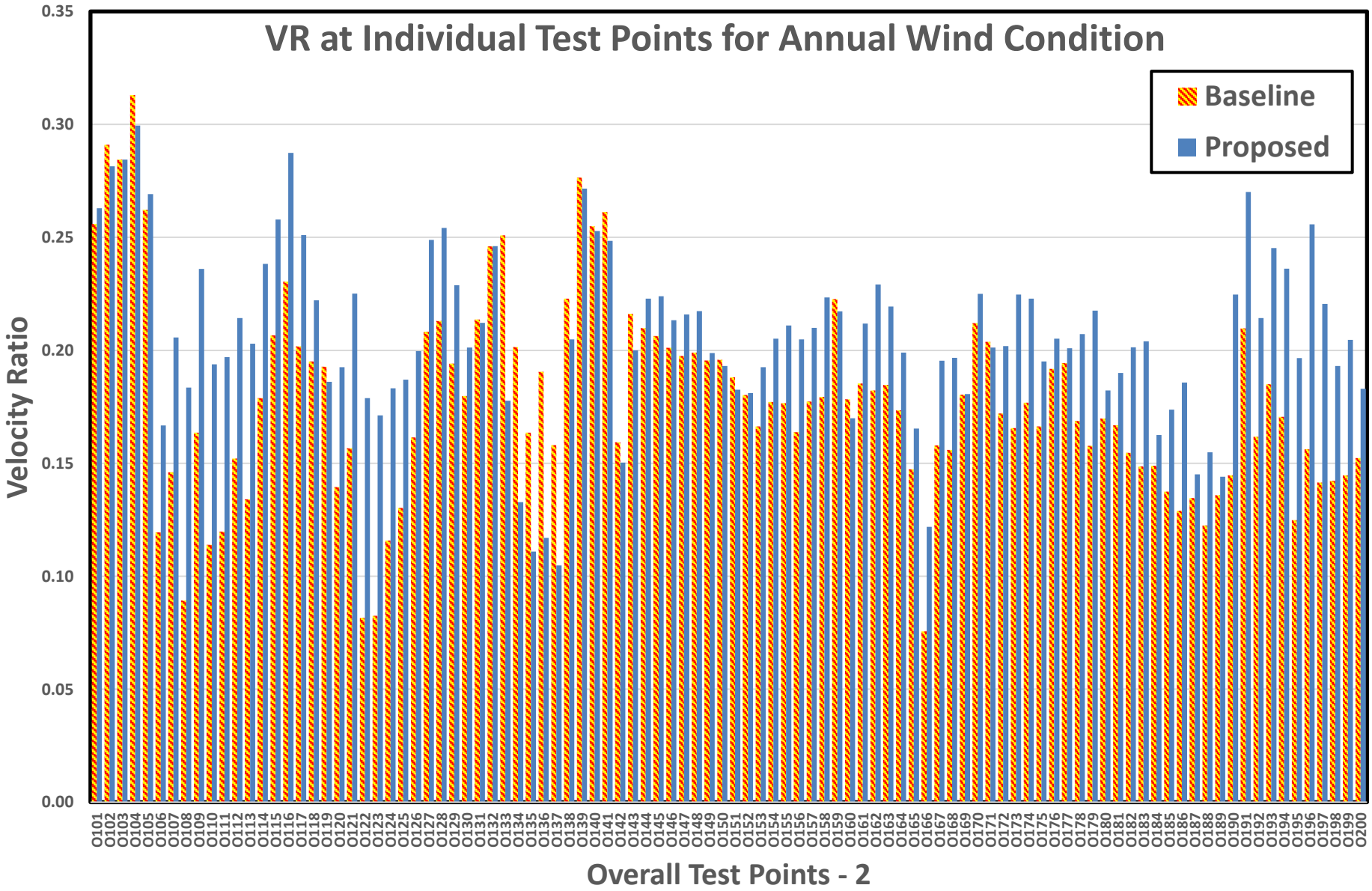
Tes Point			Wind direction (Degree)	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.4%	7.2%	13.7%	21.8%	11.7%	5.8%			6.0%	6.0%		78.6%		
			Probability (Summer)				9.2%	9.8%	7.9%	7.5%	9.3%	13.5%	14.6%	10.0%	81.8%		
O097	837740.52	819220.15		0.155	0.052	0.075	0.193	0.148	0.078	0.122	0.254	0.225	0.030	0.037		**0.13**	**0.13**
O098	837739.75	819205.17		0.099	0.134	0.104	0.225	0.165	0.073	0.142	0.239	0.205	0.049	0.031		**0.15**	**0.14**
O099	837738.92	819190.19		0.219	0.237	0.217	0.249	0.169	0.137	0.156	0.214	0.174	0.068	0.022		**0.20**	**0.14**
O100	837738.10	819175.21		0.103	0.318	0.300	0.289	0.181	0.181	0.168	0.197	0.154	0.090	0.012		**0.23**	**0.15**
O101	837737.28	819160.23		0.101	0.350	0.345	0.345	0.219	0.191	0.177	0.191	0.149	0.114	0.010		**0.26**	**0.17**
O102	837736.46	819145.26		0.043	0.346	0.375	0.392	0.260	0.178	0.168	0.175	0.123	0.142	0.005		**0.28**	**0.17**
O103	837735.63	819130.28		0.395	0.279	0.353	0.373	0.221	0.147	0.124	0.124	0.061	0.176	0.030		**0.28**	**0.15**
O104	837734.81	819115.30		0.444	0.476	0.511	0.322	0.048	0.121	0.095	0.084	0.138	0.193	0.044		**0.30**	**0.13**
O105	837733.99	819100.32		0.476	0.451	0.469	0.253	0.027	0.093	0.064	0.066	0.140	0.206	0.073		**0.27**	**0.12**
O106	837648.05	819466.73		0.046	0.066	0.047	0.302	0.237	0.335	0.160	0.118	0.017	0.051	0.036		**0.17**	**0.14**
O107	837641.69	819453.15		0.195	0.078	0.205	0.280	0.272	0.341	0.138	0.090	0.028	0.019	0.150		**0.21**	**0.15**
O108	837635.44	819439.51		0.186	0.188	0.064	0.252	0.257	0.330	0.188	0.128	0.061	0.035	0.024		**0.18**	**0.14**
O109	837629.07	819425.93		0.127	0.228	0.347	0.242	0.300	0.333	0.184	0.123	0.071	0.033	0.030		**0.24**	**0.15**
O110	837623.13	819412.16		0.116	0.233	0.100	0.253	0.298	0.309	0.198	0.124	0.083	0.025	0.074		**0.19**	**0.15**
O111	837617.04	819398.45		0.095	0.231	0.130	0.254	0.299	0.293	0.189	0.110	0.085	0.034	0.044		**0.20**	**0.15**
O112	837611.17	819384.65		0.073	0.244	0.184	0.283	0.303	0.273	0.163	0.112	0.086	0.048	0.037		**0.21**	**0.15**
O113	837605.38	819370.81		0.073	0.229	0.154	0.275	0.298	0.221	0.129	0.056	0.086	0.073	0.054		**0.20**	**0.14**
O114	837599.54	819356.99		0.159	0.223	0.248	0.344	0.284	0.107	0.113	0.062	0.103	0.105	0.044		**0.24**	**0.14**
O115	837594.24	819342.96		0.191	0.235	0.314	0.348	0.238	0.208	0.142	0.078	0.121	0.126	0.029		**0.26**	**0.16**
O116	837589.70	819328.66		0.123	0.283	0.407	0.397	0.243	0.188	0.108	0.063	0.131	0.133	0.033		**0.29**	**0.16**
O117	837585.59	819314.24		0.045	0.221	0.381	0.365	0.199	0.174	0.076	0.049	0.123	0.100	0.019		**0.25**	**0.13**
O118	837582.07	819299.65		0.033	0.188	0.363	0.322	0.159	0.147	0.063	0.045	0.130	0.070	0.034		**0.22**	**0.12**
O119	837579.37	819282.87		0.017	0.144	0.338	0.260	0.083	0.061	0.042	0.035	0.161	0.152	0.095		**0.19**	**0.12**
O120	837623.48	819446.19		0.093	0.270	0.098	0.265	0.250	0.324	0.133	0.082	0.031	0.081	0.019		**0.19**	**0.13**
O121	837617.50	819432.44		0.025	0.223	0.266	0.290	0.289	0.321	0.146	0.097	0.051	0.072	0.079		**0.23**	**0.15**
O122	837611.51	819418.68		0.048	0.183	0.096	0.248	0.276	0.298	0.178	0.118	0.078	0.047	0.083		**0.18**	**0.15**
O123	837605.52	819404.93		0.041	0.196	0.113	0.219	0.280	0.284	0.165	0.109	0.074	0.019	0.015		**0.17**	**0.13**
O124	837599.54	819391.18		0.047	0.237	0.154	0.231	0.274	0.249	0.149	0.093	0.063	0.036	0.011		**0.18**	**0.13**
O125	837593.86	819377.29		0.039	0.254	0.162	0.257	0.274	0.178	0.119	0.068	0.047	0.046	0.020		**0.19**	**0.12**
O126	837588.00	819363.48		0.042	0.258	0.242	0.301	0.243	0.057	0.110	0.063	0.044	0.041	0.042		**0.20**	**0.11**
O127	837582.49	819349.53		0.150	0.303	0.334	0.349	0.232	0.157	0.114	0.066	0.055	0.045	0.039		**0.25**	**0.12**
O128	837577.01	819335.57		0.174	0.326	0.367	0.343	0.214	0.190	0.105	0.062	0.038	0.030	0.087		**0.25**	**0.12**
O129	837572.47	819321.27		0.136	0.287	0.339	0.318	0.178	0.186	0.104	0.058	0.020	0.032	0.035		**0.23**	**0.10**
O130	837567.62	819307.08		0.093	0.255	0.318	0.283	0.144	0.173	0.109	0.051	0.012	0.016	0.046		**0.20**	**0.09**
O131	837564.14	819292.40		0.099	0.283	0.350	0.282	0.124	0.239	0.148	0.060	0.010	0.028	0.050		**0.21**	**0.10**
O132	837561.10	819276.16		0.093	0.325	0.401	0.292	0.129	0.189	0.108	0.028	0.157	0.166	0.136		**0.25**	**0.15**
O133	837568.61	819235.64		0.080	0.211	0.371	0.192	0.028	0.055	0.074	0.028	0.177	0.159	0.151		**0.18**	**0.12**
O134	837566.94	819220.73		0.084	0.184	0.286	0.066	0.047	0.095	0.114	0.013	0.178	0.175	0.153		**0.13**	**0.11**
O135	837565.49	819205.80		0.061	0.138	0.220	0.041	0.047	0.113	0.122	0.044	0.174	0.196	0.173		**0.11**	**0.12**
O136	837563.99	819190.88		0.072	0.194	0.246	0.021	0.046	0.122	0.133	0.066	0.166	0.213	0.188		**0.12**	**0.13**
O137	837562.48	819175.95		0.070	0.149	0.209	0.020	0.040	0.120	0.121	0.083	0.156	0.221	0.197		**0.10**	**0.13**
O138	837557.88	819239.93		0.058	0.225	0.396	0.253	0.119	0.055	0.109	0.047	0.151	0.092	0.128		**0.20**	**0.12**
O139	837556.29	819225.01		0.118	0.277	0.445	0.381	0.118	0.088	0.120	0.103	0.198	0.186	0.216		**0.27**	**0.18**
O140	837554.70	819210.10		0.110	0.248	0.400	0.356	0.088	0.105	0.125	0.116	0.201	0.216	0.246		**0.25**	**0.19**
O141	837553.11	819195.18		0.156	0.265	0.397	0.325	0.068	0.121	0.131	0.120	0.200	0.233	0.267		**0.25**	**0.19**
O142	837805.92	819507.07		0.177	0.163	0.221	0.181	0.078	0.153	0.184	0.145	0.105	0.017	0.087		**0.15**	**0.11**
O143	837805.62	819492.07		0.398	0.322	0.337	0.039	0.196	0.318	0.342	0.250	0.181	0.027	0.079		**0.20**	**0.16**
O144	837805.31	819477.07		0.398	0.307	0.279	0.141	0.229	0.339	0.347	0.259	0.183	0.022	0.039		**0.22**	**0.18**
O145	837805.00	819462.07		0.379	0.308	0.186	0.196	0.247	0.352	0.339	0.264	0.184	0.019	0.026		**0.22**	**0.18**
O146	837804.70	819447.08		0.350	0.302	0.103	0.211	0.256	0.362	0.331	0.267	0.188	0.019	0.092		**0.21**	**0.20**
O147	837804.39	819432.08		0.321	0.263	0.128	0.214	0.266	0.374	0.325	0.272	0.197	0.020	0.126		**0.22**	**0.20**
O148	837804.08	819417.08		0.312	0.238	0.147	0.207	0.275	0.387	0.333	0.290	0.215	0.019	0.103		**0.22**	**0.21**
O149	837803.77	819402.09		0.294	0.187	0.111	0.200	0.260	0.356	0.301	0.278	0.223	0.012	0.113		**0.20**	**0.20**
O150	837803.47	819387.09		0.254	0.099	0.091	0.209	0.277	0.373	0.304	0.280	0.242	0.031	0.107		**0.19**	**0.21**
O151	837803.16	819372.09		0.243	0.092	0.066	0.182	0.273	0.386	0.304	0.282	0.256	0.051	0.055		**0.18**	**0.21**
O152	837802.85	819357.10		0.296	0.177	0.086	0.126	0.252	0.394	0.303	0.290	0.270	0.046	0.016		**0.18**	**0.20**
O153	837802.55	819342.10		0.398	0.316	0.204	0.050	0.214	0.374	0.285	0.288	0.264	0.031	0.028		**0.19**	**0.18**
O154	837802.24	819327.10		0.460	0.399	0.285	0.070	0.143	0.293	0.228	0.253	0.227	0.024	0.042		**0.21**	**0.15**
O155	837801.93	819312.11		0.500	0.430	0.312	0.112	0.088	0.216	0.163	0.209	0.180	0.034	0.060		**0.21**	**0.13**
O156	837800.88	819297.14		0.517	0.428	0.312	0.125	0.049	0.161	0.114	0.161	0.128	0.072	0.068		**0.20**	**0.11**
O157	837799.82	819282.18		0.536	0.431	0.321	0.157	0.025	0.125	0.092	0.098	0.101	0.086	0.051		**0.21**	**0.09**
O158	837798.77	819267.22		0.498	0.414	0.321	0.192	0.052	0.129	0.075	0.174	0.171	0.070	0.029		**0.22**	**0.11**
O159	837789.54	819514.62		0.389	0.360	0.254	0.197	0.133	0.283	0.327	0.148	0.140	0.030	0.075		**0.22**	**0.15**
O160	837789.41	819499.62		0.276	0.220	0.197	0.088	0.214	0.328	0.323	0.156	0.135	0.028	0.082		**0.17**	**0.15**
O161	837789.28	819484.62		0.333	0.307	0.294	0.126	0.232	0.340	0.304	0.144	0.122	0.022	0.063		**0.21**	**0.15**
O162	837789.15	819469.63		0.371	0.289	0.271	0.187	0.252	0.350	0.289	0.143	0.111	0.019	0.022		**0.23**	**0.15**
O163	837789.02	819454.63		0.371	0.269	0.191	0.206	0.264	0.351	0.272	0.136	0.099	0.018	0.072		**0.22**	**0.16**
O164	837788.89	819439.63		0.355	0.262	0.082	0.214	0.268	0.339	0.236	0.111	0.076	0.020	0.129		**0.20**	**0.16**
O165	837788.76	819424.63		0.281	0.230	0.055	0.224	0.210	0.190	0.103	0.043	0.036	0.021	0.116		**0.17**	**0.11**
O166	837788.63	819409.63		0.033	0.089	0.087	0.165	0.182	0.221	0.189	0.150	0.072	0.016	0.065		**0.12**	**0.12**
O167	837788.50	819394.63		0.221	0.212	0.098	0.233	0.270	0.366	0.290	0.221	0.075	0.042	0.123		**0.20**	**0.18**
O168	837788.37	819379.63		0.185	0.048	0.113	0.250	0.299	0.405	0.286	0.223	0.095	0.083	0.087		**0.20**	**0.20**
O169	837788.77	819363.67		0.205	0.076	0.056	0.208	0.300	0.425	0.282	0.237	0.127	0.051	0.016		**0.18**	**0.19**
O170	837775.93	819517.20		0.355	0.365	0.279	0.203	0.162	0.299	0.286	0.052	0.108	0.042	0.069		**0.22**	**0.14**
O171	837775.90	819502.20		0.373	0.344	0.228	0.123	0.213	0.325	0.279	0.056	0.097	0.034	0.080		**0.20**	**0.13**
O172	837775.88	819487.20		0.328	0.275	0.233	0.143	0.242	0.337	0.265	0.070	0.084	0.029	0.068		**0.20**	**0.14**
O173	837775.85	819472.20		0.316	0.266	0.260	0.206	0.267	0.339	0.248	0.076	0.072	0.025	0.027		**0.22**	**0.14**
O174	837775.82	819457.20		0.332	0.246	0.223	0.229	0.277	0.320	0.222	0.064	0.055	0.023	0.068		**0.22**	**0.14**
O175	837775.63	819441.96		0.332	0.222	0.138	0.236	0.243	0.238	0.180	0.066	0.035	0.023	0.143		**0.20**	**0.13**
O176	837759.50	819518.10		0.286	0.319	0.277	0.180	0.156	0.285	0.235	0.092	0.078	0.056	0.067		**0.21**	**0.13**
O177	837759.80	819503.10		0.324	0.329	0.250	0.135	0.218	0.304	0.222	0.103	0.069	0.046	0.079		**0.20**	**0.13**
O178	837759.70	819488.10		0.329	0.287	0.205	0.179	0.256	0.314	0.206	0.113	0.057	0.040	0.068		**0.21**	**0.14**
O179	837759.60	819473.10		0.297	0.210	0.204	0.244	0.281	0.309	0.179	0.116	0.047	0.035	0.031		**0.22**	**0.14**
O180	837742.17	819516.31		0.211	0.272	0.260	0.152	0.166	0.250	0.146	0.097	0.057	0.070	0.066		**0.18**	**0.12**
O181	837742.80	819501.32		0.252	0.284	0.241	0.145	0.224	0.269	0.114	0.102	0.048	0.058	0.073		**0.19**	**0.12**
O182	837743.23	819488.80		0.276	0.265	0.199	0.201	0.250	0.271	0.094	0.105	0.041	0.050	0.061		**0.20**	**0.12**
O183	837743.82	819475.33		0.276	0.187	0.152	0.264	0.269	0.254	0.065	0.104	0.034	0.043	0.039		**0.20**	**0.12**
O184	837725.75	819513.92		0.161	0.250	0.228	0.133	0.173	0.200	0.060	0.098	0.043	0.081	0.064		**0.16**	**0.10**
O185	837726.34	819498.69		0.196	0.249	0.223	0.150	0.210	0.212	0.069	0.097	0.036	0.067	0.061		**0.17**	**0.11**
O186	837726.34	819484.95		0.223	0.220	0.180	0.229	0.226	0.172	0.100	0.093	0.029	0.054	0.044		**0.19**	**0.11**
O187	837709.32	819508.54		0.132	0.233	0.187	0.140	0.145	0.148	0.083	0.098	0.033	0.087	0.051		**0.15**	**0.09**
O188	837709.62	819493.91		0.168	0.221	0.187	0.158	0.174	0.151	0.120	0.092	0.026	0.071	0.053		**0.15**	**0.10**
O189	837697.07	819500.18		0.141	0.227	0.163	0.155	0.128	0.174	0.127	0.093	0.025	0.085	0.072		**0.14**	**0.10**
O190	837777.18	819388.66		0.164	0.202	0.173	0.287	0.296	0.385	0.224	0.122	0.038	0.099	0.129		**0.22**	**0.18**
O191	837768.15	819377.02		0.153	0.235	0.283	0.373	0.335	0.296	0.048	0.055	0.058	0.094	0.106		**0.27**	**0.16**
O192	837778.66	819371.57		0.086	0.082	0.163	0.309	0.333	0.388	0.195	0.128	0.051	0.048	0.044		**0.21**	**0.17**
O193	837787.19	819328.21		0.522	0.489	0.378	0.104	0.112	0.308	0.241	0.277	0.250	0.060	0.034		**0.25**	**0.16**
O194	837787.19	819313.16		0.535	0.494	0.365	0.152	0.049	0.192	0.160	0.221	0.218	0.045	0.071		**0.24**	**0.13**
O195	837787.57	819297.74		0.501	0.422	0.295	0.133	0.042	0.115	0.096	0.186	0.167	0.019	0.077		**0.20**	**0.10**
O196	837777.03	819314.29		0.533	0.535	0.399	0.182	0.074	0.176	0.134	0.204	0.195	0.059	0.058		**0.26**	**0.13**
O197	837777.78	819299.05		0.483	0.469	0.321	0.173	0.060	0.113	0.097	0.183	0.185	0.041	0.034		**0.22**	**0.11**
O198	837767.43	819294.35		0.419	0.415	0.268	0.162	0.058	0.095	0.071	0.143	0.143	0.038	0.036		**0.19**	**0.09**
O199	837784.75	819261.59		0.335	0.305	0.295	0.234	0.053	0.022	0.045	0.242	0.227	0.082	0.064		**0.20**	**0.13**
O200	837667.14	819479.27		0.292	0.323	0.241	0.187	0.118	0.175	0.029	0.022	0.007	0.062	0.041		**0.18**	**0.07**
O201	837681.26	819474.21		0.292	0.258	0.202	0.179	0.083	0.165	0.042	0.030	0.006	0.033	0.128		**0.16**	**0.08**
O202	837695.38	819469.15		0.300	0.216	0.214	0.184	0.054	0.107	0.060	0.032	0.007	0.022	0.190		**0.15**	**0.07**
O203	837709.50	819464.09		0.278	0.177	0.221	0.179	0.050	0.100	0.081	0.027	0.008	0.016	0.212		**0.14**	**0.08**
O204	837723.62	819459.02		0.217	0.156	0.199	0.187	0.068	0.086	0.102	0.035	0.011	0.018	0.214		**0.14**	**0.08**
O205	837736.48	819451.18		0.154	0.121	0.160	0.090	0.075	0.075	0.093	0.037	0.010	0.014	0.195		**0.09**	**0.07**
O206	837749.40	819443.58		0.052	0.057	0.087	0.104	0.050	0.040	0.050	0.066	0.008	0.011	0.177		**0.07**	**0.06**
O207	837756.05	819430.48		0.238	0.199	0.121	0.216	0.229	0.265	0.087	0.039	0.035	0.026	0.019		**0.18**	**0.10**
O208	837756.62	819415.87		0.301	0.272	0.167	0.160	0.154	0.172	0.081	0.070	0.059	0.045	0.045		**0.17**	**0.09**
O209	837752.06	819404.29		0.271	0.259	0.147	0.098	0.075	0.104	0.028	0.044	0.062	0.053	0.063		**0.13**	**0.07**
O210	837747.69	819391.57		0.276	0.265	0.215	0.176	0.124	0.189	0.029	0.028	0.049	0.047	0.071		**0.17**	**0.08**
O211	837712.73	819396.12		0.123	0.214	0.316	0.307	0.114	0.080	0.029	0.018	0.008	0.176	0.183		**0.21**	**0.12**
O212	837701.52	819401.06		0.122	0.166	0.225	0.280	0.154	0.064	0.021	0.018	0.027	0.185	0.195		**0.19**	**0.12**
O213	837707.22	819415.11		0.114	0.219	0.190	0.247	0.102	0.038	0.026	0.010	0.036	0.154	0.174		**0.16**	**0.10**
O214	837712.54	819428.59		0.045	0.069	0.130	0.129	0.093	0.051	0.015	0.008	0.026	0.099	0.120		**0.10**	**0.07**
O215	837688.61	819408.27		0.114	0.196	0.157	0.068	0.216	0.069	0.083	0.066	0.023	0.089	0.060		**0.12**	**0.08**
O216	837674.74	819414.54		0.107	0.211	0.280	0.143	0.215	0.072	0.107	0.087	0.054	0.049	0.032		**0.16**	**0.09**
O217	837673.60	819424.22		0.138	0.244	0.282	0.105	0.168	0.061	0.135	0.107	0.056	0.141	0.112		**0.16**	**0.11**
O218	837678.73	819438.27		0.034	0.093	0.045	0.094	0.132	0.062	0.033	0.031	0.027	0.032	0.045		**0.07**	**0.05**
O219	837683.86	819449.85		0.015	0.059	0.068	0.079	0.104	0.063	0.035	0.030	0.016	0.032	0.025		**0.06**	**0.05**
O220	837658.78	819418.33		0.094	0.165	0.319	0.148	0.181	0.067	0.023	0.023	0.021	0.048	0.061		**0.16**	**0.07**
O221	837664.48	819427.64		0.172	0.222	0.310	0.106	0.142	0.053	0.115	0.101	0.055	0.107	0.042		**0.16**	**0.09**
O222	837670.18	819439.98		0.047	0.221	0.262	0.097	0.136	0.068	0.079	0.062	0.019	0.034	0.023		**0.13**	**0.06**
O223	837674.93	819451.18		0.031	0.162	0.155	0.089	0.105	0.062	0.033	0.025	0.019	0.028	0.019		**0.09**	**0.04**
O224	837649.85	819423.65		0.051	0.137	0.300	0.128	0.098	0.038	0.017	0.012	0.010	0.068	0.046		**0.13**	**0.05**
O225	837656.50	819436.94		0.199	0.160	0.294	0.092	0.032	0.026	0.146	0.121	0.060	0.016	0.122		**0.12**	**0.07**
O226	837644.72	819441.69		0.270	0.096	0.320	0.053	0.265	0.260	0.131	0.110	0.051	0.038	0.121		**0.17**	**0.12**
O227	837731.78	819375.54		0.378	0.372	0.440	0.499	0.386	0.108	0.128	0.158	0.011	0.156	0.150		**0.36**	**0.19**
O228	837717.16	819381.32		0.089	0.218	0.219	0.172	0.076	0.101	0.060	0.048	0.010	0.166	0.166		**0.15**	**0.10**
O229	837700.12	819387.70		0.082	0.185	0.284	0.294	0.186	0.070	0.070	0.055	0.034	0.201	0.209		**0.21**	**0.14**
O230	837717.47	819366.11		0.314	0.201	0.322	0.406	0.292	0.073	0.174	0.190	0.038	0.208	0.199		**0.28**	**0.19**
O231	837704.68	819370.06		0.096	0.279	0.299	0.232	0.114	0.088	0.116	0.109	0.026	0.217	0.214		**0.19**	**0.14**

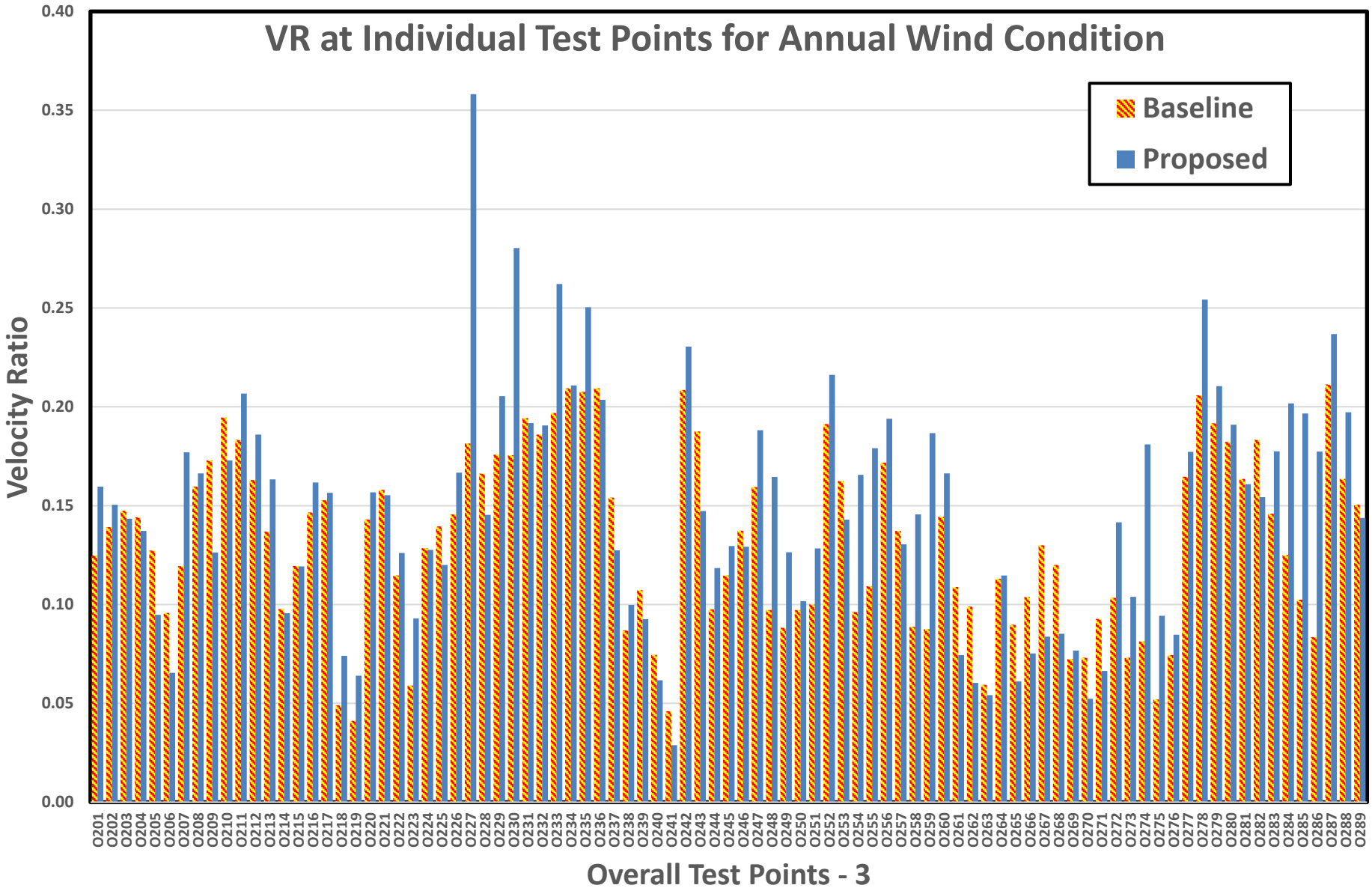
Wind Velocity Ratio, Proposed Scheme

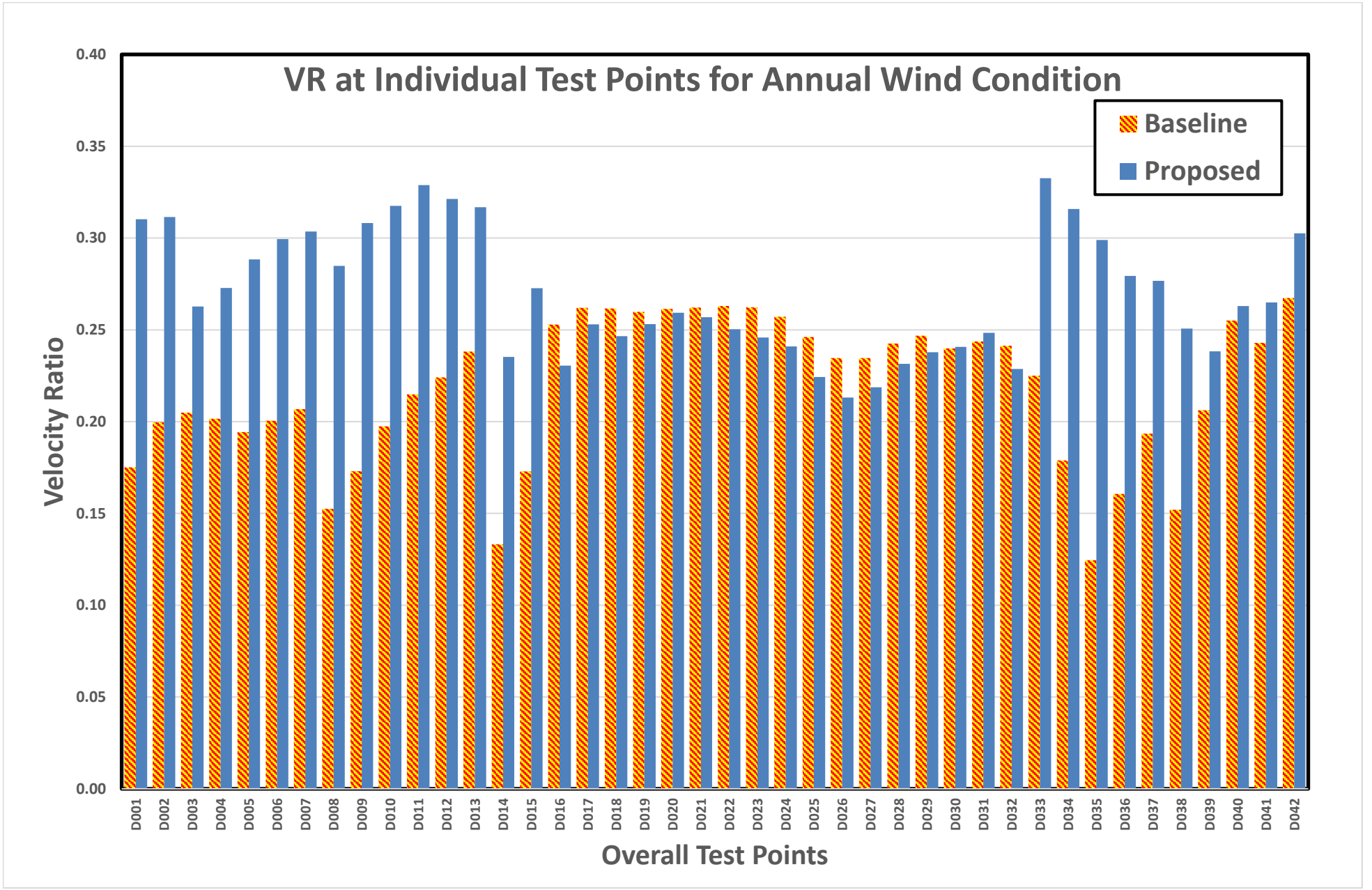
Tes Point			Wind direction (Degree)	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.4%	7.2%	13.7%	21.8%	11.7%	5.8%			6.0%	6.0%		78.6%		
			Probability (Summer)				9.2%	9.8%	7.9%	7.5%	9.3%	13.5%	14.6%	10.0%	81.8%		
O232	837693.11	819373.10		0.113	0.253	0.362	0.246	0.036	0.065	0.030	0.022	0.020	0.199	0.195		**0.19**	**0.11**
O233	837708.34	819357.59		0.329	0.260	0.305	0.341	0.221	0.113	0.196	0.210	0.067	0.230	0.221		**0.26**	**0.20**
O234	837691.29	819362.76		0.173	0.326	0.388	0.228	0.065	0.075	0.146	0.133	0.070	0.203	0.198		**0.21**	**0.14**
O235	837699.51	819346.03		0.378	0.326	0.332	0.279	0.133	0.135	0.195	0.222	0.079	0.243	0.236		**0.25**	**0.19**
O236	837686.03	819352.61		0.231	0.356	0.383	0.175	0.070	0.080	0.114	0.110	0.071	0.195	0.194		**0.20**	**0.13**
O237	837676.86	819356.37		0.224	0.182	0.245	0.062	0.081	0.069	0.121	0.100	0.074	0.127	0.133		**0.13**	**0.10**
O238	837663.70	819362.85		0.035	0.154	0.163	0.101	0.079	0.060	0.113	0.089	0.055	0.077	0.084		**0.10**	**0.08**
O239	837648.45	819368.95		0.120	0.156	0.150	0.093	0.049	0.046	0.078	0.034	0.032	0.047	0.047		**0.09**	**0.05**
O240	837652.45	819378.29		0.080	0.102	0.069	0.059	0.039	0.033	0.015	0.030	0.028	0.093	0.106		**0.06**	**0.05**
O241	837657.60	819389.34		0.029	0.055	0.037	0.034	0.011	0.016	0.017	0.023	0.018	0.018	0.015		**0.03**	**0.02**
O242	837688.85	819337.20		0.350	0.375	0.363	0.226	0.048	0.141	0.169	0.214	0.080	0.236	0.233		**0.23**	**0.17**
O243	837675.12	819343.23		0.236	0.237	0.268	0.084	0.084	0.112	0.091	0.083	0.051	0.152	0.151		**0.15**	**0.10**
O244	837661.38	819349.26		0.161	0.162	0.137	0.126	0.098	0.091	0.122	0.082	0.057	0.082	0.071		**0.12**	**0.09**
O245	837645.59	819354.85		0.139	0.203	0.220	0.139	0.079	0.055	0.101	0.046	0.031	0.059	0.035		**0.13**	**0.06**
O246	837634.72	819364.18		0.151	0.138	0.260	0.131	0.086	0.052	0.059	0.032	0.027	0.052	0.044		**0.13**	**0.06**
O247	837620.61	819370.66		0.033	0.193	0.314	0.261	0.174	0.143	0.015	0.081	0.035	0.018	0.023		**0.19**	**0.09**
O248	837619.65	819385.53		0.082	0.188	0.110	0.218	0.276	0.202	0.121	0.021	0.051	0.014	0.065		**0.16**	**0.11**
O249	837624.04	819397.57		0.114	0.136	0.073	0.126	0.249	0.195	0.168	0.059	0.062	0.008	0.071		**0.13**	**0.11**
O250	837628.80	819410.14		0.119	0.086	0.109	0.049	0.208	0.174	0.188	0.098	0.071	0.028	0.057		**0.10**	**0.10**
O251	837634.72	819422.34		0.072	0.103	0.239	0.171	0.077	0.078	0.172	0.109	0.061	0.028	0.053		**0.13**	**0.09**
O252	837680.67	819326.22		0.336	0.353	0.339	0.185	0.066	0.164	0.203	0.238	0.100	0.218	0.212		**0.22**	**0.17**
O253	837666.91	819332.19		0.203	0.140	0.194	0.137	0.119	0.167	0.092	0.071	0.044	0.109	0.104		**0.14**	**0.10**
O254	837653.15	819338.17		0.156	0.183	0.219	0.185	0.154	0.196	0.125	0.086	0.052	0.068	0.041		**0.17**	**0.11**
O255	837639.40	819344.15		0.168	0.219	0.255	0.194	0.156	0.204	0.095	0.066	0.024	0.090	0.082		**0.18**	**0.11**
O256	837674.26	819316.37		0.300	0.279	0.293	0.170	0.085	0.130	0.235	0.256	0.121	0.188	0.172		**0.19**	**0.17**
O257	837660.61	819322.58		0.160	0.089	0.170	0.173	0.111	0.102	0.095	0.061	0.046	0.056	0.055		**0.13**	**0.08**
O258	837646.95	819328.78		0.122	0.125	0.170	0.199	0.136	0.121	0.126	0.089	0.053	0.079	0.049		**0.15**	**0.10**
O259	837633.29	819334.98		0.178	0.153	0.242	0.233	0.188	0.179	0.076	0.060	0.026	0.106	0.081		**0.19**	**0.11**
O260	837668.16	819307.73		0.237	0.182	0.218	0.160	0.106	0.186	0.226	0.260	0.126	0.119	0.086		**0.17**	**0.15**
O261	837655.98	819312.94		0.128	0.049	0.054	0.116	0.045	0.081	0.100	0.069	0.045	0.025	0.020		**0.07**	**0.06**
O262	837644.87	819318.18		0.122	0.064	0.047	0.054	0.022	0.098	0.125	0.090	0.053	0.086	0.063		**0.06**	**0.07**
O263	837632.04	819322.46		0.044	0.026	0.060	0.069	0.045	0.032	0.062	0.044	0.027	0.098	0.047		**0.05**	**0.05**
O264	837663.60	819300.78		0.160	0.133	0.128	0.116	0.089	0.163	0.144	0.188	0.080	0.045	0.039		**0.11**	**0.10**
O265	837649.76	819306.57		0.162	0.100	0.052	0.036	0.012	0.143	0.139	0.101	0.059	0.037	0.020		**0.06**	**0.06**
O266	837635.93	819312.37		0.147	0.057	0.054	0.054	0.063	0.154	0.135	0.103	0.058	0.110	0.074		**0.08**	**0.09**
O267	837636.61	819303.05		0.251	0.103	0.034	0.029	0.086	0.206	0.169	0.129	0.077	0.078	0.055		**0.08**	**0.10**
O268	837625.84	819305.33		0.211	0.081	0.011	0.047	0.123	0.233	0.171	0.135	0.083	0.051	0.013		**0.09**	**0.10**
O269	837613.25	819305.09		0.139	0.043	0.015	0.060	0.123	0.216	0.130	0.105	0.068	0.037	0.008		**0.08**	**0.08**
O270	837636.85	819295.59		0.113	0.036	0.012	0.020	0.082	0.184	0.135	0.106	0.061	0.023	0.019		**0.05**	**0.07**
O271	837620.92	819296.71		0.153	0.051	0.015	0.035	0.096	0.202	0.149	0.119	0.070	0.032	0.005		**0.07**	**0.08**
O272	837629.53	819348.57		0.206	0.167	0.199	0.136	0.121	0.157	0.057	0.024	0.032	0.068	0.068		**0.14**	**0.08**
O273	837615.43	819349.67		0.236	0.035	0.130	0.074	0.089	0.211	0.125	0.060	0.058	0.067	0.018		**0.10**	**0.08**
O274	837625.61	819340.85		0.216	0.154	0.239	0.207	0.189	0.241	0.031	0.021	0.034	0.024	0.014		**0.18**	**0.09**
O275	837611.63	819341.95		0.140	0.048	0.100	0.099	0.094	0.229	0.092	0.026	0.025	0.008	0.023		**0.09**	**0.06**
O276	837605.99	819350.89		0.221	0.048	0.093	0.042	0.054	0.186	0.121	0.061	0.085	0.080	0.013		**0.08**	**0.08**
O277	837600.72	819342.19		0.193	0.169	0.201	0.213	0.111	0.236	0.145	0.074	0.116	0.121	0.031		**0.18**	**0.13**
O278	837595.61	819329.79		0.066	0.208	0.356	0.359	0.190	0.167	0.101	0.058	0.175	0.187	0.065		**0.25**	**0.17**
O279	837592.96	819314.42		0.042	0.070	0.314	0.338	0.123	0.072	0.031	0.024	0.176	0.199	0.081		**0.21**	**0.14**
O280	837590.45	819298.73		0.029	0.025	0.311	0.313	0.070	0.092	0.051	0.022	0.168	0.201	0.093		**0.19**	**0.13**
O281	837587.56	819284.09		0.024	0.021	0.288	0.250	0.032	0.107	0.057	0.022	0.155	0.172	0.131		**0.16**	**0.12**
O282	837588.01	819274.34		0.069	0.073	0.181	0.138	0.175	0.297	0.178	0.078	0.093	0.224	0.234		**0.15**	**0.17**
O283	837600.17	819272.36		0.057	0.110	0.141	0.155	0.259	0.334	0.200	0.095	0.137	0.285	0.293		**0.18**	**0.22**
O284	837612.33	819271.75		0.058	0.081	0.174	0.216	0.258	0.308	0.197	0.108	0.207	0.295	0.300		**0.20**	**0.24**
O285	837622.81	819270.91		0.052	0.025	0.172	0.231	0.246	0.282	0.188	0.121	0.224	0.285	0.293		**0.20**	**0.24**
O286	837637.32	819269.35		0.071	0.061	0.128	0.206	0.231	0.254	0.174	0.144	0.212	0.227	0.249		**0.18**	**0.21**
O287	837572.41	819337.55		0.173	0.312	0.351	0.319	0.197	0.159	0.094	0.051	0.018	0.028	0.094		**0.24**	**0.11**
O288	837567.12	819323.92		0.141	0.257	0.280	0.276	0.148	0.162	0.109	0.054	0.014	0.023	0.030		**0.20**	**0.09**
O289	837561.42	819308.86		0.100	0.191	0.211	0.199	0.104	0.119	0.100	0.039	0.014	0.013	0.030		**0.14**	**0.07**
D001	837745.43	819260.85		0.185	0.266	0.404	0.447	0.258	0.170	0.084	0.170	0.200	0.135	0.204		**0.31**	**0.21**
D002	837735.43	819260.59		0.086	0.234	0.402	0.478	0.291	0.213	0.072	0.124	0.142	0.138	0.211		**0.31**	**0.20**
D003	837725.43	819260.34		0.072	0.134	0.293	0.414	0.294	0.243	0.089	0.105	0.098	0.126	0.195		**0.26**	**0.19**
D004	837715.43	819260.08		0.103	0.155	0.306	0.394	0.313	0.301	0.123	0.110	0.089	0.157	0.219		**0.27**	**0.20**
D005	837705.44	819259.82		0.027	0.232	0.362	0.382	0.334	0.338	0.166	0.151	0.115	0.164	0.218		**0.29**	**0.22**
D006	837695.44	819259.57		0.033	0.258	0.343	0.391	0.358	0.377	0.220	0.209	0.157	0.155	0.202		**0.30**	**0.25**
D007	837685.44	819259.31		0.064	0.206	0.302	0.397	0.382	0.411	0.272	0.272	0.205	0.181	0.200		**0.30**	**0.28**
D008	837745.26	819252.78		0.182	0.317	0.381	0.382	0.238	0.157	0.110	0.215	0.217	0.068	0.114		**0.28**	**0.18**
D009	837735.26	819252.52		0.150	0.307	0.415	0.431	0.276	0.204	0.114	0.198	0.197	0.065	0.125		**0.31**	**0.19**
D010	837725.26	819252.27		0.067	0.308	0.441	0.454	0.299	0.245	0.133	0.199	0.182	0.059	0.136		**0.32**	**0.20**
D011	837715.27	819252.01		0.143	0.314	0.446	0.442	0.317	0.291	0.161	0.209	0.180	0.074	0.156		**0.33**	**0.22**
D012	837705.27	819251.75		0.042	0.318	0.435	0.419	0.332	0.326	0.193	0.231	0.189	0.114	0.174		**0.32**	**0.24**
D013	837695.27	819251.49		0.061	0.292	0.403	0.400	0.342	0.352	0.227	0.262	0.201	0.152	0.193		**0.32**	**0.25**
D014	837744.25	819244.22		0.169	0.284	0.297	0.300	0.193	0.164	0.119	0.246	0.234	0.024	0.028		**0.24**	**0.16**
D015	837733.33	819244.22		0.150	0.303	0.358	0.358	0.245	0.209	0.134	0.253	0.231	0.018	0.044		**0.27**	**0.18**
D016	837819.09	819500.60		0.411	0.320	0.371	0.142	0.125	0.334	0.358	0.279	0.231	0.037	0.103		**0.23**	**0.19**
D017	837818.53	819485.61		0.378	0.319	0.313	0.215	0.226	0.344	0.361	0.280	0.223	0.036	0.059		**0.25**	**0.20**
D018	837817.97	819470.62		0.324	0.319	0.256	0.224	0.254	0.358	0.370	0.287	0.227	0.034	0.031		**0.25**	**0.20**
D019	837817.41	819455.63		0.298	0.301	0.233	0.261	0.274	0.369	0.373	0.291	0.233	0.034	0.046		**0.25**	**0.22**
D020	837816.85	819440.64		0.287	0.294	0.264	0.265	0.274	0.376	0.370	0.294	0.239	0.036	0.104		**0.26**	**0.22**
D021	837816.29	819425.65		0.276	0.288	0.257	0.257	0.280	0.383	0.362	0.295	0.246	0.040	0.126		**0.26**	**0.23**
D022	837815.74	819410.67		0.265	0.288	0.233	0.249	0.278	0.388	0.347	0.294	0.254	0.043	0.104		**0.25**	**0.23**
D023	837815.18	819395.68		0.249	0.279	0.212	0.246	0.288	0.398	0.329	0.290	0.259	0.036	0.119		**0.25**	**0.23**
D024	837814.62	819380.69		0.241	0.258	0.209	0.241	0.291	0.400	0.314	0.287	0.261	0.021	0.093		**0.24**	**0.22**
D025	837814.06	819365.70		0.262	0.246	0.187	0.204	0.280	0.386	0.300	0.283	0.256	0.020	0.033		**0.22**	**0.20**
D026	837813.37	819350.71		0.323	0.257	0.185	0.172	0.249	0.353	0.282	0.274	0.239	0.026	0.007		**0.21**	**0.19**
D027	837812.68	819335.73		0.392	0.322	0.250	0.154	0.200	0.299	0.249	0.252	0.207	0.042	0.021		**0.22**	**0.17**
D028	837811.98	819320.74		0.444	0.395	0.313	0.164	0.160	0.241	0.204	0.213	0.168	0.063	0.034		**0.23**	**0.15**
D029	837811.29	819305.76		0.476	0.438	0.336	0.181	0.128	0.197	0.164	0.166	0.130	0.085	0.043		**0.24**	**0.13**
D030	837810.60	819290.78		0.492	0.462	0.341	0.199	0.092	0.191	0.137	0.112	0.115	0.093	0.038		**0.24**	**0.12**
D031	837809.91	819275.79		0.491	0.465	0.333	0.207	0.127	0.209	0.123	0.118	0.127	0.082	0.025		**0.25**	**0.12**
D032	837809.21	819260.81		0.462	0.424	0.295	0.187	0.123	0.238	0.112	0.094	0.084	0.088	0.026		**0.23**	**0.11**
D033	837672.29	819253.35		0.428	0.215	0.355	0.393	0.326	0.348	0.257	0.304	0.136	0.300	0.275		**0.33**	**0.28**
D034	837657.30	819253.75		0.239	0.210	0.376	0.388	0.294	0.326	0.267	0.296	0.277	0.197	0.185		**0.32**	**0.27**
D035	837642.30	819254.14		0.188	0.191	0.372	0.390	0.297	0.347	0.291	0.275	0.164	0.144	0.205		**0.30**	**0.25**
D036	837627.31	819254.54		0.155	0.173	0.351	0.367	0.281	0.351	0.288	0.243	0.034	0.230	0.280		**0.28**	**0.24**
D037	837612.31	819254.94		0.069	0.168	0.372	0.361	0.270	0.377	0.296	0.227	0.039	0.260	0.304		**0.28**	**0.25**
D038	837597.32	819255.34		0.065	0.134	0.283	0.320	0.245	0.374	0.272	0.197	0.111	0.295	0.329		**0.25**	**0.26**
D039	837582.32	819255.73		0.046	0.132	0.249	0.289	0.240	0.357	0.234	0.163	0.148	0.335	0.358		**0.24**	**0.26**
D040	837567.33	819256.13		0.072	0.190	0.346	0.278	0.253	0.332	0.194	0.128	0.175	0.350	0.362		**0.26**	**0.26**
D041	837552.33	819256.53		0.113	0.253	0.312	0.266	0.254	0.325	0.176	0.112	0.193	0.363	0.367		**0.26**	**0.26**
D042	837537.37	819257.58		0.159	0.325	0.358	0.307	0.265	0.347	0.173	0.094	0.232	0.389	0.386		**0.30**	**0.28**

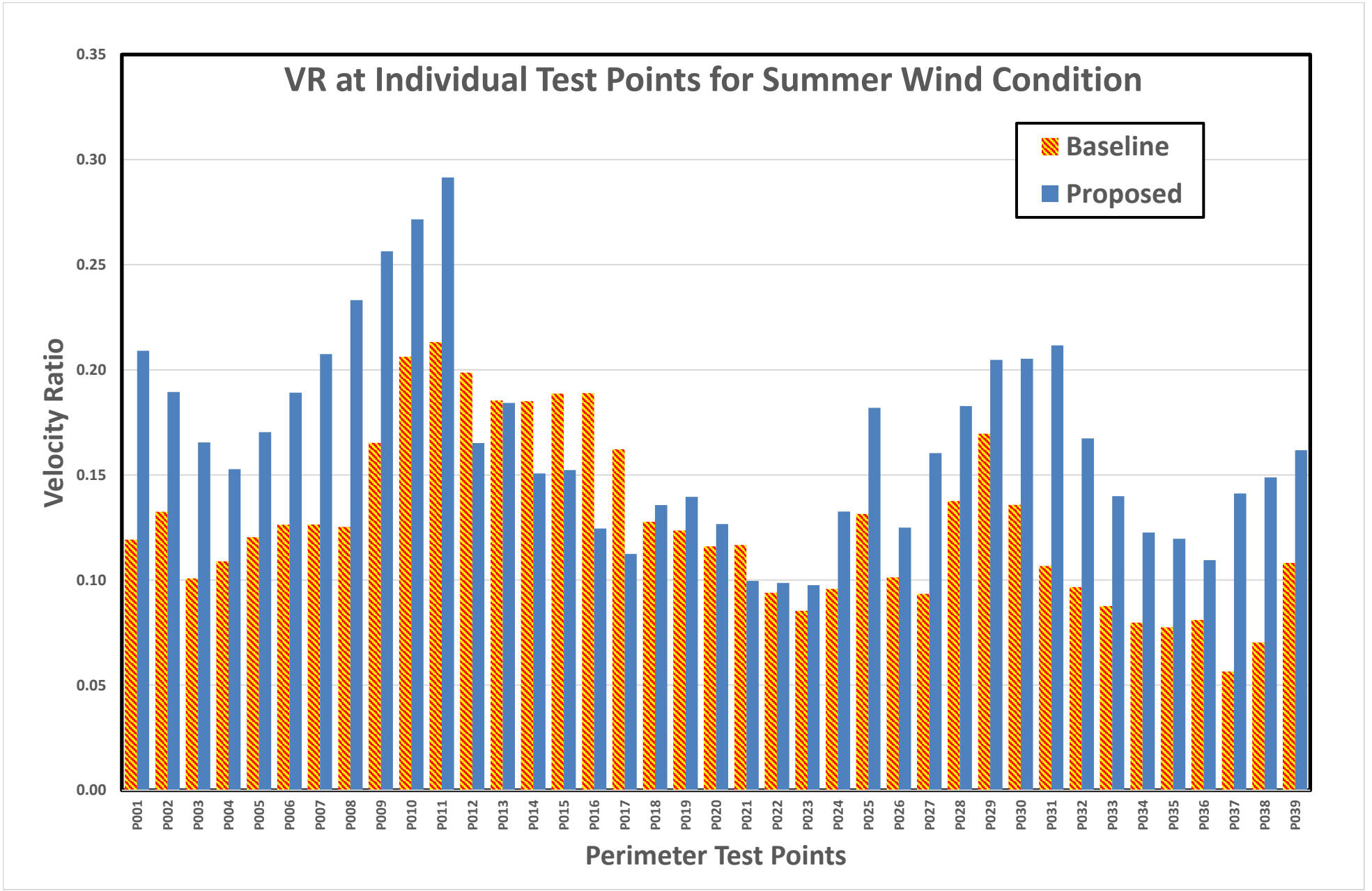

VR at Individual Test Points for Annual Wind Condition
Baseline
Proposed
Velocity Ratio
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
P001 P002 P003 P004 P005 P006 P007 P008 P009 P010 P011 P012 P013 P014 P015 P016 P017 P018 P019 P020 P021 P022 P023 P024 P025 P026 P027 P028 P029 P030 P031 P032 P033 P034 P035 P036 P037 P038 P039
Perimeter Test Points

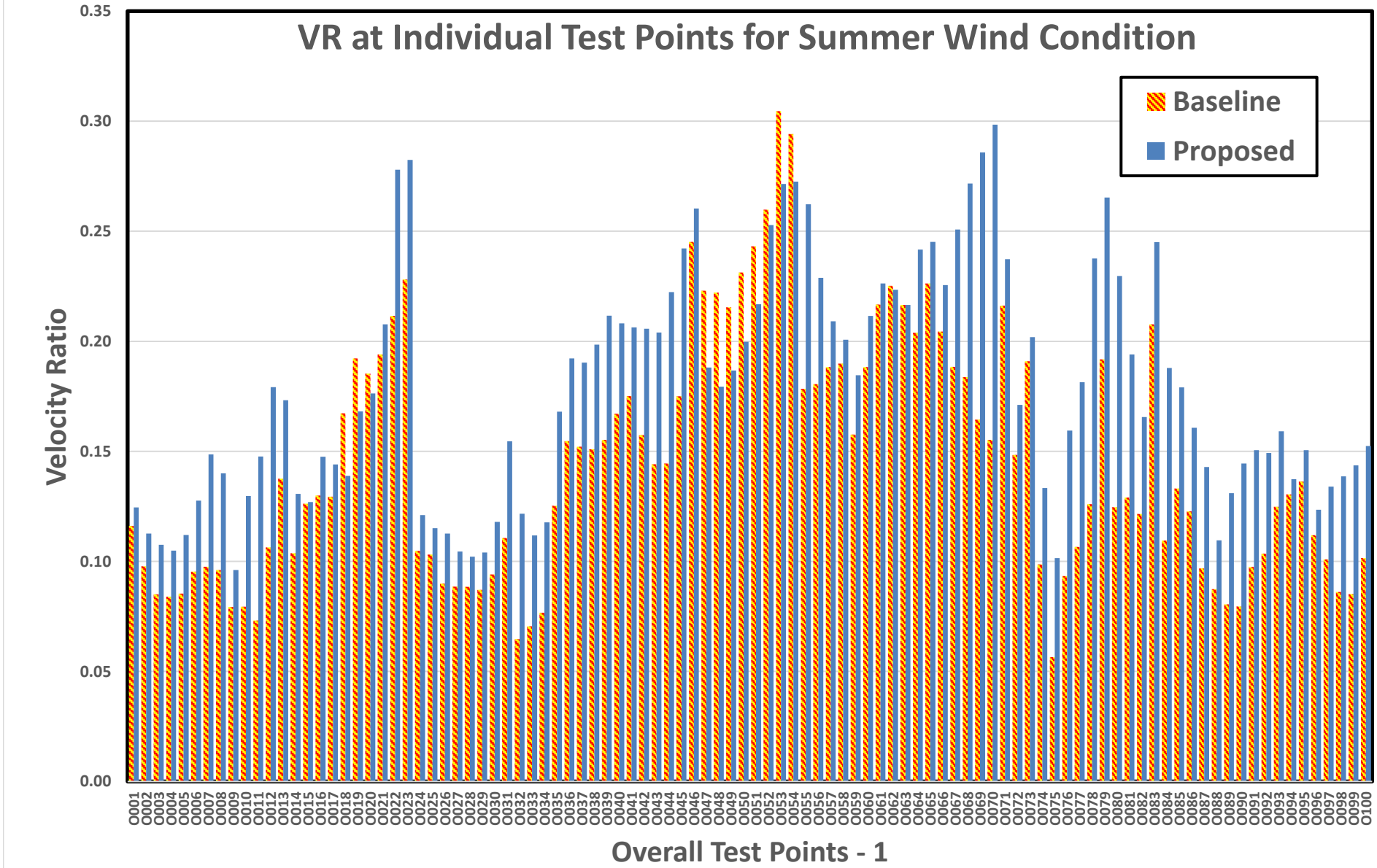

VR at Individual Test Points for Annual Wind Condition
Baseline
Proposed
Velocity Ratio
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Overall Test Points - 1

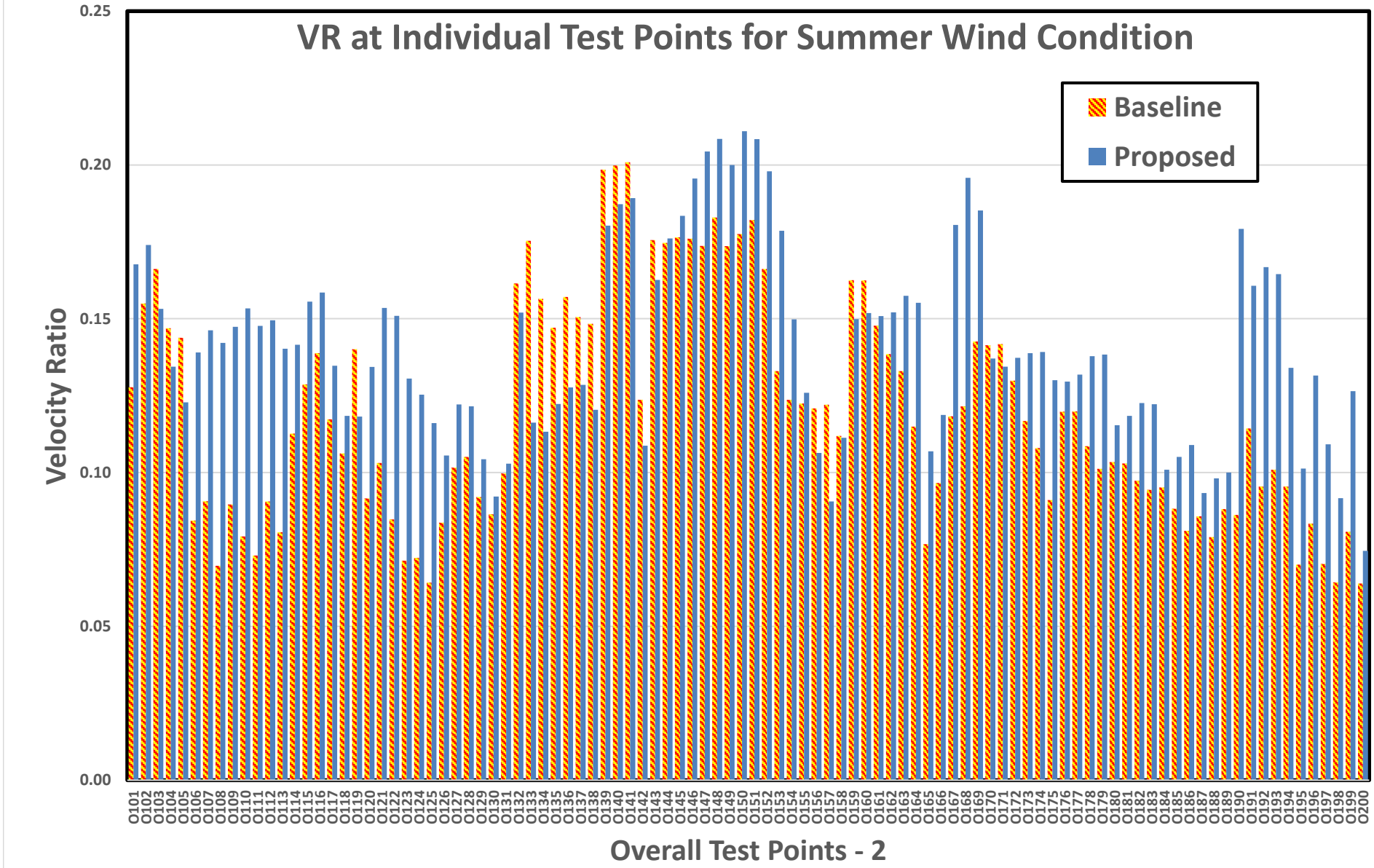

VR at Individual Test Points for Annual Wind Condition
Baseline
Proposed
Velocity Ratio
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
O101 O102 O103 O104 O105 O106 O107 O108 O109 O110 O111 O112 O113 O114 O115 O116 O117 O118 O119 O120 O121 O122 O123 O124 O125 O126 O127 O128 O129 O130 O131 O132 O133 O134 O135 O136 O137 O138 O139 O140 O141 O142 O143 O144 O145 O146 O147 O148 O149 O150 O151 O152 O153 O154 O155 O156 O157 O158 O159 O160 O161 O162 O163 O164 O165 O166 O167 O168 O169 O170 O171 O172 O173 O174 O175 O176 O177 O178 O179 O180 O181 O182 O183 O184 O185 O186 O187 O188 O189 O190 O191 O192 O193 O194 O195 O196 O197 O198 O199 O200
Overall Test Points - 2

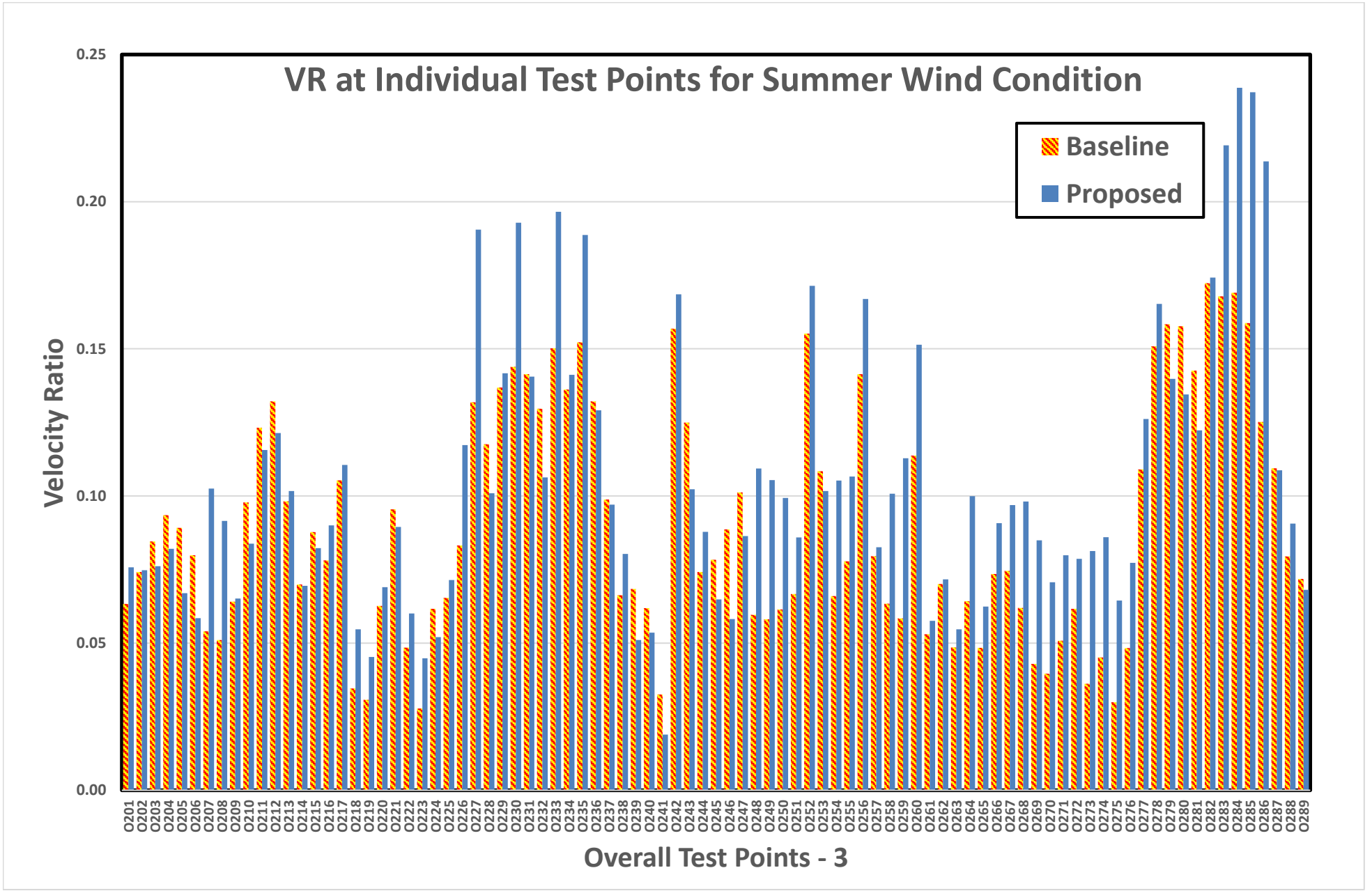

VR at Individual Test Points for Annual Wind Condition
Baseline
Proposed
Velocity Ratio
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
O201 O202 O203 O204 O205 O206 O207 O208 O209 O210 O211 O212 O213 O214 O215 O216 O217 O218 O219 O220 O221 O222 O223 O224 O225 O226 O227 O228 O229 O230 O231 O232 O233 O234 O235 O236 O237 O238 O239 O240 O241 O242 O243 O244 O245 O246 O247 O248 O249 O250 O251 O252 O253 O254 O255 O256 O257 O258 O259 O260 O261 O262 O263 O264 O265 O266 O267 O268 O269 O270 O271 O272 O273 O274 O275 O276 O277 O278 O279 O280 O281 O282 O283 O284 O285 O286 O287 O288 O289
Overall Test Points - 3

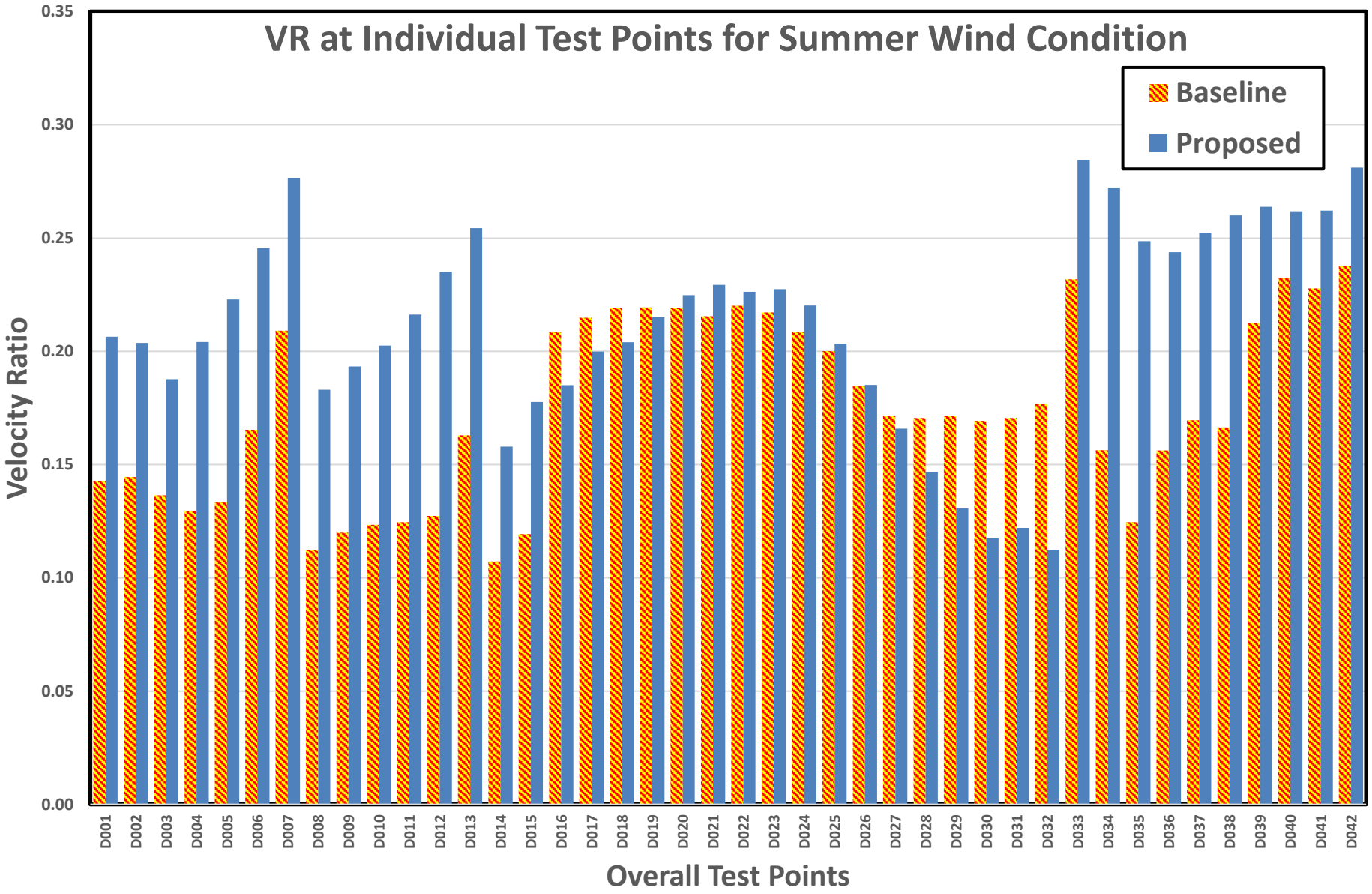

VR at Individual Test Points for Annual Wind Condition
Baseline
Proposed
Velocity Ratio
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
D001 D002 D003 D004 D005 D006 D007 D008 D009 D010 D011 D012 D013 D014 D015 D016 D017 D018 D019 D020 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D031 D032 D033 D034 D035 D036 D037 D038 D039 D040 D041 D042
Overall Test Points


VR at Individual Test Points for Summer Wind Condition
Baseline
Proposed
Velocity Ratio
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
P001
P002
P003
P004
P005
P006
P007
P008
P009
P010
P011
P012
P013
P014
P015
P016
P017
P018
P019
P020
P021
P022
P023
P024
P025
P026
P027
P028
P029
P030
P031
P032
P033
P034
P035
P036
P037
P038
P039
Perimeter Test Points


VR at Individual Test Points for Summer Wind Condition
Baseline
Proposed
Velocity Ratio
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Overall Test Points - 1


VR at Individual Test Points for Summer Wind Condition
Baseline
Proposed
Velocity Ratio
0.25
0.20
0.15
0.10
0.05
0.00
Overall Test Points - 2


VR at Individual Test Points for Summer Wind Condition
Baseline
Proposed
Velocity Ratio
0.25
0.20
0.15
0.10
0.05
0.00
O201 O202 O203 O204 O205 O206 O207 O208 O209 O210 O211 O212 O213 O214 O215 O216 O217 O218 O219 O220 O221 O222 O223 O224 O225 O226 O227 O228 O229 O230 O231 O232 O233 O234 O235 O236 O237 O238 O239 O240 O241 O242 O243 O244 O245 O246 O247 O248 O249 O250 O251 O252 O253 O254 O255 O256 O257 O258 O259 O260 O261 O262 O263 O264 O265 O266 O267 O268 O269 O270 O271 O272 O273 O274 O275 O276 O277 O278 O279 O280 O281 O282 O283 O284 O285 O286 O287 O288 O289
Overall Test Points - 3


VR at Individual Test Points for Summer Wind Condition
Baseline
Proposed
Velocity Ratio
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
D001 D002 D003 D004 D005 D006 D007 D008 D009 D010 D011 D012 D013 D014 D015 D016 D017 D018 D019 D020 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D031 D032 D033 D034 D035 D036 D037 D038 D039 D040 D041 D042
Overall Test Points

Part II

Air Ventilation Assessment – Expert Evaluation

Urban Renewal Authority
Proposed Residential Development in Bailey Street, Kowloon City District

Air Ventilation Assessment – Expert Evaluation (v1.0)

June 2025

Approved By _____
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REMARKS:

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1 INTRODUCTION

1.1 Project Background

1.1.1 Cinotech Consultants Limited is commissioned by the Urban Renewal Authority (URA) to conduct an Air Ventilation Assessment (AVA) in support to a proposed comprehensive high-density residential development (the Proposed Development) at Bailey Street, Kowloon City District (the "Site"). URA, in collaboration with the Planning Department (PlanD), proposed to rezone the site from "Government, Institution or Community" ("G/IC") zone and a small strip of land zoned "Other Specified Uses" annotated "Sewage Treatment Plant" ("OU(STP)") to "Residential (Group A)9" ("R(A)9") for comprehensive high-density residential development. Planning submission with relevant technical assessments will be prepared in support of the proposed rezoning under Section 5 of the Town Planning Ordinance.

1.1.2 In September 2024, an AVA study was conducted using Computational Fluid Dynamics (CFD) models to compute the Velocity Ratio (VR) for the proposed residential development at a proposed building height of 100 mPD (the Testing Scheme). The AVA study results demonstrated that there will be no adverse air ventilation impact compared to an OZP-compliant design. The AVA study has been reviewed by the Planning Department (PlanD), and no unresolved technical comments have remained since April 2025.

1.1.3 To allow greater flexibility in future design, the proposed maximum building height has been slightly adjusted from the Testing Scheme of 100 mPD to the Notional Scheme of 110 mPD. Given this adjustment, an Expert Evaluation (EE) will be conducted to examine the potential air ventilation impact of the current Notional Scheme, as it closely resembles the previous Testing Scheme.

1.2 Objective of this AVA-EE

1.2.1 The objective of this AVA-EE is to compare the air ventilation performance at the pedestrian level between the Proposed Scheme (the Notional Scheme) and the Baseline Scheme (the Testing Scheme). The Baseline Scheme adopted the 100 mPD Testing Scheme, whose air ventilation performance has been quantitatively approved. The wind performance of the Proposed Scheme will be qualitatively assessed based on the major prevailing wind directions and its good design features.

1.2.2 As the project is still in its early stages and the design is subject to change, the focus of this study is to demonstrate the effectiveness of the proposed good design features and to recommend additional mitigation measures as necessary. If the proposed good design features are not incorporated into the final design, the AVA issue shall be revisited during the detailed design stage.

2 SITE CHARACTERISTICS

2.1 The Site

Location

2.1.1 The Site, with gross site area of about 7,610 m^2, is situated in the Kowloon City District, is in proximity to the waterfront. It is bounded by Chi Kiang Street to the west, Bailey Street to the south, Hoi Sham Park Extension to north and east and To Kwa Wan Pigging Station to the east and To Kwa Wan Preliminary Treatment Works to the southeast. A location plan of the Site is shown on **Figure 2-1**.

Existing Condition

2.1.2 The Site falls within an area mainly zoned as "G/IC" and a small strip of land zoned "OU(STP)" on the Approved Hung Hom Outline Zoning Plan ("OZP") No. S/K9/28, with a building height restriction ("BHR") of 8 storeys as illustrated in **Figure 2-2**. According to the OZP, the Site is planned for school development.

2.1.3 The majority of the Site is currently occupied by a temporary fee-paying public carpark, with a small portion of the Site occupied as planter area and hard-paved land serving as a passageway.

2.2 The Surrounding Environment

2.2.1 The Site is located near the waterfront of the Kowloon City District, surrounded by a mix of school development, residential, commercial, and infrastructural uses.

2.2.2 Hoi Sham Park and its Extension, as well as the To Kwa Wan Pigging Station, are adjoining the east and north boundaries of the Sites, allowing the sea breeze from Kowloon Bay to enter the Site and the downstream region.

2.2.3 To the north of the Site, aside from the nearby school development, the existing developments are relatively far from the Site, thus the wind from the north can also reach the Sites and the downstream region without much obstacle.

2.2.4 The first row of developments to the west of the Site are mid-rise school developments of ~20-35 mPD. Behind the row of schools, there are a group of existing and planned residential developments (please refer to **Section 2.3**) with building heights of ~100 mPD. To the south and southwest of the Site, there is a mix of industrial and residential developments with building heights in the range of ~50-120 mPD. Considering the building density to the south and west of the Site, the wind from the south to west directions mostly flows along the existing streets.

2.2.5 An overview of building heights in the vicinity is provided in **Appendix 2-1** for reference. The major prevailing winds at the Site are illustrated in **Figure 2-3** (please refer to **Section 3.3** for details). The major at-grade air pathways within the Site under the existing configuration are shown in **Figure 2-4**.

2.2.6 Based on the prevailing winds, existing at-grade air pathways, and nearby developments, utilizing the natural wind flow to and from the sea is a key consideration for ensuring good ventilation at the pedestrian level.

2.3 KCAA1 Core Area

2.3.1 Located about 300m west of the Site is the URA's KCAA1 Core Area, which comprises 8 URA redevelopment projects currently in different stages of implementation. The objective is to enhance walkability and connectivity through restructuring and replanning of the land uses. Existing buildings will be demolished and replaced with high-rise residential buildings. The redevelopment will include residential developments on top of commercial/retail podium, as permitted under the "R(A)" zoning of the current OZP/ the respective Development Scheme Plans (DSPs). A summary of these projects is provided in **Table 2-1**, illustrated in **Figure 2-5,** and detailed in **Appendix 2-2**.

Table 2-1 Building Height of development within KCAA1 Core Area

URA Projects	Building Height
1. KC-009 (Bailey Street/ Wing Kwong Street)	100mPD
2. KC-010 (Hung Fook Street/ Ngan Hon Street)	100mPD
3. KC-011 and DL-8: KC (Hung Fook Street/ Kai Ming Street)	100mPD
4. KC-012 and KC-013 (Kai Ming Street/ Wing Kwong Street)	100mPD
5. KC-014 (Wing Kwong Street/ Sung On Street)	100mPD
6. KC-016 (To Kwa Wan Road/ Wing Kwong Street)	140mPD

3 SITE WIND AVAILABILITY

3.1 Introduction

3.1.1 The selection and evaluation of the wind availability data for the upstream wind conditions are described in this section. The following sources of wind data have been reviewed for this AVA study as follows:

- Measurement from Hong Kong Observatory (HKO) weather station.
- Measurement from Wind Tunnel Test in Experimental Site Wind Availability Study[1].
- Simulated results from Meso-Scale Model Regional Atmospheric System (RAMS)[2] in PlanD's website.

3.2 Selection of Wind Data Source

3.2.1 Simulated result of RAMS from PlanD's website is adopted in this AVA study. The reason for the selection of this wind data source is explained in the following paragraphs.

3.2.2 HKO weather stations provided reliable wind data in Hong Kong. There are four HKO weather stations within 3km from the Site, including:

- King's Park Automatic Weather Station, ~1.85km away from the Site
- Kowloon City Automatic Weather Station, ~2.5km away from the Site
- Kai Tak Automatic Weather Station, ~2.3km away from the Site.
- Kai Tak Runway Park Automatic Weather Station, ~2.7km away from the Site.

3.2.3 Since the measurement locations are normally within 3-10m above ground level, the measured wind directions are likely affected by the nearby high-rise developments. With the large horizontal distance, the measured wind direction distribution at the Automatic Weather Stations may not represent the site wind condition. Therefore, the data from aforementioned weather stations should only be adopted when no other alternatives are preferred.

3.2.4 Besides, the Waglan Island Automatic Weather Station is located in an undisturbed area and its measured wind data can describe the overall wind condition for Hong Kong well. Therefore, the wind data from Waglan Island Automatic Weather Station could be adopted in AVA study when no more suitable data is available.

3.2.5 A series of experimental site wind availability studies for various regions in Hong Kong using wind tunnel experiment have been conducted and some of the reports are available to the public. The closest location can be found in "*Experimental Site Wind Availability Study for San Po Kong, Hong Kong - Investigation Report WWTF012-2009*". However, the Site is more than 1.5 km from the study area of the San Po Kong experimental site, thus the wind data from WWTF012-2009 is not suitable for this study.

3.2.6 In order to provide a comprehensive set of standardized and reasonably representative site wind availability data for both qualitative and quantitative AVA, a consultancy study was commissioned by PlanD. The study adopted meso-scale model RAMS to simulated 10-year wind climate at horizontal resolution of 0.5km x 0.5km, covering the whole Hong Kong. Three levels of nested domains with realistic boundary conditions were adopted to provide

[1] https://www.pland.gov.hk/pland_en/resources/info_serv/site_wind/index.html
[2] https://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/index.html

reasonable approaching wind condition to the finest level of nesting. To refine the model results, the wind data from various wind stations have been used in RAMS.

3.2.7 When comparing the RAMS to the wind tunnel experiments in the experimental site wind availability studies, the RAMS have the following advantages:

- RAMS covers a much larger upwind area, with terrain height and land surface type, compare to those wind tunnel experiments;
- RAMS considers the atmospheric stability where those wind tunnel experiments do not consider thermal effect;
- RAMS provides wind data for every single grid at various elevation, unlike those wind tunnel experiments that can only provide data at predetermined locations, and HKO's measurements that only provide surface data.

3.2.8 The Scheme and assessment area of this study is fall within grid [84,41]. Considering that the grids from RAMS can cover every part of Hong Kong and the advantages of the RAMS over those wind tunnel experiments, the data of grid [84,41] from RAMS is best suited for this AVA study. The Major Prevailing Winds of the Scheme area are illustrated in **Figure 1-5**.

3.3 Adopted Wind Conditions

3.3.1 The wind roses and the vertical wind profiles of grid [84,41] from RAMS[3] has been adopted in order to provide a realistic flow condition. The wind direction at 200m elevation has been adopted in the analysis of general wind condition of the Site.

3.3.2 The wind rose at 200m elevation of grid [84,41] and the wind profile from RAMS are illustrated in **Figure 3-1** and summarised in **Table 3-1** & **Table 3-2**. Detailed occurrence probability for each wind direction and wind speed at 200m elevation are listed in **Appendix 3-1**.

3.3.3 Under annual conditions, the major wind direction is from the East. For approximately 29.1% of the time, the wind comes from E (90°). About 11.7% of the wind comes from ENE (67.5°), and around 10.0% comes from ESE (112.5°). The occurrence chances for all other wind directions are at or below 9% each.

3.3.4 Under summer conditions, the major wind direction shifts to the South-West. For approximately 15.7% of the time, the wind comes from SW (225°), and about 12.7% comes from SSW (202.5°). Notably, the predominant wind direction from the annual conditions (E - 90°) contributes about 11.8% to the summer wind conditions. The occurrence chances for all other wind directions are below 11% each.

3.3.5 Generally, the major wind directions of concern are ENE to ESE throughout the year and SSW to SW during the summer. A good designer should consider these major wind directions to minimize the impact of air ventilation on the surrounding area.

[3] https://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/084041.html

Table 3-1 Occurrence Probability for the Top 8 Prevailing Wind Directions at 200m Elevation (Annual)

Wind Direction	Wind Direction (degree)	Occurrence Probability at 200m elevation
E*	90	29.1%
ENE*	67.5	11.7%
ESE*	112.5	10.0%
NNE	22.5	8.4%
NE	45	6.6%
SW	225	5.9%
SSW	202.5	5.5%
SE	135	4.2%

* The three wind roses with the highest occurrence are adopted in this assessment.

Table 3-2 Occurrence Probability for the Top 8 Prevailing Wind Directions at 200m Elevation (Summer)

Wind Direction	Wind Direction (degree)	Occurrence Probability at 200m elevation
SW*	225	15.7%
SSW*	202.5	12.7%
E*	90	11.8%
ESE	112.5	10.4%
WSW	247.5	10.0%
SE	135	7.5%
S	180	7.5%
SSE	157.5	6.5%

* The three wind roses with the highest occurrence are adopted in this assessment.

4 DESCRIPTION OF THE SCHEMES

4.1 Introduction and Design Consideration

4.1.1 The designs of each Scheme adopted in the current and previous AVA Studies of this Proposed Development will be briefly described in this chapter.

4.1.2 As the small southern portion of the Site serves as an existing air pathway for the E wind connecting to Bailey Street (**Figure 2-4**), no obstacle should be placed along this air pathway. In addition, to avoid excessive blockage of the prevailing wind, building separation of 15m shall be provided between the residential towers.

4.2 OZP Compliant Scheme

4.2.1 For assessment purposes, an OZP Compliant Scheme referencing the secondary school layout requirements specified under the Hong Kong Planning Standards and Guidelines (HKPSG), while respecting the existing box culvert, had been adopted in the AVA initial study.

4.2.2 Due to the presence of an existing box culvert in the southern portion of the Site, above-ground usage in that area is restricted. As a result, the orientation of the school structure has been slightly adjusted to a southwest-northeast direction. Additionally, the southern portion of the Site can only be utilized for car parking spaces and cannot accommodate underground structures. As a result, the school is also setback from the southern boundary to maintain a crucial air pathway. However, as the façade of the OZP Compliant Scheme is not aligned with the E-W air pathway, the flow can freely turn and recirculate under easterly wind and may not flow smoothly along the setback area.

4.2.3 The notional layout plan of the OZP Compliant Scheme is presented in **Figure 4-1**.

4.3 The Baseline Scheme (The Testing Scheme)

4.3.1 The Testing Scheme adopted in the AVA initial study has been established as the Baseline Scheme for the current assessment. The Baseline Scheme comprises two residential towers on a podium structure, each with a maximum building height of 100 mPD (see **Figure 4-2**).

Good Design Features

4.3.2 The Baseline Scheme incorporates two key good design features to preserve the existing at-grade air pathway within the Site:

a) The podium is set back from the southern boundary (minimum 10 m) to maintain the crucial air pathway, which runs in an east-west direction.

b) A 15 m building separation between the residential towers will be upheld to maintain appropriate spacing.

4.3.3 Although the podium and towers of the Baseline Scheme have the potential to induce downwash flow and enhance air ventilation in the nearby area, this is not considered a beneficial design feature since the relatively large structures may also block the at-grade flow. Thus, the potential net improvement or degradation depends on wind direction.

Finding from the Baseline Scheme / AVA Initial Study

4.3.4 The results of the AVA initial study show that the average air ventilation performance of the Baseline Scheme is generally significantly better than that of the OZP Compliant Scheme under both annual and summer conditions, as listed in **Table 4-1**. Additionally, by examining localized air ventilation performance under individual wind directions, it is confirmed that the design features in the Baseline Scheme are effective.

Table 4-1 Summary of Spatial Averaged Velocity Ratios from AVA Initial Study

ID	Location	OZP Compliant Scheme		Baseline Scheme (The Testing Scheme)	
		Annual	Summer	Annual	Summer
SVR	Site Air Ventilation Assessment (SVR) (All P Points)	0.18	0.13	0.25	0.17
LVR	Local Air Ventilation Assessment (LVR) (All P & O Points)	0.19	0.14	0.22	0.17

4.3.5 Improvements compared to the OZP Compliant Scheme can be observed in most focus areas. Justified by the assessment results, the key finding are as follows:

- Firstly, the podium setback from the southern boundary not only preserved the existing air pathway but also allowed the flow to go smoothly to the west;
- Secondly, being a high-rise development in a low-rise to mid-rise region near coastal area, the Proposed Development is expected to carry the flow from the high elevation down to the pedestrian level, improving the at-grade air ventilation in the nearby area;
- Thirdly, the block disposition and residential towers separation also play a role to avoid certain locations to be negatively affected by the Proposed Development in general.

4.3.6 In specific wind directions, Hung Hom Road (to the southwest of the Site B) and the waterfront area of Hoi Sham Park may experience a degradation in ventilation performance. However, the ventilation performance of Hung Hom Road is expected to remains unchanged during summer conditions, and overall improvement in Hoi Sham Park and its waterfront area is anticipated.

4.4 The Proposed Scheme (The Notional Scheme)

4.4.1 As stated in **Section 1.1.3**, the proposed maximum building height has been adjusted from the Testing Scheme of 100 mPD to the Notional Scheme of 110 mPD. The proposed planning parameters remain unchanged, with a proposed a maximum Gross Floor Area (GFA) of 68,490 sq.m., with domestic GFA not exceeding 60,880 sq.m.. The Notional Scheme will be adopted as the Proposed Scheme for this AVA-EE.

Notional Design & Development Parameters

4.4.2 To visualise the proposed planning parameters and support technical assessment, an indicative layout for the Proposed Scheme is shown in **Figure 4-3**, and the overall development parameters of Site A and B are presented in **Table 4-2**.

4.4.3 As shown in the indicative layout, the Proposed Scheme is designed for a two-phases development scenario, with each phase (namely Site A and Site B) featuring one residential tower with a maximum building height of 110mPD atop of a four-storeys podium and two levels of basement carpark. Under a conservative approach, the AVA-EE will be conducted under this two-phased development scenario. It is worth noting that the indicative layout,

development parameters and phasing boundary for Site A and B are intended solely for use of relevant technical assessments in support of the Proposed Rezoning, which is for indicative purposes only and subject to change at detailed design stage.

Table 4-2 Design Parameters of the Notional Design

	Overall	Site A [3]	Site B [3]
Zoning	"R(A)9"	"R(A)9"	"R(A)9"
Site Area (Subject to survey)	About 7,610 m^2	About 3,417 m^2	About 4,193 m^2
Domestic GFA	About 60,880 m^2	About 27,336 m^2	About 33,544 m^2
Commercial GFA	About 7,610 m^2	About 2,045 m^2	About 5,565 m^2
GIC GFA (to be exempted from GFA calculation)	About 3,100 m^2	About 3,100 m^2	N/A
No. of building blocks [1]	2	1	1
Building Height	110 mPD	110 mPD	110 mPD
No. of Flats [1]	1,218	547	671
Average Flat Size [1]	About 50 m^2	About 50 m^2	About 50 m^2
Harbourfront At-Grade Communal Space	About 760 m^2	N/A	About 760 m^2
Car Parking Spaces [2]	Private Car: 343 Coach: 15	Private Car: 143 Coach: 15	Private Car: 200 Coach: 0
Tentative Project Completion Year	2032	2032	2032

Note
[1] Number of building blocks, number of flats and average flat size are indicative only and subject to detailed design.
[2] Subject to liaison with Transport Department.
[3] The development parameters of Site A and Site B are for technical assessment and indicative purposes only, subject to change in detailed design.

Good Design Features

4.4.4 Based on the experience from the Baseline Scheme (The Testing Scheme), it has been identified that the block disposition and key good design features should be retained. With this in mind, the Proposed Scheme generally resembles the Baseline Scheme, including these key features.

4.4.5 Compared to the Baseline Scheme, the height of the residential towers of the Proposed Scheme has increased from 100 mPD to 110 mPD, and the height of the podium has risen from 21.55 mPD to 26.55 mPD. As taller building blocks may induce potential air ventilation impacts, the good design features have been adjusted accordingly:

- The podium is set back a minimum of 10 m from the southern boundary, which remains unchanged in the Proposed Scheme to maintain the crucial air pathway in the east-west direction.
- The 15 m building separation for the residential towers has been retained. Additionally, a new 15 m NW-SE air pathway has been provided at 1/F and above (starting from 11.55 mPD), aligning with the building separation for the residential towers.

4.4.6 A summary of the Baseline and Proposed Schemes is provided in **Table 4-3** and illustrated in **Figure 4-4**.

Table 4-3 Summary of the Baseline Scheme and Proposed Scheme

	Baseline Scheme (The Testing Scheme)	**Proposed Scheme (The Notional Scheme)**
Development Type	Composite Development	Composite Development
Building Height	• Residential Towers atop podium: maximum building height at 100mPD (Podium: 21.55mPD)	• Residential Towers atop separate podium: maximum building height at 110mPD (Podium: 26.55mPD)
Air Ventilation Consideration	• Setback from the south boundary to maintain the important air pathway running in a E-W direction. • A 15m wide building separation between the residential towers starting from 21.55 mPD	• Setback from the south boundary to maintain the important air pathway running in a E-W direction. • A 15m wide building separation between the residential towers starting from 11.55 mPD • A 15 m NW-SE air pathway at 1/F and above (starting from 11.55 mPD), aligning with the building separation for the residential towers.

Remarks:
* Proposed Scheme is subject to changes at detailed design stage.

5 WIND ENVIRONMENT WITH THE PROPOSED DEVELOPMENT

5.1 Wind Environment under the Proposed Scheme

5.1.1 The differences between the Baseline Scheme and Proposed Scheme are illustrated in **Figure 4-4** and listed in **Table 4-3**. The major prevailing wind directions from **Table 3-1** & **Table 3-2** are summarised in **Table 5-1**.

Table 5-1 Summary for Adopted Major Prevailing Wind at 200m Elevation

Wind Direction	Occurrence Probability at 200m elevation	Occurrence Probability at 200m elevation
	Annual	Summer
E	29.1%	11.8%
ENE	11.7%	
ESE	10.0%	
SW		15.7%
SSW		12.7%

5.1.2 It should be noted that the areas adjoining the east and northeast of the Site are currently open spaces (Hoi Sham Park and its extension), while the west of the Site is densely populated with schools and residential developments. Therefore, flow penetration under the most frequently prevailing wind direction (easterly wind) is of utmost importance.

5.1.3 As listed in **Table 4-3**, the existing air pathway in the southern portion of Site B has been maintained under both the Baseline Scheme and the Proposed Scheme. Consequently, the focus of the study has been identified as the effectiveness of the enhanced good design features (the building separation between the residential towers and the new NW-SE air pathway at 1/F and above) in mitigating potential adverse effects caused by taller structures under the major prevailing wind.

5.1.4 The general wind environment in the vicinity of the Site under both the Baseline Scheme and Proposed Scheme will be illustrated, and the effectiveness of the proposed features under the major prevailing wind directions will be discussed in the following sections. Additional mitigation measures will be proposed as necessary.

5.2 Directly Analysis

Easterly Winds (E Winds)

5.2.1 The E Winds are the predominant wind direction throughout the year and the third most common direction during summer for the Site. The air pathways for these winds are illustrated in **Figure 5-1a**.

5.2.2 In the Baseline Scheme, the easterly wind can penetrate Site B through the Harbourfront At-Grade Communal Space. Additionally, it can reach and penetrate the core area of the Site above the podium level (21.55 mPD).

5.2.3 In the Proposed Scheme, a similar situation to the Baseline Scheme is anticipated. However, since the elevation of the podium has increased from 21.55 mPD to 26.55 mPD (with ground level at 5.7 mPD), the airflow penetrating the core area of the Site above the podium level is now limited to above 26.55 mPD. Although the 15 m building separation between the residential towers has been lowered to 11.55 mPD, this separation is not aligned with the easterly wind and is therefore not considered an effective air pathway under E winds.

5.2.4 Considering the site penetration, the air ventilation performance in the Proposed Scheme is expected to be slightly worse than that of the Baseline Scheme.

East-Northeasterly Winds (ENE Winds)

5.2.5 The ENE winds are the second most common wind direction throughout the year for the Site. The air pathways for these winds are illustrated in **Figure 5-1b**.

5.2.6 In both schemes, the airflow can only penetrate the Sites through the Harbourfront At-Grade Communal Space. Therefore, the air ventilation performance of the Proposed Scheme is expected to be similar to that of the Baseline Scheme under ENE wind.

East-Southeasterly Winds (ESE Winds)

5.2.7 The ESE winds are the third most common wind direction throughout the year for the Site. The air pathways for these winds are illustrated in **Figure 5-1c**.

5.2.8 In the Baseline Scheme, the prevailing wind can penetrate Site B through the Harbourfront At-Grade Communal Space. Additionally, it can reach and penetrate the core area of the Site above the podium level (21.55 mPD).

5.2.9 In the Proposed Scheme, unlike the case of easterly winds (E), the 15 m building separation between the residential towers is now aligned with the prevailing wind direction, while the air pathway through the Harbourfront At-Grade Communal Space remains unchanged. Therefore, the effective air pathway is lowered to 11.55 mPD, bringing the penetrated flow much closer to pedestrian level.

5.2.10 Considering the lower air pathway provided by the lowered building separation between the residential towers at 11.55mPD, the at-grade site penetration is considered enhanced under ESE winds.

South-Westerly Winds (SW Winds)

5.2.11 The SW winds are the most common wind direction during summer at the Site. The air pathways for these winds are illustrated in **Figure 5-1d**.

5.2.12 In both Schemes, the airflow cannot effectively penetrate the sites. Therefore, the air ventilation performance of the Proposed Scheme is expected to be similar to that of the Baseline Scheme under SW winds.

South-Southwesterly Winds (SSW Winds)

5.2.13 The SSW winds are the second most common wind direction during summer for the Site. The air pathways for these winds are illustrated in **Figure 5-1e**.

5.2.14 In both Schemes, the airflow cannot penetrate the Site. Therefore, the air ventilation performance of the Proposed Scheme is expected to be similar to that of the Baseline Scheme under SSW winds.

5.3 Summary of Site Penetration and Further Elaboration

5.3.1 As stated in **Section 4.4**, the key changes of the Proposed Scheme compared to the Baseline Scheme with a podium level raised by 5 m (from 21.55mPD to 26.55mPD), residential towers raised by 10 m (from 100mPD to 110mPD), and the height of 15 m building

separation between the residential towers has been lowered by 10 m (from 21.55mPD to 11.55mPD).

5.3.2 Due to these changes, site penetration is expected to be reduced under E winds and improve under ESE winds and remain unchanged for the other prevalent wind directions (i.e., ENE, SW, and SSW winds).

5.3.3 Considering that the effective air pathway at the core of the Site under E winds is located at approximately 16 m above ground in the Baseline Scheme and 21 m above ground in the Proposed Scheme, the absence of tall and larger building blocks at the exit of the air pathway means that the mid-air airflow will likely have little benefit for air ventilation at pedestrian level near the Site. For further downstream locations (e.g., the KCAA1 Core area), the increase of 5 m in elevation is not expected to have any significant impact, as the tall buildings (approximately 100 m PD) can carry the mid-air flow down to pedestrian level. Therefore, the potential adverse impact under easterly (E) winds is limited.

5.3.4 Under ESE winds, the effective air pathway at the core of the Site in the Proposed Scheme is lowered to approximately 6 m above ground, down from 16 m in the Baseline Scheme. This change increases the likelihood that the prevailing winds will improve air ventilation at pedestrian level near the Site.

5.3.5 Considering that the occurrence possibility of E winds is greater than under ESE winds, while the potential benefit of ESE winds outweighs the potential impact of E winds, the overall air ventilation performance offered by the Proposed Scheme is expected to be similar to that of the Baseline Scheme.

5.3.6 Since the Baseline Scheme (The Testing Scheme) demonstrated significantly better air ventilation performance compared to an OZP Compliant Scheme in the AVA initial study, the Proposed Scheme (The Notional Scheme) is also expected to exhibit significantly improved air ventilation performance relative to an OZP Compliant Scheme, given its similar air ventilation features.

5.4 Further Recommendation

5.4.1 Considering that the Sites are in proximity to the waterfront, enhancing airflow from the sea to penetrate the Site at podium level should also benefit the downstream region, specifically the hinterland including KCAA1 Core area.

5.4.2 Therefore, it is recommended to consider a podium garden (that allows wind to pass through the podium floor), combined with a terraced podium design to enhance airflow penetration. If implemented effectively, this recommendation should improve the airflow at both the podium level and in the nearby pedestrian areas.

6 CONCLUSION

6.1.1 An Air Ventilation Assessment Expert Evaluation (AVA-EE) has been conducted for the current notional design of the Proposed Development.

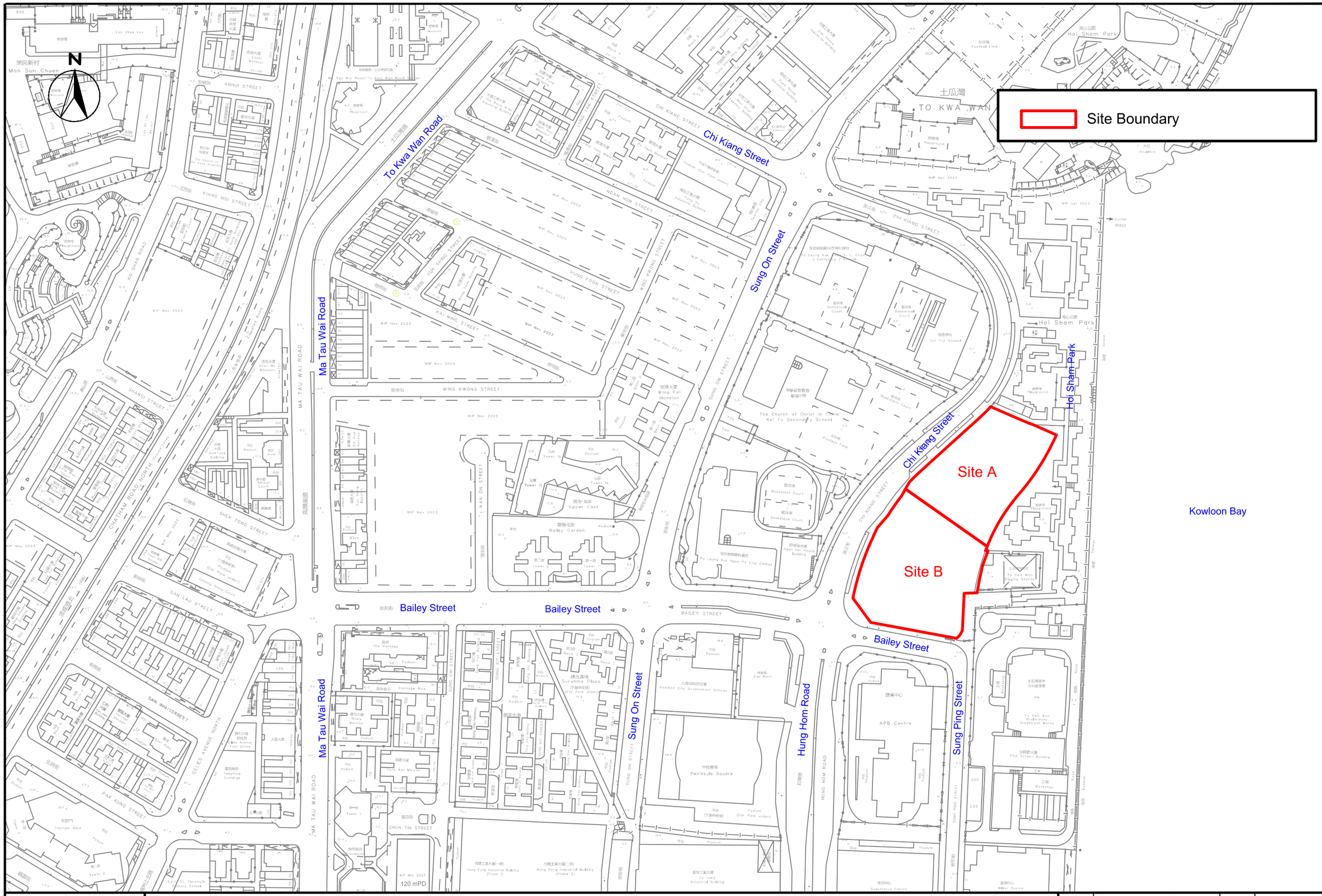
6.1.2 The proposed design features include a setback from the southern boundary, a 15 m building separation between the residential towers, and a 15 m NW-SE air pathway at the podium, aligning with the building separation for the residential towers.

6.1.3 The air ventilation performance of the current Notional Scheme is expected to be on par with the previous Testing Scheme, which has been shown to be significantly better than that of an OZP Compliant Scheme.

6.1.4 Given that the Proposed Development is in proximity to the waterfront, a podium garden with a terraced podium design is recommended to enhance air ventilation performance.

6.1.5 In conclusion, no adverse air ventilation impact is anticipated for the current notional design compared to the OZP Compliant design.

FIGURES

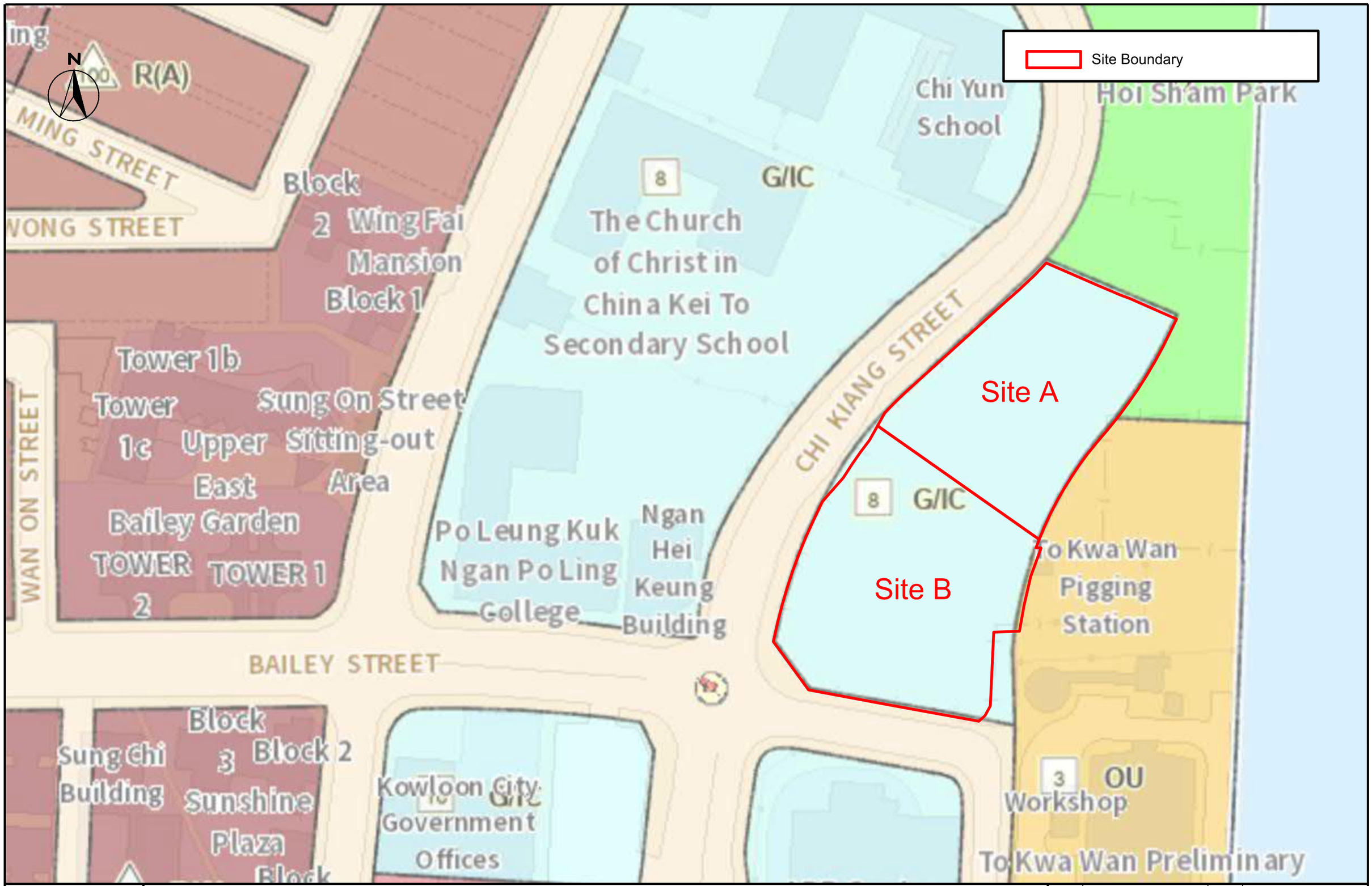


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Proposed Residential Development in Bailey Street, Kowloon City District

Location Plan

SCALE	1:2000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	2-1
		REV	-

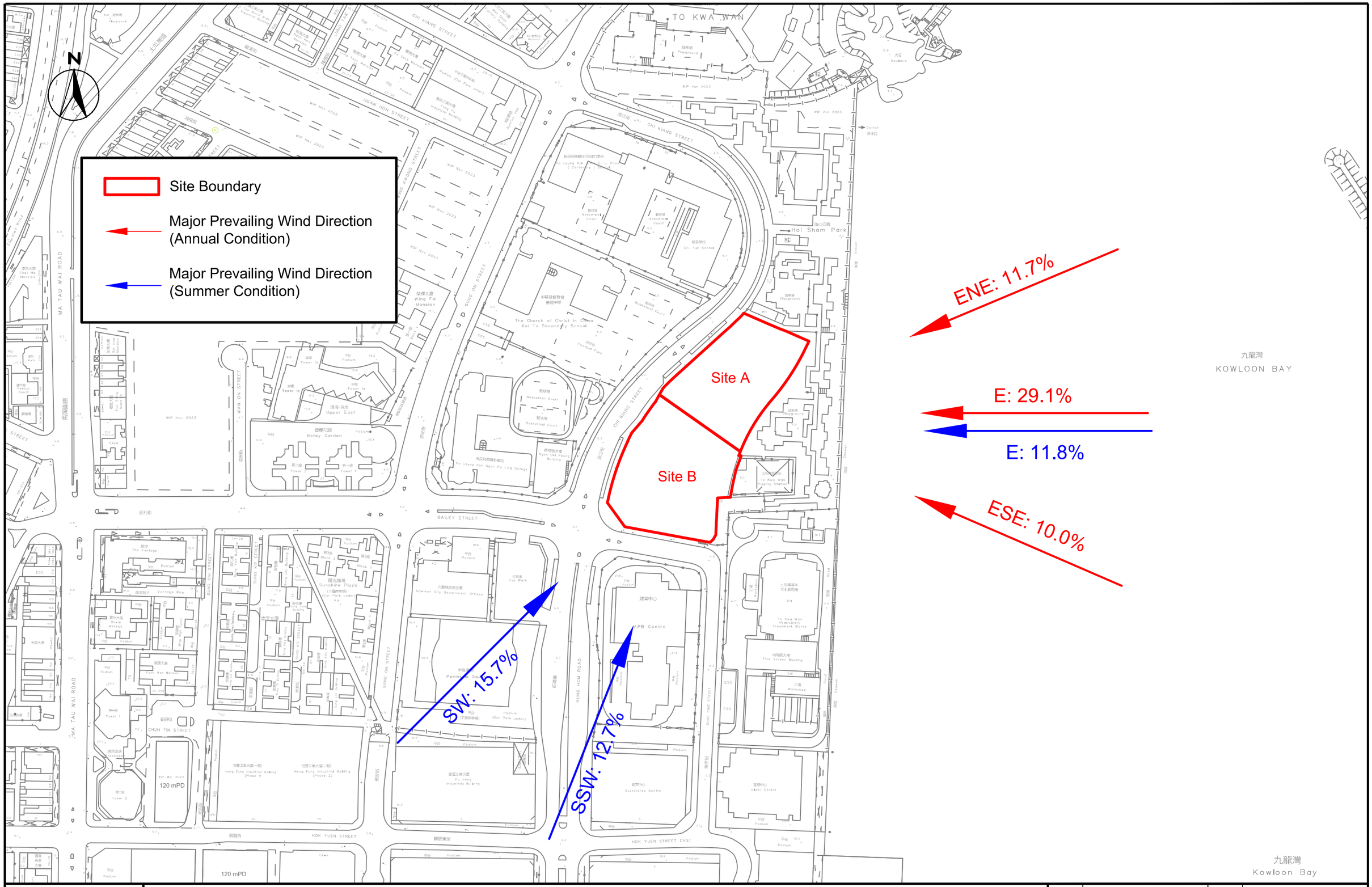


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Proposed Residential Development in Bailey Street, Kowloon City District

Outline Zoning Plan

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	2-2
		REV	-

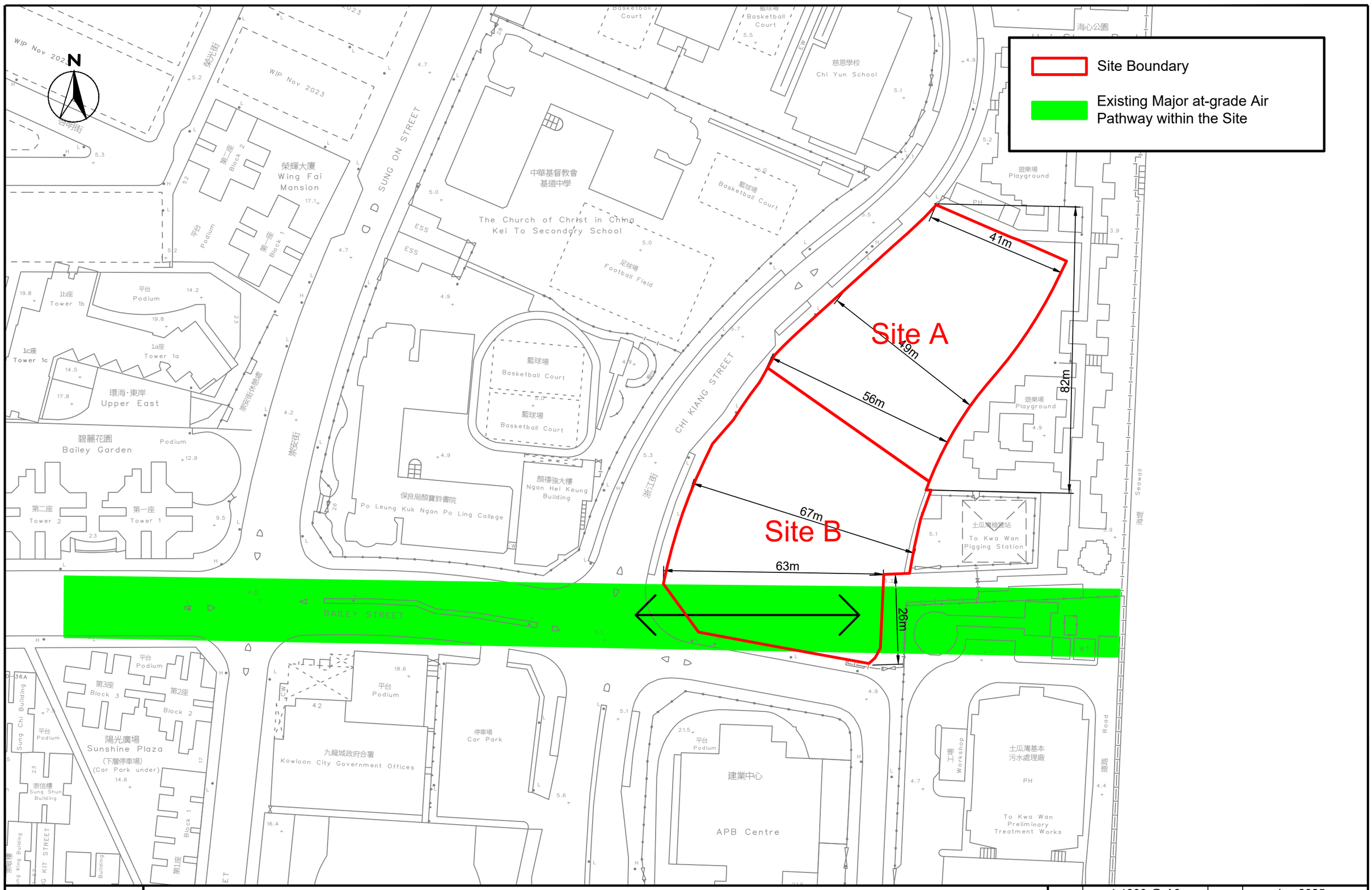


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Proposed Residential Development in Bailey Street, Kowloon City District

Major Prevailing Winds for the Site

SCALE	1:2000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	2-3
		REV	-

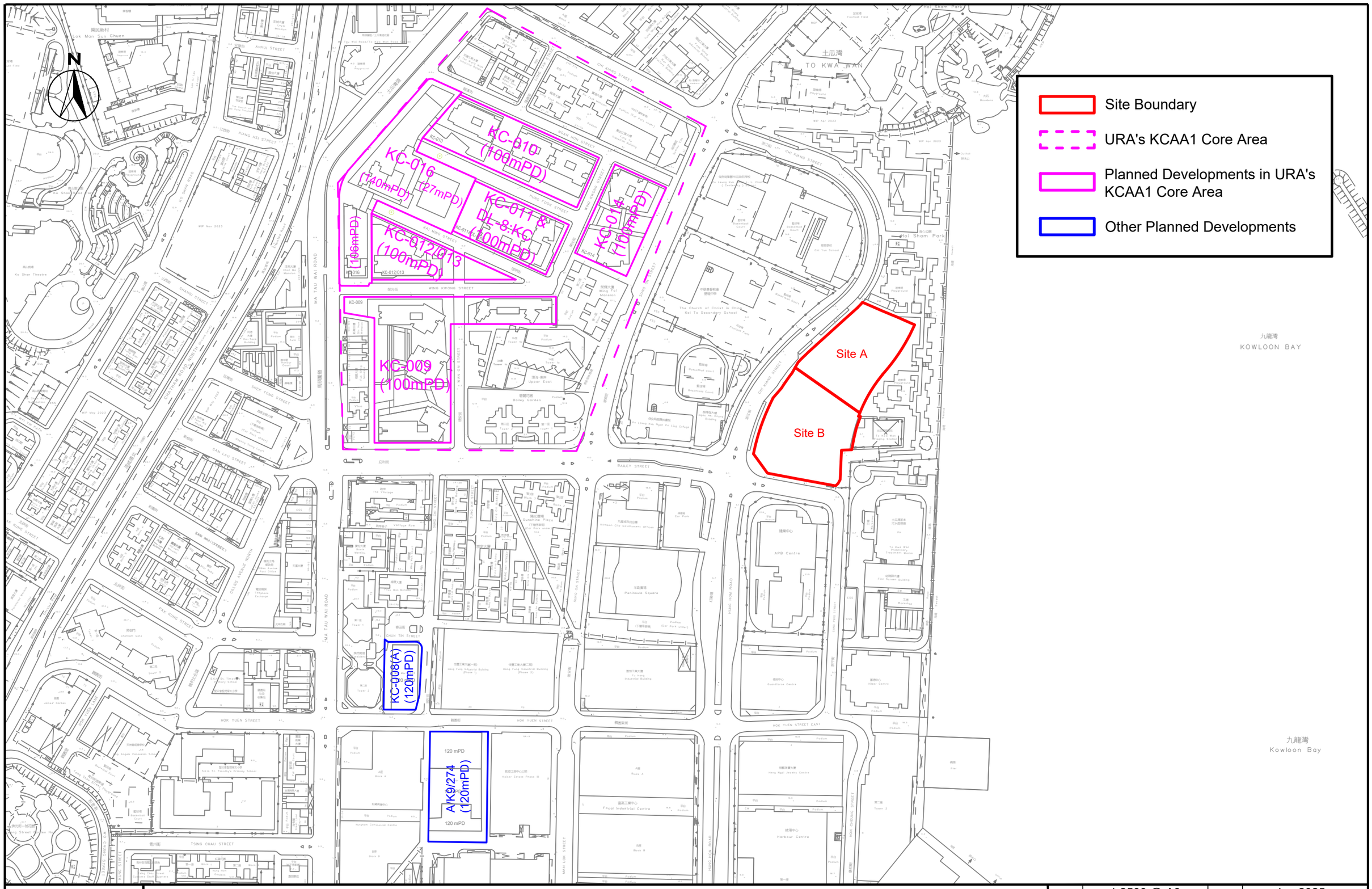


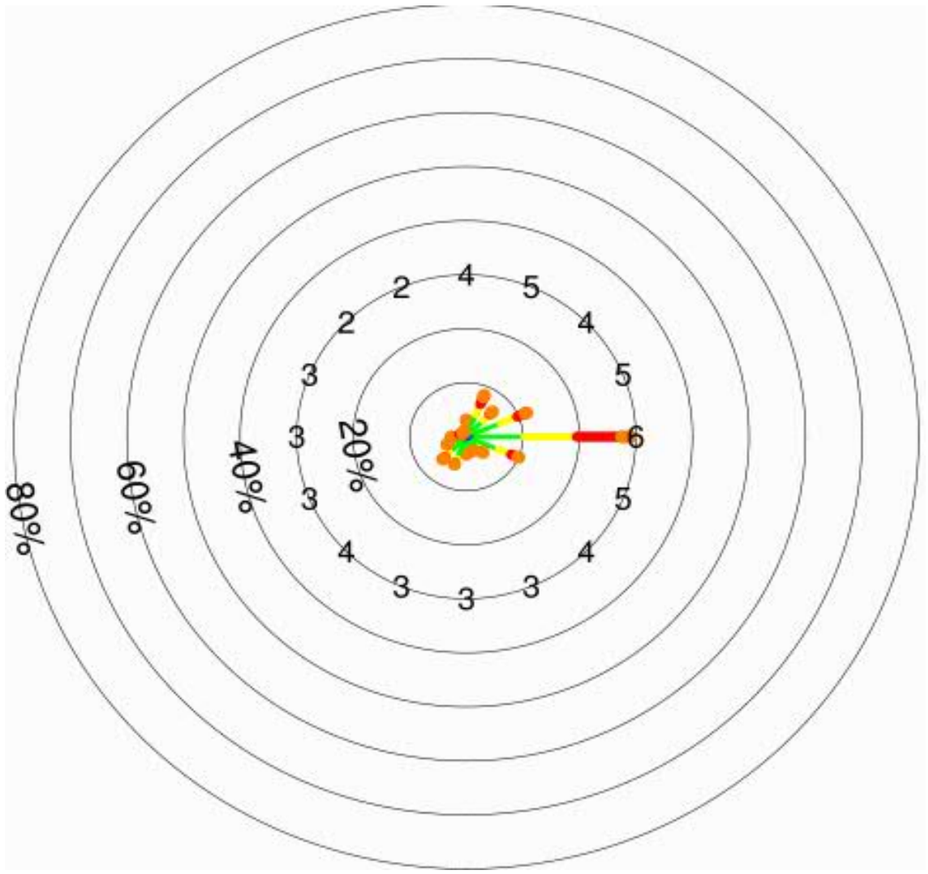
CINOTECH
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Proposed Residential Development in Bailey Street, Kowloon City District

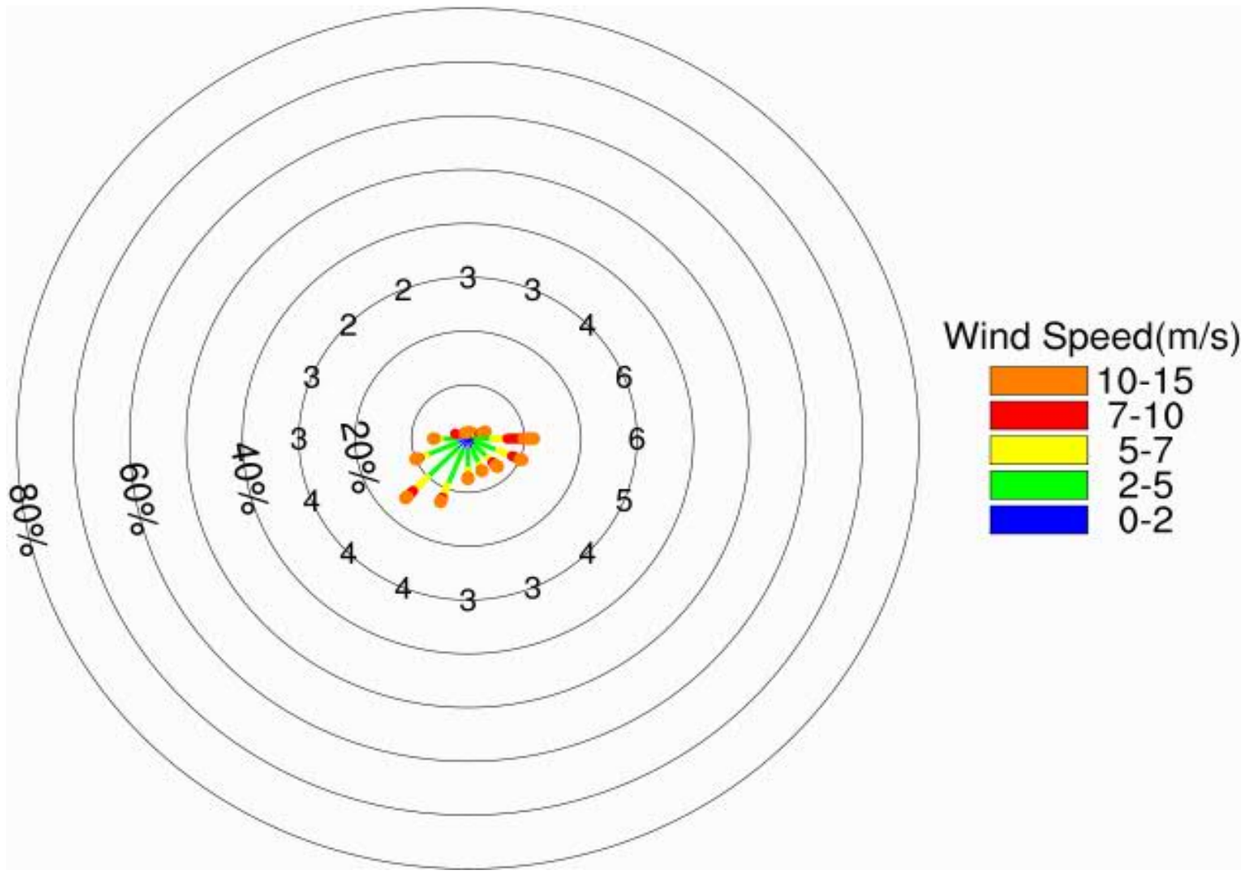
Existing Major at-grade Air Pathway within the Site

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	2-4
		REV	-


N
Site Boundary
URA's KCAA1 Core Area
Planned Developments in URA's KCAA1 Core Area
Other Planned Developments
KC-010 (100mPD)
KC-016 (140mPD)
(27mPD)
KC-011 & DL 8-KC (100mPD)
KC-014 (100mPD)
(106mPD)
KC-012/013 (100mPD)
KC-009 (100mPD)
KC-008(A) (120mPD)
A/K9/274 (120mPD)
120 mPD
120 mPD
Site A
Site B
土瓜灣
TO KWA WAN
九龍灣
KOWLOON BAY
九龍灣
Kowloon Bay
Hoi Sham Park
WING KWONG STREET
BAILEY STREET
CHUN TIN STREET
HOK YUEN STREET
HOK YUEN STREET EAST
TSING CHAU STREET
MA TAU WAI ROAD
CHI KIANG STREET
HUNG HOM ROAD
MAN LOK STREET
HOK CHEONG STREET
APB Centre
Peninsula Square
Kowloon City Government Offices
Sunshine Plaza
Harbour Centre
Focal Industrial Centre
Hung Ngai Jewelry Centre
Guardforce Centre
Fu Hong Industrial Building
Hong Fung Industrial Building (Phase 1)
Hong Fung Industrial Building (Phase 2)
Kowloon Bay Government Offices
Ko Shan Theatre
Ko Shan Park
Chatham Gate
Oxford House
Jumbo Garden
Vantage Tower
Kowloon Bay Post Office
Telephone Exchange
Kowloon Bay Primary School
S.K.H. St. Timothy's Primary School
Hung Hom Commercial Centre
Kaiser Estate Phase III
Bailey Garden
Upper East
The Church of Christ in China Kei To Secondary School
Oi Yan School
Wing Fai Mansion
Chun Ma Mansion
Lok Man Sun Chuen
Anhui Street
Kiang Hsi Street
Ko Shan Road
Shanxi Street
Shek Tong Street
Chatham Road North
Oxford Avenue
Pak Kung Street
San Lau Street
San Wan Street
Kung Street
Kowloon Bay Sports Ground
Kowloon Bay Swimming Pool
Kowloon Bay Sitting-out Area
Kowloon Bay Basketball Court
Kowloon Bay Playground
Kowloon Bay Football Ground
Kowloon Bay Park
Kowloon Bay Pier
Kowloon Bay Bus Terminus
Kowloon Bay Bus Depot
Kowloon Bay Service Reservoir
Kowloon Bay Fresh Water Pumping Station
To Kwa Wan Preliminary Treatment Works
Fire Screen Building
Workshop
Kowloon Bay Boulders
Kowloon Bay Boulders Court
Kowloon Bay Basketball Court
Kowloon Bay Tennis Court
Kowloon Bay Tennis Court (Under)
Kowloon Bay Tennis Court (Under)
Kowloon Bay Tennis Court (Under)



Annual



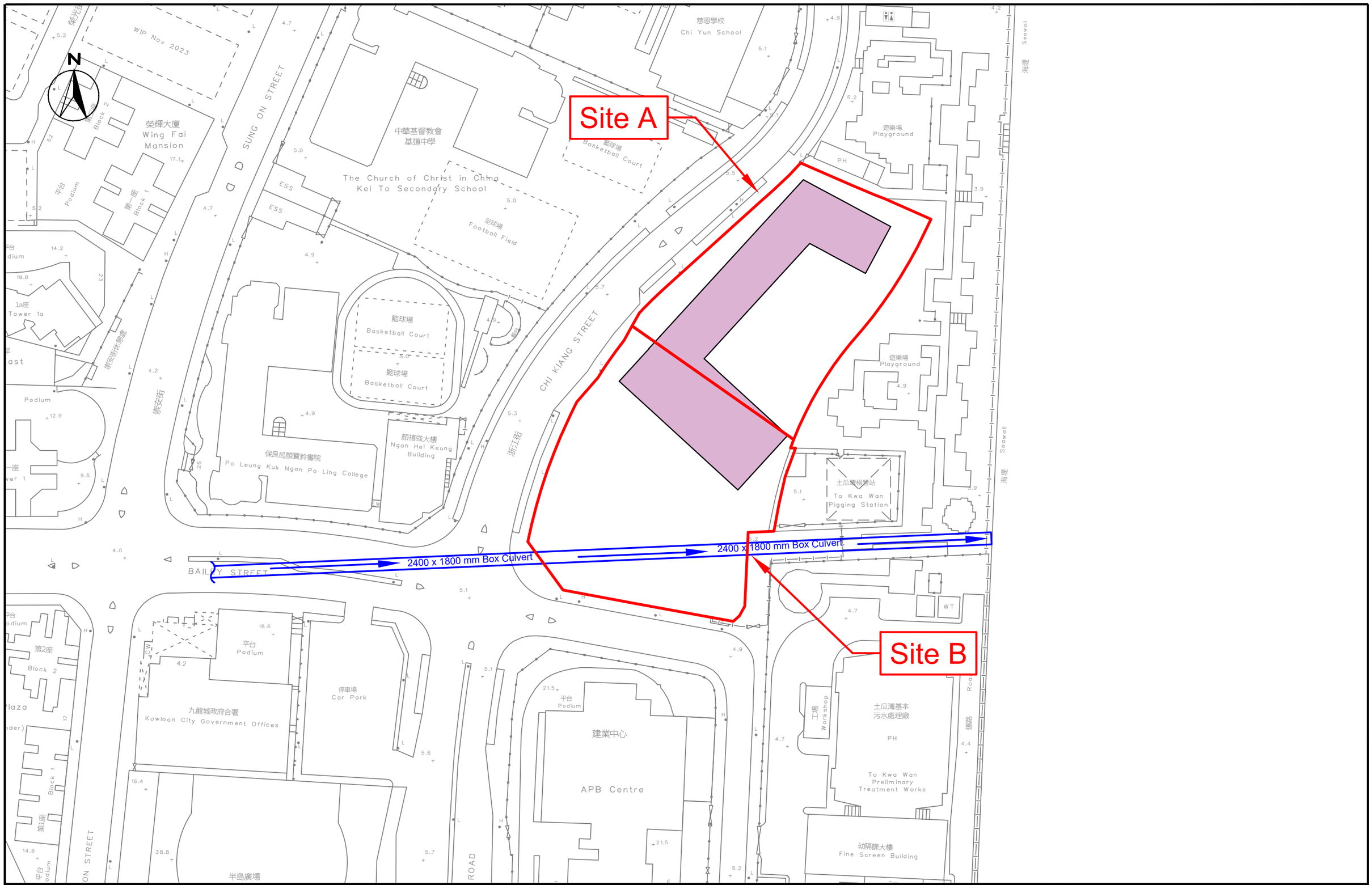
Summer

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Proposed Residential Development in Bailey Street, Kowloon City District

The Wind Roses at grid [084,041] from RAMS

SCALE	N.T.S.	DATE	Jun-25	
CHECK	KC	DRAWN	CC	
JOB NO.	IA21009KCAA110	FIGURE NO.	3-1	REV.
				-

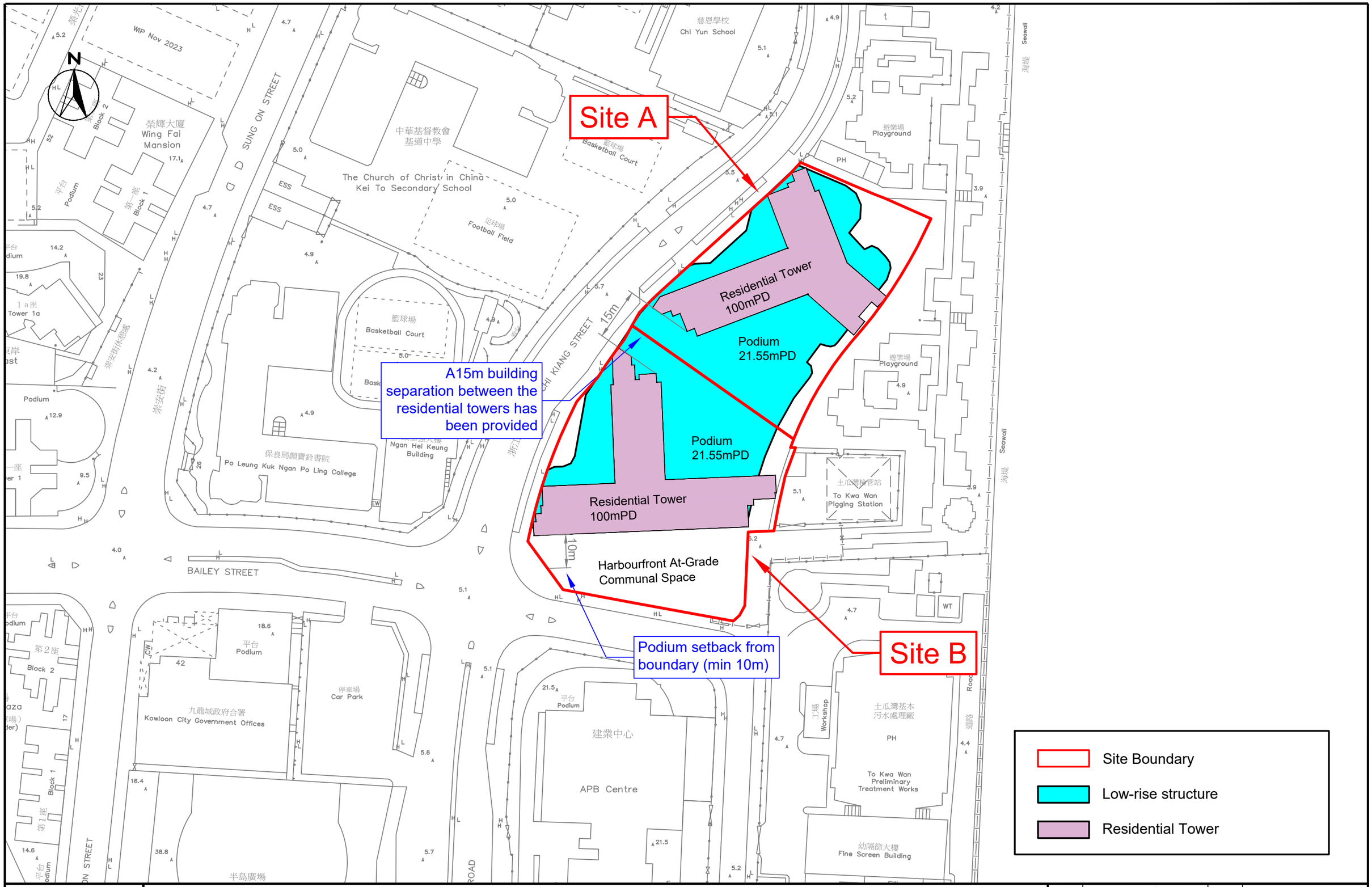


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Proposed Residential Development in Bailey Street, Kowloon City District

The OZP Compliant Scheme

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	4-1
		REV	-

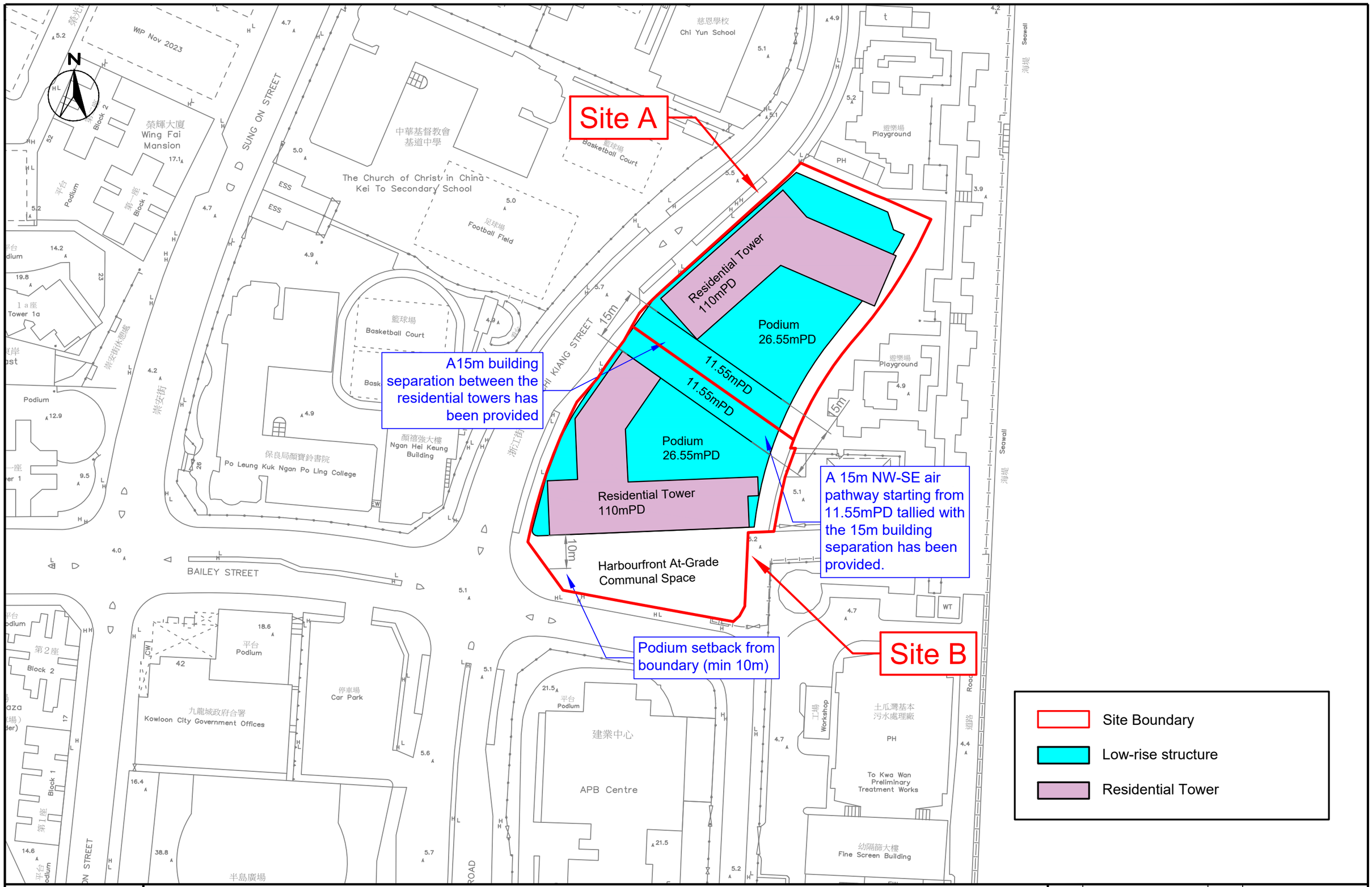


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Proposed Residential Development in Bailey Street, Kowloon City District

The Baseline Scheme (The Testing Scheme)

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	4-2
		REV	-

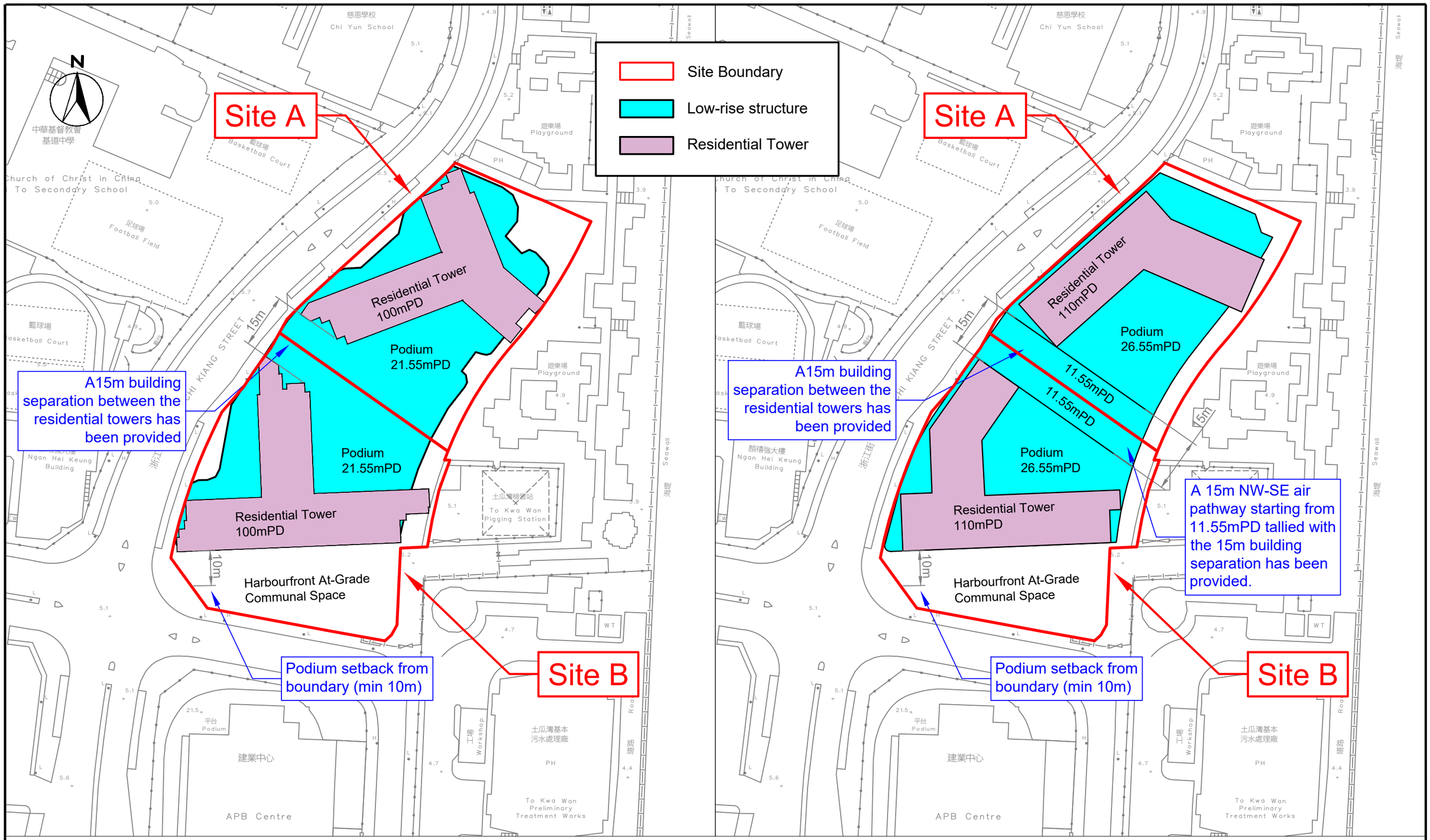


Proposed Residential Development in Bailey Street, Kowloon City District

The Proposed Scheme (The Notional Scheme)

Cinotech Consultants Limited

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	4-3
		REV	-



Baseline Scheme

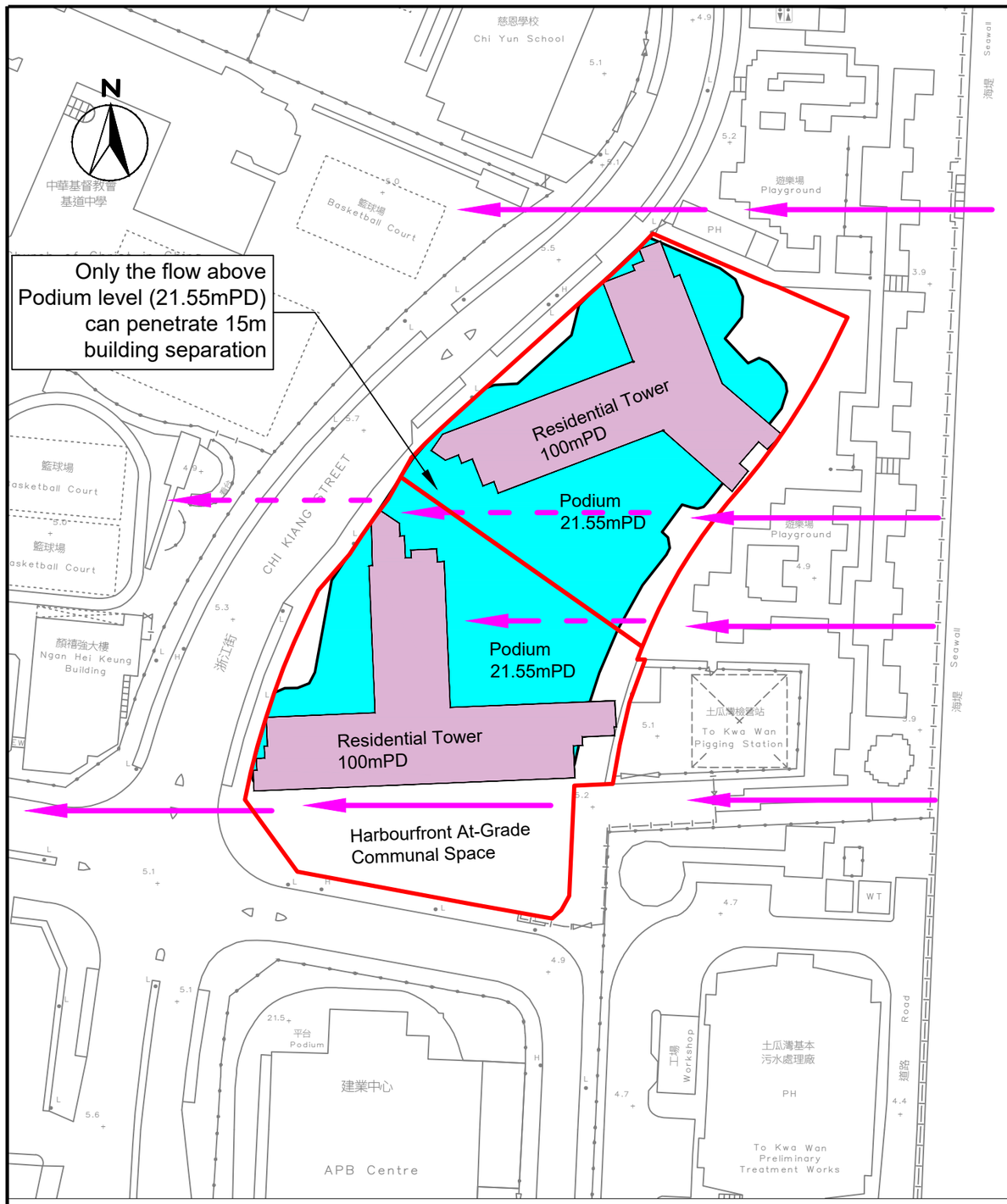
Proposed Scheme

CINOTECH
Cinotech Consultants Limited

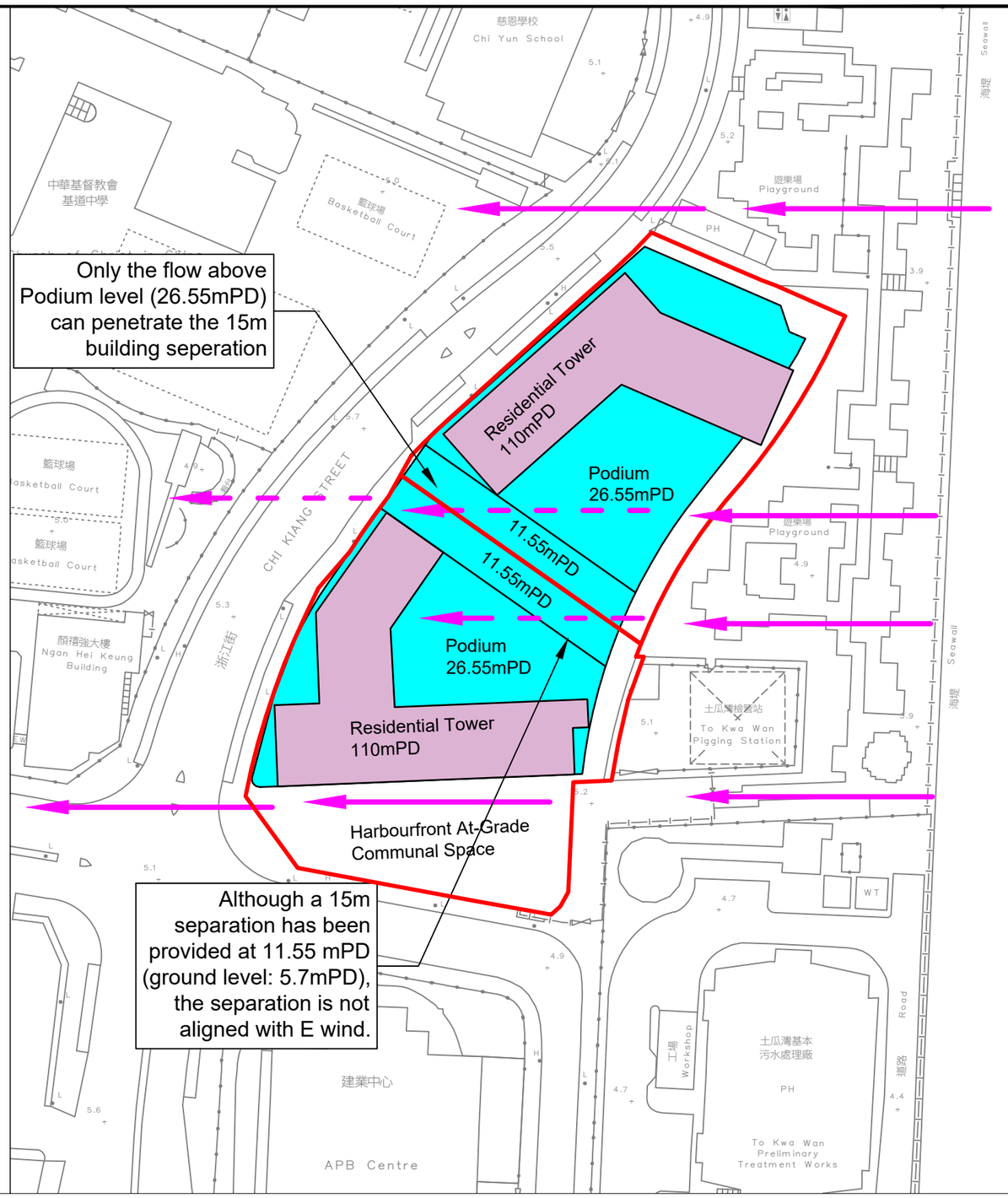
Proposed Residential Development in Bailey Street, Kowloon City District

Comparison of the Schemes

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	4-4
		REV	-



Baseline Scheme



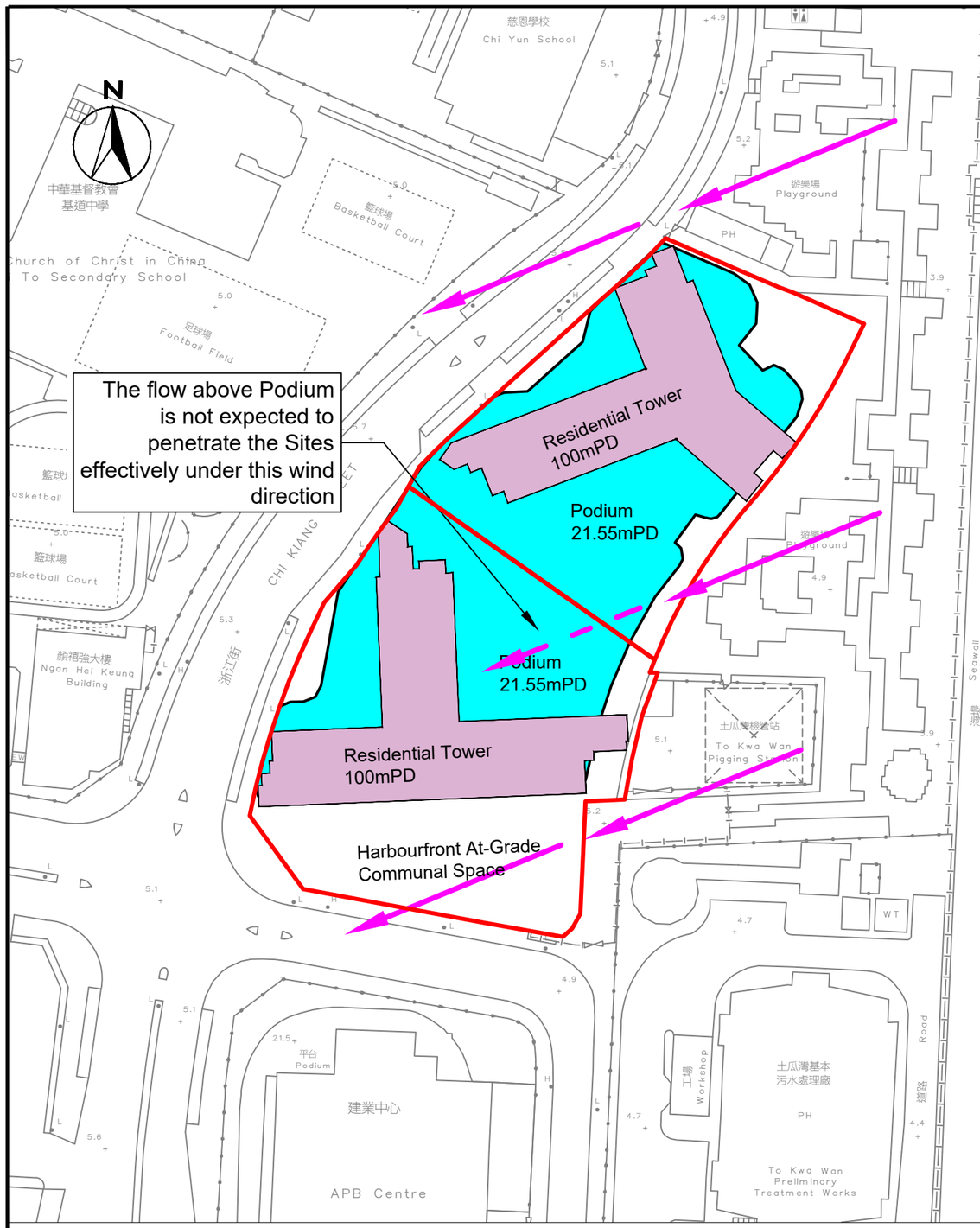
Proposed Scheme

CINOTECH
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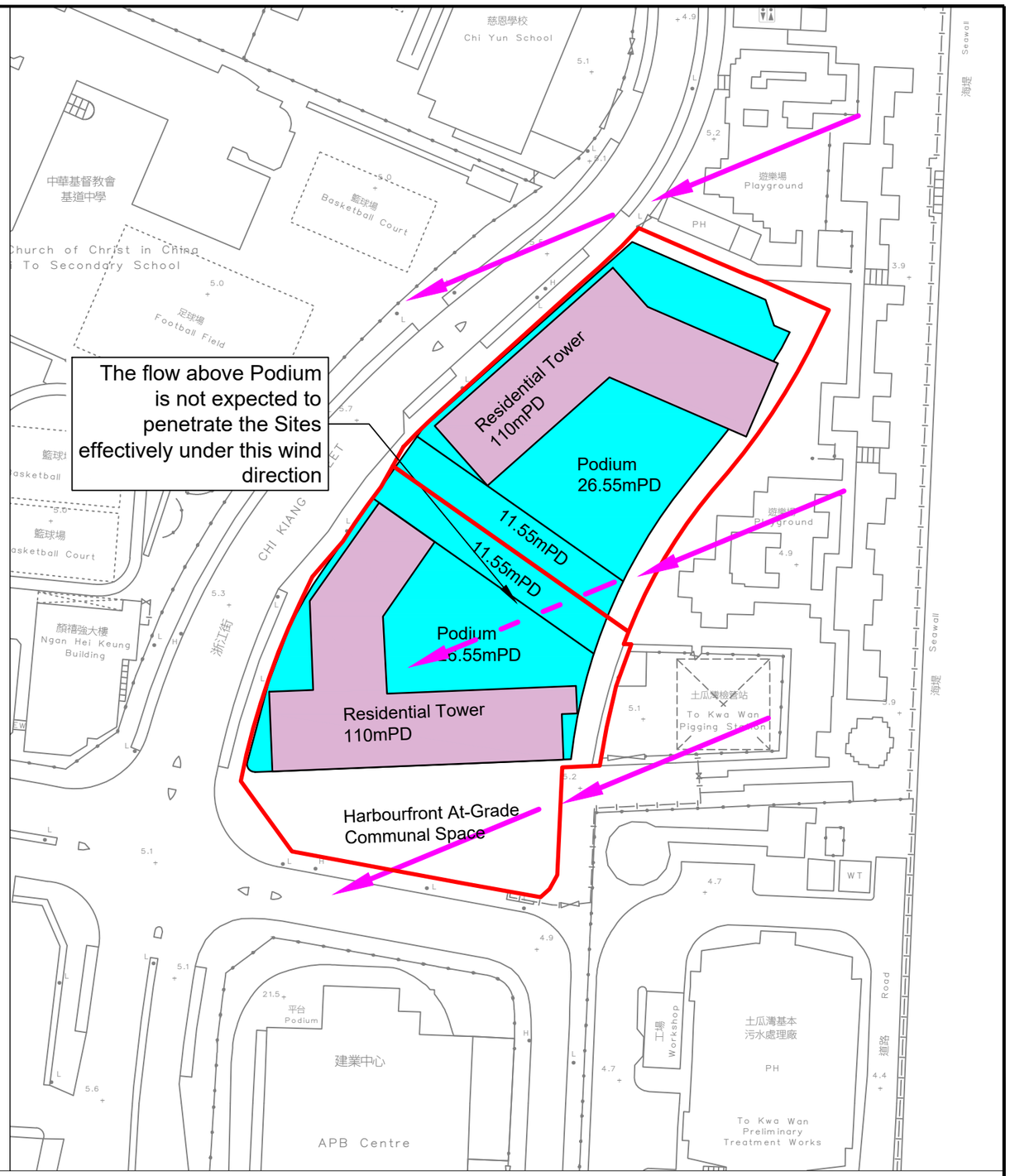
Proposed Residential Development in Bailey Street, Kowloon City District

Air Pathways under Easterly Winds (E)

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	5-1a
		REV	-



Baseline Scheme



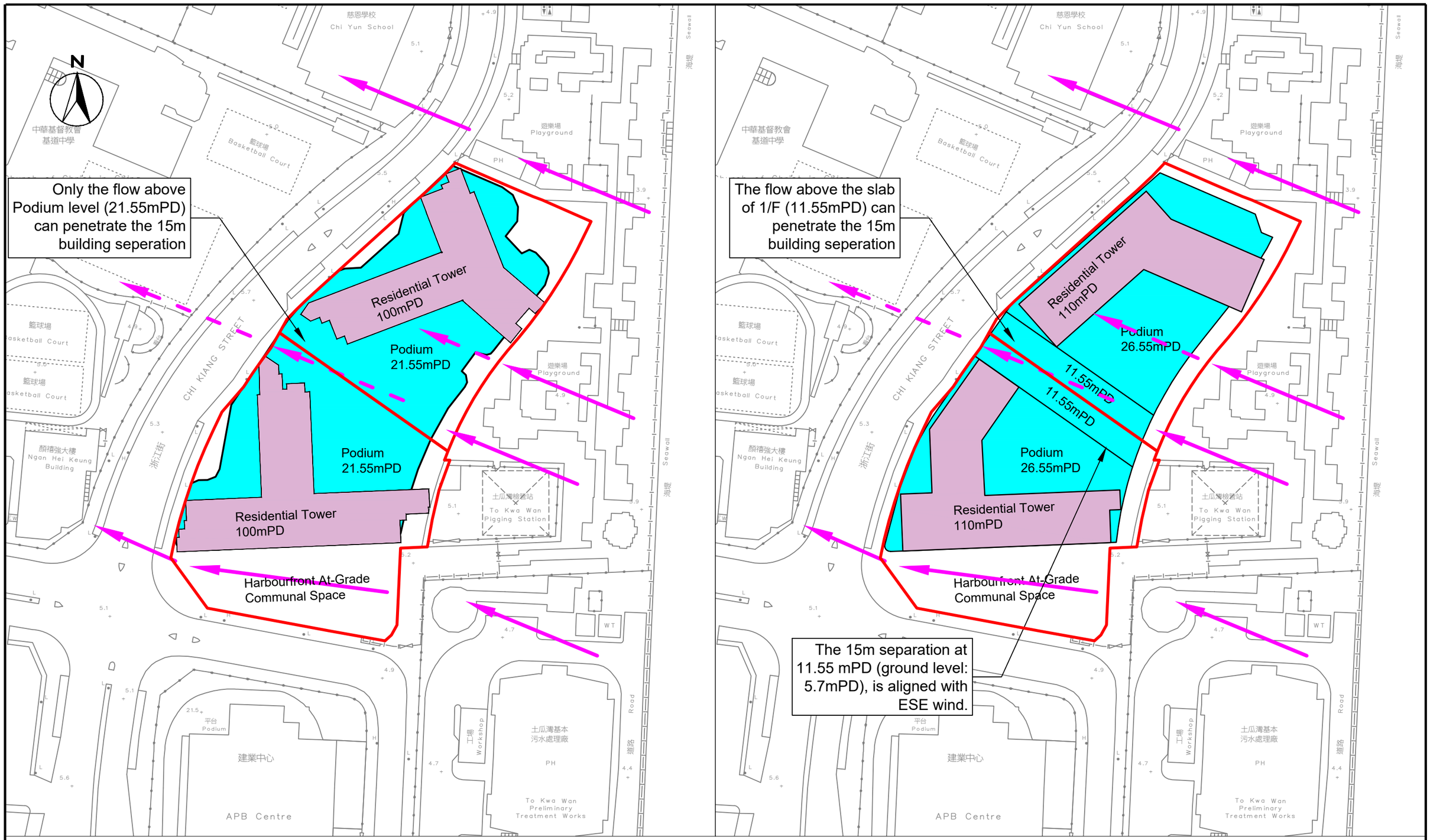
Proposed Scheme

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Proposed Residential Development in Bailey Street, Kowloon City District

Air Pathways under East-northeasterly Winds (ENE)

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	5-1b
		REV	-



Baseline Scheme

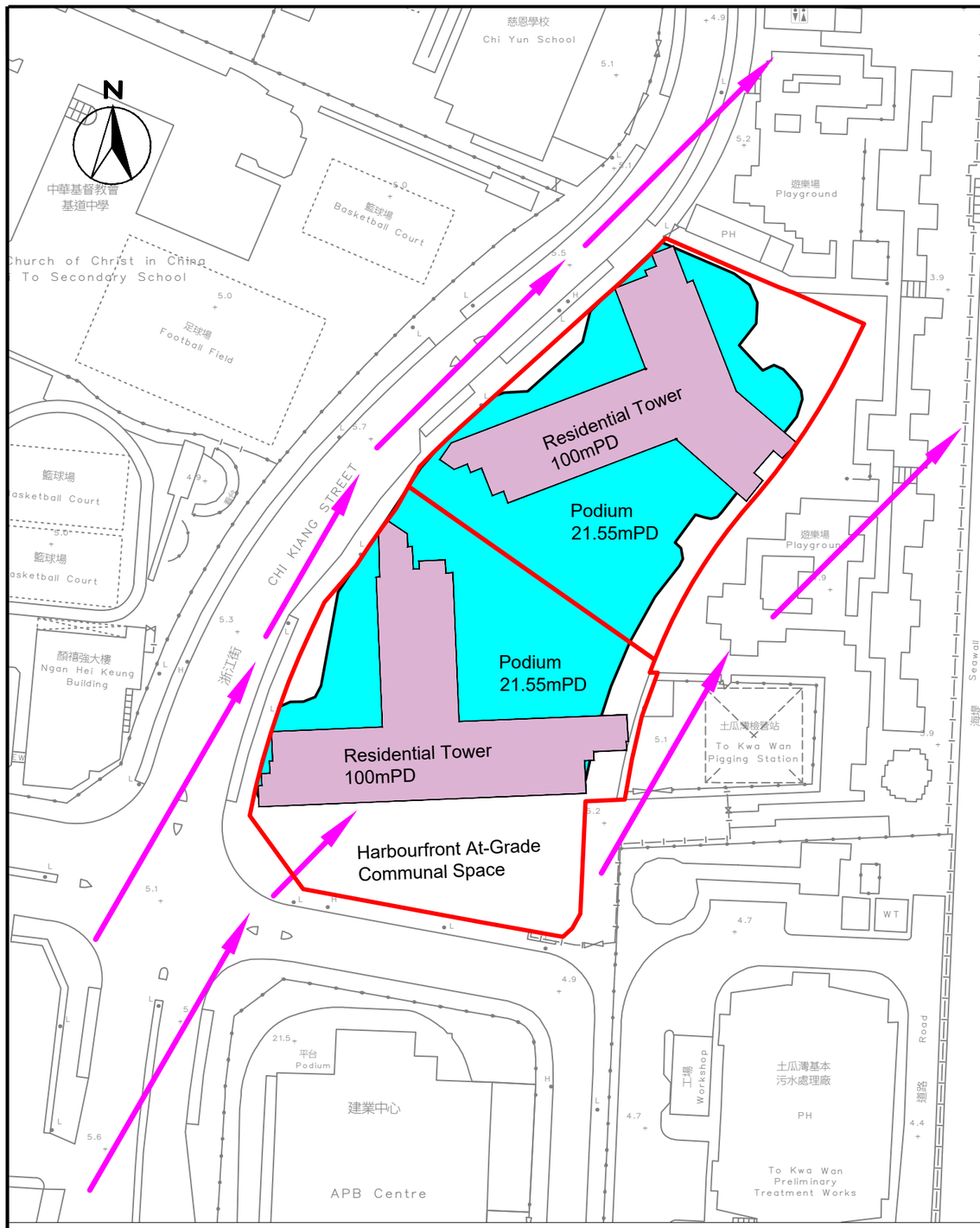
Proposed Scheme

CINOTECH
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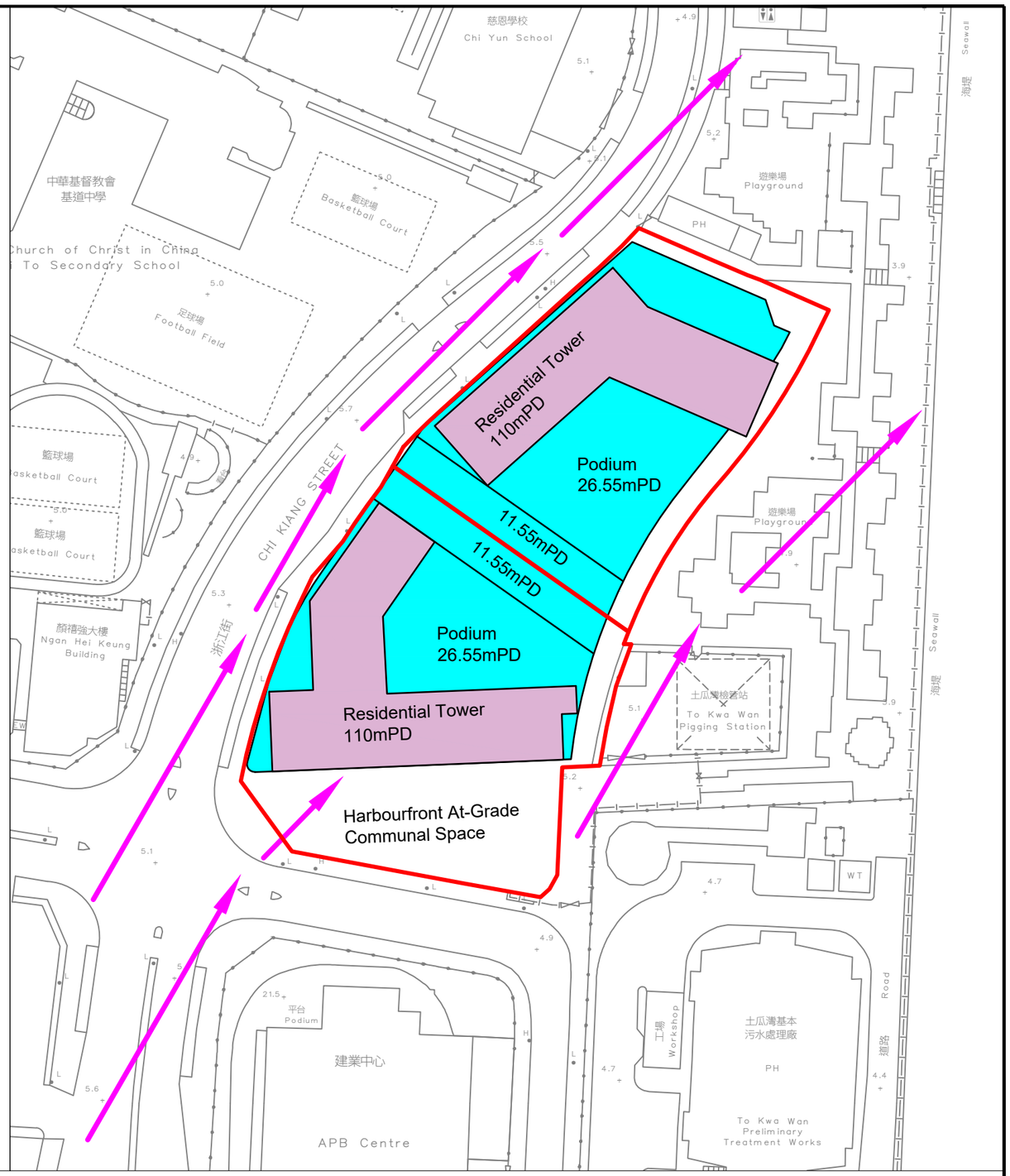
Proposed Residential Development in Bailey Street, Kowloon City District

Air Pathways under East-Southeasterly Winds (ESE)

SCALE	1:1000 @ A3	DATE	Jun 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	5-1c
		REV	-



Baseline Scheme



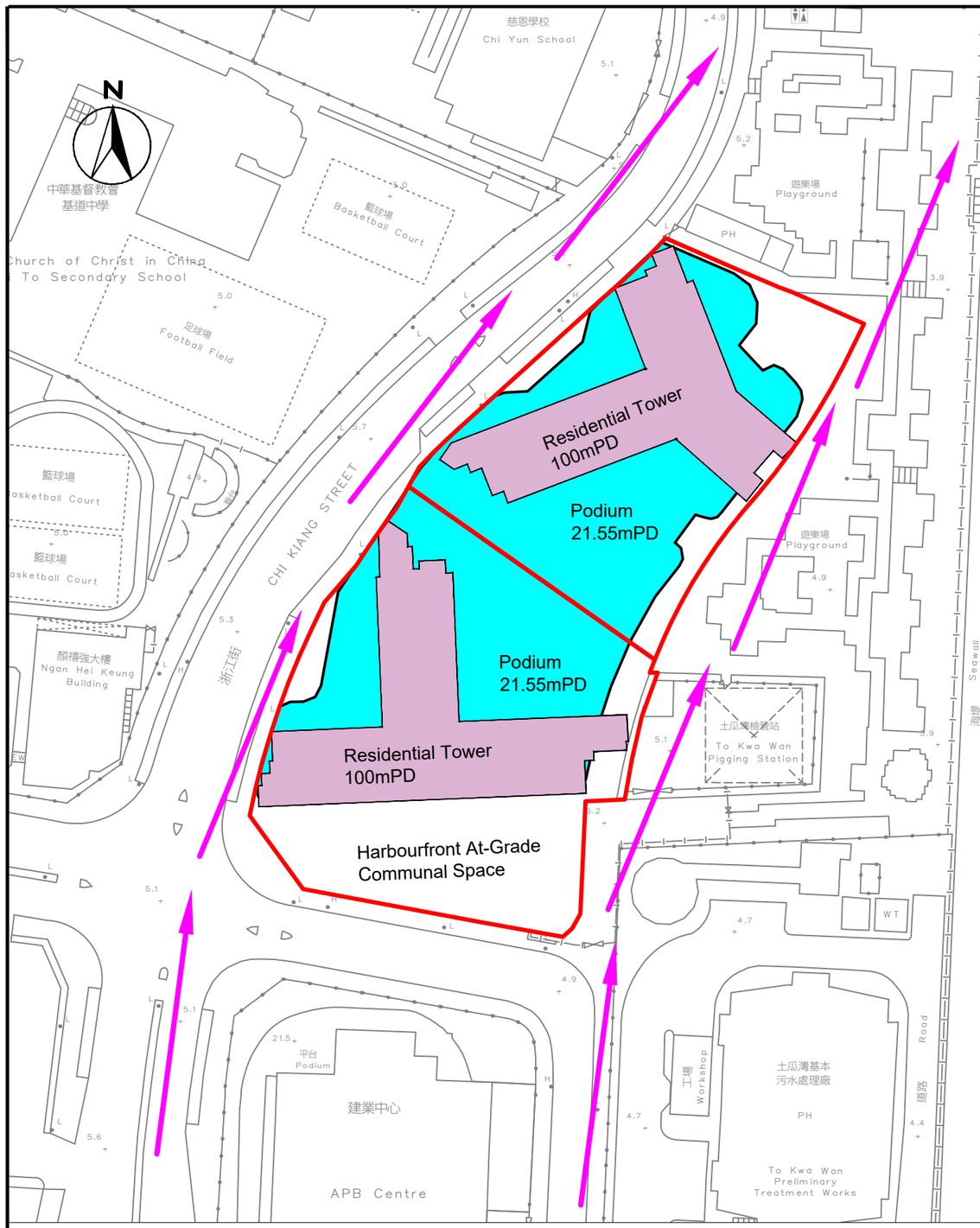
Proposed Scheme

CINOTECH
Cinotech Consultants Limited

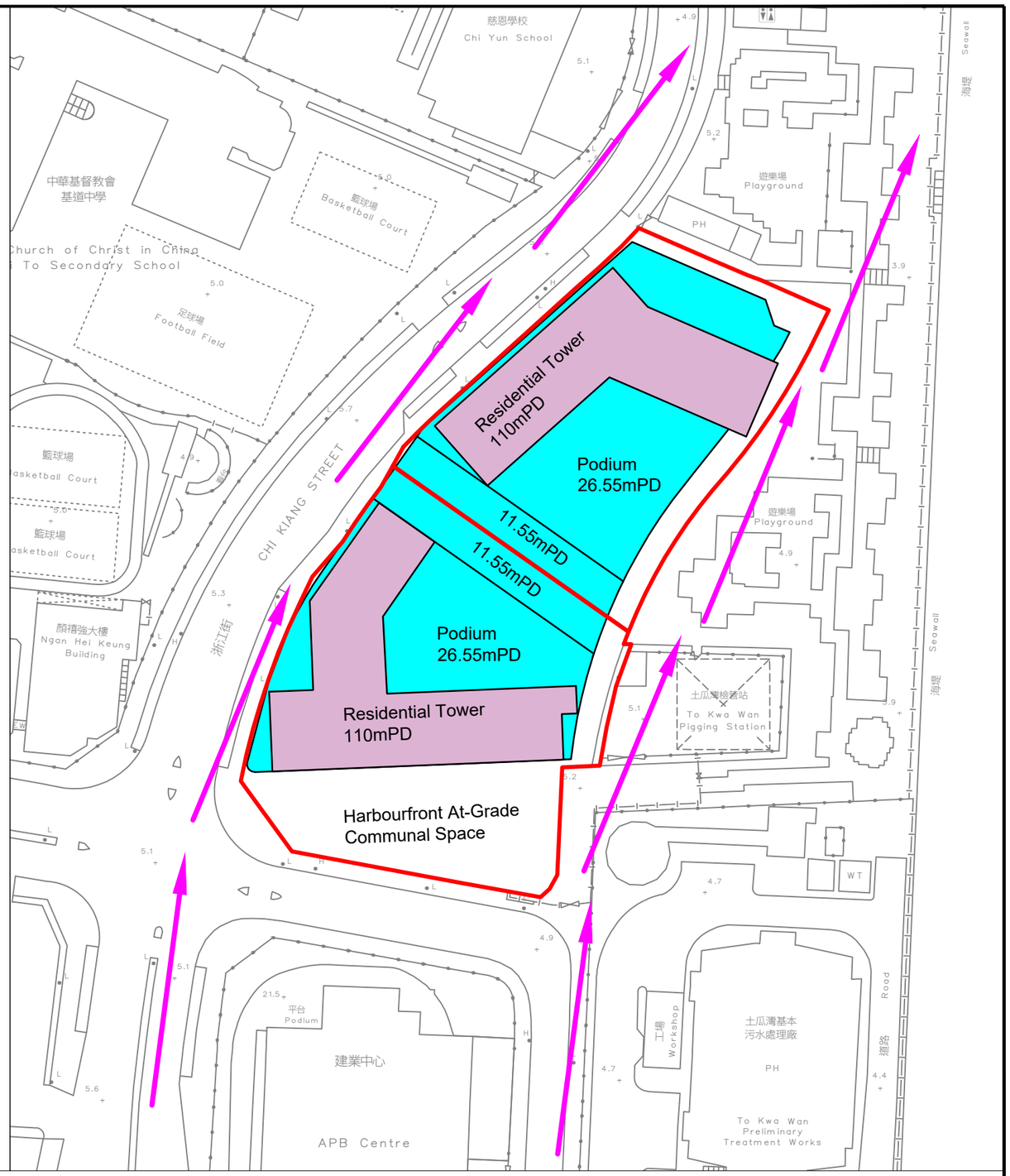
Proposed Residential Development in Bailey Street, Kowloon City District

Air Pathways under South-Westerly Winds (SW)

SCALE	1:1000 @ A3	DATE	Jun 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	5-1d
		REV	-



Baseline Scheme



Proposed Scheme

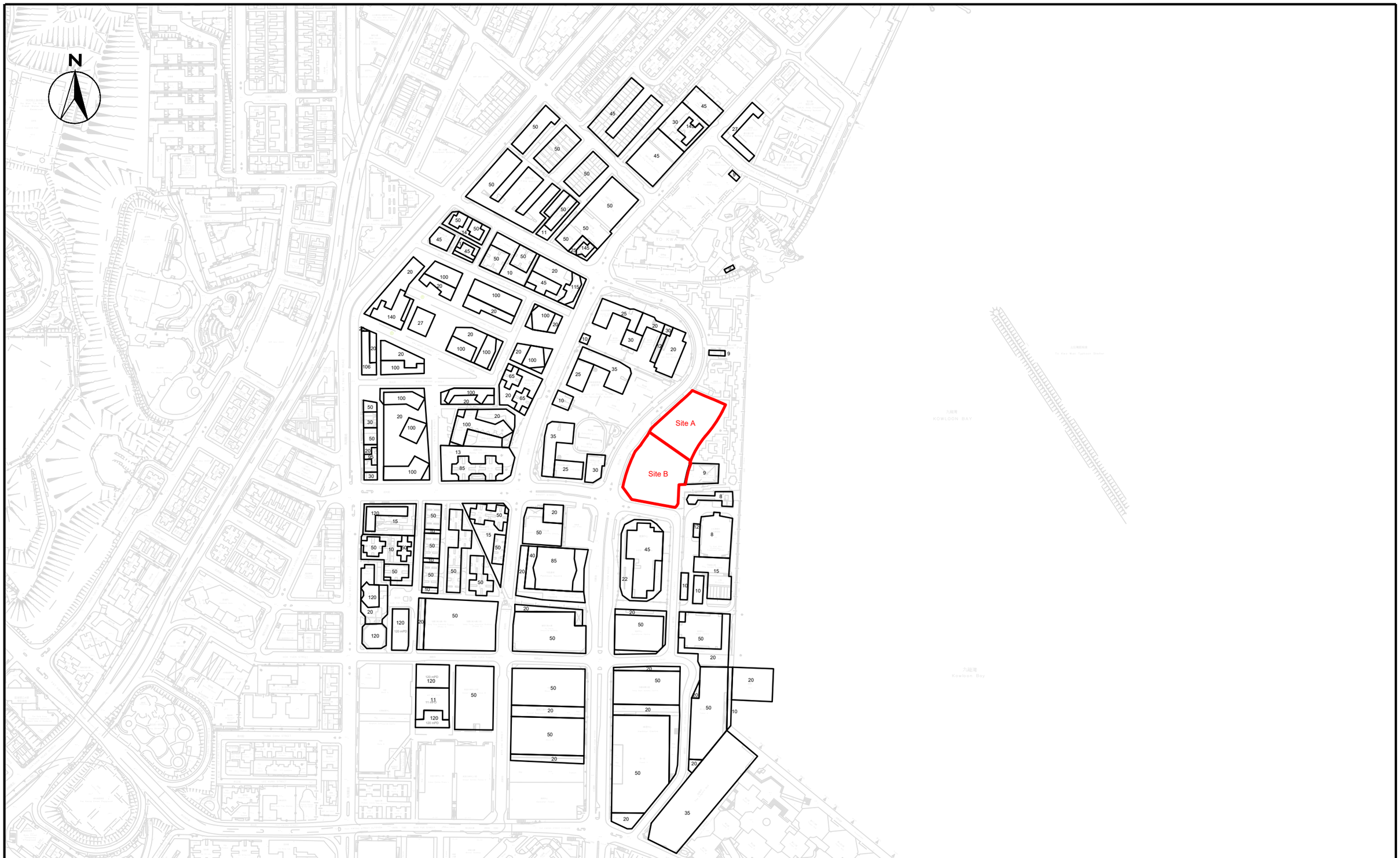
CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Air Pathways under South-Southwesterly Winds (SSW)

SCALE	1:1000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	5-1e
		REV	-

APPENDIX 2-1
BUILDING HEIGHT IN THE SURROUNDING



Proposed Residential Development in Bailey Street, Kowloon City District

Overview of Building Height in the Surrounding

Cinotech Consultants Limited

SCALE	1:4000 @ A3	DATE	Jun 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	--
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Proposed Residential Development in Bailey Street, Kowloon City District

Building Height in the Surrounding - 1

SCALE	1:2000 @ A3	DATE	Jun 2025
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JOB No.	IA21009\KCAA110	DRAWING No.	--
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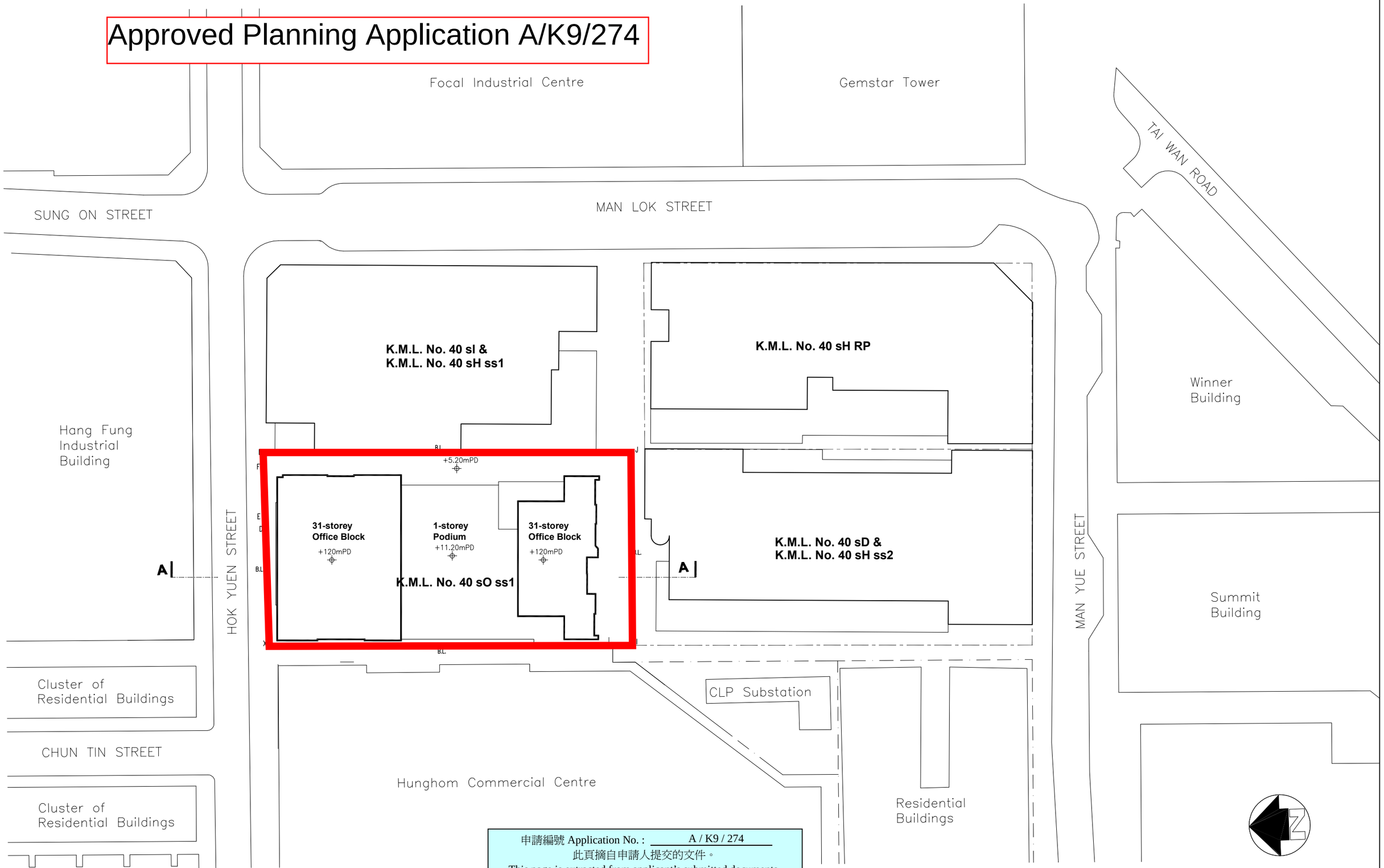
Proposed Residential Development in Bailey Street, Kowloon City District

Building Height in the Surrounding - 2

SCALE	1:2000 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	--
		REV	-

APPENDIX 2-2
EXTRACTED LAYOUT PLAN OF THE PLANNED DEVELOPMENTS

Approved Planning Application A/K9/274



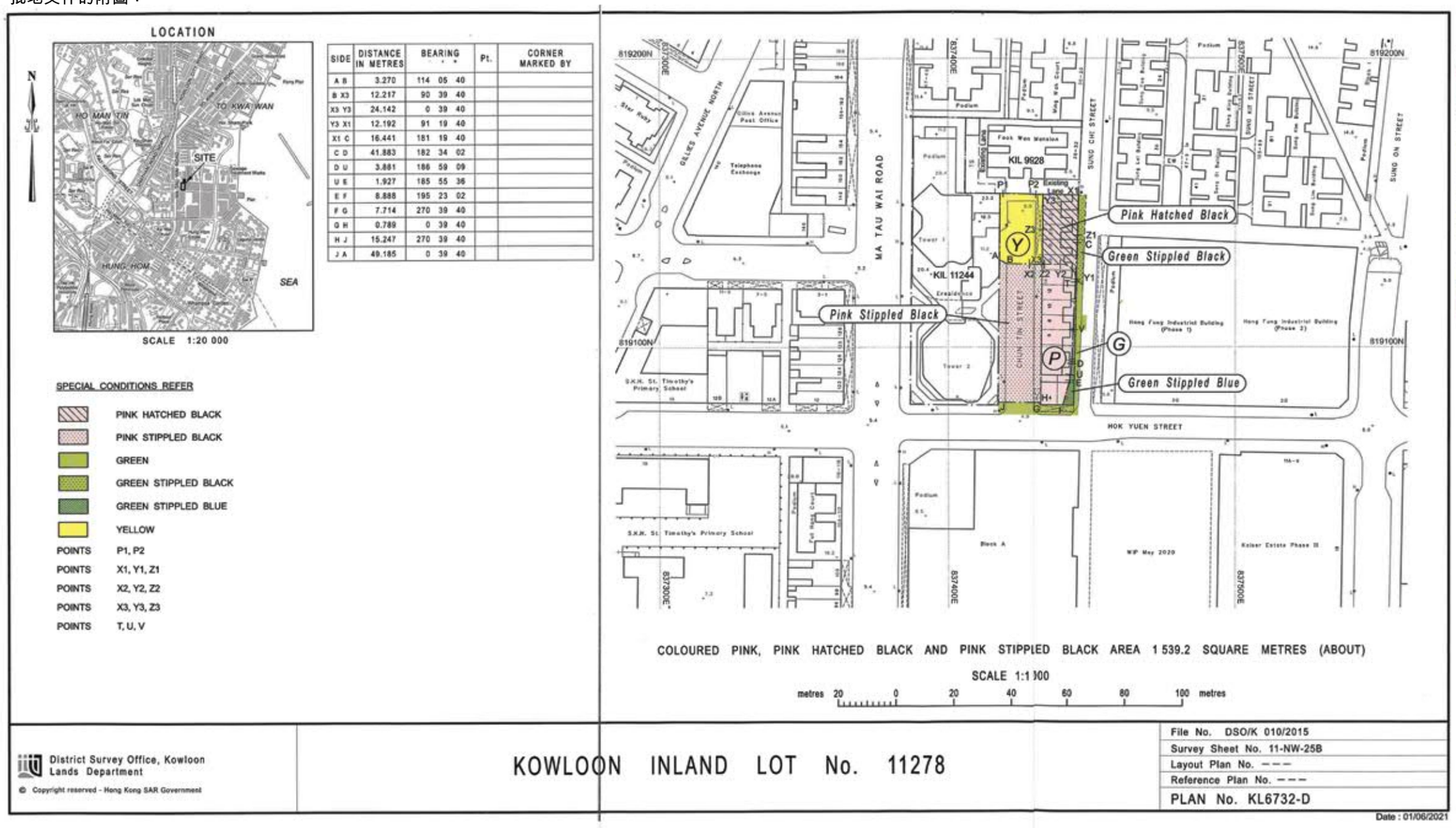
申請編號 Application No. : A / K9 / 274
此頁摘自申請人提交的文件。
This page is extracted from applicant's submitted documents.

PROJECT PROPOSED OFFICE & COMMERCIAL DEVELOPMENT 13 HOK YUEN STREET, HUNG HOM (K.M.L. No. 40 s0 ss1)	TITLE MASTER LAYOUT PLAN	REV. / DATE	DWG. NO. PD–01 SCALE 1 : 800 DATE 17.12.2018

INFORMATION ON PUBLIC FACILITIES AND PUBLIC OPEN SPACES
公共設施及公眾休憩用地的資料

URA Project KC-008(A)

The plan annexed to the Land Grant :
批地文件的附圖：



Legend 圖例：

- Pink Hatched Black 粉紅色間黑斜線
- Pink Stippled Black 粉紅色加黑點
- Green 綠色
- Green Stippled Black 綠色加黑點
- Green Stippled Blue 綠色加藍點
- Yellow 黃色

District Survey Office, Kowloon
Lands Department

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KOWLOON INLAND LOT No. 11278

File No. DSO/K 010/2015
Survey Sheet No. 11-NW-25B
Layout Plan No. ---
Reference Plan No. ---
PLAN No. KL6732-D

Date : 01/06/2021

WARNING TO PURCHASERS
對買方的警告

URA Project KC-008(A)

1. The purchaser is hereby recommended to instruct a separate firm of solicitors (other than that acting for the owner) to act for the purchaser in relation to the transaction.

2. If the purchaser instructs such separate firm of solicitors to act for the purchaser in relation to the transaction, that firm will be able to give independent advice to the purchaser.

3. If the purchaser instructs the firm of solicitors acting for the owner to act for the purchaser as well, and a conflict of interest arises between the owner and the purchaser –

   (i) that firm may not be able to protect the purchaser's interests; and

   (ii) the purchaser may have to instruct a separate firm of solicitors; and

4. In the case of paragraph 3 (ii), the total solicitors' fees payable by the purchaser may be higher than the fees that would have been payable if the purchaser had instructed a separate firm of solicitors in the first place.

1. 現特此建議買方聘用一間獨立的律師事務所(代表擁有人行事者除外)，以在交易中代表買方行事。

2. 如買方聘用上述的獨立的律師事務所，以在交易中代表買方行事，該律師事務所將會能夠向買方提供獨立意見。

3. 如買方聘用代表擁有人行事的律師事務所同時代表買方行事，而擁有人與買方之間出現利益衝突 —

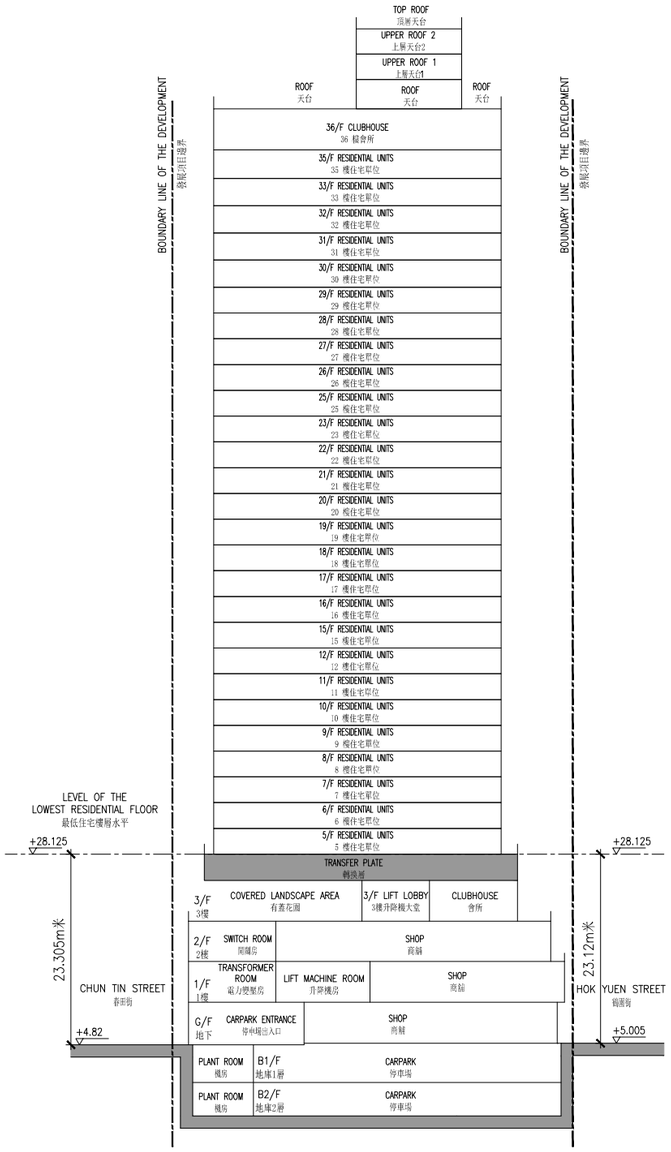
   (i) 該律師事務所可能不能夠保障買方的利益；及

   (ii) 買方可能要聘用一間獨立的律師事務所；及

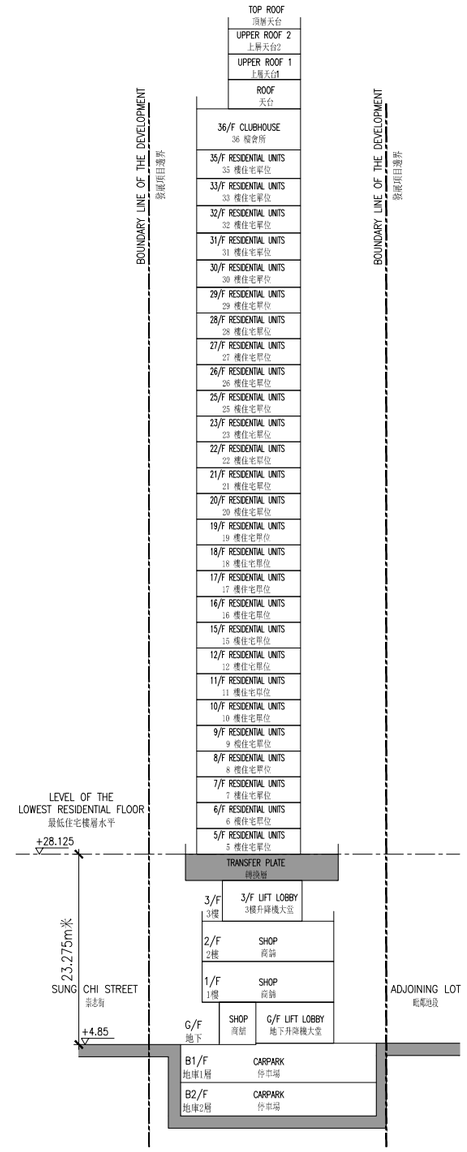
4. 如屬3(ii)段的情況，買方須支付的律師費用總數，可能高於如買方自一開始即聘用一間獨立的律師事務所便須支付的費用。

CROSS-SECTION PLAN OF BUILDING IN THE DEVELOPMENT
發展項目中的建築物的橫截面圖

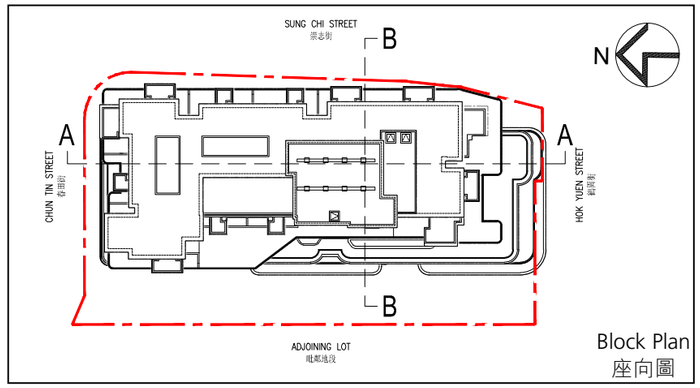
URA Project KC-008(A)



CROSS-SECTION A
橫截面圖 A



CROSS-SECTION B
橫截面圖 B



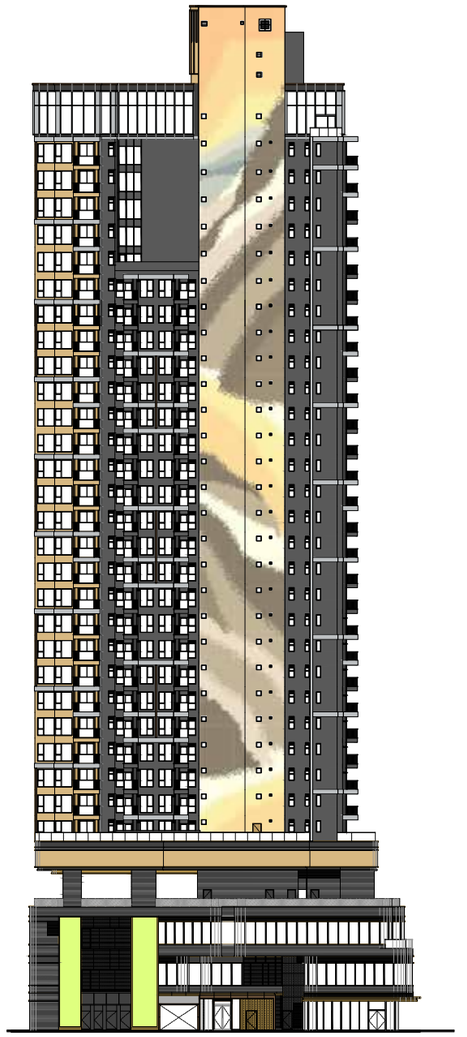
Boundary line of the Development
發展項目邊界

1. ▽ denotes height (in metres) above the Hong Kong Principal Datum (HKPD).
2. - — - — Dotted line denotes the lowest residential floor of the building.
3. The part of Chun Tin Street adjacent to the building is 4.820 metres above the Hong Kong Principal Datum (HKPD).
4. The part of Hok Yuen Street adjacent to the building is 5.005 metres above the Hong Kong Principal Datum (HKPD).
5. The part of Sung Chi Street adjacent to the building is 4.850 metres above the Hong Kong Principal Datum (HKPD).

1. ▽ 代表香港主水平基準以上的高度(米)。
2. - — - — 虛線代表期數中建築物之最低住宅樓層水平。
3. 毗連建築物的一段春田街為香港主水平基準以上4.820米。
4. 毗連建築物的一段鶴園街為香港主水平基準以上5.005米。
5. 毗連建築物的一段崇志街為香港主水平基準以上4.850米。

ELEVATION PLAN
立面圖

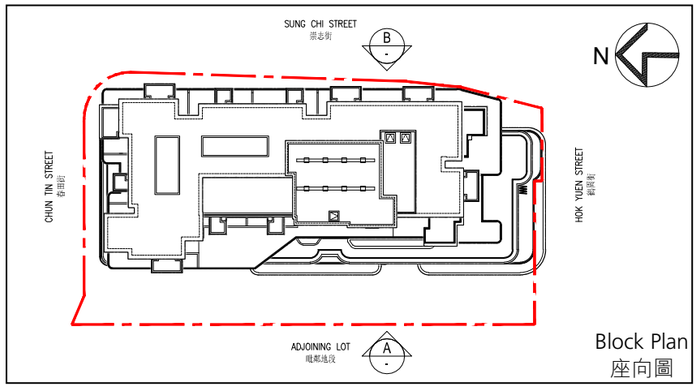
URA Project KC-008(A)



ELEVATION A
立面圖 A



ELEVATION B
立面圖 B



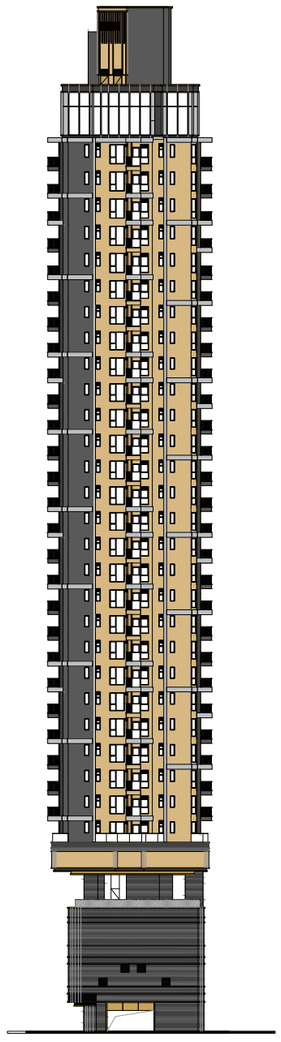
Boundary line of the Development
發展項目邊界

It has been certified by the Authorized Person for the Development that the above elevations:
(a) are prepared on the basis of the approved building plans for the Development as of 6 September 2023; and
(b) are in general accordance with the outward appearance of the Development.

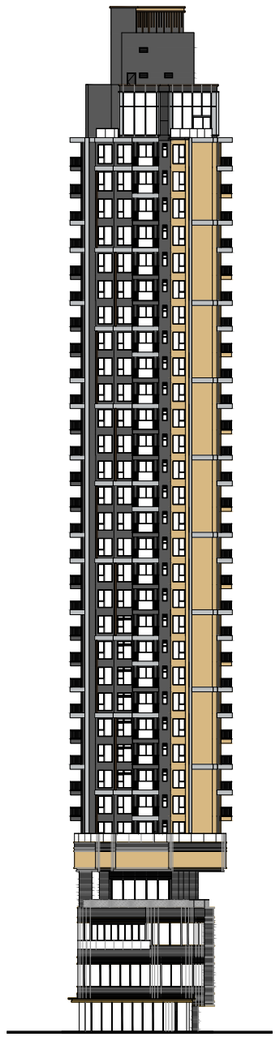
發展項目的認可人士已經證明該等立面：
(a) 以2023年9月6日的情況為準的發展項目的經批准的建築圖則為基礎擬備；及
(b) 大致上與發展項目的外觀一致。

ELEVATION PLAN
立面圖

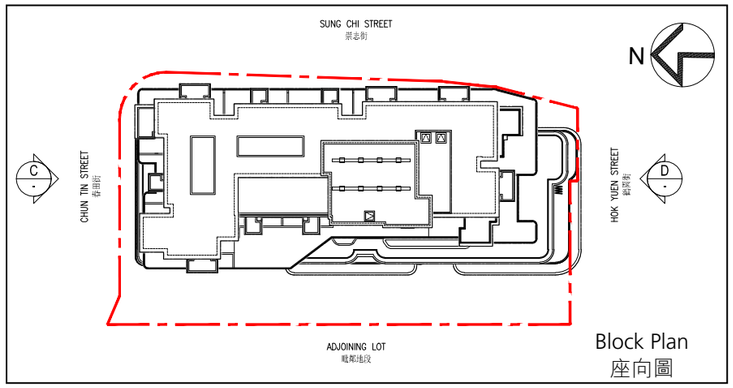
URA Project KC-008(A)



ELEVATION C
立面圖 C



ELEVATION D
立面圖 D

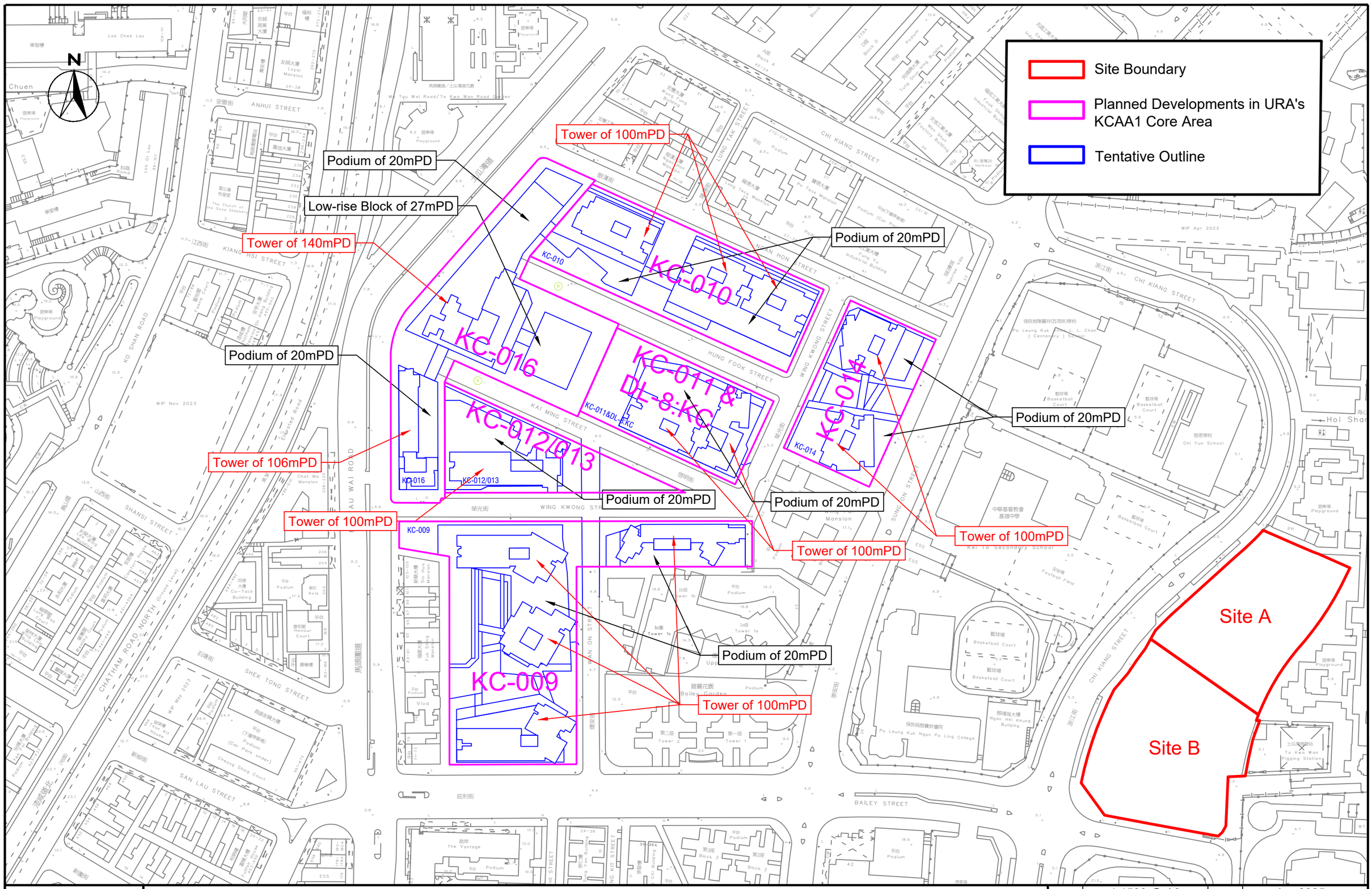


Block Plan
座向圖

Boundary line of the Development
發展項目邊界

It has been certified by the Authorized Person for the Development that the above elevations:
(a) are prepared on the basis of the approved building plans for the Development as of 6 September 2023; and
(b) are in general accordance with the outward appearance of the Development.

發展項目的認可人士已經證明該等立面：
(a) 以2023年9月6日的情況為準的發展項目的經批准的建築圖則為基礎擬備；及
(b) 大致上與發展項目的外觀一致。



CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Tentative Layout Plan of URA's KCAA1 Core Area

SCALE	1:1500 @ A3	DATE	Jun 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No.	--
		REV	-

APPENDIX 3-1
WIND DATA AT GRID [84,41] FROM RAMS

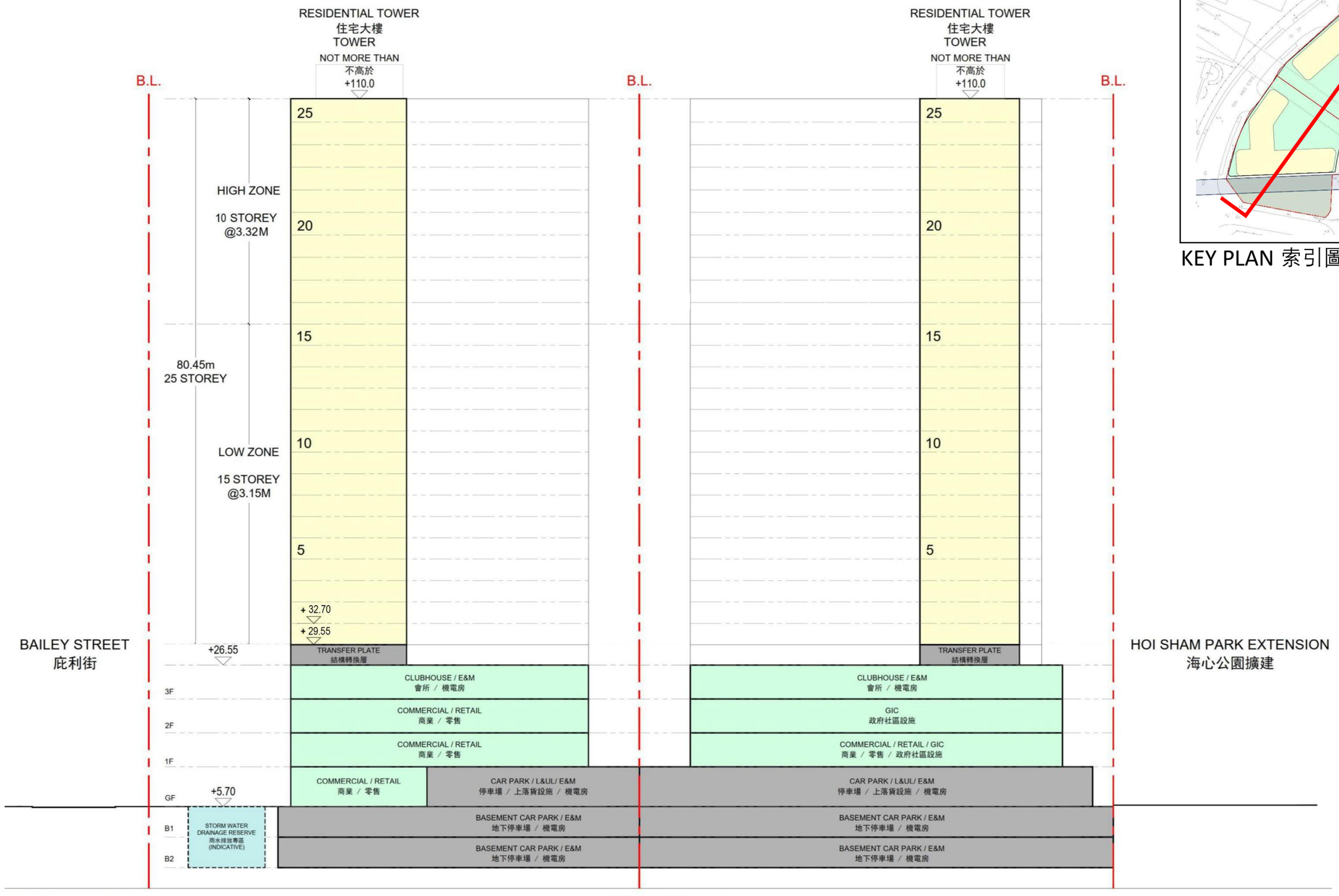
Occurrence Probability at 200m elevation (Annual)

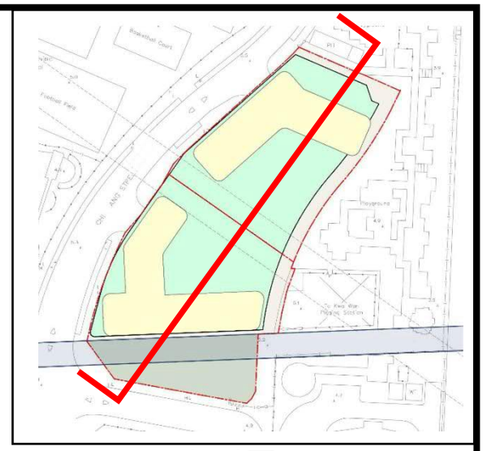
e_01542	Wind_direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
V_infinity(m/s)	Sum	0.032	0.084	0.066	0.117	0.291	0.1	0.042	0.029	0.032	0.055	0.059	0.037	0.026	0.013	0.008	0.011
00_to_01	0.021	0.003	0.003	0.003	0.004	0.007	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.003	0.003	0.003
01_to_02	0.053	0.005	0.006	0.006	0.008	0.011	0.01	0.008	0.007	0.008	0.009	0.009	0.007	0.007	0.003	0.003	0.003
02_to_03	0.085	0.007	0.01	0.01	0.013	0.017	0.014	0.008	0.006	0.007	0.011	0.01	0.007	0.004	0.002	0.001	0.002
03_to_04	0.1	0.006	0.012	0.012	0.019	0.028	0.017	0.006	0.004	0.005	0.01	0.01	0.007	0.004	0.002	0	0.001
04_to_05	0.111	0.004	0.013	0.011	0.021	0.039	0.016	0.005	0.003	0.004	0.009	0.009	0.005	0.003	0.001	0	0.001
05_to_06	0.12	0.002	0.012	0.01	0.019	0.045	0.014	0.003	0.002	0.002	0.006	0.007	0.003	0.002	0.001	0	0.001
06_to_07	0.12	0.001	0.009	0.006	0.013	0.048	0.011	0.002	0.001	0.001	0.003	0.004	0.001	0.001	0.001	0	0
07_to_08	0.108	0.001	0.007	0.003	0.008	0.039	0.007	0.002	0	0.001	0.001	0.003	0.001	0	0	0	0
08_to_09	0.089	0	0.004	0.002	0.004	0.025	0.004	0.001	0	0	0.001	0.001	0.001	0	0	0	0
09_to_10	0.065	0	0.003	0.001	0.002	0.015	0.001	0	0	0	0	0.001	0	0	0	0	0
10_to_11	0.048	0	0.001	0.001	0.001	0.007	0.001	0	0	0	0	0	0	0	0	0	0
11_to_12	0.029	0	0.001	0	0.001	0.004	0	0	0	0	0	0	0	0	0	0	0
12_to_13	0.018	0	0.001	0	0	0.002	0	0	0	0	0	0	0	0	0	0	0
13_to_14	0.012	0	0	0	0	0.001	0	0	0	0	0	0	0	0	0	0	0
14_to_15	0.006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15_to_16	0.005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16_to_17	0.003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17_to_18	0.002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18_to_19	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19_to_20	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20_to_21	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21_to_22	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22_to_23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23_to_24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Occurrence Probability at 200m elevation (Summer)

e_01542	Wind_direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
V_infinity(m/s)	Sum	0.011	0.012	0.012	0.035	0.118	0.104	0.075	0.065	0.075	0.127	0.157	0.1	0.061	0.024	0.012	0.011
00_to_01	0.024	0.002	0.003	0.003	0.004	0.006	0.006	0.006	0.008	0.006	0.007	0.007	0.006	0.008	0.005	0.003	0.004
01_to_02	0.059	0.003	0.002	0.002	0.003	0.007	0.009	0.012	0.014	0.016	0.018	0.02	0.016	0.014	0.005	0.004	0.003
02_to_03	0.098	0.003	0.002	0.001	0.003	0.008	0.014	0.013	0.013	0.015	0.025	0.026	0.021	0.01	0.004	0.002	0.002
03_to_04	0.107	0.001	0.002	0.001	0.003	0.011	0.016	0.01	0.01	0.013	0.025	0.026	0.021	0.01	0.003	0.001	0.001
04_to_05	0.118	0	0.001	0.001	0.003	0.013	0.014	0.009	0.009	0.01	0.021	0.024	0.016	0.008	0.002	0.001	0
05_to_06	0.118	0.001	0.001	0.001	0.003	0.014	0.014	0.007	0.006	0.007	0.015	0.021	0.009	0.006	0.002	0.001	0
06_to_07	0.108	0.001	0	0.001	0.003	0.011	0.013	0.005	0.004	0.005	0.008	0.014	0.004	0.002	0.002	0	0
07_to_08	0.096	0	0	0	0.002	0.013	0.008	0.004	0.001	0.002	0.004	0.009	0.002	0.001	0.001	0	0
08_to_09	0.073	0	0	0	0.003	0.01	0.006	0.004	0.001	0.001	0.002	0.005	0.001	0.001	0	0	0
09_to_10	0.052	0	0	0	0.002	0.008	0.002	0.001	0	0.001	0.001	0.002	0.001	0	0	0	0
10_to_11	0.044	0	0	0	0.001	0.007	0.001	0.001	0	0	0	0.002	0.001	0	0	0	0
11_to_12	0.03	0	0	0	0.002	0.004	0.001	0	0	0	0	0.001	0	0	0	0	0
12_to_13	0.019	0	0	0	0.001	0.002	0	0	0	0	0	0	0	0	0	0	0
13_to_14	0.017	0	0	0	0	0.001	0	0	0	0	0	0	0	0	0	0	0
14_to_15	0.01	0	0	0	0	0.001	0	0	0	0	0	0	0	0	0	0	0
15_to_16	0.008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16_to_17	0.006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17_to_18	0.003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18_to_19	0.002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19_to_20	0.002	0	0	0	0.001	0	0	0	0	0	0	0	0	0	0	0	0
20_to_21	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21_to_22	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22_to_23	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23_to_24	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 4-1
NOTIONAL SECTION PLAN OF THE PROPOSED DEVELOPMENT





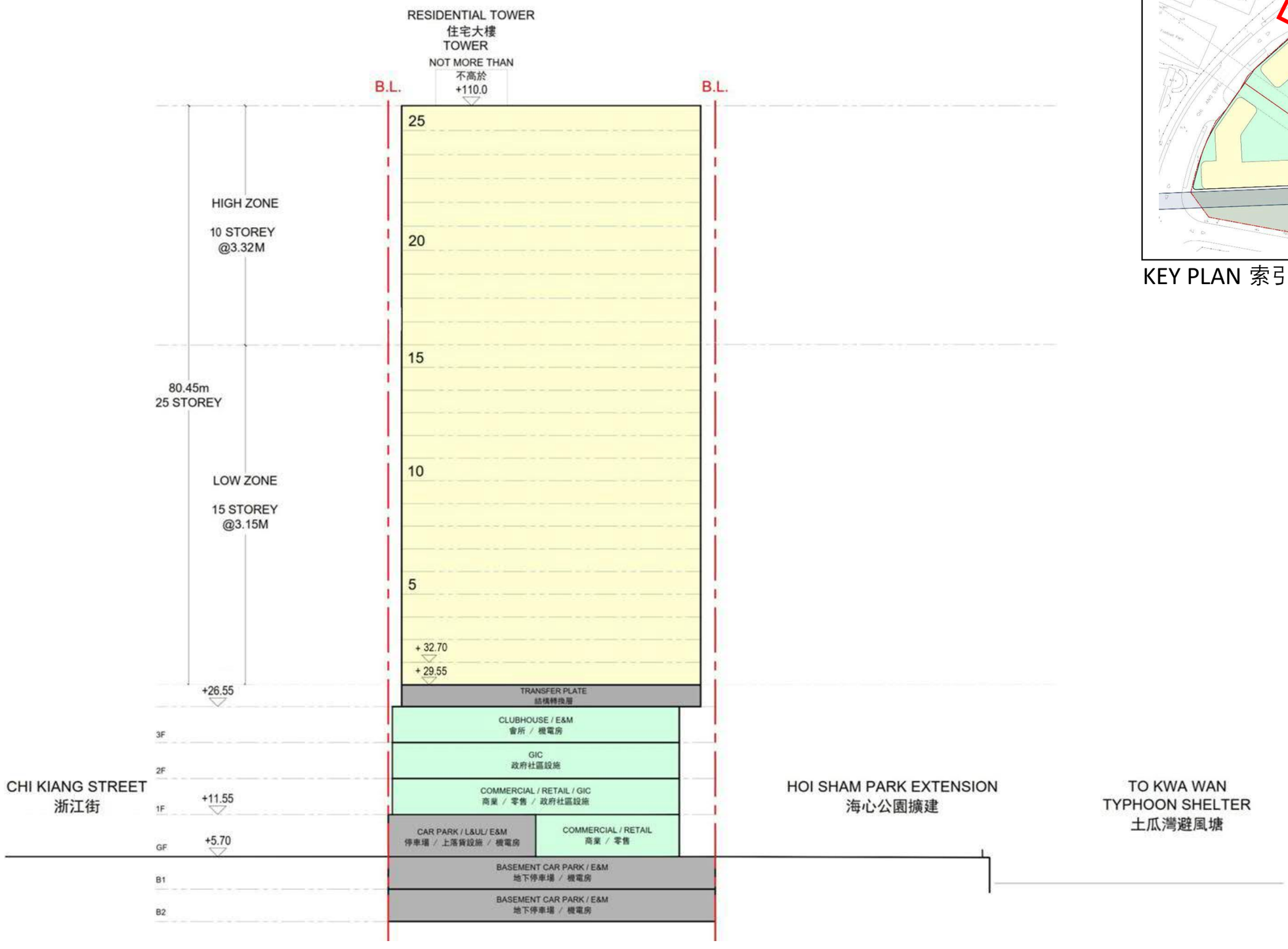
KEY PLAN 索引圖

(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 2**	**Notional Design – Indicative Section**	Not to scale June 2025



KEY PLAN 索引圖



(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 3**	**Notional Design – Indicative Section**	Not to scale June 2025

Appendix 10

Conceptual Landscape Design Plan and Tree Survey Report

Term Landscape Architectural Consultancy Services
Service Order No.04 for a Proposed Development in Kowloon City District
(Proposed Residential Development at Bailey Street)

Tree Survey Report, Preliminary Tree Preservation and Landscape Proposal

June 2025

AECOM

Term Landscape Architectural Consultancy Services Service Order No.04 for a Proposed Development in Kowloon City District (Proposed Residential Development at Bailey Street)

Tree Survey Report, Preliminary Tree Preservation and Landscape Proposal

Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date
1	-	Draft Submission	February 2024
2	A	2nd Draft Submission	June 2024
3	B	3rd Draft Submission	June 2024
4	C	1st Formal Submission	June 2024
5	D	1st Re-Submission	August 2024
6	E	2nd Re-submission	September 2024
7	F	3rd Re-submission	June 2025

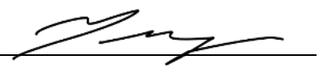
CHECKING ROUTING SHEET

CLIENT: Urban Renewal Authority

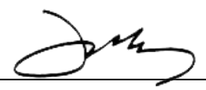
PROJECT TITLE: Term Landscape Architectural Consultancy Services Service Order No.04 for a Proposed Development in Kowloon City District (Proposed Residential Development at Bailey Street)

DOCUMENT TITLE: Tree Survey Report,
Preliminary Tree Preservation Proposal and Landscape Proposal

PREPARED BY NAME: Eunice WONG

SIGNED:  DATE: June 2025

CHECKED BY NAME: Jeff TANG

SIGNED:  DATE: June 2025

CONTENTS

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1.	**INTRODUCTION**	**1**
1.1	Background	1
1.2	Structure of this Report	1
2.	**LEGISLATIONS, STANDARDS AND GUIDELINES**	**1**
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2.2	Ordinances and Regulations	1
3.	**METHODOLOGY**	**2**
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4.	**DESCRIPTION OF THE PROPOSED PROJECT AND WORKS**	**3**
5.	**TREE SURVEY FINDINGS AND TREATMENT RECOMMEDATIONS**	**4**
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Appendix IV	Tree Assessment Schedule
Appendix V	Tree Photographic Record
Appendix VI	Proposed Compensatory Tree Planting
Appendix VII	Landscape Design Concept Plan

1. INTRODUCTION

1.1 Background

1.1.1 AECOM is commissioned by the Urban Renewal Authority (URA) to prepare a tree survey report, preliminary tree preservation and landscape proposal in support to a proposed comprehensive high-density residential development (the Proposed Development) at Bailey Street, Kowloon City District (the "Site"). URA, in collaboration with the Planning Department, proposed to rezone the site from a "Government, Institution or Community" zone and a small strip of land in "Other Specified Uses" annotated "Sewage Treatment Plant" zone to "Residential (Group A)9" on the Approved Hung Hom Outline Zoning Plan No. A/K9/28 for comprehensive high-density residential development. Planning submission with relevant technical assessments will be prepared in support of the proposed rezoning under Section 5 of the Town Planning Ordinance.

1.1.2 The Tree Survey Report and Preliminary Tree Preservation Proposal provides tree survey for existing Site following the requirements in accordance with LAO PN No. 6/2023 for tree preservation. The purpose of the survey is to provide sufficient and accurate site measured digital information to facilitate design preparation and onwards preparation of TPRP by another Design Consultant who will be separately engaged by the Urban Renewal Authority.

1.1.3 The Landscape Proposal provides a visualization for the proposed planning parameters and landscape design consideration. This Proposal is prepared in support of the proposed zoning amendments, which is for indicative purpose only and subject to change a detailed design stage.

1.2 Structure of this Report

1.2.1 This Report contains tree survey including photographic records showing existing tree conditions, recommendations of trees to be retained, transplanted and removed, compensatory tree planting proposals and landscape proposal. Following this introductory section, the remainder of the Report is arranged as follows:

- Section 2 describes legislations, standards and guidelines related to tree survey and removal application;
- Section 3 illustrates the tree survey and assessment methodology;
- Section 4 describes the Proposed Development and associated works;
- Section 5 presents the tree survey findings and treatment recommendations;
- Section 6 describes the compensatory tree planting proposal;
- Section 7 presents the landscape proposal;
- Section 8 summarises the findings of the report and proposal.

2. LEGISLATIONS, STANDARDS AND GUIDELINES

2.1 Government Publications, Guidelines and Reports

2.1.1 Government Publications, Guidelines and Reports related to Tree Survey and Tree Preservation and Removal Proposal include:

- Agriculture, Fisheries and Conservation Department – AFCD Nature Conservation Practice Note No. 2 – Measurement of Diameter at Breast Height (DBH).
- Agriculture, Fisheries and Conservation Department – AFCD Nature Conservation Practice Note No. 3 – The Use of Plant Names.
- Lands Department, Lands Administration Office Instructions (LAOI) Section D-12 – Tree Preservation.
- Lands Department, Lands Administration Office Practice Note Issue No. 6/2023.
- Proper Planting Practices issued by Greening, Landscape and Tree Management Section of Development Bureau.
- Development Bureau – Tree Management Practice Note No.1: Tree Preservation during Construction.
- Development Bureau – Guidelines on Tree Pruning.
- Development Bureau – Guidelines on Tree Transplanting.
- Development Bureau – Latest Guidelines for Tree Risk Management and Assessment Arrangement.
- Development Bureau – Tree Preservation.

2.2 Ordinances and Regulations

2.2.1 Ordinances and Regulations related to Tree Survey and Tree Preservation and Removal Proposal include:

- Forests and Countryside Ordinance (Cap. 96) and its subsidiary legislations.
- Plant Varieties Protection Ordinance (Cap. 490).
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586).

3. METHODOLOGY

3.1 Tree Survey and Assessment Methodology

3.1.1 In accordance with LAO PN. 6/2023, all existing individual trees with a trunk diameter larger than 95mm (300mm girth) measured at a height of 1300mm above ground level within the site boundary are surveyed and identified with the following information recorded:

(a) Tree: All existing individual trees with a trunk diameter larger than 95mm (300mm girth) measured at a height of 1300mm above ground level within the site boundary.

(b) Drawing: Drawing where the individual trees can be found.

(c) Tree No.: Individual trees as being number labelled on site and marked on site and denoted correspondingly on the plan.

(d) Photo No.: The photograph reference number of the tree being identified.

(e) Tree Species: Latin and Chinese names of the trees surveyed.

(f) Tree size:

(i) Overall Height: Height measured from ground level to the top branch;

(ii) Trunk Diameter: Diameter of the main trunk measured at a height of 1.3m high above ground level; and

(iii) Average Crown Spread: Average diameter of the foliage canopy.

(g) Amenity Value of a tree should be assessed by its functional values for shade, shelter, screening, reduction of pollution and noise and also its feng shui significance, and classified into the following categories:

(i) High – important trees which should be retained by adjusting the design layout accordingly;

(ii) Medium – trees that are desirable to be retained in order to create a pleasant environment, which includes healthy specimens of lesser importance than “Good” trees; and

(iii) Low – trees that are dead, dying or potentially hazardous and should be removed.

(h) Form:

(i) Good - Well-balanced crown and straight strong trunk(s);

(ii) Average - Slightly unbalanced crown and non-straight trunk(s);

(iii) Poor - Misshapen or awkwardly-forked trunk and / or unbalanced crown.

(i) Health:

(i) Good - Sound and healthy trees;

(ii) Average - Trees which are with few or no visible defects or health problem;

(iii) Poor - Rot and / or cavities in the main trunk and / or crown die back, severely infected with disease.

(j) Structural Condition:

(i) Good - Trees with no or little sign of structural defect and would have low risk level of potential failure;

(ii) Average - Trees with moderate sign of structural defect and would have medium risk level of potential failure;

(iii) Poor - Trees with significant and obvious sign of structural defect and would have high risk level of potential failure.

(k) Suitability for Transplanting: Assess the suitability of affected trees to be transplanted taken in to account of the following factors: -

- conditions of the tree to be transplanted (including form, health and structure which will affect success of the proposed transplanting);
- size, species, and conservation status of the tree to be transplanted;
- availability and suitability of a permanent receptor site, both within and outside the project site;
- adequate time for preparation of transplanting operation;
- identification of a long-term maintenance party for the transplanted tree(s);
- access to the existing location and transportation to the receptor site (including availability of access to accommodate the tree, topography of the proposed route, engineering limitations, etc.); and
- cost-effectiveness.

Trees with the following features should not be considered suitable for transplanting under normal circumstances:

- low amenity value;

- irrecoverable form after transplanting (e.g. if substantial crown and root pruning are necessary to facilitate the transplanting);
- low survival rate after transplanting;
- very large size (unless the feasibility to transplant has been considered financially reasonable and technically feasible during the feasibility stage);
- with evidence of over-maturity and onset of senescence;
- with poor health, structure or form (e.g. imbalanced form, leaning, with major cavity/cracks/splits); or
- undesirable species (e.g. *Leucaena leucocephala* which is an invasive exotic tree).

(l) Conservation Status: State the rarity and protection status of the species under relevant ordinances in Hong Kong. References such as Rare and Precious Plants of Hong Kong, the IUCN Red List of Threatened Species, the Forests and Countryside Ordinance (Cap. 96), the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586) are used.

(m) Proposed Treatment: Proposed action for individual species which fall into three categories:

(i) Retain

(ii) Transplant

(iii) Fell

(n) Justification: Proposed works which justify the recommendation.

For example,

- direct conflict with proposed work;
- level changes;
- transplanting not recommended due to large size;
- difficulty on rootball formation (restricted root);
- irrecoverable form after transplanting, etc

(o) Additional Remarks: Supplementary note towards the assessment.

4. DESCRIPTION OF THE PROPOSED PROJECT AND WORKS

4.1.1 A location plan and notional block plan of the Proposed Development are shown in **Appendix 1**.

5. TREE SURVEY FINDINGS AND TREATMENT RECOMMEDATIONS

5.1 Existing Tree Survey Findings

5.1.1 Tree condition and identification survey was carried out in January 2024. A total of 20 nos. of trees were surveyed within the site boundary. Locations of individual tree surveyed are shown on Tree Survey Plan in **Appendix II**.

5.1.2 There is no important tree, rare or endangered tree species found. There are no trees in the Register of Old and Valuable Trees (OVTs) found. All the species identified are common landscape species.

5.1.3 Tree identification and condition of individual tree surveyed is tabled in Tree Schedule in **Appendix IV**. Photographic record of individual tree is shown in **Appendix X**.

5.2 Tree Treatment Recommendations

5.2.1 In order to determine whether the existing trees will be affected by the proposed works, the proposed works for the Proposed Development have been overlaid on the Tree Treatment Plan in **Appendix III**.

5.2.2 Existing trees which are affected shall be considered for transplanting in accordance with the Guidelines on Tree Transplanting stipulated by GLTMS of DEVB.

5.2.3 The feasibility of tree transplanting has been reviewed. The trees are not suitable to be transplanted due to the following key reasons:

(a) Trees have low conservation and amenity and / or poor tree forms / health / structure which also rendered these trees being not cost effective to transplant;

(b) Trees growing in confined planter where formation of a root ball of reasonable size is not practicable;

(c) Reasonable root ball size cannot be prepared practically due to adjacent underground structures or utilities;

(d) No suitable or available receptor site for the trees either within and outside the site boundary;

(e) Not able to allow adequate time for the preparation of transplanting operation under the project requirement;

(f) In view of possible disturbance from the construction activities for the next 5 years within the site boundary, tree survival rate after transplanting is low;

(g) Technically not feasible to transport the transplanted trees to the receptor site; and

(h) Irrecoverable tree form after transplanting.

5.2.4 Findings and recommended treatments to existing trees are summarized as follows: -

Tree Location	Departmental Responsibilities for Providing Expert Advice	Total Nos. of Trees	Retain	Transplant	Fell (excluding undesirable species)	Fell (undesirable species)
Within Lot	LandsD	20	0	1	13	6

5.2.5 There are 20 nos. of existing trees within lot will be directly conflicted with and unavoidably affected by the construction.

5.2.6 Among the affected trees, 19 nos. of trees are proposed to be removed. These trees are identified with average to poor form or structural condition such as leaning and codominant trunks, which are not considered for transplanting. In additions, some tree roots are restricted which considered not transplantable as formation of reasonable size root ball for transplanting is not practicable. Hence, these trees are proposed to be removed.

5.2.7 6 nos. of trees are identified as *Leucaena leucocephala*. All *Leucaena leucocephala* are proposed to be removed.

5.2.8 1 no. of *Bombax ceiba* is proposed to be transplanted.

6. COMPENSATORY TREE PLANTING PROPOSAL

6.1 Guidelines for Compensation

6.1.1 A number of existing trees within the site will inevitably be affected by the Project. Compensatory planting in a ratio not less than 1:1 in terms of number, i.e. the number of compensatory trees within the site and off-site shall not be lower than that the number of trees removed, including dead trees, but excluding trees of undesirable species shall be provided as far as possible in accordance with LAO PN No. 6/2023.

6.2 Compensatory Planting Proposals

6.2.1 To compensate the loss of 13 nos. of trees due to the proposed development (excluding undesirable species), 13 nos. of trees shall be compensated within site.

6.2.2 Space for tree compensation within the site boundary has been explored as much as possible. Having considered the site and project constraints, the tree compensation has been maximized under the proposed redevelopment works. A total 13 nos. of trees are proposed to compensated on-site.

6.2.3 Indicative compensatory planting plan within site boundary is illustrated in **Appendix VI**. The proposed species list for on-site and off-site compensatory planting are tabled below:-

Species	Chinese Name	Height (m)	DBH (mm)	Spread (m)	Spacing (m)	Native/ Exotic	Remarks
Adenanthera microsperma	海紅豆	5	90	2.5	5	Native	STSG
Cinnamomum camphora	樟	5	90	2.5	5	Native	GMP
Crateva unilocularis	樹頭菜	5	90	2.5	5	Exotic	GMP, STSG, Flowering
Elaeocarpus hainanensis	水石榕	3.5	80	2	5	Exotic	STSG, Flowering
Plumeria rubra	紅鷄蛋花	4.5	100	3	5	Exotic	GMP, Flowering

7. LANDSCAPE DESIGN CONCEPT

7.1 Landscape Design Objectives

7.1.1 To visualise the proposed planning parameters and for landscape design consideration, a Landscape Design Concept Plan is illustrated in **Appendix VII**. This plan is solely prepared in support of the proposed zoning amendments, which is for indicative purpose only and subject to change a detailed design stage.

7.1.2 The objectives of the Landscape Proposal include the followings:

- To provide a balance of active and passive recreational facilities and public spaces for the enjoyment of both the visitors and future residents;
- To enhance the streetscape environment within the proposed development by improving its accessibility and visibility;
- To blend in the proposed development with the surrounding development context;
- To improve the walkability to the Hoi Sham Park and To Kwa Wan Promenade and bring in vibrancy to the waterfront area;
- To minimize the impact on existing trees and maximize greening opportunities within the proposed development; and
- To provide compensatory tree planting to compensate the loss of existing trees.

7.2 Preliminary Landscape Design Concept

7.2.1 Landscape design concept for the proposed development include the followings: -

- Connecting between the hinterland of To Kwa Wan Area including URA's KCCA1 Core Area and the waterfront along To Kwa Wan Promenade and Hoi Sham Park;
- Provision of an at-grade public open space at the southern portion of the Project with greenery for public enjoyment;
- Creation a green buffer along Bailey Street to soften up the hard edges of the proposed residential towers, the transplanted and compensation trees will be grouped together within the new provision of at-grade public open space;
- Provision of universal accessibility to all landscape areas within the proposed development; and

- Provide pedestrian connection between the retail area of the Proposed Development and the adjoining waterfront at ground level, creating an engaging urban space that enhances the waterfront experience for visitors and brings vibrancy to the waterfront

7.2.2 According to Sustainable Building Design (SBD) Guidelines PNAP APP-152 (January 2016), the minimum site coverage of greenery for Primary Zone is 10% and for overall is 20%, within the proposed development boundary. The proposed development can achieve the SBD guidelines on greenery requirement. Also, the proposed development design can achieve the provision of local open space of 1 sqm per person under Chapter 4 of the Hong Kong Planning Standards and Guidelines (October 2015).

7.2.3 Should the proposed zoning amendment be approved, detailed design will be carried out and the above landscape design concept would be subject to change according to the design development at General Building Plan stage and other refinements, subject to liaison with relevant government departments.

7.3 Hardscape and Softscape Proposals

7.3.1 Hard landscape elements will be designed and/or selected using the following general criteria: -

- Using Durable and long-lasting materials and finishes;
- Considering reasonable cost and maintenance requirement – materials shall be easily maintained and managed; and
- Ensuring visual compatibility to blend in with the proposed development and the surroundings.

7.3.2 The soft landscape elements will be selected using the following general criteria: -

- Fast growing: able to provide the desired landscape design intent within short period of time;
- Use of native species where possible to enhance local biodiversity;
- Seasonal interest: providing seasonal variety or special seasonal flowers or foliage colour;
- Non-toxic: relatively safe and non-poisonous materials;
- The minimum distance of 1500 mm between the kerb and the tree pit is proposed. The proposed tree shall not be planted too close to the road kerb of motor carriageways to avoid causing potential hazards to vehicles and blocking of drivers' sight-lines due to overhanging tree branches intruding into the carriageways;
- Appropriate spacing for tree planting according to the different tree species and mature size is required; and
- Adequate soil depth shall be allowed for tree/ shrub/ groundcover planting. A minimum 1200 mm, 600 mm and 300 mm depth of planting soil (excluding drainage layer) in the form of raised or sunken planters shall be allowed for trees, shrubs and groundcovers respectively.

8. CONCLUSION

8.1.1 The proposed development will improve the connectivity between hinterland of To Kwa Wan and the waterfront and provide new harbourfront at-grade communal space with greenery for public enjoyment.

8.1.2 A total 20 nos. of existing trees are found within the site boundary, which will be potentially affected by the proposed development. Out of these, 19 nos. of trees are proposed to be removed (including 6 nos. undesirable species), and 1 no. of trees is proposed to be transplanted. Adequate space for tree planting has been proposed under the preliminary design concept for tree compensation in the Project Site, focusing on the public open space at the southern portion of the Project. A total of 13 nos. of new trees (excluding undesirable species) are proposed to be compensated within the site, with a compensatory ratio of 1:1.

8.1.3 With the above design objectives and proposal, it is anticipated that the proposed development could enhance the landscape environment of the proposed development and the surrounding context.

Appendix I – Layout Plan, Notional Block Plan of the Proposed Development

LOCATION PLAN OF PROPOSED DEVELOPMENT





(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

市區重建局 URBAN RENEWAL AUTHORITY	**URA Bailey Street / Chi Kiang Street Project**	**Figure 1**	**Block Plan**	Not to scale June 2025

Appendix II – Tree Survey Plan

ISO A1 594 mm x 841mm

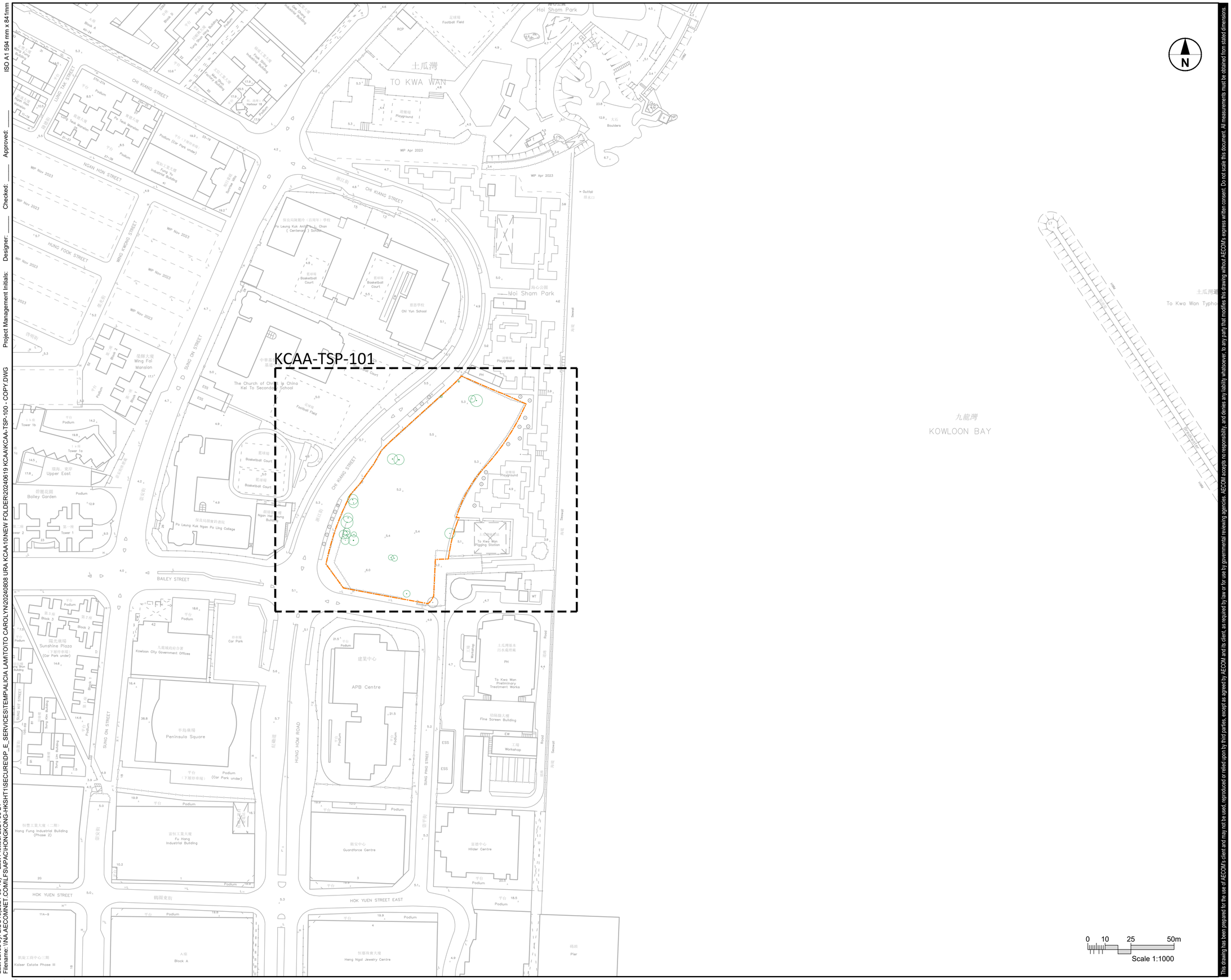
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Checked: _____

Designer: _____

Project Management Initials: _____

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PROJECT
項目

TERM LANDSCAPE ARCHITECTURAL CONSULTANCY SERVICES SERVICE ORDER NO.04 FOR A PROPOSED DEVELOPMENT IN KOWLOON CITY DISTRICT (PROPOSED RESIDENTIAL DEVELOPMENT AT BAILEY STREET)

CLIENT
業主

市區重建局
URBAN RENEWAL AUTHORITY

CONSULTANT
工程顧問公司

AECOM ASIA COMPANY LTD
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LEGEND:

- SITE BOUNDARY
- EXISTING TREE
- TREE OUTSIDE SITE BOUNDARY

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK 核核
A	23/08/2024	TREE SRUVEY REPORT	EW
-	08/02/2024	TREE SRUVEY REPORT	EW

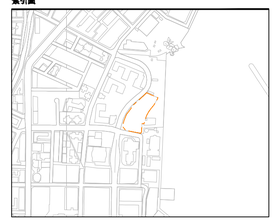
STATUS
階段

-

SCALE 比例 -

DIMENSION UNIT 尺寸單位 -

KEY PLAN
索引圖



PROJECT NO. 項目編號 -

CONTRACT NO. 合約編號 -

SHEET TITLE
圖紙名稱

TREE SURVEY LOCATION PLAN

SHEET NUMBER 圖紙編號 KCAA-TSP-100

REV 修訂 A

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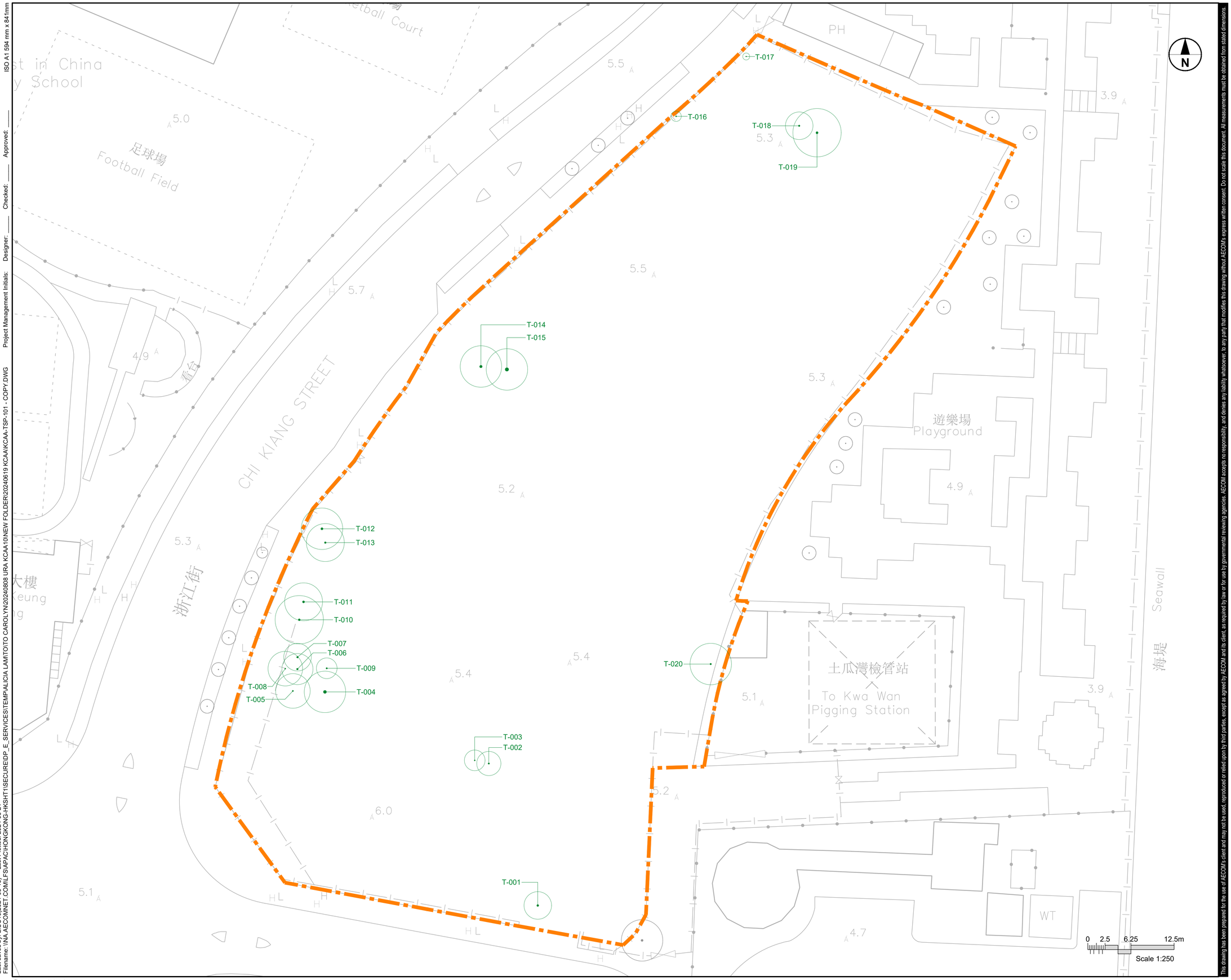
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Project Management Initials:

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PROJECT
項目

TERM LANDSCAPE ARCHITECTURAL CONSULTANCY SERVICES SERVICE ORDER NO.04 FOR A PROPOSED DEVELOPMENT IN KOWLOON CITY DISTRICT (PROPOSED RESIDENTIAL DEVELOPMENT AT BAILEY STREET)

CLIENT
業主

市區重建局
URBAN RENEWAL AUTHORITY

CONSULTANT
工程顧問公司

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LEGEND:

- SITE BOUNDARY
- T-001 EXISTING TREE
- TREE OUTSIDE SITE BOUNDARY

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK 核狀
A	23/08/2024	TREE SRUVEY REPORT	EW
-	08/02/2024	TREE SRUVEY REPORT	EW

STATUS
階段

-

SCALE 比例 -

DIMENSION UNIT 尺寸單位 -

KEY PLAN
索引圖



PROJECT NO. 項目編號 -

CONTRACT NO. 合約編號 -

SHEET TITLE
圖紙名稱

TREE SURVEY PLAN

SHEET NUMBER 圖紙編號 KCAA-TSP-101

REV 修訂 A

Appendix III – Tree Treatment Plan

ISO A1 594 mm x 841mm

Project Management Initials: ____ Designer: ____ Checked: ____ Approved: ____

SITE A

SITE B

T-000(T) EXISTING TREE TO BE TRANSPLANTED

T-001(F) EXISTING TREE TO BE REMOVED

T-002(F)
T-003(F)
T-004(F)
T-005(F)
T-006(F)
T-007(F)
T-008(F)
T-009(F)
T-010(F)
T-011(F)
T-012(F)
T-013(F)
T-014(F)
T-015(T)
T-016(F)
T-017(F)
T-018(F)
T-019(F)
T-020(F)

0 2.5 6.25 12.5m
Scale 1:250

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PROJECT
項目

TERM LANDSCAPE ARCHITECTURAL CONSULTANCY SERVICES SERVICE ORDER NO.04 FOR A PROPOSED DEVELOPMENT IN KOWLOON CITY DISTRICT (PROPOSED RESIDENTIAL DEVELOPMENT AT BAILEY STREET)

CLIENT
業主

URBAN RENEWAL AUTHORITY 市區重建局

CONSULTANT
工程顧問公司

AECOM ASIA COMPANY LTD
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LEGEND:

- SURVEY EXTENT - TREE SURVEY
- T-000(T) EXISTING TREE TO BE TRANSPLANTED
- T-001(F) EXISTING TREE TO BE REMOVED
- TREE OUTSIDE SITE BOUNDARY
- PROPOSED LAYOUT
- EXISTING LAYOUT
- +13.9 EXISTING LEVEL

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK 核狀
D	05/06/2025	TREE SURVEY REPORT	EW
C	23/08/2024	TREE SURVEY REPORT	EW
B	19/06/20254	TREE SURVEY REPORT	EW
A	13/06/2024	TREE SURVET REPORT	EW
-	08/02/2024	TREE SURVEY REPORT	EW

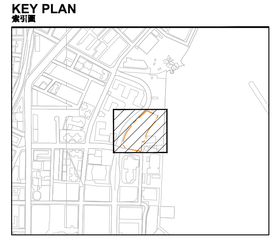
STATUS
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SCALE 比例 -

DIMENSION UNIT 尺寸單位 -

KEY PLAN
索引圖



PROJECT NO. 項目編號 -

CONTRACT NO. 合約編號 -

SHEET TITLE
圖紙名稱

TREE TREATMENT PLAN

SHEET NUMBER 圖紙編號 KCAA-TTP-101

REV 修訂 D

Appendix IV – Tree Treatment Schedule

Tree Assessment Schedule

Address: Junction of Bailey Street and Sung Ping Street, Hung Hom, Kowloon (STT KX3105)
Prepared by: Alicia Lam (HK-1956A)
Field Survey was conducted on 31 Jan 2024
To be read in conjunction with drawing nos. KCAA-TSP-100-101 and KCAA-TTP-101

Tree ID No.	Species		Original Location (Lot/ GA/ YA/ GHBA)	Measurements			Amenity Values	Form	Health Condition	Structural Condition	Suitability for Transplanting		Conservation Status	Recommendation (Retain/ Transplant/ Remove)	Maintenance department to provide comments on TPRP		Additional Remarks
	Scientific Name	Chinese Name		Height (m)	DBH (mm)	Crown Spread (m)	(High(H)/ Medium(M) /Low(L)	Good(G)/ Average(A)/ Poor(P)			(High(H)/ Medium(M) /Low(L)	Remarks			Before	After	
T-001	*Macaranga tanarius var. tomentosa*	血桐	Within Lot	4.5	268	4	M	P	A	A	L	b,f,h	Nil	Remove	LandsD	-	Broken trunk, Epicormics, Pruning wounds, Cavity at trunk base, Restricted root
T-002	*Macaranga tanarius var. tomentosa*	血桐	Within Lot	5.5	194	3.5	M	P	A	A	L	b,f,h	Nil	Remove	LandsD	-	Broken branches, Epicormics, Grow close to T-003
T-003	*Macaranga tanarius var. tomentosa*	血桐	Within Lot	5	143	3	M	P	A	A	L	b,f,h	Nil	Remove	LandsD	-	Trunk wound, Vines, Grow close to T-002
T-004	*Ficus virens*	大葉榕	Within Lot	5	424	6	M	P	A	A	L	b,c,f	Nil	Remove	LandsD	-	Multi-trunks. Crooked trunk, Pruning wounds, Trunk wounds
T-005	*Leucaena leucocephala*	銀合歡	Within Lot	7	162	5	M	P	A	A	L	b,f,g	Nil	Remove	LandsD	-	Broken trunk, Exposed roots
T-006	*Leucaena leucocephala*	銀合歡	Within Lot	7.5	224	4.5	M	P	A	A	L	b,f,g	Nil	Remove	LandsD	-	Multi-trunks, Trunk wounds at trunk union and trunk base
T-007	*Leucaena leucocephala*	銀合歡	Within Lot	7.5	230	4	M	P	A	P	L	b,f,g	Nil	Remove	LandsD	-	Leaning with self-correction
T-008	*Leucaena leucocephala*	銀合歡	Within Lot	7.5	135	5	M	P	A	P	L	b,f,g	Nil	Remove	LandsD	-	Leaning, Bending, Trunk wound
T-009	*Macaranga tanarius var. tomentosa*	血桐	Within Lot	5	191	3	M	P	A	A	L	b,f,g	Nil	Remove	LandsD	-	Leaning, Broken trunk
T-010	*Leucaena leucocephala*	銀合歡	Within Lot	8.5	270	7	M	P	A	A	L	b,f,g	Nil	Remove	LandsD	-	Co-dominant trunks, Pruning wounds, Abnormal bulge at trunk base
T-011	*Celtis sinensis*	朴樹	Within Lot	8	289	5.5	M	P	A	A	L	b,f,h	Nil	Remove	LandsD	-	Co-dominant trunks, Grow near rock
T-012	*Leucaena leucocephala*	銀合歡	Within Lot	9.5	303	6	M	P	A	A	L	b,f,g	Nil	Remove	LandsD	-	Multi-trunks
T-013	*Celtis sinensis*	朴樹	Within Lot	7.5	233	5.5	M	P	A	A	L	b,f,h	Nil	Remove	LandsD	-	Multi-trunks, 1 topped trunk
T-014	*Celtis sinensis*	朴樹	Within Lot	7	355	6	M	P	A	P	L	b,f	Nil	Remove	LandsD	-	Multi-trunks, Trunk wounds, Leaning with crooked trunk
T-015	*Bombax ceiba*	木棉	Within Lot	9	490	6	M	A	A	A	M	-	Nil	Transplant	LandsD	LandsD	-
T-016	*Bombax ceiba*	木棉	Within Lot	3	137	1.5	M	P	P	A	L	b,f	Nil	Remove	LandsD	-	Topped trunk, Restricted root
T-017	*Bombax ceiba*	木棉	Within Lot	2.5	100	1	M	P	P	A	L	b,f	Nil	Remove	LandsD	-	Multi-trunks, Restricted root
T-018	*Ficus virens*	大葉榕	Within Lot	6	210	4	M	P	A	P	L	b,f,h	Nil	Remove	LandsD	-	Crooked trunk, Pruning wounds, Grow close to T-019
T-019	*Bombax ceiba*	木棉	Within Lot	8.5	306	7	M	P	A	A	L	b,f,h	Nil	Remove	LandsD	-	Grow close to T-018
T-020	*Macaranga tanarius var. tomentosa*	血桐	Within Lot	4	204	6	M	P	A	A	L	b,f	Nil	Remove	LandsD	-	Multi-trunks, Restricted root

	Trees Proposed to be Removed (19 Nos.)
	Trees Proposed to be Transplanted (1 No.)

Remarks for Suitability for Transplanting

(a) Low amenity value;
(b) Irrecoverable form after transplanting (e.g. transplanting requires substantial crown and root pruning);
(c) Low chance of survival upon transplanting;
(d) Very large size (unless the feasibility to transplant has been considered financially reasonable and technically feasible during the feasibility stage);
(e) With evidence of over-maturity and onset of senescence;
(f) With poor health, structure or form (e.g. imbalanced form, leaning, with major cavity/cracks/splits);
(g) Undesirable species (e.g. *Leucaena leucocephala* which is an invasive exotic and self-seeding tree); or
(h) Trees grown under poor conditions which have limited the formation of proper root ball necessary for transplanting (e.g. on steep slope).

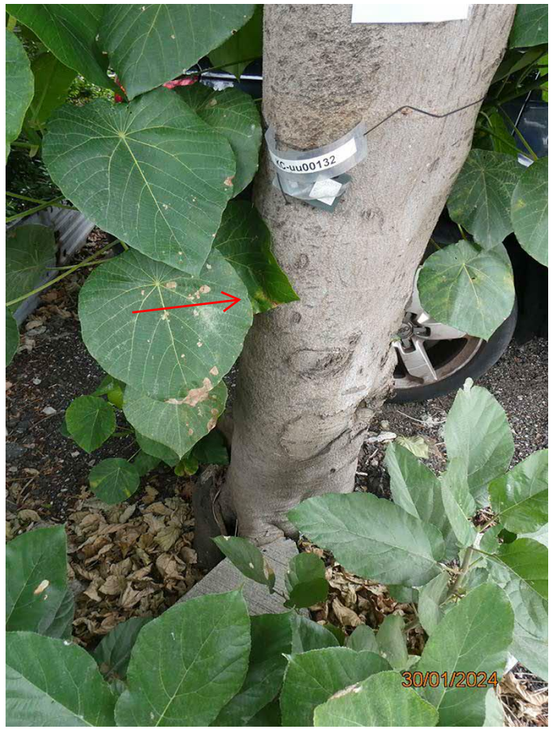
Appendix V – Tree Photographic Record



T-001_Macaranga tanarius var. tomentosa_1_Overview



T-001_Macaranga tanarius var. tomentosa_2_Crown



T-001_Macaranga tanarius var. tomentosa_3_Trunk



T-001_Macaranga tanarius var. tomentosa_4_Base



T-001_Macaranga tanarius var. tomentosa_5_Broken Trunk & Epicormics



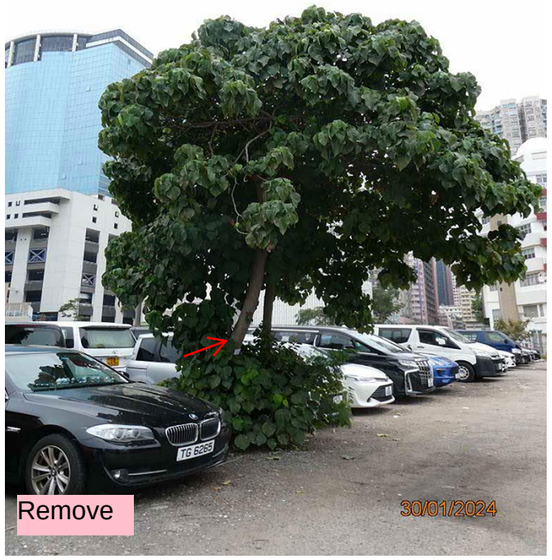
T-001_Macaranga tanarius var. tomentosa_6_Pruning wounds



T-001_Macaranga tanarius var. tomentosa_7_Cavity at trunk base



T-001_Macaranga tanarius var. tomentosa_8_Restricted root



T-002_Macaranga tanarius var. tomentosa_1_Overview



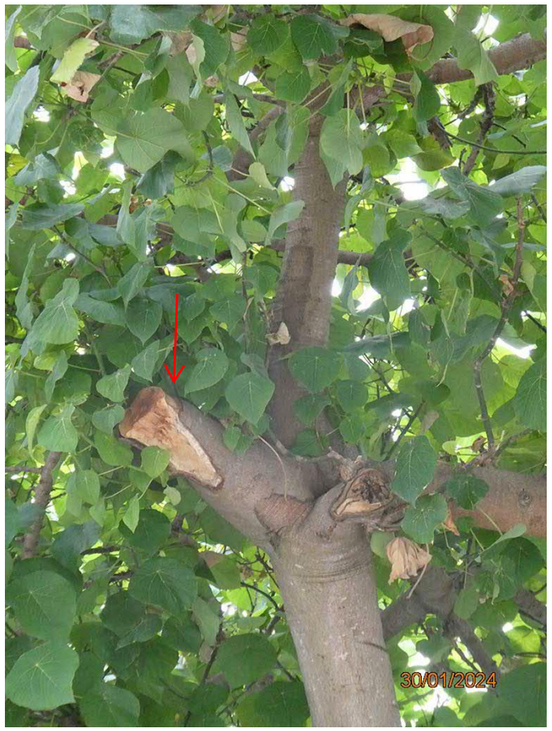
T-002_Macaranga tanarius var. tomentosa_2_Crown



T-002_Macaranga tanarius var. tomentosa_3_Trunk



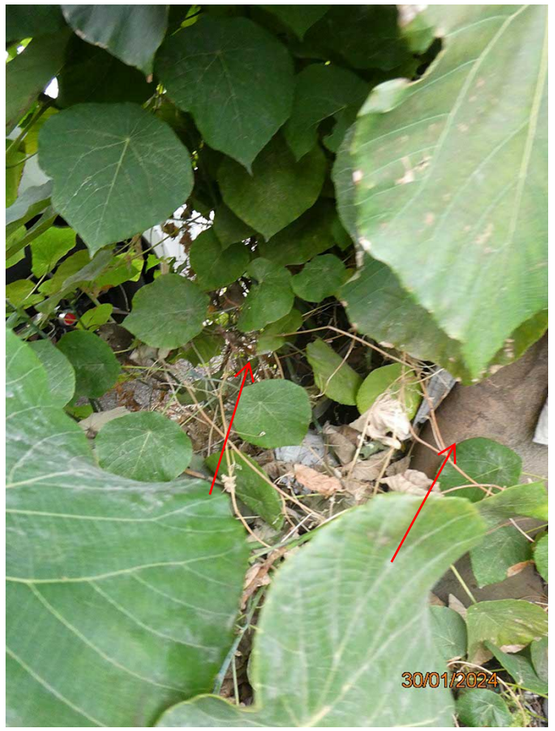
T-002_Macaranga tanarius var. tomentosa_4_Base



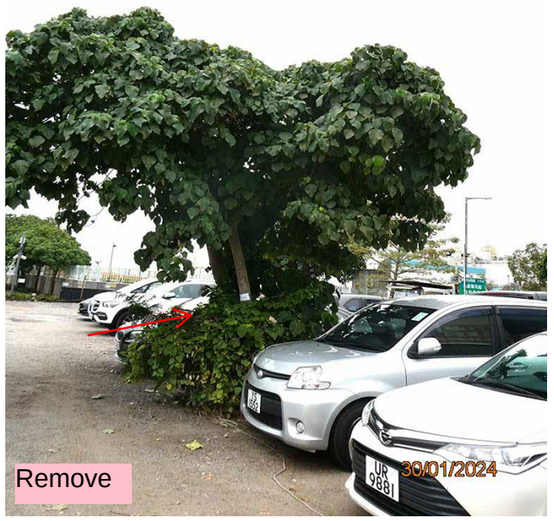
T-002_Macaranga tanarius var. tomentosa_5_Broken branches



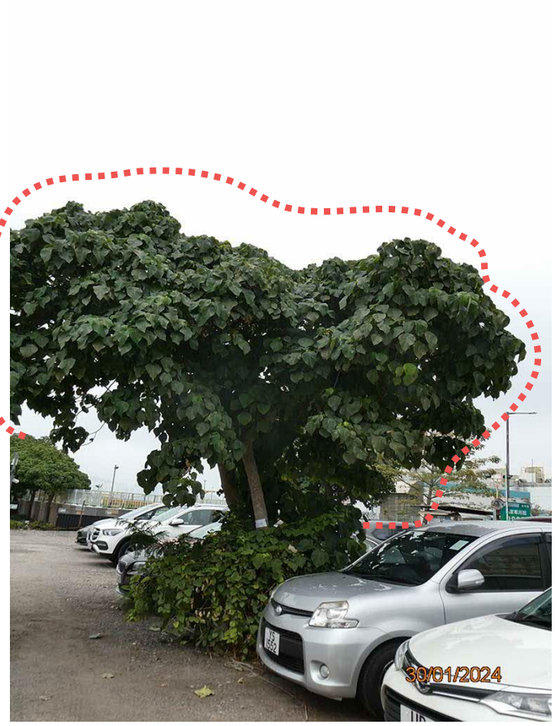
T-002_Macaranga tanarius var. tomentosa_6_Epicormics



T-002_Macaranga tanarius var. tomentosa_7_Grow close to T-003



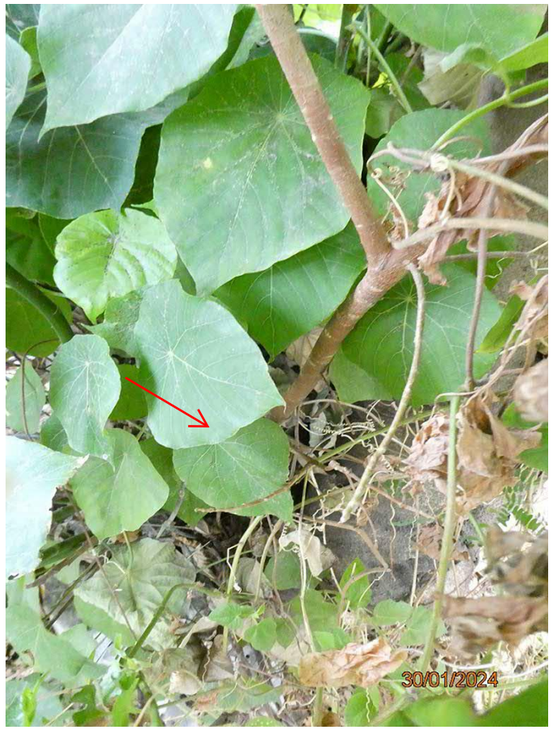
T-003_Macaranga tanarius var. tomentosa_1_Overview



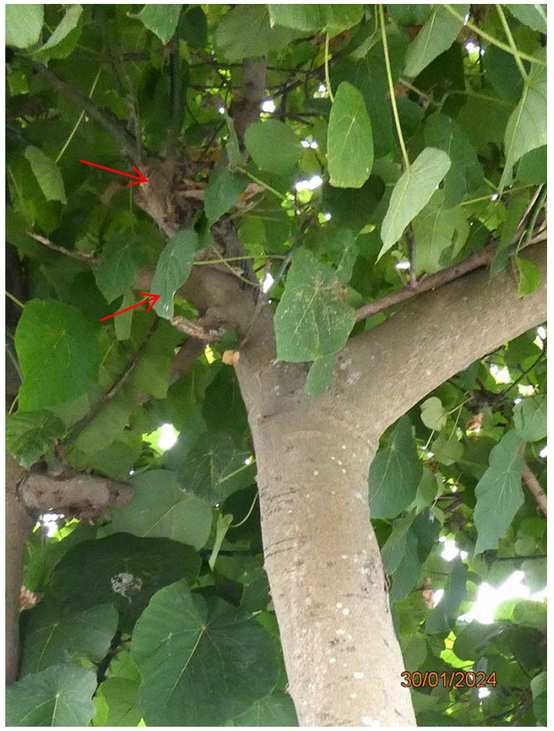
T-003_Macaranga tanarius var. tomentosa_2_Crown



T-003_Macaranga tanarius var. tomentosa_3_Trunk



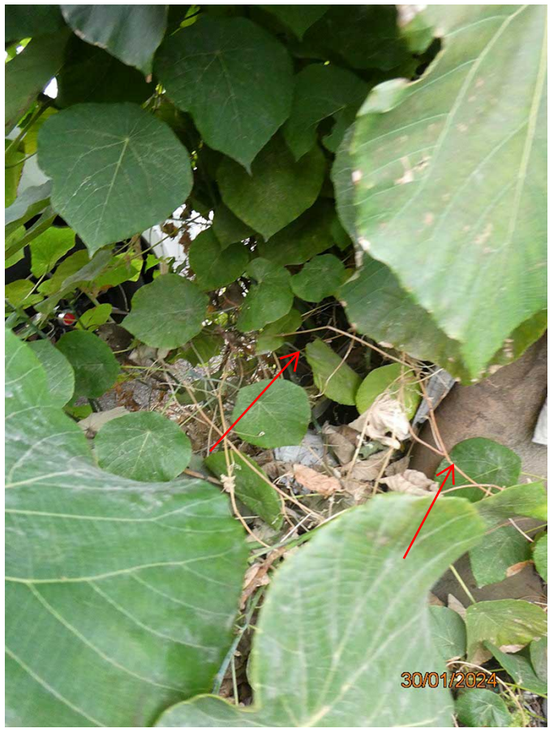
T-003_Macaranga tanarius var. tomentosa_4_Base



T-003_Macaranga tanarius var. tomentosa_5_Trunk wound



T-003_Macaranga tanarius var. tomentosa_6_Vines



T-003_Macaranga tanarius var. tomentosa_7_Grow close to T-002



T-004_Ficus virens_1_Overall



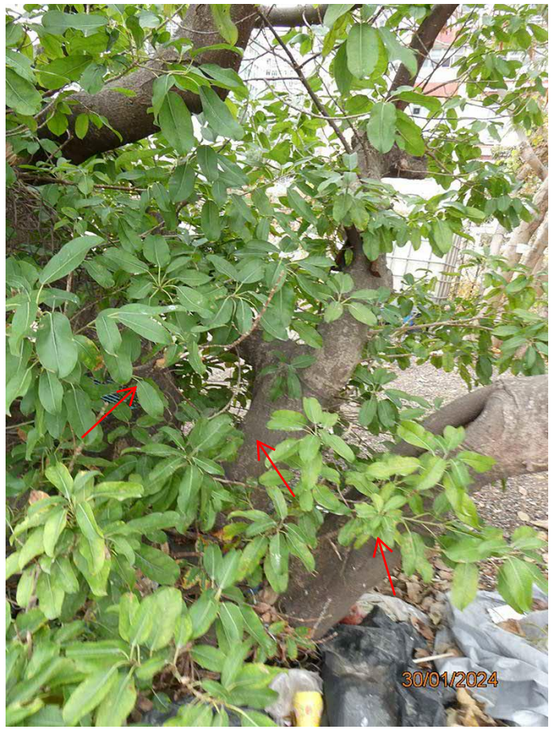
T-004_Ficus virens_2_Crown



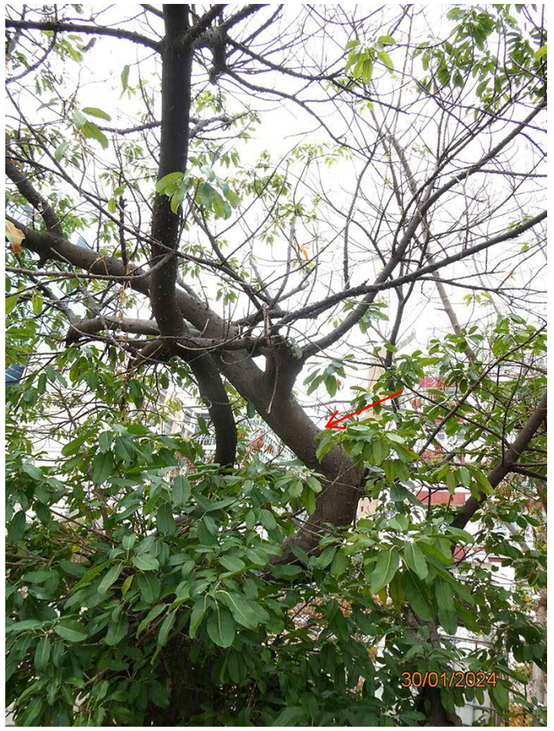
T-004_Ficus virens_3_Trunk



T-004_Ficus virens_4_Base



T-004_Ficus virens_5_Multi-trunks



T-004_Ficus virens_6_Crooked trunk



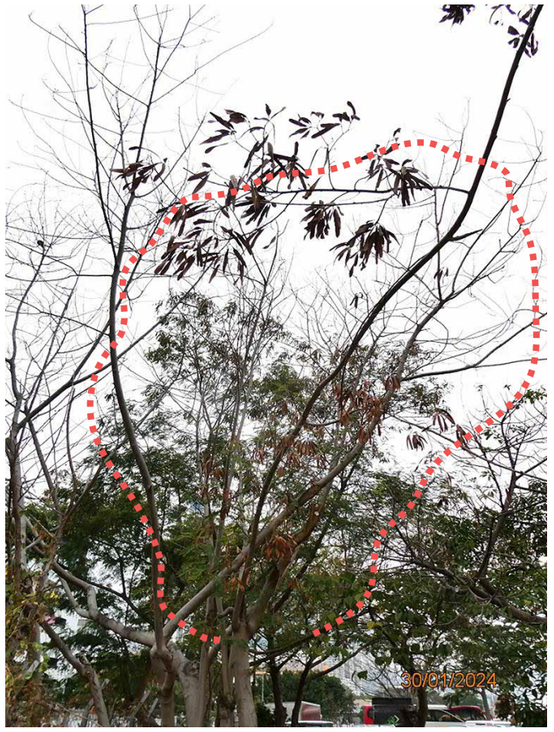
T-004_Ficus virens_7_Pruning wounds



T-004_Ficus virens_8_Trunk wound



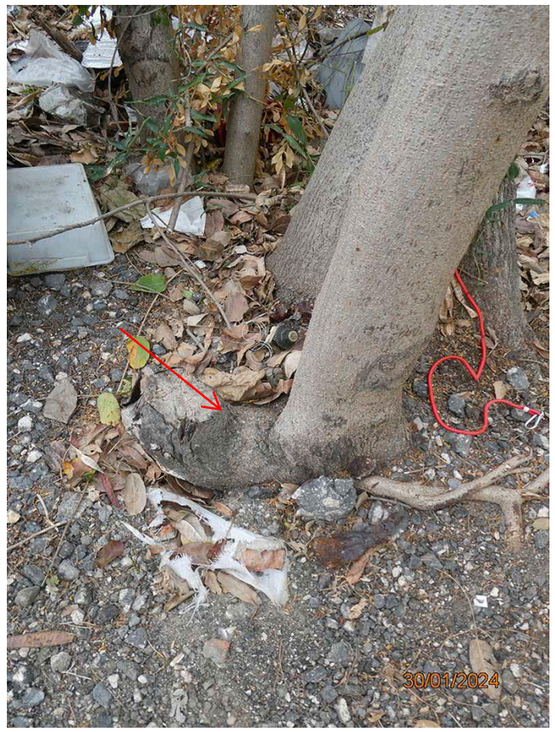
T-005_Leucaena leucocephala_1_Overall



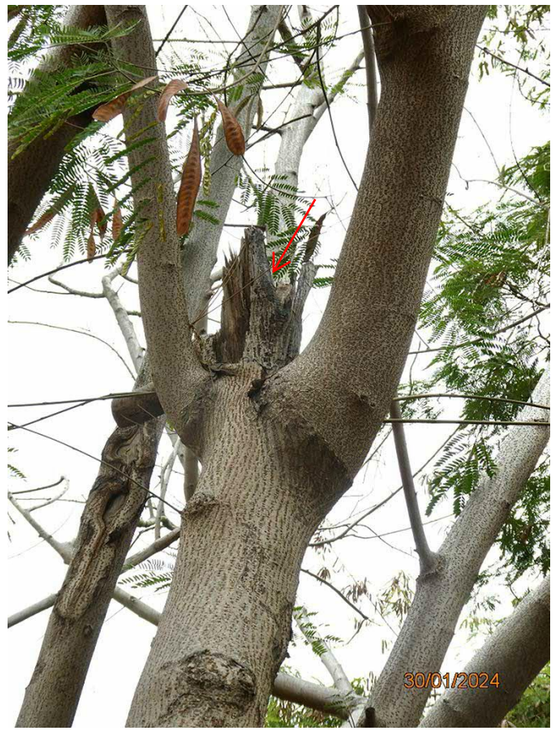
T-005_Leucaena leucocephala_2_Crown



T-005_Leucaena leucocephala_3_Trunk



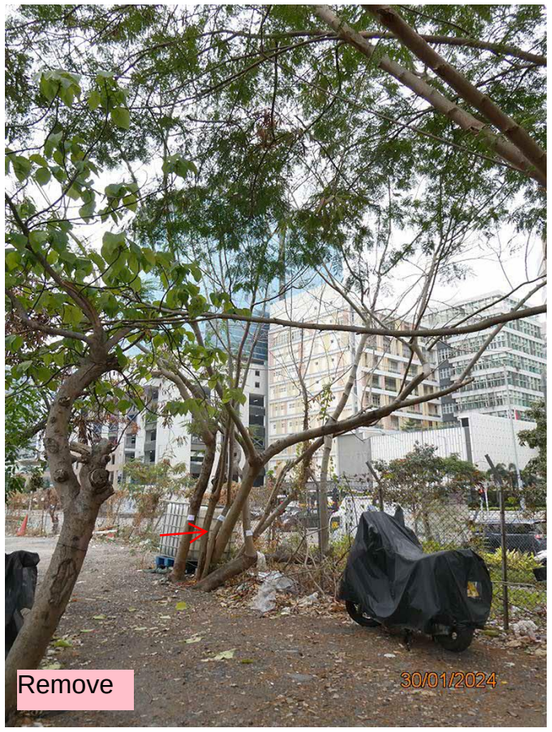
T-005_Leucaena leucocephala_4_Base



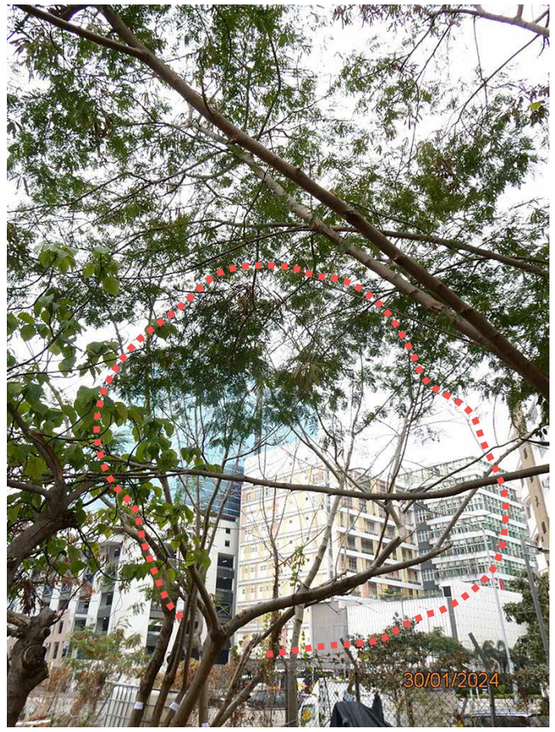
T-005_Leucaena leucocephala_5_Broken trunk



T-005_Leucaena leucocephala_6_Exposed roots



T-006_Leucaena leucocephala_1_Overall



T-006_Leucaena leucocephala_2_Crown



T-006_Leucaena leucocephala_3_Trunk



T-006_Leucaena leucocephala_4_Base



T-006_Leucaena leucocephala_5_Multi-trunks



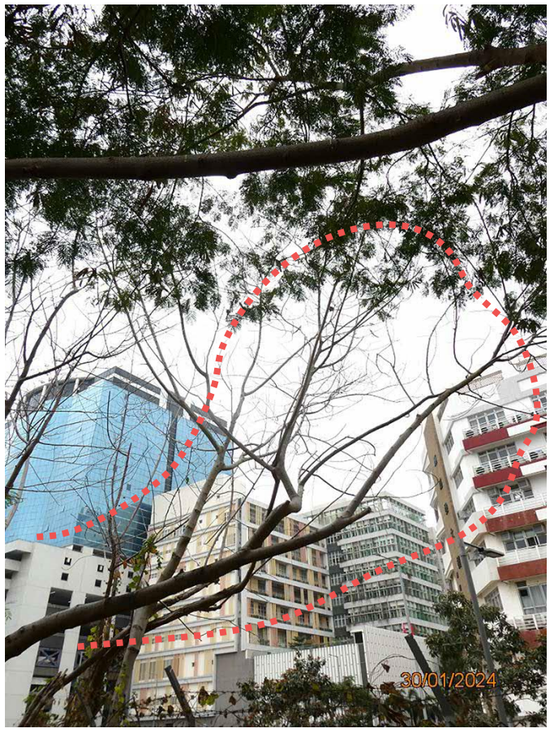
T-006_Leucaena leucocephala_6_Trunk wound at trunk union



T-006_Leucaena leucocephala_7_Wound at trunk base



T-007_Leucaena leucocephala_1_Overall



T-007_Leucaena leucocephala_2_Crown



T-007_Leucaena leucocephala_3_Trunk



T-007_Leucaena leucocephala_4_Base



T-007_Leucaena leucocephala_5_Leaning with self-correction



T-008_Leucaena leucocephala_1_Overall



T-008_Leucaena leucocephala_2_Crown



T-008_Leucaena leucocephala_3_Trunk



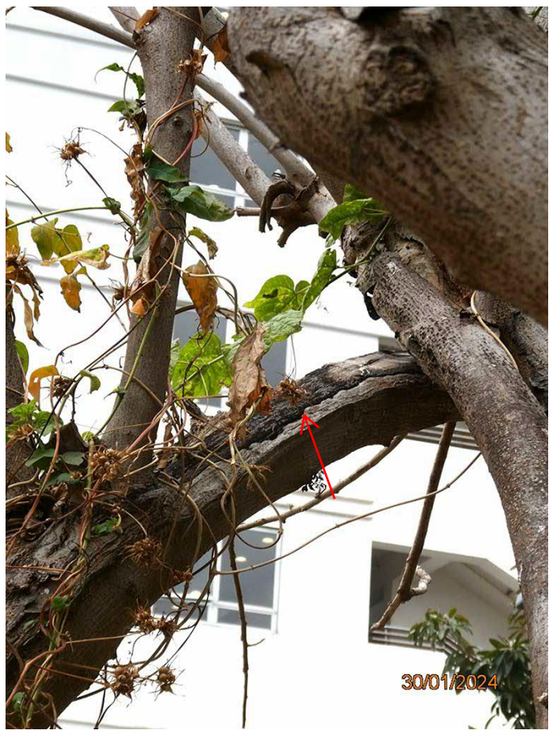
T-008_Leucaena leucocephala_4_Base



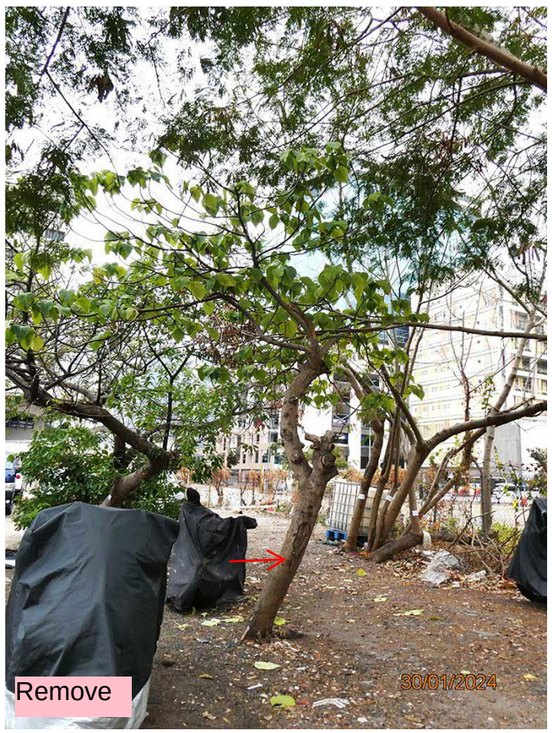
T-008_Leucaena leucocephala_5_Leaning



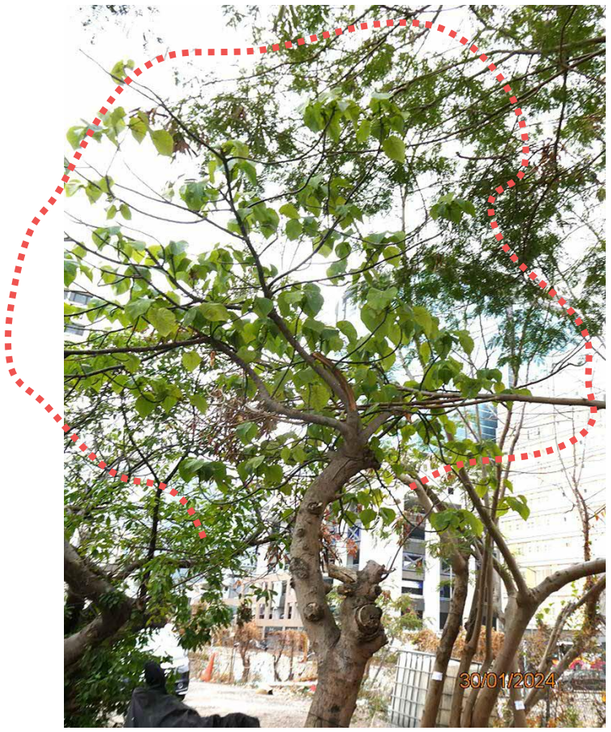
T-008_Leucaena leucocephala_6_Bending



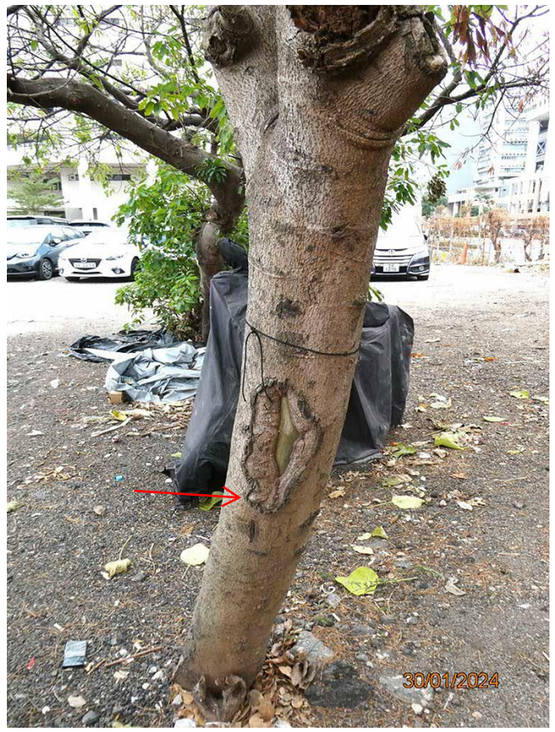
T-008_Leucaena leucocephala_7_Trunk wound



T-009_Macaranga tanarius var. tomentosa_1_Overview



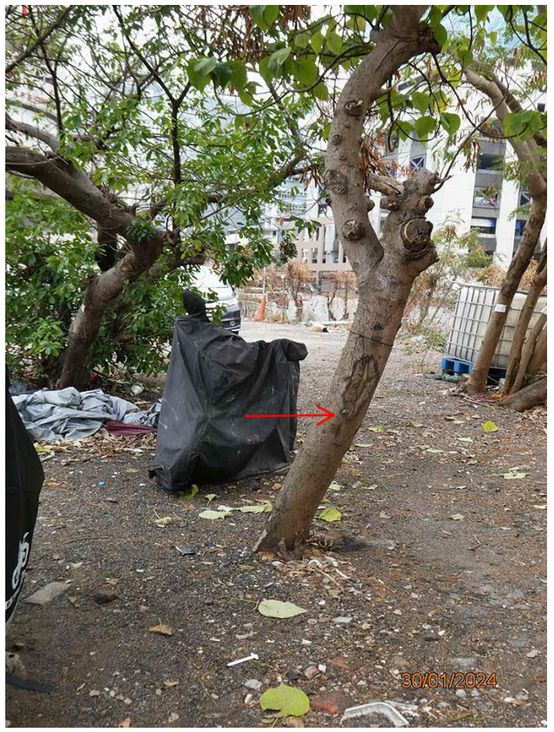
T-009_Macaranga tanarius var. tomentosa_2_Crown



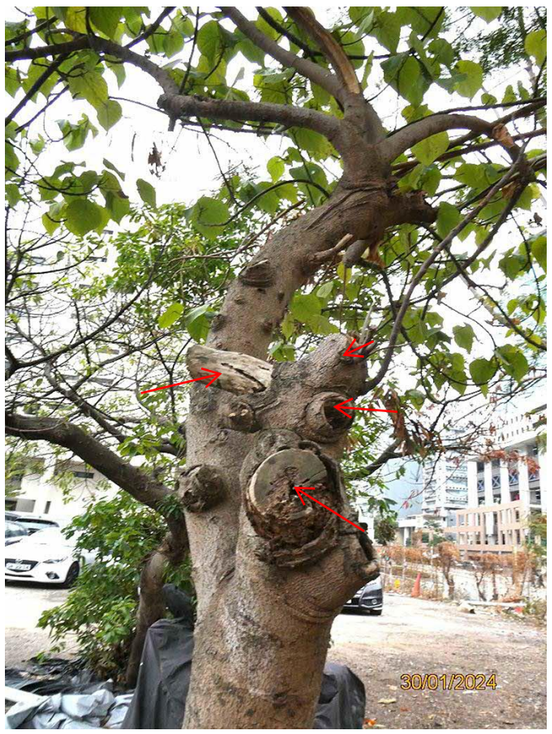
T-009_Macaranga tanarius var. tomentosa_3_Trunk



T-009_Macaranga tanarius var. tomentosa_4_Base



T-009_Macaranga tanarius var. tomentosa_5_Leaning



T-009_Macaranga tanarius var. tomentosa_6_Broken Trunk



T-010_Macaranga tanarius var. tomentosa_1_Overview



T-010_Macaranga tanarius var. tomentosa_2_Crown



T-010_Macaranga tanarius var. tomentosa_3_Trunk



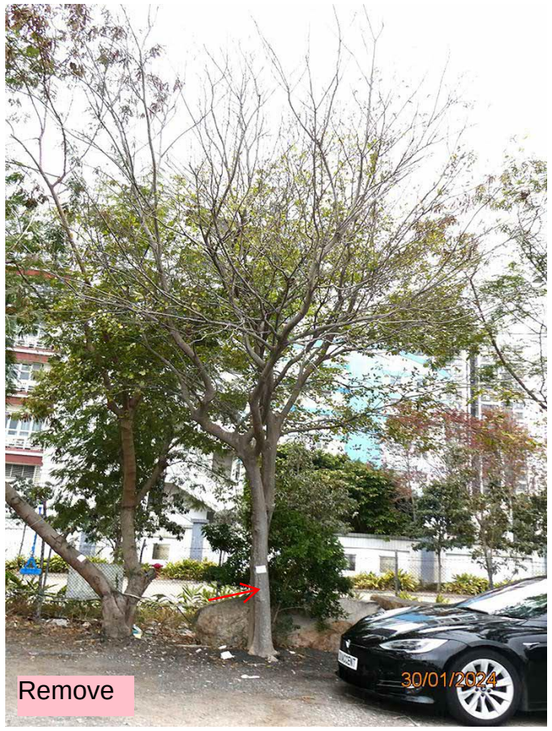
T-010_Macaranga tanarius var. tomentosa_4_Base



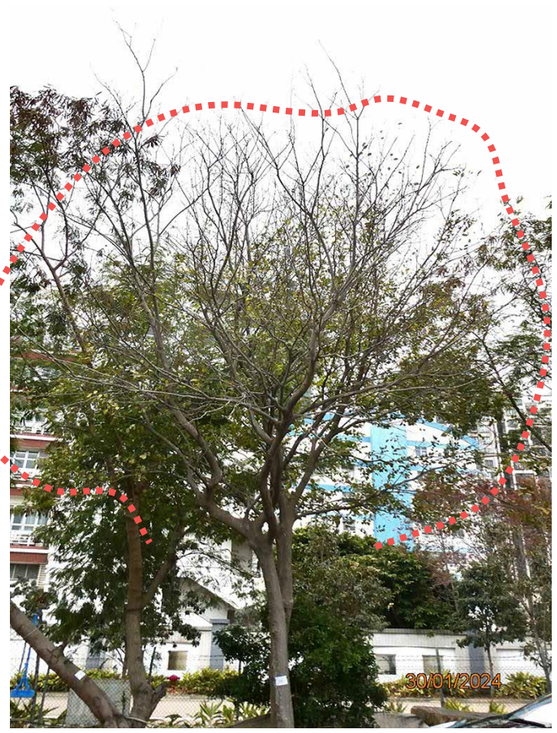
T-010_Macaranga tanarius var. tomentosa_5_Co-dominant trunk & abnormal bu...



T-010_Macaranga tanarius var. tomentosa_6_Pruning wounds



T-011_Celtis sinensis_1_Overview



T-011_Celtis sinensis_2_Crown



T-011_Celtis sinensis_3_Trunk



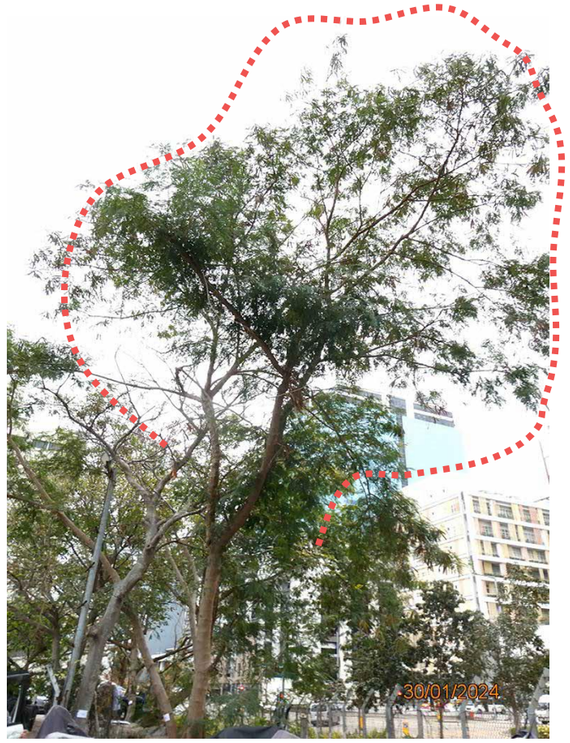
T-011_Celtis sinensis_4_Base



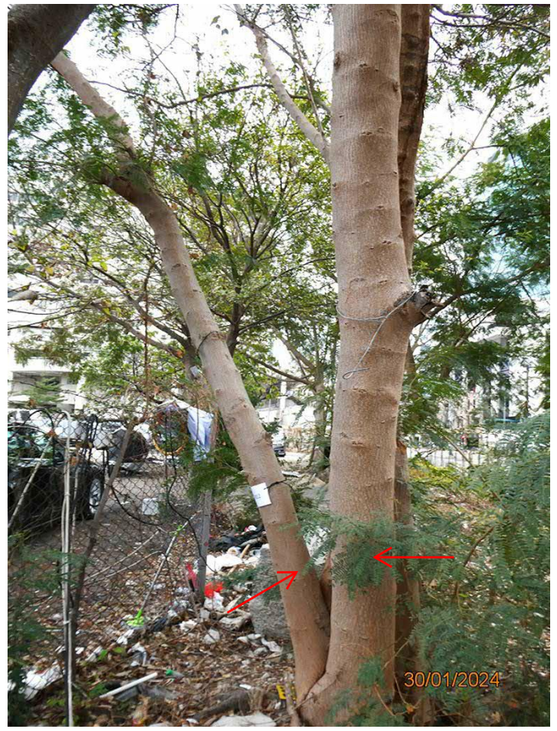
T-011_Celtis sinensis_5_Co-dominant trunks & Grow near rock



T-012_Leucaena leucocephala_1_Overall



T-012_Leucaena leucocephala_2_Crown



T-012_Leucaena leucocephala_3_Trunk



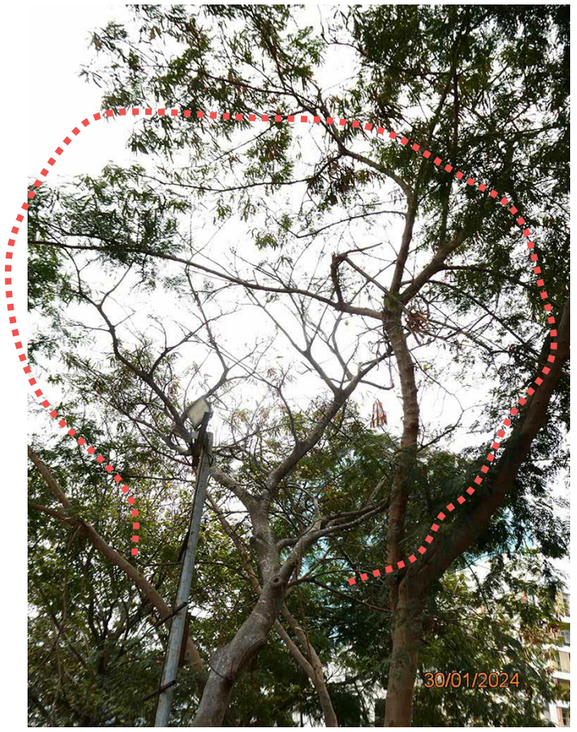
T-012_Leucaena leucocephala_4_Base



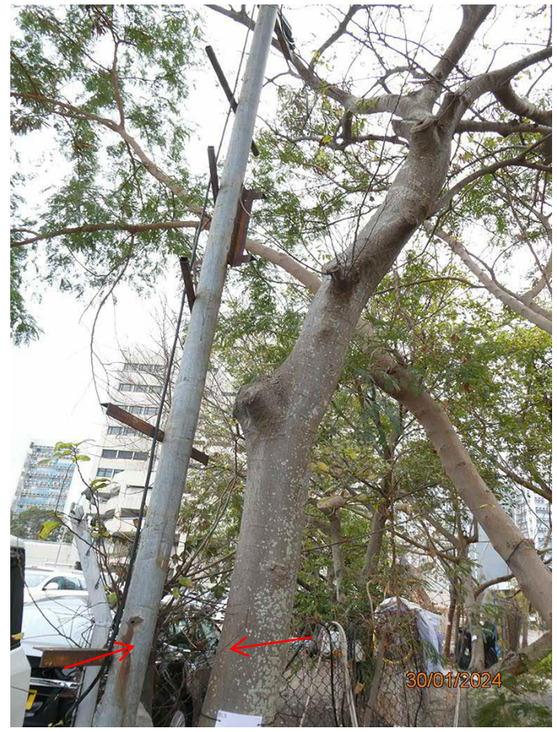
T-012_Leucaena leucocephala_5_Multi-trunks



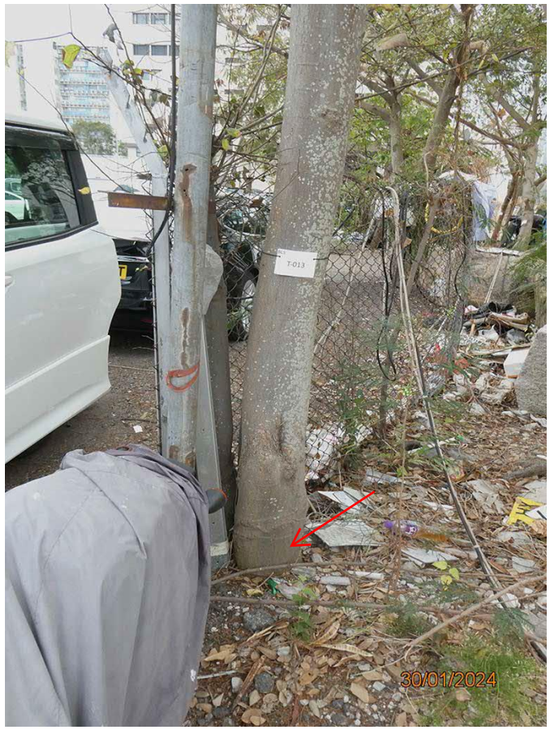
T-013_Celtis sinensis_1_Overall



T-013_Celtis sinensis_2_Crown



T-013_Celtis sinensis_3_Trunk



T-013_Celtis sinensis_4_Base



T-013_Celtis sinensis_5_Multi-trunk & 1 topped trunk



T-013_Celtis sinensis_6_Restricted roots



T-014_Celtis sinensis_1_Overall



T-014_Celtis sinensis_2_Crown



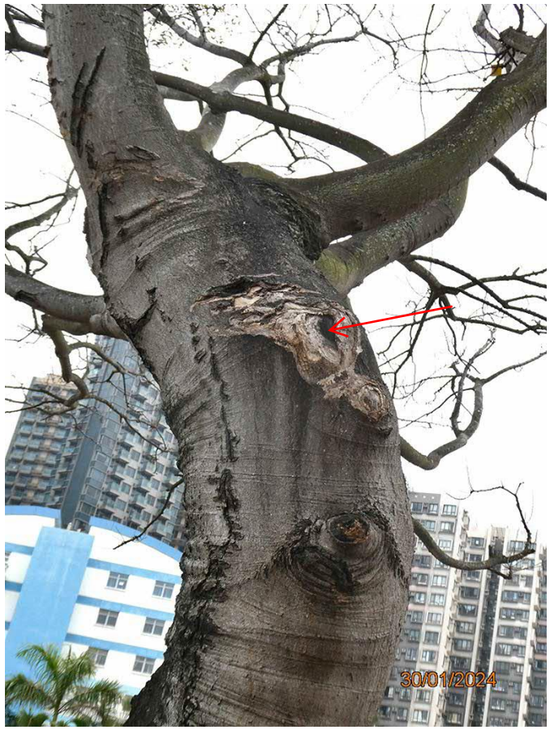
T-014_Celtis sinensis_3_Trunk



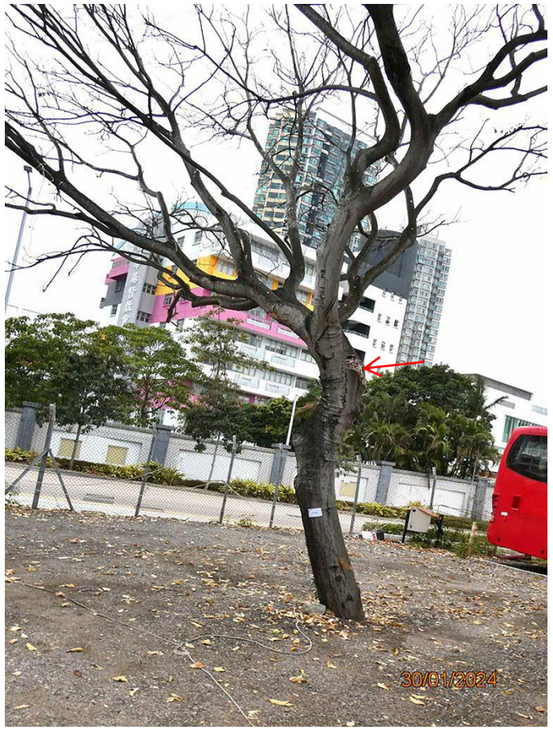
T-014_Celtis sinensis_4_Base



T-014_Celtis sinensis_5_Multi-trunks



T-014_Celtis sinensis_6_Trunk wound



T-014_Celtis sinensis_7_Leaning with crooked trunk



T-015_Bombax ceiba_1_Overall



T-015_Bombax ceiba_2_Crown



T-015_Bombax ceiba_3_Trunk



T-015_Bombax ceiba_4_Base



T-016_Bombax ceiba_1_Overall



T-016_Bombax ceiba_2_Crown



T-016_Bombax ceiba_3_Trunk



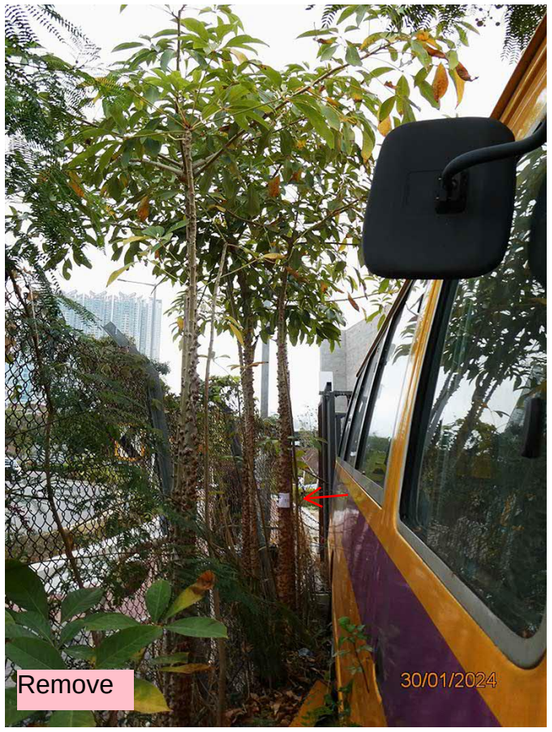
T-016_Bombax ceiba_4_Base



T-016_Bombax ceiba_5_Topped trunk



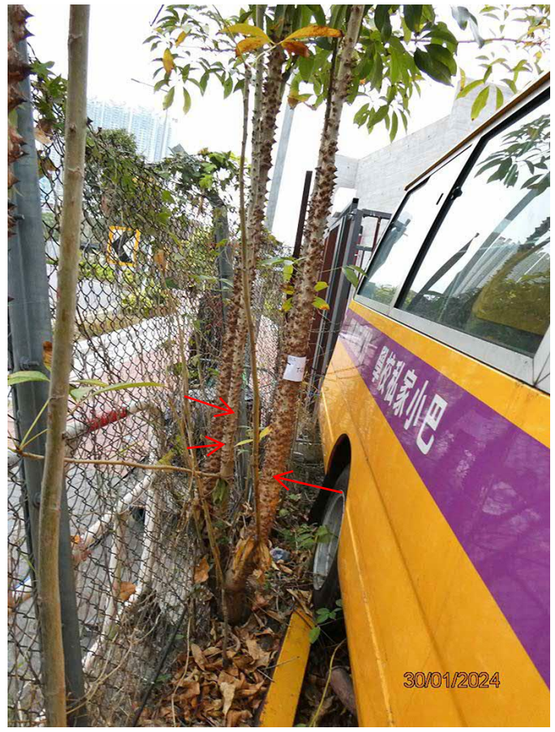
T-016_Bombax ceiba_6_Restricted root



T-017_Bombax ceiba_1_Overall



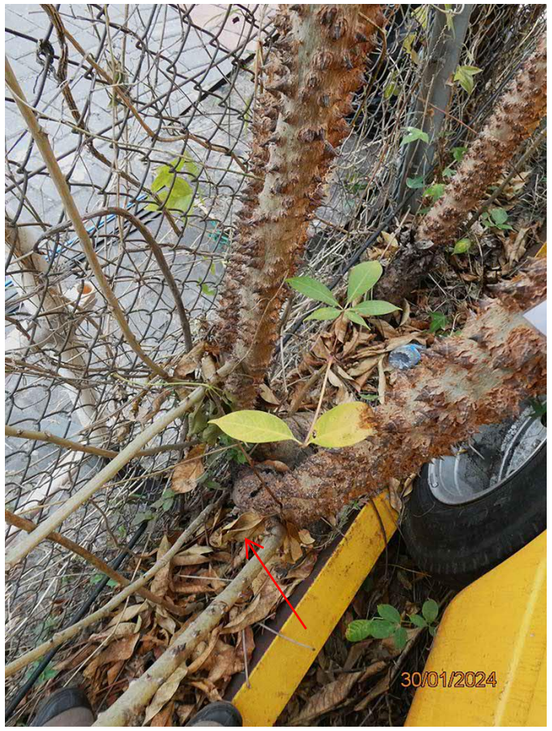
T-017_Bombax ceiba_2_Crown



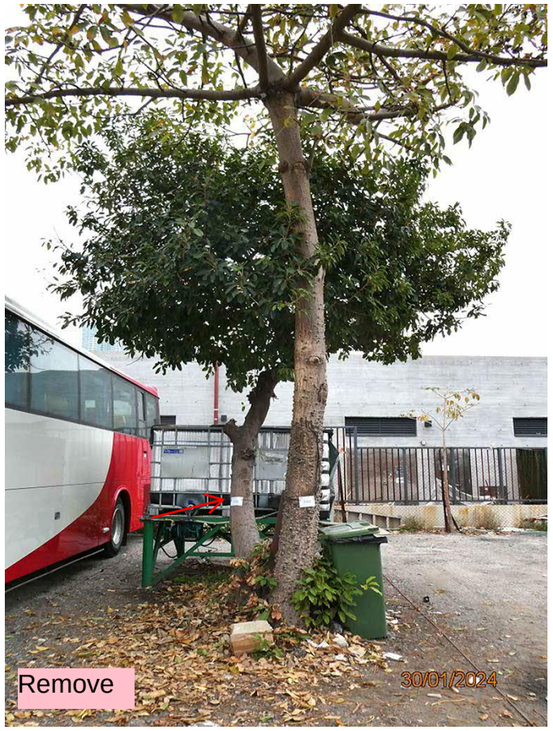
T-017_Bombax ceiba_3_Trunk



T-017_Bombax ceiba_4_Base



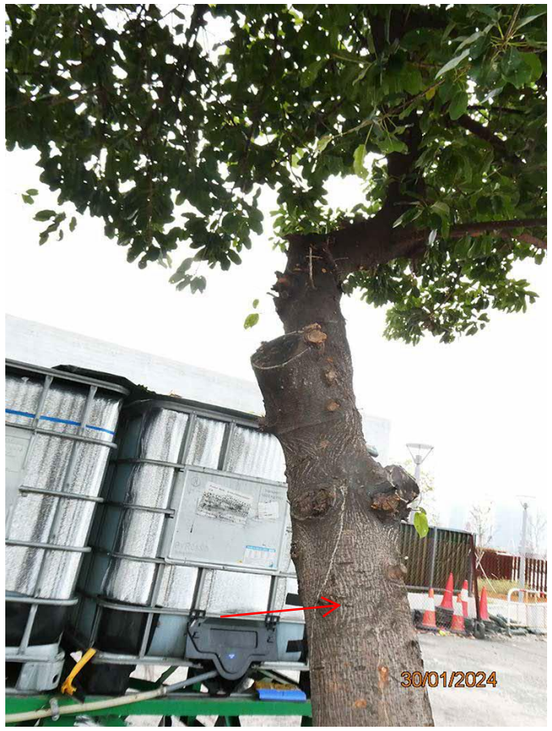
T-017_Bombax ceiba_5_Multi-trunks & Restricted roots



T-018_Ficus virens_1_Overall



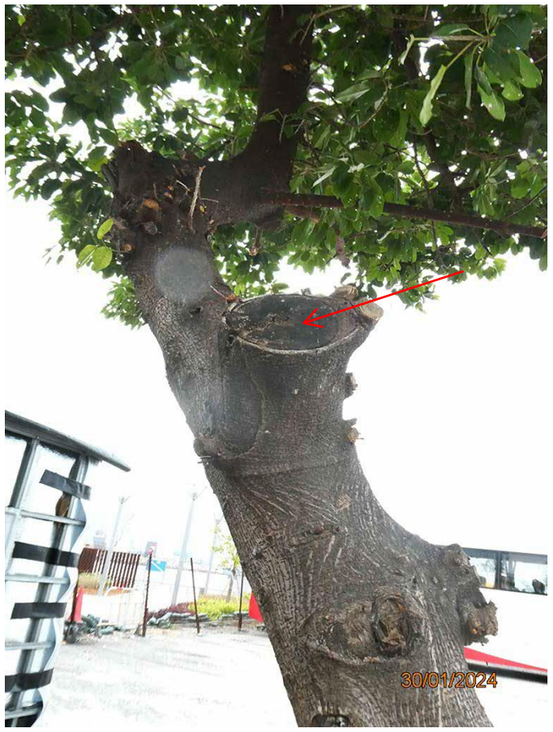
T-018_Ficus virens_2_Crown



T-018_Ficus virens_3_Trunk



T-018_Ficus virens_4_Base



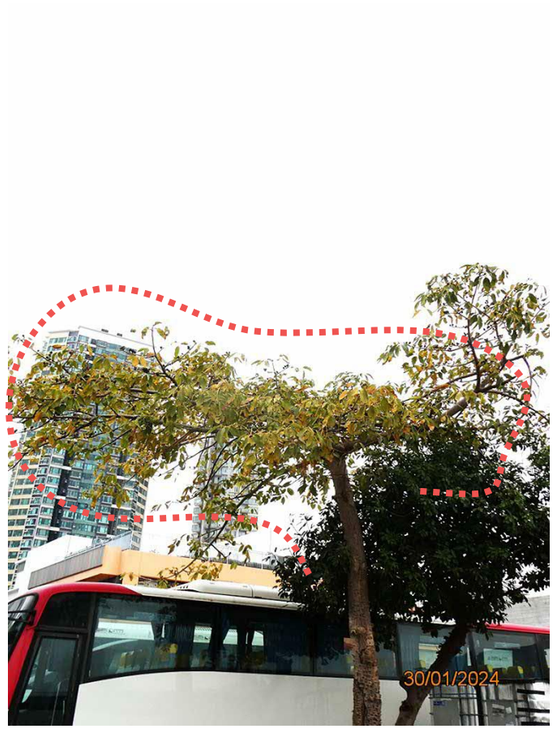
T-018_Ficus virens_5_Pruning wounds



T-018_Ficus virens_6_Grow close to T-019



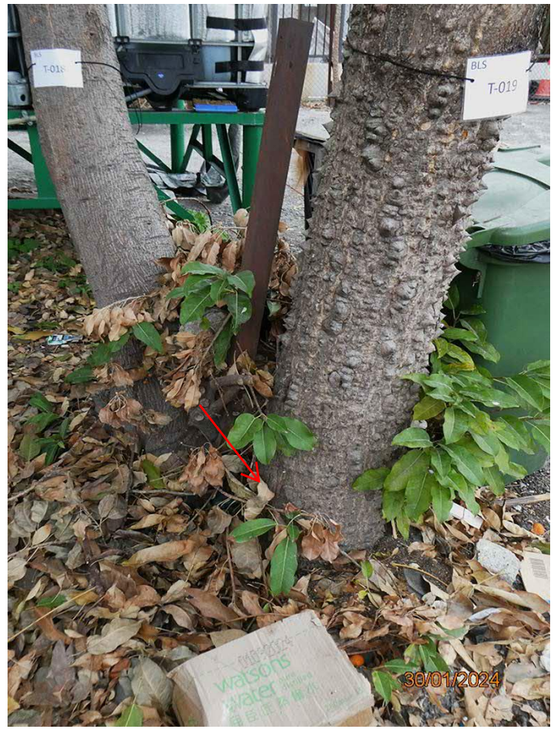
T-019_Bombax ceiba_1_Overall



T-019_Bombax ceiba_2_Crown



T-019_Bombax ceiba_3_Trunk



T-019_Bombax ceiba_4_Base



T-019_Bombax ceiba_5_Grow close to T-018



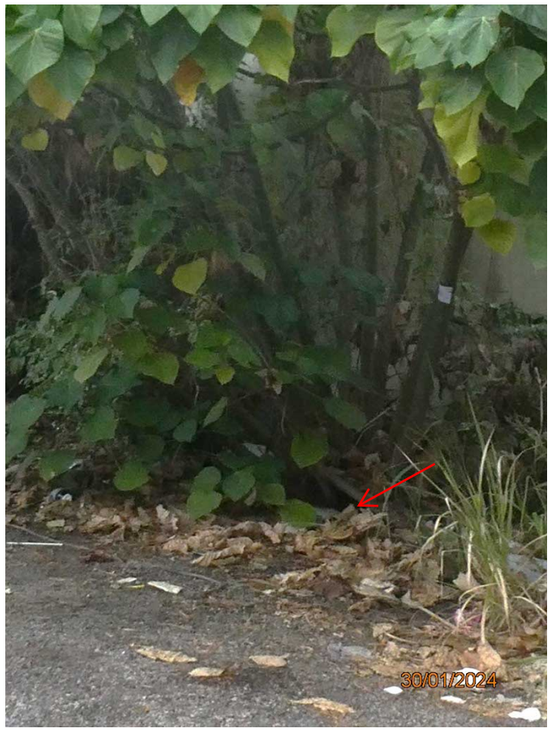
T-020_Macaranga tanarius var. tomentosa_1_Overview



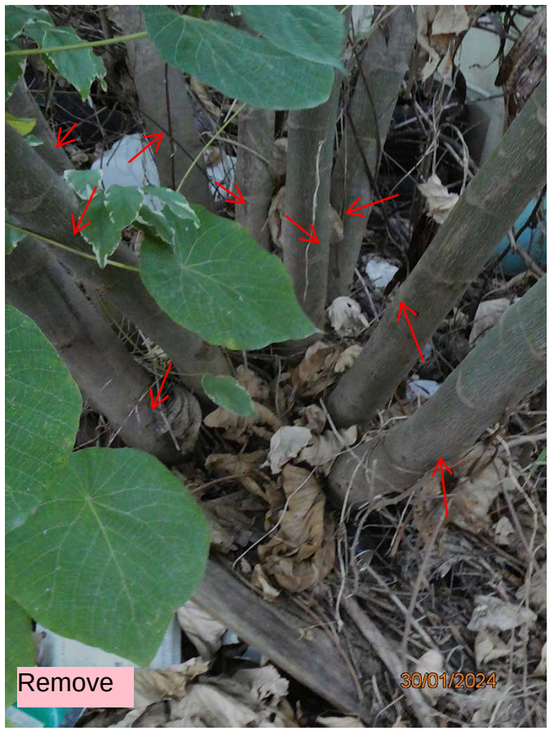
T-020_Macaranga tanarius var. tomentosa_2_Crown



T-020_Macaranga tanarius var. tomentosa_3_Trunk



T-020_Macaranga tanarius var. tomentosa_4_Base



T-020_Macaranga tanarius var. tomentosa_5_Multi-trunks

Appendix VI – Proposed Compensatory Tree Planting

ISO A1 594 mm x 841mm
Project Management Initials: ____ Designer: ____ Checked: ____ Approved: ____
Last saved by: CHATTARAJA(2025-06-05) Last Plotted: 2025-06-08
Filename: L:\ALICIA LAMIURA KCAA1-10\WORKING\20250605\ORIGINAL CAD\KCAA-TCP-101.DWG
Printed on ___% Post-Consumer Recycled Content Paper



AECOM

PROJECT
項目

TERM LANDSCAPE ARCHITECTURAL CONSULTANCY SERVICES SERVICE ORDER NO.04 FOR A PROPOSED DEVELOPMENT IN KOWLOON CITY DISTRICT (PROPOSED RESIDENTIAL DEVELOPMENT AT BAILEY STREET)

CLIENT
業主

市區重建局
URBAN RENEWAL AUTHORITY

CONSULTANT
工程顧問公司

AECOM ASIA COMPANY LTD
www.aecom.com

LEGEND:

- SITE BOUNDARY
- PROPOSED COMPENSATORY TREE
- T000(RS) PROPOSED TRANSPLANTED TREE
- EXISTING TREE OUTSIDE SITE BOUNDARY
- PROPOSED LAYOUT

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK 核查
E	05/06/2025	TREE SURVEY REPORT	EW
D	13/09/2024	TREE SURVEY REPORT	EW
C	23/08/2024	TREE SURVEY REPORT	EW
B	19/06/20254	TREE SURVEY REPORT	EW
A	13/06/2024	TREE SURVET REPORT	EW
-	08/02/2024	TREE SURVEY REPORT	EW

STATUS
階段

-

SCALE 比例 -

DIMENSION UNIT 尺寸單位 -

KEY PLAN
索引圖



PROJECT NO. 項目編號 -

CONTRACT NO. 合約編號 -

SHEET TITLE
圖紙名稱

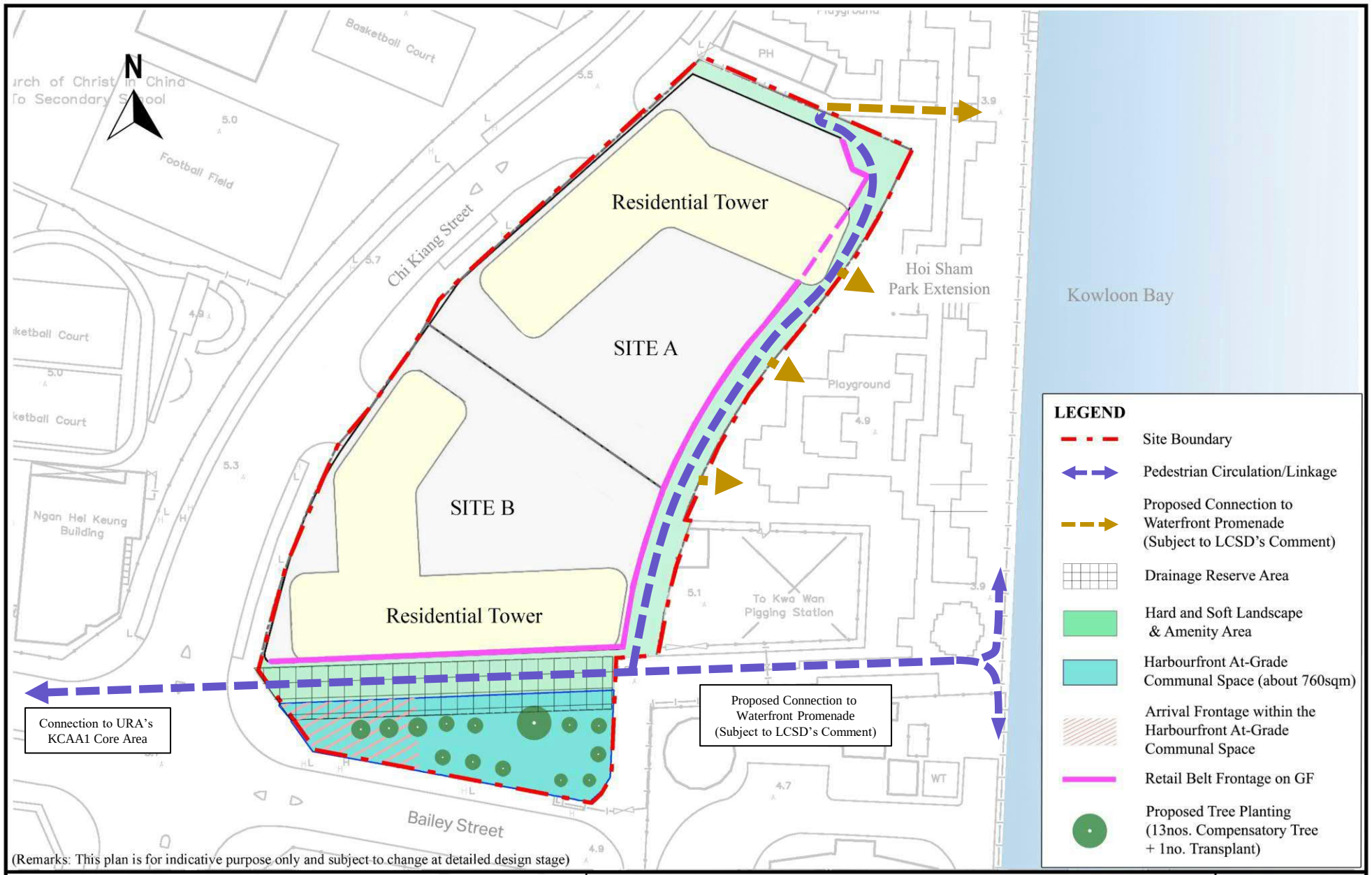
TREE COMPENSATORY PLAN

SHEET NUMBER 圖紙編號 KCAA-TCP-101

REV 修訂 E

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Appendix VII – Landscape Design Concept Plan



(Remarks: This plan is for indicative purpose only and subject to change at detailed design stage)

URA Bailey Street/ Chi Kiang Street Project	Landscape Design Concept Plan	Not drawn to scale
		June 2025

市區重建局
URBAN RENEWAL AUTHORITY

Our Ref: URA250802227

6 August 2025

By Hand and email
Planning Department
Kowloon District Planning Office
14/F, North Point Government Offices,
333 Java Road
Hong Kong

Attn: Ms. Vivian Lai

Dear Vivian,

Proposed Zoning Amendment to the Approved Hung Hom Outline Zoning Plan No. S/K9/28 for URA Bailey Street/ Chi Kiang Street Project under Section 5 of the Town Planning Ordinance

Response to Departmental Comments

We refer to our formal submission of the captioned project to the Kowloon District Planning Office (KDPO) on 4 July 2025. Following the departmental comments received via KDPO's email batches from 11 July to 6 August 2025, we would like to enclose our Response to Comments (R to C) regarding these departmental comments for your necessary action.

Should you have any questions, please feel free to contact our Ms. Y.T. Li at 2588 2492 or Mr. Peter Wu at 2588 2757. Thank you for your kind attention.

Yours sincerely,
For and on behalf of
URBAN RENEWAL AUTHORITY

Mike Kwan
General Manager
Planning & Design

encl.

Urban Renewal Authority

URA Bailey Street / Chi Kiang Street Project

Response to Departmental Comments

August 2025

URA Bailey Street / Chi Kiang Street Project
Response to Departmental Comments

Nos.	Comments Received from:
1.	Buildings Department
2.	Fire Services Department
3.	Home Affairs Department
4.	Hong Kong Police Force
5.	Transport Department
6.	Water Supplies Department
7.	Drainage Services Department
8.	Environmental Protection Department
9.	Leisure and Cultural Services Department
10.	Electrical and Mechanical Services Department
11.	Urban Design and Landscape Section, Planning Department
12.	Urban Renewal Section, Lands Department
13.	Kowloon West District Land Office, Lands Department

The following government departments have no objection to or no comment on the proposed project:

a) Architectural Services Department
b) Department of Health
c) Education Bureau

Appendices:

Appendix A	Extract of the revised Traffic Impact Assessment Report
Appendix B	Extract of the revised Water Supply Impact Assessment Report
Appendix C	Extract of the revised Sewerage Impact Assessment Report
Appendix D	Extract of the revised Environmental Assessment Report
Appendix E	Extract of the revised Visual Impact Assessment Report
Appendix F	Revised Landscape Design Concept Plan
Appendix G	Extract of the revised Air Ventilation Assessment Report – Expert Evaluation

URA Bailey Street / Chi Kiang Street Project
Response to Departmental Comments

Departmental Comments	Responses
1. ***Comments from Buildings Department (BD)***	
Received via email from TP/K(1), DPO/K dated 11 July 2025	
Please note that our comments dated 15 August 2024 and 18 June 2025 (our ref: in 95/URA/K and (13) in 95/URA/K) are still pertinent and we have no further comments.	The no further comments from BD are noted. Please be clarified that the current notional design is for indicative purpose only, intended to demonstrate the general planning concepts of the proposed project and for technical assessments. It is subject to change during detail design stage. Furthermore, please be advised that compliance with PNAP and SBDG will be ensured where applicable.
2. ***Comments from Fire Services Department (FSD)***	
Received via email from TP/K(1), DPO/K dated 15 July 2025	
Please be informed that I have no specific comment on the captioned OZP amendment.	The no specific comments on the proposed zoning amendments from FSD is noted
Detailed fire services requirements will be formulated upon receipt of formal submission of general building plans.	Noted.
3. ***Comments from Home Affairs Department (HAD)***	
Received via email from TP/K(1), DPO/K dated 4th August 2025	
For item A, we would like to point out that the proposed maximum building height of 110mPD at the subject site would probably block the sea view of Wing Fai Mansion, Bailey Garden, Upper East, Bayview and L Harbour 18 and the residents have already been raising objection to the proposal.	Various design measures were adopted including setbacks of building blocks from Bailey Street, building separation between the residential towers to enhance visual and air permeability. These measures help soften the building mass and reduce the potential visual impact from the concerned buildings. Additionally, an at-grade outdoor communal space has been included at the southern portion of the site, which is intended to be integrated with the adjoining Hoi Sham Park/Waterfront Promenade, bringing greater community benefits for public enjoyment.

Departmental Comments	Responses
	Notwithstanding the above, please be advised that the proposed zoning amendment is prepared under section 5 of the Town Planning Ordinance. As part of the statutory procedures, the draft Outline Zoning Plan incorporating the proposed amendments will be exhibited for public inspection and comment. Should there be objections raised by the nearby residents, they will be considered by the Town Planning Board.
Our DC members have expressed their grave concern in DC meeting and other occasions as to whether the existing road system would be able to cope with the increased traffic flow bought by the proposed high-density housing development to the already densely populated neighbourhood. Please take into account these local views and conduct necessary public engagement work in due course.	Please note that the URA has consulted the Kowloon City District Council (KCDC) on the Project on 24 July 2025 and members of the KCDC expressed their support for the Project. Furthermore, Traffic Impact Assessment was conducted to evaluate the potential traffic impact by the Proposed Development. The assessment concluded that the Proposed Development would not induce any adverse traffic impact on the surrounding road and footpath network. In fact, it would enhance the pedestrian within both the proposed development and the adjacent area. Transport Department has been consulted regarding the traffic aspect of the Proposed Development, please refer to **Item (5)** of this RtoC.
4. ***Comments from Hong Kong Police Force (HKPF)***	
Received via email from TP/K(1), DPO/K dated 16 July 2025	
My office is concerned about the potential traffic congestion caused by vehicles entering and exiting Site A and Site B. Therefore, the vehicle access gate should be establish at the car park basement level and positioned away from the Chi Kiang Street road junction so as to prevent traffic tailbacks. We also noted that the number of coach parking spaces has been increased from 10 to 15 to address the coach parking demand.	Noted. It will be considered at detailed design stage. Noted.

Departmental Comments	Responses
If further road works or road closure is required, please furnish a set of temporary traffic arrangement (TTA) plans to HKPF for our assessment.	Noted. In the submitted TIA, no further road works or road closure is required.
5. ***Comments from Transport Department (TD)***	
Received via email from TP/K(1), DPO/K dated 18 July 2025	
We refer to your email dated 7 Jul 2025 regarding the subject proposal. We have the following comments on the submissions from traffic engineering point of view: - 1. Section 2.2.1 of TIA – Please advise the dates of traffic survey and confirm if the selected weekday is a normal school day;	The Vehicular Traffic Survey was conducted on 15 and 20 January 2024, while the Pedestrian Count Survey was carried out on 12 and 13 January 2024, which represented a normal school weekday and a typical weekend, respectively.
2. Section 2.2.2 of TIA – Please include the junction of To Kwa Wan Road / Kwei Chow Street and Ma Tau Wai Road / Hok Yuen Street, and update the assessment accordingly;	The new Junctions, J9 (To Kwa Wan Road/Kwei Chwo Street/ Sheung Heung Road) and J10 (Ma Tau Wai Road/ Hok Yuen Street) have been included into the assessment. Please refer to **Appendix A** of this RtoC.
3. Section 2.5 of TIA – The comment from our Transport Operation (Urban) Division – Kowloon Section should be sought;	Comments from Transport Operation (Urban) Division – Kowloon Section have been sought.
4. Section 3.3.1 of TIA – Please review if the high-end provision for motorcycle parking spaces and Goods Vehicle Loading/Unloading Bay could be provided. Efforts shall also be made at the detailed design stage to provide more private car parking spaces closer to the high-end of the HKPSG parking provision requirement as far as practicable;	Under the current notional layout, due consideration has been given to site constraints and other relevant factors to strike a balance between parking provision and the waterfront setting of the Site. Nevertheless, the parking provision will be further reviewed during the detailed design stage.
5. Section 3.3.3 of TIA – To align with the Chief Executive's Policy Address promoting the concept of "tourism is everywhere in Hong Kong," it is necessary to consider adequate coach parking provisions in the To Kwa Wan area. For instance, a drone show was held at Hoi Sham Park, adjacent to the proposed development last year, highlighting the area's potential as	Please be advised that the one of the planning objectives of the Project is to energize the nearby waterfront promenade and create a vibrant atmosphere for public enjoyment. Under the current notional layout, buildings were setback from Bailey Street, allowing space for creation of a harboufront at-grade communal space. The podium will accommodate

Departmental Comments	Responses
a tourism node. Given the high utilization rate of the existing STT coach parking spaces (50 spaces), the proposed Public Vehicle Park (PVP) with only 15 shared-use commercial vehicle (CV) parking spaces is unlikely to meet the strong demand in the vicinity. Please explore the feasibility of further increasing the number of CV parking spaces in the PVP as far as practicable. If expansion is infeasible due to site constraints, technical limitations or financial considerations, further elaboration should be provided in section 3.3.3 of the TIA report. Additionally, please advise on the anticipated timeline for consulting relevant stakeholders, such as LegCo and District Council members concerned with tourism and CV parking issues, tourism-related organizations and the CV trade, and be prepared to address inquiries or objections raised during the consultation process;	GIC/retail/clubhouse/carpark facilities, with the floor space at the ground floor fronting Hoi Sham Park proposed as a "retail belt' to enhance the vibrancy of the adjacent public open space. Parking facilities will be distributed across two basement levels in each Site (i.e., Site A and Site B), with part of the ground floor designated for parking. This arrangement ensure that the ground-level space is dedicated to uses benefiting both residents and public, striking a balance between development needs and planning gain. Due to the limited floor space needed to accommodate the above uses, as well as the space requirements for coach manoeurving and the ancillary car parking for the proposed development and GIC facility, the current notional layout can incorporate a PVP with maximum 15 shared-use parking spaces. These shared-use parking spaces are intended for shared use for coaches/buses and M/HGVs, with each space measuring 12m (L) x 3.5m (W) and a head room clearance of 4.7m. This configuration aligns with the recommendation outlined in TD's Departmental Circular No. 4/2022, which aims to minimize idle parking spaces owing to the mismatch between parking demand and supply at different times of the day. Notwithstanding the above, the drone show held at Hoi Sham Park in December 2024 was a unique event organized as part of the Government's "Day X Night Vibes @ 18 Districts" initiative to enhance local nightlife and tourism. As this was a one-off event with no indication of becoming a regular feature at the park, the proposed parking provision is considered adequate and represents a well-balanced arrangement. Additionally, the URA consulted both the Kowloon City District Council (KCDC) and the Task Force on Kowloon, Tsuen Wan and Kwai Tsing of the Harbourfront Commission (HC) on 24 and 28 July 2025, respectively. Members of both KCDC and HC expressed support in general and shared views on the Project.

Departmental Comments	Responses
6. Section 4.3.1 of TIA – Please confirm the list with the Planning Department;	Noted. Please note that the Design Parameter under the revised **Table 4-5** have reviewed and confirmed with Planning Department. The traffic generation under **Table 4-6** and Junction Analysis under **Table 5-1** have also been revised to reflect the updated design parameter for the Planned Developments. It is confirmed that with the updated design parameter, the reserve capacity remains effective in maintain and restoring the reserve capacity.
7. Section 5 of TIA – The v/c ratio for critical road sections should also be assessed;	Noted. The Assessment of **Road Link Performance** has been included in New **Section 5.4.**
8. Section 5.4.1 of TIA – Please review if the carriageway lane width of the proposal could be increased according to the TPDM's requirement. Please be reminded that the improvement proposal should be funded, designed and constructed by the project proponent according to the latest prevailing standards to our satisfaction. A Road Safety Audit for the proposal should also be done according to the TPDM;	Noted. The junction improvement scheme originates from an approved planning application (No. A/K9/274) as an approval condition. URA has adopted the approved junction improvement scheme in the submitted TIA, as the applicant of the application has discharged this approval condition. According to TPDM Vol. 4 Ch. 2.2 Para. 2.2.3.5 (ii), "*…Lane widths at signalled junctions should normally be between 3 and 3.6m although 2.7m is acceptable…*", a 3m traffic lane could meet the TPDM requirement. The Road Safety Audit will be carried out at the appropriate time in according to the TPDM.
9. Section 6.3.1 of TIA – Please enrich section 6.3.1 by providing details of the temporary parking arrangements during the construction phase, with particular emphasis on provisions for coach parking. Please be reminded that the project proponent should be held responsible to identify suitable locations for on-street public parking spaces in the vicinity of the site and carry out the local consultation of the proposal;	Noted. **Section 6.4** has been updated as follow. "*The existing temporary STT car park will be closed during the construction stage. The possibility of providing a partially public car park within the Project Site will be reviewed during this period, subject to the final building layout and construction method. If the Project Site is unable*

Departmental Comments	Responses
	to accommodate such facility, additional on-street public parking spaces will be explored as transitional measure, if necessary. *To address parking needs, particularly for coaches, the URA proposes leveraging the existing coach park adjacent to the Kowloon City Government Offices on Bailey Street, southwest of the Site, as a key temporary parking solution during construction period. Furthermore, coach parking facilities will also be provided in ongoing developments in URA's KCAA1 Core Area and the Central Kowloon Route. These facilities will help maintain coach accessibility in the vicinity.* *Notwithstanding the above, the Government may also consider to covert space beneath flyovers for parking uses, such as spaces underneath the East Kowloon Corridor. Similar arrangement has been adopted in the Central and Western District in recent years.*"
General – We note that the submitted notional layout is indicative only and forms part of a non-scheme-based submission not tied to any specific development proposal. We reserve the right to provide further comments on the traffic impact assessments, traffic schemes in the area, and internal transport facilities of the development during the detailed design stage.	Noted.
6. ***Comments from Water Supplies Department (WSD)***	
Received via email from TP/K(1), DPO/K dated 18 July 2025	
We refer to your letter ref. K-R/URA/29 dated 7.7.2025 concerning the proposed amendments to the approved Hung Hom OZP No. S/K9/28 for URA Bailey Street/Chi Kiang Street Development (110mPD). It is noted from the Appendix 8 Water Supply Impact Assessment Report in the updated planning report that the required fresh water and salt water mean daily demands for the proposed development are 1,157.1 m3/day and 353.1 m3/day respectively. As	The no further comments on the proposed zoning amendments from WSD is noted.

Departmental Comments	Responses
the existing water supply system is adequate to provide water supply to the proposed development, we have no further comments on the proposed OZP amendments from water supply planning point of view.	
However, the project proponent may need to correct the followings sections/tables in the Water Supply Impact Assessment Report: - 1. Table 3-1, the summary for Net Increase is wrong. Please correct; and	Noted. Please refer to the revised **Table 3-1** in **Appendix B** of this RtoC**.**
2. Section 3.4.3, according to the mains record plan, the existing DN150 at Chi Kiang Street for the proposed connection is the fire hydrant PH13211. The project proponent may need to revise the proposed connection point. Please also note that the proposed size/location/numbers of the service tees are tentative and should be agreed with the Water Authority at the water supply application stage in future.	Noted. The connection point has been revised accordingly. Please refer to the revised **Section 3.4.3** and **Figure 3-1** in **Appendix B** of this RtoC.
7. ***Comments from Drainage Services Department (DSD)***	
Received via email from TP/K(1), DPO/K dated 18 July 2025	
We have no comment from public drainage maintenance point of view.	The no comment from DSD is noted.
8. ***Comments from Environmental Protection Department (EPD)***	
Received via email from TP/K(1), DPO/K dated 18 July 2025	
Comments on Sewerage Impact Assessment (v4.0) <u>*General Comments*</u> 1. Please be reminded that the implementation of local sewer connection works shall meet the satisfaction of DSD. Please also seek DSD's view and agreement on the SIA.	DSD has been consulted and no comment. Please refer to **Item (7)** of this RtoC.

Departmental Comments	Responses
2. Please provide softcopy of the report (in pdf) and calculation spreadsheet (in Excel) as well as all Response to Comments from EPD and DSD as appendix in the next submission, with revised content highlighted to facilitate review.	Noted.
Specific Comments *Section 3.1.1* 3. For the statements "persons per flat of 2.4" at Lines 2 and 4 of Section 3.1.1, they do not tally with the "domestic household size of 2.8" as quoted at Lines 6 and 10 of the same section. Please revise these 2 statements accordingly.	Please be clarified that the persons per flat of 2.4 adopted in the planning submission is assumed with reference to the 2021 Population Census Statistic by District Council Constituency Area including To Kwa Wan South, To Kwa Wan North, and Hok Yuen Laguna Verde, with average domestic household size of 2.1, 2.4 and 2.8 respectively. However, to ensure a conservative assessment, a "worst-case" scenario using 2.8 persons per flat reflecting the upper range of the aforementioned census data has been applied for this sewerage impact assessment. With this assumption, the design population is about 1,532 persons and 1,879 persons, respectively. Relevant text has been revised. Please refer to **Appendix C** of the RtoC.
Table 3-5 4. For the calculation of backwash flow volume, please clarify whether the number of filter (n) has been considered in the calculation with reference to the provided equation (i.e. q = Qs x Af x n x (ts/60)). Please review and revise as appropriate.	The number of filters (n) has already been accounted in the calculation of backwash flow volume in SIA (v4.0). Two filters, each with filter area of $0.4m^2$ each have been incorporated into the calculation. The breakdown of the calculation is provided below: Backwash flow volume (m^3): q = Qs x Af x n x (ts/60)) q = 32 x 0.40 x 2 x (15/60) = 6.4

Departmental Comments	Responses
Section 3.2.2 and Appendix 3-3 5. Please review the sewage flow estimation approach for Public toilet in Hoi Sham Park. Given the variations in utilization rate and discharge rates among different sanitary appliances, the current estimation approach by assuming the average daily visitors and discharge rate with reference to the BEAM Plus New Building may underestimate the sewage flow. A more conservative estimation approach should be adopted in the assessment.	Noted. **Section 3.2.2** and **Appendix 3-3** have been updated. For a conservative approach, 3,000 daily users have been adopted instead of relying on the average daily user count. Additionally, the male-to-female ratio has been updated to 0.84:1, based on the 2021 population census. According to the "*Particular guidelines and examples of recommended applications of water-saving/water-efficient devices to be used in government projects*" published by WSD, the following Grade 1 water-efficient devices are recommended for use in Government projects: • Water closet (4.8L/use) • Urinal (1.5L/use) • Non-mixing water tap (2L/min) For a conservative approach, Grade 2 water efficient devices have been adopted as following: • Water closet (6.5L/use) • Urinal (2.5L/use) • Non-mixing water tap (4L/min) Additionally, due to recent updates regarding sewage flow from the public toilet in Hoi Sham Park, **Appendices 3-1**, **3-2**, and **Table 3-7** have been updated accordingly.
Table 3-6 6. For the sake of completeness, please also include the hydraulic assessment from manhole FMH4088688 to FMH4025955 in the SIA.	Due to the insufficient information, some assumptions have been made in the current assessment. The SIA will be revisited during the detailed design stage, following the completion of the manhole survey, to enable a more comprehensive assessment. In addition, the hydraulic calculation from manhole FMH4088688 to FMH4025955 will be included as necessary.
Appendix 3-1 (Table A) 7. Note [2], the quoted pipe US01 does not exist in the calculation table. Please review and clarify.	**Note [2]** in **Appendix 3-1 (Table A)** has been revised as follows:

Departmental Comments	Responses
	"*The full capacity of US-A-01 and US-A-02 represents all sewage from the upstream catchment discharged into manhole FMH4088680 and FMH4025955 respectively.*"
Note [3], for the manholes with unknown invert levels (i.e. from FMH4088683 to FMH4088688), please advise if manhole survey will be conducted to determine the actual invert levels and pipe capacity. If affirmative, please agree with DSD on the result of manhole survey and revise the hydraulic calculation based on the actual invert level of the concerned manhole when appropriate.	The manhole survey will not be conducted in current planning stage. Instead, the SIA will be revisited during the detail design stage with detailed manhole survey to confirm the actual invert levels.
Appendix 3-2 (Table A) 8. Note [2], it is noted that the proposed new/upgrade sewer manhole and pipes are subject to change during detail design stage. Should there be any change in the design parameters other than the current submitted proposed, a revised SIA has to be submitted for EPD's approval to ensure the proposed development would not cause adverse impact to the public sewerage system and to propose effective sewerage mitigation measures where appropriate.	Noted. The SIA report will be revisited during the detail design stage and subsequently submitted for approval by EPD.
Comments on Environmental Assessment Report (v4.0) <u>*Water Quality*</u> 1. **Table 6-2, Fig. 6-1:** Please remove Kowloon Bay from WSRs.	Noted. **Section 6.3.2, Table 6-2 & Figure 6-1** have been revised accordingly in **Appendix D** of this RtoC.
<u>*Waste Management*</u> *2.* Please review and advise if the latest change of design e.g. "proposed building height from 100mPD to 110mPD" and "three basements to two	

Departmental Comments	Responses
basements" will alter the current assessment and conclusion, including but not limited to the waste figures and types, under the Waste Management Chapter of this report.	The changes in project design have been reflected in the amount of C&D material. As the total GFA remains unchanged and the overall reduction in C&D materials is marginal, no change to the conclusion is anticipated.
3. **Section 7.1.3:** Please remove this section if appropriate.	Noted. **Section 7.1.3** has been removed.
4. **Section 7.3.7**: Please revise "~~*When disposal of sediment is found to be necessary during detailed design stage,*~~ *The project proponent should be aware of the relevant requirements when applying for the dumping permit under DASO, i.e. they are required to submit sediment sampling and testing plan to EPD's TCO when applying for the dumpling permit under DASO.* ~~*Sediment Sampling and Testing Plan (SSTP) shall be submitted EPD for approval before construction commencement.*~~"	Noted. **Section 7.3.7** has been revised accordingly.
5. **Section 7.3.3:** **a)** Please advise what "*685 m^2*" refers or if it is a typo?	Please note that "685 m^2" is a typo, and should be correctly read as "685 m^3", which represents the amount of inert C&D material from generated Site Clearance / Formation, as list in **Table 7-1**.
b) Please check and ensure proper use of unit "m^2" and "m^3" to avoid confusion.	Noted and revised accordingly.
6. **Table 7-1:** **a)** For inert C&D material's "*Reused Off-Site (a)*", please check your meaning and revise if appropriate as "*Delivered to Public Fill Reception Facilities"* to avoid confusion.	Part of the surplus inert C&D materials will be directly delivered to other projects for reuse. The remaining surplus inert C&D materials shall be delivered to Public Fill Reception Facilities for beneficial reuse in other projects. The destination of these materials is subject to designation by the Public Fill Committee in accordance with DEVB TC(W) No. 6/2010. **Note (a) of Table 7-1** has been revised accordingly to avoid confusion.
b) Please advise what "*685 m^2*" refers or if it is a typo?	"685" in **Table 7-1** refer to the amount of inert C&D material generated from Site Clearance / Formation.
7. **Section 7.3.3 and Section 7.3.7:**	The ground level of the current Site ranges from 5.3 to 6.0mPD, with an average of 5.7mPD, which corresponds to the planned formation level. As

Departmental Comments	Responses
Please check and advise why the footnote [16] and footnote [20] for soil quantity estimation and sediment quantity estimation respectively are nearly the same e.g., in depth. Also, please advise where is "0mPD" for in this project in the Figure 2 "Notional Design-Indicative Section" and in the current site situation. Please advise what "mPD" is for the ground surface of current site area.	5.7mPD is already indicated in the section drawings (**Appendix 2-1**), further elaboration in the main text has been omitted to avoid any potential confusion. As the Site is situated on reclaimed land, it is assumed that soil exists only at or above 0mPD. The proposed excavation depth is 11.5 m, consisting of: - 5.7 m above 0mPD (soil) - 5.8 m below 0mPD (sediment). Given that the excavation footprint remains unchanged, the calculated amounts are expected to be similar.
Land Contamination 8. **Response to Comment (4):** The comment was not yet duly addressed. Please review whether any items are missing from the Site Walkover Checklist in Appendix 8-4, with reference to "Annex C1" of the Practice Guide. And please check whether the comma should be removed for "No, chemical storage area was identified" to avoid confusion.	Noted and revised accordingly. The descriptions of surrounding land use have been supplemented. As the site owner or occupier was not available for the interview, the section titled "*Questionnaire with Existing/Previous Site Owner or Occupier*" has been omitted. Also, the comma in "*No, chemical storage area*" has been removed and the sentence should read as "*No chemical storage area*".
Received via email from TP/K(1), DPO/K dated 6 August 2025	
General Comments For Item A, although URA has not resolved all of our comments on the EA for supporting the subject OZP amendment, we shall have no objection to the subject OZP amendment from environmental planning perspective given that insurmountable environmental impacts associated with the development is not anticipated, and various technical assessment clauses (e.g. AQIA, NIA and SIA) will be imposed in the future land title document of the subject site to ensure that assessment and mitigation measures will be properly conducted and implemented respectively.	The no objection to the subject OZP amendment from EPD is noted.

Departmental Comments	Responses
Below technical assessment clauses should be imposed in the land grant conditions of the subject site to request URA to conduct detailed assessment during design stage and ensure that remediation/mitigation (if needed) will be properly carried out. This email is also copied to **LandsD** for information on our comment on land grant of the subject URA development site (URA: please not EPD's comment on land grant of the subject site). a. Air Quality Impact Assessment (AQIA) b. Noise Impact Assessment (NIA) c. Sewerage Impact Assessment (SIA)	Noted.
Our detailed comments/view on Item A development are given below. a. On air quality, it is noted that the predicted air quality at all ASRs complies with the Air Quality Objectives (AQOs), adverse air quality impact associated with the proposed development is not anticipated. However, to ensure outstanding comments on the air model will be addressed, an updated AQIA clause should be imposed in the land grant condition of the subject site to ensure the later new/revised design of the proposed development would be designed to meet relevant environmental criteria.	Noted.
b. On noise, the traffic noise compliance rate for the current notional design is 99.7%. A NIA clause should be imposed in the land grant condition of the subject site to request URA to conduct a NIA in the detailed design stage to exhaust all practicable mitigation measures (e.g. alternative building form to avoid orientation of noise sensitive facades directly facing nearby roads, barrier / canopy on podium with projection beyond the site boundary, etc.) to achieve a 100% traffic noise compliance rate.	Noted.
c. On sewerage, the SIA confirmed that with proposed new sewers, the downstream existing sewer will be able to cater for the expected peak sewage flow, thus insurmountable sewerage impact arising from the notional scheme	Noted.

Departmental Comments	Responses
of the proposed development is not anticipated. A SIA clause should be imposed in the land grant condition to request URA to conduct a SIA during the detailed design stage to ensure that proper mitigation measures will be adopted and the proposed development would not cause adverse sewerage impact to the nearby public sewerage system.	
9. ***Comments from Leisure and Cultural Services Department (LCSD)***	
Received via email from TP/K(1), DPO/K dated 22 July 2025	
1. This office has no objection on the URA's proposal of the building height to 110mPD and rezoning to high-density private housing development, however, our previous comment (dated 7 Aug 2024) concerning noise nuisances should be taken into considerations, as there are some active facilities provisions, such as children playground, tennis courts, soccer pitches and basketball courts in Hoi Sham Park.	We noted the no objection on the proposal from LCSD. Appropriate design measures within the proposed development will be carefully considered at the subsequent detailed stage. Given LCSD's extensive experience in managing a variety of public parks, it is expected that effective noise control measures will be implemented at Hoi Sham Park to address and minimize any potential nuisances. These collaborative efforts are anticipated to foster a harmonious living environment for future residents while ensuring the park's role as vibrant and welcoming community space.
2. URA should seek the comment from LCSD for the interface of harbourfront at-grade communal space within the project site and Hoi Sham Park, which the proposal should not affect the operation and management of LCSD. Our previous comments on 13.11.2024 are still valid. To our understanding, the Right of Way for the Towngas pigging station is still valid.	The URA consulted the Task Force on Kowloon, Tsuen Wan and Kwai Tsing of the Harbourfront Commission (HC) on 28 July 2025. During the meeting, the representative from LCSD raised no objection to the Proposed Development. HC acknowledge URA's design intention and directed the LCSD to work closely with URA to address the possible interface issues between Hoi Sham Park and Proposed Development, aiming to provide seamless integration between private development and public spaces. Please note that the planning intention of the Proposed Development is to integrate the adjacent existing open space in Hoi Sham Park Extension and provide direct pedestrian connections towards the waterfront. Upon

Departmental Comments	Responses
	approval of this rezoning by the CE-in-C, detailed design including the proposed connection will be further developed, taking into account of the comments from relevant Government departments and the views from the Harbourfront Commission and other stakeholders. We note that the mentioned access is the Right of Way of the Towngas pigging station, which currently also serves as the main access point to LCSD's Hoi Sham Park Extension. In the absence of the proposed rezoning, this ROW will continue to serve as the designated public access to the park. Furthermore, the proposed development will not infringe upon the existing access route and the status of pigging station's ROW will remain unchanged.
10. ***Comments from Electrical and Mechanical Services Department (EMSD)***	
Received via email from TP/K(1), DPO/K dated 23 July 2025	
1. We have no comment regarding the re-zoning please.	We noted the no comment on the proposed re-zoning from EMSD.
2. Meanwhile, we would like to highlight that To Kwan Wan Pigging Station is operating at intermediate pressure and thus NOT defined as Notifiable Gas Installation under the Gas Safety Ordinance (CAP. 51). As a result, there is no special consultation or study zone requirement for the station. Nevertheless, for the sake of gas safety and as the development have been publicised in June 2025, we suggest the future developer to liaise with The Hong Kong and China Gas Company Limited (Towngas) for any safety concern, set back distance requirement and materialise the risk mitigation measures (mentioned in section 4.4 of the EIA report) to further lower the potential risk.	Noted. Please refer to the revised **Section 4** (Hazard to Life) in **Appendix D** for the following updates: 1. **Para. 4.1.3** has been inserted as "Since To Kwan Wan Pigging Station is operating at intermediate pressure, it is NOT defined as Notifiable Gas Installation under the Gas Safety Ordinance (CAP. 51). As a result, there is no special consultation or study zone requirement for the station."; 2. **New Para. 4.4.2** "URA would consult HKCG for any residual safety concern and mitigation measures implementation during detail design stage.";

Departmental Comments	Responses
	3. **Para 4.3.5** "and occupancy rate" is added after "Although the total number of populations"; 4. **Para. 4.3.5**, "……., the societal risk level for the Proposed Development should ~~not be worse than~~ be roughly similar to the planned school development." and; 5. **Para. 4.5.2**, "Since the societal risk level for the Proposed Development would ~~not be worse than~~ be roughly similar to the planned school development,".
11. ***Comments from Urban Design and Landscape Section, Planning Department (UD&L, PlanD)***	
Received via email from TP/K(1), DPO/K dated 23 July 2025	
A. Comments on Air Ventilation Assessment *Planning Report* 1. **Building Setback** (para. 5.22) – As mentioned in our previous comments, the proposed building setback ranges from 16m to 27m in width, according to the AVA IS report. The consultant should specify the exact setback dimension in the planning report for complete information.	It is worth to note that the current notional layout is intended to provide a general design intention of the Proposed Development and cannot be measured directly. However, the URA is committed to maintain a building setback of minimum of 10m from the site boundary. Correspondingly, both the Planning Report and AVA IS report specify this proposed building setback of minimum 10m. This aligns with the width of the existing pedestrian access located immediately south of the adjacent To Kwa Wan Pigging Station, contributing to the visual permeability and air ventilation from the inland to the harbour.
2. **Performance of the Proposed Scheme** (para. 5.22, last sentence) – Without any quantitative AVA conducted or the provision of major mitigation measures, it is difficult to ascertain whether the Proposed Scheme would perform "slight better" when compared to the Testing	Noted, **Para 5.22** should be read as "*Overall, the AVA-EE demonstrate that current scheme is on par with the Testing Scheme, and no adverse impact is anticipated*"

Departmental Comments	Responses
Scheme from air ventilation perspective. The consultant should clarify this and remove the relevant statements to avoid confusion.	
3. **Conclusions** – The consultant should update the conclusion taking into account our comments on the AVA IS and EE reports below.	Noted.
AVA IS report 4. **Building Setbacks** (para. 1.5.2) – As mentioned in our previous comments, the consultant should specify the exact dimension of the proposed building setback, which range from 16m to 27m, in text for complete information.	Please be clarified, according to the both the Planning Report and AVA IS report, the proposed building setback is stated as a minimum 10m. This aligns with the width of the existing pedestrian access located immediately south of the adjacent To Kwa Wan Pigging Station, contributing to the visual permeability and air ventilation from the inland to the harbour. Furthermore, the setback illustrated in the notional layout is intended for indicative purposes only, demonstrating a possible layout option under the current proposal.
5. **Drawing No. 1-5 and 1-7** – The consultant should indicate the exact setback dimension, which range from 16m to 27m, on plan for complete information.	Please refer to our response to **comment (4)** above.
AVA EE report 6. **Building Setbacks** (paras. 4.3.2 and 4.4.5) – The consultant should specify the exact dimension of the proposed building setback, which range from 16m to 27m, in text for complete information.	Please refer to our response to **comment (4)** above.
7. **Additional air path** (para. 4.4.5 and Table 4-3) – Referring to the figures, it appears that the additional 15m NW-SE air pathway at 1/F and above corresponds to the same mitigation measure as the 15m-wide building separation starting from 11.55mPD. The consultant should clarify this and revise the relevant statements to avoid any confusion.	Noted. **Para 4.4.5** and **Table 4-3** have been updated, please refer to **Appendix G** of the RtoC.

Departmental Comments	Responses
8. **Directly Analysis** (sections 5.2 and 5.3) – Rather than focusing on whether the proposed 15m-wide building separation aligns with the prevailing winds, the consultant should explicitly address how the Proposed Scheme, featuring with taller podium and building taller, would impact the pedestrian wind environment around the subject site. Similarly, the consultant should explain how the proposed 15m-wide building separation, starting from lower level, could compensate the potential adverse air ventilation impacts caused by the taller building and podium structure.	Noted and revised accordingly.
9. **Conclusion of the AVA EE report** (para. 6.1.3) – For consistency, it is suggested to revise the last sentence as "*... the previous Testing Scheme, which has been shown to be* ~~***significantly***~~ ***generally*** *better than that of an OZP Compliant Scheme* ***in terms of the overall air ventilation performance***.".	Noted and revised accordingly.
Conclusion (para. 6.1.3) – Based on the findings of the AVA IS and EE reports, the consultant should clarify and confirm whether the overall wind performance Proposed Scheme and Testing Scheme are comparable and whether the Proposed Scheme would not create significant adverse air ventilation impact compared to the Baseline Scheme (i.e. OZP-compliant scheme).	Noted. **Para 6.1.3** has been updated, please refer to **Appendix G** of the RtoC.
B. Comments on Urban Design and Visual Impact Assessment General Comments 2. Please be advised that paras. 4 to 7 in our previous comments vide email dated 21.11.2024 shall remain largely valid with some updates to paras. 5 and 6 as follows:	Noted.
3. According to the submitted VIA, the overall visual impacts arising from the Notional Scheme range from "Negligible" to "Moderately Adverse"	Noted.

Departmental Comments	Responses
among the selected public viewing points (VPs) as compared with the OZP-compliant scheme, taking into account the planned/committed developments in the surroundings. With reference to the photomontages in the VIA, the proposed development may reduce visual openness, permeability and access to visual resources from certain VPs. The proposed "R(A)9" zone with building height (BH) restriction of 110mPD for high-rise residential developments will inevitably weaken the ascending stepped BH profile at the immediate adjoining waterfront area, visual openness and spatial relief currently offered by the low-rise cluster in the waterfront area. Nevertheless, the proposed development is generally not incompatible with the surrounding built environment in Hung Hom area and would unlikely induce significant adverse impact on the visual character of the townscape.	
4. As gathered from the submission, a 15m-wide building separation between the residential towers and building setbacks are proposed to mitigate visual impacts. The provision of an at-grade outdoor communal space at the southern portion of the Site with landscape and amenity area would allow visual permeability along Bailey Street towards the waterfront, and enhance pedestrian circulation and linkage between the inland and Hoi Sham Park Extension at the To Kwa Wan waterfront.	Noted.
<u>Detailed Comments/Observations</u> *Revised Planning Report* 5. Paras. 3.5 and 4.6 – Please supplement the proposed development with BH of 110mPD may weaken the ascending stepped BH profile at the immediate adjoining waterfront area.	First sentence of Para. 4.6 should be read as *"Despite the proposed maximum building height of 110mPD may weaken the ascending stepped BH profile at the immediate adjoining waterfront, it generally aligns with the surrounding building profile of the existing and planned developments. It also allows flexibility for a slimmer building footprint and greater building separation between the two residential towers…"*.

Departmental Comments	Responses
6. Para. 5.2 – Please supplement the analysis in the VIA is formulated based on the comparison between the OZP-compliant Scheme and the Notional Scheme.	Noted. Please be clarified that the analysis in the VIA is formulated based on the comparison between the OZP-compliant Scheme and the Notional Scheme. For details, please refer to the submitted VIA.
7. Para. 5.22 – As commented previously, the width of the proposed building setback of minimum 10m from the southern boundary under the Notional Scheme is inconsistent with the information reported and modelled in the AVA (i.e. ranging from 16m to 27m) and the said building setback is not annotated on the Indicative Block Plan.	Please be clarified, according to the both the Planning Report and AVA IS report, the proposed building setback is stated as a minimum 10m. This aligns with the width of the existing pedestrian access located immediately south of the adjacent To Kwa Wan Pigging Station, contributing to the visual permeability and air ventilation from the inland to the harbour. Furthermore, the setback illustrated in the notional layout is intended for indicative purposes only, demonstrating a possible layout option under the current proposal.
Revised VIA 8. Paras. 3.3.3 & 6.1.4 – With reference to Fig. 4.9, please supplement the proposed development with BH of 110mPD may weaken the ascending stepped BH profile at the immediate adjoining waterfront area, but is generally not incompatible with the surrounding built environment in Hung Hom area.	Noted. Para. 3.3.3 should be read as "*Overall, the Site is situated at the waterfront area and surrounded by open spaces and medium to high-rise industrial and residential buildings. The heights of building blocks are increasing progressively from the waterfront to the inland and foothill area. Despite the Proposed Scheme with BH of 110mPD may weaken the ascending stepped BH profile at the immediate adjoining waterfront area, but is generally not incompatible with the surrounding built environment in Hung Hom area."*
9. Para. 3.4.3 – Please refer to our comment No. 7 above.	Noted.
VP1 10. Table 5.2 (Visual Obstruction and Visual Permeability) – Please consider revising the 1st para. to read as "**Negligible** – Since the KCAA1…"	Noted and Revised. Please refer to **Appendix E** of this RtoC Noted and Revised.

Departmental Comments	Responses
11. Table 5.2 (Effect on Visual Elements and Resources) – Please consider revising the 10th line to read as "…screened by the existing and planned developments…".	
VP2 12. Table 5.2 (Visual Obstruction and Visual Permeability) – Please consider revising the 1st para. to read as "**Slight to Moderate** – The Proposed Amendment…"	Noted and Revised.
VP3 13. Table 5.2 (Visual Composition) – Please consider revising the 2nd para. to read as "…to break down the building bulk.". 14. Table 5.2 (Effect on Visual Elements and Resources) – Please consider revising the 2nd para. to read as "…to allow the visual permeability.".	Noted and Revised. Noted and Revised.
VP4 15. Table 5.2 (Effects on VSRs) – Please consider revising the last line to read as "…considered moderate".	Noted and Revised.
VP5 16. Table 5.2 (Visual Obstruction and Visual Permeability) – Please consider revising to read as "**Slight** – While portion of the proposed school development…". 17. Table 5.2 (Effect on Visual Elements and Resources) – Please consider to delete "only" in the last 4th line.	Noted and Revised. Noted and Revised.
VP6	Noted and Revised.

Departmental Comments	Responses
18. Table 5.2 (Effect on Visual Elements and Resources) – Please consider revising to read as "**Negligible to Slight** – The key visual resources from this VP…".	
VP7 19. Table 5.2 (Visual Obstruction and Visual Permeability) – Please consider revising the 1st para. to read as "**Negligible** – While the proposed school development under the Baseline Scheme will be completely shielded by the existing residential developments, a very tiny portion of the proposed development..." and the 2nd para. to read as "…to the sky is considered minimal". 20. Table 5.2 (Effect on Visual Elements and Resources) – Judging from the revised photomontage, please consider revising to read as "The proposed development will occupy a very tiny portion of the open sky view.". 21. Figure 4.9 – Please provide a key plan showing the location and viewing angle from which this photo was taken.	Noted and Revised. Noted and Revised. Noted and Revised.
Received via email from TP/K(1), DPO/K dated 24 July 2025	
C. Comments on Landscape 2. The spatial arrangement of the key landscape components formation presented on the Landscape Design Concept Plan cannot be demonstrated feasible if the drawing scale is not provided on the plan.	It is worth noting that this submission seeks to rezone the Site to "R(A)9" under the statutory planning framework, facilitating its transformation of the site into a more suitable long-term use. The submitted notional layout is indicative and serve solely for technical assessments. It is a non-scheme-based submission and not tied to a specific development proposal. The Landscape Design Concept Plan provided in the submission is a preliminary conceptual diagram to illustrate the spatial arrangement of the key landscape components (e.g., function area and pedestrian linkages)

Departmental Comments	Responses
	within the Proposed Development. As this is based on a notional layout that is indicative and serve solely for technical assessments for the proposed rezoning, this concept plan serves to articulate design intent and concept only. The landscape design features and arrangement will be reviewed and determined at detailed design stage.
3. The indicative extent of private open space (POS) should be demarcated on the Landscape Design Concept Plan for reference. If there is at-grade POS, please demarcate the extent such at-grade POS would be overlapped with the Pedestrian Circulation Linkage.	Please refer to our response to **comment (2)** above.
4. Indicative landscape layout of the podium and the Harbourfront At-grade Communal Space (HACS) should be provided in the Tree Compensation Plan and Landscape Design Concept Plan for reference.	Please refer to our response to **comment (2)** above.
5. According to para. 4.5, the HACS will be opened for public use during reasonable hours. Please also indicate this in the Landscape Design Concept Plan.	Please refer to our response to **comment (2)** above.
6. Also, please indicate the circulation route within the HACS during the opening hours and the alternative circulation route when the HACS is closed for access to waterfront promenade.	Please refer to our response to **comment (2)** above.
7. With reference to the Landscape Design Concept Plan, the Hard and Soft Landscape & Amenity Area at the southeastern corner of Site B might be too narrow to maintain the overall landscape design and pedestrian flow of the area and to align with the concept of "… serve as an entry plaza to provide a sense of arrival and provide a more direct convenient, visually appealing access toward the waterfront for public enjoyment "as mentioned in para. 4.9.	Please refer to our response to **comment (2)** above.

Departmental Comments	Responses
8. A pedestrian circulation/ linkage for connecting Chi Kiang Street and Hoi Sham Park Extension at the northeast corner of Site A is suggested to enhance the accessibility and connectivity to the park and Retail Belt Frontage on G/F.	Noted. Please refer to the Revised Landscape Design Concept Plan in **Appendix F** of this RtoC for the updated pedestrian connection at Site A, which will be subject to further review during detail design stage.
9. The management and maintenance authority of the Hard and Soft Landscape & Amenity Area should be defined in the submission.	Please note that, the proposed development including the landscape and amenity area will be owned, managed and maintained by URA or its assignee or its joint venture partner.
10. The existing and proposed levels should be provided to justify for the proposed tree arrangement in the Tree Treatment Plan.	Upon the approval of the proposed rezoning by CE-in-C, a detailed site survey will be conducted during the detailed design stage.
11. There is no comment on the Items **A**, **B** and **C** which reflect two completed/ existing developments (Hoi Sham Park and To Kwa Kwan Pigging Station).	Noted.
12. The applicant is reminded that the approval of the application does not imply approval of tree works including tree pruning, transplanting and felling. The applicant is reminded to seek approval for any proposed tree works from relevant department prior to the commencement of site works.	Noted.
12. Comments from Urban Renewal Section, Lands Department (URS, LandsD)	
Received via email from TP/K(1), DPO/K dated 23 July 2025	
General Comments 2. PlanD and URA should have obtained agreements with relevant departments on the ownership, management and maintenance responsibilities and funding arrangement for any proposed public facilities, including but not limited to GIC facilities, public · open space, footbridge, pedestrian walkway, public vehicle park etc., before submission of the proposal to the Town Planning Board ("TPB") for	Noted.

Departmental Comments	Responses
consideration. I would defer to PlanD to oversee and ensure the proper governance of relevant issues.	
3. Should the planning application be approved by TPB, LandsD would process the land grant to URA in the capacity of a landlord and it will be subject to such terms and conditions as considered appropriate. For the provision of public facilities proposed by URA and agreed by PlanD to be included in the OZP, LandsD will consider whether it is appropriate to include such requirement in the land grant and if affirmative, it will be subject to such terms and conditions as considered appropriate by LandsD.	Noted.
Specific Comments 4. Unless otherwise amended, please note that the comments set out in my memos to you dated 25.7.2024, 22.10.2024 and 20.3.2025 (copy enclosed) shall remain valid ("the Previous Comments"). Added to the Previous Comments, below please find my specific comments on the Updated Planning Report. (a) <u>Site Area and Boundary of the Project</u> I shall defer to DLO/KW's advice on any change of land status or updated comment on the affected land from land administration point of view.	DLO/KW has been consulted. Please refer to **Item (13)** of this RtoC.
(b) <u>The Proposed Harbourfront At-grade Communal Space ("the HCS")</u> (i) It is noted that the at-grade public open space in private development ("the POSPD") proposed by URA in previous planning report is renamed as the HCS while their location and size with a 24-hour public footpath connecting Chi Kiang Street and Hoi Sum Park through the Project remain the same. Having	

Departmental Comments	Responses
regard to the change from the POSPD to the HCS and the related matters raised in the Previous Comments that have not yet been addressed or resolved, URA's and PlanD's clarifications are sought as follows: -.	
I. Any difference in nature between the HCS and the POSPD, in particular, whether the HCS is still a public open space to be governed by the Design and Management Guidelines for POSPD issued by DEVB;	Unlike typical Public Open Space in Private Development (POSPD), the Harbourfront At-grade Communal Space (HCS) is intended to offer flexibility in both design and operation, aiming to enhance vibrancy within public areas of the commercial portion of private developments and support a wide variety of activities. The HCS is therefore not classified as a public open space to be governed by the Design and Management Guidelines for POSPD issued by DEVB.
II. The approving authority overseeing the provision, management and maintenance, uses and opening hours of the HCS, which shall be identified at planning stage but not land grant stage, if such requirements are required to be included in the land grant; and	Noted. PlanD's comments to be sought.
III. The reply from LCSD to URA's response to LCSD's comments in March 2025 that the proposed 24-hour footpath within the POSPD connecting Chi Kiang Street and Hoi Sum Park was unnecessary.	LCSD has been consulted. Please refer to **Item (9)** of this RtoC.
(ii) It is also reiterated that should no relevant departments including PlanD can be identified/agreed to be the approving authority for the provision of the HCS comprising a 24-hour public footpath therein as proposed by URA, the concerned requirement would not be included in the land grant.	Noted.
(c) Provision of G/IC Facilities According to Para. 4.3 of the Updated Planning Report, it is noted that only the Social Welfare Department has expressed interest to provide G/IC facilities in the Project. While the Previous Comments	It is understood that SWD is undergoing the RAE funding process for the proposed GIC facilities (i.e., Residential Care Home for the Elderly cum

Departmental Comments	Responses
concerning the G/IC facilities remain valid, URA should be requested to provide the updated progress of seeking the corresponding RAE funding for TPB's consideration.	Day Care Unit). As at July 2025, the said facilities have attained Category C status.
(d) Phased Development (i) According to Para. 3.8 and the Notional Design at Appendix 2 of the Updated Planning Report, URA is exploring phased implementation strategies and/or partitioned development scenarios to allow flexibility for implementation of the Project and proposed a two-phase development scenario comprising Site A and Site B each with separate vehicle access points via Chi Kiang Street.	Noted.
(ii) URA should be requested to provide a breakdown on the proposed development parameters of Site A and Site B, including site areas, domestic, non-domestic and G/IC. GFAs and parking provisions etc.	Noted. Please note that the proposed phasing scenarios are intended solely for relevant technical assessments in support of the Proposed Rezoning under conservative approach, and are subject to change at detailed design stage. The details of the proposed development will be determined through URA's liaison with relevant Government departments upon the approval of this rezoning by the CE-in-C.
(iii) URA should also provide the tender programme of Site A and Site B as well as the estimated completion of the HCS; the proposed G/IC facilities; the proposed public vehicle park; and such other public facilities to be provided in the Project (if any) and seek relevant departments' agreements.	Following the approval of the proposed rezoning by the CE-in-C, URA will proceed with the subsequent land grant application to take forward of the proposal. The actual programme will be determined at subsequent project implementation stage.
(iv) URA is reminded that no building(s)/structure(s)/facilities should straddle over Site A and Site B. URA has to ensure that development on each site should be self-sustained.	Noted.

Departmental Comments	Responses
(v) To facilitate the preparation of land grant, URA is requested to provide details of the public facilities in the attached table.	Following the approval of the proposed rezoning by the CE-in-C, URA will proceed with the subsequent land grant application to take forward of the proposal. The detail of the public facilities will be provided at subsequent land grant preparation stage.
(e) Revised Maximum Building Height from 100mPD to 110mPD According to the Updated Planning Report, URA proposed a maximum building of 110mPD for the Project. Under the streamlined arrangement pursuant to Joint Practice Note ("JPN") No. 5, building height restriction shall be controlled under the OZP. Therefore, I shall defer to your decision on URA's proposed maximum building height for the Project.	Noted.
(f) Proposed Domestic Site Coverage C"SC") Restriction of 37.5% (i) According to the Updated Planning Report, URA proposed a maximum domestic SC restriction of 37.5% for the Project in the subject OZP amendment and stipulate the same under the Explanatory Notes and Explanatory Statement of the amended OZP (Part 2 of the Updated Planning Report refers). However, according to the Updated Notes and ES at **Appendix III** of your email dated 7.7.2025, the respective SC restriction was not included.	BD's comments have been sought, please refer to comment (1) of this RtoC table. Regarding the proposed maximum domestic site coverage restriction of 37.5% for the Project, it has been included in the planning submission dated 4 July 2025. As advised by PlanD, the said SC restriction has been removed from the OZP Notes and Explanatory Statement.
In any event, under the streamlined arrangement pursuant to JPN No. 7, SC restriction for specified planning purposes will be imposed under the OZP while BD is designated as the single agency responsible for determining the accountability of facilities and features for the purpose of SC calculation. I shall therefore defer to BD's and your decision on URA's proposed SC restriction.	Noted.

Departmental Comments	Responses
(g) Supplementary Technical Assessments For the various technical assessments appended in the Updated Planning Report, I shall defer to the advice of other relevant departments.	Noted.
13. Comments from Kowloon West District Lands Office, Lands Department (DLO/KW, LandsD)	
Received via email from TP/K(1), DPO/K dated 25 July 2025	
On DLO's Memo dated 25 July 2025 2. Please be advised that our previous comments vide our memo 25.10.2024 (our ref: F(2) in DLOKW 326/KPT/KW) and 23.6.2025 (our ref: F(59) in DLOKW 1195/KLT/KW II) are still valid (copies of relevant memos are attached herewith for reference). Further to the comments from our CES/UR vide her memo dated 23.7.2025 on the subject submission, please note our additional comments as follows.	Noted. Response to comments dated 25.10.2024, 23.6.2025 and 25.7.2025 are provided in this RtoC.
3. It is note that the proposed public facilities (such as Harbourfront At-grade Communal Space and Public Vehicle Park, etc) will be maintained and managed by URA or its assignee or its joint venture partner(s) upon completion. URA should be reminded that the management and maintenance responsibilities and relevant costs of such public facilities shall not borne by the individual flat owners of the proposed development.	Noted.
4. Comments on the proposed landscape/ tree works are reserved until relevant lease is executed. We also defer to other relevant departments to provide their expertise comments on various technical assessments in the Planning Report that are out of the purview of this office.	Noted
Other Amendments For other amendments to the Notes and Explanatory Statement, please be advised that we have no particular comments from land administration point of view.	We noted the no comment on the Amendments Notes and Explanatory Statement from the Land Administration perspective.

Departmental Comments	Responses
Received via email from TP/K(1), DPO/K dated 25 July 2025	
On DLO's Memo dated 23.6.2025 1. Please be advised that this office has no particular comment on the proposed amendments.	The no particular comment on the proposed amendments is noted.
Received via email from TP/K(1), DPO/K dated 13 November 2024	
On DLO's Memo dated 25.10.2024 2. The application site comprises (i) Government land that occupied by the Short-Term Tenancy No. KX 3105 which is held under periodic tenancy for public fee-paying car park use: (ii) the Brown Area of Kowloon Inland Lot No. 11214. TD's comment on the possible termination of the said STT car park should be sought.	Noted.
3. Should the rezoning be approved and the proposed development is taken forward, LandsD would process the land grant application in the capacity of a landlord. There is no guarantee that the land grant would be approved and if it is approved, it will be subject to such terms and conditions including payment of premium and administrative fees as considered appropriate.	Noted.
4. In respect of the proposed development, in addition to CES/UR's comments, the monitoring B/Ds for the provision of POS and PVP should also be identified at planning stage should the relevant provision requirements is to be included in the land grant.	Noted.

Appendix A

Extract of the
revised Traffic Impact Assessment

Notice

This document and its contents have been prepared and are intended solely as information for Urban Renewal Authority and use in relation to support the planning submission to the Planning Department/Town Planning Board.

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Document history

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Document reference: OR001-05

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
00	First Issue	Rambo CHEUNG	Enoch CHEUNG	Stanley CHOW	Nicole LA	20-06-2024
01	Second Issue	Jacky LEE	Enoch CHEUNG	Stanley CHOW	Nicole LA	20-09-2024
02	Third Issue	Jacky LEE	Enoch CHEUNG	Stanley CHOW	Nicole LA	28-02-2025
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05	Fifth Issue	Jacky LEE	Enoch CHEUNG	Stanley CHOW	Nicole LA	20-06-2025
06	Sixth Issue	Jacky LEE	Enoch CHEUNG	Stanley CHOW	Nicole LA	28-07-2025

Client signoff

Client	Urban Renewal Authority
Project	PROPOSED DEVELOPMENT AT BAILEY STREET / CHI KIANG STREET, KOWLOON CITY DISTRICT
Job number	5219646

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Figure 2.2 Location of Surveyed Junctions and Road Links

Figure 2.3 Year 2024 Observed Traffic Flow (Weekday)

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Figure 2.8 Existing Public Transport Service Points

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Figure 4.1 Year 2035 Reference Traffic Flow

Figure 4.2 Year 2035 Reference Pedestrian Flow

Figure 4.3 Year 2035 Design Traffic Flow

Figure 4.4 Year 2035 Design Pedestrian Flow

Figure 5.1 Junction Improvement Scheme at J8 – Hung Hom Road / Tai Wan Road East

Figure 6.1 Year 2032 Reference Traffic Flow

Figure 6.2 Year 2032 Construction Traffic Flow

2. Traffic Context

2.1. Road Network

2.1.1. The Project site is located in To Kwa Wan area of the Kowloon City District. It is bounded by Chi Kiang Street at the west, Bailey Street at the south, Hoi Sham Park extension to the north and east, and To Kwa Wan Pigging Station and To Kwa Wan Preliminary Treatment Works to the east. It is served by primary distributors of Chatham Road North and Ma Tau Wai Road; district distributors of Hung Hom Road, To Kwa Wan Road, Chi Kiang Street, and Bailey Street; local distributors of Sung On Street, Yuk Yat Street, Lok Shan Road, etc. The location of the Project site and the existing road network in the vicinity are shown in **Figure 2.1**.

2.1.2. The section of Chi Kiang Street abutting the Project site is a single two-way two-lane carriageway providing linkage connecting the Project site and other district distributors like To Kwa Wan Road and Ma Tau Wai Road.

2.1.3. The section of Bailey Street abutting the site is a single two-way two-lane carriageway running in east-west direction. It provides linkage connecting the Project site and primary distributors like Chatham Road North and Ma Tau Wai Road.

2.1.4. Hung Hom Road is a dual two-way two-lane carriageway running in north-south direction. It provides strategic routes from the Project site to other areas like Hung Hom and Tsim Sha Tsui.

2.2. Traffic Surveys

2.2.1. Manual classified traffic count surveys were conducted to identify the existing traffic flows during morning and evening peak periods (07:00 to 10:00 and 16:30 to 19:30) on typical school day in January 2024, and during morning and afternoon peak periods (07:00 to 10:00 and 14:30 to 18:30) on typical weekend in January 2024.

2.2.2. The locations of the surveyed junctions in the vicinity are listed in **Table 2-1** and as illustrated in **Figure 2.2**.

Table 2-1 - Location of Surveyed Junctions

Index [1]	Location	Junction Type
J1	To Kwa Wan Road / Lok Shan Road	Signalized
J2	To Kwa Wan Road / Chi Kiang Street	Signalized
J3	Sung On Street / Yuk Yat Street / Chi Kiang Street	Signalized
J4	Ma Tau Wai Road / Bailey Street	Signalized
J5	Bailey Street / Sung On Street	Signalized
J6	Hung Hom Road / Bailey Street	Signalized
J7	Hung Hom Road / Hok Yuen Street East	Signalized
J8	Hung Hom Road / Tai Wan Road East	Signalized
J9	To Kwa Wan Road / Kwei Chow Street / Sheung Heung Road	Signalized

Index (1)	Location	Junction Type
J10	Ma Tau Wai Road / Hok Yuen Street	Signalized

*Remarks: (1) Refer to **Figure 2.2**.*

2.2.3. The locations of the surveyed road links in the vicinity are listed in **Table 2-2** and as illustrated in **Figure 2.2**.

Table 2-2 - Location of Surveyed Road Links

Index (1)	Road Section
L1	Chi Kiang Street section between To Kwa Wan Road and Sung On Street
L2	Chi Kiang Street section between Sung On Street and Bailey Street
L3	Hung Hom Road section between Bailey Street and Hok Yuen Street East
L4	Hung Hom Road section between Bailey Street and Tai Wan Road East
L5	Bailey Street section between Chi Kiang Street and Sung On Street
L6	Bailey Street section between To Kwa Wan Road and Sung On Street
L7	To Kwa Wan Road section between Chi Kiang Street and Lok Shan Road
L8	To Kwa Wan Road section between Lok Shan Road and Sheung Heung Road
L9	Ma Tau Wai Road / To Kwa Wan Road section between Chi Kiang Street and Bailey Street
L10	Ma Tau Wai Road section between Baily Street and Hok Yuen Street

*Remarks: (1) Refer to **Figure 2.2**.*

2.2.4. The morning and evening peak hours during weekday were identified as 08:45 to 09:45 and 17:30 to 18:30, and the morning and afternoon peak hours during weekend were identified as 09:00 to 10:00 and 15:00 to 16:00 respectively. The observed traffic flows for weekday and weekend are presented in **Figure 2.3** and **Figure 2.4**.

2.2.5. Pedestrian head count surveys were conducted at the key section of walkways along the anticipated access routes of the Project site during the morning and evening peak periods (07:00 to 10:00 and 14:30 to 19:30) on typical school day, and the morning and afternoon peak periods (07:00 to 10:00 and 12:00 to 16:00) on typical weekend in January 2024 to collect the existing pedestrian flow at the local area. The locations of the surveyed pedestrian walkways in the vicinity are illustrated in **Figure 2.5**.

2.2.6. The survey results indicated that the observed peak 15-minute pedestrian flow would be occurred between 08:40 to 08:55 and 18:00 to 18:15 in the morning and evening peak periods during weekday, and between 08:45 to 09:00 and 13:35 to 13:50 in the morning and afternoon peak periods during weekend respectively. The observed pedestrian flows for both weekday and weekend are presented in **Figure 2.6** and **Figure 2.7**.

2.3. Existing Junction Performance

2.3.1. The existing junctions' performance are assessed in accordance with the procedures outlined in the Transport Planning and Design Manual (TPDM) and based on the observed traffic flow and the assessment results are extracted in **Table 2-3** and the calculation sheets are attached in **Appendix A**.

Table 2-3 - Junction Performance for Observed Scenario

Index [1]	Location	Junction Type	Reserve Capacity [2]			
			Weekday		Weekend	
			AM	PM	AM	PM
J1	To Kwa Wan Road / Lok Shan Road	Signalized	>100%	>100%	>100%	>100%
J2	To Kwa Wan Road / Chi Kiang Street	Signalized	82%	78%	>100%	93%
J3	Sung On Street / Yuk Yat Street / Chi Kiang Street	Signalized	60%	63%	91%	52%
J4	Ma Tau Wai Road / Bailey Street	Signalized	>100%	>100%	>100%	>100%
J5	Bailey Street / Sung On Street	Signalized	>100%	>100%	>100%	>100%
J6	Hung Hom Road / Bailey Street	Signalized	>100%	>100%	>100%	>100%
J7	Hung Hom Road / Hok Yuen Street East	Signalized	91%	74%	>100%	>100%
J8	Hung Hom Road / Tai Wan Road East	Signalized	20%	26%	79%	81%
J9	To Kwa Wan Road / Kwei Chow Street / Sheung Heung Road	Signalized	>100%	>100%	>100%	>100%
J10	Ma Tau Wai Road / Hok Yuen Street	Signalized	>100%	>100%	>100%	>100%

*Remarks: (1) Refer to **Figure 2.2**.*
(2) Reserve Capacity (RC) are presented in percentage for signal-controlled junctions.

2.3.2. As shown in **Table 2-3**, all of the assessed junctions are operating satisfactorily (RC ≥ 15%) and junction performance on weekdays is considered more critical than on weekend.

2.4. Existing Road Link Performance

2.4.1. The assessment of existing road link performance in terms of Volume / Capacity (V/C) ratio is carried out for the key road links as listed in listed in **Table 2-2**. The assessment results are tabulated in **Table 2-4**.

Table 2-4 - Road Link Performance for Observed Scenario

Index [1]	Road Section	Direction [2]	Design Capacity [3]	Weekday				Weekend			
				AM		PM		AM		PM	
				Flow [3]	V/C Ratio [4]	Flow [3]	V/C Ratio [4]	Flow [3]	V/C Ratio [4]	Flow [3]	V/C Ratio [4]
L1	Chi Kiang Street	EB	1,800	425	0.24	450	0.25	340	0.19	360	0.20
L2	Chi Kiang Street	NB	800	110	0.14	80	0.10	105	0.14	170	0.22
		SB	800	390	0.49	380	0.48	185	0.24	215	0.27
L3	Hung Hom Road	NB	2,800	475	0.17	475	0.17	355	0.13	445	0.16
		SB	2,800	525	0.19	560	0.20	355	0.13	375	0.14

Index (1)	Road Section	Direction (2)	Design Capacity (3)	Weekday				Weekend			
				AM		PM		AM		PM	
				Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)
L4	Hung Hom Road	NB	2,800	540	0.20	520	0.19	440	0.16	495	0.18
		SB	2,800	810	0.29	905	0.33	510	0.19	520	0.19
L5	Bailey Street	EB	2,800	330	0.12	300	0.11	230	0.09	250	0.09
		WB	2,800	425	0.16	440	0.16	305	0.11	385	0.14
L6	Bailey Street	EB	2,500	280	0.12	230	0.10	220	0.09	245	0.10
		WB	2,500	435	0.18	420	0.17	335	0.14	390	0.16
L7	To Kwa Wan Road	NB	2,800	430	0.16	485	0.18	450	0.17	505	0.19
		SB	2,800	825	0.30	855	0.31	680	0.25	725	0.26
L8	To Kwa Wan Road	NB	2,800	420	0.15	430	0.16	340	0.13	415	0.15
		SB	2,800	815	0.30	925	0.34	735	0.27	805	0.29
L9	Ma Tau Wai Road / To Kwa Wan Road	NB	2,800	355	0.13	400	0.15	360	0.13	415	0.15
		SB	3,900	1,000	0.26	860	0.23	825	0.22	855	0.22
L10	Ma Tau Wai Road	NB	2,500	610	0.25	800	0.32	620	0.25	815	0.33
		SB	2,400	625	0.27	575	0.24	490	0.21	515	0.22

*Remarks: (1) Refer to **Figure 2.2**.*
(2) EB = eastbound; WB = westbound; NB = northbound; SB = southbound.
(3) Units for Design Capacity and Flow are in pcu/hr.
(4) A V/C ratio below 1.0 is considered acceptable in a developed area; between 1.0 and 1.2 would indicate a manageable degree of congestion; and above 1.2 indicates the onset of more serious congestion.

2.4.2. As shown in **Table 2-4**, all assessed road links are operating satisfactorily (V/C ratio <1.0) on both weekday and weekend.

2.5. Existing Pedestrian Walkway Performance

2.5.1. Existing performance of the key footpaths near the Project site are assessed with the observed pedestrian flows.

2.5.2. Current performance of the key pedestrian links is summarized in **Table 2-5** in terms of Level-of-Service (LOS). For details of the LOS, please refer to **Para. 2.5.4** and **Table 2-6**.

Developments	Development Component	Parameters
To Kwa Wan Road / Ma Tau Kok Road (KC-019)	Residential (flats)	950
	Retail (GFA)	7,816
	GIC (GFA)	500
Chun Tin Street / Sung Chi Street (KC-008A)	Residential (flats)	260
	Retail (GFA)	1,575
Bailey Street / Wing Kwong Street (KC-009)	Residential (flats)	1,150
	Retail (GFA)	11,105
Hung Fook Street / Ngan Hon Street (KC-010)	Residential (flats)	750
	Retail (GFA)	6,843
Hung Fook Street / Kai Ming Street (KC-011)	Residential (flats)	400
	Retail (GFA)	3,660
Kai Ming Street / Wing Kwong Street (KC-012 and KC-013)	Residential (flats)	472
	Retail (GFA)	3,721
Wing Kwong Street / Sung On Street (KC-014)	Residential (flats)	506
	Retail (GFA)	4,286
To Kwa Wan Road / Wing Kwong Street (KC-016)	Residential (flats)	900
	Retail (GFA)	8,322
	GIC (GFA)	5,500
Shing Tak Street / Ma Tau Chung Road (CBS-1:KC)	Residential (flats)	640
	Retail (GFA)	6,424
Kau Pui Lung Road / Chi Kiang Street (CBS-2:KC)	Residential (flats)	2,324
	Retail (GFA)	15,475
	GIC (GFA)	4,500
Public Development Projects		
Dedicated Rehousing Estate at Ma Tau Kok	Residential (flats)	1,100
	Retail (GFA)	8,500
60 Ko Shan Road – Kwun Shan Court	Residential (flats)	495
Junction of Sung Wong Toi Road / To Kwa Wan Road	Residential (flats)	756
	Retail (GFA)	1,000
	GIC (GFA)	5,200
Private Development Projects		
5&7 Mok Cheong Street and 72-78 Sung Wong Toi Road (A/K10/259)	Residential (flats)	825
	Retail (GFA)	9,262

Developments	Development Component	Parameters
3-5 San Ma Tau Street (Y/K22/32)	Retail (GFA)	5,978
	Office (GFA)	18,479
New Kowloon Inland Lot No 6607, Shing Kai Road (A/K22/28)	Hotel (rooms)	440
	Office (GFA)	16,585
9-17 Mok Cheong Street (A/K10/265)	Residential (flats)	746
	Retail (GFA)	7,599
21 Yuk Yat Street (A/K10/269)	Residential (flats)	110
	Retail (GFA)	810
17 Yuk Yat Street (A/K10/266)	Residential (flats)	208
	Retail (GFA)	700
21-31 Sheung Heung Road (A/K10/267)	Residential (flats)	201
	Retail (GFA)	1,268
13 Hok Yuen Street (A/K9/274)	Retail (GFA)	270
	Office (GFA)	47,007
60-66 Ma Tau Chung Road	Residential (flats)	940
	Retail (GFA)	270
41-45 Pau Chung Street	Residential (flats)	76
	Retail (GFA)	473

4.3.2. Development trips generated by the above planned developments were estimated with reference to the TPDM published by TD and the trip rate adopted in the BDTM. Mean value of the trip rate provided in TPDM have been adopted in the study to in line with the forecasting methodology of BDTM. The adopted trip rates and traffic generation of the planned/ committed developments are summarized in **Table 4-6**.

Table 4-6 - Traffic Generation by Planned Developments

Developments	Parameters	Adopted Trip Rates (pcu/hr/flats or pcu/hr/100m^2) [1]				Trip Generation (pcu/hr)			
		AM		PM		AM		PM	
		GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]
URA Projects									
Kai Ming Street (DL-8:KC)	72 flats	0.0718	0.0425	0.0286	0.0370	6	4	3	3
	308 m^2 Retail	0.2296	0.2434	0.3100	0.3563	1	1	1	2
	450 m^2 GIC	0.2350	0.2350	0.1150	0.1150	2	2	1	1

Developments	Parameters	Adopted Trip Rates (pcu/hr/flats or pcu/hr/100m^2) [1]				Trip Generation (pcu/hr)			
		AM		PM		AM		PM	
		GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]
Ming Lun Street / Ma Tau Kok Road (KC-018)	1,276 flats	0.0718	0.0425	0.0286	0.0370	92	55	37	48
	10,496 m^2 Retail	0.2296	0.2434	0.3100	0.3563	25	26	33	38
	1,000 m^2 GIC	0.2350	0.2350	0.1150	0.1150	3	3	2	2
To Kwa Wan Road / Ma Tau Kok Road (KC-019)	950 flats	0.0718	0.0425	0.0286	0.0370	69	41	28	36
	7,816 m^2 Retail	0.2296	0.2434	0.3100	0.3563	18	20	25	28
	500 m^2 GIC	0.2350	0.2350	0.1150	0.1150	2	2	1	1
Chun Tin Street / Sung Chi Street (KC-008A)	260 flats	0.0718	0.0425	0.0286	0.0370	19	12	8	10
	1,575 m^2 Retail	0.2296	0.2434	0.3100	0.3563	4	4	5	6
Bailey Street / Wing Kwong Street (KC-009)	1,150 flats	0.0718	0.0425	0.0286	0.0370	83	49	33	43
	11,105 m^2 Retail	0.2296	0.2434	0.3100	0.3563	26	28	35	40
Hung Fook Street / Ngan Hon Street (KC-010)	750 flats	0.0718	0.0425	0.0286	0.0370	54	32	22	28
	6,843 m^2 Retail	0.2296	0.2434	0.3100	0.3563	16	17	22	25
Hung Fook Street / Kai Ming Street (KC-011)	400 flats	0.0718	0.0425	0.0286	0.0370	29	17	12	15
	3,660 m^2 Retail	0.2296	0.2434	0.3100	0.3563	9	9	12	14
Kai Ming Street / Wing Kwong Street (KC-012 and KC-013)	472 flats	0.0718	0.0425	0.0286	0.0370	34	21	14	18
	3,721 m^2 Retail	0.2296	0.2434	0.3100	0.3563	9	10	12	14
Wing Kwong Street / Sung On Street (KC-014)	506 flats	0.0718	0.0425	0.0286	0.0370	37	22	15	19
	4,286 m^2 Retail	0.2296	0.2434	0.3100	0.3563	10	11	14	16
To Kwa Wan Road / Wing Kwong Street (KC-016)	900 flats	0.0718	0.0425	0.0286	0.0370	13	8	6	7
	8,322 m^2 Retail	0.2296	0.2434	0.3100	0.3563	20	21	26	30
	5,500 m^2 GIC	0.2350	0.2350	0.1150	0.1150	13	13	7	7

Developments	Parameters	Adopted Trip Rates (pcu/hr/flats or pcu/hr/100m^2) [1]				Trip Generation (pcu/hr)			
		AM		PM		AM		PM	
		GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]
Shing Tak Street / Ma Tau Chung Road (CBS-1:KC)	640 flats	0.0718	0.0425	0.0286	0.0370	46	28	19	24
	6,424 m^2 Retail	0.2296	0.2434	0.3100	0.3563	15	16	20	23
Kau Pui Lung Road / Chi Kiang Street (CBS-2:KC)	1,364 flats	0.0718	0.0425	0.0286	0.0370	98	58	40	51
	960 flats	0.0622	0.0426	0.0297	0.0401	60	41	29	39
	15,475 m^2 Retail	0.2296	0.2434	0.3100	0.3563	36	38	48	56
	4,500 m^2 GIC	0.2350	0.2350	0.1150	0.1150	11	11	6	6
Public Development Projects									
Dedicated Rehousing Estate at Ma Tau Kok	1,100 flats	0.0622	0.0426	0.0297	0.0401	69	47	33	45
	8,500 m^2 Retail	0.2296	0.2434	0.3100	0.3563	20	21	27	31
60 Ko Shan Road – Kwun Shan Court	495 flats	0.0622	0.0426	0.0297	0.0401	31	22	15	20
Junction of Sung Wong Toi Road / To Kwa Wan Road	756 flats	0.0432	0.0326	0.0237	0.0301	33	25	18	23
	1,000 m^2 Retail	0.2296	0.2434	0.3100	0.3563	3	3	4	4
	5,200 m^2 GIC	0.2350	0.2350	0.1150	0.1150	13	13	6	6
Private Development Projects									
5&7 Mok Cheong Street and 72-78 Sung Wong Toi Road (A/K10/259)	48 flats	0.3252	0.2609	0.2835	0.4074	16	13	14	20
	777 flats	0.0718	0.0425	0.0286	0.0370	56	34	23	29
	9,262 m^2 Retail	0.2296	0.2434	0.3100	0.3563	22	23	29	34
3-5 San Ma Tau Street (Y/K22/32)	5,978 m^2 Retail	0.2296	0.2434	0.3100	0.3563	14	15	19	22
	18,479 m^2 Office	0.1703	0.2452	0.1573	0.1175	32	46	30	22
New Kowloon Inland Lot No 6607, Shing Kai Road (A/K22/28)	440 hotel rooms	0.1329	0.1457	0.1290	0.1546	59	65	57	69
	16,585 m^2 Office	0.1703	0.2452	0.1573	0.1175	29	41	27	20

Developments	Parameters	Adopted Trip Rates (pcu/hr/flats or pcu/hr/100m^2) [1]				Trip Generation (pcu/hr)			
		AM		PM		AM		PM	
		GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]	GEN [2]	ATT [2]
9-17 Mok Cheong Street (A/K10/265)	746 flats	0.1058	0.0605	0.0426	0.059	79	46	32	45
	7,599 m^2 Retail	0.2296	0.2434	0.3100	0.3563	18	19	24	28
21 Yuk Yat Street (A/K10/269)	110 flats	0.0718	0.0425	0.0286	0.0370	8	5	4	5
	810 m^2 Retail	0.2296	0.2434	0.3100	0.3563	2	2	3	3
17 Yuk Yat Street (A/K10/266)	208 flats	0.0718	0.0425	0.0286	0.0370	15	9	6	8
	700 m^2 Retail	0.2296	0.2434	0.3100	0.3563	2	2	3	3
21-31 Sheung Heung Road (A/K10/267)	201 flats	0.0718	0.0425	0.0286	0.0370	15	9	6	8
	1,268 m^2 Retail	0.2296	0.2434	0.3100	0.3563	3	4	4	5
13 Hok Yuen Street (A/K9/274)	270 m^2 Retail	0.2296	0.2434	0.3100	0.3563	1	1	1	1
	47,007 m^2 Office	0.1703	0.2452	0.1573	0.1175	81	116	74	56
60-66 Ma Tau Chung Road	940 flats	0.0718	0.0425	0.0286	0.0370	68	40	27	35
	270 m^2 Retail	0.2296	0.2434	0.3100	0.3563	1	1	1	1
41-45 Pau Chung Street	76 flats	0.0718	0.0425	0.0286	0.0370	6	4	3	3
	473 m^2 Retail	0.2296	0.2434	0.3100	0.3563	2	2	2	2
					Total	**1,559**	**1,249**	**1,028**	**1,198**

Remarks: (1) Refer to TPDM Vol. 1, Ch. 3, Appendix, Table 1 and Table 2, BDTM Urban Final Report, Appendix Q or DR 439.
(2) "GEN" means "Generation" and "ATT" means Attraction.
Note: Trip Generation is rounded to the nearest digit.

4.3.3. As shown in **Table 4-6**, the planned developments will generate overall 2-way trips of 2,707 pcu/hr and 2,174 pcu/hr during the morning and evening peak hour respectively.

4.4. Reference Traffic Forecast

4.4.1. The traffic demand to be generated/attracted by the planned/committed developments will be assigned on the surrounding road network and superimposed onto the year 2035 background traffic flow to produce the reference traffic flow. The year 2035 reference traffic flow is shown in **Figure 4.1**.

4.4.2. Additional pedestrian demand in the vicinity would also be considered for the pedestrian forecast. Assessment for the key pedestrian walkway will be conducted for the design year 2035. The year 2035 reference pedestrian traffic flow is shown in **Figure 4.2**.

5. Traffic Impact Assessment

5.1. Methodology

5.1.1. Junction capacity analysis and queue length analysis of critical junctions were conducted for the design year 2035 (three years after completion) for the junctions which are likely to be affected by the Proposed Development.

5.1.2. The analyses were based on the traffic forecasts at design year 2035 for Reference Scenario (without Proposed Development) and Design Scenario (with Proposed Development).

5.1.3. Mitigation measure with junction improvement scheme will be proposed to mitigate the traffic impact induced by the development if the junction performance below the desirable 15% under Design Scenario.

5.2. Junction Analysis

5.2.1. The results of the capacity analysis for design year 2035 Reference and Design Scenarios are summarized in **Table 5-1**. The calculation sheets are attached in **Appendix A**.

Table 5-1 - Junction Performance for Year 2035 Reference and Design Scenarios

Index (1)	Location	Junction Type	Reserve Capacity (2)			
			Reference		Design	
			AM	PM	AM	PM
J1	To Kwa Wan Road / Lok Shan Road	Signalized	>100%	>100%	>100%	>100%
J2	To Kwa Wan Road / Chi Kiang Street	Signalized	64%	61%	63%	57%
J3	Sung On Street / Yuk Yat Street / Chi Kiang Street	Signalized	31%	38%	19%	31%
J4	Ma Tau Wai Road / Bailey Street	Signalized	83%	90%	82%	85%
J5	Bailey Street / Sung On Street	Signalized	>100%	>100%	>100%	>100%
J6	Hung Hom Road / Bailey Street	Signalized	100%	>100%	75%	89%
J7	Hung Hom Road / Hok Yuen Street East	Signalized	73%	61%	66%	56%
J8	Hung Hom Road / Tai Wan Road East	Signalized	15%	21%	**11%**	19%
J9	To Kwa Wan Road / Kwei Chow Street / Sheung Heung Road	Signalized	>100%	>100%	>100%	>100%
J10	Ma Tau Wai Road / Hok Yuen Street	Signalized	>100%	>100%	>100%	>100%

*Remarks: (1) Refer to **Figure 2.2**.*
(2) Reserve Capacity (RC) are presented in percentage for signal-controlled junctions.

5.2.2. As shown in **Table 5-1**, all of the assessed key junctions would operate satisfactorily (RC ≥ 15%) in both year 2035 Reference and Design Scenarios, except J8 – Hung Hom Road / Tai Wan Road East in the Design Scenario.

5.3. Queue Length Analysis

5.3.1. The results of the queue length analysis of critical junctions for design year 2035 Reference and Design Scenarios are summarized in **Table 5-2**. The calculation sheets are attached in **Appendix C**.

Table 5-2 - Average Queue Length for Year 2035 Reference and Design Scenarios

Index (1)	Location	Junction Arm	Average Queue Length (m)			
			Reference		Design	
			AM	PM	AM	PM
J3	Sung On Street / Yuk Yat Street / Chi Kiang Street	Sung On Street NB	24	20	24	21
		Chi Kiang Street EB	31	31	32	33
		Yuk Yat Street SB	32	27	33	28
		Chi Kiang Street WB	21	17	33	18
J8	Hung Hom Road / Tai Wan Road East	Hung Hom Road NB	34	32	36	33
		Fat Kwong Street Flyover EB	46	43	48	44
		Hung Hom Road SB	46	47	49	47
		Tai Wan Road East WB	34	31	35	31

*Remarks: (1) Refer to **Figure 2.2**.*

5.4. Road Link Performance

5.4.1. The results of the road link performance of key road links for design year 2035 Reference and Design Scenarios are summarized in **Table 5-3**.

Table 5-3 - Road Link Performance for Year 2035 Reference and Design Scenarios

Index (1)	Road Section	Direction (2)	Design Capacity (3)	Reference				Design			
				AM		PM		AM		PM	
				Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)
L1	Chi Kiang Street	EB	1,800	455	0.26	480	0.27	460	0.26	500	0.28
L2	Chi Kiang Street	NB	800	115	0.15	85	0.11	180	0.23	130	0.17
		SB	800	425	0.54	405	0.51	475	0.60	460	0.58
L3	Hung Hom Road	NB	2,800	510	0.19	510	0.19	575	0.21	555	0.20
		SB	2,800	570	0.21	600	0.22	610	0.22	600	0.22
L4	Hung Hom Road	NB	2,800	600	0.22	565	0.21	665	0.24	610	0.22
		SB	2,800	875	0.32	970	0.35	915	0.33	970	0.35
L5	Bailey Street	EB	2,800	355	0.13	320	0.12	355	0.13	320	0.12
		WB	2,800	460	0.17	470	0.17	470	0.17	525	0.19

Index (1)	Road Section	Direction (2)	Design Capacity (3)	Reference				Design			
				AM		PM		AM		PM	
				Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)
L6	Bailey Street	EB	2,500	310	0.13	245	0.10	310	0.13	245	0.10
		WB	2,500	465	0.19	450	0.18	475	0.19	505	0.21
L7	To Kwa Wan Road	NB	2,800	465	0.17	515	0.19	465	0.17	515	0.19
		SB	2,800	945	0.34	980	0.35	950	0.34	980	0.35
L8	To Kwa Wan Road	NB	2,800	450	0.17	460	0.17	450	0.17	460	0.17
		SB	2,800	925	0.34	1,045	0.38	930	0.34	1,045	0.38
L9	Ma Tau Wai Road / To Kwa Wan Road	NB	2,800	385	0.14	425	0.16	385	0.14	425	0.16
		SB	2,800	1,360	0.49	1,225	0.44	1,360	0.49	1,225	0.44
L10	Ma Tau Wai Road	NB	2,500	705	0.29	895	0.36	705	0.29	895	0.36
		SB	2,400	750	0.32	650	0.28	750	0.32	655	0.28

*Remarks: (1) Refer to **Figure 2.2**.*
(2) EB = eastbound; WB = westbound; NB = northbound; SB = southbound.
(3) Units for Design Capacity and Flow are in pcu/hr.
(4) A V/C ratio below 1.0 is considered acceptable in a developed area; between 1.0 and 1.2 would indicate a manageable degree of congestion; and above 1.2 indicates the onset of more serious congestion.

5.4.2. As shown in **Table 5-3**, all assessed road links are operating satisfactorily (V/C ratio <1.0) in both year 2035 Reference and Design Scenarios.

5.5. Traffic Mitigation Measure

5.5.1. As the junction performance of J8 – Hung Hom Road / Tai Wan Road East is below 15%. A potential junction improvement scheme for the junction is developed to restore its reserve capacity. The basic principle of the junction improvement scheme is providing additional lane at Hung Hom Road southbound with using existing remaining road space. The schematic design of the potential junction improvement scheme is illustrated in **Figure 5.1**.

5.5.2. With the potential junction improvement scheme, the capacity analysis, queue length analysis and refuge island assessment for year 2035 Design Scenario are summarised in **Table 5-4** to **Table 5-6** respectively. The calculation sheets are attached in **Appendix A, Appendix C** and **Appendix D**.

Table 5-4 – Junction Performance for Year 2035 Design Scenario

Index (1)	Location	Junction Type	Year 2035 Design Scenario Reserve Capacity (2)			
			Without Potential Junction Improvement Scheme		With Potential Junction Improvement Scheme	
			AM	PM	AM	PM
J8	Hung Hom Road / Tai Wan Road East	Signalized	**11%**	19%	17%	26%

*Remarks: (1) Refer to **Figure 2.2**.*
(2) Reserve Capacity (RC) are presented in percentage for signal-controlled junctions.

Table 5-5 – Average Queue Length for Year 2035 Design Scenario

Index (1)	Location	Junction Arm	Year 2035 Design Scenario Average Queue Length (m)			
			Without Potential Junction Improvement Scheme		With Potential Junction Improvement Scheme	
			AM	PM	AM	PM
J8	Hung Hom Road / Tai Wan Road East	Hung Hom Road NB	36	33	36	32
		Fat Kwong Street Flyover EB	48	44	47	43
		Hung Hom Road SB	49	47	30	30
		Tai Wan Road East WB	35	31	34	31

*Remarks: (1) Refer to **Figure 2.2**.*

Table 5-6 - Refuge Island Occupancy Assessment for Year 2035 Design Scenario

Index (1)	Location	Refuge Island Location	Average Pedestrian Area Occupancy (2)	
			AM	PM
J8	Hung Hom Road / Tai Wan Road East	Hung Mom Road Northern Arm	1.1	1.2

*Remarks: (1) Refer to **Figure 2.2**.*
(2) A minimum average pedestrian area occupancy of 0.2 sq.m./person should be provided wherever possible.

5.5.3. According to the capacity analysis, queue length analysis and refuge island assessment for the potential junction improvement scheme, it shows that it can restore the reserve capacity. However, the necessity of the potential junction improvement scheme should be review by the developer of the Project Site with the final development parameters and the latest traffic conditions. If junction improvement scheme is necessary after the traffic review, the improvement works should be complete before the population intake of the Project Site.

6. Construction Traffic Impact Assessment

6.1. Methodology

6.1.1. Junction capacity analysis of critical junctions was conducted for the completion year 2032 for the junctions which are likely to be affected by the construction activities for the Proposed Development.

6.1.2. It is assumed that the trip generation of the construction traffic for the Proposed Development would be 2-way trips of 50 pcu/hr during the morning and evening peak hours.

6.1.3. The traffic forecast to year 2032 follows the methodology as presented in **Chapter 4** and the year 2032 reference and construction traffic flow are shown in **Figure 6.1** and **Figure 6.2**.

6.1.4. The analyses were based on the traffic forecasts at design year 2032 for Reference Scenario (without construction activities) and Construction Scenario (with construction activities).

6.2. Junction Analysis

6.2.1. The results of the capacity analysis for design year 2032 Reference and Construction Scenarios are summarized in **Table 6-1**. The calculation sheets are attached in **Appendix A**.

Table 6-1 - Junction Performance for Year 2032 Reference and Construction Scenarios

Index (1)	Location	Junction Type	Reserve Capacity (2)			
			Reference		Construction	
			AM	PM	AM	PM
J1	To Kwa Wan Road / Lok Shan Road	Signalized	>100%	>100%	>100%	>100%
J2	To Kwa Wan Road / Chi Kiang Street	Signalized	67%	64%	57%	54%
J3	Sung On Street / Yuk Yat Street / Chi Kiang Street	Signalized	33%	41%	23%	30%
J4	Ma Tau Wai Road / Bailey Street	Signalized	87%	92%	84%	89%
J5	Bailey Street / Sung On Street	Signalized	>100%	>100%	>100%	>100%
J6	Hung Hom Road / Bailey Street	Signalized	>100%	>100%	99%	>100%
J7	Hung Hom Road / Hok Yuen Street East	Signalized	77%	65%	77%	65%
J8	Hung Hom Road / Tai Wan Road East	Signalized	17%	23%	17%	23%
J9	To Kwa Wan Road / Kwei Chow Street / Sheung Heung Road	Signalized	>100%	>100%	>100%	>100%
J10	Ma Tau Wai Road / Hok Yuen Street	Signalized	>100%	>100%	>100%	>100%

*Remarks: (1) Refer to **Figure 2.2**.*
(2) Reserve Capacity (RC) are presented in percentage for signal-controlled junctions.

6.2.2. As shown in **Table 6-1**, all of the assessed key junctions would operate satisfactorily (RC ≥ 15%) in both year 2032 Reference and Construction Scenarios.

6.2.3. In view that all the key junctions would operate satisfactorily, the mitigation measures discussed in **Section 5.4** is not necessary for construction stage.

6.3. Road Link Performance

6.3.1. The results of the road link performance of key road links for design year 2032 Reference and Construction Scenarios are summarized in **Table 6-2**.

Table 6-2 - Road Link Performance for Year 2032 Reference and Construction Scenarios

Index (1)	Road Section	Direction (2)	Design Capacity (3)	Reference				Construction			
				AM		PM		AM		PM	
				Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)	Flow (3)	V/C Ratio (4)
L1	Chi Kiang Street	EB	1,800	445	0.25	470	0.27	495	0.28	520	0.29
L2	Chi Kiang Street	NB	800	115	0.15	85	0.11	115	0.15	85	0.11
		SB	800	415	0.52	400	0.50	440	0.55	425	0.54
L3	Hung Hom Road	NB	2,800	505	0.19	500	0.18	505	0.19	500	0.18
		SB	2,800	560	0.20	590	0.22	560	0.20	590	0.22
L4	Hung Hom Road	NB	2,800	590	0.22	555	0.20	590	0.22	555	0.20
		SB	2,800	860	0.31	955	0.35	860	0.31	955	0.35
L5	Bailey Street	EB	2,800	350	0.13	315	0.12	350	0.13	315	0.12
		WB	2,800	445	0.16	460	0.17	470	0.17	485	0.18
L6	Bailey Street	EB	2,500	305	0.13	245	0.10	305	0.13	245	0.10
		WB	2,500	455	0.19	440	0.18	480	0.20	465	0.19
L7	To Kwa Wan Road	NB	2,800	455	0.17	510	0.19	455	0.17	510	0.19
		SB	2,800	935	0.34	960	0.35	935	0.34	960	0.35
L8	To Kwa Wan Road	NB	2,800	440	0.16	450	0.17	440	0.16	450	0.17
		SB	2,800	910	0.33	1,035	0.37	910	0.33	1,035	0.37
L9	Ma Tau Wai Road / To Kwa Wan Road	NB	2,800	375	0.14	420	0.15	375	0.14	420	0.15
		SB	2,800	1,345	0.49	1,210	0.44	1,345	0.49	1,210	0.44
L10	Ma Tau Wai Road	NB	2,500	695	0.28	880	0.36	695	0.28	880	0.36
		SB	2,400	735	0.31	635	0.27	735	0.31	635	0.27

*Remarks: (1) Refer to **Figure 2.2**.*
(2) EB = eastbound; WB = westbound; NB = northbound; SB = southbound.
(3) Units for Design Capacity and Flow are in pcu/hr.
(4) A V/C ratio below 1.0 is considered acceptable in a developed area; between 1.0 and 1.2 would indicate a manageable degree of congestion; and above 1.2 indicates the onset of more serious congestion.

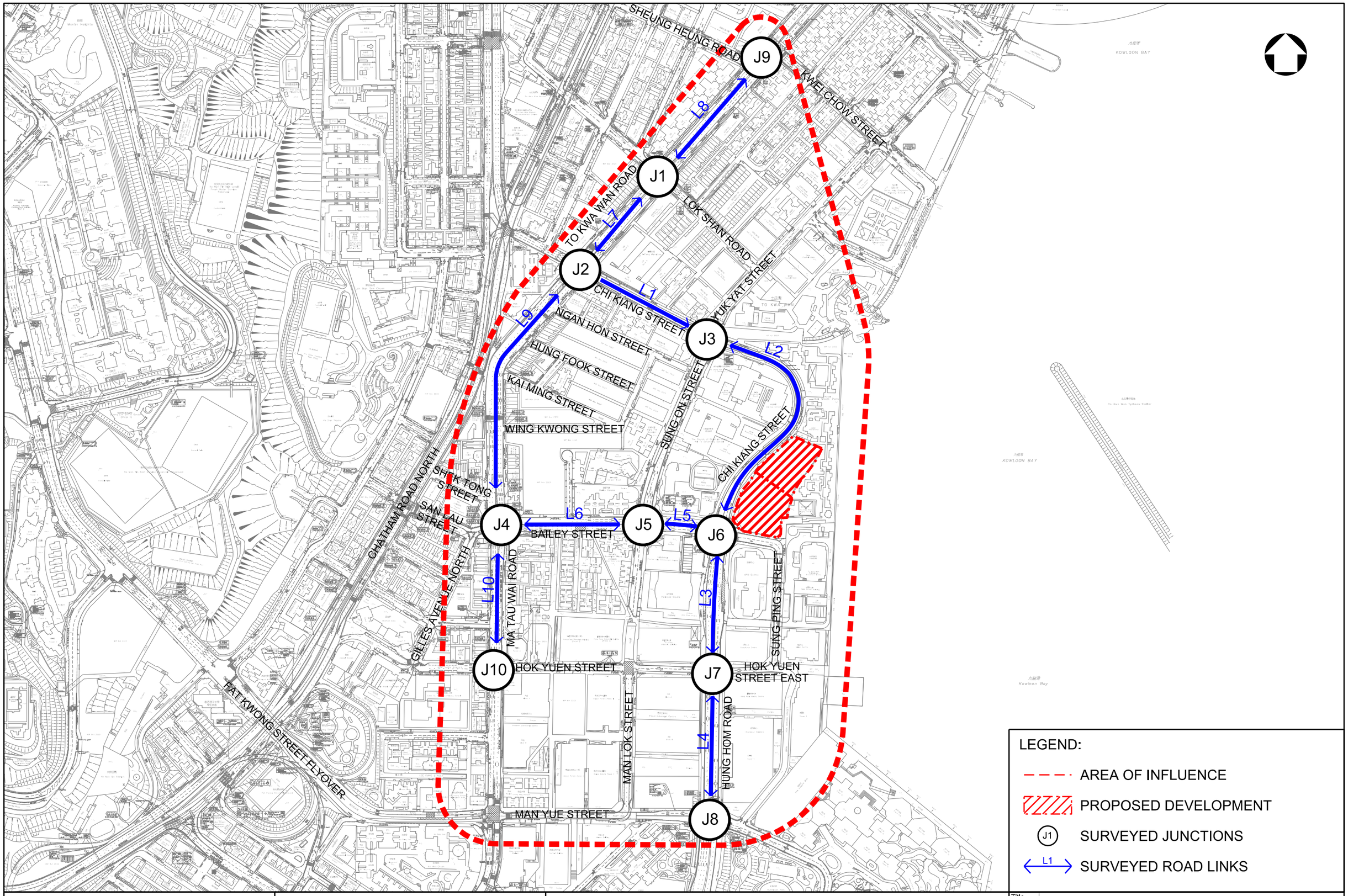
6.3.2. As shown in **Table 6-2**, all assessed road links are operating satisfactorily (V/C ratio <1.0) in both year 2032 Reference and Construction Scenarios.

6.4. Temporary Traffic Arrangement

6.4.1. The existing temporary STT car park will be closed during the construction stage. The possibility of providing a partially public car park within the Project Site will be reviewed during this period, subject to the final building layout and construction method. If the Project Site is unable to accommodate such facility, additional on-street public parking spaces will be explored as transitional measure, if necessary.

6.4.2. To address parking needs, particularly for coaches, the URA proposes leveraging the existing coach park adjacent to the Kowloon City Government Offices on Bailey Street, southwest of the Site, as a key temporary parking solution during construction period. Furthermore, coach parking facilities will also be provided in ongoing developments in URA's KCAA1 Core Area and the Central Kowloon Route. These facilities will help maintain coach accessibility in the vicinity.

6.4.3. Notwithstanding the above, the Government may also consider to covert space beneath flyovers for parking uses, such as spaces underneath the East Kowloon Corridor. Similar arrangement has been adopted in the Central and Western District in recent years."



LEGEND:

- AREA OF INFLUENCE
- PROPOSED DEVELOPMENT
- (J1) SURVEYED JUNCTIONS
- L1 SURVEYED ROAD LINKS

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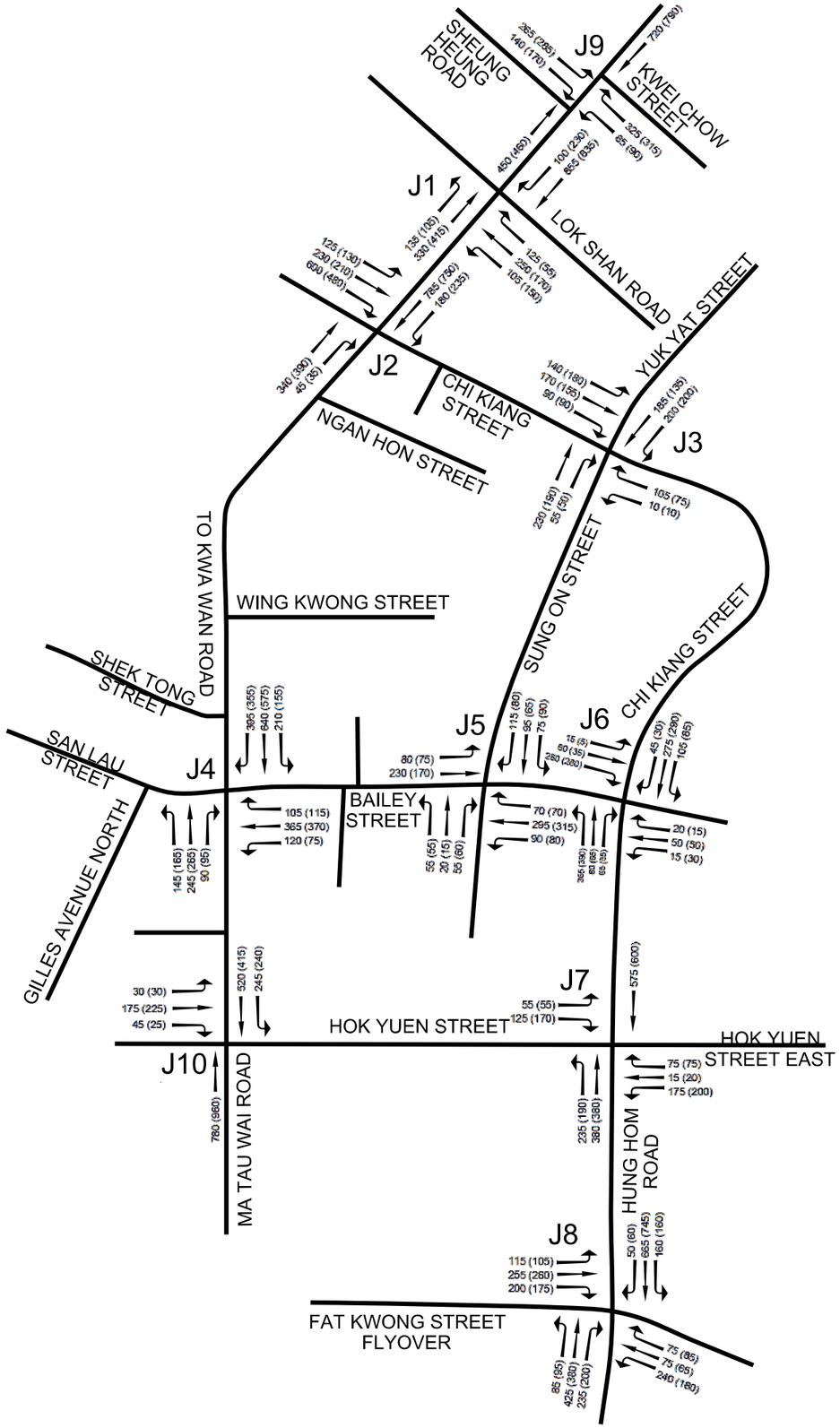
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PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title: LOCATION OF SURVEYED JUNCTIONS AND ROAD LINKS

Scale at A3	Date	Figure No.
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LEGEND:

100(100) → AM(PM) PEAK TRAFFIC FLOW (PCU/HR)

J1 JUNCTION INDEX

URBAN RENEWAL AUTHORITY 市區重建局

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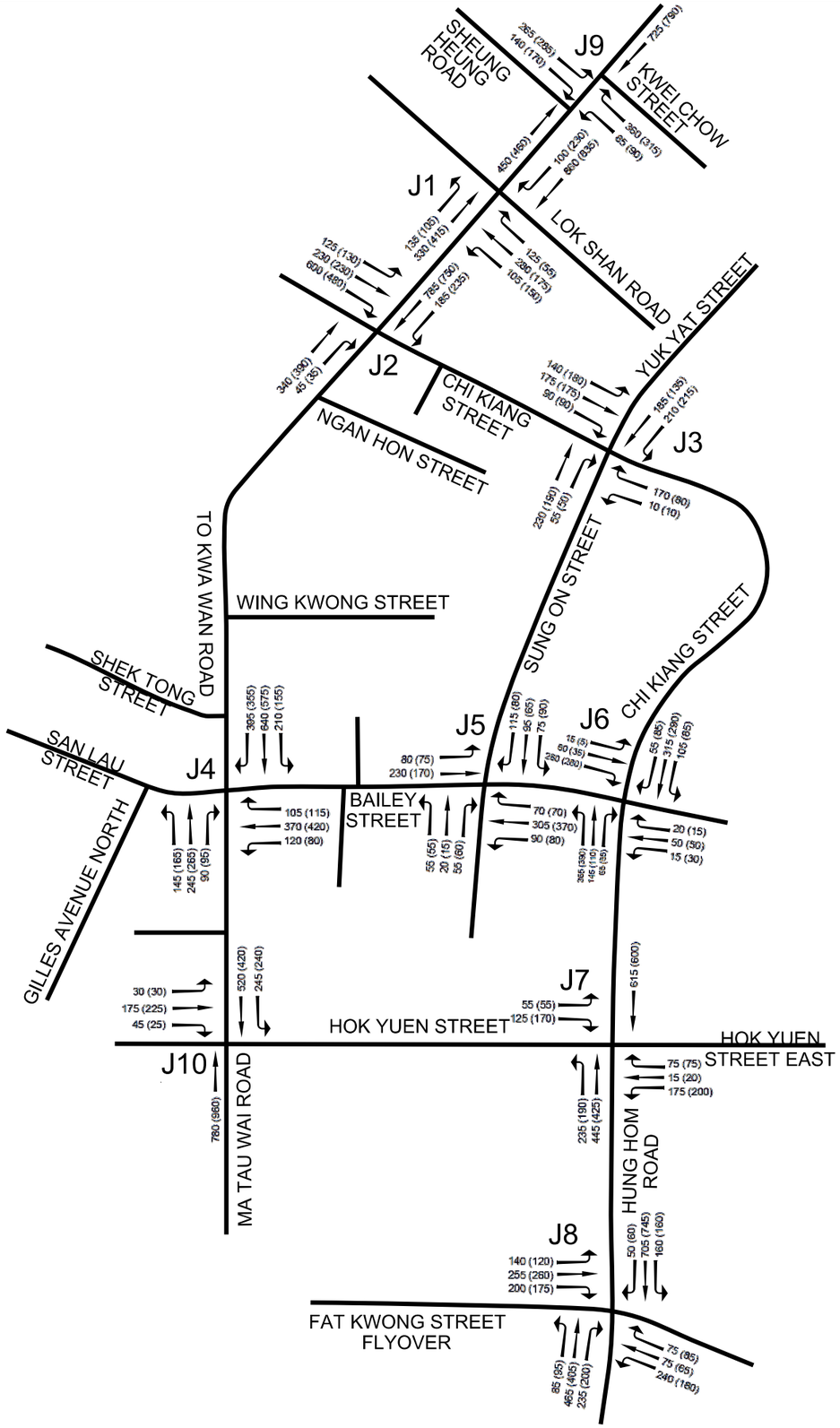
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2035 REFERENCE TRAFFIC FLOW

Scale at A3	Date	Figure No.
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LEGEND:

100(100) → AM(PM) PEAK TRAFFIC FLOW (PCU/HR)

J1 JUNCTION INDEX

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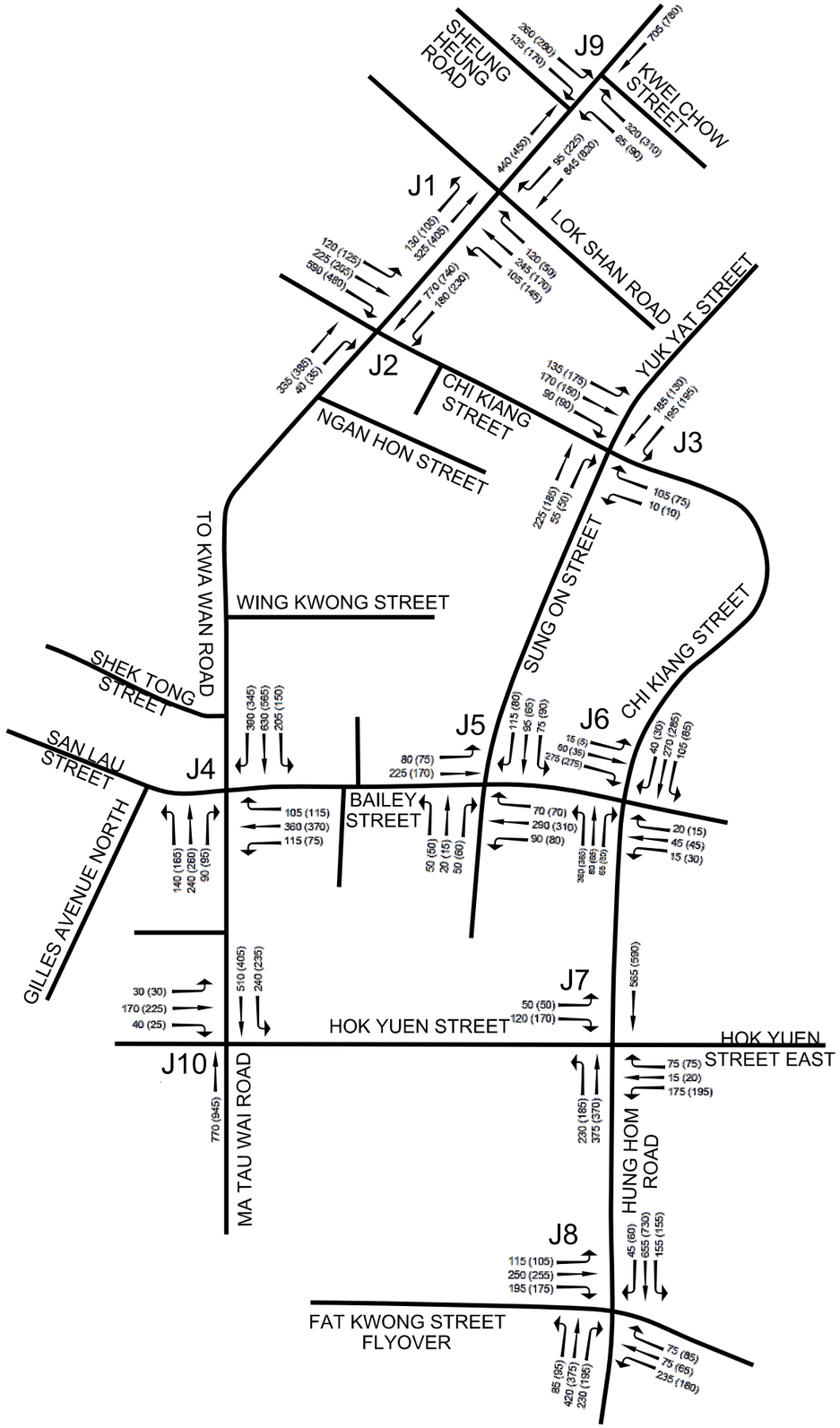
PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2035 DESIGN TRAFFIC FLOW

Scale at A3	Date	Figure No.
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J1 JUNCTION INDEX

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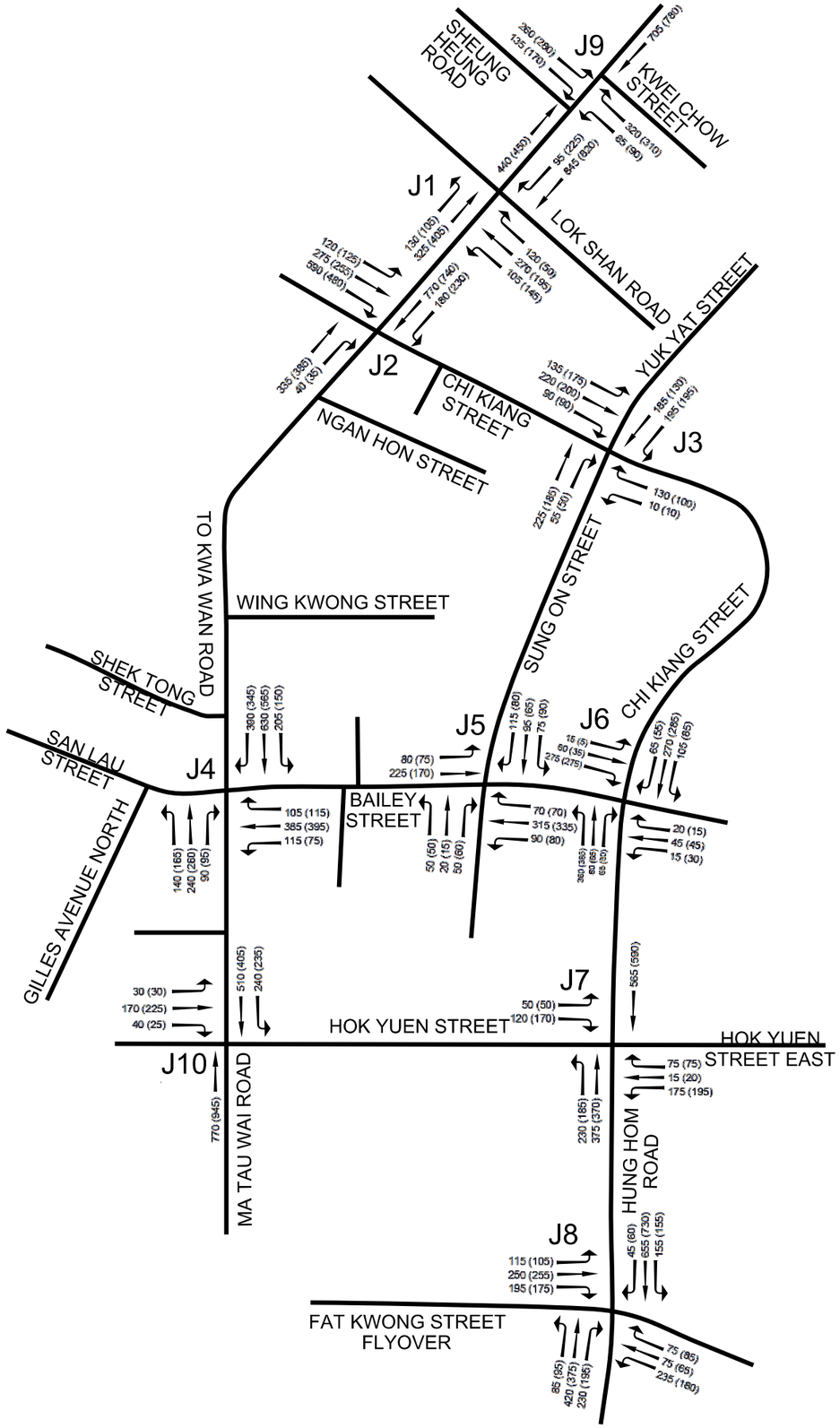
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KOWLOON CITY DISTRICT

Title

YEAR 2032 REFERENCE TRAFFIC FLOW

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LEGEND:

100(100) → AM(PM) PEAK TRAFFIC FLOW (PCU/HR)

J1 JUNCTION INDEX

URBAN RENEWAL AUTHORITY 市區重建局

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PROPOSED DEVELOPMENT AT
BAILEY STREET / CHI KIANG STREET,
KOWLOON CITY DISTRICT

Title

YEAR 2032 CONSTRUCTION TRAFFIC FLOW

Scale at A3	Date	Figure No.
N.T.S	JUL 2025	6.2

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Appendix B

Extract of the
revised Water Supply Impact Assessment

3 WATER SUPPLY IMPACT ASSESSMENT – FRESH WATER

3.1 Existing Fresh Water Supply

3.1.1 The Site and its surrounding area are currently served by Ma Tau Wai FWSR (Capacity: 24,140 m^3), Ho Man Tin East FWSR (Capacity: 152,411 m^3) & Ho Man Tin West FWSR (Capacity: 67,434 m^3).

3.1.2 There is an existing 300mm fresh water main running along Sung Ping Street and Bailey Street, providing fresh water to the region. Additionally, there is an existing 200mm fresh water main connected to the aforementioned 300mm mains, located along Chi Kiang Street to the west of the Site, supplies fresh water to the nearby school developments and park.

3.1.3 The core area of the Site currently does not rely on the public fresh water system. However, it is important to note that there are existing 40/80mm fresh water mains within the southern portion of the Site, near the southern boundary. These fresh water mains are connected to the 300mm fresh water mains along Bailey Street and serve the planting areas along the southern boundary of the Site, as well as the existing developments to the east of the Site.

3.1.4 The simplified fresh water mains records are illustrated in **Figure 3-1.** The Water Supplies Department ("WSD") Fresh Water Mains Record Plan is provided in **Appendix II**.

3.2 Fresh Water Demand

3.2.1 The calculations for the water demand for the existing and proposed scenarios detailed in **Appendix IV** and summarized in **Table 3-1**. For a conservative assessment, 15% of additional water demand has been accounted for on top of the conservative unit demand factors to estimate the water demand for a reasonable worst scenario.

3.2.2 The existing fresh water demand for the Site is very small. The fresh water demand for the Proposed Development is expected to be 1157.1 m^3/day (1.157 MLD).

Table 3-1 Summary of Fresh Water Demand

	Daily Demand - Fresh Water (m^3/day)		
	Existing [1]	***Proposed [2]***	***Net Increase***
Site A	0.0	505.8	505.8
Site B	0.0	651.2	651.2
Total	**0.0**	**1,157.1**	**1,157.1**

Note:
[1] The existing fresh water demand is assumed to be 0.
[2] 15% additional demand have been included for conservative assessment.

3.3 Fresh Water Supply Impact - Fresh water service reservoirs

3.3.1 As shown in **Table C of Appendix IV**, there is substantially greater spare capacity (124.8 MLD) in Ma Tau Wai FWSR, Ho Man Tin East FWSR & Ho Man Tin West FWSR. The expected increase in demand (1.157 MLD) can therefore be accommodated by the existing Fresh Water Service Reservoirs. No adverse impact to the fresh water service reservoirs is anticipated.

3.4 Fresh Water Supply Impact – Fresh Water Mains

3.4.1 Although some existing fresh water mains are within the southern portion of the Site as shown in **Figure 3-1**, that area is designed for the Harbourfront At-Grade Communal Space (**Appendix I**) thus the existing fresh water mains there could be retained, when necessary, subject to detailed design.

3.4.2 According to Departmental Instruction (DI) No. 1309 "Design Criteria," the peak flow rate in the distribution mains for fresh water should be three times the daily demand. Based on this criterion, the estimated peak daily fresh water demand for the Proposed Development at Site A & Site B are approximately 1,517.5 m^3/day & 1,953.7 m^3/day, respectively. By following the maximum sustained flow velocity as suggested in Departmental Instruction (DI) No. 1309 "Design Criteria" (**Table A2 of Appendix IV**), the capacities of the 150mm 200mm and 300mm fresh water mains are determined to be 2,290 m^3/day, 4,072 m^3/day and 9,161 m^3/day, respectively.

3.4.3 Taking into account the freshwater consumption of the Proposed Development, it has been determined that the existing 200mm freshwater mains along Chi Kiang Street are suitable for supplying freshwater to Site A, and the existing 300mm freshwater mains along Bailey Street are suitable for supplying freshwater to Site B. As a result, the proposal includes the addition of new 150mm freshwater mains for both Site A and Site B, which will connect to the existing 200mm mains along Chi Kiang Street and the 300mm main along Bailey Street, as indicated in **Figure 3-1**. The specific alignment and connection points of the proposed new water pipes will be determined during the detailed design phase of the project.

4 WATER SUPPLY IMPACT ASSESSMENT – SALT WATER

4.1 Existing Salt Water Supply

4.1.1 The Site is currently served by Tai Wan SWPS (Design Pumping Capacity: 112.74 MLD).

4.1.2 There is an existing 80mm salt water main along Chi Kiang Street and an existing 200mm salt water main along Sung Ping Street and Bailey Street. These salt water mains supply salt water to the surrounding region.

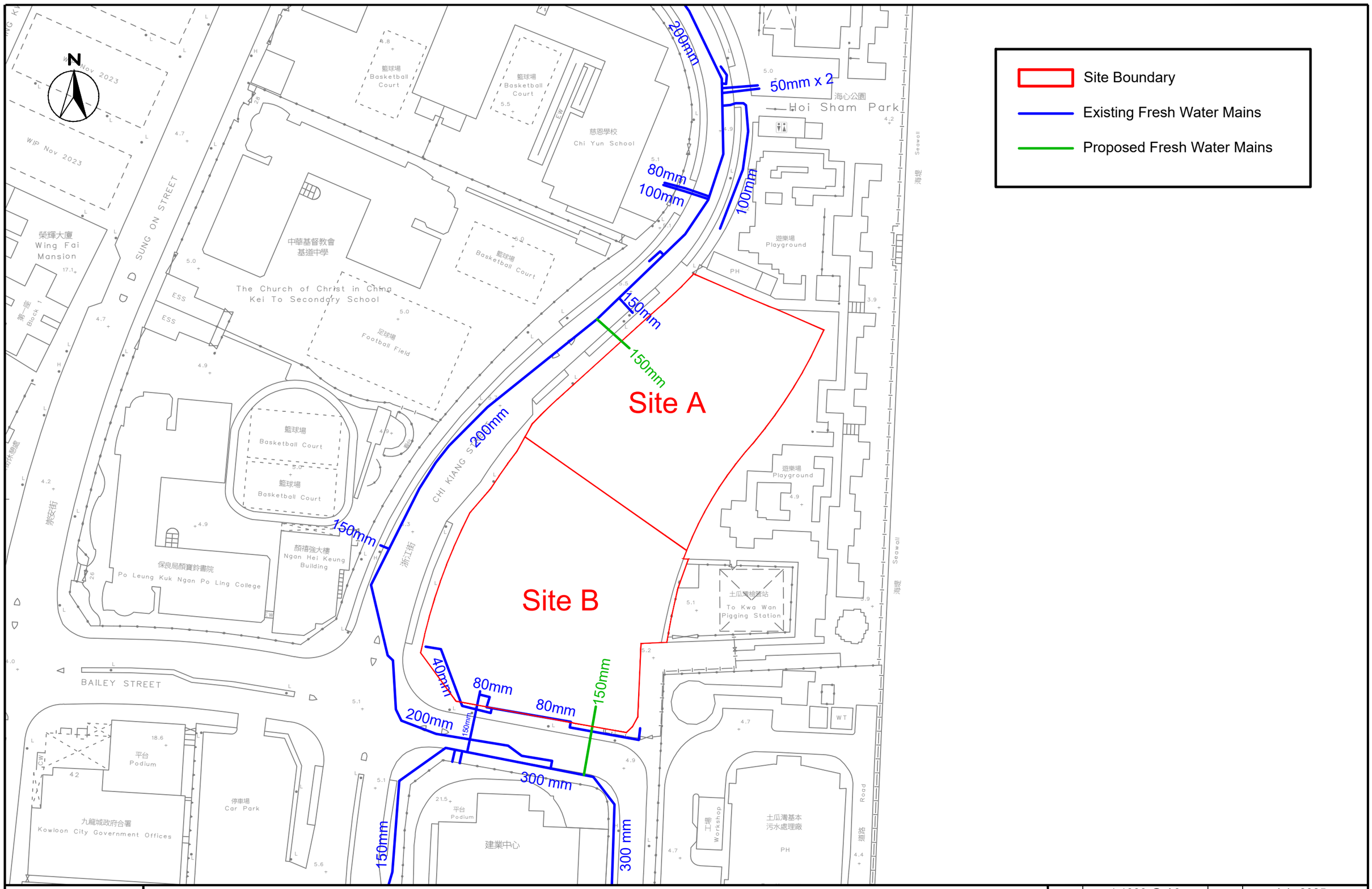
4.1.3 The Site, however, does not currently utilize any salt water from the public salt water system.

4.1.4 The simplified salt water main records are illustrated in **Figure 3-2.** The WSD Salt Water Mains Record Plan is provided in **Appendix III**.

4.2 Salt Water Demand

4.2.1 The calculations for the salt water demand for the existing and proposed scenarios detailed in **Appendix IV** and summarized in **Table 4-1.** For a conservative assessment, 15% of additional salt water demand has been accounted for on top of the conservative unit demand factors to estimate the salt water demand for a reasonable worst scenario.

4.2.2 The salt water demand for the Proposed Development is expected to be 353.1 m^3/d (or 0.353 MLD).



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Proposed Residential Development in Bailey Street, Kowloon City District

Fresh Water Mains in the Vicinity

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Appendix C

Extract of the
revised Sewerage Impact Assessment

3 SEWERAGE IMPACT ASSESSMENT

3.1 Sewage Discharge from the Proposed Development

3.1.1 The estimated number of flats for Site A and Site B are about 547 units and 671 units respectively. A household size of 2.4 persons per flat (PPF) is assumed with reference to the 2021 Population Census Statistic by District Council Constituency Area including To Kwa Wan South, To Kwa Wan North, and Hok Yuen Laguna Verde. The average domestic household sizes in these areas are 2.1, 2.4 and 2.8 PPF respectively. Additionally, reference was made to the planned population under URA's redevelopment projects in Kowloon City Action Area 1 (KCAA1) Core Area which is in close proximity to the Site, with an average household size of 2.4 persons per flat. To ensure a conservative assessment, a worst-case scenario of 2.8 PPF reflecting the upper range of the aforementioned census data has been applied for this sewerage impact assessment. This precautionary approach accounts for potential peak demand and safeguards system capacity under maximum load condition, resulting in a design population of 1,532 persons. for Site A and 1,879 persons for Site B. Apart from residential portion, the population of non-residential area such as restaurant, retail, and G/IC are estimated according to the usable floor area per person and the worker density from Figure 9 of Commercial and Industrial Floor Space Utilization, published by Planning Department. **Table 3-1** and **Table 3-2** indicates the population calculation of the Site A and Site B.

Table 3-1 Estimation of Population (Site A)

Site A			
Residential Section	**Number of Units**	**Population Density [1]**	**Population (Residential)[1]**
Total			**1,532**
-- Residential Flat	547	2.8	1,532
Non-Residential Section	**Estimated GFA (m^2) [1]**	**Staff Density (per 100m^2) [2]**	**No. of Employees**
Total			**234**
-- Club House & Lobby	1,250	3.3	42
-- G/IC	3,100	3.3	103
-- Retail	1,022.5	3.5	36
-- Restaurant	1,022.5	5.1	53

Note:
[1] As stated in Para 3.1.1
[2] According to Figure 9. Worker Density by Industrial Group of "Commercial and Industrial Floor Space Utilization Survey by Planning Department, the staff densities are: -
-- 3.3 staff per 100m^2 GFA for G/IC and Clubhouse (Community, Social & Personal Services)
-- 3.5 staff per 100m^2 GFA for Retails and Shops
-- 5.1 staff per 100m^2 GFA for Restaurants

Table 3-2 Estimation of Population (Site B)

Site B			
Residential Section	**Number of Units**	**Population Density [1]**	**Population (Residential)[1]**
Total			**1,879**
-- Residential Flat	671	2.8	1,879
Non-Residential Section	**Estimated GFA (m^2) [1]**	**Staff Density (per 100m^2) [2]**	**No. of Employees**
Total			**290**
-- Club House & Lobby	1,509	3.3	50
-- Retail	2,782.5	3.5	98
-- Restaurant	2,782.5	5.1	142

Note:
[1] As stated in Para 3.1.1
[2] According to Figure 9. Worker Density by Industrial Group of "Commercial and Industrial Floor Space Utilization Survey by Planning Department, the staff densities are: -
-- 3.3 staff per 100m^2 GFA for Clubhouse (Community, Social & Personal Services)
-- 3.5 staff per 100m^2 GFA for Retails and Shops
-- 5.1 staff per 100m^2 GFA for Restaurants

3.1.2 A Catchment Inflow Factor (P_{cif}) of 1.00 for Central Kowloon is adopted in the sewage calculations for the Proposed Development. The estimated sewage flow rates from Site A and Site B are summarized in **Table 3-3** and **Table 3-4**, respectively. A swimming pool of the same size is provided in both Site A and Site B, and the calculation of backwash water discharged from a swimming pool is tabulated in **Table 3-5**. The total flow rates for Site A and Site B, excluding the backwash flow from the swimming pools, are 630.3 m^3/day and 889.1 m^3/day, respectively. For the swimming pools, the total backwash flow rate is approximately 2.1 L/s each.

3.2 Sewage Discharge from the Vicinity

Site A

3.2.1 Full capacity of upstream sewer, US-A-01, has been adopted to estimate the sewage flow from upstream catchments. The location of US-A-01 is illustrated in **Figure 3-1a**. US-A-01 is 630mm twin rising mains connected to the manhole FMH4088680. The rising mains, unlike gravity sewers, are controlled by the pumping system with maximum velocity limited to 3 m/s, in accordance with the "*Sewage Manual, Part 2 – Pumping Stations and Rising Mains*" published by Drainage Services Department. For conservative approach, maximum velocity of 3 m/s has been adopted to estimate the peak sewage flow from all upstream catchments. The full capacity of US-A-01 is 1,870.3 L/s and the detailed calculation of flow rate is presented in **Appendix 3-1**.

3.2.2 Public toilet in Hoi Sham Park has been identified as shown in **Figure 3-1a**. It is estimated that the total sewage generated from the public toilet is ~19.7m^3/day and detailed calculation is presented in **Appendix 3-3**.

Site B

3.2.3 US-B-01 has been adopted to estimate the sewage flow from upstream catchment. The location of US-B-01 is illustrated in **Figure 3-1b**. Full capacity of US-B-01 has been adopted to represent all sewage from the upstream catchment of assessed sewer (PS-B-01). The full capacity of US-B-01 is 3,147.6 L/s and the detailed calculation of flow rate is presented in **Appendix 3-1**.

3.3 Assessment of Existing Sewerage System and Proposed New Sewers

Review of Existing Sewerage System under the Proposed Development

3.3.1 The sewage discharge from the Site is expected to increase after the implementation of the proposed development, therefore, the utilization of the downstream or concerned sewers shall be assessed. The existing sewerage system is illustrated in **Figures 3-1a & 3-1b**.

3.3.2 The capacities of the concerned downstream sewers for Site A (PS-A-01 to PS-A-05) and Site B (PS-B-01) are calculated by Colebrook-White Equation and listed in **Table 3-6**. The detailed calculation is shown in **Appendix 3-1**. Slimed concrete under poor condition has been adopted for existing public sewers.

Table 3-6 Capacity of the Downstream Sewers

Pipe Section	Upstream Manhole	Downstream Manhole	Full Capacity (L/s)
Existing Downstream Sewer (Site A)			
PS-A-01	FMH4088683	FMH4088684	2769.1
PS-A-02	FMH4088684	FMH4088685	2758.8
PS-A-03	FMH4088685	FMH4088686	2771.0
PS-A-04	FMH4088686	FMH4088687	3061.6
PS-A-05	FMH4088687	FMH4088688	4491.2
Existing Downstream Sewer (Site B)			
PS-B-01	FMH4025955	FMH4025980	4247.0

Note:
[1] The full capacity of the US-A-01 and US-B-01 have been adopted as upstream flow volume.
[2] The calculation is detailed in Table A of Appendix 3-1.

3.3.3 A summary of the utilization of the sewers are shown in **Table 3-7**. Detailed calculation is shown in **Tables B of Appendix 3-1**. The results indicate that the existing downstream sewers are able to cater for the expected sewer flow and therefore, no upgrading sewer works and sewerage impact to the existing sewerage system is anticipated.

Table 3-7 Proportion of Peak Flow to Full Capacity (Existing Pipes)

Pipe Section	Full Capacity (L/s)	Peak Flow (L/s)	Utilization (%)
Existing Downstream Sewer (Site A)			
PS-A-01	2769.1	1917.6	69%
PS-A-02	2758.8	1917.6	70%
PS-A-03	2771.0	1917.6	69%
PS-A-04	3061.6	1917.6	63%
PS-A-05	4491.2	1917.6	43%
Existing Downstream Sewer (Site B)			
PS-B-01	4247.0	3211.4	76%

Note:
*[1] The calculation is detailed in **Table B of Appendix 3-1**.*

Terminal Manholes and Discharge Sewers of the Site

3.3.4 The sewage discharge from the Site A is proposed to be collected by proposed terminal manhole FTMH-A-01 and discharged via a proposed PE sewer PP-A-01, with diameter of 300mm and slope of 1:50, connected to existing manhole FMH4088683. Similarly, the sewage discharged from Site B is proposed to be collected by proposed terminal manhole FTMH-B-01 and discharged via a proposed PE sewer PP-B-01, with diameter of 300mm and slope of 1:50, connected to existing manhole FMH402955. The proposed new sewers and sewer manhole for Site A and Site B are illustrated in **Figure 3-2a & 3-2b** respectively.

3.3.5 The proposed new pipes are summarised in **Table 3-8** below and detailed calculation is presented in **Appendix 3-2**. The exact location of the new manholes and invert levels will subject to detailed design. With the proposed new sewers and manholes, no adverse sewerage impact arising from the Proposed Development is anticipated.

Appendix D

Extract of the
revised Environment Assessment

4 HAZARD TO LIFE

4.1 Introduction

4.1.1 The Proposed Development is located at Bailey Street, Kowloon City District (the "Site"), to the immediate west of the To Kwa Wan Pigging Station (TKWPS). According to the approved Hung Hom Outline Zoning Plan ("OZP") No. S/K9/28, major of the Site is currently zoned "G/IC", and a small strip of land zoned as "OU(STP)", which is planned for development of school development. It is proposed to be zoned "(R(A)9)" for comprehensive high-density residential development.

4.1.2 Reference is made to the Feasibility Study and Detailed Design report (the reference report) submitted under planning application No. A/K9/240 for the To Kwa Wan Pigging Station by the Hong Kong and China Gas Company Limited (HKCG). The said planning application was approved by the Town Planning Board in March 2010. According to HKCG, the Pigging Station does not contain any gas storage facility or gas holder for town gas storage. It is not classified as Potentially Hazardous Installation (PHI) in accordance with the Hong Kong Planning Standards and Guidelines (HKPSG). The major purpose of the TKWPS is to facilitate the launching and receiving of inspection tools for carrying out the pigging operation which is normally be carried out about once in every ten years. The TKWPS is also used to monitor the gas pressure of the submarine gas pipelines.

4.1.3 Since To Kwan Wan Pigging Station is operating at intermediate pressure, it is NOT defined as Notifiable Gas Installation under the Gas Safety Ordinance (CAP. 51). As a result, there is no special consultation or study zone requirement for the station.

4.1.4 This hazard to life section is prepared to address the concerns on the potential risks posed by the TKWPS on the Proposed Development, and to recommend effective and practicable mitigation measures if necessary.

4.2 The TKW Pigging Station

4.2.1 The TKWPS is located near waterfront of To Kwa Wan. Currently, there are school developments located at about 100m from the western boundary of the said Pigging Station. The Site, which is planned for school development under OZP, is located immediately to the western boundary of the TKWPS. The existing To Kwa Wan PTW is adjacent to the southern boundary of the TKWPS at a distance of about 10m. The closest commercial building, APB Centre, is over 50m from the south-west corner of the TKWPS boundary. The rest of the lands in the vicinity of TKWPS are for open area use.

4.2.2 The TKWPS consists of an instrument room and the associated above ground and underground pipes. The whole TKWPS is fenced off by a 3m high boundary concrete wall with an area about 662 m^2. The TKWPS is equipped with CCTV system which allows 24-hour monitoring of the activities within the station by competent control engineers. For works inside the TKWPS, a permit-to-work system is applied to ensure no unauthorized entry and to ensure all operations are carried out according to the controlled guideline or procedures.

4.2.3 As the purpose of the pigging station is to facilitate the launching and receiving of the Pipe Inspection Gauge (PIG) for pigging operation of the submarine gas pipeline from To Kwa Wan to North Point, the TKWPS consists of minimum length of aboveground pipework while that other pipework is built below ground. According to the international standards, minimum 3m setback to the boundary of TKWPS is allowed for the pipework. Sufficient

Risk Ranking for TKW Pigging Station

4.3.2 Refer to the hazard to life assessment for the To Kwa Wan Pigging Station prepared by HKCG, qualitative risk assessment of failure of the pigging station based on different failure causes is shown in **Table 4-4** according to the risk rating criteria in **Table 4-1**.

Table 4-4 Risk Assessment of Different Failure Causes of TKW Pigging Station

Scenario	Likelihood of Occurrence	Consequence to Public	Risk Level
External Causes			
Natural Event			
Earthquake	Rare	Moderate	Low
Subsidence / Landslides	Rare	Moderate	Low
Lightning	Rare	Moderate	Low
Severe Environmental Event	Rare	Moderate	Low
Aircraft Crash	Rare	Moderate	Low
Ship Collision at Seafront	Rare	Minor	Low
External Fire	Rare	Moderate	Low
Operational Error	Rare	Moderate	Low
Internal Causes			
Corrosion	Unlikely	Minor	Low
Material Defect	Rare	Moderate	Low
Pig Launcher / Receiver			
Pig Launcher / Receiver	Unlikely	Minor	Low

4.3.3 As shown in **Table 4-4**, the risk of the TKWPS found at low risk level. Apart from the qualitative assessment, HKCG was also undertaken a quantitatively risk assessment (QRA) for supporting the hazard to life section of EIA study "*Installation of Submarine Gas Pipelines and Associated Facilities from To Kwa Wan to North Point for Former Kai Tak Airport Development*".

4.3.4 In the QRA study, offsite individual risk of the TKWPS is estimated to be $1x10^{-7}$ per year (without taking into account of the 3m high solid concrete boundary wall) which is 2 order of magnitude lower than the maximum offsite individual risk criteria of $1x10^{-5}$ per year as stipulated in the Hong Kong risk guidelines. It is expected that the actual offsite individual risk is lower than $1x10^{-7}$ per year by the risk reduction effect of the 3m high solid concrete boundary wall of the station.

4.3.5 For the societal risk due to the TKWPS, the maximum number of fatalities is about 62 at $1x10^{-9}$ fatality rate per year. The societal risk falls within the "ACCEPTABLE" region of the risk guidelines. The social risk level is already taken into account all the existing and planned population groups near the TKWPS, including the planned school developments in the Project Site. Although the total number of populations and occupancy rate for the Proposed Development would be higher than the population of the planned school, the overall outdoor population of the school is higher than the Proposed Development due to the nature of use (the indoor population for residential development is normally 90% to 95% but the indoor population for school is normally 80%). Since the fatality for indoor population is much

lower than the outdoor population, the societal risk level for the Proposed Development should be roughly similar to the planned school development. Considering the societal risk level with the planned school is well within the "ACCEPTABLE" region, the conclusion made in the QRA study would not be affected by the rezoning of the school development to residential development.

4.4 Mitigation Measures

4.4.1 Although the risk associated with the TKWPS is considered to be low, the very low offsite individual risk level, and the societal risk is well within the "ACCEPTABLE" region based on the QRA undertaken by HKCG, the following risk mitigation measures will be considered in the detailed design of the Proposed Development to further lower the potential risk.

- In order to avoid inducing additional transient population close to the pigging station due to the Proposed Development, no ingress / egress for vehicle or entrance for passage is designed at the development boundary facing to the pigging station;
- The standard security fence wall is recommended to be solid for the portion directly facing to the pigging station;
- To avoid ventilation opening for the Proposed Development facilities (e.g. Car Park, Club House, Plant Room, Lift Shaft, etc.) directly facing to the pigging station;
- The building units in close proximity to the pigging station have been designed in such a way that no window opening or no balcony will be facing directly to the pigging station;
- The Proposed Development have to be designed to avoid possible falling object hitting the pigging station;
- Prior to the commencement of site works, a method statement shall be provided to seek HKCG comment and advice on any specify safety / extra protective measures to the gas facilities and to be adopted throughout the whole construction period.

4.4.2 URA would consult HKCG for any residual safety concern and mitigation measures implementation during detail design stage.

4.5 Conclusions

4.5.1 The TKWPS consists of an instrument room and the associated above ground and underground pipes. The whole TKWPS is fenced off by a 3m high boundary concrete wall with an area about 662 m^2. The TKWPS consists of minimum length of aboveground pipework while that other pipework is built below ground. According to the international standards, minimum 3m setback to the boundary of TKWPS is allowed for the pipework. During normal operation, the pigging facilities is isolated from the pipelines in standby mode. There is no storage of any town gas in the TKWPS. It is not classified as PHI in accordance with the HKPSG. There is no record of incidence for all pigging stations in Hong Kong since they started operation in early 70's by HKCG.

4.5.2 Qualitative risk assessment of failure of the pigging station is found to be low based on different failure causes. Based on the QRA for supporting the hazard to life section of EIA study undertaken by HKCG, the offsite individual risk of the TKWPS is estimated to be $1x10^{-7}$ per year which is much lower than the maximum offsite individual risk criteria of $1x10^{-5}$ per year as stipulated in the Hong Kong risk guidelines. The societal risk falls within the "ACCEPTABLE" region of the risk guidelines that already taken into account all the existing and planned population groups near the TKWPS, including the planned school development in the Project Site. Since the societal risk level for the Proposed Development would be roughly similar to the planned school development, the conclusion made in the QRA study would valid for the Proposed Development.

4.5.3 To sum up, the rezoning of G/IC site from the planned school development to the proposed high-rise residential development would not leading to any unacceptable risk due to the TKW Pigging Station.

WQO	Victoria Harbour (Phase 2) WCZ
SUSPENDED SOLIDS	
Human activity should neither cause the suspended solids concentration to be raised more than 30% nor give rise to accumulation of suspended solids which may adversely affect aquatic communities.	Marine waters
Human activity should not cause the annual median of suspended solids to exceed 25 mg per litre.	Inland waters
AMMONIA	
The un-ionized ammoniacal nitrogen level should not be more than 0.021 mg per litre, calculated as the annual average (arithmetic mean).	Whole Zone
NUTRIENTS	
Nutrients should not be present in quantities sufficient to cause excessive or nuisance growth of algae or other aquatic plants.	Marine waters
Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.4 mg per litre, expressed as annual water column average (see Note).	Marine waters
5-DAY BIOCHEMICAL OXYGEN DEMAND	
The 5-day biochemical oxygen demand should not exceed 5 mg per litre.	Inland waters
CHEMICAL OXYGEN DEMAND	
The chemical oxygen demand should not exceed 30 mg per litre.	Inland waters
TOXIC SUBSTANCES	
Toxic substances in the water should not attain such level as to produce significant toxic, carcinogenic, mutagenic or teratogenic 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
Human activity should not cause a risk to any beneficial use of the aquatic environment.	Whole Zone

Source:
[1] Statement of Water Quality Objectives (Victoria Harbour (Phase Two) Water Control Zone), (Cap. 358, section 5), https://www.elegislation.gov.hk/hk/cap358AR, Last checked 3rd Apr 2025.

6.2.2 In addition to establishing WQOs, the WPCO regulates effluent discharges into Water Control Zones (WCZs) through a licensing system. A Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) has been issued under the WPCO, providing guidance on permissible effluent discharges based on the type of receiving waters (foul sewers, inland waters, marine waters, inshore waters, and coastal waters) and flow rates. These limits control the physical, chemical, and microbial quality of effluents. Sewage generated from the proposed construction activities must comply with the TM standards for effluent discharge. It is important to note that new effluents in typhoon shelters are not permitted according to TM-DSS.

6.2.3 A practice note (PN) for professional persons was issued by the EPD to provide environmental guidelines for handling and disposal of construction site discharges. The (ProPECC) "Construction Site Drainage" PN (2/24) provides good practice guidelines for dealing with various types of discharge from a construction site. Practices outlined in the PN should be followed as far as possible during construction to minimize the water quality impact due to construction site drainage.

6.3 Water Quality Sensitive Receivers

6.3.1 The Water Quality Sensitive Receiver (WSR) within the 500m assessment boundary is illustrated in **Figure 6-1**.

6.3.2 The nearest water body, Kowloon Bay, which falls within the Victoria Harbour WCZ, is located approximately 20 meters to the east of the Site. Additionally, the To Kwa Wan

Typhoon Shelter (WSR01) is also within the 500-meter assessment area from the site boundary.

Table 6-2 List of Representative Water Quality Sensitive Receiver

WSR ID	Description	Status	Approximate Distance to Site (m)
	Victoria Harbour (Phase 2) WCZ		
WSR01	To Kwa Wan Typhoon Shelter	Active	350

6.3.3 Although there is no direct connection between the site and the nearby water bodies, which are separated by Hoi Sham Park, potential water quality impacts may arise from stormwater runoff during the construction phase. Additionally, the water drainage system near the site could transport pollutants, such as suspended solids and chemicals, to the receiving waters.

6.3.4 For operation phase, all water should be discharged through the public drainage and sewerage system that have been addressed in separate reports (Drainage Impact Assessment and Sewerage Impact Assessment).

6.4 Impact Identification & Evaluation

6.4.1 The potential sources of water quality impact associated with the Proposed Development have been identified. They include construction site surface runoff, sewage generated from construction staff, and accidental leakage of chemicals.

Construction Site Surface Runoff

6.4.2 Construction site surface runoff has the potential to carry pollutants into nearby water drainage systems, which can result in increased concentrations of suspended solids and other pollutants (such as metals and organics) in receiving waters. This runoff can also lead to the blockage of stormwater drains. However, if the mitigations proposed in **Section 6.5** are properly implemented, the impact is anticipated to be insignificant.

6.4.3 According to the Stormwater Drainage Manual Corrigendum No. 1/2022, the extreme sea level with a return period of 50 years at the end of the 21st century is projected to reach 4.51 mPD during extreme storm surge events[15]. It is worth noting that the playgrounds in Hoi Sham Park adjoining the Site are located at 4.9 mPD, and the roads surrounding the Site fall within the range of 4.9 mPD to 5.5 mPD. Consequently, it is unlikely that flooding will occur at the Site or its surrounding area due to increased sea level, based on the current projections.

Sewage Generated from Construction Staff

6.4.4 Sewage generated from construction staff may pollute the groundwater if not properly collected. Chemical toilets should be provided and regularly maintained by licensed contractors. This can ensure that the sewage is delivered offsite for treatment before discharge and the capacity is always sufficient.

Accidental Leakage of Chemicals

6.4.5 Chemicals, such as fuel and lubricating oil for PME, may be stored and used onsite for the construction work. Accidental leakage/spillage of these chemicals may be carried down by construction site runoff and deteriorate water quality in receiving waters. Nevertheless, since there should be no immerse need for chemical or oil in this Proposed Development, the

[15] The extreme sea level is referenced to the projected data of North Point/Quarry Bay. For return period of 50 years, the extreme sea level at North Point/Quarry Bay is 3.66mPD (design extreme sea level) + 0.47 m (climate change) + 0.08m (storm surge) + 0.24m (design allowance) = 4.51mPD

- Chemical waste arising from any maintenance of construction plant and equipment; and
- General refuse from the workforce

Inert and non-inert C&D Materials

7.3.2 Inert C&D Material (or public fills) includes building debris, soil, rock and concrete, should be re-used on-site as filling materials or off-site as public fill at public fill reception facilities. Non-inert C&D Material (or C&D waste) includes metal from the existing structures, wood from formwork, timber and woody materials from existing trees, equipment parts, and materials and equipment wrappings, etc., should be re-used or recycled before disposal to the landfill as a last resort.

7.3.3 Under the current notional design, the excavation works for the 2 floors of basement for the Proposed Development, including the site formation works, are expected to generate about 32,852m^3 (32,091 m^3 + 761 m^3) of C&D materials during construction [16,17]. To account for the quantity of C&D materials to be generated from construction of the new building, the C&D materials generation rate of 0.19 m^3 per m^2 of GFA constructed is adopted[18], with reference to the actual volume of C&D waste generated from the superstructure stage of projects that are of similar type of development. As the total GFA of the Proposed Development will be around 71,590m^2 (= 60,880m^2 + 7,610m^2 + 3,100m^2), total C&D materials from superstructure construction will be approximately 13,602m^3 (= 71,590m^2 x 0.19m^3/m^2), consisting of 12,242m^3 of inert C&D materials and 1,360m^3 of non-inert C&D materials[19]. Hence, the total amount of inert C&D materials generated by the Project is projected at 45,018m^3 (= 32,091 m^3 + 685 m^3 + 12,242m^3).

7.3.4 The volume of non-inert C&D material—such as building materials, maintenance and packaging waste—generated during site clearance and superstructure construction works is projected at 1,436m^3, which will be subject to specific construction procedures and site practices. Timber and woody materials, if encountered in site clearance, should be sent to the Yard Waste Recycling Centre in Y-park as far as possible prior to the disposal. The estimated amount of non-inert C&D material generated would be minimal with careful design, planning, good site management and control of ordering procedures, etc.

7.3.5 The estimated quantities of inert and non-inert C&D material to be generated or reused or disposed of from the construction of the Proposed Development, are presented in **Table 7-1**.

16 It is assumed that soil only exist at or above 0mPD considering the site is located at a reclaimed land. The extend of excavation above 0mPD (B1 & B2) is 5,630m^2. Therefore, the total amount of soil to be excavate is 5,630 m^2 x 5.7 m (depth) = 32,091 m^3.

17 From site observation, the average depth of soil/concrete slab/tree to be removed is 0.1m. Therefore, the volume of C&D waste during site clearance / formation is estimated to be 7610 m^2 x 0.1 m = 761 m^3. Non-inert C&D materials estimated to be 10% of the total generated.

18 Since the development at No. 42 Lei Yue Mun, Kowloon, also involves the construction of two residential towers with commercial and basement floors, it is considered comparable to that for the Project. Therefore, the waste generation rate from the BEAM PLUS Project is adopted. The Gross Floor Area (GFA) of Lei Yue Mun is 29,883 m^2, with a total C&D waste generation of 5,675 m^3. This results in a C&D waste generation rate of 0.19 m^3/m^2.

19 Non-inert C&D materials estimated to be 10% of the total generated.

Table 7-1 Estimated Quantities of C&D materials to be Generated, Reused and Disposed of

Construction Activities	Sum (m^3)	Wastes to be Reused/Recycled/disposed of (m^3)				
		Inert C&D materials		Non-inert C&D materials		
		Reused / Recycled On-Site	Reused Off-Site (a)	Reused / Recycled On-Site	Reused / Recycled Off-Site (b)	Disposed Off-Site
Excavation	32,091	8,000	24,091	0	0	0
Site Clearance / Formation	761	0	685	0	76	0
Superstructure Construction	13,602	0	12,242	0	136	1224
All	46,454	8,000	37,018	0	212	1,224
		45,018		1,436		
All (with 15% sensitivity test)	53,422	51,770		1,652		

Note
(a) Part of the surplus inert C&D materials will be directly delivered to other projects for reuse. The remaining surplus inert C&D materials shall be delivered to Public Fill Reception Facilities for beneficial reuse in other projects. The destination of these materials is subject to designation by the Public Fill Committee in accordance with DEVB TC(W) No. 6/2010.
(b) Non-inert C&D materials should be reused or recycled as much as possible before disposed off-site, estimated to be 10% of the total generated.

7.3.6 It is estimated that about 18% of inert C&D material to be reused on-site. The destination of the surplus inert C&D materials is subject to the designation by the Public Fill Committee according to DEVB TC(W) No.6/2010. The remaining non-recyclable non-inert C&D materials are not suitable for public fill and hence require disposal to landfill (the closest landfill is the South East New Territories (SENT) Landfill). The disposal of non-inert C&D materials at designated landfill shall be subject to agreement with the relevant section of the EPD.

Excavated Sediment

7.3.7 In addition, as the land of the Site is within a reclamation ground, approximately 32,654 m^3 of excavated sediment [20] is estimated to be generated and some of them may need to be disposed off-site from the Project subject to detailed design at a later stage. The project proponent should be aware of the relevant requirements when applying for the dumping permit under DASO, i.e. they are required to submit sediment sampling and testing plan to EPD's TCO when applying for the dumpling permit under DASO. The marine disposal of the sediment should be disposed in accordance to the ADV-21, PAH, and Administrative Guidance - Management Framework for Disposal of Dredged/Excavated Sediment (whichever applicable). The rationale for sediment removal must be provided to the Secretary of Marine Fill Committee (MFC) for agreement, as early as possible. The allocation of sediment disposal space at sea will not be considered until the need for removal of the sediment has first been satisfactorily demonstrated.

7.3.8 To minimize waste generation and off-site disposal, the excavated sediment should be reused on-site as fill materials, as far as practicable subject to detailed design at a later stage. The potential on-site reuse of the sediment as backfilling material during construction may be adopted after treatment of the sediment using cement stabilization/solidification. If sediment cannot be reused on-site or on alternative sites, marine dumping of sediment is required. All

[20] It is assumed that soil only exist at or above 0mPD considering the site is located at a reclaimed land. The extend of excavation below 0mPD is 5,630m^2 for B1/B2. Therefore, the total amount of sediment to be excavate is 5,630 m^2 x 5.8 m = 32,654 m^3. It is assumed that the bottom of the excavation is 1m below the target slab level.

operation and maintenance of the equipment and facilities. Wastes generated will be collected and disposed of on a regular basis. Building management will be arranged by the future owners to manage the development including waste disposal.

7.4.2 The domestic waste will be collected (at the refuse collection point) and regularly disposed of at landfill or regularly collected by recyclers, waste recycling would be carried out during operation phase. To minimize waste generation and promote recycling, it is recommended to implement source separation of domestic waste in the Proposed Development. This should include separate collection for waste paper, metals, plastics, and glass. Provision of 3-color recycle bin is encouraged to facilitate source separation of domestic wastes. Additionally, during the detailed design stage, the possibility of implementing additional separation measures for food waste, i.e. provision of food waste recycling bins, and sending the collected food waste to O · PARK should be explored.

7.4.3 Based on the anticipated population intake for the Proposed Development, which is projected to be 2924 and will be further refined during the detailed design stage, it is estimated that approximately 2719 kg per day (= 2924 persons x 0.93kg/person/day[21]) of general refuse will be generated during the operation phase. With the proper implementation of the control measures, adverse impacts due to waste management will not be anticipated.

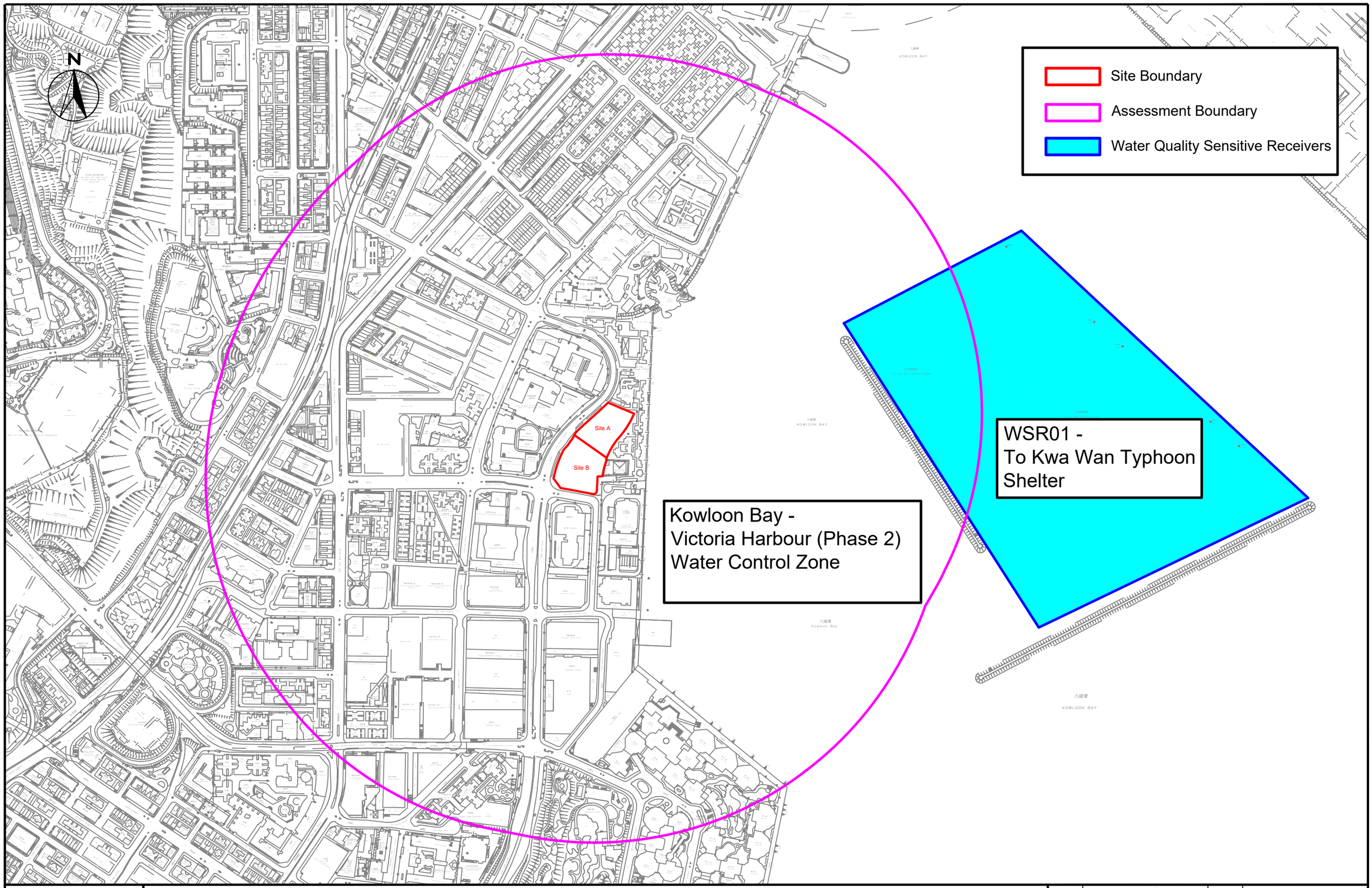
7.5 Hierarchy of Waste Management

7.5.1 Waste management options would be adopted and exercised in accordance with a hierarchy in order to reduce and manage waste. The hierarchy of waste management and relevant recommendations provided for the construction and operation phases of the Proposed Development are summarized in **Table 7-2**.

Table 7-2 Hierarchy of Waste Management

Order of Preference	Waste Management	Construction Phase	Operation Phase
1	Avoidance and Minimization	• The potential quantity of C&D materials, general refuse and chemical waste generated, should be reduced and minimized. • Alternative design, general layout, construction methods and programme would be considered and further studied in the subsequent detailed design stage.	• Promote waste reduction in the community.
2	Reuse	• Inert C&D Material, including construction debris, soil, rock and concrete, should be re-used on-site as filling materials or off-site as public fill at public fill reception facilities.	• Promote the reuse of items within the community, such as unused clothes, books, and other goods, etc..
3	Recovery and Recycling	• Non-inert C&D Material, including metal from the existing structures, wood from formwork, equipment parts, and materials and equipment wrappings, should be re-used or recycled; • General refuse, such as paper, plastics and aluminium materials, should be re-used or recycled. 3-color recycle bins and a	• Implement source separation of domestic waste to facilitate recycling. • Provision of 3-color recycling bins and food waste recycling bins to facilitate waste recycling.

[21] The domestic waste disposal rate of 0.93 kg/person/day is adopted according to the latest Monitoring of Solid Waste in Hong Kong (i.e. waste statistics 2022)



CINOTECH
Cinotech Consultants Limited

Proposed Residential Development in Bailey Street, Kowloon City District

Water Quality Sensitive Receivers

SCALE	1:5000 @ A3	DATE	July 2025
CHECK	CC	DRAWN	LL
JOB No.	IA21009\KCAA110	DRAWING No. 6-1	REV -

Site Walkover Checklist (Questionnaire)

GENERAL SITE DETAILS

Site Owner: Goldway Parking (Bailey Street)

Property Address: N/A

Person Conducting the Questionnaire

Name: N/A

Position: N/A

Authorized Owner/Client Representative (If Applicable)

Name: N/A

Position: N/A

Telephone: N/A

SITE ACTIVITIES

Briefly describe activities carried out on site, including types of products/chemicals/materials handled. Obtain a flow schematic if possible**.**

Car parking services were provided on the Site.

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	N/A
Electricity	Y
Coal	N/A
Oil	N/A
Other	N/A

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: 7,610 m^2

What area of the site is covered by buildings (%): 0%

Please list all current and previous owners/occupiers if possible.

Unknown

Is a site plan (with indication of the site boundary) available? If yes, please attach. ~~Yes~~/No

Are there any other parties on site as tenants or sub-tenants? ~~Yes~~/No

If yes, identify those parties: _____

Describe surrounding land use (residential, industrial, rural, etc.) and identify neighbouring facilities and types of industry.

North: **Playground / Amenity Areas**

South: **Government / Institution / Community**

East: **Other use (To Kwa Wan Pigging Station / Preliminary Treatment Works)**

West: **Government / Institution / Community**

OBSERVATIONS / OTHERS

		Yes/No	Notes
1.	Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?	No	No chemical storage area was identified.
2.	What are the conditions of the bund walls and floors?	N/A	N/A
3.	Are any surface water drains located near to drum storage and unloading areas?	No	N/A
4.	Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	No	N/A
5.	Is there a storage site for the wastes?	No	N/A
6.	Is there an on-site landfill?	No	N/A
7.	Were any stressed vegetation noted on site during the site reconnaissance? (If yes, please indicate location and approximate size.)	No	N/A
8.	Were any stained surfaces noted on-site during the site reconnaissance? (If yes, please provide details.)	No	N/A
9.	Are there any potential off-site sources of contamination?	No	N/A
10.	Does the site have any equipment (e.g. Transformers) which might contain polychlorinated biphenyls (PCBs)?	No	N/A
11.	Are there any sumps, effluent pits, interceptors or lagoons on site?	No	N/A
12.	Any noticeable odours during site walkover?	No	N/A
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	N/A

Appendix E

Extract of the
revised Visual Impact Assessment

2. The Proposed Amendment

2.1. The Proposed Rezoning

2.1.1. The Site is proposed to be rezoned from "G/IC" and "OU(STP)" to "R(A)9" zone. This zone is primarily for high-density residential development, with the lowest four floors or in the purpose-designed non-residential portion of a building for commercial use as stipulated in the proposed Notes of the "R(A)9" zone.

2.1.2. In the proposed Notes of "R(A)9" zone, the overall maximum Gross Floor Area (GFA) is 68,490m^2. A maximum domestic GFA of 60,880m^2 and non-domestic GFA of 7,610m^2 are proposed to allow greater flexibility of an interchange between domestic and non-domestic GFA within the total GFA of 68,490m^2 for future development in response to market needs. A maximum building height of 110mPD is also proposed under the "R(A)9" zone.

2.1.3. To visualize the above planning parameters and urban design considerations, indicative blocking plan and indicative section plans of the Proposed Amendment have been prepared at **Figures 2.1** and **2.2**. As shown in the indicative layouts, the proposed development comprises two residential towers on top of a GIC/commercial/ retail/ clubhouse/ carpark podia of four storeys and ancillary car parking and E&M facilities at basement levels. A harbourfront at-grade communal space of 760m^2 is proposed at the southern portion of the Site to allow visual openness and enhance the connection between inland and waterfront. A 15m separation between the residential towers will be upheld to facilitate visual permeability and wind penetration.

2.1.4. The indicative layouts are intended solely for the purpose of relevant technical assessment in support of the Proposed Amendment, which is for indicative purposes only and subject to change during detailed design stage.

Table 2.1 Indicative Development Parameters of Proposed Amendment

Parameters		Details
Proposed Zoning		"R(A)9"
Gross & Net Site Area		About 7,610 m^2
Proposed GFA^	Overall	About 68,490 m^2
	Domestic	About 60,880 m^2
	Non-Domestic (excluding GIC provision)	About 7,610 m^2
Proposed GIC GFA^ (proposed to be exempted from GFA calculation under OZP)		About 3,100 m^2
No. of Building Block		2
Proposed number of flats @		1,218
Average Flat Size @		about 50 m^2
Maximum Site Coverage (Excluding basement)		85%
Planned Population		(PPF = 2.4)
Harbourfront At-grade Communal Space		760 m^2
Maximum Building Height (mPD)		110 mPD

- The Site covers a total land area of 7,610m^2, and is located at the junction of Bailey Street and Chi Kiang Street in Kowloon City District. It is currently occupied by a fee-paying public carpark for private vehicles, mini-buses and coaches, with low connectivity between inland and the waterfront area.

- To the immediate north of the Site is Hoi Sham Park Extension. To the further north is Chi Yun School (20mPD), Po Leung Kuk Anita L.L. Chan (Centenary) School (26.6mPD) and the TKW Waterfront area.

- To the immediate east and southeast of the Site is the TKW pigging station (about 9.1mPD) and the TKW preliminary treatment works plants (from 6.6mPD to 15.8mPD). To the further east is the waterbody of TKW Typhoon Shelter.

- To the south and southwest across Bailey Street are APB Centre (Architectural Service Department's office) (45.4mPD) and the Kowloon City Government Offices (47.9mPD). To the further south is Hung Hom Business Area, a local centre for industrial and office buildings including Peninsula Square, Guardforce Centre, Fu Hang Industrial Building, Hang Fung Industrial Building, Focal Industrial Centre, Heng Ngai Jewellery Centre, Harbour Centre, Gemstar Tower, Kaiser Estate with building heights ranging from 50mPD to 97.9mPD.

- To the west across Chi Kiang Street are Po Leung Kuk Ngan Po Ling College and The Church of Christ In China Kei To Secondary School at 32.4mPD and 22.4mPD respectively. To the further west are Bailey Garden at 88.4mPD, the Upper East at 100mPD and planned developments of KCAA1 core area with building heights of 100mPD and 140mPD.

3.3.2. Open spaces, including parks, sitting-out area, promenade, recreation ground and areas for passive recreation activities have been identified within the Assessment Area. The most sizable open spaces in the VE are Hoi Sham Park, Ko Shan Road Park, Laguna Verde Promenade, Hutchison Park and Fat Kwong Street Playground and Garden.

3.3.3. Overall, the Site is situated at the waterfront area and surrounded by open spaces and medium to high-rise industrial and residential buildings. The heights of building blocks are increasing progressively from the waterfront to the inland and foothill area. The Proposed Scheme with BH of 110mPD may weaken the ascending stepped BH profile at the immediate adjoining waterfront area, but is generally not incompatible with the surrounding built environment in Hung Hom area.

3.4. Visual Quality of Proposed Scheme

3.4.1. To create a quality harbourfront, the Proposed Scheme adopted significant changes on layout, disposition and built form as compared to the Baseline Scheme. Under the notional design of the Proposed Amendment, the proposed development comprises of two residential towers on top of a GIC/ retail/ commercial/ clubhouse/carpark podium. The 15m tower separation between the proposed

Table 5.2 Appraisal of Visual Impacts of Selected VPs

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
VP1: Ho Man Tin High Level Fresh Water Service Reservoir	About 675m to the west of the Site	Recreation	**Compatible** – As shown in **Figure 4.1**, the visual composition of this VP is characterized by the vegetation in the foreground, existing buildings in To Kwa Wan in the mid-ground, and Kowloon East development, small part of To Kwa Wan Typhoon Shelter, top of Mount Parker and an open sky view in the background. While the entire proposed school development under Baseline Scheme would be screened off by the KCAA1 core development, a tiny part of the proposed development under the Proposed Amendment will be visible between the gaps of two KCAA1 buildings from this VP.	**Negligible** – Since the KCAA1 core development will block the entire view to To Kwa Wan Typhoon Shelter, the Baseline Scheme would not lead to any further visual obstruction and the visual permeability remain generally intact. A tiny portion of the proposed scheme will not be screened off by the KCAA1 core development and create negligible visual blockage to the Kowloon East development. Nonetheless, the visual permeability to the To Kwa Wan cityscape, Kowloon East development, Mount Parker and open sky view remain generally unchanged.	**Negligible** – Compared to the Baseline Scheme, the proposed development will induce negligible visual changes to the existing visual elements as the majority part of the development will be screened by existing and planned developments in the foreground. There will be no significant visual change to the existing resources including the open sky view as compared with the Baseline Scheme.	**Negligible** – This VP is situated at a significant distance from the proposed development, at an elevated level. Given only a tiny portion of the proposed development under the Proposed Amendment and this VP has a low level of visitors, the visual impact to the public viewers will be negligible.	**Negligible**
VP2: Bailey Street and Sung On Street	120m to the southwest of the Site	Traveller	**Compatible** – As shown in **Figure 4.2**, the existing visual composition of this VP comprises of road traffic on Bailey Street, Po Leung Kuk	**Slightly Adverse to Moderate** – Although the Proposed Amendment will obstruct portion of the open sky view as well as	**Fair** – Oblique view towards the southwestern corner of the Site reveals a current landscape	**Slightly to Moderately Adverse** – Given the close proximity to the proposed development and reduced depth of	**Slightly to Moderately Adverse**

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
			College, with electricity substation in the rightmost of the foreground and trees in the leftmost of the foreground and background. Compared with the Baseline Scheme, the Proposed Amendment will inevitably form a larger building mass. Nevertheless, responsive design measures including tower separation are proposed in the Proposed Amendment to break down the building bulk.	sufficient building separation, the degree of visual obstruction to the open sky view is reduced and will not cause a significant wall effect. Additionally, a low level of pedestrian activity is observed along this segment of the Sung On Street.	Compare to the Baseline Scheme, the Proposed Amendment will incorporate responsive design measures including tower separation to allow the visual permeability.	segment on Sung On Street are transient in nature and the high level of pedestrian activity is not anticipated.	
VP4: Hoi Sham Pavilion	185m northeast of the Site	Recreation	**Moderately Adverse** - The visual composition of the viewing point is characterized by the cityscape of Hung Hom, including an open sky view and the existing buildings in Hung Hom in the background, the Proposed Amendment in the middle ground, and the Hoi Sham Park Extension and To Kwa Wan Typhoon Shelter serving as the foreground. The proposed development will be dominant in the view at	**Moderately Adverse** – When comparing the Proposed Amendment from the Baseline Scheme, the increase in building height will result in a considerable visual obstruction to the existing sky view. While the depth of view and visual permeability will be largely reduced, a majority of the open sky view will be retained. Therefore, the level of change in the	**Moderately Adverse** – The proposed residential tower under the Proposed Amendment will inevitably obstruct the open sky view to the VP. Compare to the Baseline Scheme, the Proposed Amendment will incorporate responsive design measures including building disposition and additional mitigation	**Moderately Adverse** – Given the close proximity to the proposed development, the change in view to open sky view and the overall visual change by the Proposed Amendment will be inevitable. However, noting that the visitors at the Hoi Sham Pavilion mainly focus on the harbourview and cityscape of Kai Tak and Kowloon Bay with	**Moderately Adverse**

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
			this VP. Nonetheless, responsive building disposition is proposed to minimise the building bulk to alleviate the visual impact.	overall visual character is considered acceptable. It is noted that a majority of the visitors at the Hoi Sham Pavilion mainly focus on the harbourview of the Victoria Harbour rather than facing backward to the cityscape of Hung Hom.	measures such as landscaping treatments on lower floors, stepped height podium to soften the building bulk to alleviate the visual impact.	occasional view facing towards the Scheme area and the To Kwa Wan waterfront, the effects on VSRs are considered moderate.	
VP5: Laguna Verde Promenade	200m to the southeast of the Site	Traveller	**Compatible** - As shown in **Figure 4.5**, the visual composition of this VP is characterized by the open sky view and mountain backdrop at the background, the existing industrial and residential developments along To Kwa Wan Waterfront in the middle ground, To Kwa Wan Typhoon Shelter in the rightmost of the foreground and Laguna Verde in the leftmost of the foreground.	**Slightly Adverse** – While portion of the proposed school development under the Baseline Scheme would block the existing developments in the background, the proposed residential development under the Proposed Scheme would block a portion of the open sky view, mountain backdrop and the existing developments in the background.	**Slightly Adverse** – The proposed school development and residential towers will be visible under both Baseline Scheme and Proposed Amendment. The Proposed Amendment would block some sky view, mountain backdrop and the inner area of To Kwa Wan. If compared with the Baseline Scheme, slight visual change will be brought by the proposed development.	**Slightly Adverse** – The change in view to open sky and mountain backdrop and the overall visual change by the Proposed Amendment will be slightly changed with reduced depth of view. However, it is anticipated that the visitors at the Laguna Verde Promenade mainly focus on the cityscape of Kai Tak and Kowloon Bay with rare view facing towards the proposed development, the effects on VSRs are	**Slightly to Moderately Adverse**

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
						considered slightly adverse.	
VP6: Hung Hom Road and Fat Kwong Street Flyover	450m to the south of the Site	Traveller	**Compatible** - As shown in **Figure 4.6**, the visual composition of this VP comprises of open sky view in the background, Hung Hom Business Area in the middle ground and Hung Hom Road and refuse collection point in the foreground. The residential tower of the Proposed Amendment is largely screened off by the Hung Hom Business Area with a glimpse view of the upper floors of the proposed tower block.	**Negligible to Slightly Adverse** – The Baseline Scheme will be completely concealed by the existing developments. Although a small portion of open sky view will be obstructed, the proposed residential tower will visually align with the building profile of Hung Hom Business Area. Since the Proposed Amendment will be largely screened off by the existing commercial and industrial buildings in the foreground, the visual obstruction to the sky will be minimal.	**Negligible to Slightly Adverse** – The key visual resources from this VP are existing built-up areas and the sky view. Despite the proposed development will occupy a small portion of sky view, the residential towers under the Proposed Amendment will blend in well with the existing visual resources from this VP. The change in visual context induced by the proposed development from this VP is considered to be negligible to slight.	**Negligible** – Given the majority of the proposed development will be screened off by the existing buildings in the Hung Hom Business Area, the effect to VSRs is considered to be minimal.	**Negligible to Slightly Adverse**
VP7: Fat Kwong Street Playground	About 710m to the southwest of the Site	Recreation	**Unchanged** - As shown in **Figure 4.7**, the visual composition of this VP is characterized by the football pitch and landscape at the Fat Kwong Street Playground in the foreground, the existing high-rise residential developments in Hung Hom in	**Negligible** – While the proposed school development under the baseline scheme will be completely shielded by the existing residential developments, a very tiny portion of the proposed development would be	**No Negative Effect** – The proposed development will occupy a very tiny portion of the open sky view. There will be no significant visual changes to the existing visual resources including the open sky view in the	**Negligible** – Only a very tiny portion of the proposed development would be visible from this VP. There is no negative effect on VSRs.	**Negligible**

Location of VPs	Distance and Direction between the VPs and the Scheme	VSR Type	Visual Composition	Visual Obstruction and Visual Permeability	Effect on Visual Elements and Resources	Effect on VSRs	Resultant Overall Visual Impact
			the middle ground and the open sky view in the background.	visible from this VP. Given that the proposed development under Proposed Amendment will be largely shielded by the existing high-rise residential developments in Hung Hom, the visual obstruction to the sky is considered minimal.	Baseline Scheme and Proposed Amendment.		
VP8: Hong Kong Convention & Exhibition Centre (Strategic Viewing Point 5)	3.6km to the southwest of the Site	Traveller	**Unchanged** - As shown in **Figure 4.8**, the visual composition of this VP is characterized by the Victoria Harbour in the foreground, medium to high-rise development along the waterfront of Hung Hom in the middle ground, and open sky view and ridgeline from Tsz Wan Shan to Kowloon Peak in the background.	**No Blockage to View** – The proposed development under both Baseline Scheme and Proposed Amendment will be concealed by the existing built-up area in Hung Hom from this VP. No visual obstruction to the open sky or the ridgeline is observed.	**No Negative Effect** – The key visual resources from this VP include the Victoria Harbour, the ridgeline from Tsz Wan Shan to Kowloon Peak, open sky view and the built-up area of Hung Hom. The Proposed Amendment will be screened off by the existing buildings in Hung Hom and will not generate any change to all visual resources.	**Unchanged** – The Proposed Amendment will not be visible at from this VP, there will be no effect on VSRs.	**Negligible**

6. Evaluation of Overall Visual Impact

6.1.1. This VIA is prepared to assess the visual impacts on VSRs from major public VPs due to the proposed development at the Site. **Table 6.1** below summarizes the visual sensitivity and overall visual impact of the selected VPs.

Table 6.1 Summary of Visual Impact

Viewing Points	Visual Sensitivity	Resultant Overall Visual Impact
VP1: Ho Man Tin High Level Fresh Water Service Reservoir	Medium to High	Negligible
VP2: Bailey Street / Sung On Street	Medium	Slightly to Moderately Adverse
VP3: Footpath along Sung On Street	Medium	Moderately Adverse
VP4: Hoi Sham Pavilion	High	Moderately Adverse
VP5: Laguna Verde Promenade	High	Slightly to Moderately Adverse
VP6: Fat Kwong Street Flyover / Hung Hom Road	Low	Negligible to Slightly Adverse
VP7: Fat Kwong Street Playground	Low	Negligible
VP8: Hong Kong Convention & Exhibition Centre	Low	Negligible

6.1.2. At local and strategic level, the proposed development has **negligible** to **moderately adverse** visual impacts on surrounding public viewers and visual resources when compared with Baseline Scheme. Nonetheless, the proposed development aligns with the planned building height of the nearby residential area in the long term, as stipulated in the OZP. It is anticipated that future developments surrounding the Application Site will adhere to the stipulated building height restriction, thus the long-term visual impact of the proposed development would gradually diminish over time.

6.1.3. Mitigation measures have also been proposed into the design to address the anticipated visual impacts of the proposed development. A 15m wide building separation and harbourfront at-grade communal space are proposed to promote visual permeability between the inland and waterfront. Landscape treatments at stepped height podium are purposely designed on the building façade facing Hoi Shum Park Extension to act as visual coherence and create visual interest at the pedestrian level. These measures will create visual interest and enhance the current monotonous waterfront interface, which will then optimize the overall visual quality.

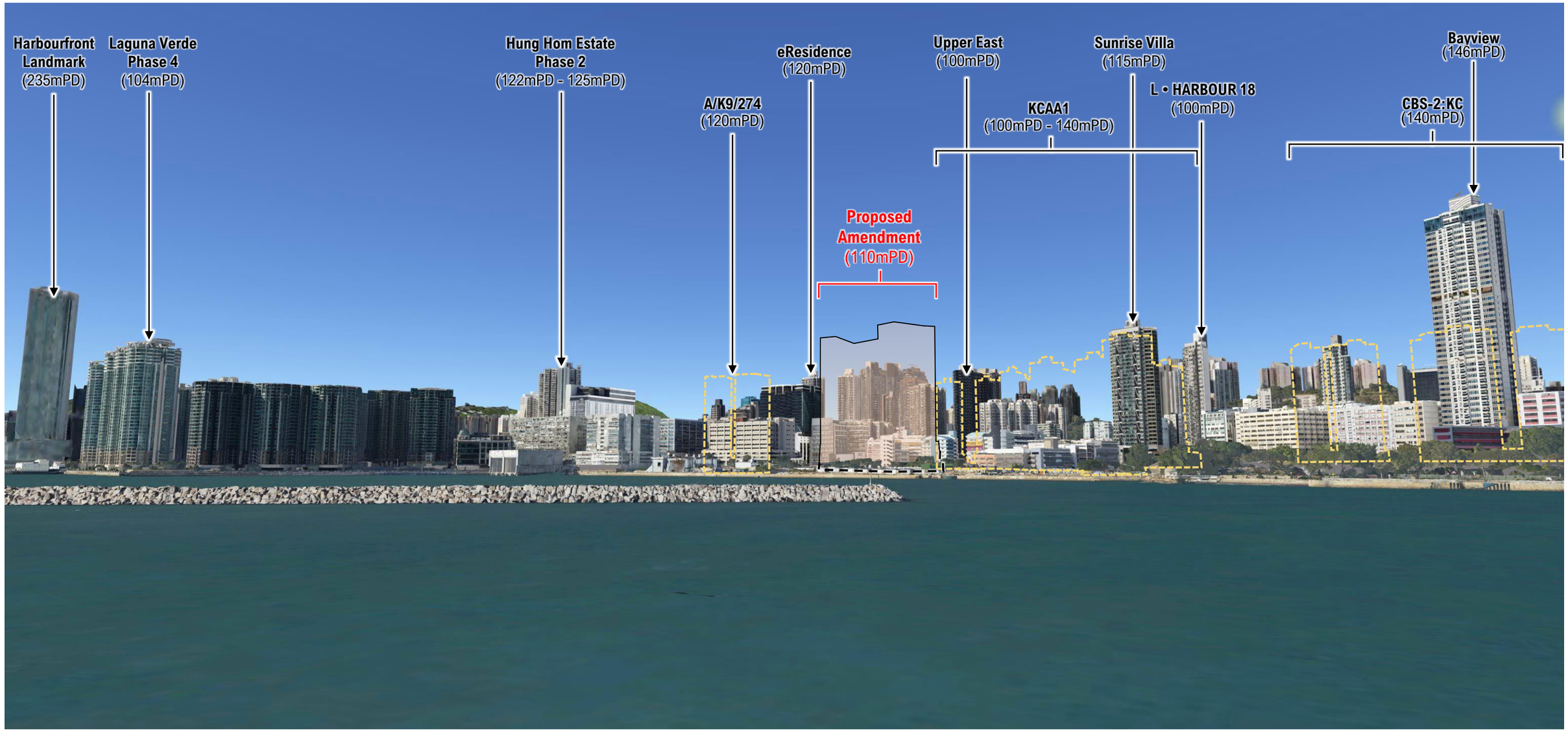
6.1.4. The Proposed Scheme with BH of 110mPD may weaken the ascending stepped BH profile at the immediate adjoining waterfront area, but is generally not incompatible with the surrounding built environment in Hung Hom area (**Figure 4.9** refers). With the incorporation of these mitigation measures and consideration of the long-term development of the Hung Hom and To Kwa Wan area, the overall visual impact of the proposed development is considered acceptable.

Key Plan



LEGEND

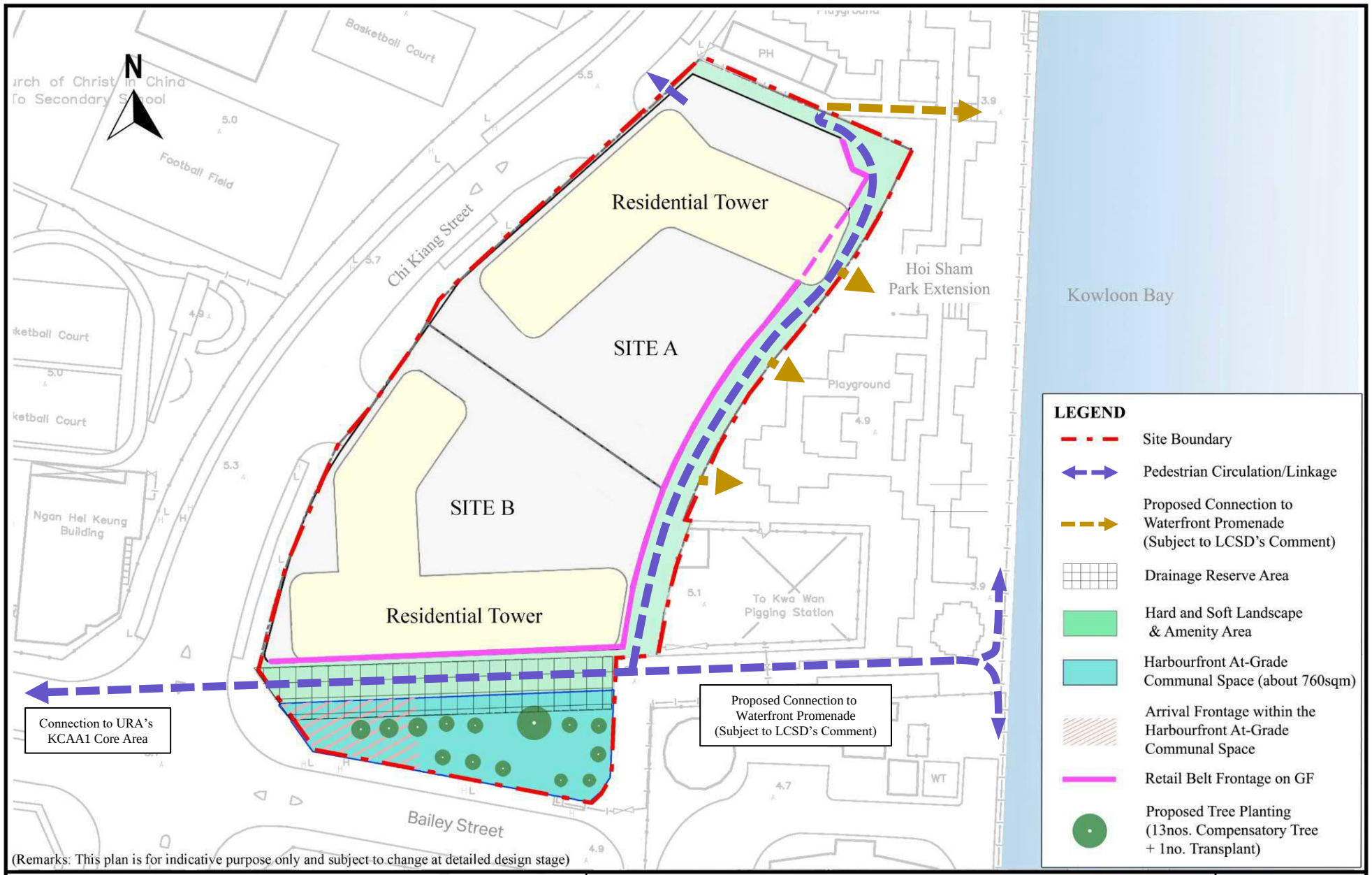
- Visible part of the Proposed Amendment
- Proposed Amendment hidden from view
- Planned development



市區重建局 URBAN RENEWAL AUTHORITY	URA Bailey Street / Chi Kiang Street Project Visual Impact Assessment	Figure 4.9	Waterfront Building Height Profile	June 2025

Appendix F

Revised Landscape Design Concept Plan



(Remarks: This plan is for indicative purpose only and subject to change at detailed design stage)

URA Bailey Street/ Chi Kiang Street Project	Landscape Design Concept Plan	Not drawn to scale
		June 2025

Appendix G

Extract of the revised Air Ventilation Assessment – Expert Evaluation

development parameters and phasing boundary for Site A and B are intended solely for use of relevant technical assessments in support of the Proposed Rezoning, which is for indicative purposes only and subject to change at detailed design stage.

Table 4-2 Design Parameters of the Notional Design

	Overall	Site A [3]	Site B [3]
Zoning	"R(A)9"	"R(A)9"	"R(A)9"
Site Area (Subject to survey)	About 7,610 m^2	About 3,417 m^2	About 4,193 m^2
Domestic GFA	About 60,880 m^2	About 27,336 m^2	About 33,544 m^2
Commercial GFA	About 7,610 m^2	About 2,045 m^2	About 5,565 m^2
GIC GFA (to be exempted from GFA calculation)	About 3,100 m^2	About 3,100 m^2	N/A
No. of building blocks [1]	2	1	1
Building Height	110 mPD	110 mPD	110 mPD
No. of Flats [1]	1,218	547	671
Average Flat Size [1]	About 50 m^2	About 50 m^2	About 50 m^2
Harbourfront At-Grade Communal Space	About 760 m^2	N/A	About 760 m^2
Car Parking Spaces [2]	Private Car: 343 Coach: 15	Private Car: 143 Coach: 15	Private Car: 200 Coach: 0
Tentative Project Completion Year	2032	2032	2032

Note
[1] Number of building blocks, number of flats and average flat size are indicative only and subject to detailed design.
[2] Subject to liaison with Transport Department.
[3] The development parameters of Site A and Site B are for technical assessment and indicative purposes only, subject to change in detailed design.

Good Design Features

4.4.4 Based on the experience from the Baseline Scheme (The Testing Scheme), it has been identified that the block disposition and key good design features should be retained. With this in mind, the Proposed Scheme generally resembles the Baseline Scheme, including these key features.

4.4.5 Compared to the Baseline Scheme, the height of the residential towers of the Proposed Scheme has increased from 100 mPD to 110 mPD, and the height of the podium has risen from 21.55 mPD to 26.55 mPD. As taller building blocks may induce potential air ventilation impacts, the good design features have been adjusted accordingly:

- The podium is set back a minimum of 10 m from the southern boundary, which remains unchanged in the Proposed Scheme to maintain the crucial air pathway in the east-west direction.
- The 15 m building separation for the residential towers has been retained. In the Proposed Scheme, this separation starts from 1/F and above (beginning at 11.55 mPD), instead of at 21.55 mPD as in the Baseline Scheme, aligning with the building separation for the residential towers.

4.4.6 A summary of the Baseline and Proposed Schemes is provided in **Table 4-3** and illustrated in **Figure 4-4**.

Table 4-3 Summary of the Baseline Scheme and Proposed Scheme

	Baseline Scheme (The Testing Scheme)	**Proposed Scheme (The Notional Scheme)**
Development Type	Composite Development	Composite Development
Building Height	• Residential Towers atop podium: maximum building height at 100mPD (Podium: 21.55mPD)	• Residential Towers atop separate podium: maximum building height at 110mPD (Podium: 26.55mPD)
Air Ventilation Consideration	• Setback from the south boundary to maintain the important air pathway running in a E-W direction.	• Setback from the south boundary to maintain the important air pathway running in a E-W direction.
	• A 15m wide building separation between the residential towers starting from 21.55 mPD	• A 15m wide building separation between the residential towers starting from 11.55 mPD

Remarks:
* Proposed Scheme is subject to changes at detailed design stage.

5 WIND ENVIRONMENT WITH THE PROPOSED DEVELOPMENT

5.1 Wind Environment under the Proposed Scheme

5.1.1 The differences between the Baseline Scheme and Proposed Scheme are illustrated in **Figure 4-4** and listed in **Table 4-3**. The major prevailing wind directions from **Table 3-1** & **Table 3-2** are summarised in **Table 5-1**.

Table 5-1 Summary for Adopted Major Prevailing Wind at 200m Elevation

Wind Direction	Occurrence Probability at 200m elevation	Occurrence Probability at 200m elevation
	Annual	Summer
E	29.1%	11.8%
ENE	11.7%	
ESE	10.0%	
SW		15.7%
SSW		12.7%

5.1.2 It should be noted that the areas adjoining the east and northeast of the Site are currently open spaces (Hoi Sham Park and its extension), while the west of the Site is densely populated with schools and residential developments. Therefore, flow penetration under the most frequently prevailing wind direction (easterly wind) is of utmost importance.

5.1.3 As listed in **Table 4-3**, the existing air pathway in the southern portion of Site B has been maintained under both the Baseline Scheme and the Proposed Scheme. Consequently, the focus of the study has been identified as the effectiveness of the enhanced good design features (the building separation between the residential towers and the new NW-SE air pathway at 1/F and above) in mitigating potential adverse effects caused by taller structures under the major prevailing wind.

5.1.4 The general wind environment in the vicinity of the Site under both the Baseline Scheme and Proposed Scheme will be illustrated, and the effectiveness of the proposed features under the major prevailing wind directions will be discussed in the following sections. Additional mitigation measures will be proposed as necessary.

5.2 Directly Analysis

Easterly Winds (E Winds)

5.2.1 The E Winds are the predominant wind direction throughout the year and the third most common direction during summer for the Site. The air pathways for these winds are illustrated in **Figure 5-1a**.

5.2.2 In the Baseline Scheme, the easterly wind can penetrate Site B through the Harbourfront At-Grade Communal Space. Additionally, it can reach and penetrate the core area of the Site above the podium level (21.55 mPD).

5.2.3 In the Proposed Scheme, the elevation of the podium has increased from 21.55 mPD to 26.55 mPD (with ground level at 5.7 mPD), and the elevation of the residential towers has increased from 100 mPD to 110 mPD.

5.2.4 Although the building separation between the residential towers has been lowered to 11.55 mPD, the region below 26.55 mPD (the podium level) is not aligned with the easterly wind

and is therefore not considered an effective air pathway under easterly winds. Consequently, the low elevation flow reaching the core area of the Site is now limited to above 26.55 mPD, meaning less low elevation flow can penetrate the core area in compare with the Baseline Scheme.

5.2.5 The increase in height from 100 mPD to 110 mPD for the residential towers of the proposed development is not expected to cause any significant impact, which will be explained in **Section 5.3**.

5.2.6 Given the reduction in low elevation flow penetration, the air ventilation performance in the Proposed Scheme is expected to be worse than that of the Baseline Scheme due to the higher podium.

East-Northeasterly Winds (ENE Winds)

5.2.7 The ENE winds are the second most common wind direction throughout the year for the Site. The air pathways for these winds are illustrated in **Figure 5-1b**.

5.2.8 In both Schemes, airflow at low elevation can only penetrate the Site through the Harbourfront At-Grade Communal Space, while the residential towers completely block penetration in the core region of the Site. The increased podium height is not expected to have any impact, and the increase in the towers' height from 100 mPD to 110 mPD is also not anticipated to cause a notable effect.

5.2.9 Therefore, the air ventilation performance of the Proposed Scheme is expected to be similar to that of the Baseline Scheme under ENE winds.

East-Southeasterly Winds (ESE Winds)

5.2.10 The ESE winds are the third most common wind direction throughout the year for the Site. The air pathways for these winds are illustrated in **Figure 5-1c**.

5.2.11 In the Baseline Scheme, the prevailing wind can penetrate Site B through the Harbourfront At-Grade Communal Space. Additionally, it can reach and penetrate the core area of the Site above the podium level (21.55 mPD).

5.2.12 In the Proposed Scheme, unlike in the case of easterly winds (E), the 15 m building separation between the residential towers is now aligned with the prevailing wind direction. As a result, the low elevation flow can penetrate the core area of the Site at 11.55 mPD, compared to above 21.55 mPD in the Baseline Scheme. This alignment allows for more low elevation flow to access the core area. Additionally, the effective air pathway is only one storey above the ground level of the surrounding pedestrian walkways, meaning this penetrated flow is much closer to pedestrian level.

5.2.13 On the other hand, similar to the case of easterly winds (E), since the nearby existing and planned developments are all at a height of 100 mPD or below (see **Appendix 2**-1), the increase in height from 100 mPD to 110 mPD for the residential towers of the proposed development is not expected to cause any significant impact.

5.2.14 Given the higher low elevation site penetration, the air ventilation performance in the Proposed Scheme is expected to be better than that of the Baseline Scheme due to the lower effective air pathway.

South-Westerly Winds (SW Winds)

5.2.15 The SW winds are the most common wind direction during summer at the Site. The air pathways for these winds are illustrated in **Figure 5-1d**.

5.2.16 In both Schemes, airflow at low elevation cannot penetrate the Site, and thus the increased podium height is not expected to have any impact. The increase in the towers' height from 100 mPD to 110 mPD is also not anticipated to cause a notable effect.

5.2.17 Therefore, the air ventilation performance of the Proposed Scheme is expected to be similar to that of the Baseline Scheme under SW winds.

South-Southwesterly Winds (SSW Winds)

5.2.18 The SSW winds are the second most common wind direction during summer for the Site. The air pathways for these winds are illustrated in **Figure 5-1e**.

5.2.19 Similar to the case of SW winds, airflow at low elevation cannot penetrate the Site. The increased podium height is not expected to have any impact, and the increase in the towers' height from 100 mPD to 110 mPD is also not anticipated to cause a notable effect.

5.2.20 Therefore, the air ventilation performance of the Proposed Scheme is expected to be similar to that of the Baseline Scheme under SSW winds.

5.3 Summary of Site Penetration and Further Elaboration

5.3.1 As stated in **Section 4.4**, the key changes of the Proposed Scheme compared to the Baseline Scheme with a podium level raised by 5 m (from 21.55mPD to 26.55mPD), residential towers raised by 10 m (from 100mPD to 110mPD), and the height of 15 m building separation between the residential towers has been lowered by 10 m (from 21.55mPD to 11.55mPD).

5.3.2 The effect of the increased height from 100 mPD to 110 mPD for the residential towers is not expected to be significant. From a macroscopic point of view, two residential towers with an increased height of 10 m are not anticipated to have any significant effect on far downstream areas. From a microscopic perspective, all nearby existing and planned developments within 220 m (2H) from the Site boundary are at a height of 100 mPD or below. Therefore, there is a lack of receivers that could be directly affected by the taller structures or generate downwash flow at the worst elevation (100 mPD to 110 mPD) in the nearby downstream pedestrian area.

5.3.3 Since the height of the residential towers is not significant to the air ventilation performance in the nearby downstream pedestrian area, the focus will be on the potential benefits of lower building separation versus the potential impacts caused by the higher podium.

5.3.4 Due to the higher podium and lower building separation, site penetration at low elevation is expected to be reduced under E winds, improved under ESE winds, and remain unchanged for the other prevalent wind directions (i.e., ENE, SW, and SSW winds). The expected air ventilation performance under the Proposed Scheme, compared to the Baseline Scheme, is summarized in **Table 5-2**.

Table 5-2 Expected Air Ventilation Performance under Proposed Scheme in Compare with Baseline Scheme

Wind Direction	Air Ventilation Performance under Proposed Scheme in compare with Baseline Scheme	Reason
E	Reduced	Higher podium (from ~16 mAG to 21 mAG) blocks the flow.
ENE	Similar	There is no flow penetration at the core region of the proposed development in both Schemes.
ESE	Improved	Aligned building separation (air pathway) start from lower elevation (from ~16 mAG to 6 mAG) allow more flow penetration.
SW	Similar	There is no flow penetration at the core region of the proposed development in both Schemes.
SSW	Similar	There is no flow penetration at the core region of the proposed development in both Schemes.

Note: ground level at 5.7 mPD

5.3.5 The potential impact of the higher podium is observed under E winds. In this wind direction, the elevation of the effective air pathway at the core of the Site is raised by 5 m. This reduction in mid-air airflow penetration will, in turn, decrease the downstream downwash flow that contributes to pedestrian flow.

5.3.6 The potential benefit of the lower building separation is observed under ESE winds. In this wind direction, the effective air pathway at the core of the Site is lowered by 10 m. Additionally, the building separation starts from approximately 6 mAG in the Proposed Scheme, allowing increased airflow penetration that can directly improve pedestrian flow instead of relying on downwash flow from nearby building façades.

5.3.7 By comparing the changes in elevation of the effective air pathway at the core region of the Site, it can be determined that the benefits under ESE winds outweigh the potential adverse impacts under E winds.

5.3.8 Although the occurrence of E winds is greater than that of ESE winds, the potential benefits of ESE winds outweigh the potential impacts of E winds. Therefore, the overall air ventilation performance offered by the Proposed Scheme is expected to be similar to that of the Baseline Scheme.

5.3.9 Since the Baseline Scheme (the Testing Scheme) demonstrated generally better air ventilation performance compared to an OZP Compliant Scheme in the initial AVA study, the Proposed Scheme (the Notional Scheme) is also expected to exhibit significantly improved air ventilation performance relative to an OZP Compliant Scheme, given its similar air ventilation features.

5.4 Further Recommendation

5.4.1 Considering that the Sites are in proximity to the waterfront, enhancing airflow from the sea to penetrate the Site at podium level should also benefit the downstream region, specifically the hinterland including KCAA1 Core area.

6 CONCLUSION

6.1.1 An Air Ventilation Assessment Expert Evaluation (AVA-EE) has been conducted for the current notional design of the Proposed Development.

6.1.2 The proposed design features include a setback from the southern boundary, a 15 m building separation between the residential towers, and a 15 m NW-SE air pathway at the podium, aligning with the building separation for the residential towers.

6.1.3 The air ventilation performance of the current Notional Scheme is expected to be on par with the previous Testing Scheme, which has been shown to be generally better than that of an OZP Compliant Scheme in terms of the overall air ventilation performance. Therefore, the current Notional Scheme is not expected to create significant adverse air ventilation impacts compared to the OZP Compliant Scheme.

6.1.4 Given that the Proposed Development is in proximity to the waterfront, a podium garden with a terraced podium design is recommended to enhance air ventilation performance.

6.1.5 In conclusion, no adverse air ventilation impact is anticipated for the current notional design compared to the OZP Compliant design.

Provision of Major Community Facilities and Open Space in Kowloon City DC District

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	HKPSG Requirement (based on planned population)	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Planned Provision (including Existing Provision)	
District Open Space	10 ha per 100,000 persons[#]	51.72 ha	69.05 ha	104.29 ha	52.57 ha
Local Open Space	10 ha per 100,000 persons[#]	51.72 ha	43.33 ha	52.33 ha	0.61 ha
Secondary School	1 whole-day classroom for 40 persons aged 12-17[#] (assessed by EDB on a territorial-wide basis)	360 classrooms	1,053 classrooms	1,083 classrooms	723 classrooms
Primary School	1 whole-day classroom for 25.5 persons aged 6-11[#] (assessed by EDB on a district/school network basis)	573 classrooms	1,080 classrooms	1,194 classrooms	621 classrooms
Kindergarten/ Nursery	34 classrooms for 1,000 children aged 3 to under 6[#]	200 classrooms	564 classrooms	582 classrooms	382 classrooms
District Police Station	1 per 200,000 to 500,000 persons (assessed on a regional basis)	1	1	1	0
Divisional Police Station	1 per 100,000 to 200,000 persons (assessed on a regional basis)	2	3	3	1
Hospital	5.5 beds per 1,000 persons[^] (assessed by Hospital Authority on a	3,038 beds	3,734 beds	6,252 beds	3,214 beds

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	HKPSG Requirement (based on planned population)	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Planned Provision (including Existing Provision)	
	regional/cluster basis)				
Clinic/Health Centre	1 per 100,000 persons	5	7	8	3
Magistracy (with 8 courtrooms)	1 per 660,000 persons (assessed on a regional basis)	0	1	1	1
Child Care Centre	100 aided places per 25,000 persons#@	2,068 places	588 places	1,288 places	-780 places
Integrated Children and Youth Services Centre	1 for 12,000 persons aged 6-24#	4	6	6	2
Integrated Family Services Centre	1 for 100,000 to 150,000 persons# (assessed by SWD on a service boundary basis)	3	4	5	2
District Elderly Community Centres	One in each new development area with a population of around 170,000 or above# (assessed by SWD)	N.A.	3	3	N.A.
Neighbourhood Elderly Centres	One in a cluster of new and redeveloped housing areas with a population of 15,000 to 20,000 persons, including both public and private housing# (assessed by SWD)	N.A.	9	15	N.A.
Community Care Services (CCS) Facilities	17.2 subsidised places per 1,000 elderly persons aged 65 or above#*@	2,742 Places	867 places	1,787 places	-955 places

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	HKPSG Requirement (based on planned population)	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Planned Provision (including Existing Provision)	
Residential Care Homes for the Elderly	21.3 subsidised beds per 1,000 elderly persons aged 65 or above[#@] (assessed by SWD on a cluster basis)	3,396 beds	2,517 beds	3,847 beds	451 beds
Pre-school Rehabilitation Services	23 subvented places per 1,000 children aged 0 – 6[#]	318 places	120 places	1,035 places	717 places
Day Rehabilitation Services	23 subvented places per 10,000 persons aged 15 or above[#]	988 places	802 places	1,272 places	284 places
Residential Care Services	36 subvented places per 10,000 persons aged 15 or above[#] (assessed by SWD on a cluster basis)	1,546 places	524 places	1,534 places	-12 places
Community Rehabilitation Day Centre	1 centre per 420,000 persons[#]	1	0	0	-1
District Support Centre for Persons with Disabilities	1 centre per 280,000 persons[#]	1	1	3	2
Integrated Community Centre for Mental Wellness	1 standard scale centre per 310,000 persons[#]	1	1	1	0
Library	1 district library for every 200,000 persons[π]	2	4	5	3
Sports Centre	1 per 50,000 to 65,000 persons[#]	7	5	7	0
Sports Ground/	1 per 200,000 to	2	2	3	1

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	HKPSG Requirement (based on planned population)	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Planned Provision (including Existing Provision)	
Sport Complex	250,000 persons#				
Swimming Pool Complex – standard	1 complex per 287,000 persons#	1	2	2	1

Note:

Facilities and open space figures of all OZPs (K7, K9, K10, K18 & K22) within Kowloon City DC district are included.

The planned resident population in Kowloon City DC district is about 517,200. If including transients, the overall planned population is about 552,400. All population figures have been adjusted to the nearest hundred.

\# The requirements exclude planned population of transients.

^ The provision of hospital beds is to be assessed by the Hospital Authority on a regional basis.

* Consisting of 40% centre-based CCS and 60% home-based CCS.

@ This is a long-term goal and the actual provision would be subject to the consideration of the Social Welfare Department in the planning and development process as appropriate.

π Small libraries are counted towards meeting the HKPSG requirement.

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